UR-03075 AQUIFER EXEMPTION EVALUATION

WHAT IS KNOWN

- The AE is located in the recharge area of the Evangeline Aquifer in north Goliad County. The Evangeline Aquifer is part of the Gulf Coast Aquifer. The Texas Water Development Board Central Gulf Coast Model quantifies this recharge as 7,981 acre feet per year.
- The AE consists of 423.8 acres and the depth includes all four sands of the Evangeline Aquifer that exist in that area.
- There are many domestic and livestock water supply wells in the corridor around the AE. Most of the wells are completed in the top two sands and some are completed in the lower two sands. There are two livestock water supply wells within the AE.
- There are two faults in the vicinity of the AE. A portion of the north-west fault is within the boundary of the AE. The south-east fault is outside and down-dip of the AE boundary.
- According to cross sections included in the permit application, there is considerable variability in elevations and thickness of the aquifer sands. At the faults, there are likely hydraulic connections from one sand zone to another caused by the vertical offset of geologic units at the fault.
- There are elevated levels of radium in RBLB 1,3,4,5 wells, PTW 1-14 wells, and the PA1 monitor wells on the east quadrant. These wells are inside of the AE boundary. Outside of the AE boundary to the south-east, levels of radium in some domestic and livestock wells that have been tested are higher than noted in other area wells that have been tested.
- As documented in the USGS study of the Coleto Creek Watershed, at least the A and B aquifer sands supply baseflow to the creek.

WHAT IS NOT KNOWN

- The quality of the groundwater in the AE area prior to exploration borehole drilling is not available.
- There are no direct measurements of fault hydraulic properties, although the horizontal permeability of the northwest fault appears to be less than that of the adjacent sand units.
- Groundwater flow direction and hydraulic head of the sand units of the southeastern fault are unknown.
- There is limited scientific data dealing with groundwater migration directions and rates.
- The source of elevated Radium levels in drinking water wells located down dip of the AE and south of the southeast fault is unknown and needs to have a comprehensive scientific evaluation.