

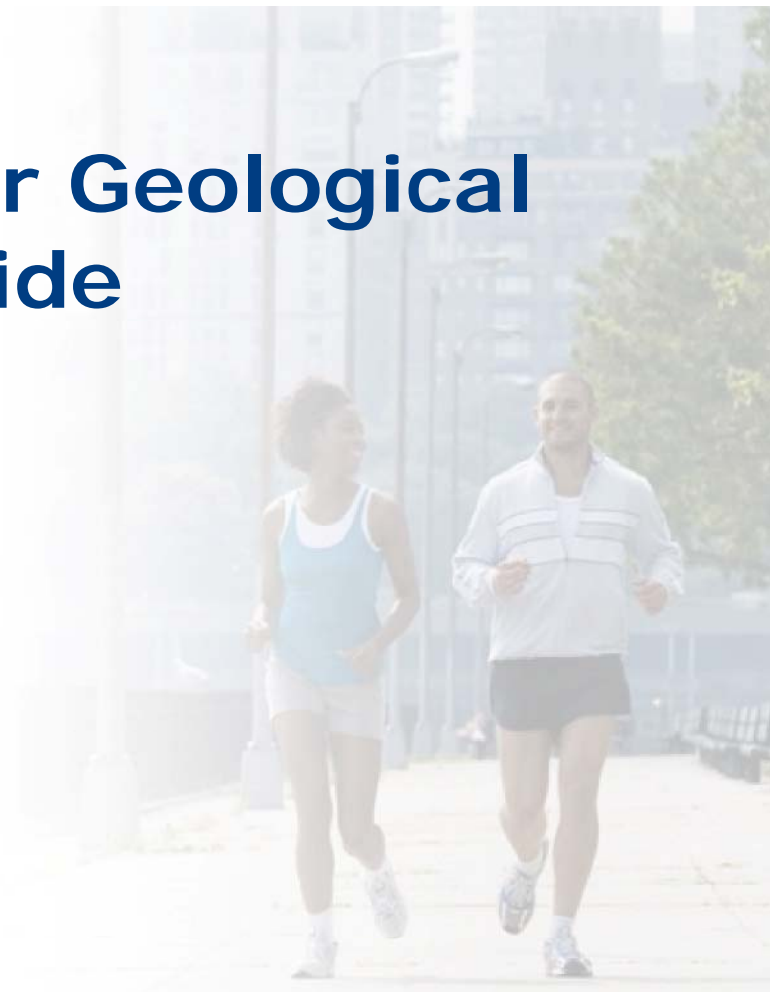
CSA Z741 – **Bi-National Standard for Geological Storage of Carbon Dioxide**

UIC Conference

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Michael Leering

Project Manager
CSA Standards



MAKING STANDARDS WORK FOR PEOPLE & BUSINESS

Overview

- About CSA Standards
- Standards vs. Guidance vs. Regulations
- Role of standards in CCS
- CSA Standards' Geological Storage of CO₂ standard
- Comparison to Class VI Regulation

CSA Standards

Accredited Standards Developer

- American National Standards Institute (ANSI)
- Standards Council of Canada (SCC)
- Active at ISO

Our Standards and Codes

- Over 3,000 standards and codes
- In 54 different technology areas
- Over 40% referenced in legislation



CCS Guidance

Solutions exist

- Best Practices
- Regulations
- Guidelines
- Papers

Knowledge continues to evolve



Regs? Standards? Guidelines? BPs?

Accredited Standards

- Balance of interests – meets needs of multiple interests
- Balanced matrix
- Accredited neutral 3rd party oversight
- Demonstrate compliance through mandatory language
- 60 Day Public Review
- Living document – revisions, amendments and mandatory reviews



All have a role and should work together

CSA Standards and CCS

Standard for Geological Storage of CO₂

- Bi-national USA / Canada
- Technical Committee controls content
- IPAC CO₂ providing support



Matrix Approach to Consensus

<i>User Interest Category</i>	<i>Min</i>	<i>Max</i>	<i>Actual</i>
General Interest	8	11	10
Government and/or Regulatory Authority	5	7	6
Owner/Operator/Producer	7	9	7
Supplier/Contractor/Consultant Interest	6	9	6

Committee Organizations

Government/Regulators

- Ground Water Protection Council
- Alabama Dept. of Env Mgmt
- Mississippi Dept of Env Quality
- BC Oil and Gas Commission
- Energy Resources Conservation Board of Alberta (ERCB)
- Alberta Energy

Owner/Operator/Producer

- Southern Company
- ConocoPhillips
- Denbury Resources
- Chevron
- Husky Energy
- SaskPower

Supplier/Contractor/Consultant Interest

- DNV
- Schlumberger Carbon Services
- Advanced Resources International, Inc
- Global Technical Solutions and CCS
- Golder Associates
- Baker Hughes

General Interest/Expertise

- Princeton University
- Global CCS Institute (Australia)
- International Energy Agency (IEA, Paris)
- PEW Center on Global Climate Change
- Alberta Innovates-Technology Futures (AITF)
- World Resources Institute (WRI)
- University of Alberta
- International Institute for Sustainable Development (IISD)

Geological Sequestration of CO₂ Standard

- Establish requirements and recommendations for the geological storage of carbon dioxide
- Combine good practise already available
- Help bring credibility to market
- Comprehensive inclusion of CCS development and management, including; site screening, selection and characterization, development, operation, management, risk assessment and treatment, etc.



Storage Project Life Cycle

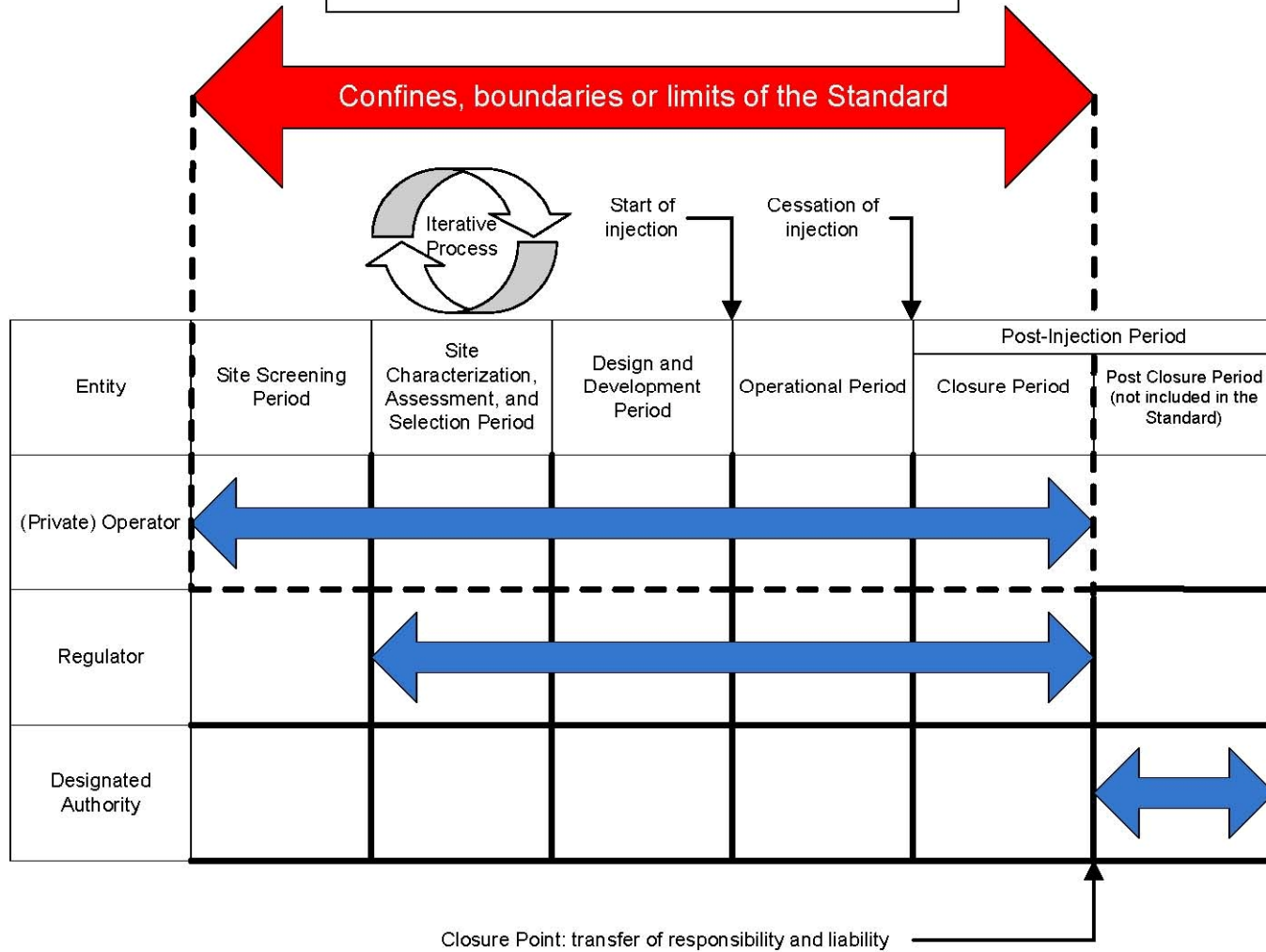


Table of Contents

- 1 Scope
- 2 Definitions
- 3 Management systems
 - 3.1 Scope of activities
 - 3.3 Management commitment to principles
 - 3.4 Planning and decision making
 - 3.5 Resources
 - 3.6 Communications
 - 3.7 Documentation
- 4 Site screening, selection, and characterization
 - 4.1 General
 - 4.2 Site screening
 - 4.3 Site selection
 - 4.4 Site characterization and assessment
 - 4.5 Modelling for characterization

Table of Contents

5 Risk management

- 5.1 General
- 5.2 Objectives
- 5.3 Process
- 5.4 Context
- 5.5 Risk management plan
- 5.6 Risk assessment
- 5.7 Planning and review of risk treatment
- 5.8 Review and documentation
- 5.9 Risk communication and consultation

6 Well infrastructure development

- 6.1 Materials
- 6.2 Design
- 6.3 Construction
- 6.4 Corrosion control
- 6.5 Operation and maintenance

7 Monitoring and verification

- 7.1 Purpose
- 7.2 M&V program phases
- 7.3 M&V program objectives
- 7.4 M&V program design

8 Cessation of injection

- 8.1 General
- 8.2 Activities
- 8.3 Post-injection closure period plan
- 8.4 Post-injection and closure period qualification process
- 8.5 Decommissioning
- 8.6 Long-term (post-closure) stewardship

Expected Outcomes

- **Benefit Industry**
 - Bring credibility to industry
 - Supplement regulations, and amalgamate guidance
- **Use/Reference in Regulation**
 - Bridge gap between regulation
 - Class V & Class VI
- **International Standardization**



Summary

- CSA Standards is developing a comprehensive Bi-National CCS Standard
- Diverse group of experts developing content
- Help bridge the gap between regulations
- Build credibility in Geological Storage

Thank You

Questions?



Email – michael.leering@csa.ca