Environmental and Engineering Dinner Meeting

Rudy Lechner's • 2503 S. Gessner (½ block north of Westheimer)
Social 5:30 p.m., Dinner 6:30 p.m.

Cost: $25 Preregistered members; $30 Nonmembers & Walk-ups

Make your reservations now by calling 713-463-9476 or by e-mail to Joan@hgs.org (include your name, meeting you are attending, phone number, and membership ID#).

by F. Steve Petersen,
Malcolm Pirnie, Houston, TX

Brackish Groundwater Development for Potable Supply: Part 1

The San Patricio Municipal Water District (SPMWD) provides water to municipal and industrial customers in San Patricio and Aransas Counties. SPMWD needs to produce additional potable water to meet anticipated growth in demand. Availability of additional surface water resources in the area may be insufficient, based on current consumption compared to supply and the ever-present threat of drought. Consequently, SPMWD is interested in determining the quantity and quality of brackish groundwater that could be produced in proximity to the SPMWD treatment plant and distribution system. Reverse Osmosis (RO) technology has been selected as the treatment technology. Project feasibility depends on water quality, quantity, and on identifying a plausible and cost-effective permitting strategy to dispose brine waste.

Projected population growth in the Corpus Christi area will result in an ever increasing need for additional raw-water supplies. Development of high-quality groundwater and available surface water has now, or will shortly, reach the limit of supply.

The stratigraphic setting of San Patricio County was evaluated on a regional scale to determine the distribution and thickness of water-bearing units. The Goliad Sand and the Jasper Aquifer were identified as potential candidates. These two formations were then evaluated in more detail in the vicinity of SPMWD's plant and distribution system. Oil well electric logs and existing geological reports were reviewed. The data indicated the presence of adequate brackish water with a TDS of 10,000 mg/l less than ten miles from key SPMWD facilities.

Regulatory analysis and interviews with Texas Commission on Environmental Quality (then the TNRCC) indicated that obtaining a permit for the disposal of RO brine to Corpus Christi Bay was feasible. Disposal by injection well was reviewed but rejected.

Economic analysis indicated that the brackish groundwater could be produced and treated for approximately $1.90/1,000 gallons. This was viewed by SPMWD as competitive with the price the District now pays for treated water. The price included permitting and constructing a waste disposal pipeline to Corpus Christi Bay from the RO facility.

Projected population growth in the Corpus Christi area will result in an ever increasing need for additional raw-water supplies. Development of high-quality groundwater and available surface water has now, or will shortly, reach the limit of supply. Development of brackish groundwater could provide SPMWD with a new source of water. ■

Biographical Sketch

F. Steve Petersen in a senior geologist for Malcolm Pirnie of Houston, TX. He has seventeen years of experience in providing a wide range of services, including soil and groundwater assessment and remediation, water resource assessments, permitting, landfill closures, geomorphological assessments related to facility siting, and large-scale due diligence for complex property transactions. He has been working with the San Patricio Municipal Water District for several years to develop brackish groundwater for potable supply. He is presently working with the Harris County Flood Control District to develop a master plan that will redirect channel sediments away from landfills and into useful compost. While with ARCO Pipeline Company, Mr. Petersen established the site assessment and remediation program that were utilized to close numerous sites affected by the release of petroleum hydrocarbons. Petersen has a BA in Theology and an MS in Geology. He is a Wyoming Certified Professional Geologist and will soon receive his Texas certification. He is a member of the National Groundwater Association.