

Illinois Basin Screening Criteria for Geologic CO₂ Sequestration

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Illinois State Geological Survey

Basin Wide Screening Criteria

- Saline Formation Storage
- Enhanced Oil Recovery
- Enhanced Coalbed Methane Production

General Criteria

- Caprock Integrity
- Seismicity
- Faults (Inactive)
- Fresh Water Aquifers
- Municipalities
- Pre-Law Oilfield Development Areas
- Past and Present Surface and Subsurface

Coalbed Screening Criteria

- CO₂ Storage
 - Primary
 - Area
 - Thickness
 - CO₂ Adsorption (Pressure and Temperature)
 - Secondary
 - Cleat Porosity
 - Cleat Porosity Saturation (Water, Gas)
 - CO₂ Density (Pressure and Temperature)

- Unminable Coal (Projected)
 - Thickness
 - Depth
 - Quality
- ECBM
 - Adsorption/Desorption
 - CO₂
 - Methane

Oil Reservoir Screening Criteria

- CO₂ Storage
 - Primary
 - Area
 - Thickness
 - Porosity
 - Saturation (Water, Gas, Oil)
 - EOR Estimate (Fraction of Oil volume)
 - CO₂ Density (Pressure and Temperature)
 - Secondary
 - CO₂ Solubility (Pressure and Temperature)
 - ❖ Solubility in Crude Oil
 - ❖ Solubility in Reservoir Water (Mixture of Injection and Connate Water)
- Current Oil In Place
 - Original Oil In Place
 - Cumulative Oil Produced
- EOR: Miscible or Immiscible CO₂ Displacement of Crude Oil

- Temperature
- Maximum Sequestration Pressure
- Crude Oil Composition (API Gravity)

Saline Formation Screening Criteria

- CO2 Storage
 - Area
 - Thickness
 - Porosity
 - CO2 Properties (Pressure and Temperature)
 - Density
 - Solubility in Reservoir Water (Mixture of Injection Water and Connate Water)

GIS Study

- Layers
 - Coalbeds
 - CO2 Storage Volume Estimate
 - ECBM Volume
 - Oil
 - CO2 Storage Volume Estimate
 - Current Oil In Place
 - EOR Volume
 - Saline Formation
 - CO2 Storage Volume Estimate
- Overlays