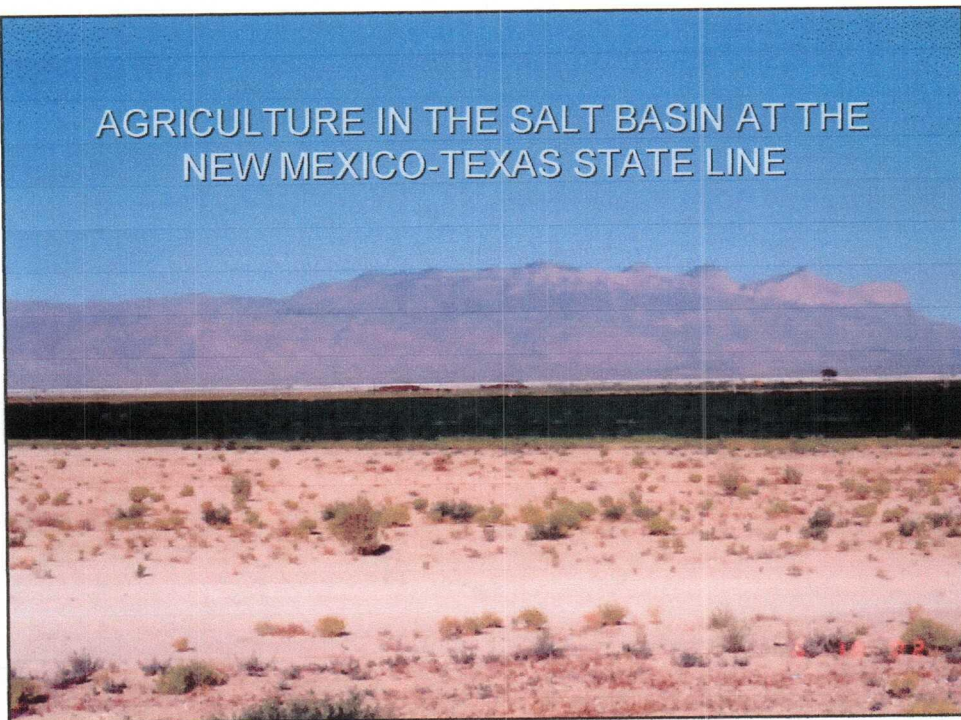


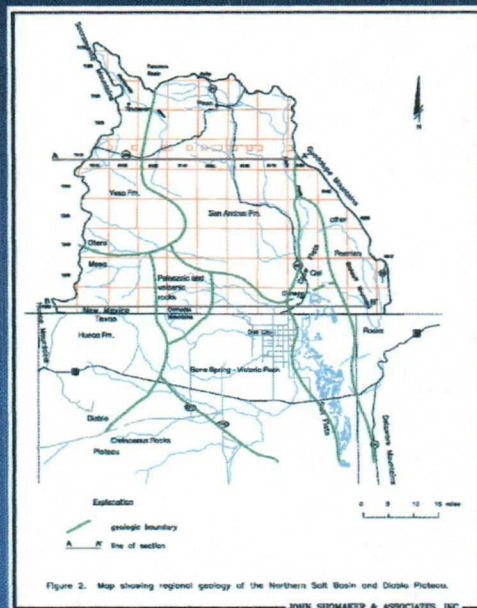
## AGRICULTURE IN THE SALT BASIN AT THE NEW MEXICO-TEXAS STATE LINE





## PREVIOUS WORK DESCRIBING WATER RESOURCES OF THE OTERO MESA REGION

- NMOSE report on ground water conditions in the Crow Flat area by Bjorklund (1957)
- PhD Dissertation on Otero Break by Mayer (1995); Sharp and Mayer (1998)
- Transboundary aquifers of the El Paso-Las Cruces region by NMWRRI (1997)
- Tularosa and Salt Basin Regional Water Plan (2002)





# GEOLOGY OF SALT BASINS

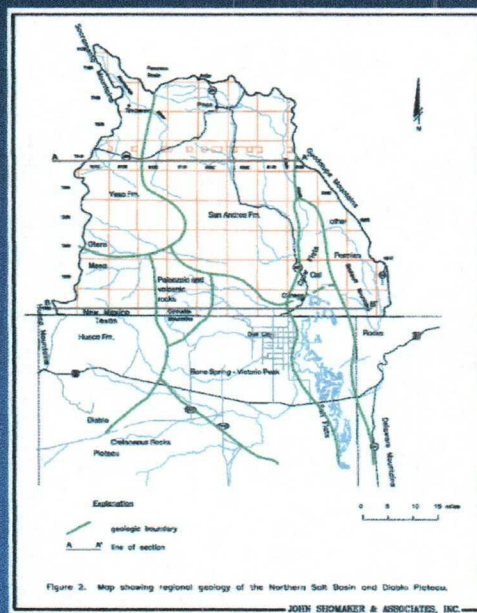
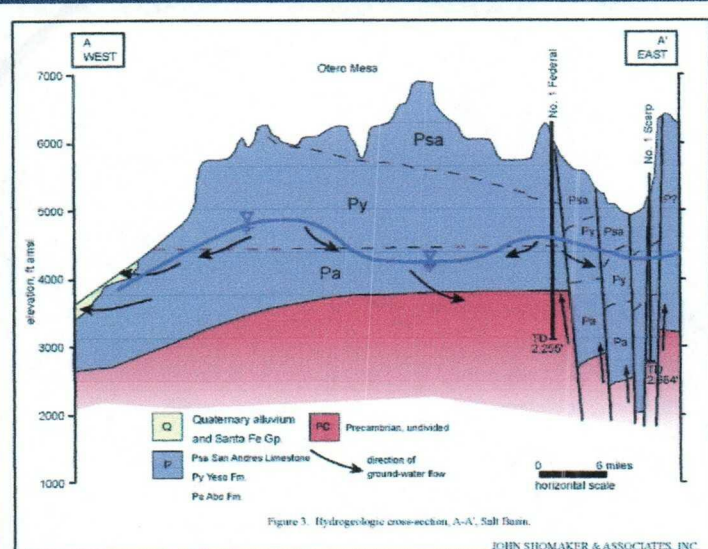


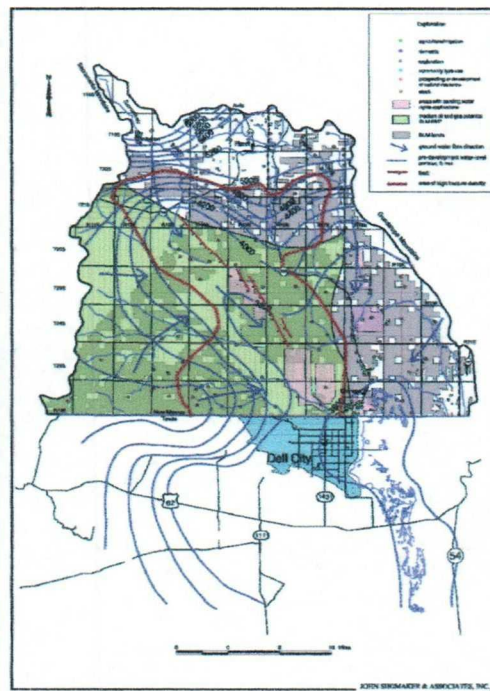






Figure 4.4: A fracture zone in the Otero Mesa. Picture is taken looking toward the southeast; 45-lb dog for scale. Note the alignment of large yucca plants along the left-most fracture trace (arrow) where soil covers the bedrock.

From Mayer (1995)





## PROFESSIONAL OPINIONS

- The proposed rule is a good start in the right direction for protecting water resources.
- Given the geologic setting and subsequent vulnerability of ground water to contamination, the potential for leaks and spills needs to be eliminated to the maximum extent to protect known water resources.
- Ground water has been impacted from past and existing oil and gas operations in the San Juan Basin and Lea County. Otero and Sierra Counties should not be put a risk to suffer the same consequences.

## PROFESSIONAL OPINIONS REGARDING PITS

- Digging pits in areas where there is little to no top soil and fractured rock is not a viable protective measure.
- The proposed rule does not allow for pits, which is supported by the following conditions observed in the Otero Mesa area:
  - Depth to water is known to be less than 100 feet in many places.
  - The extent of fracturing is well documented
  - The driving force for migration of surface spills is recharge – the fractured rock readily receives water from storm events and runoff.
- Also
  - The potential for contaminants are an issue with oil and gas drilling regardless of the type of drilling method and fluids.



## PROFESSIONAL OPINIONS REGARDING INJECTION WELLS

- Injection wells should be omitted from the Salt Basin area for the following reasons:
  - The vertical connection of fractures is poorly understood.
  - The extent of fracturing is well documented, and the high density fracture zone of Otero Break has a high potential for vertical migration of injected fluids
  - There is likely fresh water at depth, and it is uncertain if there is a suitable zone for injection.

## PROFESSIONAL OPINIONS CONCLUDED

- Water well drilling methods are designed to protect the aquifer.
- Leaks from buried piping are difficult to detect in fractured rock settings
- The water resource beneath the Salt Basin is only an asset to the State of New Mexico if it remains protected and contaminant free.

