

Jack Unit II STG Foundation

Bridgeport, Texas

Keller successfully mitigated the ongoing settlement of the foundation slab of a critical generator unit during peak summer demand without interrupting normal facility operations.



The project

Over time, the foundation slab supporting a steam turbine generator (STG) had settled differentially and undergone twisting to the point where the STG was reaching the limits of tolerable operating conditions. The settlement was attributed to variably thick low plasticity clay foundation soils. A method of permanently mitigating the ongoing settlement, correcting the tilt, and lifting the foundation slab was required.

The challenge

The operation of the STG was nearing a critical state due to the rate of settlement, which was causing stresses and unwanted vibrations within the structure. However, the unit could not be shut down for repair during peak summer demand, limiting the available rehabilitation options.

The solution

Keller developed a horizontal soil fracture grouting program accomplished from a secant pile-supported access shaft that would improve the soils and relevel the slab while meeting the owner's need for continuity of STG service. Following initial pre-conditioning of the ground, fracture grouting was accomplished through three levels of sleeve port pipes. Extensive instrumentation and real-time monitoring during grouting allowed precisely controlled lifting and releveling of the slab.

Project facts

Owner(s)

Brazos Electric Power Cooperative, Inc.

Keller business unit(s)

Keller

Main contractor(s)

Fluor Corporation

Engineer(s)

Fluor Corporation

Solutions

Releveling structures

Markets

Power

Techniques

Compensation (fracture) grouting

Secant or tangent (contiguous) piles

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