WESTCARB Annual Business Meeting

Geologic Characterization of the Starkey and Winters Formations, Sacramento Basin, CA

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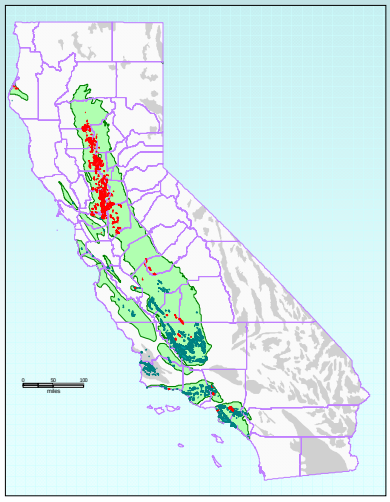
Recap—WESTCARB Phase I

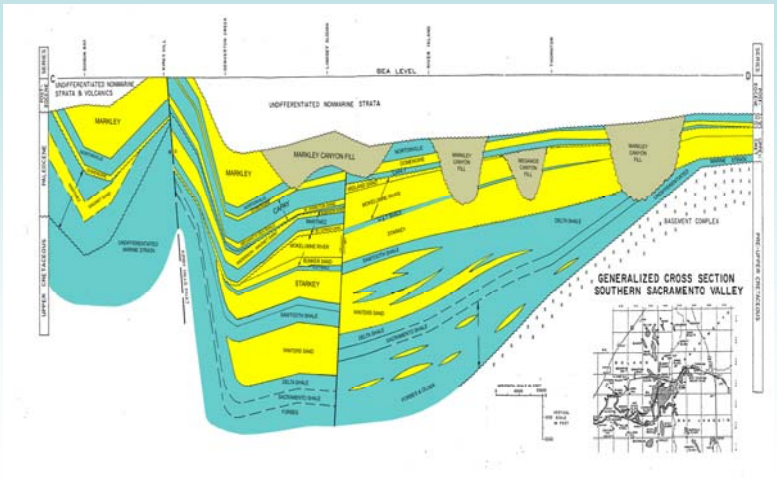
- 104 California sedimentary basins were screened
- 27 basins exhibit varying potential for CO_2 sequestration
- Concluded Cenozoic marine basins are the most likely targets for sequestration

Cenozoic Marine Basins

- Thick, widespread permeable sandstones and overlying shales
- Abundant geological, petrophysical, and formation fluid data
- Good areal distribution
- Numerous abandoned and aging oil and gas reservoirs with sequestration potential



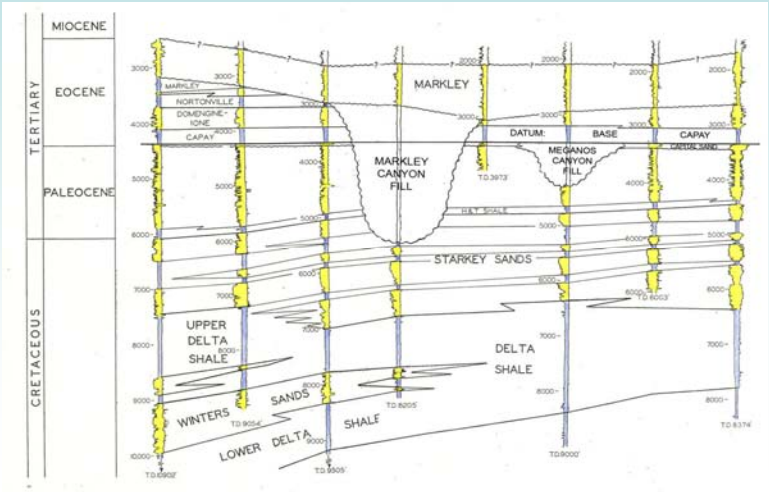
Generalized Cross-Section of the Southern Sacramento Basin



WESTCARB—CGS Phase II Goals

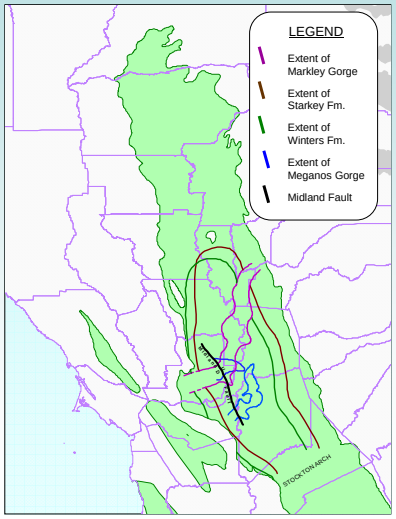
- Detailed, formation-level isopach (thickness) mapping
- Narrowed objectives to sandstone formations in the Sacramento and San Joaquin basins
- Sacramento Basin
  - Cretaceous Starkey Formation and overlying H&T Shale
  - Cretaceous Winters Formation and overlying Sawtooth Shale
- San Joaquin Basin
  - Miocene Temblor Formation and overlying Monterey Formation shales

Generalized East–West Cross-Section, Southern Sacramento Basin

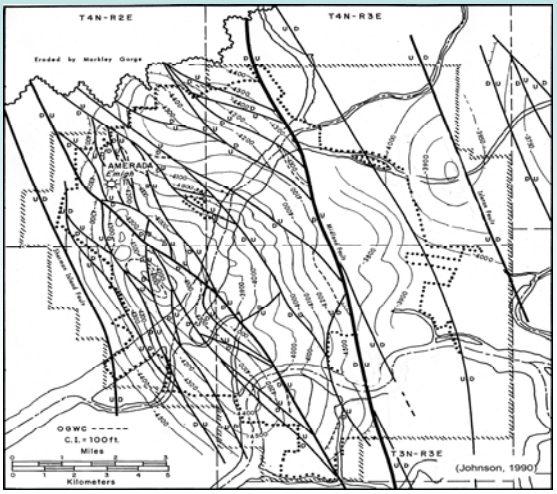


Faults, Unconformities, and Submarine Canyons

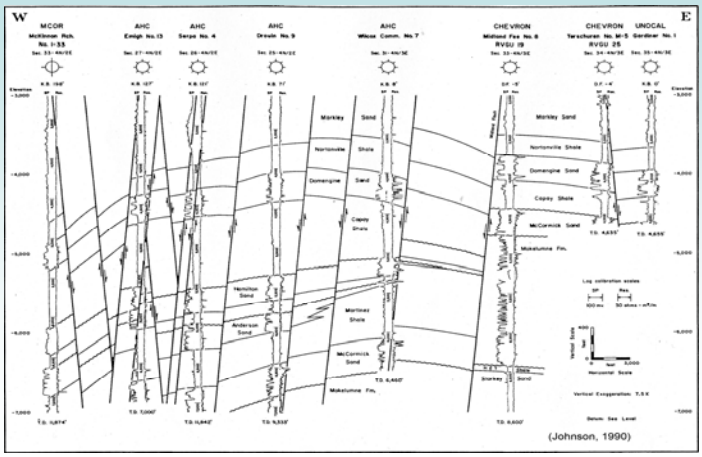
- Markley Canyon
- Meganos Canyon
- Midland Fault
- Numerous normal faults
- Regional and local unconformities



Generalized Structural Contour Map, Rio Vista Gas Field (Top Domengine Sand)



Generalized East–West Cross-Section, Rio Vista Gas Field



Preliminary Observations and Conclusions

- Thick saline formations exist in the Starkey and Winters Formations
- Overlying seals are widespread but vary in thickness from a feather edge to over 1,000 feet
- Formation continuity is interrupted by numerous normal faults and Paleocene-Oligocene submarine canyon cutting and infilling
- Potential sequestration sites are likely to be regionally and/or locally “compartmentalized”
- Potential storage sites will require considerably more geologic characterization to identify specific sequestration targets

California Geological Survey

http://www.conservation.ca.gov/CGS