Appendix G-2
Inadvertent Return Contingency Plan

Icebreaker Windpower Inc.
Icebreaker Wind
Preliminary Inadvertent Return Contingency Plan
July 6, 2018
July 30, 2018 Amendment

This Inadvertent Return Contingency Plan (Plan) describes the procedures Icebreaker Windpower Inc. and its contractor will implement to avoid, minimize and remediate potential environmental impacts that could result from an inadvertent return of drilling fluids during horizontal directional drilling (HDD) operations associated with the proposed Icebreaker Wind project.

This Plan includes the following components:

(1) Project Description;
(2) Horizontal Directional Drilling Design;
(3) Drilling Fluids;
(4) Monitoring;
(5) Notification Procedures; and
(6) Containment and Remediation.

This Plan provides the requirements for a site-specific plan. If upon soliciting installation contractor bids, certain components of this Plan cannot be met, LEEDCo will request to modify this Plan. Ohio EPA will provide a written concurrence as appropriate. This final Plan, with approved modifications, if any, will be posted at the work location.

Project Description

Construction of the proposed approximately 21-megawatt offshore wind facility consists of:

(1) Six wind turbines in Lake Erie, approximately 8-10 miles offshore of Cleveland.
(2) Buried and shielded submarine cables including a fiber optic communications cable interconnecting the turbines (inter-array cables), in total approximately 2.8 miles.
(3) One approximately 9-mile-long buried and shielded submarine cable, including a fiber optic communications cable (export cable) connecting the demonstration project to the new Project Substation located at the existing Cleveland Public Power (CPP) Lake Road Substation in Cleveland, Ohio.
(4) Installation of equipment including a Project Substation at the CPP Lake Road Substation in Cleveland, Ohio to accept power from the Proposed Project.
(5) Approximately 150 feet of new underground transmission line to transmit electricity from the new Project Substation to the existing CPP Lake Road Substation.

The proposed export cable will be brought ashore entirely under the Cleveland Harbor and the breakwater through a duct installed using HDD. Entry/exit points for the HDD will

be located at the CPP Lake Road Substation and approximately 3,700 feet offshore. A drawback machine or similar drilling device will be used to drill an approximately 46 cm (18 inch) diameter bore. The bore will be lined with High-Density Polyethylene conduit or other commonly used lining material.

Horizontal Directional DrillingDesign

For a successful HDD and to minimize the potential for an inadvertent return, a site-specific investigation and detailed design of the drill bore is needed. A copy of the site-specific Export Cable HDD Alignment Ground Conditions Report (McNeilan & Assoc., March 2017) is attached to this Plan as Appendix A, as a sealed document subject to a request for trade secret protection accompanying the submittal of this Plan. This report summarizes the results of geotechnical and geophysical studies that identify subsurface conditions along the proposed HDD path The detailed design will be attached to this Plan as an Appendix following the selection of the contractor.

Subsurface Conditions

Geotechnical investigations have been completed by Icebreaker Windpower Inc. and its contractor to identify subsurface conditions along the proposed HDD path. See Appendix A.

Drill Design and Drilling Procedures

Based on the geotechnical investigations, Icebreaker Windpower Inc.'s HDD contractor will develop detailed HDD design plans and procedures identifying the optimal location, depth and methodology for the drill. It is anticipated that these plans will be finalized following the selection of the contractor. A copy of these design plans and procedures will be attached to this Plan as an Appendix when finalized and prior to drilling.

At a minimum, the HDD design plans will identify all areas where formational fluid loss is avoided and anticipated. The HDD design plan will include protocols for identifying an inadvertent return and acceptable formational fluid losses not to exceed:

(1) a loss of fluids and/or annular pressure of 50 percent over a 24-hour period.
(2) a loss of fluids and/or annular pressure of 25 percent over a 48-hour period.
(3) a loss of formational fluid loss of 50,000 gallons over a 24-hour period.

Drilling Fluids

HDD operations will use drilling fluids to stabilize the bore hole and to lubricate the drilling process. Drilling fluids will be used that are biocompatible with freshwater. The detailed HDD design plan will include the specifications for the chosen drilling fluids. During HDD operations, an inadvertent return of drilling fluids may occur when the drilling fluids follow a path of least resistance through the overburden to the surface (land or water). Some minimal losses of drilling fluids can be expected within the subsurface materials voids or sediments; typically, these losses do not reach the surface.

Additives

Drilling fluids consist of water, bentonite clay and additives. The specific design mix for the drilling fluid depends on site-specific conditions and the drill design (variables may include a water softener, viscosities, filtration control additives, or torque reduction). Since the fluids largely consist of bentonite clay-water mix, they are generally considered non-toxic.

LEEDCo has committed to restricting all additives to those meeting NSF 60 or 61 (*i.e.,* approved for drinking water), such as sodium chloride, other salt compounds, etc.

(1) The drilling mud proposed by the driller will be attached to this Plan as an Appendix.
(2) Material Safety Data Sheets for fluid additives will be attached to this Plan as an Appendix.

Disposal

Drilling fluids will be recycled or disposed of at an approved disposal facility according to regulatory requirements.

(1) Recovered materials may be collected in containers for temporary storage prior to removal from the site.
(2) Drill cuttings shipped off-site for disposal will be sent to a licensed solid waste landfill as required by ODNR, ODH, and OEPA. The specific landfill has not been chosen but it will be one of the following: USA Waste Geneva Landfill Inc. (54419) or Lake County Solid Waste Facility (24397). In the event these facilities are not available at the time of disposal, another facility approved by OEPA will be selected.

Monitoring

Drilling activities will be monitored throughout the HDD operation to determine if an inadvertent release is occurring. Monitoring will include fluid volumes (circulation), fluid pressures, penetration rates, and fluid viscosity, which will help minimize the potential for a release and identify releases or potential releases.

Documentation logs must be filled out after every shift and, at a minimum, must include the following:

(1) Authorized representative conducting the inspection.
(2) Time and date of the inspection.
(3) Evaluation of drilling pressures (documenting losses per hour).
(4) Quantification of drilling fluids loss and return flows as gallons per hour (provide total at end of shift).
(5) Documentation of visual observations along the drill path (conducted every 4 hours).
(6) Consistent recording of drill status including drill conditions, pressures, returns and progress during the course of the shift.

(7) Evaluation of on-site recovery equipment in the event of an IR.
(8) Documentation the HDD Plan is on-site.
(9) That continuous, 24-hour monitoring of pumps utilized on-site was performed.

Visual monitoring frequency will be increased if 100 gallons of fluids is suspected to have been lost.

Notification Procedures

The intent of the notification procedure is to notify the appropriate agencies when a release occurs according to the respective agency's regulatory requirements. The required agency personnel, contact information, and notification timeframes are listed below in this Plan and will be posted at the work location.

(1) Ohio Environmental Protection Agency Spill line at 1800-282-9378 must be notified within one hour of discovery
(2) US Coast Guard National Response Center (NRC) hotline at 1-800-424-8802
(3) Cleveland Water Department at (216) 664-3060

Other agencies that may require notification include, but are not limited to:

A. U.S. Army Corps of Engineers Buffalo District at 1-800-833-6390
B. Ohio Department of Natural Resources at (614) 265-6620

Containment and Remediation

In the event of an inadvertent return, measures will be implemented to control, contain and clean up the release of drilling fluid and the affected area. Site-specific measures will be refined by Icebreaker Windpower Inc.'s HDD contractor as the HDD design is completed, and attached to this Plan as an Appendix.

Containment can be achieved by sealing the leak point using loss control materials (LCMs). The use of LCMs is an industry standard for HDD projects to control flow of fluids that may inadvertently escape from the drill bore. LCMs are generally environmentally benign materials that slow or stop the release of fluid from the unintended opening of the HDD bore. The HDD contractor shall provide safety data sheets (SDS) for LCMs prior to the start of drilling.

LEEDCo has committed to restricting all additives, including LCMs, to those meeting NSF 60 or 61 (*i.e.,* approved for drinking water), such as sodium chloride, other salt compounds, etc.

In the event of an unintended compromise of the HDD bore, the contractor will install a gravity cell to contain fluids that may be released into the environment. The gravity cell is a box-like structure that is placed over the location of the release to prevent migration of drilling fluids away from the location. The gravity cell will be constructed of steel, concrete, or other purpose built materials and once lowered into place provides a seal at the interface with the sea floor or lake bottom. Once the unintended return has been

stabilized, the contractor will send a diver down to the gravity cell with a hose to vacuum out the contained drilling fluids. The captured fluid will be pumped to a holding tank on the work vessel for proper handling and disposal.

During the HDD operation, the contractor shall have a barge with a dive team stationed offshore.

Attached is a typical detail from a past project of an excavated exit pit. The exit pit dimensions, including depth, are excavated by the cable contractor depending on the volume of drill fluid/cuttings expected to escape at the exit; this is based on the diameter and length of the pipe being installed and the expectant soil conditions of the bottom. It is typically used as the offshore containment pit. The driller can drill with just water within 100-feet of exiting out into the lake bottom thereby reducing exposure of drilling fluid at the exit.

Turbidity curtains will not be proposed as they are generally ineffective for confining an inadvertent return of drilling fluids. This is because the drilling fluids are heavier than water and turbidity curtains cannot effectively seal the interface with the sea floor or lake bottom. Released fluids will tend to sink directly to the bottom. The gravity cells described in the preceding paragraph are the industry standard and far more effective at containing fluids that may be released to the environment during an inadvertent return episode.

The following measures provide minimum guidelines to be used by the HDD Contractor during an incidental release:

(1) Reduce or suspend drilling activities to determine the extent of the release and implement corrective actions.
(2) Attempt to seal off the release to the surface from the borehole using approved LCMs.
(3) Pull back the drill string allowing the fluids in the fracture to solidify.
(4) Determine the cause of the release and implement measures to minimize reoccurrence, such as adjusting fluid viscosity.
(5) Containment equipment and personnel will be on site during HDD operations.
(6) Depending on the amount of fluid released on land the area may be swept, shoveled, or mixed with sand and temporarily left in place to dry prior to proper disposal of the material. Appropriate erosion and sediment control measures will be used as needed to prevent drilling fluid from entering the lake or other resources.
(7) The HDD contractor will ensure that appropriate personnel will be available to assist in the containment and cleanup effort that may be necessary within the lake.

The precise monitoring parameters will be set when the drilling design has been completed and the contractor had prepared a drilling plan. Monitoring will include the

observation of fluid volumes (circulation), fluid pressures, penetration rates, and fluid viscosity where changes from the design setting for those parameters could indicate that fluid may be escaping from the borehole. There is not a “typical” pressure loss that would trigger a suspension of drilling. Procedures will be in place such that anytime a drop in the bore’s annular pressure (during the pilot hole drilling) of more than 25% is measured then the circumstances will be analyzed and, if necessary, appropriate measures taken.

The contractor will also use environmentally responsible work practices and methods including the best management practices associated with spill prevention and containment and storm water pollution and prevention.

APPENDIX A

Export Cable HDD Alignment Ground Conditions Report
(McNeilan & Assoc., March 2017)

[Sealed Document Pending Request for Trade Secret Protection]

APPENDIX B

DETAILED HDD DESIGN PLANS AND PROCEDURES

[To Be Added]

APPENDIX C

DRILLING MUD PROPOSAL
, FLUID ADDITIVE AND LOSS CONTROL MATERIALS SAFETY DATA SHEETS

[To Be Added]

APPENDIX D

FLUID ADDITIVE AND LOSS CONTROL MATERIAL SAFETY DATA SHEETS

[To Be Added]

APPENDIX E

SITE-SPECIFIC CONTAINMENT AND REMEDIATION MEASURES

[To Be Added]