

# Southeast Regional Carbon Sequestration Partnership (SECARB)



## Regional Carbon Sequestration Partnerships Initiative Review Meeting

Pittsburgh, PA  
October 7-9, 2008

**Presented by:**

**Gerald R. Hill**  
SECARB Technical Coordinator  
Southern States Energy Board



# SECARB Phase III: Acknowledgements

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- **Federal partner - DOE/NETL**
- **Early Test host – Denbury Onshore LLC**
- **Anthropogenic Test host – Southern Company**
- **SECARB cost share partners**
- **SECARB project team**



# SECARB Phase III: Two Step Approach

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- **Early Test – TX BEG lead**
  - CO<sub>2</sub> source – Denbury Onshore LLC
  - CO<sub>2</sub> Injection will begin in FY2009 utilizing pipeline CO<sub>2</sub>
  - Injection rate target of one million metric tons per year for 18 months
  - Focus on MMV
  
- **Anthropogenic Test – EPRI lead**
  - CO<sub>2</sub> source – Southern Co electric generating facility
  - Integration of slip stream capture system with geologic sequestration
  - Four year injection beginning in FY2011



# Site Selection for SECARB Phase III Early Test

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- **Large volumes of low-cost CO<sub>2</sub> available**
  - Denbury Sonat pipeline
- **Well-known geologic environment in saline aquifer**
  - injectivity and seals are demonstrated
  - 3-D seismic available
- **Mineral and surface rights are available in short time**
  - Minerals rights owned by Denbury
- **Favorable environmental setting**
  - EQ similar to Phase II EQ
  - Draft EA nearly complete

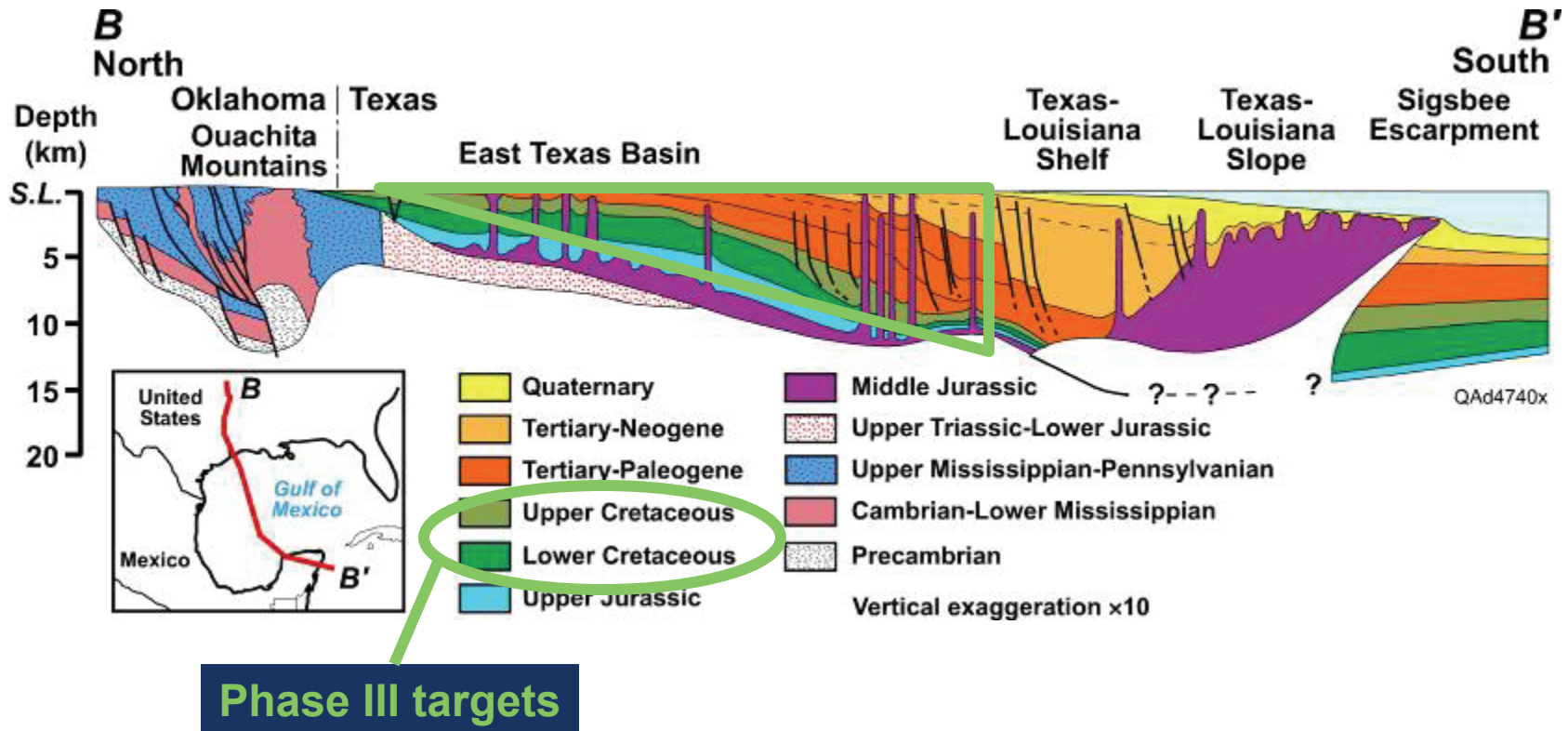


# SECARB Phase III Anthropogenic Test

- **Unique opportunity to demonstrate storage and MMV at a coal-fired power plant**
  - Transfer lessons learned from Cranfield test to a power plant site
  - Determine appropriate MMV tools and protocols for a power plant site (what works/what doesn't)
  - Define business and legal issues that make a power plant site unique
- **Appropriately planned and implemented MMV is the pathway to public acceptance. This is a high priority for SECARB at a coal-fired power plant as it will:**
  - Assure operator and public safety
  - Support regulatory and institutional framework and public outreach
  - Support long-term management, liability, and compliance considerations
  - Help address siting criteria for future CCS coal-fired power plants

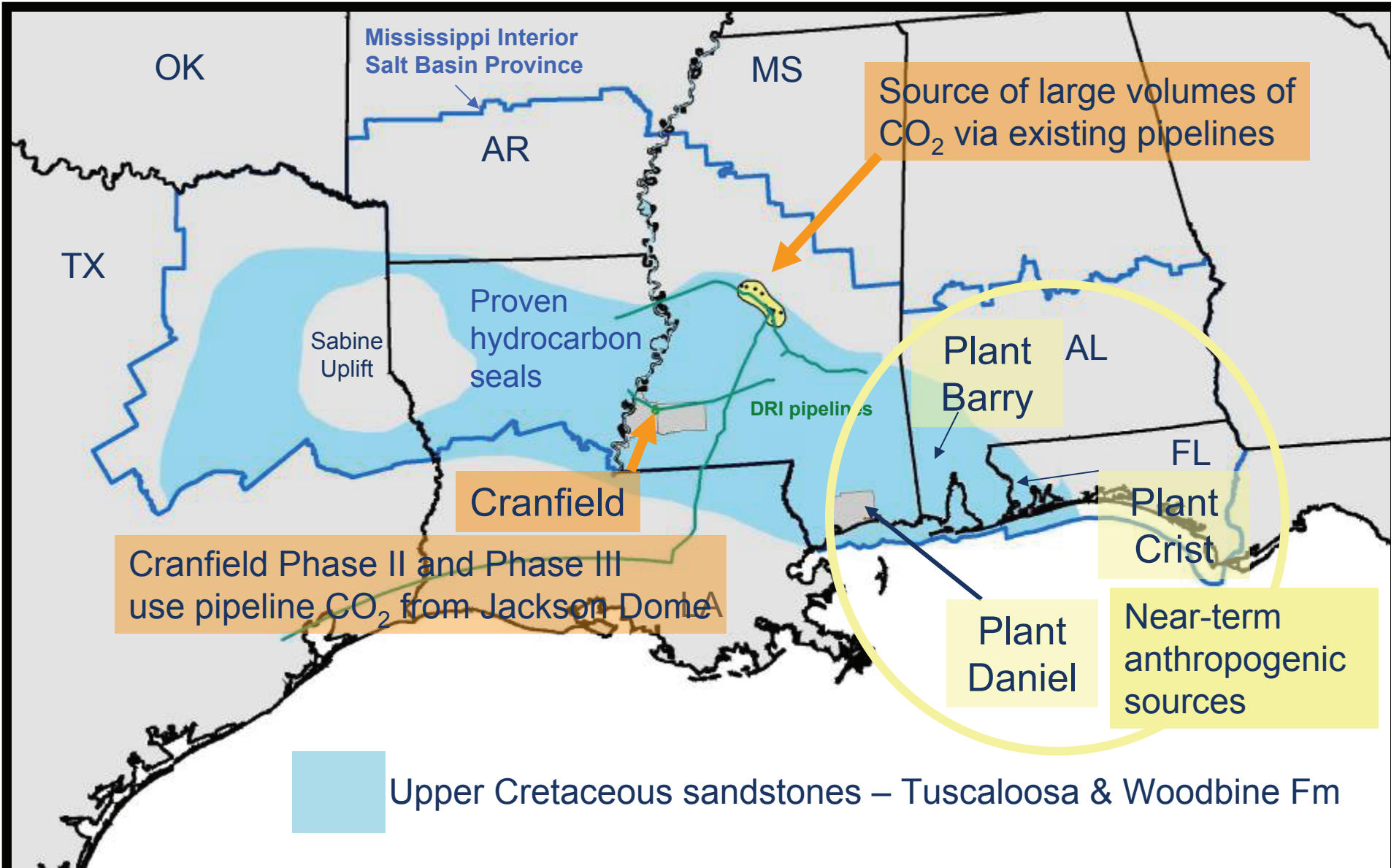


# Gulf Coast Wedge: Area of High Storage Potential



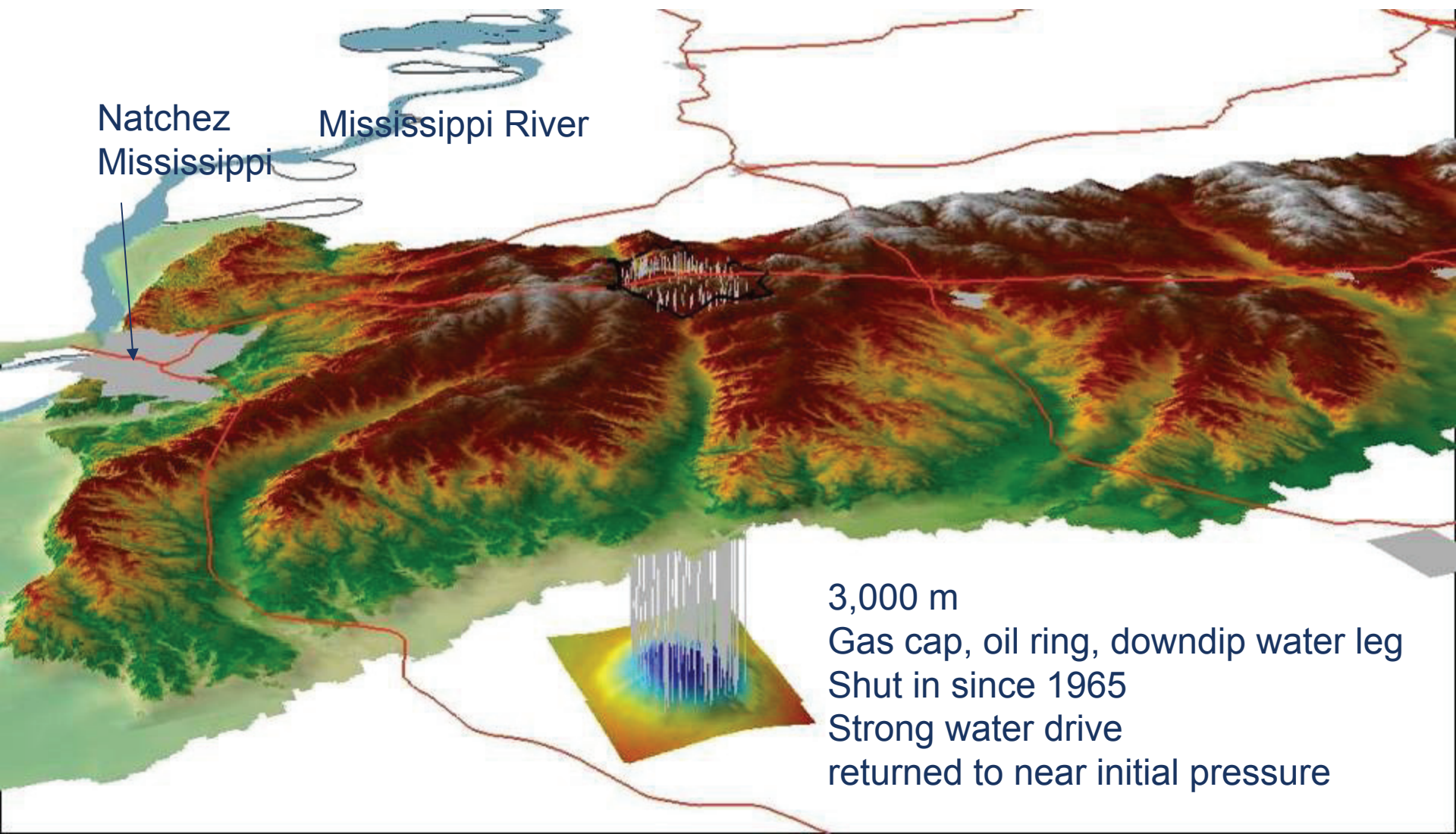
The Tuscaloosa Formation is a significant sequestration resource, as well as being a representative of the Gulf Coast wedge and other high permeability sandstone-shale units worldwide.

# Sites for SECARB Phase II and III Linked to near-term CO<sub>2</sub> sources



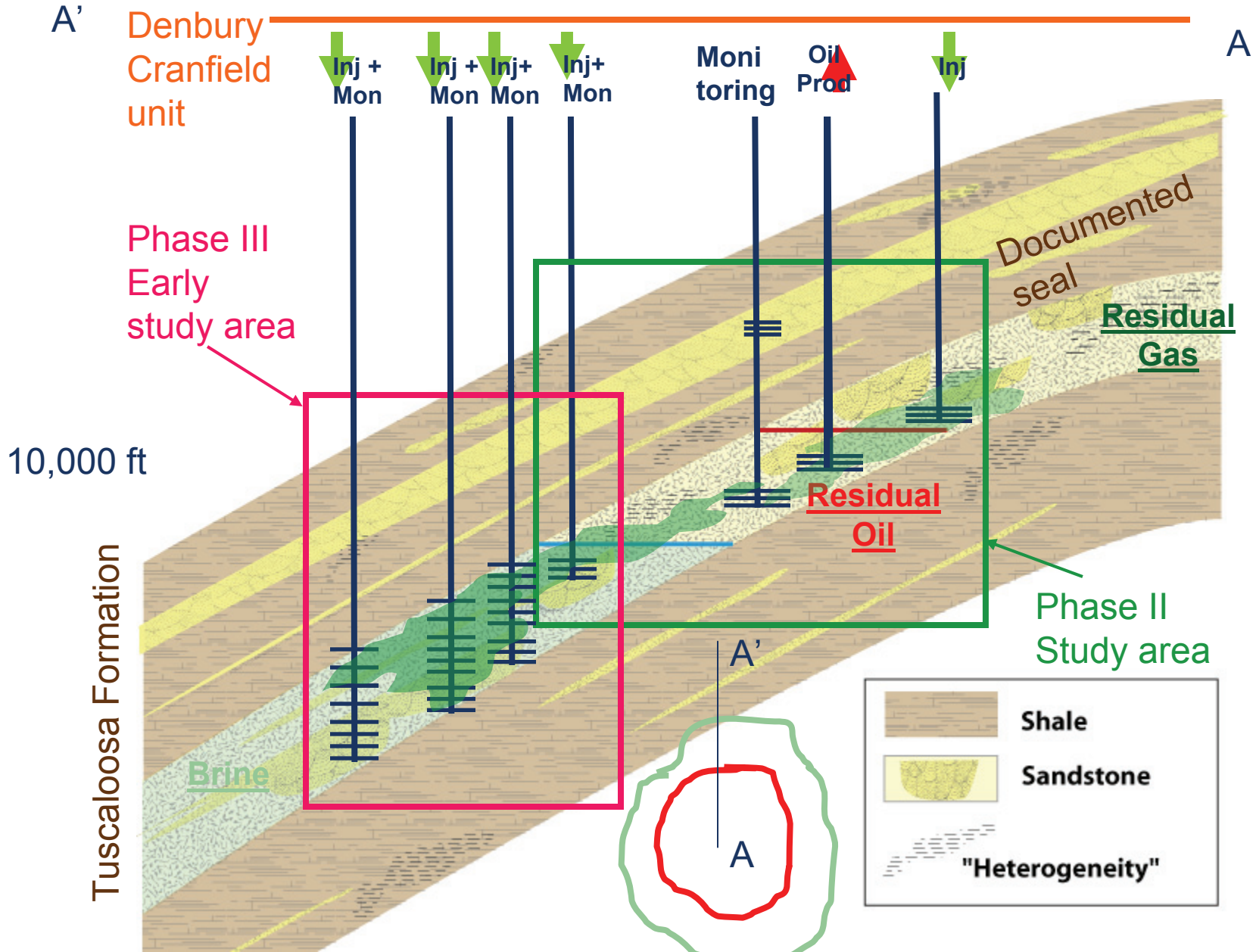
# SECARB Phase III – Early Test

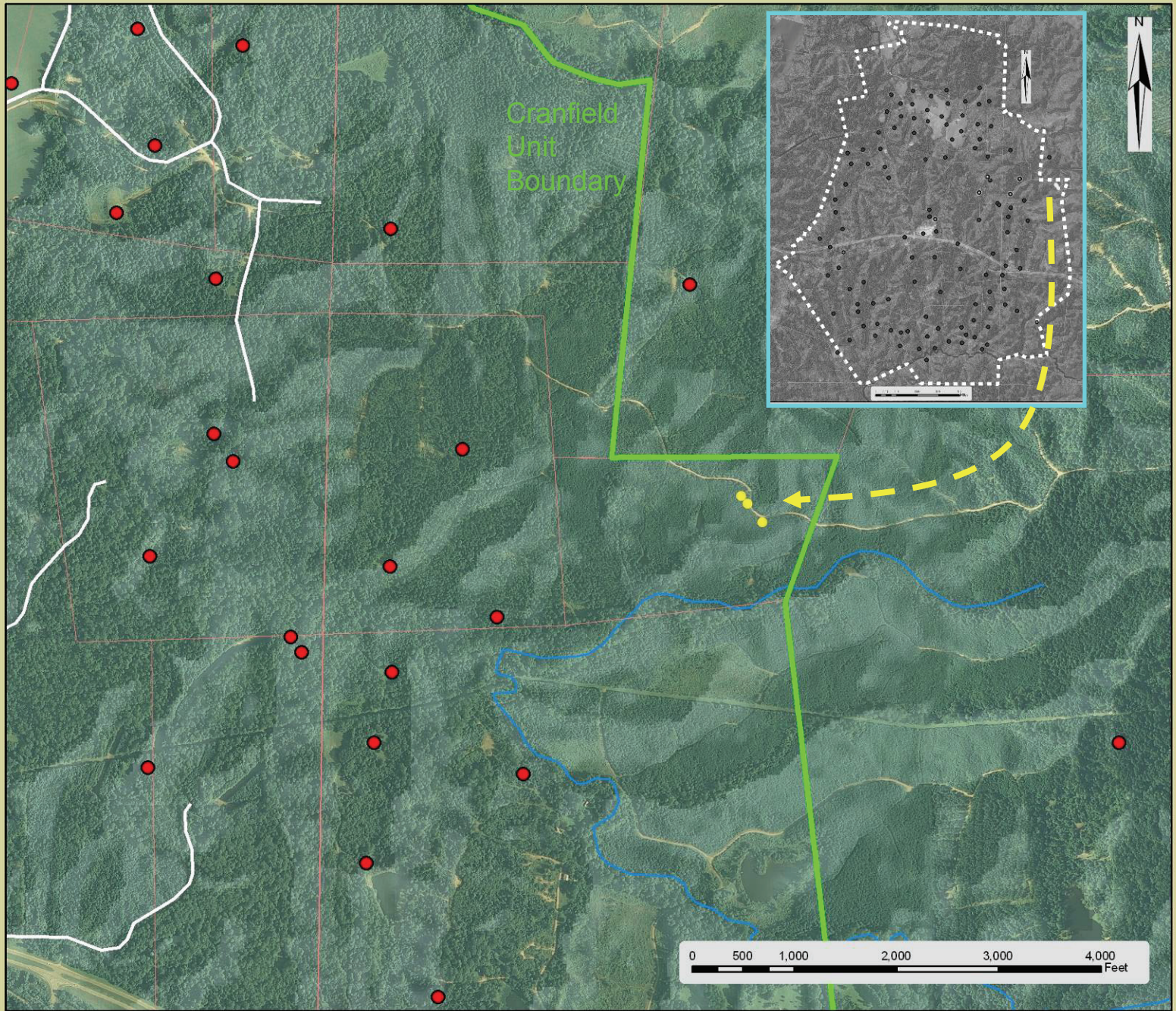
## Cranfield unit operated by Denbury Onshore LLC

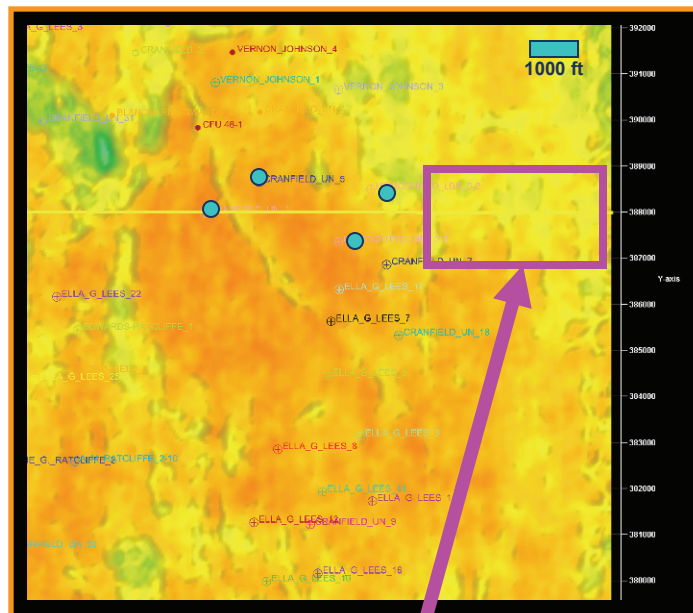
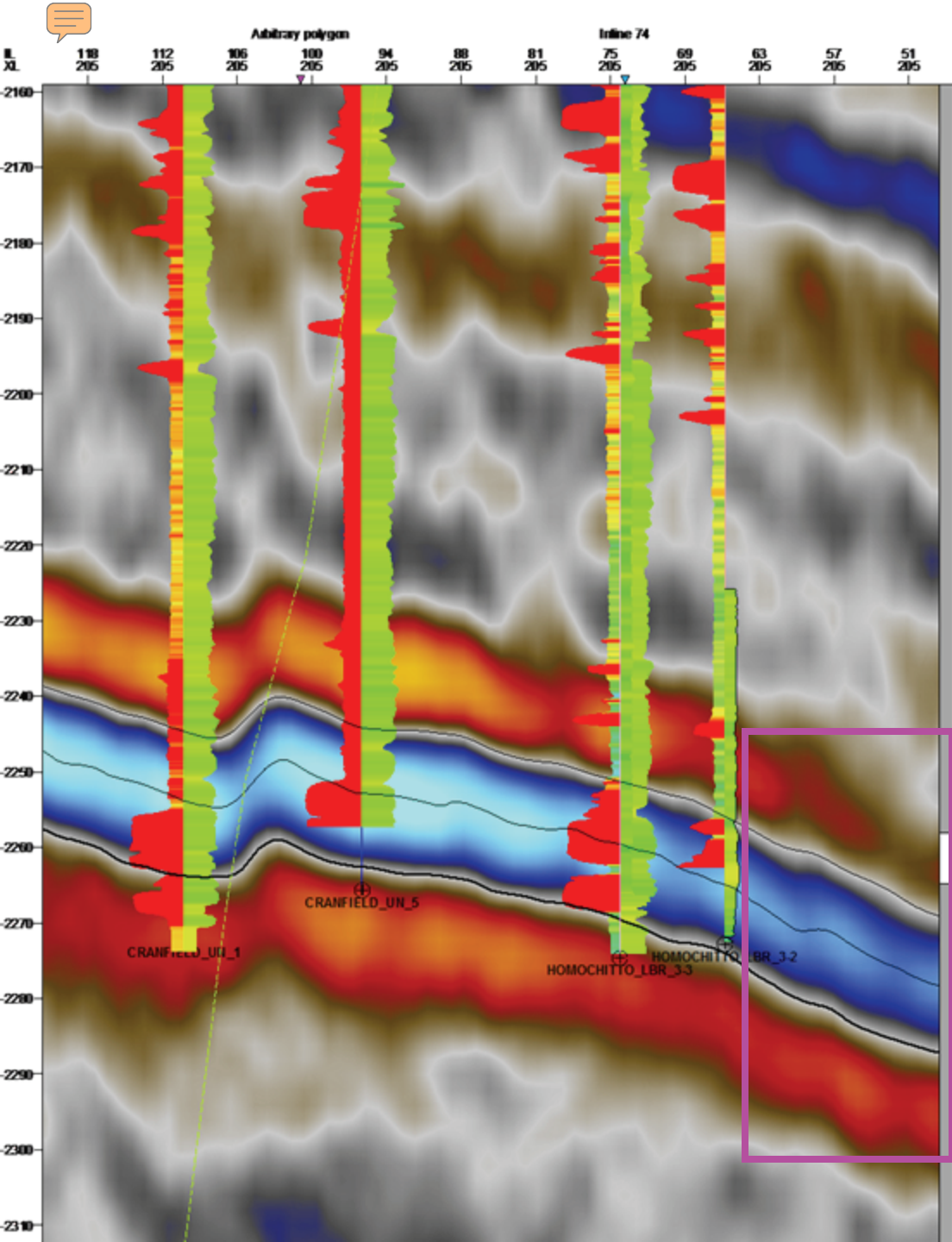




# Cranfield Program Overview







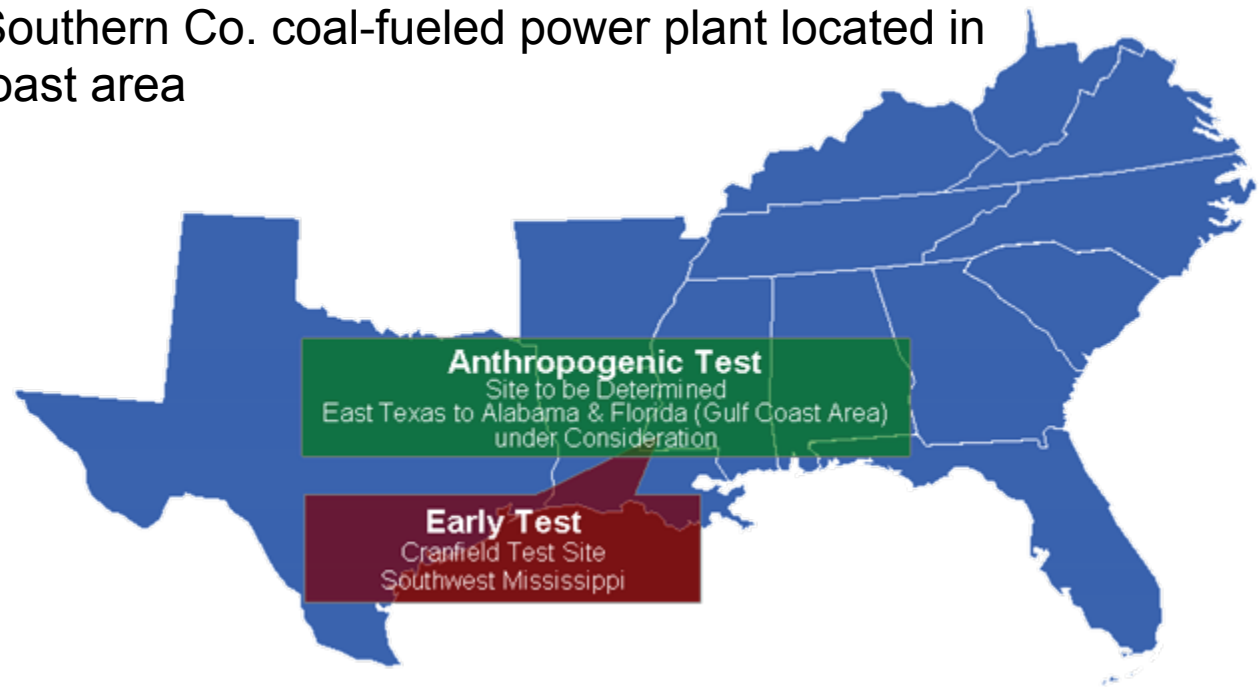
Proposed Phase 3 area

INJECTION ZONE

# Phase III Anthropogenic Test – Original Plan

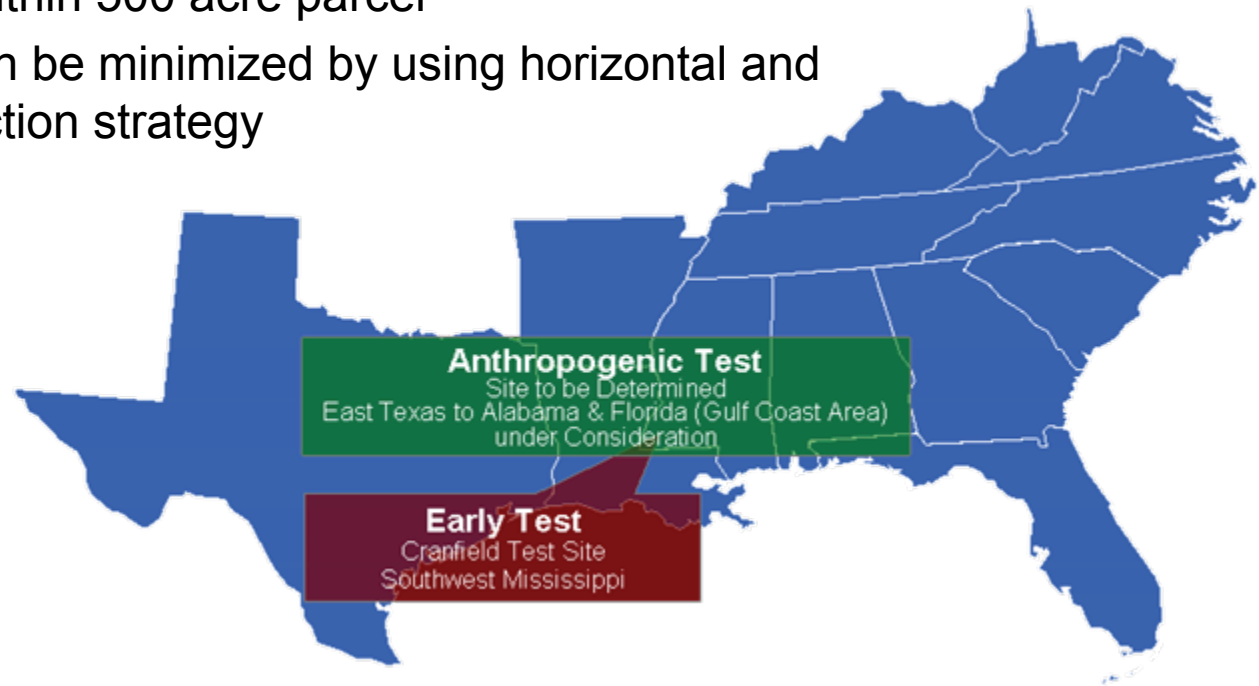
- **General Description**

- Capture 100,000 to 250,000 metric tons per year of CO<sub>2</sub> for 4 years
- Inject CO<sub>2</sub> into a regionally significant saline reservoir, with massive CO<sub>2</sub> storage capacity
- Involve a Southern Co. coal-fueled power plant located in the Gulf Coast area



# Anthropogenic Test – Current Activities

- Southern Company and EPRI conducting due diligence in the MS – AL – FL Gulf Coast area
- Proposed capture unit from 100 -150k metric tons per year
- Preliminary results indicate that 4-year plume can be contained within 500 acre parcel
- Footprint can be minimized by using horizontal and vertical injection strategy



# Summary for Phase III Early and Anthropogenic Tests

## SECARB's Phase III Summary:

### A. Project Merit

Characterize regionally significant saline formations; Quantify CO<sub>2</sub> storage mechanisms; Test cutting edge MMV; Integrate CO<sub>2</sub> capture and storage at a coal-fired power plant.

### B. Approach and Progress

Incorporate Frio Brine experience; Use seasoned industry partners; Assure work plan is linked to objectives, schedule and costs; Involve well recognized researchers; Realize significant cost share plus industry-sponsored CO<sub>2</sub> capture facility.

### C. Deployment Considerations

Provide information for industry on saline formation CO<sub>2</sub> storage in the "Gulf Coast Wedge"; Map seals and address other risk management strategies; Emphasize public and regulatory education and outreach.



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## Questions??



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