FROM THE PRESIDENT

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Prior to his prolific career as an oil-finder at CNG, Dominion and Houston Energy Ed Zinni was one of the first to publish a shallow subsurface geological interpretation using oil and gas industry seismic data in south Louisiana. His 1995 paper "Subsurface fault detection using seismic data for hazardous-waste-injection well permitting: An example from St. John the Baptist Parish, Louisiana", published in the journal Geophysics, effectively predicted one of the intended applications of industry seismic data that is now envisioned by the Louisiana Coastal Geohazards Atlas Project. Ed used seven 2-D seismic lines, provided to him by Seismic Exchange and Tomlinson Geophysical, in combination with four subsurface cross sections constructed from the geophysical logs from oil and gas wells, water wells and industrial waste disposal wells. He mapped five shallow subsurface horizons including the Covington Aquifer, which is the southern extension of the Kentwood Aquifer. This is significant because the Covington Aquifer is the source for municipal water wells at the northern edge of the study area. Two wells near Ruddock, Louisiana supplied drinking water for the residents of Laplace, fifteen miles to the south. At the southern edge of the study area the downdip equivalent of the Covington Aquifer lay stratigraphically between the 4700-ft and 3700-ft zones that were being used for wastewater injection at the Dupont Pontchartrain Works Facility on the Mississippi River near Laplace. Ed used his integrated data set to map three primary faults that intersected and offset the Covington Aquifer between the injection well and the municipal water wells.

These are the same faults that create the rollover anticlines that support Bonnet Carre, Frenier and Laplace Oil Fields, all of which are featured in the NOGS publication "Oil and Gas Fields of Southeast Louisiana – Volume 1". It is commonly accepted in the industry that oil and gas reservoirs of this type were probably sourced with hydrocarbons that migrated vertically up the faults and into the structurally closed reservoirs. Ed noted in his study that the fact that none of the reservoirs in these fields were filled below intersection with the faults suggest that juxtaposition of sand against sand across the faults allowed for leakage of reservoir fluids at these levels. Ed extrapolated from this observation to conclude that it may be possible that wastewater from the injection wells could migrate along and across the faults and ultimately find its way to the site of the municipal water wells. He noted that the regulations of Title 33 of the Louisiana Department of Environmental Quality require that "confining zones of a hazardous-waste-injection reservoir should be free of bisecting transmissive faults and fractures".

Therein lies the problem. How can a regulatory body like the Louisiana Department of Environmental Quality enforce its regulations without any knowledge of where potentially transmissive faults occur? The intention of the Louisiana Coastal Geohazards Atlas Project is to provide a map of faults that are likely to intersect potential injection zones across south Louisiana. An atlas of this type can be used not only for groundwater resource management applications like this, but also for transportation infrastructure assessment, flood protection infrastructure assessment, and subsidence and wetlands studies. Ed Zinni provide the perfect model by which to construct such an atlas. He chose a defined study area and mapped it in detail at multiple horizons using an integrated set of seismic and subsurface data. He generated multiple horizon maps and fault plane maps, and pinpointed the most significant implications of his interpretation. By emulating this model and expanding it across south Louisiana with many similar research projects, the Atlas Project hopes to achieve an adequate body of interpretation of combine into a comprehensive atlas. The intended modus operandi of the Atlas Project is to have these type of research projects take place at area universities. The Atlas Project will endeavor to provide the universities with access to industry seismic and other data to conduct the research. The keys to success will be to secure adequate funding for the project, which may include the purchase of seismic research licenses, and to promote cooperative engagement with the oil and gas industry in support of the project.