

## GROUNDWATER MONITORING SYSTEM CERTIFICATION

40 CFR 257.91(f)

Limestone Station

Jewett, Texas

The United States Environmental Protection Agency's (EPA's) "Disposal of Coal Combustion Residuals from Electric Utilities" Final Rule (40 C.F.R. Part 257 and Part 261), §257.91, requires the owner or operator of an existing CCR unit to install a groundwater monitoring system. The owner or operator must obtain a certification from a qualified professional engineer stating that the groundwater monitoring system has been designed and constructed to meet the requirements of 40 C.F.R. Part 257.91.

According to 40 CFR §257.91(a), the groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths, to yield groundwater samples from the uppermost aquifer that:

1. Accurately represent the quality of background groundwater that has not been affected by leakage from a CCR unit; and
2. Accurately represent the quality of groundwater passing the waste boundary of the CCR unit.

40 CFR §257.91(b) states that the number, spacing, and depths of groundwater monitoring system must be determined based upon site-specific technical information that must include a characterization of:

1. Aquifer thickness, groundwater flow rate, groundwater flow direction, including seasonal and temporal fluctuations in groundwater flow; and
2. Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to, thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

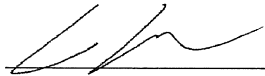
Monitor Well Networks were installed at the active CCR Units at the NRG Texas Power, LLC Limestone Electric Generating Station and meet the requirements above. Single Unit Monitor well networks were installed for each of the following units: E Pond (SWMU 019), Secondary E Pond (SWMU 003), ST-18(SWMU ST-18), K Pond (Bottom Ash Cooling Pond Unit (BACP) and the Landfill (SWMU 004).

Additionally, 40 CFR §257.91(c) states that if the groundwater monitoring system includes the minimum number of monitoring wells specified in 40 CFR §257.91(c)(1) then this certification must document the basis supporting that the minimum number of wells meets the requirements of 40 C.F.R. Part 257.91. The CCR Unit groundwater monitoring systems at the E Pond (SWMU 019), Secondary E Pond (SWMU 003), ST-18(SWMU ST-18) units each consist of one upgradient well, one cross gradient well, and three downgradient wells. Due to the slow groundwater velocities, it is anticipated that any release of constituents of concern to groundwater from the E Pond(SWMU 019) or Secondary E Pond(SWMU 003) CCR Units would

diffuse and disperse laterally enough to be detected in at least one monitor well. Similarly, with the small size of the ST-18 (SWMU ST-18) unit ( $< \frac{1}{2}$  acre) and the location of the downgradient monitor wells, a release of constituents of concern from the unit to groundwater would diffuse and disperse laterally enough to be detected in at least one monitor well. Additionally, where CCR unit elevation data was available, wells were placed downgradient of the lowest point in each unit, with the expectation that the highest probability of a release would occur from the lowest point (i.e. highest head pressure). Therefore, these systems meet the requirements as outlined above.

### **CERTIFICATION**

I hereby certify that the groundwater monitoring system for the CCR Units located at the NRG Texas Power, LLC Limestone Electric Generating Station have been designed and constructed to meet the requirements of 40 C.F.R. Part 257.91:



Chris Cunningham, P.E.  
Licensed State of Texas, P.E. No. 94591

