

Cassadaga Wind Project
Directionally Drilled Installations
Inadvertent Return Plan

Towns of Charlotte, Cherry Creek, Arkwright
and Stockton, **Chautauqua County**
New York

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Contact Information

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New York State Department of Environmental Conservation (Permits)

NYSDEC Region 9
270 Michigan Ave.
Buffalo, NY 14203-2915
(716) 851-7165

New York State Department of Environmental Conservation (Spills)

NYS Spill Hotline: 1-800-457-7362

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HDD Inadvertent Return Control Plan

NOTE: Before any drilling operations begin, all applicable erosion and sedimentation controls included in the Stormwater Pollution Prevention Plan (SWPPP) will be properly installed per the included drawings and specifications and inspected by the Environmental Inspector. The SWPPP, state and federal permit(s), landowner restriction list, and any other applicable documents must be carefully reviewed before any disturbance occurs. Please note that no increase in downstream turbidity or sedimentation is permitted, and that any water accumulated in the isolated work areas is to be managed in such a manner that prevents a visible contrast in any stream below the work area.

Horizontal directional drilling is a pipeline installation method typically used to avoid disturbance of sensitive surface features, including water bodies and wetlands. There is however, the potential for surface disturbance through an inadvertent drilling fluid release. Drilling fluid releases are typically caused by pressurization of the drill hole beyond the containment capability of the overburden soil matrix, which allows the drilling fluid to flow to the ground surface. Releases can also be caused by fractures in bedrock or other voids in the geologic strata that allow the fluid to surface even if down hole pressures are low.

The directional drilling process uses drilling fluid to remove the cuttings from the borehole, stabilize the borehole, and act as a coolant and lubricant during the drilling process. The fluid consists primarily of water and bentonite (naturally occurring clay, active clays, inert solids and sand). Drilling fluid is not a hazardous material as it is composed of benign components; however, an inadvertent release will require mitigation measures to reduce the potential for impacting a water body or sensitive area.

The areas that present the most potential for drilling fluid seepage are the drill entry and exit points where the overburden depth is minimal. At the entry and exit points, a pit will be constructed to collect and provide temporary storage for the drilling fluid seepage until it can be removed. These pits will be lined with geotextile and sized adequately to accommodate the maximum volume of drilling fluid that may need to be contained in the pits. Secondary containment of the pits will contain any seepage and minimize any migration of the mud from the work area. This containment system may consist of straw bales and silt fencing around the pit.

To determine if an inadvertent release has occurred, horizontal directional drilling activities will constantly be monitored by the contractor.

The monitoring procedures will include:

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- Inspection along the drill path
- Continuous examination of drilling mud pressures and returns flows
- Periodic documentation of status of conditions during drilling activities

The contractor will address an inadvertent return immediately upon discovery.

If a wetland/water body release occurs, inspection to determine the potential movement of released drilling mud within the wetland/water body will be necessary. To contain and control drilling fluid seepage on land or in a water body, the contractor will have equipment and materials available onsite. Containment equipment including portable pumps, hand tools, sandbags, straw bales, silt fencing, inadvertent return barrel and lumber will be readily available and stored at the drilling site.

The following measures will be implemented to minimize or prevent further release, contain the release, and clean up the affected area:

Upland Release

The contractor will place containment structures at the affected area to prevent migration of the release.

If the amount of the release is large enough to allow collection, the drilling mud released into containment structures will be collected and disposed of per the *HDD Fluid/Cutting Disposal* procedure at the end of this document. If the amount of the release is not large enough to allow collection, the affected area will be diluted with fresh water and restored as necessary. Steps will be taken to prevent silt-laden water from flowing into a wetland or water body.

All disturbed areas associated with the project will be stabilized and restored per the specifications outlined in the project WPPP.

Water Body Release

If a release occurs within a water body, the contractor will attempt to place containment structures at the affected area to prevent migration of the release if feasible. If the amount of surface return exceeds that which can be collected using small pumps, drilling operations will be suspended until surface volumes can be brought under control. Once contained, drilling fluid will be removed by pumping, vacuuming or by hand, and disposed of at an approved upland disposal site (see additional information under HDD Fluid/Cutting Disposal).

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All disturbed areas associated with the project will be stabilized and restored per the specifications outlined in the project SWPPP.

In the event of a return to a stream, wetland, or other water body, the contractor will contact the Environmental Lead and the regional office of the New York State Department of Environmental Conservation (NYSDEC) at 716-851-7165 immediately. A written report summarizing the location of surface returns, estimated quantity of fluid, and summary of cleanup efforts shall be submitted to the NYSDEC Region 9 Office in Buffalo, NY, at the postal address listed in the Contact Information Table at the beginning of this document.

Drilling Operation Controls/Adjustments

If an inadvertent return takes place, contractor will immediately cease operations and contact EVERPOWER. If directed by EVERPOWER, drilling operations will be further reduced or suspended to assess the extent of the release and to implement corrective actions. Drilling will resume after EVERPOWER's assessment of the situation. 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 annular pressure.

After a drilling fluid seepage has been contained, the contractor will make every effort to determine the cause of the seepage. After the cause has been determined, measures will be implemented to control the source causing the seepage and to minimize the chance of recurrence.

For either water body or inland returns, the contractor, in conjunction with Inspectors, drill operators, etc., will attempt to adjust the drilling technique or composition of drilling fluid and implement any modifications to minimize or prevent further releases of drilling mud. This may include:

- Thickening of mud by increasing bentonite content
- Changing the drilling rate
- Changing the fluid pumping rate
- Attempting a deeper directional drill

Developing the corrective measure will be a joint effort of EVERPOWER and the contractor and will be site and problem specific. In some cases, the corrective measure may involve a determination that the existing hole encountered a void, which may be bypassed with a slight change in the profile. In other cases, it may be determined that the

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existing hole encountered a zone of unsatisfactory soil material and the hole may have to be abandoned. If abandoned, the hole will be filled with cuttings and drilling fluid.

Containment equipment and materials, including lumber for temporary shoring, sandbags, portable pumps, hand tools, silt fence, and hay bales, etc., will be stored on-site. The drilling contractor will also have heavy equipment such as track excavators that can be utilized to control and clean up drilling fluid seepage. Equipment associated with fluid removal shall be of sufficient enough quality (i.e., pump capacity, hose condition) and quantity (i.e. hose length, number of pumps), to efficiently manage any returns associated with the project.

Equipment on Site

The items listed below are recommended equipment to contain an inadvertent return. Additionally, for all projects, the Material Safety Data Sheet for the fluid being used must be on site at all times.

- Track Excavators
- Leak free portable pumps
- Sandbags
- Plastic Sheetings
- 55 Gal. drums with bottoms cut out
- Hay Bales
- Spill Kits
- Leak free hoses
- Filter Sock/Fence

HDD Fluid/Cutting Disposal

A composite sample of the drilling fluids will be collected for analytical testing and completion of the Form U composite. Once the drilling fluids have passed the analytical testing and the Form U has been approved, drilling fluid will be disposed of at an approved disposal facility. Uncontaminated drill cuttings and drilling muds from drilling processes which utilize oil, air, water, or water-based drilling fluids are considered to be construction and demolition debris under 6 NYCRR Part 360 (Solid Waste) and can be disposed of at either construction and demolition (C&D) debris landfills or at municipal solid waste (MSW) landfills. Drill cuttings from drilling processes which utilize and oil-based mud or polymer-based mud containing mineral oil lubricant are considered to be contaminated and can only be disposed of at MSW landfills. Dewatered drilling muds

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including any oil-based mud or polymer-based mud containing mineral oil lubricant can only be disposed of at MSW landfills. If drilling fluid is found to be impacted/contaminated, the contractor will defer to EVERPOWER for disposal instructions.

***All residual directional drill material must be disposed of at a properly certified facility or location in accordance with all applicable laws and regulations.**

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