

# **Principles for Minimizing Surface Disturbance in Native Prairie and Parkland Areas**

**April 2014**

**Alberta Energy Regulator**

Manual 007: Principles for Minimizing Surface Disturbance in Native Prairie and  
Parkland Areas

April 2014

Published by

**Alberta Energy Regulator**

Suite 1000, 250 – 5 Street SW

Calgary, Alberta

T2P 0R4

Telephone: 403-297-8311

Toll free: 1-855-297-8311

E-mail: [inquiries@aer.ca](mailto:inquiries@aer.ca)

Website: [www.aer.ca](http://www.aer.ca)

## Contents

1	Introduction .....	1
1.1	About this Manual .....	1
1.2	How to Use this Manual.....	1
2	Guiding Principles.....	2
Appendix 1	Map of Natural Regions in Prairie and Parkland Alberta .....	5
Appendix 2	References and Tools .....	7
	Grassland Vegetation Inventory .....	7
	Range Health Assessment for Grassland, Forest, and Tame Pasture .....	7
	Range Plant Community Guides .....	7
	Recovery Strategies for Industrial Development in Native Prairie (Dry Mixed Grass and Mixed Grass Natural Subregions) .....	7
	2010 Reclamation Criteria for Wellsites and Associated Facilities in Native Grasslands .....	8
	Ecological Site Restoration Risk Analysis .....	8
	Guidance Specific to Best Practices in Fescue Grasslands and Associated ESRD Information Letter ( <i>Information Letter 2010-02</i> ).....	8
	Enhanced Approval Process – Standards and Conditions for Constructing and Operating in Native Prairie on Public Lands.....	8



# 1 Introduction

## 1.1 About this Manual

This Alberta Energy Regulator (AER) *Manual 007* supersedes *Informational Letter (IL) 2002-01: Principles for Minimizing Surface Disturbance in Native Prairie and Parkland Areas*. *IL 2002-01* was written by a team of government agencies having jurisdiction over petroleum industry activities and contained 14 principles to help minimize disturbance of native prairie or parkland areas of Alberta.

Since the publication of *IL 2002-01*, several changes with respect to native prairie practices have occurred:

- Alberta Environment and Sustainable Resource Development (ESRD) has developed a number of reference guides and helpful tools to assist the petroleum industry minimize disturbance in native prairie areas.
- Reclamation practices have shifted from controlling erosion and establishing sustainable grass cover to restoration of ecosystem structure and health and establishing a plant community that resembles the surrounding native plant community.
- ESRD published *Information Letter 2010-02: Foothills Fescue Grasslands of Southwestern Alberta*.
- Regulatory assurance for native prairies for oil and gas operators is now the responsibility of the AER.

In spite of these changes, the principles contained in *IL 2002-01* remain relevant today and are intended to help minimize the disturbance of native prairie. This manual

- reaffirms, clarifies, and reorders the principles found in *IL 2002-01*;
- consolidates principles one and nine from *IL 2002-02* into principle one in this manual;
- provides an updated map titled *Natural Regions in Prairie and Parkland Alberta*; and
- includes up-to-date ESRD references and tools to help operators minimize disturbance of native prairie (appendix 2).

## 1.2 How to Use this Manual

The principles and best practices in this manual apply to all native prairie disturbances associated with petroleum industry development. Their implementation is encouraged for development in native prairie and parkland areas on both private and public land. Many of the principles are requirements for development on public lands, provided in the document *Enhanced Approval Process Integrated Standards and Guidelines*. Provincial reclamation requirements apply to both public and private lands.

## 2 Guiding Principles

To minimize disturbance in native prairie or parkland areas of Alberta (appendix 1), the following principles apply:

- 1) **Industry should *avoid* disturbing native prairie.** Disturbances should be located on lands that have been previously disturbed or where long-term land-use commitment is less certain (e.g., tame pasture or cultivated lands). This can often be done by using existing access or non-native cover areas.
- 2) **If avoidance is not possible, disturbance should be *minimized*** to whatever degree is absolutely necessary for a project to be constructed or operated safely and successfully. Examples of common practices include
  - minimum-disturbance drilling,
  - accessing sites in dry or frozen ground conditions, or
  - only disturbing soils at the well centre.

Understanding the risks and reclamation challenges associated with various site and soil conditions is an important planning consideration.

- 3) **Activities should be timed to minimize impacts.** Scheduling can address issues such as coordination with other land users, consideration of wildlife seasonal habitat use, vegetation response to growing season disturbances, and optimal use of dry or frozen ground conditions. Timing restrictions are included as standard conditions for approvals on public lands.
- 4) **Reduce cumulative effects.** The area and intensity of the overall footprint, including other phases of the project, should be minimized. This principle includes the avoidance of cumulative environmental effects through coordination and cooperation with other native prairie users.
- 5) **Predevelopment planning and design should include an analysis of site-specific risks and issues and an environmental protection and reclamation plan designed to minimize the environmental issues and impacts identified.** If properly done, such planning should help to minimize environmental impacts, reduce costs for site reclamation, and decrease the risk of incurring environmental liability. Both the construction and operations components of a project, as well as access and site management plans, should be carefully thought out and implemented to minimize disturbance. This should include contingency measures for unforeseen circumstances.
- 6) **Predevelopment site assessments should be conducted.** This will support reducing disturbance to native prairie or parkland and should identify unique features such as rare plants or plant communities, wildlife species and habitats of special concern, water bodies and wetlands, and historical or traditional resources.

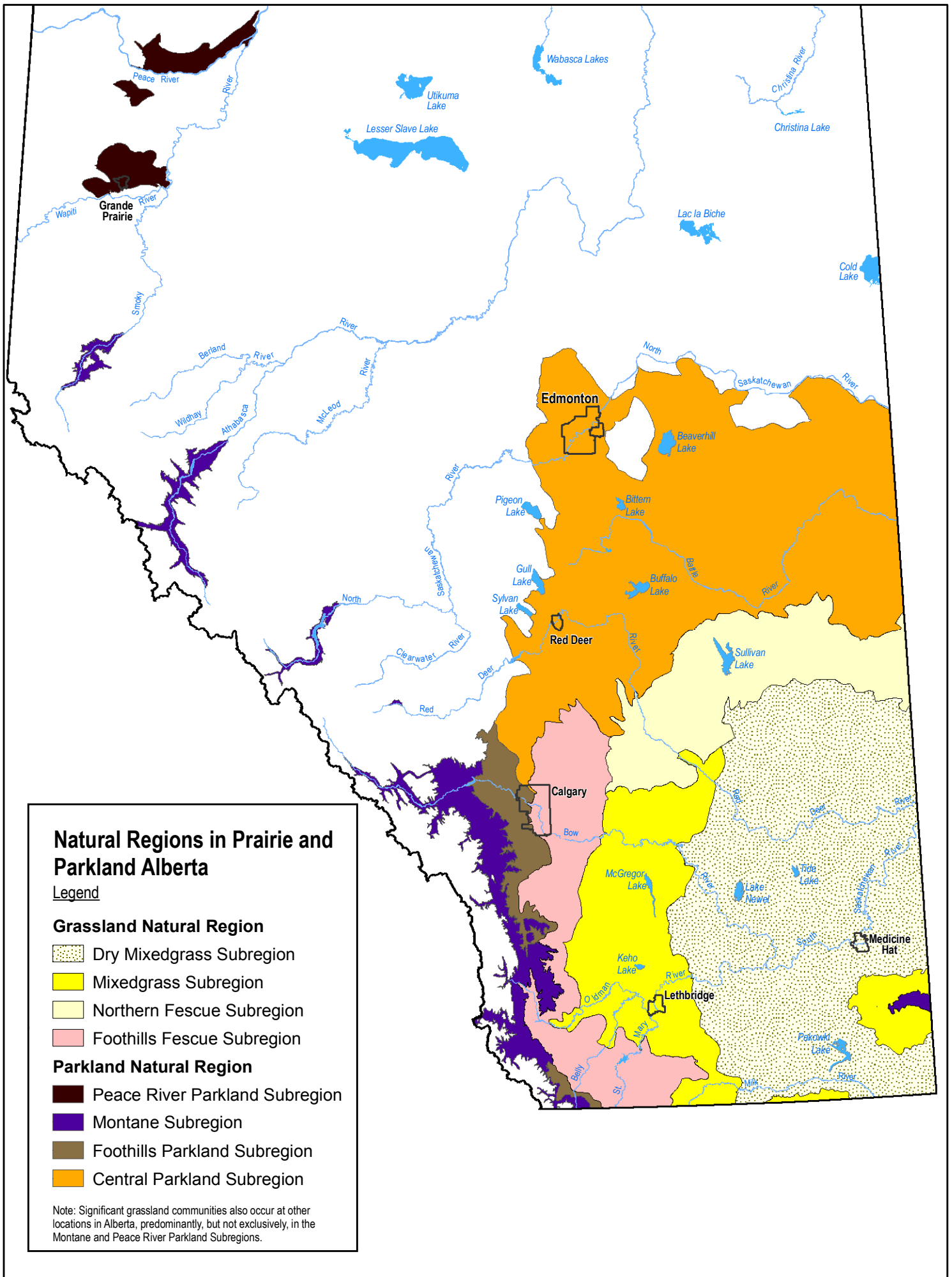
- 7) **A public consultation program appropriate to the scale of the project should be undertaken.** Information on public consultation programs is provided in AER *Directive 056: Energy Development Applications and Schedules*, available on the AER website, [www.aer.ca](http://www.aer.ca). Much native prairie and parkland grasslands are shared with livestock producers. Grazing management is an integral factor in the maintenance of healthy native grasslands. Consultation with the landowner or land manager can benefit all parties.
- 8) **To expedite resolution of problems, qualified environmental specialists should be retained.** Qualified environmental specialists should be used to conduct site assessments to assist in site and route selection, to develop appropriate mitigation plans, and to monitor construction and reclamation activities. Specialists can provide direction if problems arise and can complete any follow-up monitoring assessment programs specified by initial planning, regulatory agencies, land administrators, or landowners/occupants.
- 9) **In addition to corporate commitments and planning, staff and contractors are an integral element of any strategy to avoid or minimize disturbance of native prairie or parkland and should be well informed.** The proponent of a project should provide education and training regarding native prairie and parkland issues to staff involved in all phases of the project. It is the shared responsibility of everyone involved in a project to ensure that environmental protection values are well communicated, understood, and implemented. It is therefore critical that staff and contractors be aware of and adhere to operational policies that minimize disturbance.
- 10) **Disturbances on specified lands must be reclaimed to an equivalent land capability** (*Conservation and Reclamation Regulation of the Environmental Protection and Enhancement Act*). It is recognized that time is an integral part of implementing this principle. The goal is to restore prairie ecosystem function by allowing for the eventual restoration of the full range of biological structure and diversity.
- 11) **Soil must be conserved and replaced where minimal-disturbance drilling methods cannot be used.** (*Conservation and Reclamation Regulation of the Environmental Protection and Enhancement Act*). This includes controlling soil loss from wind and water erosion. Erosion control measures should be considered when establishing methods for construction, interim stabilization and reclamation, and final reclamation.
- 12) **Natural recovery or the use of native plant material should be used in reclamation where appropriate.** Natural recovery techniques are required on all minimal-disturbance leases on public lands. Where seeding is needed to control erosion or on sites that are prone to weed and agronomic species invasion, reclamation planners should select seed mixes and plant materials that allow the eventual re-establishment of the complete range of native species found offsite. To ensure compatibility with surrounding areas, available native plant materials adapted to local growing conditions may be required.

**13) Monitoring reclamation is critical to improved performance. An effective monitoring program should be implemented to ensure that reclamation objectives are met.** Erosion control, revegetation success and sustainability, and invasive non-native plant management are considered key components of any monitoring program. Long-term monitoring of the revegetated areas should be conducted until the appropriate native plant community has been re-established. Foothills rough fescue and plains rough fescue communities are particularly sensitive to development and difficult to reclaim. If revegetation objectives are not being achieved within a reasonable time, the program should be evaluated and changed as necessary.



## **Appendix 1 Map of Natural Regions in Prairie and Parkland Alberta**

Native prairie is found largely in the Grassland and Parkland Natural Regions as well as in the Montane Subregion of Alberta. Remnant sites occur elsewhere in the province. (For further information, see the Natural Regions map in the document *Native Plan Working Group's Native Plant Revegetation Guidelines for Alberta* (<http://www.environment.gov.ab.ca/info/library/6155.pdf>).



## Natural Regions in Prairie and Parkland Alberta

### Legend

#### Grassland Natural Region

- Dry Mixedgrass Subregion
- Mixedgrass Subregion
- Northern Fescue Subregion
- Foothills Fescue Subregion

#### Parkland Natural Region

- Peace River Parkland Subregion
- Montane Subregion
- Foothills Parkland Subregion
- Central Parkland Subregion

Note: Significant grassland communities also occur at other locations in Alberta, predominantly, but not exclusively, in the Montane and Peace River Parkland Subregions.

## Appendix 2 References and Tools

A number of key references and tools have been developed that provide advice and information to help operators understand the risks of various site and route selection options and appropriate conservation and reclamation techniques.

Although these references are independent documents, they should be considered holistically to minimize disturbances to native grasslands through appropriate planning, conservation, and reclamation. Oil and gas developers working in native grasslands are encouraged to be familiar with and use these references. In addition to the list below, there is abundant research being directed towards construction and reclamation methods that will lead to re-establishment of native grassland communities in disturbed areas.

### Grassland Vegetation Inventory

The Grassland Vegetation Inventory can be used as a coarse filter in the planning phase to locate native prairie areas in contrast to other types of land use such as cultivation or other anthropogenic features.

- <http://esrd.alberta.ca/forms-maps-services/maps/resource-data-product-catalogue/forest-vegetation-inventories.aspx>
- <http://www.albertapcf.org/native-prairie-inventories/gvi>

### Range Health Assessment for Grassland, Forest, and Tame Pasture

- <http://esrd.alberta.ca/lands-forests/grazing-range-management/range-health.aspx>

### Range Plant Community Guides

- <http://esrd.alberta.ca/lands-forests/grazing-range-management/range-plant-community-guides-stocking-rates.aspx>
- <http://www.foothillsrestorationforum.ca/plant-community-guides/>

### Recovery Strategies for Industrial Development in Native Prairie (Dry Mixed Grass and Mixed Grass Natural Subregions)

The Recovery Strategies page on the Foothills Restoration Forum website provides a series of handbooks and guidance for industrial disturbances in native grassland focused on the Grassland and Parkland Natural Regions, including a predisturbance site assessment flowchart for native grassland ecosystems.

- <http://www.foothillsrestorationforum.ca/recovery-strategies/>

## 2010 Reclamation Criteria for Wellsites and Associated Facilities in Native Grasslands

Criteria for assessing reclamation specific to grasslands are found in the document *2010 Reclamation Criteria for Wellsites and Associated Facilities for Native Grasslands*. Compared to earlier criteria, the 2010 criteria place more emphasis on re-establishing native grassland plant communities and ecosystem restoration.

- <http://www.environment.gov.ab.ca/info/library/8366.pdf>
- <http://esrd.alberta.ca/lands-forests/land-industrial/programs-and-services/reclamation-and-remediation/upstream-oil-and-gas-reclamation-and-remediation-program/wellsite-reclamation-certificate-application-process.aspx>

## Ecological Site Restoration Risk Analysis

- <http://www.foothillsrestorationforum.ca/ecological-site-restoration-ri/>

## Guidance Specific to Best Practices in Fescue Grasslands and Associated ESRD Information Letter (*Information Letter 2010-02*)

- <http://esrd.alberta.ca/lands-forests/grazing-range-management/range-stewardship.aspx>
- <http://esrd.alberta.ca/forms-maps-services/directives/lands-information-letters/documents/Lands-FoothillsFescueGrasslandSurfaceDisturb-2010.pdf>

## Enhanced Approval Process – Standards and Conditions for Constructing and Operating in Native Prairie on Public Lands

- <http://esrd.alberta.ca/forms-maps-services/enhanced-approval-process/eap-manuals-guides/default.aspx>