

Prairie Thunder Resources Ltd. Corporate EPP Manual Receipt Form

Upon receipt of this Prairie Thunder Resources Ltd. Corporate Environmental Protection Plan (EPP), this Receipt Form must be completed and returned to the Corporate Office. The Manual holder is responsible for ensuring that the Manual is kept current by inserting the latest revisions as they are issued.

Name (please print): _	
Position:	
Date:	
Signed:	

Return signed copy to:	Prairie Thunder Resources Ltd. 2500, 333 7 th Avenue SW
	Calgary, AB T2P 2Z1
	Phone: 1-587-393-9000
	Email: droney@prairiethunder.ca
Attention:	Dana Roney VP, Operations





PROGRAM ADMINISTRATION

RESPONSIBILITY

The responsibility for maintaining this Environmental Protection Plan ("EPP") is three-fold:

- 1. All manual recipients are responsible for ensuring that their assigned manuals are current.
- 2. Information in this EPP will be verified and updated annually. The VP Operations is responsible for ensuring the EPP is reviewed by all personnel annually and immediately after any changes have been made to the manual.
- 3. The VP, Operations is responsible for updating the manual. Any requests for revisions to the EPP should be forwarded to the VP, Operations or approval and implementation.



REVISION MATRIX

Site Specific Area:

Matrix Administrator:

Plan Revision	Annually
Update Company Personnel Contact List	
Document and Map Updates	
Confirm Response Agencies and Government Support	
Update Distribution List	
Conduct Response Training	

Note: Updates to the manual will be issued to all manual holders annually.





REVISION REQUEST FORM

Recommended By:			(Signature)
			(Name and title)
Date:			
Approved By:			(Signature)
			(Name and title)
Date:			
Copies of revised pages attached:	Yes 🗖	No 🗖	

Section(s) and pages(s) amended or replaced:

Section	Page(s)		Section	Page(s)
]		

Purpose / Comments:



Revision Log				
Revision #	Date	Description		
1		EMS (July) rollout coordinated with field operations in 2023.		



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- 1 Canada Energy Regulator Detailed Incident Report
- 2 First Call Communication Form

APPENDICIES - EPP CONTINGENCY PLANS

- 1 SOIL HANDLING CONTINGENCY PLAN
- 2 TOPSOIL INTEGRITY CONTINGENCY PLAN
- 3 SOIL EROSIOIN CONTINGENCY PLAN
- 4 WEED MANAGEMENT PLAN
- 5 RESOURCE DISCOVERY CONTINGENCY PLAN
- 6 HISTORICAL RESOURCES CONTINGENCY PLAN
- 7 FUELS AND HAZARDOUS MATERIALS CONTINGENCY PLAN
- 8 WASTE MANAGEMENT PLAN
- 9 TRAFFIC MANAGEMENT PLAN
- 10 NOISE MANAGEMENT PLAN
- 11 FIRE CONTINGENCY PLAN



1.0 **DISTRIBUTION LIST**

The following individuals will have a copy of this Corporate Environmental Protection Plan (EPP) for use as a reference document in the event of an incident associated with the CER regulated assets.

CORPORATE EMERGENCY RESPONSE TEAM

Manual #	Name / Title	Company	Location	Plan Type
EPP 01	Marcus Schlegel, President	Prairie Thunder Resources Ltd	Calgary	C, MS, WEB
EPP 02	Dana Roney VP, Operations	Prairie Thunder Resources Ltd	Calgary	C, MS, WEB
EPP 03	Bruce Stang, Production Foreman	Prairie Thunder Resources Ltd.	Macklin	C, MS, WEB

OTHER CONSULTANTS

Manual #	Name / Title	Company	Location	Plan Type
EPP 04	Emergency Response Planner	Black Gold Emergency Planners	Calgary	WEB

Plan Type Legend

C Corporate full paper copy

CD Compact Disk

MS Memory Stick

WEB Black Gold Website

APP Mobile Application



2.0 INTRODUCTION

2.1 Introduction

Prairie Thunder Resources Ltd. ("PTRL") is committed to ensuring the safety and security of the public, personnel and facilities involved in its business operations and in doing so will also minimize any adverse impacts to the environment or economic conditions that might result from any incident.

A specific subset of upstream oil and gas assets currently under license to PTRL are regulated federally under the jurisdiction of the Canadian Energy Regulator (CER) and not the provincial regulators. These specific assets include onshore pipelines that cross provincial border of Saskatchewan and Alberta (Section 2.4) and are regulated under the CER Onshore Pipeline Regulations (SOR-99-24). The purpose of these Regulations is to require and enable PTRL to design, construct, operate or abandon a pipeline in a manner that ensures:

- the safety and security of persons;
- the safety and security of pipelines and abandoned pipelines; and
- the protection of property and the environment.

Under the CER Onshore Pipeline Regulations (SOR-99-24), PRTL is required to establish, implement and maintain a Management System that:

- is explicit, comprehensive and proactive;
- integrates the company's operational activities and technical systems with its management of human and financial resources;
- applies to all the company's activities involving the design, construction, operation or abandonment of a pipeline;
- ensures coordination between the programs; and
- corresponds to the size of the company, to the scope, nature and complexity of its activities and to the hazards and risks associated with those activities.

The following Environmental Protection Plan (EPP) is one (1) element of the integrated CER Management System comprised of:

- the emergency management program (PTRL Corporate ERP);
- the integrity management program (PTRL Integrity Plan);
- safety management program (PTRL Safety Plan);
- security management program (PTRL Security Plan);
- environmental protection program (PTRL EPP); and,
- damage prevention program (PTRL Safety Plan).

Company personnel are required to understand how the EPP protocols and procedures outlined in this Corporate Environmental Protection Plan apply to their respective areas of work and responsibility and to adhere to these procedures as required.

This Plan provides personnel at all levels with the corporate policies, necessary checklists and matrices to plan, operate and protect the environment in a proactive manner, minimizing impact and mitigating risk where possible.

PTRL policies and personnel are the first line of defence against every threat, from minor accidents to significant environmental impact.



2.2 Purpose

The PTRL Corporate Environmental Protection Plan (EPP) presents policies and practices for mitigating environmental risks and for reducing the impact of incidents on the pipeline segments and facilities operated by the company under the regulatory jurisdiction of the Canadian Energy Regulator (CER). The purpose of this EPP is to satisfy the requirements of the CER Onshore Pipeline Regulations.

The EPP shall form part of the PTRL pipeline construction, operations, maintenance, decommissioning, abandonment, assessment, remediation and reclamation contract documents pertaining to the CER regulated pipeline segments. Should any conflict in contract and EPP requirements arise, the more stringent conditions will apply.

Copies of the EPP and associated environmental documents will be available to all key personnel during pipeline operations, maintenance, abandonment and reclamation activities.

Utilizing the EPP guidelines provided herein, PTRL managers should review all CER regulated pipeline -specific operations and assess any future pipeline operations in accordance with the EPP and the CER Onshore Pipeline Regulations. Any Identified deficiencies shall be reported immediately to the PTRL Environmental Advisor / VP Operations.

Pipeline related activities should be planned to be completed prior to the expiration of all authorizations. If these conditions cannot be met, renewals or extensions will be required.

2.3 Scope

The Plan applies to the following PTRL facilities including, but not limited to:

- Offices;
- Pipelines;
- Pipeline systems handling;
 - o oil,
 - o gas,
 - o oil-field water,
 - o liquid products,
 - o multi-phase fluids,
 - o slurries and
 - o system supports, including:
 - meter stations,
 - compressor stations,
 - pump stations,
 - tank farms, and
 - All assets that support the above.



2.4 Project Activities

The PTRL Macklin Field is an oil and gas producing property located in western Saskatchewan approximately 10 km north of Macklin SK. The field is located with Townships 39-40 Ranges 27-28W3 in the Rural Municipalities of Eyehill No. 382 and Senlac No. 411.

Macklin Field operations consist of oil production from the PTRL Oil Battery at 05-24-039-28W3M which flows through the PTRL Oil Battery at14-03-040-28W3M. Oil production from the 14-03 Oil Battery then flows to the Longshore Oil Battery at 16-20-040-01W4 (Lic: 02115-1; 6.54 km) and then loops back south leaving the Longshore 16-20-048-28W3M facility to an underground pipeline 90 degree bend located at 07-20-040-28W3M and flows westward through a recently constructed PTRL aboveground camelback riser constructed at 06-20-048-03W3 (Lic: 02115-2; 1.44 km). The pipeline west of the camelback marks the commencement of the 1998 constructed, CER regulated pipeline (Lic: 280604-01: 0.57 km) located on the Saskatchewan side of the border. Crude oil production then flows across the border (Alberta: 08-24-040-01W4) flowing west - northwest to the Alpha Bow Energy Ltd. – Green Glades 12-28-040-01W4 Oil Battery and into either the Repsol or Gibson pipeline system (Lic: 080049-1: 9.4 km).

In the same pipeline trench as the CER regulated 168.3 mm crude oil pipeline (currently licensed to CENOVUS but owned by PTRL) there is second (2nd) CER regulated 60.3 mm fuel gas pipeline (also currently licensed to CENOVUS but owned by SURGE Energy Inc.). Fuel gas supplied by SURGE flows east from the Alpha Bow – Green Glades 12-28 battery across the Alberta / Saskatchewan border via this fuel gas pipeline and then southeasterly to various sales points on the Saskatchewan side of the border including the PTRL 14-03 facility. The CER regulated 60.3 mm OD fuel gas pipeline is not an operating or reporting responsibility of PTRL.

Although PTRL has no plans for new CER regulated pipeline construction activities there remains a chance that access to the pipeline for maintenance, future repair, and subsequent decommissioning and abandonment may occur. The SURGE fuel gas pipeline presence in the PTRL Crude Oil pipeline ROW means any ground disturbance work conducted in the ROW would require proximity agreements with SURGE.



PTRL Pipelines: CER Regulated Pipelines from 06-20-040-28W3 to 12-28-040-01W4





Saskatchewan Pipelines

	SKPL-02115-1	SKPL-02115-2	280604-1
Pipeline License Number	SK-PS-0014056	SK-PS-0014057	
Licensee	Prairie Thunder Resources Ltd.	Prairie Thunder Resources Ltd.	CENOVUS ENERGY INC
Original Permit Date	13-Mar-02	13-Mar-02	1998
License Date	13-Mar-02	13-Mar-02	1998
Construction Date			
From	14-03-040-28W3M Battery	16-20-040-28W3M	06-20-040-28W3M
То	16-20-040-28W3M	06-20-040-28W3M	05-20-040-28W3M
Pieline Length	6.54 km (4.09 mi)	1.44 km (0.9 mi)	0.57 km (0.35 mi)
Substance	Crude Oil	Crude Oil	Crude Oil
Pipeline Status	Operating	Operating	Operating
H2S	0 mol/kmol (0 ppm)	0 mol/kmol (0 ppm)	0 mol/kmol (0 ppm)
Outside Diameter (mm)	168.3 mm (6.63")	168.3 mm (6.63")	168.3 mm (6.63")
Wall thickness	4.0 mm (0.016")	4.0 mm (0.016")	4.0 mm (0.016")
Constructed Material	Steel	Steel	Steel
Туре	N/A	168.3 X 4.8 mm	168.3 X 4.8 mm
Grade	359	359	359
Joints			
Internal Coating			
Maximum operating Pressure (kPa)			
CER Regulated?	NO	NO	YES
OWNER	PTRL	PTRL	PTRL



Alberta Pipelines

Pipeline License Number	AB000080049-1	AB00080005-2
Licensee	CENOVUS ENERGY INC	CENOVUS ENERGY INC
Original Permit Date	17-Apr-98	
License Date		22-Apr-98
Construction Date		
From	08-24-040-01W4M PL	08-24-040-01W4M PL
То	12-28-040-01W4M Battery	12-28-040-01W4M Battery
Pieline Length	9.4 km (5.88 mi)	9.4 km (5.88 mi)
Substance	Crude Oil	Fuel Gas
Pipeline Status	Operating	Operating
H2S	0 mol/kmol (0 ppm)	0 mol/kmol (0 ppm)
Outside Diameter (mm)	168.3 mm (6.63")	60.3 mm (2.37")
Wall thickness	3.96 mm (0.016")	3.2 mm (0.13")
Constructed Material	Steel	Steel
Туре	Z245.1	Z245.1
Grade	2901	2901
Joints	Welded	Welded
Internal Coating	Uncoated	Uncoated
Maximum operating Pressure (kPa)	9930 kPa (1440 psi)	4960 kPa (719 psi)
CER Regulated?	YES	YES
OWNER	PTRL	SURGE

2.5 Environmental Setting

The Project is in the Prairie Ecozone and Parkland Natural Region and the East-Central Parkland Natural Subregion. The major land use is agricultural activities including livestock grazing and dryland farming. Oil and gas activities, as well as recreational uses including hunting, fishing and camping are also common land uses.

The area south of Wainwright, including the Provost and Ribstone Plain EcoDistricts is dominated by aspen poplar groves characteristic of the Central Parkland Natural Subregion. Soils in this area are also typically comprised of Orthic Dark Brown Chernozems with some Solonetzic soils commonly present in the central low-relief plain (GOA, Central Parkland Range plan Community Guide, 2013).

This ecoregion has many drought-tolerant short growing vegetation species including blue grama grass (*Bouteloua gracilis*), needle-and-thread grass (*Hesperostipa comata*), June grass (*Koeleria macrantha*), and western wheat grass (*Pascopyrum smithii*). In areas near rivers or in coulees or ravines, it is more common to find shrub and forest



species including willows (*Salix* spp.), thorny buffaloberry (*Shepherdia argentea*), and plains cottonwood (*Populus sargentii*). On poorly drained sites, sedges (*Carex* spp.), spike-rushes (*Eleocharis*spp.) and willows (*Salix* spp.) are supported (Natural Regions Committee, 2006; GOA Central parkland Range Plant Community Guide, 2013).

Native prairie in this region is preferred habitat for many species, including species at risk (SAR). This region is home to many secure and sensitive bird species including but not limited to vesper sparrow (*Pooecetes gramineus*), horned lark (*Eremophila alpestris*), sharptailed grouse (*Tympanuchus phasianellus*), Swainson's hawk (*Buteo swainsoni*), Piping Plover (*Charadrius melodus*) and upland sandpiper (*Bartramia longicauda*).

Typical wildlife species may include Richardson's ground squirrel (*Urocitellus richardsonii*), American badger (*Taxidea taxus*), American porcupine (*Erethizon dorsatum*) and various sensitive amphibians including the northern leopard frog (*Lithobates pipiens*).

According to the Alberta Merged Wetland Inventory and review of available aerial imagery, there appears to be several waterbodies and wetlands within 100 m of the pipeline ROW (note that ephemeral watercourses and wetlands cannot reliably be identified from a desktop level assessment). Pipeline Alignment sheets should be consulted when planning work along the pipeline ROW. The Environmental Alignment Sheets will form part of the activity/construction drawing package submitted for contractor service bidding.





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2.6 General Environmental Protection Measures

2.6.1 EPP and Contract

The EPP shall form part of all CER Regulated future pipeline construction, operations, maintenance, assessment, remediation, decommissioning, abandonment and reclamation contract documents.

The Environmental Alignment Sheets for the Pipeline will form part of the construction drawings. Should any conflict in contract and EPP requirements arise, the more stringent conditions will apply.

Copies of the EPP and associated environmental documents will be available to all key personnel during pipeline activities.

Utilizing the EPP guidelines provided herein, PTRL managers should review all CER regulated pipeline -specific activities / operations and assess any future pipeline operations in accordance with the EPP and the CER Onshore Pipeline Regulations. Any Identified deficiencies shall be reported immediately to the PTRL Environmental Advisor / VP Operations.

Pipeline activities should be planned to be completed prior to the expiration of all authorizations. If these conditions cannot be met, renewals or extensions will be required.



2.6.2 Construction Documents

The Contractor and the designated PTRL Inspectors will be provided the EPP, Environmental Alignment Sheets, and copies of all approvals, including the most recent updates and revisions.

2.6.3 Discipline

Those contractors, sub-contractors, consultants, agents, or PTRL employees who show careless or wanton neglect of the environment or disregard the EPP shall be removed from the work.

2.6.4 Licenses and Permits

All necessary authorizations shall be obtained prior to pipeline operations. Every reasonable effort will be made to adhere to all terms and conditions following required authorizations:

- Canadian Energy Regulator (CER) Permits;
- Department Pipeline Approval (DLP) Disposition for Crown Land portions (AB);
- Pipeline Agreements;
- Code of Practice (COP) Notifications (AB);
- Aquatic Habitat Protection Permit (AHPP; Saskatchewan [SK]);
- Historical Resources Act Permits (AB);
- Heritage Property Act Permits (SK);
- Temporary Diversion License (TDL) (AB);
- Alberta Environment and Parks (AEP) Permits/Approvals;
- Saskatchewan Environment (SE) Permits/Approvals;
- Road Crossing Agreements; and
- All county and Rural Municipality (R.M.) approvals.

Inconsistencies between terms and conditions of different authorizations will be rectified prior to activity commencement. Where inconsistencies are discovered in the field, this EPP shall prevail.

Any identified additional field licenses and approvals necessary will be obtained during construction from the appropriate regulatory authority as and where required.

Regular liaison with government field representatives will be the responsibility of the PTRL representative or the Environment, Health & Safety (EHS) Advisor.

2.6.5 Pre-Job Meeting

Prior to the commencement of construction, a pre-job meeting shall be held with project engineering and environmental staff, and the pipeline Contractor and sub-contractors, as required.

Key government representatives (e.g., Environment Canada wildlife biologist; AEP Biologists and CER personnel) may be invited to this meeting. The purpose of this meeting is to inform supervisory personnel of the key environmental issues, general environmental concerns, contingency plans, and rules and regulations applicable to the construction / activity area.



Review the emergency contacts outlined in PTRL ERP and EPP (Section 12) prior to commencement of pipeline activities.

2.6.6 Environmental Inspection

The EHS Advisor will facilitate the transfer of environmental information and inspection results to the PTRL representative and Contractor in a timely manner.

PTRL will ensure the implementation of the EPP during all critical phases (topsoil stripping and replacement; grading; wetland crossings; and clean up).

PTRL will review all contractor documents and plans pertaining to this Pipeline prior to construction to ensure environmental issues are addressed.

Reporting of any spills will be done in accordance with required federal and/or provincial regulations. The PTRL representative will be kept apprised on the incident response clean up and disposal of any spill affected materials and any affected soils or vegetation.

2.6.7 Weeds

Manage all weeds as per the AB and SK Weed Control Acts.

A pre-construction weed/invasive species survey will be conducted on all lands along the route.

Topsoil stripping of the full ROW will be considered, if localized weed infestations are encountered. Contain the spoil pile containing the weed to prevent mixing with the surrounding soil during final clean up. Store topsoil salvaged from the affected area separately. Full ROW stripping will not occur on native prairie.

Cleaning topsoil handling equipment prior to crossing County/R.M. and provincial boundaries. Consultation with Municipal District of Provost No. 52 and the R.M. of Senlac No. 411 regarding weed issues is recommended. Confirm equipment cleaning station requirements for the Pipeline against the plan to assure it is implemented.

Recommendations as a direct result of potential issues identified during in the pre-construction weed survey shall be followed to limit the risk of transporting weed seeds from weed infested areas.

Should construction occur during the growing season, any weed growth on topsoil piles will be monitored during construction and corrective measures (i.e., spraying) will be conducted if warranted.

All construction equipment and vehicles shall arrive on the ROW in a clean condition to minimize the risk of weed introduction. Any equipment or vehicles which arrives in a dirty condition shall not be allowed on the ROW until it has been cleaned off at a suitable location.

For weed infestations confined within the ROW boundaries, implement mitigative measures or removal strategies prior to clearing activities (Appendix 4). Dispose of any weed material at an approved landfill.

Equipment or vehicles passing through areas identified as having a weed problem will be cleaned prior to continuing work on the ROW unless full ROW stripping has been conducted. Full ROW stripping will not occur on native prairie.



Equipment or vehicles involved in topsoil handling at weed infested sites will be cleaned prior to leaving the location.

Clearly mark, with staking, flagging and signage (if warranted), any locations with known weed infestations to ensure appropriate equipment cleaning stations are implemented to reduce the risk of spread.

Record the locations of any previously unreported weed infestation for inclusion in postconstruction monitoring. Maintain a record of equipment or vehicles that have been examined and/or cleaned prior to entering or leaving the ROW. Maintain a record of equipment cleaning station locations along the ROW.

Place mats over weed infested areas to reduce the risk of construction equipment or vehicles transporting weed or plant material, if practical. Where mats are used, ensure they are free of soil, vegetation, and debris prior to moving from the site.

All lands traversed by the CER Regulated pipeline within the project area are freehold (privately owned) except for County and RM Roads and associated right of ways,

2.6.8 Scheduling

Should construction activities fall behind the proposed schedule, PTRL will consult with the appropriate regulatory agency/agencies to determine where timing changes are feasible, allowable, and where additional effort may be needed to complete construction prior to a specific date.

Where feasible, schedule work during periods of anticipated low precipitation and surface runoff.

A sharp-tailed grouse survey area is traversed (see Environmental Alignment Sheets). If any work to be completed after March 15 is within the sharp-tailed grouse survey area, then PTRL will complete necessary lek surveys.

Determine the potential for the presence of wildlife *Species at Risk* in the vicinity of the proposed Pipeline. Conduct construction activities and operations within wildlife habitats during periods of low sensitivity.

Schedule construction in wetlands during late fall and winter when wetlands are dry or frozen.

2.6.9 Contingency Plans

The following items shall be reviewed prior to construction kick off. All key personnel on the ROW should be aware of these plans.

- Emergency Contacts List from PTRL ERP (Section 12);
- Appendices for project field planning



APPENDIX	TITLE
A1	SOIL HANDLING CONTINGENCY PLAN
A2	TOPSOIL INTEGRITY CONTINGENCY PLAN
A3	SOIL EROSION COLNTINGENCY PLAN
A4	WEED MANAGEMENT PLAN
A5	RESOURCE DISCOVERY CONTINGENCY PLAN
A6	HISTORICAL RESOURCES CONTINGENCY PLAN
A7	FUELS AND HAZARDOUS MATERIALS PLAN
A8	WASTE MANAGEMENT PLAN
A9	TRAFFIC MANAGEMENT PLAN
A10	NOISE MANAGEMENT PLAN
A11	FIRE CONTINGENCY PLAN

2.6.10 Wet Soils

To minimize terrain disturbance and soil structure damage, construction may be postponed, equipment or vehicle travel shall be suspended, and construction alternatives shall be reviewed and confirmed in the event of thawed or wet soils. Contingency measures shall be considered once one of the following indicators occurs: excessive rutting; wheel slip, build-up of mud on tires and cleats, formation of puddles, and tracking of mud down the road as vehicles leave the ROW.

The wet soils mitigation decision will be made by PTRL in consultation with the EHS Advisor and as appropriate with regulatory agency/agencies. Factors influencing a decision to postpone start-up or shutdown work include: the weather forecast; construction schedule; and availability of non-problem areas (i.e. frozen or well-drained).

2.6.11 Water Withdrawal

Where water withdrawal is required, conditions of the *Water Act* and *Water Security Agency Act* authorization and other regulations will be adhered to. Follow appropriate procedures provided in *Fresh Water Intake End-of-pipe Fish Screen Guideline* for screening on water diversion hoses.

2.6.12 Spill Prevention

The Contractor shall ensure that for the duration of the project no fuel, lubricating fluids, hydraulic fluids, methanol, film developing fluids, antifreeze, herbicides, biocides, or any other chemicals are spilled on the ground or into any waterbody. In the event of a spill, measures in Appendix E: Fuel and Hazardous Material Contingency Plan, shall be implemented.



2.6.13 Equipment Refueling and Servicing

Appropriate spill containment shall be in place when servicing equipment with the potential for accidental spills (e.g., oil changes, servicing of hydraulic systems, etc.).

Oil changes, refueling and lubricating of mobile construction equipment shall be conducted a minimum of 100 m away from any waterbody to minimize the potential for water pollution.

Spent oils, lubricants and filters, and other materials that have the potential to cause contamination shall be collected and disposed of at an approved location. Fuel and service vehicles shall carry appropriate and sufficient commercial sorbent materials to capture and mitigate accidental releases (Appendix 7: Fuel and Hazardous Material Contingency Plan).

Though not anticipated for this project, should stationary equipment require fueling closer than 100 m from a waterbody, the following shall be adhered to:

- All containers, hoses and nozzles are free of leaks;
- All fuel nozzles are equipped with automatic shutoffs;
- Operators are stationed at both ends of the hose during fueling unless the ends are visible and readily accessible by one operator; and,
- Fuel remaining in the hose is returned to the storage facility.

Ensure that operators or on-site construction foremen are trained to contain spills or leakage from equipment.

Fuel, oil or hazardous material storage will not be allowed within 100 m of any waterbody.

Equipment shall be well maintained to minimize air pollution and unnecessary noise (e.g., mufflers).

Do not wash equipment or machinery in any waterbody, or on the ROW unless appropriate equipment cleaning station has been developed.

Hydraulic lubrication and fuel systems for equipment used in wetland crossing construction shall be inspected to ensure that the systems are in good working condition and free of leaks.

For equipment to be used within or near a waterbody, clean or otherwise remove external grease, oil or other fluids, mud and grime both prior to entering the waterbody and upon completion of activity. Prevent the discharge of any materials potentially toxic to fish or other aquatic life into the waterbody.

2.6.14 Noise

The Contractor will ensure regular inspection and maintenance activities are conducted on equipment and vehicles to ensure proper working condition (i.e., mufflers in good repair) to minimize noise (Appendix 10).

2.6.15 Garbage

All construction waste materials and unrecyclable debris shall be continually collected and disposed of at an approved facility to avoid the attraction of nuisance animals. Waste containers shall accompany each working unit. Waste shall not be disposed of in the trench.



2.6.16 Roads, Access and Shoo-Flies

Ensure construction in the road ditch follows all County requirements.

Construction activities and operations shall be confined to the allotted ROW. Construction traffic shall be restricted to existing roads, the ROW and approved shoo-flies. All roads shall be examined for damage resulting from Project construction activities and repaired back to pre-construction condition.

Shoo-flies shall be reclaimed as part of mainline clean up. All traffic safety and road closure regulations shall be followed.

Construction traffic shall be restricted to the trench area or work side of the ROW to reduce the area subject to potential soil compaction.

Install appropriate signs along access trails, at road crossings and in the vicinity of construction activities to warn general travelers of construction. The EHS Advisor will monitor access control measures.

Permanent all-weather roads will not be constructed without County or R.M. approval. Existing or temporary roads will be utilized.

2.6.17 Erosion and Siltation

Soil erosion and water siltation shall be prevented or controlled to the satisfaction of PTRL Inspectors and the appropriate regulatory bodies. The Contractor will make personnel and equipment available for erosion and sediment controls when warranted.

2.6.18 Wildlife

Wildlife shall not be harassed, or fed. Construction personnel shall not be permitted to have dogs or firearms on the ROW.

The recreational use of all-terrain vehicles and snowmobiles by construction personnel on the ROW shall be prohibited. Any incidents with nuisance wildlife or collisions with wildlife will be reported to the PTRL representative or EHS Advisor for furtherance to AEP and/or SE Biologists.

Recommendations drawn from project wildlife survey information shall be followed to minimize the impact of construction activities on wildlife Species at Risk.

Suspend construction work in the immediate vicinity when a wildlife Species of Concern is discovered on or near the ROW. Contact the PTRL representative and Environmental Advisor immediately to determine an appropriate mitigation strategy dependent on existing site conditions.



2.6.19 Rare Plants

There are areas of critical habitat for rare plants immediately adjacent to the project. If rare plants or rare ecological communities are identified or suspected along the ROW before or during construction, notify the PTRL representative who will initiate appropriate action depending on existing site conditions.

Flag or fence the area until the plant or community can be confirmed by a qualified biologist.

2.6.20 Cattle/Livestock

Keep vehicle traffic speed below 50 km/hour on roads through pastures with livestock and drive slower than 30 km/hour if cattle are adjacent to the road. In addition, the ROW will be given to cattle accompanied by riders on horseback attempting to move cattle from one field to another.

Refrain from using the sound of horns when livestock are near cattle guards to avoid potential for injury resulting from startled livestock attempting to cross the cattle guard.

If the location of an activity prevents livestock access to identified watering locations, provide permanent or temporary reliable and clean alternate water source(s).

2.6.21 Fires

Obtain all applicable provincial and/or County or R.M. burning permits prior to any burning activities. Adhere to all permit conditions.

All personnel shall be made aware of proper disposal methods for welding rods, cigarette butts and other hot or burning material.

Fires shall not be permitted when the fire hazard is HIGH.

Smoking shall be permitted on Company property and the construction right-of-way. Keep the ROW clean by ensuring that cigarette butts are not disposed of on the ground or in the trench.

Exhaust and engine systems of equipment or vehicles shall be maintained in good working condition. When the fire hazard is high, vehicles shall not be parked on stubble or tall grass. Inspect undercarriages periodically to ensure that grasses do not accumulate.

Construction equipment shall be equipped with spark arrestors.

A water truck shall be maintained on the ROW when the fire hazard is HIGH. If mowing of the ROW is required, mow prior to construction if the fire hazard is high to reduce potential ignition sources. Mowing will take place at appropriate times and will be accompanied by a water truck with appropriate firefighting equipment.

Each crew shall carry at a minimum, two shovels, one fire extinguisher and one two-way radio or cell phone (Appendix 11: Fire Contingency Plan).

The Fire Contingency Plan (Appendix 11) shall be activated, and proper authorities notified in the event of a wildfire.





2.6.22 Archaeological, Paleontological, or Historical Discovery

Construction shall be suspended where any archaeological, paleontological, or historical sites are discovered within the ROW or Temporary Work Space (TWS) (Appendix 6). Work at that location shall not continue until permission is granted by Alberta Culture and Tourism and/or Saskatchewan Parks, Culture and Sports.

As required refer to the Historical Resources Impact Assessment, Heritage Resource Impact Assessment, Paleontological Impact Assessment and/or Paleontological Resources Investigation to minimize the potential for impacts on heritage resources.

2.7 NOTIFICATION OF CONCERNED PARTIES

The following notifications are made where and when the conditions exist requiring notification:

2.7.1 Regulatory Authorities

Notify the appropriate regulatory agencies a minimum of 10 working days prior to construction. Contact shall be maintained until Pipeline completion.

Notify the appropriate regulatory agency/agencies prior to construction if a landowner requests alternative soils handling techniques (Appendix 1).

Notify the Alberta Energy Regulator (AER) 14 days (minimum) prior to commencement of vehicle wetland crossing installation in accordance with the *Code of Practice for Watercourse Crossings*.

Notify the AER within 24 hours in the event of a contravention of the above COP.

Notify the AER 14 days (minimum) prior to commencement of wetland crossing construction in accordance with the *Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body*. Notify the AER within 24 hours in the event of a contravention of the above COP.

Notify the SK Water Security Agency prior to commencement of vehicle wetland crossing installation and water crossing construction in accordance with the AHPP. Note that the Water Security Agency may require up to 45 business days to process an AHPP application. Notify the Water Security Agency within 24 hours in the event of a contravention of the above AHPP.

Obtain a TDL from AEP or a Test Water Discharge Permit from SE prior to the withdrawal of water for use during construction activities (e.g., ice road construction, dust control, make up water for drilling mud, etc.).

Notify Bylaw Officers, if required, prior to conducting any burning.

Notify County and/or R.M. Development/Planning Officers if required by road crossing agreements prior to construction.



Notify the appropriate provincial and County/R.M. agencies prior to application of pesticides or herbicides for weed control, if required. Obtain all applicable permits.

2.7.2 First Nations

Notify required First Nation administration of pipeline route(s) and construction schedules prior to starting construction.

2.7.3 Landowner and Lessees

Notify landowner and lessees of construction details prior to starting construction.

2.7.4 Snowmobile Clubs

Snowmobile clubs in the area have not been identified. Should a club be identified, they will be notified a minimum of two weeks prior to starting construction. Clubs shall be informed of the proposed route, potential hazards and construction schedule.

2.7.5 Water Users

Notify appropriate authorities and licensees if required by COP or AHPP requirements prior to withdrawing any volume of water for testing or construction.

2.7.6 Resource Companies

Notify appropriate companies for road, powerline, and foreign line crossings.

2.7.7 General

Post appropriate construction warning signs along access roads and at road crossings in the vicinity of construction activities to warn school buses and travelers of construction hazards.

Where and when required (e.g., construction activities at road crossing), staff shall be assigned to direct traffic.

All excavated areas around with access to public roads will be fenced.

Section 12 contains a list of persons to contact.



3.0 SURVEYING AND CLEARING

3.1 Staking

Stake both boundaries of the ROW and any additional TWS. Do not allow stripping or grading beyond the stakes unless access to additional workspace have been obtained. Clearly flag or stake the boundaries of temporary access roads and shoo-flies.

Stake the ROW, so roads are crossed perpendicularly or as per crossing agreements, and slopes are ascended or descended along the fall line.

Maintain staking and flagging throughout construction, if feasible.

3.2 Staking – Environmentally Sensitive Area

A qualified individual will stake and flag or fence for avoiding the locations of environmental sensitive areas identified on the Environmental Alignment Sheets.

Clearly post signs prohibiting workers or equipment from entering the staked, flagged and/or fenced areas.

Where further narrowing is necessary, develop site-specific plans to complete construction through the area while protecting the environmental feature.

3.3 Extra Workspace

Identify need for extra workspace prior to starting construction. Take extra workspace at:

- Sharp sidebends and foreign line, and road crossings to ensure sufficient separation between topsoil and spoil piles;
- Sidehills and on hummocky terrain to ensure sufficient storage space for graded material; and
- Locations where deep topsoils are identified (over 25 cm).

Obtain approval from the PTRL representative, landowner, and the appropriate regulatory agency/agencies prior to taking additional workspace in the field.

3.4 Fences

Properly brace fences before cutting. Close gates after use.

Install temporary fencing and gates where practical or as directed by the landowner where necessary to maintain access restrictions.

Make arrangements with the landowners to keep livestock in fields not crossed by the ROW, where practical.



3.5 Foreign Line Exposure/Hydro-vac

Follow hydro-vac's recommended disposal procedures for fluid collected from exposing foreign line facilities to ensure no cross contamination, natural or manufactured.

Hydro-vac trucks are required to arrive on site clean and free of any cross-contamination material, this includes soil material from other Pipeline sites.

Unidentified contamination can be identified by a visual sheen or odor. If any indication of contaminants appears, follow General Spill Containment Procedures (Appendix 7).

Dispose of contaminated hydro-vac material at an approved facility and in accordance with regulatory requirements.

Slurry with no indications of contaminants can be disposed of along the ROW or acquired TWS (off-site sump site) where the topsoil has been salvaged and there is no potential for the material migration or erosion.

Retain all records related to analytical and disposal activities of clean (uncontaminated) and contaminated hydro-vac materials.

Where feasible, salvage topsoil prior to excavating if multiple lines will be crossed.

Assign a tow dozer or tractor to assist the hydro-vac through localized wet areas to minimize rutting.

Empty the hydro-vac truck onto subsoil or other approved disposal facility (e.g., at road crossings where the topsoil has been stripped) or into designated disposal sumps. Ensure that hydro-vac material is contained within the designated release area.

3.6 Bar Ditch Ramps

Salvage topsoil/upper surface material from the area where upper B (upper subsoil) horizon will be removed for use as ditch ramping material.

When constructing ramps, use subsoil material or matting. Where practicable, minimize disturbance on native prairie by using matting or excavate a borrow pit for ramping material. At locations where 3-lift is required, ensure that the C-horizon subsoil is used for ramping material.

Install culverts in bar ditch ramps to maintain runoff drainage. Culvert sizing specifications will be determined by PTRL. Ensure all appropriate permits/approvals are obtained prior to culvert installation.

3.7 Shoo-flies

Install shoo-flies at locations approved by the PTRL representative, landowner, and the appropriate regulatory agency/agencies. Any additional shoo-flies may require a Temporary Field Authorization (TFA), *Historical Resources Act* clearance, *Heritage Property Act* clearance, or additional regulatory approvals.



3.8 Wetlands

Minimize the removal of vegetation and the disturbance of soil adjacent to wetlands.

For wetlands that have a riparian area, flag the edge of the riparian buffer zone before any site disturbance activities. Maintain staking and flagging or fencing during construction activities, if feasible. Limit traffic in the vicinity of the flagged area.

Consider narrowing down the ROW and/or TWS to minimize disturbance.

Stake, flag or fence the ROW boundaries adjacent to all wetlands to avoid impacts on adjacent wetlands and riparian areas.

Install a shoo-fly around wetlands in consultation with the EHS Advisor, for initial construction traffic. Install swamp mats, matting or geotextiles or construct a subsoil ramp, if warranted, for a work surface or for construction traffic that needs to cross the wetland. Restrict access through wetlands to the shoo-fly, mats/matting or ramp to extent practical.

If present, mow/cut/walk down shrubs and small diameter trees at ground level and minimize grubbing in all areas, primarily in the extra TWS.

3.9 Habitat Clearing

Construction is scheduled for winter. If changes to the schedule result in construction outside the winter season, the following may become applicable within the EPP.

Avoid clearing shrub patches, or any habitat that may contain nests during the spring or summer, as recommended by Environment Canada.

Avoid clearing activities in wetlands that may contain breeding migratory birds, or native prairie that may contain *Species at Risk*, during the spring or summer, as recommended by Environment Canada.

Clearing of wetlands will be avoided during the Spring and Summer.



4.0 WETLAND CROSSINGS

4.1 Notification/Approvals

Notify the AER 14 days (minimum) prior to commencement of vehicle wetland crossing installations in accordance with the *Code of Practice for Watercourse Crossings*. Notify the AER within 24 hours in the event of a contravention of the above COP.

Notify the AER 14 days (minimum) prior to commencement of wetland crossing construction in accordance with the *Code of Practice for Pipelines and Telecommunication Lines Crossing a Water Body.* Notify the AER within 24 hours in the event of a contravention of the above COP. Notify the SK Water Security Agency prior to commencement of vehicle water crossing installation and water crossing construction in accordance with the AHPP. Note that the Water Security Agency May require up to 45 business days to process an AHPP application. Notify the Water Security Agency within 24 hours in the event of a contravention of the above AHPP.

Construct all temporary vehicle and pipeline crossings as per the relevant notifications, approval conditions and crossing plans.

Obtain a TDL from AEP or a Test Water Discharge Permit from SE prior to withdrawal of water for use during waterbody crossing (i.e., ice bridges, snow fills, drills).

Obtain TFA from AEP or approval from SE prior to accessing a licensed water diversion location on provincial Crown land.

4.2 Additional Workspace

Obtain and mark extra TWS, if warranted, prior to initiation of work within. Ensure TWS does not encroach within the vegetative buffer as identified in appropriate guidelines and/or regulatory approvals. Ensure all appropriate approvals are in place prior to use.

Obtain and mark adequate extra TWS at crossings to be directionally drilled to allow for monitoring, containment and clean-up of a drilling mud frac-out.

4.3 Monitoring

Monitor to assess the immediate effects of crossing construction, if warranted. Also, monitor sediment release (i.e., turbidity and total suspended solids) throughout the crossing construction period, if required.

4.4 General Mitigation Measures

Ensure that a qualified environmental inspector is on site during construction to ensure regulatory compliance and to oversee implementation of the environmental protection measures contained within this Environmental Protection Plan.

Develop a site-specific spill response plan. The plan should include appropriate emergency contact numbers and outline measures to contain, control, report and clean up spills or releases of deleterious substances (Appendix 8).



In the event of a spill, immediately implement measures to stop, control the migration of, and clean up the spilled substance.

Install temporary erosion control measures (i.e., silt fence, brush mats, cross-ditches) to mitigate effects of siltation and compaction on wetlands.

Store wetlands topsoil separately from uplands topsoil.

Remove all unused material and construction debris immediately after completion of construction for proper disposal.

4.5 Equipment Inspection and Servicing

Review and adhere to general protection measures in Section 2: General Environmental Protection Measures related to equipment washing, inspection of hydraulic fuel and lubrication systems of equipment, equipment servicing and refueling as well as fuel storage in proximity to water.

4.6 Clearing

Review and adhere to protection measures related to clearing and grubbing near water and wetlands identified in Section 5: Grading and Topsoil Salvage.

4.7 Temporary Erosion and Sediment Controls

Arrange for inspection of erosion and sedimentation control measures after significant precipitation events (e.g., greater than 12.5 mm in 24 hours or rapid melt of snow accumulation) to ensure continued effectiveness (Appendix 3). Repairs to the associated structures should occur in a timely manner.

4.8 Pretest

Identify and stake (if warranted) wetland boundaries prior to construction.

4.9 Temporary Vehicle Crossing Method

Use existing bridge/vehicle crossings, whenever possible.

Where installing temporary vehicle crossings structures, ensure all abide by AEP *Code of Practice for Watercourse Crossing* and/or the Water Security Agency AHPP.

Install swamp mats, ramps or fill on the work side, if warranted, to facilitate crossing wet terrain. Suitable geotextiles may also be considered.

Plow and store snow for snowfill crossings prior to earth-moving activity to maintain clean snowfill.



Pack snow over the work side and spoil side or install ice bridges/clean snow fills across wetlands to protect the ground surface and limit compaction and rutting for construction traffic that needs to cross the wetland or drainage during frozen conditions.

Install mats at wetland crossings so that vehicles and equipment do not ford waterbodies prior to installation of temporary vehicle crossing structures, where feasible.

Monitor the condition of the wetland crossing during access activities and implement measures to avoid excessive disturbance to the vegetative mat (i.e., rutting, erosion) as needed.

Avoid grading, if feasible, when constructing bridge, fill or ford crossings. Where grading is necessary, ensure grading does not conflict with approval conditions and reduce the amount of grading conducted.

Ensure that no excavation of the wetland bed and banks occurs during installation of the vehicle crossing unless approved by the appropriate regulatory authority.

Utilize swamp mats or snow fills across wetlands.

Immediately remove any temporary crossing and associated debris after completion of the pipeline crossing and restore the disturbed area to preconstruction conditions. Crossing structures may be left in place for final ROW clean up (e.g., reseeding) if no other access is available, acceptable erosion and/or sedimentation devices are in place, and if they are designed to withstand fluctuating water depths during spring break up.

4.10 Additional Workspace

If possible, avoid taking additional TWS within the boundaries of a wetlands.

4.11 Wetland Construction Techniques

Directional drill, bore or open-cut techniques may be used.

Equipment requirements and open-cut methods should be determined prior to construction for each wetland. Consideration should be given to soil type, moisture content, potential for rutting and compaction, and potential for trench sloughing. Utilize geotextiles for the movement of equipment, if necessary.

Minimize the length of open trench. Use buoyancy controls for the pipeline, if necessary. Slope trench walls to maintain stability.

If the trench requires dewatering, follow Section 6.10.

Wetland surface soils will be stored separately from upland topsoil.

Store excavated material in a manner that does not interfere with natural drainage patterns. For wetlands that have been impacted by farming practices, wetland soils maybe temporarily stored within the wetland during construction. For all other wetlands, avoid storing topsoil and subsoil piles or equipment within the boundaries of the wetland.



Openings will be left in the trench crown at appropriate locations to allow for cross ROW drainage (both temporary and permanent).

Based on site-specific conditions (e.g., unmanageable topsoil), final cleanup may be delayed to spring. An assessment will be conducted to determine if topsoil replacement under frozen ground conditions is feasible.

Install trench breakers, where warranted, at the edge of wetland crossings to prevent the trench line from acting as a drain to the wetland.

Install berms, cross ditches and/or silt fences, where warranted, at approach slopes to wetlands and/or between wetlands and disturbed areas to prevent siltation of surface water. Ensure silt fences are installed properly and filter fabric is tight.

4.12 Adjacent Wetlands

If wetlands are located adjacent to the proposed pipeline ROW, construction activities shall not allow the disposition or placement of debris, soil or other material from entering the wetland or on the ice of wetland. If this occurs, removal of the soil/debris will occur. Proper sediment and erosion control measures may be required to prevent run-on/run-off issues.

4.13 Trenchless Crossings

Maintain the buffer distances when setting up the drilling equipment. Do not clear or grade within the buffer zone, unless approval from the appropriate regulatory agency/agencies is obtained.

Construct berms (i.e., sandbags, straw bales) along the downslope edge of the entry and exit points, if necessary, to control any drilling mud that may be released on site.

Prior starting any HDD operations, clearly flag the entire expected drill path, including both sides of the wetland.

Continual visual frac-out monitoring by an EHS Advisor will be performed during the active period of drilling the wetland and approach slopes at the crossing location.

Ensure all drill rigs have on-site spill containment kits (i.e., silt fencing, sandbags, absorbent pads, clothes, etc.) prior to commencing construction.

Monitor drilling fluid composition, volume and returns, and record on a continuous basis during the drilling operation to detect any losses.

Should horizontal directional drilling be required, an HDD frac-out response plan will be developed.

4.14 Open-Cut Crossings

Use open-cut methods for pipeline crossing locations on dry or frozen to bottom wetlands.


Install effective sediment and erosion control measures before starting work to prevent entry of sediment into the wetland.

Backfill with native material as soon as possible after lowering-in. The wetland shall be returned to approximate pre-construction profile to ensure that flow patterns are unaltered.

Ensure proper spill containment measures are in place prior to construction.

For wetlands that have been impacted by farming practices, wetland soils maybe temporarily stored within the wetland during construction. For all other wetlands, avoid storing topsoil and subsoil piles or equipment within the boundaries of the wetland.

4.15 Reclamation

Maintain silt fences or equivalent sediment control structure in place at the base of wetland approach slopes until revegetation of the ROW is complete.

Remove sediment control structures after the disturbed area is revegetated and the area is stable.

4.16 Post-Construction Monitoring

Arrange for inspection of erosion and sedimentation control measures frequently and after significant precipitation events (e.g., greater than 12.5 mm in 24 hours or rapid melt of snow accumulation) to ensure continued effectiveness (Appendix 3).

Photo document post-construction site conditions and record stage of revegetation success. The photographs should be kept in PTRL's files, plus any site reports and as-built TWS documentation for potential regulatory audits. The file should be maintained for possible regulatory review for the life of the crossing structure.

If Post-Construction Monitoring indicates reclamation is not successful (because of drought, flooding, or cattle grazing and trampling), reclamation contingency options include replanting and cattle exclusion fencing.



5.0 **GRADING AND TOPSOIL SALVAGE**

5.1 Snow Management

Leave periodic 3 m wide gaps in windrowed snow where snow windrows are greater than 0.75 m in height. Gaps will typically be at 400 m intervals along the route and at visible trails used by livestock or wildlife.

Windrow snow over the trench line to prevent deep frost penetration.

Remove or pack snow on work side to increase frost penetration in the soil during early winter. In mid to late winter, pack snow on the work side to avoid premature thawing of the upper soils. Grade snow over rough travel lane to improve driving conditions; and grade the spoil area on cultivated lands to smooth furrows and facilitate removal of spoil during backfilling.

Excess snow that could interfere with backfilling operations is to be removed. A separation layer (e.g., snow, fiber mulch, geotech., approved straw) should be in place to avoid in situ topsoil from mixing with subsoil material during backfilling.

Windrow surplus snow and any snow over the trench line to the closest side of the ROW immediately prior to trenching.

As soon as wetlands are sufficiently frozen to support construction equipment, remove snow from the work side to increase frost penetration and freezing of in situ water.

Ensure snow graded from the ROW is stored in a manner that does not lead to increased erosion during spring melt. Ensure that melting 'dirty' snow is not allowed to run-off directly into water.

5.2 Grading

Minimize grading throughout the route, especially on wetlands and pasture lands where competent sod layer present. Minimize the width of grading to limit the increased potential for erosion and subsoil compaction.

Salvage topsoil from areas to be graded and windrow to the closest edge of the construction ROW.

Avoid over stripping. The area stripped will correspond to the area to be graded.

Ensure graded material does not spread off-ROW and approved TWS. Maintain a vegetated buffer from graded material and wetlands.

Contour and stabilize excess grade material if stockpiles are to remain through the winter or for an extended period of time.

Restrict grading to the trench line and work area in the vicinity of wetlands, where feasible.

Do not grade in the vicinity of wetlands until construction of the crossing is imminent.



Limit disturbance of natural drainage channels during grading; avoid blocking channels with graded material.

5.3 Wetlands

Grade away from wetlands to minimize introduction of soil and organic debris. Windrowed or fill materials shall not be placed in any waterbody during grading. Keep wetland soils separate from upland soils.

Wetland bed and banks will be protected from rutting and other construction activities by using mats or construction pads.

Sediment-laden runoff from roadside ditches or from the approaches to the crossings will be prevented from entering the wetland.

When encountered, salvage willows or shrubs from wetland banks and store in a manner to prevent from drying out.

Riparian vegetation will not be cleared without prior approval/notification from/to the appropriate regulatory agency/agencies, if applicable.

Place topsoil in stockpiles or windrows above the high water mark in a manner that does not block natural drainage or runoff; construction activity movements; replacement of grade materials or trench spoil; and preventing potential for erosion and siltation into water.

Where possible place stockpile or windrows on the up-slope side of the trench.

Avoid clearing wetlands in the Spring and Summer, as recommended by Environment Canada.

5.4 Silt Fences

Install silt fence adjacent to wetlands where the potential for runoff to enter the wetland exists. Arrange for inspection of erosion and sedimentation control measures after significant precipitation events (e.g., greater than 12.5 mm in 24 hours or rapid melt of snow accumulation) to ensure continued effectiveness (Appendix 8). Repairs to the associated structures should occur in a timely manner.

5.5 Sod Conservation

Retain sod from bush, and hay lands where a competent sod layer is observed. Grade only where safety considerations dictate to minimize disturbance to sod. Grading of hay or pasture lands shall not be permitted on level terrain.

5.6 Topsoil Handling Contingency Measures

Implement Soil Handling Contingency Measures during topsoil salvage and conservation if any of the following are encountered:

• Minimal or no topsoil layer;



- Uneven boundary between topsoil and subsoil layers;
- Poor colour separation between topsoil and subsoil layers;
- Gravelly or stony soil profiles;
- Uneven surface in pastures;
- Wetlands;
- Unstable trench walls;
- High winds; and/or
- Requests for alternate topsoil handling methods by a landowner (Appendix 2).

5.7 Topsoil Salvage Schedule

To minimize the period that the topsoil windrow will be exposed to the wind, schedule topsoil salvage on wind erodible soils within three (3) days or less prior to trenching activities. In the event of excessive wind speeds, the soil erosion potential will be evaluated to determine if topsoil salvage cannot be scheduled or postponed, or if mitigative options can be implemented (e.g., wetting or spraying with water; tackifier application; mechanical compression of the topsoil windrow with a sheepsfoot packer; etc.).

Accommodate topsoil salvage preferences of the landowner, where practical and if feasible. Record any locations where the landowner has requested topsoil handling procedures that differ from original plans and soil handling recommendations.

5.8 Stripping Depth

Salvage all available topsoil (minimum 15 cm) using the Alignment Sheet as a guide. Where soil layers are not readily distinguishable by color, the or EHS Advisor, in consultation with the PTRL representative or designate, will provide direction based on an evaluation of soil texture and structure as well as recommended depths noted on the Environmental Alignment Sheets.

Implement the Soils Handling/Contingency measures during upper material stripping salvage if wet/thawed soil conditions are encountered or if soil erosion becomes evident.

5.9 Upper Subsoil Salvage

Where larger areas of topsoil will be stripped (e.g., crossings, graded areas), a transitional layer of topsoil/subsoil of approximately 10 cm thickness will be salvaged and stored adjacent to the topsoil pile. Separation between the transitional soil and topsoil is not necessary; the two piles can be allowed to touch and overlap to the extent that they can be separated with a backhoe for replacement in reverse sequence during cleanup.

5.10 Topsoil Salvage – Native Prairie (Crown Land)

Strip topsoil at trench width (approximately 1-3 m) as centered over the trench on native prairie at locations indicated on the Environmental Alignment Sheets.

As per Operating Condition 1025-AS a) of the Master Schedule of Standards and Conditions, on Alberta Crown-owned lands, "*in areas where greater ground disturbance is required (i.e., foreign line crossings, bell holes for tie ins, and areas required for boring operations), pre-stripping for soil salvage and replacement can occur upon interim reclamation*" (GOA 2021).



As per Operating Condition 1025-AS b) of the Master Schedule of Standards and Conditions, on Alberta Crown-owned lands, "Where stripping occurs on native grasslands, temporary soil storage must utilize geotextile to separate stored soils from undisturbed soils" (GOA 2021).

Topsoil Salvage –Croplands, Well-Sodded Improved Pasture and Hay Lands in Winter (Patented Lands) Salvage topsoil (approximately 4 m) at locations indicated on the Environmental Alignment Sheets, unless otherwise directed by the landowner. Record any locations where the landowner has requested topsoil handling procedures that differ from original plans and soil handling recommendations.

Limit stripping activities to equipment capable of accurately stripping variable depths of topsoil (e.g., frozen topsoil cutter, mulchers). if available), or rip frozen topsoil if frost depth is less than topsoil depth.

Mulching of frozen topsoil layer may be necessary. Prior to implementation, consult with the PTRL representative, EHS Advisor to identify scenarios where this technique is suitable.

5.11 Topsoil Salvage-Road Ditch

Salvage available topsoil, if present.

Ensure all County approvals are followed during construction in the road ditch.

Ensure areas of Native Prairie, east of the fence, are not impacted.

5.12 Surface Stripping Salvage – Grading Required

Salvage topsoil and transition layer (A/B horizon layers) from cut side of grade before grading subsoil. A separation layer (e.g., snow, geotech, approved straw, etc.) should be in place to avoid insitu topsoil from mixing with subsoil material.

5.13 Overstrip

Overstrip topsoil layer at specific locations identified on the Environmental Alignment Sheets.

5.14 Three-Lift Soils Handling

Use three-lift soil handling at specific locations identified on the Environmental Alignment Sheets. Strip topsoil from the trench and spoil area at a width of approximately 3 to 6 m for frozen conditions; on lands requiring three-lift soils handling.

Confirm all material depths for the upper subsoil lift to be removed at the specific locations for three-lift soils handling from the Environmental Alignment Sheets.

5.15 Increased Stripping Width

Increase the stripping width, if warranted at specific locations where bedrock or boulders may be encountered at trench depth, to minimize the risk of topsoil/subsoil mixing.



If bedrock or boulders are encountered, consult with PTRL EHS Advisor to confirm stripping width.

5.16 Soil Pulverization

Provide alternative access to the ROW or minimize traffic along the ROW to avoid identified areas prone to soil pulverization.

Salvage topsoil layer where heavy traffic is anticipated as well as extremely dry areas to reduce potential for soil pulverization and loss of soil structure.

Recommend the use of equipment with wide pad tracks during soils handling.

Where practical, increase salvage widths of topsoil layer at specific locations identified on the Environmental Alignment Sheets for those areas prone to soil pulverization.

Lightly cultivate the affected areas during clean up, interim reclamation or final reclamation. Ensure the extent of light cultivation area is slightly larger than the disturbed area.

5.17 Windrow Gaps

Leave gaps in the topsoil windrow at identified wetlands and where practical, at locations requested to allow farm machinery, livestock and wildlife to cross the ROW.

If constructing through dry or frozen wetlands, ensure salvaged material is not stored adjacent to trench, but on upland locations or where sensitive areas have been identified.

5.18 Sidebends and Crossings

Salvage a greater width of topsoil at sharp angle sidebends, roads, and foreign lines to accommodate a wider and deeper trench.

Salvage topsoil from the bellhole opening and subsoil storage areas at all trenchless crossings on cultivated lands.

Salvage topsoil from an area larger than the bellhole opening on well-sodded fields to allow feathering-out of subsoil over the stripped area.

Excavate bellholes away from the toe of the slope for road crossings in accordance with the crossing agreement to prevent sloughing and the possibility of undermining the structure being crossed.



6.0 STRINGING, TRENCHING AND LOWERING-IN

6.1 Timing

During dry or frozen soil conditions, ensure that there is sufficient frost or low enough soil moisture to allow construction without causing excessive rutting or soil compaction.

6.2 Stringing

Use swamp mats, rig mats, or geotextile to improve the load-bearing capacity of soft ground on the ROW.

6.3 Gaps in Set-Up Pipe

Leave periodic gaps (e.g., 3 m) at approximately every 400m in pipe set-up and welded pipe to coincide with snow windrows, topsoil, grade, spoil and trench to allow anticipated wildlife to cross the ROW. Gaps may also be located at observed crossing locations for farm equipment and livestock.

6.4 Welding

To reduce the time the trench is left open, weld pipe prior to trenching at locations with soils prone to sloughing.

Do not leave spent welding rods, filings/shavings from end preparation, or cut off pipe rings on the ground or in the trench.

Dispose of hot welding rods and other debris in an appropriate manner.

Use a tarp, magnets or other suitable materials to collect bevel shavings.

Where pipe coatings are applied, place a tarp of sufficient size underneath the pipe segment being coated to collect and contain overspray or drippings from pipe coating application. During sandblasting activities, place blankets/tarps under pipe joint locations to collect sandblasting residue and debris.

6.5 Trenching

Windrow surplus snow and any snow over the trench to the closest side of the ROW immediately prior to trenching.

Minimize trench width during normal trenching to limit spoil storage requirements and sod disturbance.

Minimize length of open ditch as practicable to less than 1 km and reduce the time the trench will be left open to limit the amount of trench sloughing, frost penetration and potential interference with wildlife, landowners and livestock movements.



Ensure temporary berms and/or silt fences installed following grading will adequately control runoff from open trench.

If constructing during summer and where groundwater is present, consider installing well points around the ROW to intercept groundwater before it enters the trench.

6.6 Wildlife

When trenching operations are finished for the day or during an extended shutdown period for construction, provide 3 m wide gaps in pipe segments and spoil piles every 400 m to allow for wildlife movement across the ROW. In addition, install 2:1 sloped ramps at each end of the trench to allow for accidentally trapped wildlife to escape.

To facilitate wildlife movement, trenching operations will be followed as closely as practicable by backfill operations, unless certain construction activities or operations require that the trench be left open for an extended period of time.

If a wildlife species is trapped within the open trench, removal from the trench may be conducted with the assistance of a qualified wildlife professional and reported to the local AEP or SE biologist.

6.7 Drain Tile(s)

Mark the location of any drain tiles cut during trenching. Cap the cut ends to prevent clogging of the drains with dirt or debris and, if required, install a temporary flume to maintain drainage.

6.8 Bedrock

Rip bedrock in trench if encountered. Where feasible, ripping in trench is preferred over blasting activity.

6.9 Trench Plugs

Where the potential exists for an open trench to dewater a wetland community or allow water to flood locations adjacent to the ROW, leave hard or soft plugs at strategic locations to prevent the continuous flow of water through the trench.

To maintain separation of the topsoil and subsoil windrows during excavation of hard and soft plugs from the trench, control access to the spoil side by backhoes or excavators.

6.10 Dewatering Trench

When laying pipe in areas with high water table or above average surface runoff volumes, trench dewatering may be required. The dewatering locations shall be approved by the EHS Advisor, landowner/lessee, Crown and/or County or R.M. Ensure all appropriate authorizations/ notifications are in place prior to commencing dewatering activities.

Visually inspect trench water for signs of contamination before the start of dewatering. Where contamination is observed, follow spill response plan to contain, collect and dispose of



contaminants. Trench water in saline areas resulting from surface water can be tested and pumped to an approved location. Prior to pump off, the area to contain the water must be stripped down to the saline lift (onto the C-horizon soil). However, if trench groundwater from a saline area is tested and is not saline (e.g., EC less than 2 ds/m, SAR less than 4), dispose of as normal trench water.

Groundwater from saline areas can only be transferred or pumped to other saline locations or alternatively, must be trucked off site for disposal at an approved facility.

Secure hose and outlet from pump onto well-vegetated areas on stable ground. Use tarps, sheeting or geotextiles where required to avoid potential erosional areas and to prevent potential for discharge of any unfiltered or silted water from entering any waterbody. Place pumps within a secondary containment (using an impermeable liner) above the high water mark of wetland. Elevate or protect pump intake to decrease sediment discharge. Dewatering points shall not be located within 50 m of any waterbody.

The discharge hose will be aimed at materials such as sandbags or rocks overlaying geotextile fabric to diffuse the flow, prevent scour potential and encourage infiltration.

Monitor discharge location for silt/sediment accumulations and ensure any deployed erosion and sediment control measures are being maintained and performing as required.

Dewatering of any permanent wetland without prior authorization/notification is prohibited.

Temporary sloughs under cultivation or hay land may be dewatered, if required.

Ensure hoses and pumps are of sufficient length and capacity to transfer trench water to the desired location. Ensure all hoses are in good working condition, and hoses with tears or ruptures will be repaired or replaced.

All pumps will have secondary containment (using an impermeable liner) to prevent fuel leak contamination.

6.11 Unstable Trench Walls

Suspend trenching and increase the stripping width for topsoil over the trench line where trench walls have started sloughing into the ditch and the potential exists for increased topsoil/subsoil mixing. Backslope the trench walls until stable.

As practicable, weld up pipe prior to trenching at locations where soils are prone to sloughing to minimize the time the trench is left open.

6.12 Lowering-in

Minimize traffic on the topsoil windrow located on the work side during pipe lowering-in.

6.13 Install Trench Breakers

Install trench breakers (sack, foam or bentonite) where required and as appropriate on moderate slopes.



To prevent the pipe trench from acting as a drain, install trench breakers where required and as appropriate on the edges of wetland areas.

To force groundwater seepage along the trench to the surface where contact springs are encountered, install trench breakers where required and as appropriate.

Exact location for breaker installation will be determined in the field. Mark or GPS the location of each breaker installed prior to backfilling to facilitate the correct placement of diversion berm immediately downslope of the breaker.

6.14 Install Subdrains

After the trench is excavated, install subdrains when directed by PTRL's engineer at slope locations where there are visible signs of seepage or a flowing contact spring.

6.15 Backfill Trench

Backfill the trench in proper sequence without mixing spoil with topsoil pile. Do not walk equipment or vehicles on the topsoil pile while backfilling spoil.

Where three-lift soils handling has occurred, ensure that the lower lift of subsoil is backfilled in the trench before backfilling the upper lift of subsoil.

To avoid potential reduction in agricultural capability, ensure that all broken bedrock materials excavated from the trench are not backfilled in the upper 50 cm of the trench. Excess bedrock materials will only be disposed of at locations off ROW that are approved by the landowner and the appropriate regulatory agency/agencies.

Ensure that bedding or padding material is not stockpiled on areas of undisturbed topsoil prior to placement in the trench, unless otherwise approved by the appropriate regulatory agency/agencies.

Ensure that all potential sources for additional or replacement backfill materials are identified in the Contractor's construction execution plan, prepared by the Contractor prior to construction. Ensure that any imported backfill material is tested for contaminates before use.

Backfill all replaced materials in the trench using lifts. Compact each lift with a grader wheel before placing the next lift or until materials backfilling is complete.

Ensure that large clods of soil materials are broken into smaller pieces prior to and during backfill.

Where feasible, compact the backfill to minimize trench settlement.

Avoid mixing snow with spoil material during backfill.

Ensure that all trench segments are backfilled prior to spring break up.



6.16 Wetlands

Take extra care when compacting the trench along the identified limits of wetland areas.

Where potential water movement along the trench is expected to be high, consider installing sack (filled with sand or bentonite) trench breakers on the banks of both sides of the wetland crossing.

Where the trench has a high potential to partially drain wetland areas, consider installing trench breakers as and where required to maintain the original wetland hydrology.

Use mats or construction pads for crossings of wetland banks to protect from rutting and effects of other construction activities.

Unless soils are frozen when backfilling wetlands, replace subsoil materials in the trench to avoid leaving a trench crown. If a trench crown is unavoidable due to volume of subsoil materials, leave periodic breaks in the trench crown to prevent impoundments of water or runoff on the wetlands.

6.17 Drainage Tiles

Repair to pre-construction condition any drainage tiles that were damaged during trenching or crushed by equipment and vehicle passage during construction.

Compact each lift of backfill materials replaced around reconstructed drainage tiles.

6.18 Crown Trench

Crown the trench with remaining spoil to allow for settlement.

Leave breaks in the trench crown for observed surface runoff/drainages and wherever seepage is observed to minimize interference with natural drainage patterns. Leave breaks in the trench crown at frequent intervals where side hills are encountered. Ensure compacted backfill to surface at each break location.

As per Operating Condition 1143 of the Master Schedule of Standards and Conditions, on Alberta Crown-owned land, all spoil material excavated from the trench shall be returned to the trench in a manner that there is no pooling of water or erosion occurring on the surface. The maximum height of crown (roach) shall not exceed 60 cm on frozen soils and 30 cm on dry or non-frozen soils. Breaks in pipeline roaches shall occur as to not impede water drainage and allow for passage of water (GOA 2021).

Postpone the feathering-out of excess spoil until the trench has settled after spring break up.

6.19 Scalping of Sod

When moving the spoil pile during backfill operations, avoid scalping of the sod layer on improved pasture, hay lands and native prairie. On native grassland, utilize geotextile material to separate temporarily stored soils from undisturbed soils (MSSC #1025-AS b).



When conducting backfill operations on uneven surfaces, use equipment with precision depth control to remove spoil materials in contact with sod layer. Use of a clean up bucket with a prairie protector or a grader blade is recommended.

6.20 Recontour ROW

Recontour the ROW and restore the pre-construction grades with existing drainage patterns. Where restoration of the pre-construction contour or grade using backfill materials may be compromised by increased risk of potential slope failure, recontour all grades not steeper than 4:1, or as required for any designed slopes repaired.

For pipelines constructed during frozen soil conditions, if the grade and spoil piles have frozen to an extent that would impair the restoration of the ROW to its pre-construction profile, schedule regrading of the ROW until after spring break up where practical.

Ensure that sloughs and wetlands are restored to pre-construction profiles. Without exception, all ramps constructed through sloughs or wetlands will be removed.



7.0 **TESTING**

7.1 WATER

7.1.1 Codes of Practice (AB), Section C.3.1 (Sask) and CER Requirements

Follow all applicable notification requirements outlined in the *Code of Practice for the Temporary Diversion of Water for Hydrostatic Testing of Pipelines* (AEP 1999a), SE *Environmental Management and Protection Act* (Chapter C.3.1; Government of Saskatchewan 2010) and CER requirements (Guidance Notes for the Canadian Energy Regulator Onshore Pipeline Regulations).

7.1.2 Alberta

Ensure that written notice of water withdrawal is provided to the Director and/or appropriate regulatory agency a minimum of seven calendar days prior to commencement of water withdrawal.

Registration number must be obtained by person responsible for water withdrawals 1,000 m3 or more in volume. Person responsible will ensure that all applicable sampling and reporting requirements are completed:

- 30,000 m3 maximum water withdrawal volume permitted for each hydrostatic testing notice,
- additional regulatory approvals are required when exceeding this volume.
- Written landowner approval for access (on private land) and acknowledgement of water withdrawal must be included in application.
- Prior to hydrostatic testing, written instructions must be developed indicating requirements of the *Water Act* or have a person responsible onsite who will confirm no adverse effects for any household user, licensee, traditional agricultural user, or on the aquatic environment.
- Follow *Freshwater Intake End-of-Pipe Screen Guideline* (Fisheries and Oceans Canada [DFO] 1995).
- Secondary containment required on all fuel and lubricant sources for pumps and boilers to minimize the potential for leaks or spills on ground or into water.

If hydrostatic test water is to be released within Alberta, follow all applicable notification requirements outlined in the *Code of Practice for the Release of Hydrostatic Test Water from Hydrostatic Testing of Petroleum Liquid and Gas Pipelines* (AEP 1999b). Complete and submit the registration form a minimum of seven calendar days prior to the release of any volume of hydrostatic test water to the environment. Registration number must be obtained by person responsible prior to the release of 1,000 m3 or more of hydrostatic test water. The person responsible will ensure that all applicable sampling and reporting requirements are completed:

- If releasing hydrostatic testing water to land, follow Section I: Requirements for Release to Land.
- If releasing hydrostatic testing water to water, follow Section II: Release to Water.



Erosion and sediment control measures must be in place to ensure that soil and vegetation disturbance is minimized. Diffusers, geotextile fences, straw bales, wattles and poly tarpaulins are some materials that can be used to prevent erosion along with construction practices such as decreasing volume and pressure of discharging water.

7.1.3 Saskatchewan

If water is to be withdrawn for hydrostatic testing from a waterbody within Saskatchewan, the following applies: SE *Environmental Management and Protection Act* (Chapter C.3.1) contains regulations on hydrostatic testing; however, they defer to the CER for federally regulated projects.

CER requirements (Guidance Notes for the Canadian Energy Regulator Onshore Pipeline Regulations) contain Best Management Practice.

Ensure the most stringent of the provincial and CER requirements are followed for all testing.

7.2 Equipment and Workers

Ensure that an adequate number of workers and equipment are available on site to respond to any rupture, leak or erosion incident that may arise during hydrostatic testing activities.

7.3 Water Trucks

Ensure that all water truck tanks are clean and kept clean when transporting test water to multiple testing locations.

7.4 Scheduling

Pertinent provincial regulations and guidelines shall be followed including applicable instream timing constraints and *Code of Practice for the Temporary Diversion of Water for Hydrostatic Testing of Pipelines* (AEP 1999a), *Environmental Management and Protection Act* Chapter C.3.1 and federal approval conditions when withdrawing water from open water. Ensure that all relevant notifications have been submitted seven days prior to schedule releasing of hydrostatic testing water to ensure that dewatering can commence immediately upon completion of pressure test.

7.5 Isolate Pumps

Provide secondary containment, using an impermeable liner, for all pumps and storage tanks used in testing to collect and contain spills or leaks of fuels and lubricants.

7.6 Pigging Debris

Collect pre-test pigging debris with contained used water and dispose of in a timely manner at an approved waste management facility.



7.7 Screen Intake

Follow best practices that may include screen water intakes in accordance with the Code of Practice for the Temporary Diversion of Water for Hydrostatic Testing of Pipelines (AEP 1999a), Environment Management and Protection Act Chapter C.3.1 and Freshwater Intake End-of-Pipe Screen Guideline (DFO 1995) to prevent the entrapment or injury to fish or wildlife.

7.8 Chemical Recovery

Recover all used methanol or methanol/water mix, and return to supplier or dispose of in accordance with appropriate guidelines or regulations. Ensure spill response plan has been developed and implemented for recovery activities to prevent environmental adverse effects.

7.9 Dewatering

To minimize water hauling, water use and the number of dewatering discharge points; reuse and move test water from pipe test section to pipe test section where practical and appropriate.

Dissipate energy of flowing discharge water and use protective riprap, sheeting, tarpaulins or equivalent to minimize the erosion of soils during dewatering or circulating (if heated water is used). The used test water rate of discharge will be reduced if these measures are ineffective. Monitor all discharge locations to ensure that no erosion, flooding or icing occurs.

Do not dewater onto lands or directly back into water unless the hydrostatic test water meets the requirements for discharge in the jurisdiction where the discharge will occur, Saskatchewan or Alberta. Monitor all discharge locations to ensure that no erosion, flooding or icing occurs.

Ensure that test water withdrawn from one drainage basin is not allowed to enter natural waters of another drainage basin.

7.10 Daylighting

Follow applicable EPP protection measures for site and ROW preparation if exposure (daylighting) of the pipe is needed for inspection or repairs.





8.0 CLEAN UP AND RECLAMATION

8.1 Rough Clean Up in Frozen Conditions

Any area where construction occurred under frozen soil conditions will require immediate rough clean up with final clean up being completed after spring break up when ground thaws and drier conditions prevail.

Where practical and appropriate, ensure all wetlands and low wet areas are restored to preconstruction standard before thawing conditions prevail.

To minimize wind erosion risk to topsoil storage piles, apply appropriate control measures such as track packing, snow cover, water spray (and allow to freeze) or tackifiers.

Consult with the landowner/lessee to confirm any special concerns that can be addressed prior to completing reclamation such as spring access for livestock and farming equipment.

Ensure appropriate erosion and sediment control measures are in place to protect ROW during spring break up:

- Install diversion berms, silt fence and/or wattle to ensure water erosion and sediment loading off-ROW is minimized;
- Openings in topsoil storage pile and trench crown are to be installed to ensure surface runoff can flow across ROW; and
- Install sediment /siltation control measures to ensure wetlands are protected from potential ROW erosion.

Complete rough clean up on all ROW areas disturbed prior to spring break up. Perform final ROW clean up when the trench crown has settled after spring break up.

8.2 Clean Up in Frozen Conditions

Consult with the landowner to confirm any special land use concerns that can be addressed prior to completing reclamation.

If feasible, complete final ROW clean up on native prairie and hayland. Complete final ROW clean up in spring/summer when the trench crown has settled and frost is out of the backfilled material.

Complete rough ROW clean up on cultivated lands prior to spring break up. Complete final ROW clean up in spring/summer when the trench crown has settled and the frost is out of the backfilled material. For cultivated lands that have environmental significance, final clean up may occur if feasible.

If winter conditions preclude final ROW clean up, stabilize the area (e.g., flatten topsoil piles, partially fill grade cuts) and keep temporary erosion and sediment control measures in place until permanent erosion and sediment control measures can be installed.

8.3 Restore Wetland(s)

Remove temporary vehicle crossing structures from wetlands. Remove all mats, geotextiles and



ramps used to enable work and travel through wet areas.

Immediately remove any temporary crossing and associated debris after completion of the pipeline crossing and restore the disturbed area to preconstruction conditions. Remove temporary crossing structures prior to break up. Remove structures by physical means, not blasting.

Prevent sediment or silted runoff from roadside ditches or crossing approaches from entering the wetland.

Restore the original contours of wetlands and remove any excess backfill to an upland area.

8.4 Debris

Remove all remaining garbage, waste materials and debris from the ROW.

After reclamation is complete, remove all stakes, flagging and fencing from the ROW and dispose of at an approved waste management facility.

8.5 Cross Ditches and Berms

Install cross ditches and berms on moderate slopes on non-cultivated lands to prevent surface runoff along ROW and subsequent erosion. Exact locations of berms will be determined in the field. Install berms immediately downslope of all breakers on moderate slopes.

Construct berms of subsoil capped with topsoil where grading has occurred or extensive disturbance to the sod layer has occurred.

8.6 Cleat Marks

Create microsites on moderate slopes to retain moisture and enhance seed germination success by aligning the final pass of bulldozers straight up and down the slope.

8.7 Temporary Fences and Gates

Install temporary fences and gates until replacement with permanent structures in spring if not already installed as per landowner's request.

8.8 Bar Ditch Ramps

Remove bar ditch ramps to prevent blockage of spring runoff in ditches unless design is approved by County or R.M.

8.9 Topsoil Windrows

Walk down topsoil pile and windrow snow over the topsoil to minimize the risk of wind erosion during the winter. Consider tackifier application or watering down (and allow to freeze) the topsoil windrow if snow is not available.



8.10 Regrading

Regrade areas with vehicle ruts, erosion gullies or where the trench crown has settled.

8.11 Subsoil Compaction

Determine locations where subsoil compaction has occurred by comparing on and off-ROW compaction levels.

Rip compacted subsoils, shoo-flies or soils damaged during wet soil conditions with a multishank ripper or chisel plow to a depth of 30 cm or the depth of compaction, whichever is deeper.

If soils are moist, postpone ripping of subsoils until soils dry to ensure soil fracturing when ripped.

Use a paratiller along segments of the ROW where topsoil salvage did not occur and subsoil compaction is severe.

8.12 Subsoil Preparation

Smooth the surface of ripped subsoils by using a chisel plow, disc, or harrow.

8.13 Excess Trench Spoil

Feather-out excess spoil over the stripped portion of the ROW to minimize the creation of a permanent mound. Ensure that excess spoil is not feathered-out over the stripped area to an extent that may cause excessive subsidence of the trench.

Feather out excess soil following plowing-in, if warranted, over the ROW to avoid the creation of a permanent trench crown.

8.14 Transitional Layer Replacement

Where the transition layer of topsoil has been salvaged, replace the transitional layer over all portions of the ROW that have been stripped, prior to topsoil replacement.

8.15 Topsoil Replacement

Replace topsoil evenly over all portions of the ROW that have been stripped. Where appropriate, strip a wider area of topsoil, if topsoil salvage has occurred during frozen soil conditions, to allow excess trench spoil to be feathered-out over the stripped area. Postpone replacement during wet soil conditions or high winds to prevent damage to soil structure or erosion of topsoil.

Where ROW soil conditions allow, cut a clean edge with a grader before replacing topsoil.

Distribute edge cut material evenly over the prepared subsoil surface.



8.16 Scalping of Sod

Avoid scalping of the sod layer on improved pasture, hay lands, native prairie when moving the spoil pile during topsoil replacement.

Use equipment with precision depth control to backfill topsoil in contact with sod layer during topsoil replacement on uneven surfaces.

Use of a prairie protector on clean up bucket or grader blade is recommended.

8.17 Excess Rock

Dispose of excess rock displaced from the trench or from blasting in discrete piles, windrows or scattered along ROW or as directed by landowner or appropriate regulatory authority.

8.18 Cultivation

Disc and/or harrow the affected area where poor sod development exists on hay, bush or bush pasture lands to alleviate any surface compaction. Do not disc and/or harrow into the subsoil.

Recommend seeding the area immediately after discing and/or harrowing; otherwise, leave the affected area in a rough condition to reduce wind erosion potential.

Disc or rip disturbed soils on hay and pasture lands where the sod layer has been broken or badly compacted and reseeding is warranted.

Disc or harrow the ROW when seeding immediately after topsoil is replaced.

On those portions of the ROW where the landowner is not planting a crop during the next growing season, assess the erosion risk on these lands. Where warranted and approved by the landowner, seed with an approved mix.

8.19 Surface Preparation – Native Prairie

Determine the extent of disturbance to native prairie (i.e., compaction, rutting, etc.) and prepare the surface prior to seeding as per discussions with the EHS Advisor and PTRL representative.

8.20 Seeding Responsibility

Arrange for landowner to seed and fertilize cultivated segments of the ROW as part of their normal farming operations.

Do not apply mulch to crop land unless specifically requested by the landowner.

8.21 Seed

Use only Certified Canada No. 1 seed from a local source and retain the Certificates of Analysis for future documentation. Seed mixtures and application rates applied to Crown-related lands will require approval from the applicable provincial regulator. Upon request by the regulator, the certificate of analysis for the seed mix can be provided after the procurement of seed mixes. For



native seed, obtain the highest grade seed available. Seed mixes are to be free of species listed in the AB and SK *Weed Control Act.*

Minimize traffic on seeded areas until vegetation is established.

Use the seed and fertilizer mix appropriate for the land use and region. Seed mixes will be determined in consultation with PTRL, the landowner/lessee, appropriate government authority and local seed supplier. Seed mix and seeding rate will require approval from AEP and/or Saskatchewan Agriculture.

As per Operating Condition 1203 of the Master Schedule of Standards and Conditions, on Alberta Crown-owned lands, "The disposition holder shall when seeding pasture or cultivated lands, use agronomic or forage seed that meets or exceeds Certified #1 as outlined in the Weed Control Act. A seed certificate (under the rules and regulation of the Canada Seeds Act) for each species shall be provided to regulatory body upon request."

8.22 Fertilizing

Do not fertilize on the banks of wetlands where the potential exists for fertilizer to runoff into wetlands.

Do not fertilize cultivated lands or areas to be seeded with a native seed mix.

8.23 Seeding of Native Prairie (Crown-Owned Lands)

Seed with Certified Canada No. 1 seed from a local source and retain the Certificates of Analysis for future documentation. Seed mix will be approved by the appropriate regulatory agency/agencies prior to spreading.

As per Operating Condition 1505 of the Master Schedule of Standards and Conditions (GOA 2021), on Alberta Crown-owned lands, *"The disposition holder shall in all native grasslands, revegetate using natural recovery techniques on all minimal disturbance activities except as follows:*

- a. In the Dry Mixed Grass Natural sub region on high erosion and/or sites with soil disturbance greater than 50m2: Assisted Natural Recovery is allowed. The application rate is a 50:50 ratio of no greater than ½ bushel (25-30 lbs/ac) of fall rye and flax only. A seed certificate (under the rules and regulation of the Canada Seed Act) for each species shall be provided to regulatory body prior to approval and application.
- b. In the Dry Mixed Grass sub-region on sites prone to invasion from agronomic or weed species: Seed mix are to be designed based on adjacent native plant communities within the immediate vicinity and must correspond with the onsite ecological range site (refer to the "Range Plant Community Guide and Recovery Strategies for Industrial Development in the Dry Mixed Grass "manuals)."

8.24 Seeding of Improved Pasture

Seed disturbed soils on improved pasture to match adjacent lands. Confirm seed mix with the landowner prior to purchase.



8.25 Wetlands

Allow wetlands to naturally regenerate/revegetate following construction. Do not seed wetlands.

Do not apply fertilizer to wetlands.

8.26 Seeding of Road Ditches

Seed road ditches with county/Municipal District approved seed mix.

8.27 Erosion Monitoring

Due to drought conditions experienced in the area, wind erosion potential is high and natural recovery of native plant species may be delayed. The ROW should be monitored for evidence of wind erosion and appropriate erosion control measures applied (Appendix 3). Due to the risk of weed introduction, do not spread or crimp straw unless a certificate is provided to prove straw is clean. Consider using tackifier with hydro-seeding. Contact the appropriate regulatory agency/agencies prior to conducting any erosion control techniques.

8.28 Straw Crimping

Obtain approval from the landowners and occupants or appropriate regulatory authority, where applicable, prior to straw crimping.

Conduct straw crimping (at 2 to 2.5 tonnes/ha) on disturbed soils where wind erosion may be problematic. Ensure that straw used is obtained from: the landowner where the straw will be spread; a certified seed grower; or fields or bales that have been inspected to be free of weeds.

Crimp or anchor straw into the soil to an approximate depth of 5 cm. Straw to be crimped must have a minimum stem length of 30 cm.

In highly erodible sandy locations, where identified by the EHS Advisor, double the straw application rate and make two passes to anchor the straw, one pass perpendicular to the other cross-crossed.

Where frozen grounds are encountered, spread straw at double the normal rate.

As per Operating Condition 1503 of the Master Schedule of Standards and Conditions (GOA 2021), "The disposition holder shall only straw crimp on native grasslands where native species from the same ecological range site are used, are tested and in compliance with the Weed Control Act. A seed certificate (under rules and regulation of the Canada Seeds Act) shall be provided to the regulatory body prior to approval and application."

8.29 Tackifier

Obtain approval from the appropriate regulatory authority prior to any tackifier application.

All products applied will be organic-sourced, biodegradable and non-toxic, which has been approved by PTRL in consultation with the EHS Advisor.



Any water withdrawals for tackifier applications must be made from an approved source.

Apply a tackifier on disturbed soils at a rate recommended by the supplier where wind erosion may be problematic.

Apply tackifier to the topsoil windrow at a rate recommended by the supplier where wind erosion may be problematic.

Reapply tackifier if disturbance of the topsoil windrow occurs and the potential for wind erosion remains a concern.

8.30 Hydromulch/Hydroseed

Apply a hydromulch/hydroseed at a rate recommended by the supplier where wind erosion may be problematic.

8.31 Fences

Repair fences and replace temporary gates with permanent fences of equal or better quality, unless otherwise requested by landowner. Ensure that lowest strand is at least 40 cm above ground to allow antelope passage, if approved by the landowner.

Install temporary fences in consultation with landowner or lessee to restrict grazing and trampling of seeded ROW until vegetation becomes established or less palatable.

8.32 Ditch Ramps

Remove any remaining bar ditch ramps and seed and fertilize accordingly.

Erect warning signs to alert the public to the presence of a buried pipeline and to identify the contact in the event of an emergency.



9.0 **POST-CONSTRUCTION MONITORING**

Post-Construction Monitoring will be conducted after the first winter and during the first growing season after construction. PTRL will monitor the effectiveness of construction mitigation and reclamation measures associated with the Pipeline. The following describes the Post-Construction Monitoring program.

9.1 Soil Parameters

Collect and document observations and measurements to assess soil quality and land capability. Soil parameters to be assessed may include:

- Subsoil compaction;
- Topsoil depth;
- Topsoil and subsoil texture;
- Degree of topsoil/subsoil admixing;
- Stoniness;
- Contour restoration; and
- Erosion potential.

9.2 Test Location Criteria

Test Location Criteria is the number of, and distance between, test locations along the ROW and will be determined by the Reclamation Specialist conducting the tests, after having consulted the soil survey report for information regarding topsoil depths, problem soils, etc. It is anticipated that tests will be spaced more closely in complex landscapes and less close in homogeneous landscapes.

Criteria to be considered in determining the location and frequency of soils assessments may include:

- Visual indications of potential issues;
- Landscape variation;
- Changes in construction procedures;
- Changes in land use;
- Changes in land ownership; and
- Changes in tract or quarter-section boundary.

9.3 Ground Disturbance

The goal of a subsoil compaction testing is to identify areas with potential compaction to the extent that restrictions to plant growth (i.e., abnormal root development, stunting, poor stand establishment, etc.) may occur and warrant further assessment and mitigation. Penetrometer tests or soil pits are the most common methods used to identify the potential presence of subsoil compaction. These tests are not a ground disturbance if the ground penetration is less than 30 cm deep. However, if subsoil compaction deeper than 30 cm is suspected, the area in question will be recorded (GPS) and follow-up vegetation monitoring will be conducted. If vegetation displays symptoms that are consistent with growth hindrance due to compaction, PTRL will be notified and further soil investigation to a depth of greater than 30 cm will be conducted in compliance with PTRL's Ground Disturbance Practice (most recent version) and provincial regulations.



9.4 Vegetation Monitoring

The ROW will be visually inspected for vegetation issues such as weed infestations invasive species, poor vegetation establishment or reduced crop growth along the ROW. Timing of the inspection will be mid to late summer prior to harvest when vegetation is mature enough for accurate identification and evaluation. If visual differences are noted on and off the ROW, then plant yield indices such as height, density and vigor will be considered. Particular attention will be paid to areas with extensive surface disturbance, and areas of terrain instability that may be prone to erosion. Detailed vegetation assessments will be conducted, if warranted, at sites where reclamation problems are identified.

9.5 Wetland Monitoring

Monitor wetlands for hydrological function and implement remedial measures if there are indications of impeded wetland function.

9.6 Operations and Maintenance Activities

PTRL's Operations and Maintenance personnel will monitor the ROW as needed to ensure any issues related to weeds, trench subsidence, slope or bank erosion or wind and water erosion of soil are identified and mitigative measures implemented on a timely basis. Following the first year after construction, routine monitoring by PTRL personnel will be ongoing for the life of the pipeline.

9.7 Mitigative Measures

Mitigative measures will be recommended if issues are identified through this assessment. PTRL will make every effort to implement mitigative measures as soon as feasible. Issues that cannot be mitigated immediately (i.e., subsoil compaction may be identified but soils may be too wet for effective subsoil plowing to be implemented) will be documented in a report for follow-up monitoring and mitigation.

9.8 Documentation and Reporting

The Post-Construction Monitoring program will document all environmental issues identified for the Pipeline. Issues that have been successfully mitigated will be listed as resolved. The report will also include any locations with unresolved environmental issues, and the mitigation activities planned by PTRL to resolve these issues. A copy of the Post-Construction Monitoring Report will be provided to the CER as required, prior to the calendar year end following completion of the Post-Construction Monitoring field assessment or as stipulated in the CER approval.



9.9 Reporting

For a pipeline emergency involving a Canada Energy Regulator regulated pipeline or facility, the **Transportation Safety Board** should also be notified at their **24-Hour hotline at 1-819-997-7887**.

Reporting forms are available in FORMS Section 14.0 and in the applicable section containing forms in any of the PTRL Incident Command System ERPs.

For Alberta, the First Call Communications Form must be completed and forwarded to the Alberta Energy Regulator (AER) at all levels (Alert, Levels 1-3).

For Saskatchewan, the First Call Communications Form can also be used, and must be forwarded to Saskatchewan Public Safety Agency.

9.10 Communications

Internal communications regarding any EPP incident(s) will be handled in accordance with the PTRL CSP and / or ERP.

9.11 Documentation

Documentation of EPP related threats and incidents shall be retained in accordance with PTRL information management protocols at Section 6.0.



10.0 MONITORING AND REVIEW

Prairie Thunder Resources Ltd. is committed to ensuring the EPP Management Program is monitored continuously for improvement and performance. This will be accomplished through performance indicators related to EPP goals and objectives, compiling of incident statistics and lessons learned from exercises and actual incidents.

10.1 Evaluation and Review

Prairie Thunder Resources Ltd. will conduct an annual review of its EPP, or more frequently if required. The review will:

- Consider audit results.
- Consider any significant change in assets.
- Consider the success of achieving measurable internal goals (short and long-term objectives).
- Analyze conformance to legal requirements.
- Are required, ensure outcomes of the review are addressed through the Change Management process.
- Be approved by Senior Management.

10.2 Change Management Process

Prairie Thunder Resources Ltd.'s change management process is in place to ensure internal and external changes are continually evaluated in order to assess the potential impact that change will have on the EPP. This will be accomplished by ensuring that modifications throughout PTRL's organization are identified and integrated in an efficient manner.

The Change Management Process:

- Oversight is provided by the Company EHS Advisor.
- Accountability rests with the Company AHS Advisor to ensure the change management process is completed in an efficient manner.
- Will be approved by the Company EHS Advisor in consultation with the President.
- Assigns responsibility to each department for identifying potential changes regarding each element in the EPP.
- Provides opportunity for internal and external stakeholders to suggest improvements.
- Includes an evaluation to see if changes are warranted, while considering available resources for implementation.
- Will consider applicable integration into other processes within PTRL's organization.
- Will include communication to all departments and employees of implemented changes to the EPP.



11.0 **GOVERNMENT AGENCY RESPONSES**

11.1 External Communications – Canada Energy Regulator

All incidents, accidents and occurrences as defined by the Onshore Pipeline Regulations (OPR), the Canada Labour Code, and the Transportation Safety Board (TSB) Regulations should be reported.

FIRST CALL

For emergencies involving inter-provincial or cross border pipelines, the CER is the Regulatory Authority.

In the event of a CER regulated pipeline emergency, call the TSB's 24-hour hotline (collect calls accepted). The TSB will contact the CER to notify them of the incident.

1-819-997-7887

ONLINE REPORTING

Report all events on the CER's Online Event Reporting System.

This system is intended for use by regulated companies to provide notification to the Canada Energy Regulator (CER) and Transportation Safety Board (TSB) of various events that are defined in regulation including incidents, unauthorized activities, and operations and maintenance activities.

https://apps.cer-rec.gc.ca/ers/home/index

11.2 Roles and Responsibilities

CANADA ENERGY REGULATOR				
 Monitors, observes and assesses the overall effectiveness of the company's emergency response in terms of: Emergency Management Safety Security Environment Integrity of operations and facilities, and Energy Supply. 	EGULATOR			
Investigates the event, either in cooperation with the Transportation Safety Board of Canada, under the Canada Labour Code, or as per the Canada Energy Regulator Act or Canada Oil & Gas Operations Act (whichever is applicable)				
Inspects the pipeline or facility.	出			
Examines the integrity of the pipeline or facility	Z			
Requires appropriate repair methods are being used.	ш			
Requires appropriate environmental remediation of contaminated areas is conducted.	A			
Coordinate stakeholders and First Nations community feedback regarding environmental clean-up and remediation.	NAI			
Confirms that a company is following its Emergency Procedures Manual(s), commitments, plans, procedures, and CER regulations and identifies non-compliances.	C A			
Initiates enforcements action as required.				
Approves the restart of the pipelines.	l			



11.3 CER Definitions of Incident and Emergency

Incident

For the purposes of these expected elements, as incident is considered to be "incidents and releases" (including and discharge, spray, leak, seep, pour, emit, dump and exhaust) that are defended and reportable to the CER under sections 1 and 52 of OPR-99. These are:

- The death of or serious injury to a person;
- Releases that may have significant adverse impact on the environment;
- Unintended fire or explosion;
- Unintended or unexplained release of gas or HVP hydrocarbons; and
- Operation of a pipeline beyond its design limits as defined by CSA Z662, CSA Z276 or any operating limits imposed by the CER."

Although incidents are defined in OPR-99, it is also necessary for companies to have a clear understanding of what constitutes incidents and emergencies at their facilities, as well as methods or procedures for determining the magnitude and levels of an emergency as circumstances change.

Emergency

Can/CSA – Z731 defines an emergency as "a present or imminent event that requires prompt co-ordination of actions or special regulation of persons or property to protect the health, safety or welfare of people or to limit damage to property and the environment".

Companies must consider all probable emergencies and have applicable procedures in place to deal with potential effects and treats to people, property and the environment, as determined through a formal hazard assessment.

Level 1	Level 2	Level 3
 No effects outside company property Control of Hazardous substance completed or pending No immediate threat to the public or company personnel Minimal environmental effects Incident / Spill handled by company personnel Low potential to escalate 	 No immediate threat outside company property but potential exists to extend beyond property boundaries Outside services and government agencies likely to be directly involved Imminent control of hazardous substance probable Some injury or threat to the public and company personnel Moderate environmental effects 	 Serious injury to the public and company personnel and ongoing treat to the public Uncontrolled release of hazardous substance continuing Significant and ongoing environmental effects Immediate and significant government agency involvement Assistance from outside parties required Effects extend beyond company property





11.4 CER Event Reporting

The task of completing the notifications will be completed by the Company's CEOC Liaison Officer.

The Transportation Safety Board of Canada (TSB) has the option to choose to be the lead investigator for determining the cause and contributing factors leading to an incident/ emergency.

For the CER's Event Reporting Guidelines, please refer to the following:

Canada Energy Regulator Event Reporting Guidelines Revised October 2020

https://www.cer-rec.gc.ca/bts/ctrg/gnnb/rprtnggdlns/index-eng.html

Canada Energy Regulator Online Event Reporting System (OERS)

https://apps.cer-rec.gc.ca/ers

Precautionary Approach

It is the CER's expectation that each company take a precautionary approach to the reporting of events. This means that even if there is some doubt as to whether an event should be reported, the company is to report the event. In other words, companies should adopt a "when in doubt, report" approach. This approach to event reporting is consistent with CER-regulated companies' responsibility for anticipating, preventing, mitigating and managing incidents of any size or duration.

The CER's Online Event Reporting System (OERS) now contains a field where the company must indicate that it is reporting an incident on a precautionary basis. In these cases, the CER will determine whether the incident is reportable based on information provided by the company. In cases where an event was reported using the precautionary approach and subsequent information indicates that it was not reportable, the CER records will reflect this and the event will not be included on the company's compliance record and will not be posted on the CER Interactive Incident Map.

Immediately Reportable Events

Where regulations require an event to be reported "immediately", companies must also consider whether the event meets any of the following definitions:

- An Incident that Harms People or the Environment:
 - o a death;
 - o a serious injury (as defined in the OPR or TSB regulations);
 - an unintended or uncontrolled LVP hydrocarbon release in excess of 1.5 m³ that leaves company property or occurs on or off the right of way;
 - o an unintended or uncontrolled sweet natural gas or HVP release >30,000 m³;
 - any unintended or uncontrolled release of sour natural gas or hydrogen sulfide; and/or
 - o a significant adverse effect on the environment.
- A Rupture:
 - an instantaneous release that immediately impacts the operation of a pipeline segment such that the pressure of the segment cannot be maintained.
- A Toxic Plume:
 - a band of service fluid or other contaminant (e.g. hydrogen sulfide or smoke) resulting from an incident that causes people, including employees, to take protective measures (e.g. muster, shelter-in-place or evacuation).





Where an event meets any of the above definitions, companies are required to notify the TSB Reporting Hotline at **1-819 997-7887**. Subsequently, the company is required to input the details required by both the TSB and the CER into the OERS. The phone notification and the input of information into OERS are required to occur **as soon as possible and no later than three hours** of the incident being discovered. The goal of the initial phone notification is to allow the relevant agencies to mobilize a response to an incident, if required. Note that OERS will automatically determine whether the event meets the definition of an "Incident that Harms People or the Environment", however the company will be responsible for specifically indicating whether the incident meets the definitions of "Rupture" and "Toxic Plume".

For all other events that do not meet any of the definitions in this section, companies are not required to phone the TSB Reporting Hotline but must report the event as soon as possible and no later than twenty-four hours after the event was discovered.

Multiple Incident Types

It is possible that a single occurrence may result in multiple incident types. If multiple incident types occur as a result of a single occurrence, companies are expected to report those incident types under a single incident report.

Examples of situations where this might be the case include but are not limited to:

- a pipeline rupture (occurrence) where there is a release of gas (incident type) and an explosion (incident type);
- an industrial accident (occurrence) that causes a death (incident type), a serious injury (incident type) and a fire (incident type);
- an operational malfunction (occurrence) that causes an overpressure (incident type) and a release of product (incident type); or
- an operational malfunction (occurrence) that causes several concurrent or immediately consecutive overpressures (incident types).

In cases where an incident has occurred, and a second incident occurs during the response to the initial incident (e.g. a fire occurs during the clean-up of a spill), the second incident is considered distinct and should be reported separately.

11.4.1 Notifications and Preliminary Incident Reports

For initial notifications for all incidents and Preliminary Incident Reports, companies must provide, via the OERS, the following information:

- company contact information;
- date and time of occurrence and/or discovery;
- how the incident was discovered (e.g., routine patrol, landowner/public reported);
- type of incident being reported (e.g. death, release of substance, fire/explosion);
- type of substance released and initial release volume estimate, if applicable;
- qualitative details of incident type (e.g., broken bone if serious injury, exposure of a pipeline in a water body if operation beyond design limits, etc.);
- nearest populated center;
- GPS coordinates of the event in decimal degrees;
- facility name/pipeline name;
- narrative that includes a description of the events leading up to the occurrence or discovery and any immediate actions taken to protect the safety of the public, the company's employees, and/or the environment (e.g., evacuation, containment of product);
- initial narrative information on the component that failed, if applicable; and



• affected lands (e.g., restricted to company owned land, right-of-way, private land, crown land).

11.4.2 Detailed Incident Reports

For Detailed Incident Reports, companies must provide, via the OERS, the following information:

- any relevant updates to the information contained in the notification and/or preliminary incident reports;
- detailed information on the pipeline/facility component that failed (e.g., equipment type, such as gate valve, and the component that failed, such as the valve packing), if applicable;
- operating conditions of the pipeline/facility at the time of incident discovery (e.g. operating pressure, product type, depth of cover, etc.), if applicable;
- maintenance history of failed component (e.g., date of last inspection/maintenance, type of inspection such as visual or non-destructive examination, etc.), if applicable;
- corrective actions completed by the company to prevent reoccurrence of the incident at local level;
- preventative actions completed by the company to prevent the similar incidents across its systems;
- root cause analysis that includes at least one immediate cause (e.g., equipment/component failure), as well as at least one basic (root) cause (e.g., normal wear and tear); and
- supporting information (e.g., metallurgical reports), if applicable.

11.4.3 Incident Costs

The CER now expects companies to report on costs, as described below, for any incident that meets the following definition under any of the CER's regulations:

- i. An unintended or uncontrolled release of low-vapour pressure (LVP) hydrocarbons in excess of 1.5 m³ that extends beyond a company's property;
- ii. Significant adverse effect on the environment;
- iii. A rupture;
- iv. A toxic plume; and/or
- v. A loss of containment of any fluid from a well.

Companies will be expected to report categorized costs related to the incident as follows:

- Category 1 Actual costs (to be reported separately) related to:
 - o The emergency response, including containment of the incident;
 - The clean-up and remediation of the incident; and
 - The repair or replacement of regulated facilities.
- Category 2 Actual or estimated value of losses or damages not included in Category 1.

Companies are expected to provide the above costs annually (calendar) beginning the year the incident was reported and ending either when there are no further costs related to the incident or 5 years after the incident was reported (inclusive of the year that is was reported), whichever occurs first.

Reporting of costs will be integrated into the OERS at a later date and at that time OERS will automatically determine when companies are required to report costs. However, until the



system changes are made, the CER will contact companies on an as-needed basis and will provide instructions and a standard form to report costs.

11.5 Published Manuals

All companies operating an oil or a gas pipeline under the jurisdiction of the Board must:

- Unless the Board otherwise directs, publish the entirety of their emergency procedures manuals on their company's public internet site; provided however, manuals are not required to be published for pipelines described in the exemption clause below. Companies may protect from publication the following information:
 - a. an identifiable individual, including their name, phone number, email address, mailing address and medical condition;
 - b. the vulnerability of particular structures, including methods employed to protect those structures;
 - c. that could prejudice their competitive position or reasonably be expected to result in a material loss or gain to a person affected by publication; and
 - d. about a person, such as a daycare, school or hospital, that was requested by that person to be withheld from publication;
- 2. Describe information that is protected from publication; and
- 3. File a written confirmation from the company's accountable officer that the company's emergency procedures manuals have been published and provide a link to the published manuals to the Board and to any interested person that has expressed an interest to the company in the published manuals.

Exemption Clause

Pipelines described in this section are exempt from publication.

High vapour pressure pipelines that are:

- 1. 168 millimeters or less in outside nominal diameter;
- 2. 10 kilometers or less in length; and
- 3. Outside of class 2 or greater locations, as determined by CSA Z662.

Liquid pipelines that are:

- 1. 168 millimeters or less in outside nominal diameter;
- 2. 10 kilometers or less in length; and
- 3. Located more than 500 meters from a navigable water, public drinking water source or a designated environmentally sensitive area.



External Communications – Saskatchewan: Notification Requirements for Key Government Agencies and Local Resources 11.6

Saskatchewan	UYCE		Initial Responders		Lead Agencies			Other Government Contacts					Support Services		
		Ambulance Services	Local Fire Department or Industrial Fire Service	Police	Ministry of Energy and Resources	Sask. Ministry of Environment	Local Authorities	RHA – Health Authority ¹	Sask. Occupational Health and Safety	Emergency Management and Fire Safety	Sask. Ministry of Health	Technical Safety Authority of Sask.	Ministry of Highways and Infrastructure ²	Electrical Provider – Sask Power	Spill Cooperative (WCSS or Sask Spills)
Sour Gas Release				✓	√	√	✓	√		1	√		✓		
Sweet Combustible Gas Release				✓	√	√	✓	✓		1	1		√		
Spill - Unrefined Products*					√	✓	✓	✓		1	√		√		√
Spill - Refined Products*					√	~	✓	✓		1	✓		✓		✓
Trucking/Motor Vehicle Incident				✓	√	~	✓			1			✓		
Serious Injury or Fatality (including sour gas exposure)		√	\checkmark	✓	√				√						
Fire/Explosion			√ ³	√	√	√	~	✓	√	1	✓		√		
Boiling Liquid Vapour Explosion - BLEVE				✓	√		✓	✓	✓	1			✓		
Pressure Vessel or Piping Incident					\checkmark							√	√		
Electrical Incident					√	✓							✓	✓	
Security Incident				✓	√								✓		

✓ Mandatory contact

* Refer to the Saskatchewan Petroleum Industry Release Reporting Requirements chart included in the ERP.

1 Contact RHA - Health Authority (RHA) if the incident has the potential to impact public health.

2 Contact Ministry of Highways and Infrastructure or the RCMP if the emergency affects a highway designated by 1, 2, or 3 digits (e.g. Hwy 2, Hwy 47, Hwy 837).

3 Contact Local Fire Department or Industrial Fire Service in a BLEVE scenario to be a backup to ERAC.

Federal	Initial Responders	Lead Agencies	(Other Govern	Support Services				
	RCMP	CER ¹	Transportation Safety Board (TSB)	Environment and Climate Change Canada ²	Indian Oil and Gas Canada ⁴	DFO	CANUTEC ³	ERAC - Emergency Response Assistance Canada ⁵	NAV Canada
Sour Gas Release	√	√		1	✓	\checkmark			√
Sweet Combustible Gas Release	√	√		✓	~	√			\checkmark
Spill - Unrefined Products*		√		✓	✓	√	√	\checkmark	
Spill - Refined Products*		√		√	~	✓	✓	√	
Trucking/Motor Vehicle Incident	√			✓			✓	√	
Marine, pipeline, rail and air modes			\checkmark						
Serious Injury or Fatality (including sour gas exposure)	√	√			~				
Fire/Explosion	√	√		√	~				\checkmark
Boiling Liquid Vapour Explosion - BLEVE		√					✓	√	
Pressure Vessel or Piping Incident		√		√				√	
Electrical Incident		√		✓					
Security Incident	√	√							

✓ Mandatory contact

Contact the Canada Energy Regulator (via the Transportation Safety Board of Canada) for emergencies involving CER regulated sites and inter-provincial pipelines.
 Contact Environment and Climate Change Canada for incidents involving spills on first nation's lands, in National Parks, into river or lake systems containing fish or onto railway rights-of-way.

3 Contact the Canadian Transport Emergency Centre (CANUTEC) if information is required about handling procedures for toxic material releases.

4 Contact Indian Oil and Gas Canada for incidents effecting First Nation reserves and Metis settlements. 5 Contact ERAC for emergencies related to specific ERAP products for vessels containing over 450 liters or greater by road, rail and stationary tank.



↓	\checkmark
Sask	atchewan Ministry
	of Environment
	Firewatch
	Parkwatch
Sp	ill Control Centre





11.6.1 Saskatchewan Emergency Management and Fire Safety

The Protection and Emergency Services Branch is the provincial government's lead agency for emergency management. The Branch is responsible for coordinating overall provincial emergency planning, training, and response operations for the safety of the residents and the protection of property and the environment, before, during and after an emergency or disaster. Saskatchewan Emergency Management and Fire Safety supports:

 Provincial Preparedness by maintaining the provincial government emergency plan and related contingencies, coordinating provincial government resources during a state of emergency, assisting government departments, Crown corporations and agencies with emergency planning, and coordinating federal government emergency preparedness programs within Saskatchewan.

Saskatchewan Emergency Management and Fire Safety maintains the Provincial Emergency Plan and related contingencies as part of their provincial preparedness program to deal with events that may affect government operations.



12.0 **TELEPHONE DIRECTORY**

12.1 Corporate Telephone List

Prairie Thunder Resources Ltd.						
24 Hour Emergency Telephone Number 1-844-772-1147						
Company Main Telephone Number	1-587-393-9000					
Company Main Office Address	2500, 333 7 th Avenue SW Calgary, AB T2P 2Z1					

Name	Position	Office	Cell	Other
Kevin Adair	CEO	1-587-393-9000	1-403-815-3747	kadair@ prairiethunder.ca
Dana Roney	VP, Operations	1-587-393-9000	1-403-813-9797	droney@ prairiethunder.ca
Lorne Morozoff	CFO	1-587-939-9006	1-403-300-6077	Imorozoff@ prairiethunder.ca
Vincent Reinsch	Manager, Finance & Controller	1-587-393-9008	1-403-681-8967	vreinsch@ prairiethunder.ca
Marcus Schlegel	President	1-587-393-9003	1-403-852-8310	mschlegel@ prairiethunder.ca
Bruce Stang	Production Foreman	1-306-753-2748	1-780-753-6543	bstang@ prairiethunder.ca
Kelli Erasmus	Surface Land Admin	1-587-393-9013	1-403-869-1363	kerasmus@ prairiethunder.ca
LeeAnn Graff	Operations Technician	1-587-393-9007	1-403-837-4925	lgraff@ prairiethunder.ca
Lenora Zaiachkowski	Land Consultant	1-587-393-9012	1-403-863-4759	lenoraz@ prairiethunder.ca



12.2 Field Personnel Telephone List

Name	Position	Office	Cell	Other
Bruce Stang	Production Foreman		1-306-753-6543	
Brandon Griffiths	Operator		1-306-210-8101	
Cameron Brown	Operator		1-306-228-7324	
Colby Klein	Operator		1-306-228-8164	
Connor Reinhart	Operator		1-780-753-0659	
Chris Halter	Operator		1-306-228-1205	
Dustin Pickard	Operator		1-587-878-0147	
Eric Uzelman	Operator		1-306-370-8964	
Glenn Klein	Operator		1-306-228-7674	
Jordan Kirwer	Operator		1-306-753-7055	
Pius Hefner	Operator		1-306-915-7115	
Tyson Boser	Operator		1-306-393-8407	
William Leibel	Operator		1-306-753-9275	
Darcy Shtokal	Well Site Supervisor		1-780-632-1161	
Showna Kitsul	Office Admin / Accounting		1-306-753-2746	

12.3 Security Services Contact List

Agency	Location	Telephone
Socuritae	Regina	1-306-522-0230
Secultas	Toll Free	1-877-355-5055
Advanced Protection Services	Saskatoon	1-306-384-6412
United Protection Services	Lloydminster	1-306-441-5493

12.4 Industry Oil & Gas Operators

Name	Location	Telephone
Row River Energy Ltd	Calgary, AB	1-403-475-4100
Bow River Ellergy Ltd.	24 Hour Number	1-844-851-9511
	Calgary, AB	1-403-766-2000
Centovus Energy Inc.	24 Hour Number	1-877-458-8080
Harvest Operations	Calgary, AB	1-403-265-1178
Corporation	24 Hour Number	1-800-760-2826
Longoboro Rosouroso Ltd	Calgary, AB	1-403-984-1090
Longshore Resources Ltd.	24 Hour Number	1-855-919-3623
Orphan Well Association	Calgary, AB	1-403-297-6416
(Taligrass Energy Corporation)	24 Hour Number	1-844-440-0144
Dife Descurees Ltd	Calgary, AB	1-403-221-0800
Rife Resources Ltd.	24 Hour Number	1-888-257-1873
	Calgary, AB	1-403-261-7355
Surge Energy Inc	24 Hour Number	1-855-261-7355


MUST CALL NUMBERS FOR THE CER REGULATED PIPELINE

FIRST CALL

For emergencies involving inter-provincial or cross border pipelines, the CER is the Regulatory Authority.

In the event of a CER regulated pipeline emergency, call the TSB's 24-hour hotline (collect calls accepted). The TSB will contact the CER to notify them of the incident.

1-819-997-7887

ONLINE REPORTING

Report all events on the CER's Online Event Reporting System.

This system is intended for use by regulated companies to provide notification to the Canada Energy Regulator (CER) and Transportation Safety Board (TSB) of various events that are defined in regulation including incidents, unauthorized activities, and operations and maintenance activities.

https://apps.cer-rec.gc.ca/ers/home/index



12.5 Agency Contact List - Saskatchewan

Agency	Location	Telephone	
PTRL CANADA-V	VIDE 24 HOUR NUMBER: 1	-844-772-1147	
Transportation Safety Board	24-Hour hot line	1-819-997-7887	
Canada Energy Regulator	24-Hour cell phone	1-403-807-9473	
	Head Office – Regina	Office: 1-306-787-2528	
	Area 1: Lloydminster	Office: 1-306-825-6436	
Ministry of Energy and Resources	Alea I. Lioyuminster	24 Hour: 1-306-825-6434	
Ministry of Energy and Resources	Area 2: Kindersley	Office/24 Hour: 1-306-463-5400	
	Area 3: Swift Current	Office/24 Hour: 1-306-778-8252	
	Area 4: Estevan	Office/24 Hour: 1-306-637-4541	
Saskatchewan Emergency	Provincial Offices,	Office: 1-306-787-3774	
Management and Fire Safety	Emergency Management	24 Hour: 1-306-787-9563	
	Support	2411001. 1-300-787-9303	
Ministry of Environment -			
Enforcement & Investigations	Province-wide	Office/24 Hour: 1-800-667-7525	
Report a Spill			
Saskatchewan Public Safety			
Agency - Firewatch (Report a	Province-wide	Office/24 Hour: 1-800-667-9660	
Wildfire)			
Ministry of Corrections, Policing and			
Public Safety - Enforcement &	Province-wide	Office/24 Hour: 1-800-667-1788	
Investigations Park Watch		0//: 4 000 707 4000	
	Southern Region	Office: 1-306-787-4969	
	5	24 Hour: 1-888-335-7623	
Ministry of Highways and	Central Region	Office: 1-306-933-5186	
Intrastructure	Ŭ	24 Hour: 1-888-335-7623	
	Northern Region	Office: 1-306-953-3500	
	U U U U U U U U U U U U U U U U U U U	24 Hour: 1-888-335-7623	

12.6 Federal Agencies and Emergency Support

Agency	Telephone
CN Railways - CN Police	1-800-465-9239
CP Railways - CP Police	1-800-716-9132
NAV Canada - Notice to Airmen	1-866-992-7433
CANILITEC TDC Emergency Reporting Line	1-888-226-8832
CANOTEC TOG Enlergency Reporting Line	*666 Cell Phone



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1.0 **FORMS**

FORM #	FORM DESCRIPTION
FORM # 1.1	CER DETAILED INCIDENT REPORT
FORM # 1.2	FIRST CALL COMMUNICATION FORM



1.1 Canada Energy Regulator Detailed Incident Report

Appendix 1 DETAILED INCIDENT REPORT Type or print in black pen	
Board Use Only	
CER Incident No. Date Received CER Investigator	
Investigator's Comments	
Secretary	
Canada Energy Regulator	
517 Tenth Avenue S.W.	
Calgary, Alberta T2R 0A8 • Fax: 403-292-5503	
PART A - OPERATOR INFORMATION	
Name of Company	
Address of Company	
PART B - TIME, WEATHER AND LOCATION OF INCIDENT	
Date (month) (day) (year)
Hour (24 hour system & time zone)	
Weather temperature: °C precipitation: wind speed & direction:	
CSA Class Location \Box 1 \Box 2 \Box 3 \Box 4	
Location (provide specific location using a chainage description (MLV, kmP), land survey description or prominent la	ndmarks)
PART C - ORIGIN OF SPILL/RELEASE	
Facility Involved:	Con Blant
\Box Line Pipe \Box Tank Farm \Box Pump Station \Box Compressor Station \Box Regulator/Meter Station \Box	Gas Plant
Equipment Involved:	
□ Pipe □ Valve □ Pressure relief device □ Fitting □ Compressor □ Pump □ Pressure vessel	□ Tank
Other (specify)	
PART D - SPILLS AND RELEASES (Report LVP and HVP spills only if in excess of 1.5 m ³)	
Gas LVP HVP Toxic Substance	
Name of product/substance	
Volume spilled/releasedm ³ Volume recovered	m ³
Was there a fire? □ Yes □ No	 lo



PART E - IMMEDIATE CAUSE FOR INCIDENTS ON OPERATING PIPELINES (Immediate Cause: means unsafe acts or upsafe conditions)
$\Box \text{ Failed nine} \qquad \Box \text{ Operator personnel error} \qquad \Box \text{ Other (specify)}$
\Box Failed weld \Box External loading or natural forces
Refer to part G Refer to part I
PART F - LINE PIPE DATA
Type of Failure
Nominal Diameter (mm)Wall Thickness (mm)Date of Manufacture Weld Process SMYS (MPa)
Pipe Specification
Maximum Operating Pressure (kPa) Pressure at Time of Incident (kPa)
PART G - CORROSION FAILURES
Corrosion location: Internal External Circumferential Position Looking Downstream (mark an X)
Type of Coating
PART IT - FAILURES DUE TO EXTERNAL LOAD OR NATURAL FORCES
□ Damage by operator or its contractor □ Damage by other parties □ Earth movement □ Lightning/Fire
□ Other (specify)
Name or Contractor/Other Party
Address
Telephone () Name of Representative
PART I - EQUIPMENT MALFUNCTION/FAILURE
Equipment Manufacturer Model#
Year Equipment InstalledYear Equipment Manufactured
PART J - ESTIMATE OF TOTAL INCIDENT COST (Including repair, cleanup and restoration)
\$
PART K - REPAIR DESCRIPTION (Description of all repairs to the pipeline made necessary by the incident and dat of return to service of the pipeline)



PART L - INJURY AND	FATALITY DESCRIPT	IONS Serious Injury - includes an injury that results in: fracture of a major bone, amputation of a body part, loss of sight - one or both eyes, internal
Number of Fatalities	Number of Serious Inju	ries hemorrhage, third degree burns, unconsciousness, or loss of a body part
NAME	AFFILIATION	FATALITY OR INJURY DESCRIPTION AND CURRENT PATIENT CONDITION
	Company Contractor Employee Dublic	
	Company Contractor Employee Public	
	Company Contractor Employee Public	
	Company Contractor Employee Public	
	Company Contractor Employee Dublic	
	Company Contractor Employee Public	
	Company Contractor Employee Public	
	Company Contractor Employee Public	
PART M - IMMEDIATE acts and conditions)	INCIDENT CAUSE OF	SERIOUS INJURY/FATALITY (Immediate Cause - means unsafe
Defective/inadequate sa	fety devices, tools or equip	ment \Box Improper operation of safety devices, tools or equipment
Improper loading or plac	ement	Hazardous environment (gases, dust, smoke, fumes or vapours)
Congested work area/dis	sorderly workplace	□ Other (specify)
PART N - NARRATIVE	OF INCIDENT	
Provide a complete descript information as specified in t that may supplement the na (metallurgical, NDT, inspect	ion of the incident, including he guidelines to section 52 rrative such as 1) drawing o ion, pressure test, etc.)	g events leading up to, and following the incident. Also include additional of the Onshore Pipeline Regulations. Attach any additional information of the incident site 2) photographs 3) schematics 4) maps 5) reports
Attach additional sheets of r	narrative as required.	



PART O - WI	NESS INFORMATION
NAME	TELEPHONE NO. () () () () () () () () ()
PART P - BAS	SIC CAUSES OF INCIDENT (Identify all basic causes contributing to the incident. Basic Cause - means the real or root causes of why the unsafe acts and unsafe conditions as described in the immediate cause occurred. Several Basic Causes may be assigned for one incident.)
 Inadequate tra Inadequate de Other (specify Additional comme 	ining Inadequate work standards or procedures Inadequate materials, tools or equipment sign/maintenance Non-compliance with work standards or procedures
PART Q - CO	RRECTIVE ACTIONS TAKEN TO PREVENT SIMILAR INCIDENTS (If no corrective action taken.
state reasons	vhy)
PART R - NA	ME OF PERSON CONDUCTING A COMPANY INCIDENT INVESTIGATION
Name	
Title Telephone (Fax()
PART S - NAMI	ES OF OTHER AGENCIES INVESTIGATING INCIDENT
Agency Telephone Contact Name Agency Telephone Contact Name	Agency Telephone Contact Name Agency Telephone Telephone Contact Name Telephone Contact Name Contact Name
Name	
Title	
Telephone(Fax ()Date (time)(month)(day)(year)



1.2 First Call Communication Form

A.A.A	Alberta Energy Regulator First Call Communication (Page 1)					
	AER Contact		Field Centre			
	Caller*			<u> </u>	Phone*	
ې ا	date* tin Notification*	me*	start date Release	e* start time*	end time*	Ongoing
DETAII	Licensee	Licensee			Phone	
NTACT	Location*			Nearest Town	1	
8	Nearest Resident		Distance/Direction	1	Phone	
	Media Involvement?*	ocal egional	National International		1	Media Contact
	Operator		·	Phone		
L	Public □ Could be jeopardized Health and Safety* □ Is jeopardized		Worker Injuries*	First aid Hospitalization	Fatality	
IMPAC	Emergency Assessment Matrix completed with licensee*		□ Alert □ Two □ One □ Three	ERP activated?	☐ Site Specific ☐ Field/Area	Corporate
UBLIC	EPZ Size (2 km if unknown)		Numbers and Types of	Public in the EPZ	EOC/ICP Location	
	Public Protection Measure Im	plemented	Notification Shelter	Road blocks Evacuation		Number Evacuated
	Release Impact *	n lease	Off lease			H ₂ S Concentration*
ш	Sensitive Environment*		Environment Affected*	□ Air □ Star □ Land □ Flov	nding Water ving Water	Water Body Name
зе турі	Area Affected (m ²)*	Property	Damage*	Equipment Loss*	🗌 Wile	dlife/Livestock Affected*
SELEAS	Gas Release		Sour			Volume/Rate
œ	Liquid Release 🗌 Oil		U Water	Effluent	Volume/Rat	
	Release Point Determined					
NMENT	Third Party/Outside Assistance	ce required*	 Incident contained of Intermittent control 	or controlled possible	 Imminent contro Incident is uncor 	l probable htrolled
CONTAI	Company			WCSS Co-op		

*These fields must be completed to generate an FIS number and/or to complete an Emergency Assessment Matrix.



	Alberta Energy Regulator			First Cal	I Commun	ication (Page 2)
ш	Well Licence No.		Type of Incident	☐ Kick	Blowout	Loss of Circulation
ΟΝ ΤΥΡ	Well Status	Drilling Standing	Servicing	Producing Sour	☐ Injection ☐ Critical	Suspended
ERATI	Pipeline Licence No.		Line No.	🗌 Hit	🗌 Leak	Rupture
Ъ.	Production Facility License No.		☐ Gas ☐ Oil	☐ Gas Plant ☐ Battery	Compressor	AEP Approval No.
U	Licensee Air Monito	oring Occurring	Mobile	Handheld	E	stimated Time of Arrival
TORIN	Initial Readings/Location	n	PPB PPM	On Site Off Site		Distance
R MONI	Contractor Name		Phone		AMU Phone	
AIF	Direction Speed Wind		Meteorological Conditions		AER AMU ETA	
	Communications completed by Licensee and/or AER					
CATIONS	☐ AEMA ☐ AEP ☐ WH&S	AB Health Services AHW Local Authority	CER DFO Environment Canada	TDG First Nations Indian Oil and Gas	Fire RCMP/Police Ambulance	☐ WCSS ☐ Other
INUMM	Contact names and phone numbers					
CO	Incident Cause	□ Natural	Natural Human-Induced Unintentional			Intentional
	☐ First Nations Band ☐ Métis Settlement		Band/Sett	lement Name/Contact		Phone
	Complaints	□ Local □ Large Area				
lion	Private Land Title Hold	ler			Phone	
ORMA ⁻	Public Land Type	Irrigation	Forestry	Grazing	Other	
ER INFO	Public Land Administrator Contact			Phone		
OTHE	Additional Information				1	





APPENDICIES: EPP CONTINGENCY PLANS

APPENDIX	TITLE
A1	SOIL HANDLING CONTINGENCY PLAN
A 2	TOPSOIL INTEGRITY CONTINGENCY PLAN
A 3	SOIL EROSION COLNTINGENCY PLAN
A 4	WEED MANAGEMENT PLAN
A 5	RESOURCE DISCOVERY CONTINGENCY PLAN
A 6	HISTORICAL RESOURCES CONTINGENCY PLAN
A 7	FUELS AND HAZARDOUS MATERIALS PLAN
A 8	WASTE MANAGEMENT PLAN
A 9	TRAFFIC MANAGEMENT PLAN
A 10	NOISE MANAGEMENT PLAN
A 11	FIRE CONTINGENCY PLAN



1.0 SOIL HANDLING CONTINGENCY PLAN

The goals of the Soil Handling Conditions Contingency Plan are to maintain cropland and native prairie soil productivity to pre-construction conditions. The objectives of the plan are to minimize soil admixing, compaction and erosion.

During construction, the following problems may arise which may result in loss of soil productivity if not addressed. Mitigative measures are suggested which may lessen the impacts associated with construction.

Soil handling mitigation will be monitored during construction by the PTRL representative.

Table: A1.0 Soil Handling Contingency Plan

Condition/Concern	Mitigative Options
Wet soils: only expected if construction occurs during non- winter conditions	 The following contingency measures shall be employed progressively or individually as warranted: Limit equipment traffic to the late afternoon or early morning when ground conditions are frozen or delay construction until soils dry out or refreeze; Prevent rubber-tired traffic from driving on the ROW; Install geotextiles, swamp mats, or employ frost inducement measures such as snow packing or plowing to increase the load-bearing capacity of wet/or/thawed ground; Salvage any excess snow from the spoil side of the ROW and spread, as well as pack, the snow on the work side to avoid premature thawing of the upper soils; Restrict construction vehicle traffic to equipment with low-ground pressure tires or wide pad tracks; Salvage topsoil from full ROW to prevent mixing and rutting (note that full ROW stripping cannot be conducted when soils are excessively wet or on native prairie); and Shutdown construction until conditions improve.
Little or no topsoil on cultivated lands	 Salvage plow layer, to colour change or as recommended on the Environmental Alignment Sheets, whichever is greatest.
Little or no topsoil on pasture, hay or bush lands	• Salvage root zone, to colour change or to 15 cm whichever is greatest.
Poor colour separation between topsoils and subsoils	 Identify subsoil by texture and structure for any site-specific adjustments to depth. Assign a person to guide the equipment operator as to the depth of topsoil, if warranted.
Uneven surface on native prairie, hay land and improved pasture	 Consider stripping the trench and spoil area on hay land and improved pasture but not native prairie. Use equipment with fine depth control to backfill spoil in contact with sod layer. Consider use of prairie Protector or equivalent on clean up bucket or grader blade. Minimize scalping of sod layer.
Stony subsoils or topsoils	 Attempt to use conventional equipment to strip topsoil. Employ backhoe, if above measures are ineffective. Pick rocks after replacement of topsoil to the equivalent of surrounding topsoil.



Shallow bedrock	 Ripping is preferred over blasting where rock trenching is encountered. Bedrock is not to be backfilled into the upper 0.5 m of the trench. Excess bedrock will be disposed of at locations approved by the landowner and regulatory agencies. Import additional or replacement backfill if warranted from locations approved by regulatory agencies.
Alternate soil handling measure or no topsoil stripping requested by landowner	 Discuss benefits of proposed soil handling with landowner. Notify regulatory agencies if landowner maintains the request. If the landowner maintains the request following discussions with the regulatory agency, conduct topsoil handling operations in compliance with the landowner's request.
Unstable trench walls	 Strip extra width of topsoil if topsoil could slough into the trench. Back slope the trench until stable (up to 1:1). Weld up pipe prior to trenching at locations with soils prone to sloughing to minimize the time the trench is left open.
Uneven boundary between topsoil and subsoil	Utilize equipment capable of fine depth adjustments when salvaging topsoil.
Soil pulverization	 Minimize traffic on ROW. Increase topsoil stripping to full ROW if fine textured soils will be subjected to undue traffic and pulverization. Minimize cultivation and harrowing once topsoil has been replaced. Postpone seed bed preparation until immediately prior to seeding.
High winds	Suspend topsoil handling during high wind conditions.
Rutting	See Section 2: General Environmental Protection Measures.
Erosion (Wind or Water)	See Appendix 3.0



2.0 TOPSOIL INTEGRITY CONTINGENCY PLAN

AEP, SE and CER requires that topsoil integrity has the same growth capability after construction. Topsoil pulverization primarily occurs where the travel lane of the ROW or access road has not been salvaged of topsoil or during excessive handling of topsoil while salvaging. Soils that have been pulverized are identified where unacceptable high risk of soil erosion exists and re-vegetation will not occur within a reasonable time frame. Soil pulverization during winter construction is not expected to be a concern.

Should construction occur during the summer months the following will be considered to mitigate potential soil pulverization:

- Restrict traffic and develop alternative access.
- Use rig/access matting to cover pulverized topsoil to allow traffic to continue.
- Water down and salvage topsoil where feasible.

Implement actions where topsoil salvaging has indications of pulverized soils:

- Minimize construction activity on days with higher winds.
- Restrict activities until soil moisture conditions are favorable or add moisture mechanically.
- Use equipment that minimizes the handling of the topsoil. For example, use a small wide pad multidirectional bladed bulldozer to bulk the topsoil then use a fine depth control piece of equipment to remove remaining topsoil.
- Once topsoil is salvaged, ensure wind erosion is minimized by watering down the topsoil storage pile creating a crust or tackifying.

Implement actions during reclamation if pulverized soils are noted:

- Minimize farming practices to minimize soil handling.
- Seed ROW if required and water or tackify ROW to develop a crust of topsoil, allow no access crust has been developed.
- Straw crimp with weed free straw and with landowner approval.



3.0 SOIL EROSION CONTINGENCY PLAN

The goals of the Soil Erosion Contingency Plan are to control soil erosion by wind or water. The objectives of the plan are to prevent soil erosion by implementing mitigative techniques, such as salvaging and replacing topsoil, regrading, installing structures and transplanting shrubs.

If soils erosion by wind or water is evident during the construction phase of the Pipeline, the Contractor will take immediate action to control the erosion resulting directly from construction activities. The table below (Table I-1) provides a list of control options to be implemented as soon as practical. Similar options should be followed during the operational phase.

Table A3.0Soil Erosion Control Options



Condition/Concern	Mitigative Options	
Erosion by Wind		
Topsoil	 Shutdown or relocate construction activities until winds dissipate and conditions improve. 	
	 Consider using the following techniques if wind erosion of the topsoil windrow is of concern: 	
	 Postpone topsoil stripping until three days prior to trenching; Apply water to the topsoil windrow; 	
	 Windrow snow over the topsoil windrow; 	
	 Tackify (at rate recommended by the distributor) the topsoil windrow; or Pack the topsoil windrow with a sheepsfoot packer or other suitable equipment. 	
	 Consider using the following techniques if wind erosion is of concern after topsoil replacement: 	
	 Seed cereal or sterile hybrid cover crop. Consult seed mix preference with the landowner; 	
	 Employ straw crimping at 2 tonnes to 2.5 tonnes/ha (0.8 tonnes to 1.0 tonnes/ac); 	
	 Apply hydromulch or tackifier; 	
	 Add locally available manure and cultivate; and Install wind fences. 	

Arrange for inspection of erosion and sedimentation control measures after significant precipitation events (e.g., greater than 12.5 mm in 24 hours or rapid melt of snow accumulation) to ensure continued effectiveness (Appendix 8). Repairs to the associated structures should occur in a timely manner. Immediately following an extreme weather event, PTRL will conduct an inspection of all ESC measures on site.

Clean up will be conducted and the ESC will be reestablished. Maintenance activities include removal of excess sediment trapped by erosion controls, monitoring revegetated areas, repair and replacement of damaged ESC, and removal of ESC that are no longer required. The maintenance schedule should include an inspection of:

- Physical condition of the site;
- Slope or bank stability;
- Erosion control measures; and
- Physical integrity of restoration measures.

All sediment control measures that have accumulated sediment in or immediately around them should be cleaned once sediment build up is one third to one half of the device's retention capacity. All sediment removed from ESC measures in place will be deposited back onto the construction site in an area with minimal erosion risk.

If a weakness or failure of a control structure is identified, repairs will occur immediately. A supply of extra ESC materials shall be kept onsite for emergency repairs. These may include plastic sheeting, Biologs, SiltSoxx products, mulch, rocks, filter fabric and/or silt fencing.



Other potential mitigative measures for avoiding wind erosion on sandy soils are:

- Increased seeding rates;
- Apply hydromulch or tackifier;
- Add locally available manure, straw or hay; and
- Install wind fences.

The introduction of manure, straw or hay is not preferred due to the increased risk of introducing weeds or invasive species.

The proper management of livestock can greatly increase the success of vegetation along the ROW and should be conducted in consultation with the landowner or lessee. Such strategies include: alterations to grazing patterns; the use fencing and the placement of salt licks, oilers and water sources.



4.0 WEED MANAGEMENT PLAN

The goals of the Weed Management Plan are to prevent and control the spread of *Prohibited*, *Prohibited Noxious*, *Noxious* and invasive plants from the ROW, Temporary Work Space (TWS) and facilities onto undisturbed areas during the pre-construction, construction and post-construction periods of the Pipeline.

The objectives of the plan during the pre-construction and construction phase are to:

- Identify locations of *Prohibited*, *Prohibited Noxious*, and *Noxious* weeds, and invasive species on facility sites, along the ROW, TWS and access roads; and
- Prevent the spread of *Prohibited*, *Prohibited Noxious*, and *Noxious* weeds, and invasive species by implementing effective mitigation measures.

The objectives of the plan during the post-construction phase are to:

- Implement a monitoring program to identify *Prohibited*, *Prohibited Noxious*, or *Noxious* weeds, and invasive species along the ROW and on facility sites; and
- Prevent the introduction and/or spread of *Prohibited*, *Prohibited Noxious*, *Noxious* and invasive plants along the ROW and on facilities to adjacent lands.

Mitigation

Pre-Construction Mitigation

A pre-construction weed survey will be completed on potential problem areas which have been identified as having *Prohibited*, *Prohibited Noxious*, and/or *Noxious* and invasive plants as identified from prior season plant surveys as part of the route selection. The identified plant species will include agronomic species known to have invasive qualities, such as crested wheatgrass, where it occurs adjacent to or within native prairie habitats. Potential weed source areas will be identified along contiguous developments, as well as any existing infrastructure, including those that are a part of agricultural operations, such as dugouts and livestock watering areas. The weed survey will occur within the growing season, which includes those portions of the ROW and TWS, to facilitate proper identification of weed species. During the weed survey, the following information will be recorded:

- Weed species;
- Location;
- Extent and density distribution;
- Baseline photographs for monitoring purposes; and
- Terrain and accessibility information.

Proximity to sensitive areas will also be recorded to aid in determining appropriate vegetation control measures to be applied. Sensitive areas are those areas where rare plants, water sources, Fish and Wildlife (F&W) habitat, riparian areas, and specialty crops are in close proximity to the treatment area.

Where weed infestations have been identified, the appropriate regulatory authority will be contacted, and preventative measures will be employed, including the avoidance or pretreatment of existing weed infestations, where deemed necessary. Control of weeds directly on the ROW area to be trenched may be through the use of mechanical methods such as mowing or hand pulling on native prairie and improved pasture. This will minimize potential impact of herbicides on water bodies or foraging animals.



Landowners will be consulted if herbicides are applied to pastures or cultivated lands to minimize conflicts with agricultural operations and to minimize accidental ingestion of herbicides by livestock.

Training will be provided for all personnel on the prevention of weed introduction during construction activities.

Construction Mitigation

Where possible during winter construction, identified areas of weed infestations will be flagged immediately prior to construction. In native prairie, mitigation options for high-density weed occurrences near rare plant locations include mechanical treatments such as hand pulling and mowing where appropriate.

High-density weed occurrences in proximity to sensitive habitat in native prairie, such as water sources, F&W habitat and riparian areas, will be subject to mechanical treatment. Additionally, cleaning stations may be placed at the perimeter of high-density areas. Herbicide or mechanical treatments may be used on non-sensitive areas of native prairie. Herbicide will not be used on Crown lands unless approved by the applicable regulator. The choice of herbicide used will depend on the type of weed encountered, the efficacy, toxicity, potency duration, short and long-term effects, method of applications, type of equipment required, public safety and cost-effectiveness.

On non-native land uses, Best Management Practices, such as topsoil stripping of the ROW where weed infestations are encountered and cleaning of topsoil equipment prior to crossing County/Municipal District boundaries will be used to prevent the introduction and/or spread of weed species during construction.

Monitoring

Weed monitoring will be incorporated into the Post-Construction Monitoring program. Information collected will be consistent with the data collected during pre-construction surveys, and will include species, location, extent and density distribution. These data will be analyzed against the baseline data collected during the baseline and pre-construction weed surveys to gauge the success of weed management measures.

All *Prohibited*, *Prohibited Noxious*, and *Noxious* weeds and invasive species identified on the disturbed sections of the ROW will be reduced and/or maintained at levels equivalent to or less than adjacent lands, and must be treated in compliance with relevant provincial regulations. Weed control measures will be implemented where problems have been identified during monitoring surveys prior to seed set. Timing of the control measures will be dependent on the biology of the identified weed or invasive species, the optimal time and weather conditions for treatment of the target species and the type of mitigative measures to be implemented.

The type of mitigative measures to be applied will be determined based on considerations, such as potential impact on undisturbed and desirable vegetation, soil textures, the location of the infestation, topographical concerns, such as slope, terrain and accessibility, the proximity of waterbodies or water courses, safety concerns for contractors, landowners and operators, the expected effectiveness of the treatment and cost-effectiveness of the mitigative measure to be employed.



Sensitive Areas

The proximity of the treatment area to sensitive areas will limit the method of weed control, which can be used in a given environment. Sensitive areas include those areas where rare plants, and/or F&W habitat have been identified, as well as those areas that are in close proximity to water sources, riparian areas, and specialty crops.



5.0 **RESOURCE DISCOVERY CONTINGENCY PLAN**

Plant Species of Concern Discovery Contingency Plan

In the event that rare vascular plants or sensitive ecological communities are discovered before construction of the pipeline, the plant or ecological community will be assessed and appropriate mitigative measures will be determined and implemented. The Rare Plant Mitigation plan in the ESA, Section 4.6.6 should be reviewed and provides the context for managing vascular plants. Including the mitigation plan in the ESA, the following may assist in determining the appropriate actions to take to limit negative impact on sensitive plant species:

- the location of the plant or ecological community on the ROW;
- the relative rarity of the plant or ecological community (regionally, nationally, etc.);
- the local abundance of the plant or ecological community;
- the growth habit and propagation strategy of the plant or ecological community; and
- the habitat preferences of the plant or ecological community.

The suite of mitigative options (i.e., staged mitigation) that may be implemented, includes the following:

- narrow down the proposed area of disturbance and protect the site using fencing or clearly mark the site using flagging;
- inform all users of access restrictions along native vegetation segments and in the vicinity of flagged or fenced sites;
- temporarily cover the site with geotextile pads, flex net, or swamp mats;
- extend road bores to avoid or minimize impact on the site;
- realign the route to avoid the site; or
- propagate rare plants or specific portions of sensitive ecological communities, via vegetative or
- reproductive means (e.g., harvesting of seed from the ROW or adjacent area, salvaging and
- transplanting portions of sod and surrounding vegetation or collecting of cuttings).

Wildlife Species of Concern Discovery Contingency Plan

In the event that wildlife *Species of Concern* or their site-specific habitat are discovered during pipeline

construction, the measures outlined below shall be considered:

- Suspend work immediately in the vicinity of any newly discovered wildlife *Species of Concern*.
- Work at that location may not resume until PTRL and/or the PTRL representative has confirmed it is appropriate to continue work in the area.
- The EHS Advisor will refer to Section 2.6.18, Mitigative Measures of Potential Effects for Wildlife Species at Risk, and determine what steps shall be taken to minimize any negative impact on the identified species.

Wildlife Encounter Contingency Plan

In the event of an encounter with wildlife during the construction phase of the pipeline and associated facilities, either at the construction site or on the commute to and from the construction site, follow the measures outlined below:

• Report any incidents (e.g., aggressive behavior, nuisance behavior) with wildlife to the Contractor who will take appropriate action to ensure the safety of personnel as well as the animal and that may include notifying the applicable provincial wildlife officer.



- Report any trapped, injured, or dead animals on the site to the EHS Advisor. The EHS Advisor will contact the applicable provincial agency to consult on appropriate action.
- Report location and details of collisions with wildlife to the Contractor or EHS Advisor. The EHS Advisor will notify the applicable provincial authorities.

Traditional Land Use Sites Discovery Contingency Plan

In the event that Traditional Land Use (TLU) sites are identified during construction of the PTRL Pipeline, the following measures will be implemented, in addition to what is required by the regulatory agencies:

- Suspend work immediately in the vicinity of any newly identified TLU sites. Work at that location may not resume until the measures below are undertaken.
- Notify the PTRL representative who will in turn contact the PTRL corporate Community Consultation and Regulatory Affairs (CCRA) Director, who will initiate action to confirm the nature and extent of the TLU site.
- The Director of PTRL CCRA or designate will assess the site and contact the appropriate First Nations community to enlist a representative to develop an appropriate mitigation plan.

The mitigative measures included in this plan include the following:

- Site avoidance, which may involve amending the Pipeline Footprint; and
- Surveillance/monitoring, which involves assigning an individual to monitor the remainder of the stripping, grading and/or trenching operations during pipeline construction at the identified site.



6.0 HISTORICAL RESOURCES CONTINGENCY PLAN

While the ROW has been subjected to Heritage Resources Impact Assessments (HRIA) prior to construction, there is always a chance that undiscovered historical resource sites may be encountered. This is particularly true during ground disturbance. The *Historical Resources Act* mandate that all heritage resource sites encountered during construction must be immediately reported to the archaeologist managing the HRIA and to provincial regulators. The goal of the Historical Resources Contingency Plan is to ensure compliance with the above Act, and this will be met by the following mitigation and monitoring objectives and emergency response measures.

Discovery of Human Remains

The entire ROW has been cleared under the *Historic Resources Act* (Alberta) and the Heritage Property Act (Saskatchewan). Nonetheless, there is always a chance that undiscovered historic materials, including human remains, could be encountered. In the event that human remains are discovered, all construction activities must come to a halt and the nearest RCMP detachment (located at Provost, Alberta, 780-753-2214) must be contacted. The remains will be treated as evidence of a criminal investigation, and therefore, the area of discovery would be secured and designated as out of bounds to all personnel.

The RCMP will investigate and make any further decisions regarding the remains and when construction activities may resume. Following contact with the RCMP, Alberta Culture and Tourism (ACT) or Saskatchewan Parks, Culture and Sport (PCS) will be contacted, depending on which province the discovery is made.

Discovery of any other potential Historical Resources will also result in halting construction in that immediate area until a determination can be made on subsequent actions by either ACT or PCS.

Mitigation

Historic sites within and near the Pipeline footprint will be flagged and surrounded with fencing prior to construction. These flagged areas will be avoided by all crews and equipment. All workers must be diligent during all aspects of construction to ensure that flagged historical resource sites are avoided. If a flagged site is disturbed, both the archaeologist managing the HRIA and provincial regulators must be immediately contacted by the Construction Contractor. Construction in the area of the disturbance must cease until further clearance is issued by the appropriate provincial regulator.

Construction crews will be made aware of the importance of avoiding existing flagged sites. Contact numbers for provincial regulators will be made available to the Contractor for reference should an historic site be found or disturbed by construction (Table A6.0).



Government of Alberta				
Туре	Name	Contact Information		
In Case of Discovery of Archaeological	Eric Damkjar, Head, Archaeology	Phone: (780) 431-2346 E-mail: eric.damkjar@gov.ab.ca		
In case of Discovery of Palaeontological Resources	Dan Spivak, Head, Resource Management, Royal Tyrrell Museum of Palaeontology	Phone: (403) 820-6210 Email: dan.spivak@gov.ab.ca		
In case of Discovery of Historic Period Sites	Rebecca Goodenough, Manager, Historic Places Research and Designation Program	Phone: (780) 431-2309 Email:Rebecca.goodenough@gov.ab.ca		
In case of Discovery of	Valerie Knaga, Director,	Phone: (780) 431-2371		
Aboriginal Traditional Use	Aboriginal Heritage Section	Email: valerie.k.knaga@gov.ab.ca		
Government of Saskatchewan				
Туре	Name	Contact Information		
In Case of Discovery of Archaeological, Paleontological or Historical Site	Kim Weinbender, Archaeologist	Phone: (306) 787-8157 E-mail: kim.weinbender@gov.sk.ca		

Table A6.0: Historical Resources Contacts

Emergency Response

In the event of an accident or malfunction that may impact historic resources, the supervising archaeologist should be contacted once the area has been deemed safe and all necessary repairs have taken place. The archaeologist will consult with the Contractor, PTRL, and the provincial regulators to determine if additional mitigation is required to salvage or protect impacted historical resources.

Monitoring

To monitor construction activity near sensitive historical areas, an individual will be assigned to monitor activity and will be responsible for reporting any unexpected interaction with a historic site to site management. When a specialist is present, they will monitor construction and report any newly discovered or disturbed historic/heritage resources. The attendant historic resources specialist will evaluate the significance of the resource and the severity of the impact. In the event that the resource is of a significant nature or warrants careful evaluation, they may subsequently halt construction until further clearance is issued by provincial regulators. When a historic resource specialist is on site they are ultimately responsible for contacting the appropriate provincial regulator so that mitigation methods can be developed. If the impact is determined to be within acceptable parameters, the attendant specialist will conduct the required salvage and recording without halting construction. They will then be responsible for providing heritage resource management recommendations to provincial regulators.



7.0 FUELS AND HAZARDOUS MATERIALS CONTINGENCY PLAN

Spill Prevention

All contractor equipment and vehicles will carry a spill response kit at all times; kits will be inspected at the beginning of Pipeline, or as required. Daily equipment inspections will be conducted to minimize the potential for unidentified sources of contamination.

Immobile equipment will be fitted with spill trays to catch any inadvertent drips and leaks. Having two people while fueling equipment unless a shutoff valve is located at the end of the nozzle is prudent and do not rely on auto shutoff valves. Operator must be present and monitoring fueling progress at all times.

Initial Response

In the event of a spill of any chemical or hydrocarbon product or unknown substance, the Construction Contractor shall immediately initiate their spill response protocol including notifying the PTRL representative.

All subsequent actions will follow the PTRL approved pipeline construction spill response plan and protocols.

Spot Spills

Notwithstanding the requirements to follow the spill ERP, small spills may be mitigated and minimized if appropriate actions are implemented. All small spills of fuels or noxious materials must be reported immediately to the PTRL representative or EHS Advisor.

- Suspend construction activity in the immediate vicinity of the spot spill until permission to resume activity has been granted by the PTRL representative or EHS Advisor.
- The EHS Advisor, in consultation with the PTRL representative, will determine appropriate methods to remove or restore contaminated soils. Soil and vegetation heavily contaminated with petroleum products will be incinerated or disposed of at an approved facility.

Spills from Construction or Unknown Origin

If potentially contaminated soils are encountered during construction, construction activities will be suspended in the immediate vicinity of the identified area. Visual indicators of contamination may include hydrocarbon ambient odors and staining that are substantially different in appearance (i.e., color/texture/moisture) than the native soils encountered. The construction pipeline crew will notify the PTRL representative. PTRL and/or the environmental consultant is required to report the discovery of the contaminated soils to the appropriate regulatory body.

In Saskatchewan, PTRL will call the Ministry's Petroleum and Natural Gas Emergency Support Line (1-844-764-3637) in the event of spills from construction or of unknown origin. For Alberta, PTRL will disclose the contaminant discovery to the AER Energy and Environmental Emergency 24-Hour Response Line (1-800-222-6514). After the initial verbal notification, an AER release report will be completed and emailed to the appropriate AER field office. Subsequent reporting may be required depending on the extent of the contaminated soils. A remediation/reclamation specialist and/or environmental inspector will be contacted to provide the necessary guidance and proper field screening methods for dealing with potentially contaminated soils. Common potential contaminants of concern related to pipelines and other oil and gas facilities include petroleum hydrocarbons, salts, and metals. The remediation/reclamation specialist will conduct



field screening and collect characterization samples of the potentially contaminated area to confirm the presence/absence of any contaminants of concern.

Remediation and Monitoring

If contamination has been confirmed, PTRL will work with their environmental consultant, regulators, and any third parties, which have been identified as possible sources of contamination, to develop a remedial action plan (RAP). The RAP may include additional sampling, soil removal, and other means of cleanup and/or a monitoring program.



8.0 WASTE MANAGEMENT PLAN

The goal of the waste management plan is safe and proper storage, handling, use and disposal of waste material generated as a result of pipeline construction activities, in a safe and environmentally responsible manner. To assist in achieving this goal, the Waste Management Plan has been designed with the following objectives in mind:

- Comply with the applicable federal, provincial and/or municipal regulations and industry standards;
- Employ environmentally and economically responsible construction practices and products;
- Recycle wastes, where feasible;
- Store hazardous and waste materials in a secure area;
- Dispose of hazardous and waste materials regularly, in approved container or waste facility. This may include: regional landfills, recycling centers, construction/demolition disposal or recovery sites, product suppliers and hazardous waste disposal facilities;
- Employ all reasonable preventative measures to prevent the release of wastes or hazardous materials into the environment; and
- Contain clean up and report all waste/hazardous materials spills as promptly as possible.

This Waste Management Plan applies to the pipeline ROW, TWS, additional work areas, staging areas, valve sites, and roads used for construction activities. All construction workers will be oriented and informed of the procedures outlined in the Waste Management Plan.

Mitigation

PTRL will assure the construction of the pipeline adheres to all relevant federal, provincial and municipal regulations, codes and permits, and industry standards concerning the storage, handling, transport, disposal and spill reporting regulations of all products and/or hazardous substances (Table A8.0).

Authority	Applicable Acts, Regulations, Guidelines and Codes
Government of Canada	Onshore Pipeline Regulations, Section 11 Hazardous Products Act Consider Act
	 Canada Labor Code - Oil and Gas Occupation Safety and Health Regulation, Part XI Transportation of Dangerous Goods Act and Regulations Canada Oil and Gas Operations Act
Province of Alberta	 Environmental Protection and Enhancement Act Waste Control Regulation Energy Resources Conservation Act Oil and Gas Conservation Act and Regulations Pipeline Act and Regulation Occupational Health and Safety Act and Regulations Occupational Health and Safety Code Public Health Act Alberta Energy regulator (AER) Directive 055 - Storage Requirements for the Upstream Petroleum Industry AER Directive 058 - Oilfield Waste Management Requirements for the Upstream Petroleum Industry

Table A8.0:	Waste Management Regulations,	Guidelines and Codes of Practice
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Authority	Applicable Acts, Regulations, Guidelines and Codes	
Province of Saskatchewa	The Environmental Spill Control Regulations	

Non-Hazardous Solid Wastes

Solid wastes include the garbage and debris generated by human activities, such as building wastes, survey stakes and flagging, pipe tape and coating, used geotextiles, Styrofoam, plastics, wood, and metal. These wastes are typically considered to be non-toxic or non-hazardous in nature, although they can pose some safety hazards to construction personnel, or local livestock/wildlife, as well as being a nuisance or eyesore to area residents.

Industrial Wastes

Industrial wastes are the potentially toxic solid or liquid wastes and products generated by pipeline construction, and include items such as fuels and coolants, used oils, solvents and antifreeze, lube filters and grease cartridges, contaminated soils, vegetation and/or absorbents, used batteries, sewage and spent cleaning products. Of these, the liquid wastes pose the greatest environmental threat if accidentally spilled or released due to their ability to flow or seep through soil and/or water.

All construction personnel will be required to comply with all applicable regulations and standards for the containment, storage, handling, use and disposal of wastes and hazardous materials. Detailed shipping/storage records and documentation will be kept in adherence with government regulations.

Waste Storage

- The Pipeline contractor shall be registered with the appropriate provincial government department, and provide that agency with detailed information regarding the nature, location and handling of any hazardous materials;
- All hazardous material will be stored and secured in approved containers, and labeled according to provincial Occupational Health and Safety Act (OHS Act) and the federal Hazardous Products Act and associated regulations. and/or Transportation of Dangerous Goods (TDG) regulations;
- Storage areas will be selected with specific criteria in mind:
 - Unobstructed vehicle access;
 - Easily securable; and
 - No sensitive environmental features (such as surface water, steep slopes, wildlife or vegetation *Species at Risk*, highly permeable soils, elevated water table, water wells/springs etc.).
- All hazardous material and waste will be secured in designated areas, except for quantities required for (or generated by) that day's construction activities;
- Bulk storage tanks, if required, will be placed in a bermed area, lined with an impervious liner; and
- Materials safety data sheets will be available for each product stored at storage areas or staging yards.



Waste Handling

- All personnel handling potentially hazardous materials will possess valid WHMIS and first aid certification;
- Spill and safety equipment will be on site and available at all times during all phases of construction activities; and
- Drivers transporting fuels or other hazardous materials will possess valid TDG certification.

Waste Disposal

- The contractor will be responsible for all waste generation, collection, manifesting and disposal according to regulatory requirements. The contractor will keep complete waste records and make available to PTRL or regulators as requested;
- All waste material will be disposed of in accordance with federal, provincial and municipal legislation and regulations; and
- Garbage receptacles will be provided for non-hazardous waste material. Separate secure containers for hazardous wastes will also be provided.

Monitoring

The Contractor will be responsible for ensuring compliance with the regulations and standards. In the event of a spill or accidental release, the Contractor will immediately mitigate any potential negative impact on the environment and will report to PTRL in accordance with the PTRL incident reporting protocol. In addition:

- The PTRL EHS Advisor will regularly inspect the Contractors work areas including laydown, pipe stringing and other areas deemed necessary; and
- Vehicles and construction equipment will be inspected regularly for leaks by contractors/operators and PTRL.



9.0 TRAFFIC MANAGEMENT PLAN

Goals and Objectives

Construction of the pipeline will create an increase in the volume of vehicle traffic on local roads and highways during the construction phase of the Pipeline. The goals of the Traffic Management Plan are to ensure the safety of the public and construction personnel, as well as the integrity of sensitive components of the environment, such as native prairie, wetlands, vegetation and/or wildlife species of concern, and historical resources.

The following are the traffic management objectives:

• Compliance with relevant provincial laws and local municipal by-laws, landowner requests, and permit and approval conditions.

Mitigation

The recommended mitigative measures outlined in this plan are aimed at ensuring the safety of the public and construction personnel, as well as the safety and integrity of sensitive components of the environment, such as native prairie, wetlands, vegetation and/or wildlife species of concern, and historical resources.

Access Management

- The pipeline parallels a number of existing roads, eliminating the need for the development of new access roads;
- Existing access and/or previously disturbed areas will be used where possible;
- All approved access roads will be clearly signed; and
- Fences, barriers, flagging or signage may be used to limit access to sensitive areas, and/or to limit public access to the worksite.

Vehicle Management

- All construction traffic will be restricted to existing roads, the Pipeline ROW and TWS;
- Posted speed limits will be adhered to (and enforced along the ROW) to reduce the risk
 of wildlife collisions;
- Where possible, vehicle traffic will travel on approved access roads rather than the ROW;
- Construction personnel will be encouraged to car pool or use multi-passenger vehicles between the worksite and their lodging, to minimize the number of vehicles entering the Pipeline area;
- Vehicle traffic through sensitive habitat areas such as wetlands or native prairie will be minimized as much as possible;
- Construction traffic shall be restricted to the trench area or work side of the ROW (when
 not obstructed by machinery or materials) or to stripped ground, to achieve the objective
 of reducing the area subject to potential soil compaction;
- All non-essential vehicle traffic should be restricted from travel along the ROW. The vehicle types and volumes will be monitored by the Construction Contractor;
- Contractors will avoid unnecessary turning of tracked equipment and wheel spin of wheeled vehicles; and,
- Vehicle traffic through newly seeded areas will be prohibited.



Road Conditions

- Dust control measures will be employed when, and where, conditions warrant.
- All roads damaged by construction traffic will be repaired to pre-construction conditions.

Monitoring

- Access control measures will be monitored and assessed by the Construction Contractor and PTRL representative; and,
- Restrictions listed under the Traffic Management Plan will be monitored and enforced by the Construction Contractor.

Consultation

The Traffic Management Plan will be updated in consultation with and owned by the Construction Contractor. The Traffic Management Plan will determine traffic flows into and out of the construction sites at various points along the route, as well as traffic flows to and from the marshalling points. Construction contractor representatives will confirm with the administrator of each affected County/Municipal District to confirm access routes to the pipeline routes and road use conditions.



10.0 NOISE MANAGEMENT PLAN

Construction of the pipeline will create intermittent localized noise impacts along the route. Construction activities responsible for these impacts primarily consist of the operation of heavy equipment. The goals of the noise management plan are to minimize noise impacts during pipeline construction, operation and decommissioning.

The objectives of the plan are the implementation of noise mitigation measures or management practices to reduce noise impacts to within acceptable levels.

Mitigation

PTRL is committed to minimize the noise impacts of construction activities, following a proactive approach through implementation of the following mitigation measures:

- General awareness and training for all workers regarding environmental noise best practices, community noise complaints and mitigation;
- Consideration to quieter methods and quieter equipment;
- The pipeline Construction Contractor will be responsible for inspection of construction vehicles and equipment to ensure all equipment is equipped with appropriate sound attenuation devices and operating to manufacturers specifications;
- Construction equipment will be turned off when not in use;
- Restrictions as necessary on working hours;
- Truck drivers and mobile equipment operators will be informed about not using engine retarder braking in noise-sensitive areas;
- Noise impacts will be considered in the selection of staging and storage areas; and,
- Wildlife sensitivities will be mitigated through timing restrictions.

Monitoring

- PTRL will require a formal report from the Construction Contractor following any noise complaints. The report must include mitigations the Contractor has or will implement; and,
- Vehicle speed limits will be enforced.

Consultation

PTRL is committed to construction and operation of the pipeline within the accepted or regulated community noise disturbance levels. Community consultation will continue regarding the proposed activity schedule and potential noise impacts. PTRL and the Contractor will expeditiously investigate all community concerns regarding environmental noise issues as they may arise during the construction, operation or decommissioning phases of the development.



11.0 FIRE CONTINGENCY PLAN

The goals of the Fire Contingency Plan are to minimize the effects of a fire, if it occurs. The objectives of the plan are to ensure the safety of the first responders and the public, protect property, and to protect the environment.

Mitigation

Prior to commencement of construction, the Contractor will designate the EHS Advisor as the "Fire Boss." The EHS Advisor will be familiar with firefighting techniques and equipment.

- The EHS Advisor will be the responsible liaison between the contractor and all workers and sub-contractors regarding fire contingency and actions that are expected should a fire situation and actions that are expected should a fire situation occur.
- If safe to do so in the event of a fire, trained personnel should commence fire suppression measures immediately upon detection of fire.
- Report location of fire as well as size of fire and wind direction, to the EHS Advisor.
- The EHS Advisor will report wildfires and relevant information to the Contractor management who will initiate an emergency response that may include notifying the landowner, AEP Land Management Specialist, County/Municipal District By-Law Officer and local fire department.
- The EHS Advisor will deploy firefighting equipment and crew to plow/clear fire breaks or extinguish the fire directly if possible. All equipment and personnel shall be made available to control the fire.
- The EHS Advisor will inspect the fire site as soon as possible and take charge of directing suppression measures.
- The EHS Advisor will deploy additional crew and machinery as needed and will request assistance of local fire department/county if Contractor resources are inadequate (Table A11-0). Fire suppression measures shall continue until the fire is extinguished or until otherwise notified by the CER, local fire department/county.
- Moveable materials, vehicles, etc. will be promptly moved to a safe location wherever there is a possibility of being endangered by a fire.

Contact	Number
CER	TBD
	Call 911 for Emergency
County/ Regional Municipality	
	RM of Senlac No. 411: 306-228-3339
	RM Eyehill No. 382: MACKLIN:306- 753-
	2075
	Area 7 Volunteer Fire: 1 306-741-0979
	Adrian Waskewitch
AEP Fire	310-FIRE (3473)
Spill Control Centre (SK) Env Protection Branch - MOE	1-800-667-7525
Saskatchewan Public Safety	Emergency Services Officer; 1-800-667-9660
Agency (SPSA) & Firewatch SK	

Table A11.0: Fire Department Contacts


Monitoring

The EHS Advisor will ensure that all burning embers and smoldering material are extinguished and monitor the burn area. Follow-up monitoring of fire locations by the EHS Advisor and PTRL representative will occur to confirm successful remediation, as necessary.