TransCanada Keystone Pipeline, L.P.
Keystone XL Pipeline

Adverse Weather Land Protection Plan

South Dakota

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Acronyms and Abbreviations

EI	Environmental Inspector
Keystone	TransCanada Keystone Pipeline, L.P.
Plan	Adverse Weather Land Protection Plan
Project	Keystone XL Pipeline Project

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1.0 Introduction

The purpose of this Adverse Weather Land Protection Plan (Plan) is to provide guidance to the Keystone XL Pipeline Project (Project) Contractors in planning for and mitigating the effects from extreme events should adverse weather impact the work areas during construction. This Plan will be updated as necessary to accommodate further Project development and, dependent upon the extent of the modifications, be submitted to the South Dakota Public Utilities Commission, for subsequent review and approval.

Adverse weather can be defined as severe or harsh weather events which come on unexpectedly and which may have a real or perceived potential for impact to the Project activities, the public, or the environment. The events which are highlighted in this Plan will address:

- Early/late winter conditions (e.g., snow or ice event); and
- Significant rainfall or flooding (e.g., spring freshet).

The Environmental Inspector (EI) is responsible for monitoring all procedures in coordination with the Keystone personnel and the Contractors. A field meeting will be called on site if necessary, to ensure a clear understanding of any concerns. The Contractors are responsible for implementing the procedures.

2.0 Monitoring Weather

There are unexpected weather occurrences that could manifest themselves at any given point of the year over the Project work areas. Contractors will be monitoring the regional forecast and, if necessary, adjusting their approach during the execution of construction activities. The information will be used to anticipate upcoming adverse events and implement additional mitigation measures as noted herein.

Potential sites that can be monitored are:

- National Weather Service http://www.weather.gov/
- Weather Underground https://www.wunderground.com
- Various Local Weather Sites

3.0 Stop Work Authority

The decision to stop construction work or to relocate work crews to areas less impacted by an adverse weather event will be made by the Keystone Project Manager in consultation with the Chief Inspector, EI and the Contractor. Reinitiating the field activities will be at the direction of the Contractor in consultation with the Keystone Project Manager, EI and the Contractor. Should notifications be required to the state liaison or any state/local agencies or their input required, the Keystone Project Manager will facilitate and document the communication process.

In consultation with the EI, the Contractor shall restrict certain activities and work in excessively wet soil conditions to minimize rutting and soil compaction, particularly in areas of improved hay land, pasture lands, and crop lands if top soil has not be stripped prior to the onset of adverse weather. In determining when or where activities should be restricted or suspended during wet conditions, the Contractor shall consider the following factors:

- The safety of all personnel involved in the activity;
- The extent that rutting may cause mixing of topsoil with subsoil layers or damage to tile drains;
- Excessive buildup of mud on tires and cleats;
- Excessive ponding of water at the soil surface; and

- The potential for excessive soil compaction.

4.0 Protection Measures

The Contractor, in consultation with the EI, shall implement mitigative measures to minimize rutting and soil compaction in excessively wet soil conditions, which may include:

- In areas that have not been stripped of topsoil and for access roads, equipment will not be allowed to work or access a site if excessive rutting (i.e., ruts that exceed the depth of the topsoil layer and penetrate into the subsoil) will occur at the discretion of the EI and in consultation with the Chief Inspector.
- Restricting work to areas on the site where conditions allow.
- Using low ground weight, wide-track equipment, or other low impact construction techniques.
- Limiting work to areas that have adequately drained soils or have a cover of vegetation sufficient to prevent mixing of topsoil with subsoil layers.
- Installing geotextile material or construction mats in problem areas as long as those measures are not embedded so deep that they cannot be removed and the area restored.

4.1 Winter Conditions

In the event a snow or ice event occurs, the Contractor, in consultation with the Chief Inspector and EI, will need to determine whether conditions allow for work to continue. During the fall, these events may necessitate putting in place the Winterization Plan in preparation for shutting down activities for the season. The Contractor will work with Keystone representatives to ensure the safety of Project personnel and the integrity of the work areas. Conditions which may be encountered include:

- Deteriorating road and visibility conditions limiting the transportation of goods and personnel along public roads.
- Rutting and soil compaction through increased soil moisture content.

4.2 Significant Rainfall/Flooding

In the event that there is a forecasted significant rainfall event, the Contractor will work with the Chief Inspector and the EI to ensure the appropriate mitigation measures are put in place at the work areas. The affected work areas will be examined as to the feasibility and applicability of implementing one or more of the measures listed below to ensure erosion control measures will remain and function properly through the rainfall event:

- Temporary berms, silt fence and/or other appropriate mitigation measures (e.g., wattles, erosion control matting) will be installed or, if existing, have maintenance work done on them in areas where the potential for excessive water erosion may occur.
- To prevent ponding and/or erosion, site drainage will be maintained to the extent practicable. Appropriate measures (e.g., sumps, pumping excess water) to prevent deleterious material from entering a watercourse or waterbody will be implemented, when and where required.
- In a heavy rain event the Contractor, in discussion with the Chief Inspector and EI, will consider shutting down all activities except potential inspections of the work areas.
- When available and practical, tracked equipment may be required for specific activities.
- If all mitigation fails, Project activities may be suspended until adverse weather conditions abate. Project shut-down will be based upon discussions between Keystone Project Manager, Chief

Inspector, the EI, and the Contractor. Commencement of work must be authorized by the Keystone Project Manager or their designee prior to restart.

4.2.1 Public Road Drainage Crossings

In addition to protecting the work areas, appropriate mitigation measures may need to be put in place to protect drainage swales at the point of access from the public road. Mitigation measures may also need to be installed progressively if excessive flow or flood conditions are anticipated. The Contractor will work with the EI to evaluate the vehicle/equipment crossing structure to determine whether adequate freeboard is present on bridges and adequate capacity is available in culverts to prevent wash outs or flooding of adjacent lands due to the structures being in place or functional loss of the crossing structure. The public roads that traverse the construction work areas will be maintained in a safe driving condition with any rutting repaired and excessive dirt/mud removed.

5.0 Notifications Required

In the event the Contractor decides it is necessary to either enact the measures outlined in this Plan or when the measures are no longer in use, the Contractor will notify the EI and the Chief Inspector.