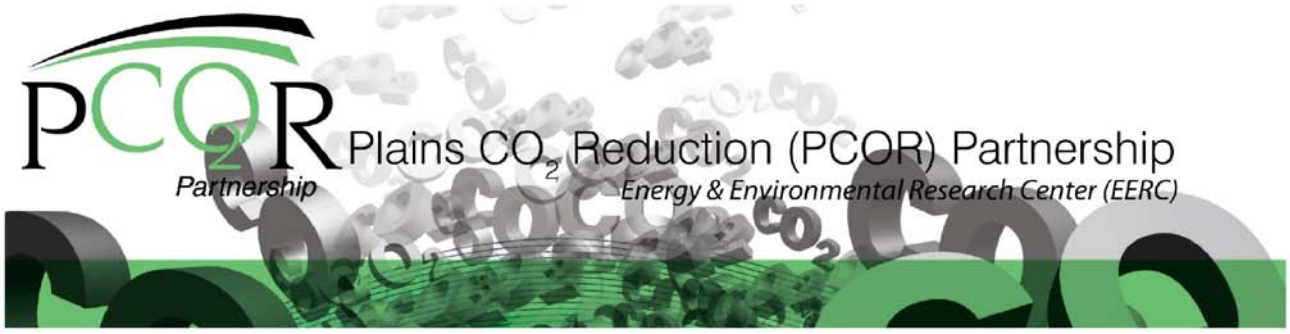

PLAINS CO_2 REDUCTION (PCOR) PARTNERSHIP (PHASE III) – PERMITTING REVIEW – ONE STATE AND ONE PROVINCE

Task 1 – Deliverable D3

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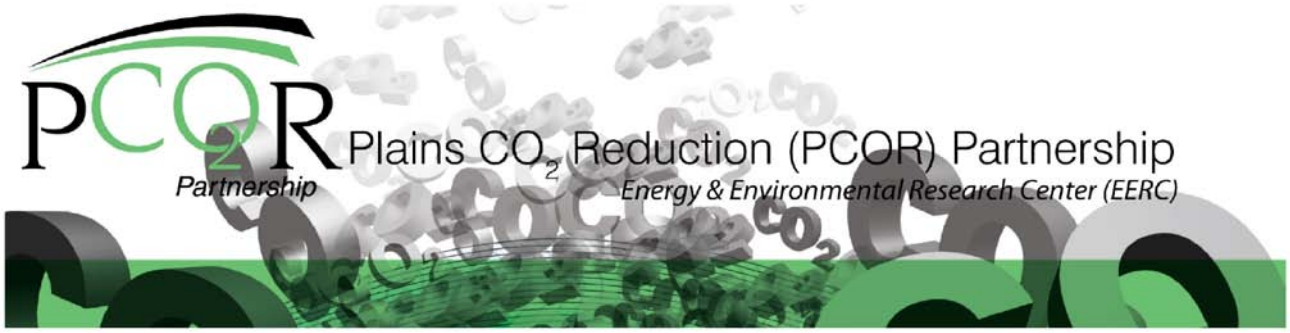

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INTRODUCTION

This brief document is intended to provide its readers with a synopsis of the types of permitting activities that are necessary to conduct a carbon capture and storage (CCS) project in the province of Alberta or the state of North Dakota. The information provided gives a broad overview of the regulatory requirements and the authorities involved. It also provides links to the various forms and regulations needed to conduct CCS projects in each jurisdiction.

Because of the evolving nature of regulatory frameworks at various levels of government as well as daily changes in congressional reporting, this document is intended to provide general overviews of rules and policies and can be considered to be up to date as of September 2009 unless otherwise noted.

ALBERTA

The following section provides a brief overview of regulations that may be considered when conducting a carbon dioxide (CO_2) storage project in the province of Alberta. This overview assumes the CO_2 has already been captured and transported to the storage site.

In January 2008, the Alberta Climate Change Strategy was announced. Components of the strategy included a commitment to CCS development activities and provided for the formation of the Alberta Carbon Capture and Storage Development Council. This council generated a report entitled "Accelerating Carbon Capture and Storage Implementation in Alberta" in March 2009. In order for Alberta to excel at advancing CCS technology implementation, the report

recommends a "robust fiscal framework, a clear regulatory framework, and a comprehensive research and development and technology development program" (Alberta Carbon Capture and Storage Development Council, 2009).

While minor modifications may be needed to existing legislation to clarify disposal and tenure rights for long-term CO_2 storage, the Alberta Energy Resources Conservation Board (ERCB) is currently prepared to accept applications for CCS projects. The ERCB plans to regulate CCS activities under existing regulations. It considers CO_2 an acid gas when injected into a subsurface environment and applies its acid gas disposal regulations to CCS development. The ERCB may apply "approval conditions" on the proposal that would necessitate additional regulatory requirements intended to manage the unique aspects of a specific project (Alberta Carbon Capture and Storage Development Council, 2009). It is important to note that acid gas disposal has been a common industry practice for sometime in Canada.

The ERCB regulatory process does not consolidate CCS development into a single directive but encompasses multiple regulations that include aspects of the subsurface environment, land infrastructure, public consultation, and well construction (Directives 65, 56, and 51). As previously mentioned, upon evaluation of applications, the ERCB may apply approval conditions on the project application (Alberta Carbon Capture and Storage Development Council, 2009).

The following information was taken in whole or in part from ERCB Directives 065, 056, and 051. Full copies of these directives can be found at the links provided.

Directive 065 simplifies the application process to ERCB by using one resource application for all approvals needed to establish a strategy to deplete a pool or portion of a pool. The directive also enables the applicant to review, in a single document, the application requirements for most conventional oil and gas reservoir topics that need ERCB approval. This directive was recently updated in July 2009. Directive 065 can be found at www.ercb.ca/docs/documents/directives/Directive065.pdf.

Directive 056 lists the requirements and procedures for filing a license application to construct or operate any petroleum industry energy development structure that includes facilities, pipelines, or wells. This directive was last updated in July 2008. Directive 056 can be found at www.ercb.ca/docs/documents/directives/directive056.pdf.

Table 1. Major Permit Categories for CCS Projects in Alberta

Regulation	Governance	Agency
Directive 065	Resources Application for Conventional Oil and Gas Reservoirs	ERCB
Directive 056	Energy Development Applications and Schedules	ERCB
Directive 051	Injection and Disposal Wells – Well Classifications, Completion, Logging, and Testing Requirements	ERCB

Directive 051 defines ERCB requirements for injection and disposal wells, including well classifications, completion, logging, and testing requirements. This directive was last updated in March 1994. Directive 051 can be found at www.ercb.ca/docs/documents/directives/Directive051.pdf.

ERCB conducts regular reviews of regulations and, as applications for CCS projects come to fruition, the ERCB will augment regulations as required based on knowledge and experience gained.

NORTH DAKOTA

The North Dakota Legislature has passed and the governor has signed two bills related to the geologic storage of CO_2. The first deals with pore space ownership and specifies that the surface owner is the pore space owner, while preserving the mineral owners' dominance. Additionally, it does not allow for separation of pore space ownership and surface ownership. The second bill is the CCS bill. It assigned regulatory authority for CCS projects to the North Dakota Industrial Commission's (NDIC's) Division of Mineral Resources, the regulatory body that oversees oil and gas activities. The bill defines CO_2 storage projects as separate from EOR projects but provides for the conversion of an EOR project to a storage project. The legislation also allows NDIC to certify storage that occurs during EOR projects and for liability transfer to the state after the closure period of the project. Formal rule making is expected to begin in the near future.

In July 2008, EPA proposed federal requirements under the Underground Injection Control Program for CO_2 Geologic Sequestration Wells Proposed Rule. The regulation was proposed under authority of the Safe Drinking Water Act (SDWA), and its scope is limited to groundwater protection. The proposed rules would establish a new injection well class, Class VI. The rules also list technical criteria for geologic site characterization, area of review and corrective action, well construction and operation, mechanical integrity testing and monitoring, well plugging, postinjection site care, and site closure. Because of limitations under the SDWA, the proposed rules do not address long-term stewardship issues beyond the postclosure period, nor do they address property rights issues. According to the U.S. Environmental Protection Agency's (EPA's) regulatory agenda, final action on the rule should be complete by December 2010 (U.S. Environmental Protection Agency, 2009).

Until either or both of the discussed rule-making activities are complete, the following section provides a brief overview of regulations that may be considered when conducting a CO_2 sequestration project today in the state of North Dakota. This overview assumes the CO_2 has already been captured and transported to the storage site.

NDIC Requirements

Chapter 38-08-04 of the North Dakota Century Code (NDCC) gives NDIC the power and authority to oversee and govern the state of North Dakota's oil and gas industry in a manner that

is in the public interest and promotes the development, production, and utilization of the natural resources of oil and gas.

There are several types of permit applications that are required by NDIC for different aspects of a resource recovery operation. The following sections briefly describe the known requirements for a given CCS project. Table 2 provides an overview for discussion.

GENERAL REQUIREMENTS

North Dakota Administrative Code (NDAC) Article 43-02 contains the general rules and regulations adopted by NDIC to conserve and govern the natural resources of North Dakota. The following sections are taken in whole or in part from its correlating chapters (North Dakota Industrial Commission, 2009). The forms and their requirements can be found at www.dmr.nd.gov/ oilgas/rules/fillinforms.asp.

Form 1 – Application for Permit to Drill

Form 1 contains all the requirements to apply for a drilling permit. This includes surveys, a drilling prognosis, and proposed mud and casing programs.

Form 2 – Organization Report

Form 2 lists the name of the organization and person that will act as the operator of a specific operation.

Forms 3, 3A, 3B, and 3C – Well Bond

These forms assure the entity that wishes to drill or operate an oil and/or gas well within the state of North Dakota will fully comply with NDCC Chapter 38-08 and NDIC orders and administrative rules.

Table 2. Permit Application Requirements

Regulation	Governance	NDAC Reference
Form 1	Application for Permit to Drill	Section 43-02-03-16
Form 2	Organization Report	Section 43-02-03-11
Form 3, 3A, 3B, 3C	Well Bonds	Section 43-02-03-15
Form 4	Sundry Notices and Reports on Wells	Chapters 43-02-03, 43-02-05, 43-02-09
Form 6	Well Completion or Recompletion Report	Section 43-02-03-31
Form 8A	Purchaser and Transporter of Dry Gas Report	Section 43-02-03-81.1
Form 14	Application for Injection	Section 43-02-05-04
Form 19	Well Integrity Report	Section 43-02-05-07

Form 4 – Sundry Notices and Reports on Wells

Sundry notices are required for any perforating, recompleting, or remedial work done on a well. If a workover project that could qualify for a tax exemption pursuant to NDCC Section 57-51.1-03 is conducted, a report on the operation needs to be filed detailing the work done.

Form 6 – Well Completion or Recompletion Report

This report needs to be filed with NDIC within 30 days after the completion of a well or recompletion of a well in a different pool.

Form 8A – Purchaser and Transporter of Dry Gas Report

This report requires the name of the gas-processing plant where dry gas is received.

Form 14 – Application for Injection

Form 14 contains all the requirements to apply for an injection permit, including, but not limited to, area of review plats, appropriate geologic data on the injection zone, average and maximum fluid amounts and injection pressures, landowner notification requirements, and injection well construction requirements. A public hearing will be required as part of the application process.

Form 19 – Well Integrity Report

A well integrity report must be filed with NDIC subsequent to any workover conducted on a underground injection control (UIC) well, any periodic pressure test conducted on a UIC well, or any pressure test conducted for temporary abandonment purposes.

SUMMARY

CCS technology and policy development are taking a prominent position in the climate change debate occurring at the federal level and in state/provincial legislatures. This debate has spurred federal and state/provincial agencies to start their CCS rule-making activities. As these activities evolve, the Plains CO_2 Reduction (PCOR) Partnership will continue to evaluate their potential effects on CCS technology development and, where necessary, will provide input and guidance to regulators and those making policy decisions. This report summarizes recent permitting situations for two prominent jurisdictions in the PCOR Partnerships region. As new rules and regulations evolve and are finalized, the PCOR Partnership will continue to provide its members with the most up-to-date information.

REFERENCES

North Dakota Industrial Commission Rulebook, www.dmr.nd.gov/oilgas/rules/rulebook.pdf (accessed September 2009).

Alberta Carbon Capture and Storage Development Council, 2009, Accelerating carbon capture and storage implementation in Alberta: Final Report, March 2009. www.energy.gov.ab.ca/Org/pdfs/CCS_Implementation.pdf (accessed September 2009).

U.S. Environmental Protection Agency, 2009, www.epa.gov/OGWDW/uic/wells_sequestration.html (accessed September 2009).