Southeast Regional Carbon Sequestration Partnership

CO_2 Capture Activities at Plant Barry, Alabama, USA

Presented to:
European CCS
Demonstration Project Network
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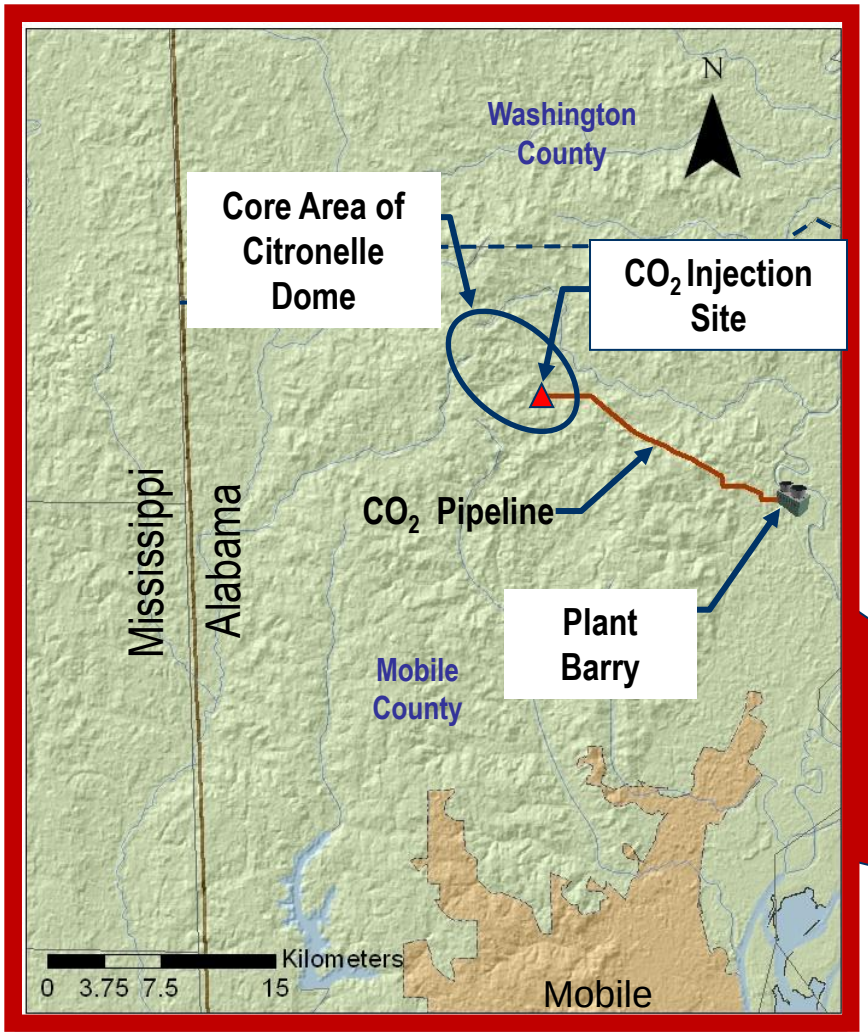
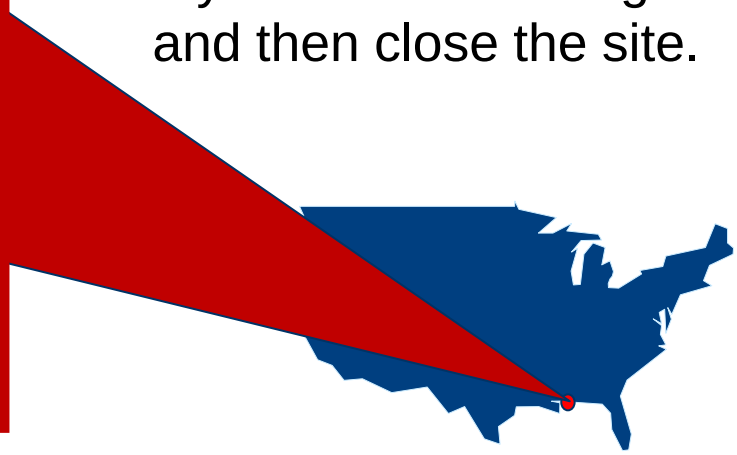
SECARB Phase III Anthropogenic Test



- 25 MW CO_2 capture unit at Alabama Power's (Southern Company) Plant Barry.
- 12 miles CO_2 pipeline transport from Plant Barry to Citronelle.
- CO_2 injection of 100-300 thousand metric tons into deep saline Paluxy Formation over 2-3 years.
- 3 years of monitoring after injection and then close the site.



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CO_2 Capture - Key Concerns

- Not commercially proven on large utility boilers; R&D and scale-up efforts ongoing
- Very high capital cost estimates (75% increase over no capture case)
- Large footprint required for equipment
- Operational concerns
  - High energy penalty for CO_2 stripping and regeneration of solvent (up to 30%)
  - Solvent degradation (from SO_2, NO_2)
  - Reliability (corrosion and foaming)

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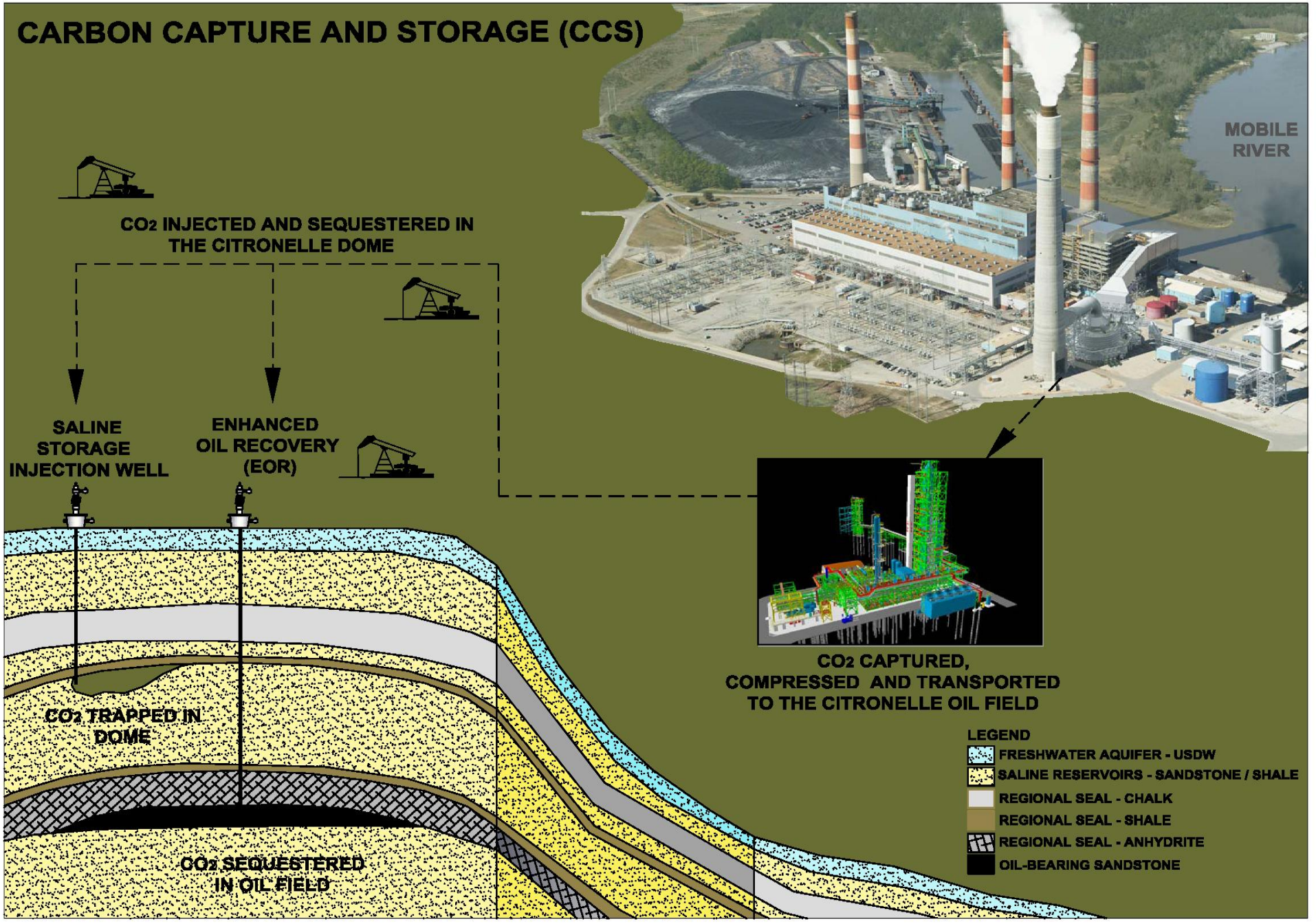
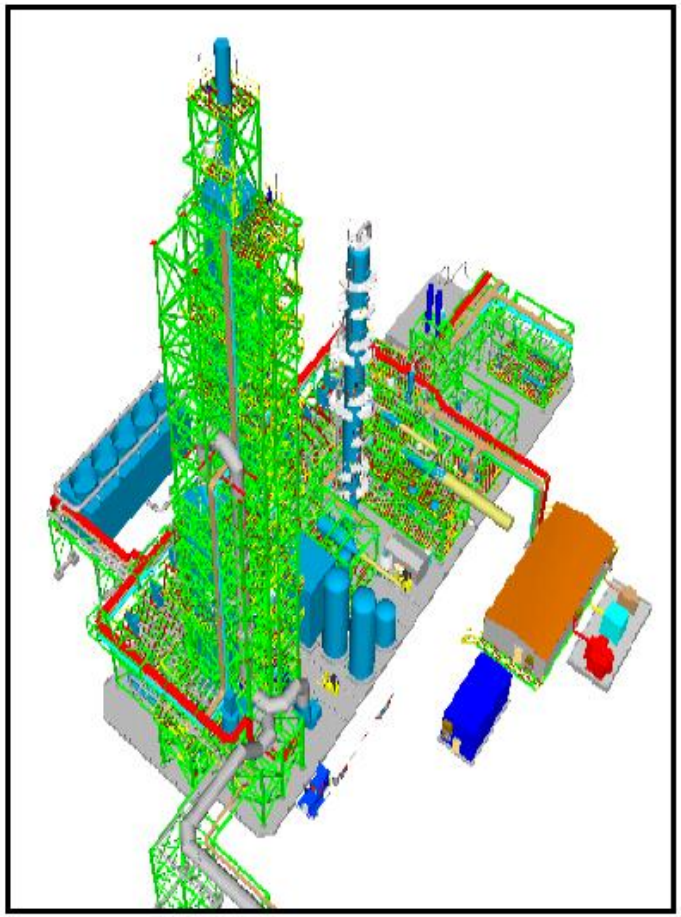


Courtesy: Southern Company

Capture Unit at Alabama Power's Plant Barry

MHI advanced amine capture unit

- 25 MW post combustion slip stream
- Fabricate off-site and barge to Plant Barry
- Compress CO_2 to 1500 psi
- Scheduled start up during summer, 2011
- **Actual start up June 2011**



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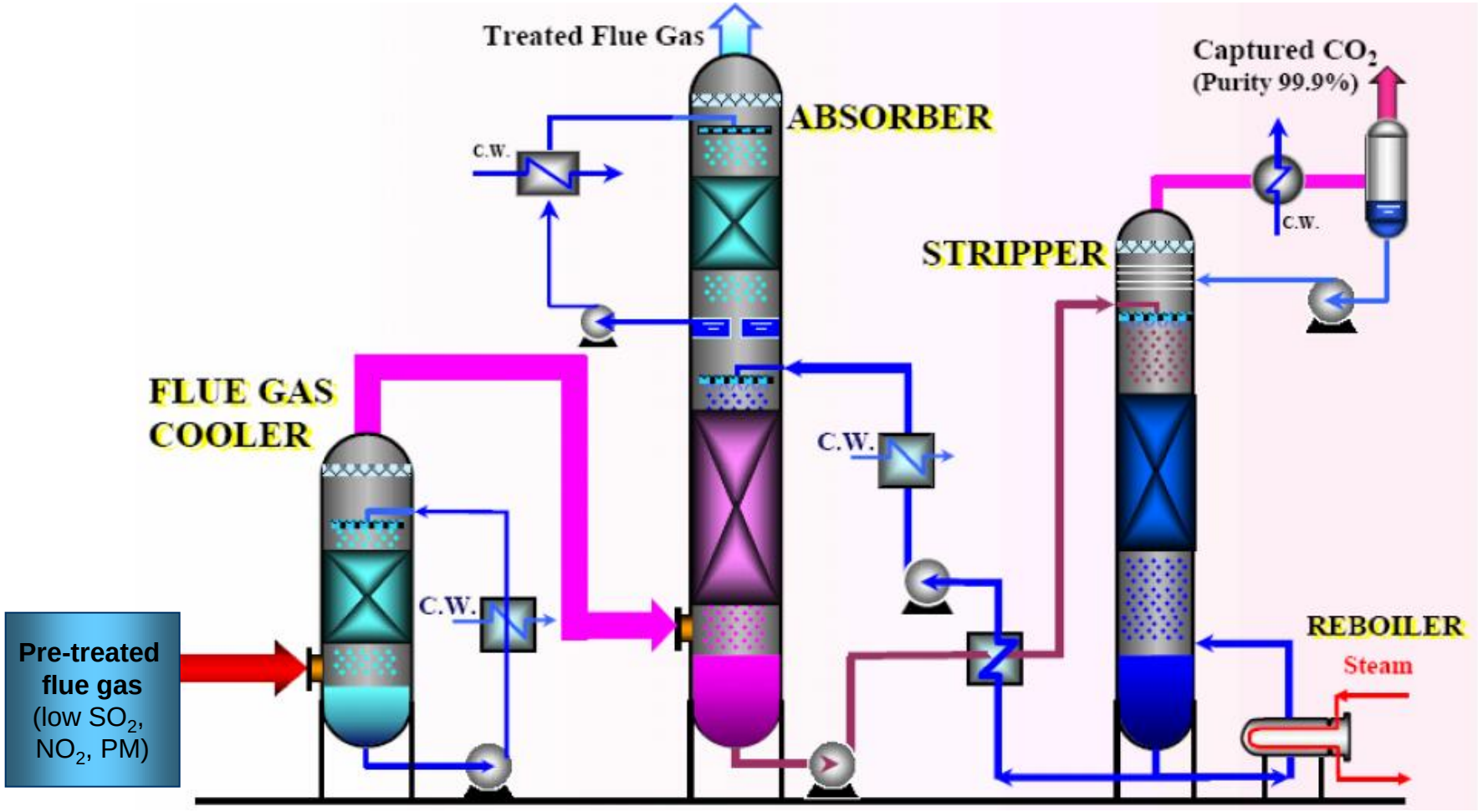
Simplified CO_2 Scrubbing Process (Amine)



Key Points: needs >99% SO_2 removal; consumes process steam

Groundbreaking Ceremony: Capture Unit

Alabama Power's Plant Barry, April 14, 2010, Bucks, Alabama

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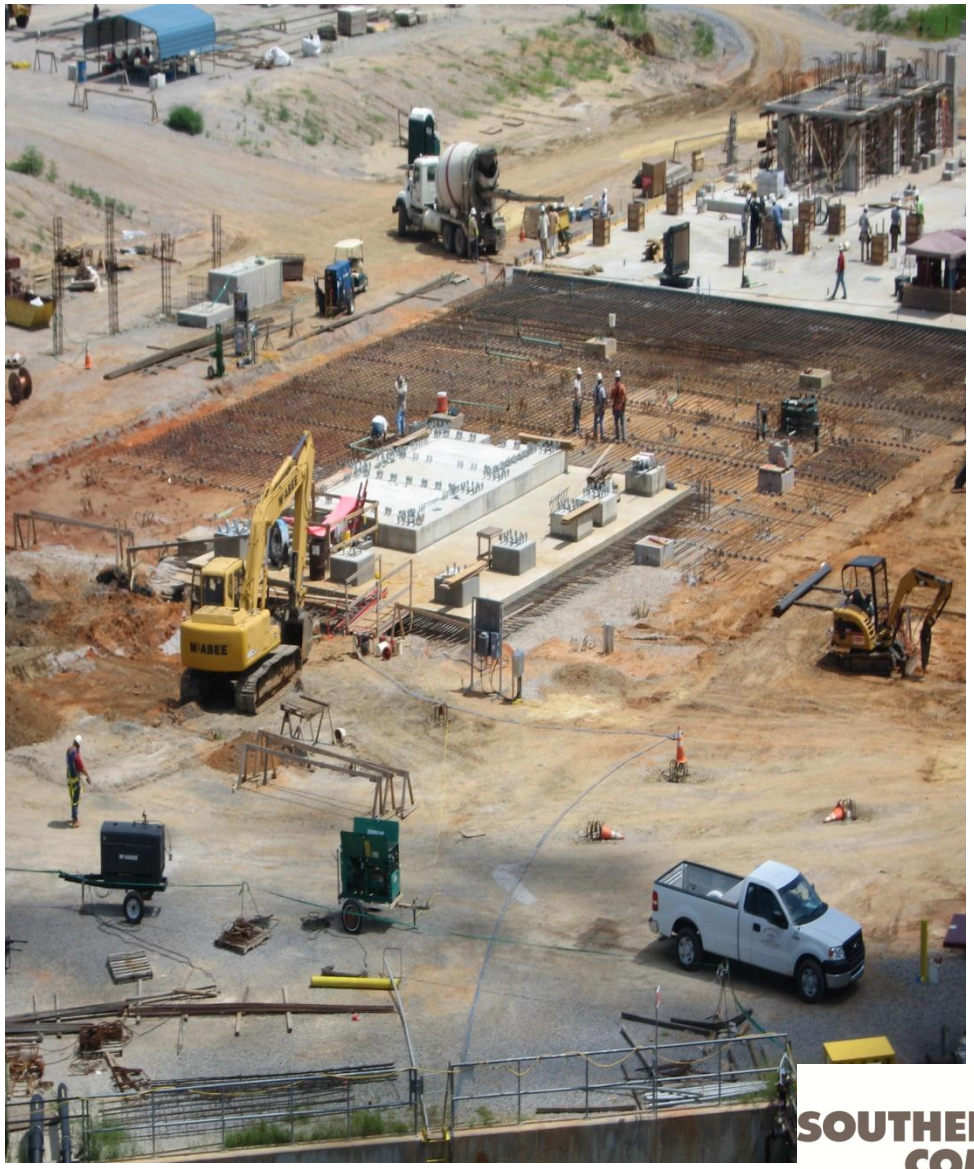
Site Progress Photos (7-28-10)



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Modular Transportation Photos (9-23-10)

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Site Progress Photos (10-8-10)

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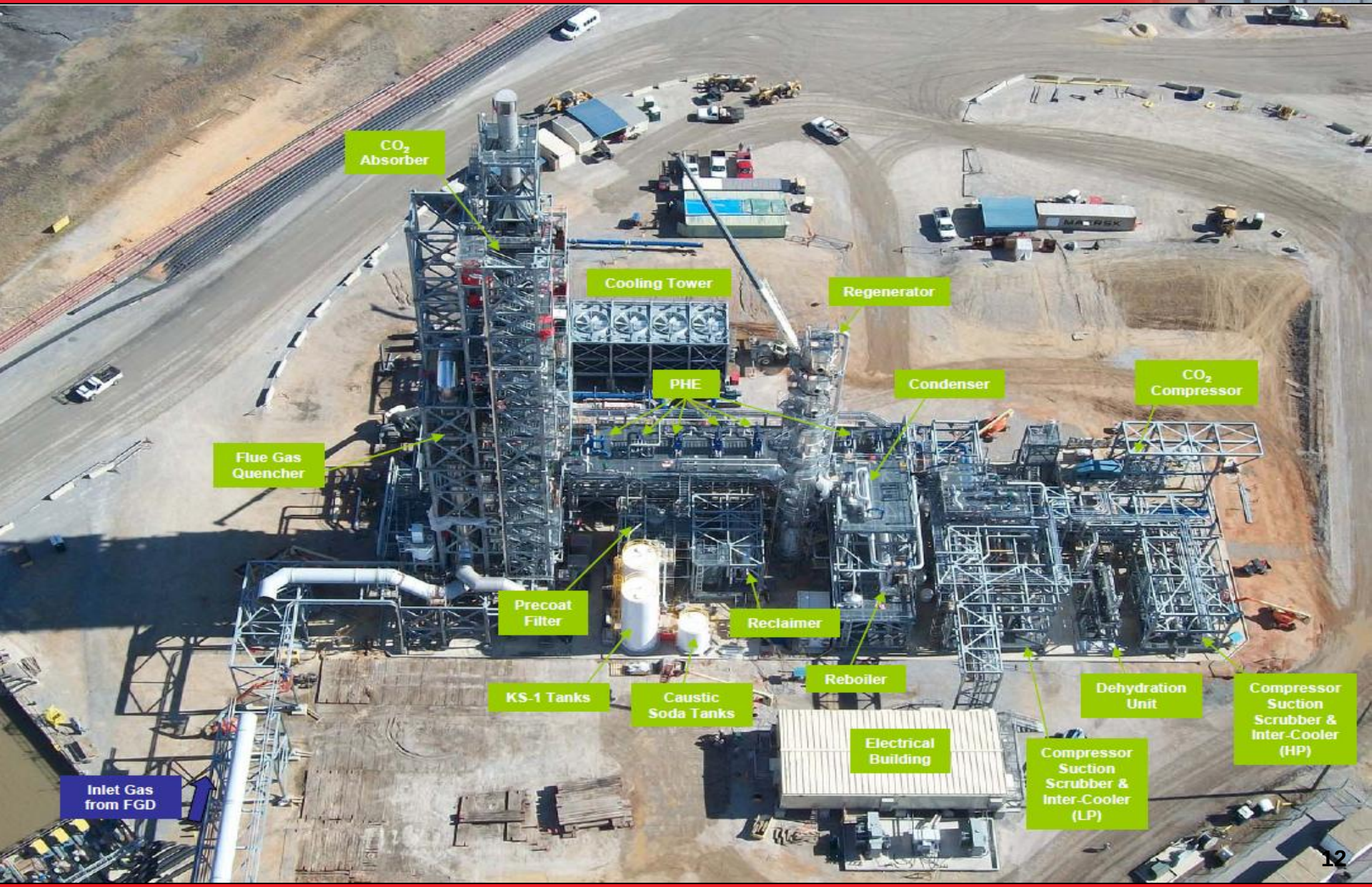
CO_2 Capture Facility – Process Island



Integrated CCS Demo – Current Status

- **Capture Plant**
  - Groundbreaking Ceremony; April 2010
  - Gas In: June 2011
  - Compressed Gas: July 2011
- **Transportation**
  - Start Pipeline Construction: August 2011
- **Injection/Storage/MVA**
  - Drill Characterization/Observation Well: January 2011
  - Site-Specific Geologic Characterization: Ongoing
  - Environmental Assessment Completed; Finding of No Significant Impact
  - UIC Class V Injection Well Permit Pending

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QUESTIONS?

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