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3	2019-07-29	IFU	TCW	RF	JS
4	2020-01-17	IFU	LH	AP	JS

TransCanada Keystone Pipeline, L.P.
Keystone XL Pipeline

Winterization Plan

Project Number:

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0	2018-04-23	IFU	JA	TA	JS	RG	TCPL
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Winterization Plan Modification Tracker			
Previously Submitted Version: Rev 3			
Current Version: Rev 4			
Count	**Section No.**	**Previously Submitted Version Original Text**	**Modified/Updated Text**
1	2.0 Winterization Activities	Equipment mats will be removed from water courses to allow the spring freshet to flow unimpeded	Equipment mats will be removed from water courses in areas of inactive construction to allow the spring freshet to flow unimpeded
2	2.1.1 Temporary Mulch	As per the Project Liquid Pipeline Construction Specification (LPCS), temporary mulch will be applied to the work areas at a rate of 3 tons per acre where final cleanup and reclamation have not been completed.	As per the Liquid Pipeline Construction Specification (LPCS), temporary mulch will be applied to the work areas at a rate of 3 tons per acre where construction is inactive and final cleanup and reclamation have not been completed
3	2.3 Temporary Bridges	The bridges and mats installed across waterbodies and drainages will be removed before the Contractor demobilizes for the winter.	The bridges and mats installed across waterbodies and drainages will be removed from areas of inactive construction before the Contractor demobilizes for the winter.
4	2.8 Backfilling	New Addition	If there is more than six inches of snow or ice within the trench, that segment of trench will not be backfilled until snow or ice has been removed or melted, unless otherwise agreed to in writing by the affected LANDOWNER. This written approval will be provided to the STATE INSPECTOR
5	3.1 Winter Monitoring Procedures	The extent of winter monitoring efforts will be based on weather conditions and precipitation amounts (i.e., significance and duration of periods of thaw and water run-off) and the ability to safely access the work area.	The extent of winter monitoring efforts will be based on weather conditions, precipitation amounts (i.e., significance and duration of periods of thaw and water run-off), the ability to safely access the work area, and whether the area is still under active construction or inactive.
6	3.1 Winter Monitoring Procedures	Winter monitoring efforts will be accomplished primarily via aerial surveys of the work areas and by walking to more critical areas and the pipe yards and contractor yards. The work areas will be flown on a monthly basis, weather permitting, with a helicopter to review the condition of erosion control measures and the work area itself.	Winter monitoring efforts of inactive areas will be accomplished primarily via aerial surveys of the work areas and by walking to more critical areas and the pipe yards and contractor yards. The work areas will be flown on a monthly basis, weather permitting, with a helicopter to review the condition of erosion control measures and the work area itself, while active work areas will mainly be monitored on foot

Winterization Plan Modification Tracker			
Previously Submitted Version: Rev 3			
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Count	**Section No.**	**Previously Submitted Version Original Text**	**Modified/Updated Text**
7	4.0 Spring and Summer Further Cleanup and Reclamation	Following initial review, the Project will repair damaged areas, complete further cleanup and reclamation, re-seed and re-mulch areas as necessary, and remove silt fence or other temporary erosion control structures that are no longer needed.	Following initial Project review, any damaged areas will be repaired, cleaned up, re-seeded and re-mulched in necessary areas, and silt fences or other temporary erosion control structures removed which are no longer needed.

Acronyms and Abbreviations

EI	Environmental Inspector
LPCS	Liquid Pipeline Construction Specification
Plan	Winterization Plan
Project	Keystone XL Pipeline Project
ROW	Right-of-Way

Table of Contents

1.0 Introduction

In the event the field activities (e.g., backfilling, restoration of grade, etc.) for the Keystone XL Pipeline Project (Project) are not successfully completed prior to the onset of frozen soil conditions and require delay until the following spring/summer to complete reclamation, the Project will follow the guidelines set out in this Winterization Plan (Plan). This Plan also applies to those Project footprint areas that will be active during the winter (pump stations, pipe yards, contractor yards, and possibly some horizontal directional drill sites and portions of the pipeline right-of-way). These locations will need to be stabilized prior to the onset of winter conditions. The stabilization is designed to prevent topsoil loss, reduce the potential for admixing and erosion, and reduce the potential for sedimentation and other impacts to resources and to landowners.

The minimum requirements provided in this Plan will be included in all Contractor contracts. Prior to each construction season, Contractors will be required to provide updates to this Plan specific to their Project scope. The Plan will be updated prior to the start of mainline construction and periodically thereafter as necessary to further Project development. The updated Plan will be provided to the STATE INSPECTOR.

The Project's Contractors will continue to work toward completion where the work can proceed efficiently and without adversely impacting local roads and landowners. The Project will continue to communicate with affected landowners about cleanup and reclamation progress.

The Project has developed this Plan for the following purposes:

- To address the special considerations and concerns associated with construction, cleanup and reclamation efforts conducted during less than optimal conditions, as the onset of winter approaches;
- To identify steps required to stabilize the work areas for the winter for areas where ground disturbance has occurred;
- To describe the temporary erosion control measures the Project will implement where necessary for areas where ground disturbance has occurred; and
- To describe the monitoring program that the Project will implement during the winter period.

The Plan also describes the approach the Project will follow in spring of the following calendar year to complete cleanup/reclamation that was not completed prior to the onset of winter due to poor soil conditions on the Right of Way (ROW) and at auxiliary areas (e.g., pump stations, pipe yards, contractor yards).

2.0 Winterization Activities

The following activities will be completed as necessary to stabilize the work areas where ground disturbance has occurred prior to the onset of winter:

- Gaps will be cut into topsoil and subsoil piles to allow drainage across the work area;
- Topsoil and subsoil piles will be shaped to minimize the effects of runoff during spring melt conditions, this may include collection ditches, snow fence or bales / berms around their base;
- Equipment mats will be removed from water courses in areas of inactive construction to allow the spring freshet to flow unimpeded.
- Where wetland areas are crossed, topsoil and contours will be replaced if construction is inactive during the winter.
- In areas of inactive construction where final cleanup and reclamation efforts have not been completed, the work area will be left in a roughened condition to reduce the potential for erosion during snowmelt or significant rain events.
- Environmental Inspectors (EIs) may determine the need for additional erosion and sediment controls, where necessary.

The Project EIs will document work areas where cleanup has been completed and areas where only partial or rough cleanup has been completed.

2.1 Temporary Erosion and Sediment Control Measures

Temporary erosion and sediment control measures will remain in place or be installed as needed in areas where cleanup efforts have not been completed. The goal of the temporary erosion and sediment control measures is to protect environmental resources and landscape features and to stabilize the work areas to the extent feasible until further cleanup and reclamation can be completed in the spring.

Temporary erosion and sediment control measures will include application of mulch and/or temporary seeding, and installation of sediment control measures where necessary or as determined by the EI. These areas will be monitored until completion of reclamation and stabilization is achieved, as noted below. The erosion and sediment controls will be maintained and repaired as necessary.

2.1.1 Temporary Mulch

As per the Liquid Pipeline Construction Specification (LPCS), temporary mulch will be applied to the work areas at a rate of 3 tons per acre where construction is inactive and final cleanup and reclamation have not been completed. The temporary mulch will be crimped in where possible or will be track-walked into the work area where ground conditions do not make the use of a crimping tool effective or feasible.

Snow cover and frozen conditions may preclude the application of temporary mulch, particularly on slopes, since the mulch would be unlikely to adhere to the ground surface and would be lost to runoff during winter thaw or spring melt. If snow cover or frozen conditions exist on the work areas, the EI will assess the likelihood that temporary mulch would be effective and determine whether to apply the material in coordination with the Construction Execution Manager.

2.1.2 Seeding

Temporary seeding of a fall seed species such as an early spring germination variety, approved by Keystone as per the LPCS, will be applied as necessary to areas where the topsoil has not been replaced and where identified by the EI. Due to the late season, no germination or growth is anticipated until the spring thaw. The Project's EIs will maintain logs of areas where temporary (and possibly permanent) seed mixtures are applied.

2.1.3 Sediment Barriers

Temporary sediment barriers (i.e., silt fence, straw bales, earthen berms) will be installed and maintained where determined necessary by the EI. These structures will be maintained during the winter as noted below.

2.1.4 Tackifiers

As outlined in the Project LPCS tackifiers such as hydroseeding or hydromulching may be used as directed by the EI to maintain slope and soil stability.

2.2 Access Road Usage

The access roads currently approved for use by the Project will continue to be used during winter monitoring as needed. The Project will maintain all access roads in accordance with applicable permit and landowner requirements.

2.3 Temporary Bridges

During construction, temporary bridges and mats may have been installed across waterbodies and wetlands for work site access. The bridges and mats installed across waterbodies and drainages will be

removed from areas of inactive construction before the Contractor demobilizes for the winter. The exception is in limited situations where the existing bridge adequately spans the waterbody with enough freeboard to accommodate any water flow in the spring, including spring floods.

2.4 Culverts

Culverts that may be left in place on access roads or at ingress/egress points to the ROW during the winter will need to be sized to meet spring freshet conditions and not increase the potential for washouts.

2.5 Landowner Communication

If winter conditions are encountered during final reclamation, final reclamation may be delayed until the following spring, unless otherwise agreed to by the affected LANDOWNER in writing. A copy of such a written agreement will be provided to the STATE INSPECTOR. A letter will be sent to the landowners to notify them that their property will be monitored during the winter and that further cleanup and reclamation will be completed the following spring and summer. The Project's land agent or Public Liaison Officer will be available to address landowner concerns throughout the winter and following spring/summer.

The Project land agents will seek to meet with each affected landowner in an effort to ensure that the winterization of the work area on each parcel incorporates the landowner's needs for access through the winter months and accommodates natural water flows.

2.6 Agency Communication

The Project will communicate with the appropriate agencies regarding the suspension of clean-up activities, including the schedule for completing reclamation.

2.7 Equipment and Material

All motorized or fuel storage equipment will be removed from the ROW by the Contractor prior to demobilization.

2.8 Backfilling

If there is more than six inches of snow or ice within the trench, that segment of trench will not be backfilled until snow or ice has been removed or melted, unless otherwise agreed to in writing by the affected LANDOWNER. This written approval will be provided to the STATE INSPECTOR.

3.0 Winter Monitoring

The following section provides details of the monitoring and erosion control maintenance efforts that the Project will implement during the winter months in areas where soil disturbance has occurred. The Project's winter monitoring efforts are designed to identify, evaluate, and repair erosion control structure damage and areas of significant erosion in a manner compatible with available access during winter months.

ROW conditions in the winter are often very saturated and muddy, or frozen and snow covered, resulting in limited vehicle and equipment access to many work areas for inspection and repair activities. During these periods, except for emergency situations where significant resource damage may occur, repairs to eroded areas will be limited to hand work only. Accessing the work areas with equipment during these periods could result in significant additional damage such as destabilizing previously stable areas and increasing the likelihood for further erosion. Later in the spring, access to the work areas will improve with drying soil conditions, allowing equipment access. The winter monitoring efforts will balance the potential for resource impacts associated with erosion with impacts that may be incurred when accessing the work area with equipment in saturated conditions.

3.1 Winter Monitoring Procedures

The Project work areas where reclamation was not completed will be inspected on a regular basis by the Project personnel throughout the winter months to identify areas where erosion control measures are damaged and where corrective actions are required to address developing erosion problems. Damage to existing erosion control measures will be noted and repaired, as appropriate.

The extent of winter monitoring efforts will be based on weather conditions, precipitation amounts (i.e., significance and duration of periods of thaw and water run-off), the ability to safely access the work area, and whether the area is still under active construction or inactive. Monitoring will be prioritized according to the presence of sensitive resources. Once the soil becomes frozen and snow covered, the need for frequent monitoring of inactive work areas will be reduced or eliminated since conditions will either be hidden from view or stabilized in a frozen state. When the snow cover melts or the ground thaws, the potential for erosion will increase and monitoring and repair efforts will increase.

Critical areas (erosion prone areas with sensitive resources nearby) with a high potential for erosion problems during the winter will be identified by the EIs and will be given increased attention during winter monitoring efforts. These critical areas and other areas where further reclamation has not been completed, will be monitored more frequently over the winter months.

Winter monitoring efforts of inactive areas will be accomplished primarily via aerial surveys of the work areas and by walking to more critical areas and the pipe yards and contractor yards. The work areas will be flown on a monthly basis, weather permitting, with a helicopter to review the condition of erosion control measures and the work area itself, while active work areas will mainly be monitored on foot. Areas requiring repair will be identified and evaluated for the appropriate corrective actions.

3.2 Erosion Control Response and Repair Activities

Damaged erosion control structures, eroded areas, and damage to the work areas noted during aerial surveys will be verified on the ground by the Project's construction representative or EI if access to the site is safe and feasible. In most cases, repairs to erosion control measures and damaged areas will be conducted with hand labor. Except for extreme situations, equipment will not be used for repair activities due to poor access conditions and the likely collateral damage to the work area that would result. In some cases, repairs will be deferred until the spring remediation period. Deferred areas may include eroded areas where no sensitive resources are impacted, areas where access and repairs are not feasible, or where damage from accessing the site would outweigh the benefits of correcting the issue during the winter.

The Contractor will conduct erosion control and work area damage repair activities. The Contractor will maintain a supply of sandbags, straw bales, silt fence, and tools to allow for rapid response to erosion control issues and severe work area damage repair needs. Areas requiring repair or remedial activities will be repaired as soon as feasible after the issue is identified. The Project will coordinate with the Contractor to mobilize crews to the locations requiring repairs.

3.3 Winter Monitoring Period

The winter monitoring period will extend from the time work ceases on the ROW and other associated work areas until spring cleanup efforts begin in late May or early June of the following calendar year, dependent upon location and weather conditions. As noted above, there will be periods during the winter when the monitoring effort will be suspended due to frozen or snow-covered conditions.

3.4 Contacts

Land agents will be communicating directly with affected landowners. In addition, the local Keystone representative Mr. Jim Germann will be available via phone at (406) 941-2756 or email at jmrgermann@gmail.com.

4.0 Spring and Summer Further Cleanup and Reclamation

The Project work areas will be thoroughly reviewed in the spring of the following year. The goal of the spring remediation review effort will be to identify any storm or winter damage that may have occurred within the work areas, and to evaluate the condition and continued need for temporary erosion and sediment control measures that remained in place over the winter. Following initial Project review, any damaged areas will be repaired, cleaned up, re-seeded and re-mulched in necessary areas, and silt fences or other temporary erosion control structures removed which are no longer needed. Seeding material, fertilizer specifications, seeding rates and approved seeding methods can be found in the LPCS.

4.1 Inspection

The Project will maintain the appropriate number of EIs throughout the winter period. The EI(s) will coordinate with the agencies, as necessary, regarding spring cleanup and reclamation activities. The EI will work closely with the other Project personnel to ensure that spring/summer cleanup activities remain in full compliance with Project's requirements. The EI will document completion of all outstanding items that arose from the winter season to confirm all items were addressed in the spring / summer clean up.