Study for
City of Corpus Christi,
Padre Island Desalination Plant
Test Hole Program.
Scope of Project:

Drill three or more test holes to determine sands for production for desalination, alternately for study for horizontal ASR wells.
Test Holes Were to Drilled at Three Separate Locations:

- Sea Pines
- Mustang Island Fire Station
- Padre Island Pump Station
Depth of each test hole 850’. One to be completed as brackish water supply well with pump.
Contract had strict guidelines for operating hours.

7:00 A.M. – 5:00 P.M.
Contractor was allowed to work on Saturday.
(For a while anyway.)
This presentation is intended to provoke thought and design issues.
Test holes were drilled, collecting three samples every five feet.
Contractor was required to drill with degradable synthetic organic drilling compound. (Guar based mud).

The intent of this was to prevent mud intrusion into the formation. The fines deposited in the formation would eventually be pumped from the formation after completion of a supply well, and would plug an RO system.
Guar based mud tended to blind off mud cleaner screens, and would thin out overnight if left in the hole, and the hole was sloughing off, requiring daily ream out and/or wash out.
Hole conditions required the use of bentonite, and the engineer was concerned that a gel based mud would contaminate cuttings.
The Sea Pines site had sands at 510’-570’ and 675’-742’. The hole was plugged and the rig was moved to the Mustang Island Fire Station site.
The Mustang Island Fire Station test hole showed sands from 520’-575’ and 660’-740’.

Conductor pipe had been set to 80’ and pressure cemented. The test well was plugged and the rig moved to Padre Island Pump Station site.
Drilling was stopped at 765’. Sands were encountered at 500’-536’, 568’-584’, and 658’-704’. We were under contract to complete a 6” PVC supply well at one of the sites, and the Padre Island Pump Station site was chosen.
The well was upgraded to 12” PVC Certa-Lok, with casing pressure cemented to 520’.

Stainless steel rod base screens were installed from 500’-534’, 568’-582’, and 658’-704’. The well was developed and a chemical analysis obtained.
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The sieve analysis’ on each test hole were very similar, an average grain size of .0059 on the 70 percentile.
To insure no sand production, a 20/40 gravel pack was used with a .015 slot screen. Chemical analysis showed the water to have 18,000 ppm chlorides.
Conclusion: They want to develop an ASR well field with lateral lines extending 2500’+ in four directions.
The sands are too fine for natural development, and must be gravel packed. The screens will be 500’-570’, and 660’-740’ deep.
Would you use a Muni-Pak Screen?
Would you gravel pack?
How well do you think you could develop it?