

*Build with post-tensioning in Seward, Pennsylvania.*



▲ Access to work was achieved using swing stages supported with steel beams placed at the roof of the silos

The Seward Silo project involved the post-tensioning of three interconnected ash silos that are part of the Seward Re-Powering Project in Seward, Pennsylvania.

The overall project is the construction of a new, state-of-the-art 208 MW power plant designed to burn low-grade coal that can not be burned in ordinary coal plants.

This is a design-build project with Drake-Fluor Daniel as the owner/construction manager until the

### Scope of works performed

- Supply and installation of multistrand post-tensioning system.

completed plant is turned over to Reliant Energy, the ultimate owner.

T.E. Ibberson Company was contracted to build three 187'-6" tall, inter-connected, in-line silos: two 82'-4" diameter fly ash silos and one 64'-8" diameter bed ash silo.

The silos were built using the slip-form method of construction and are believed to be the first interconnected silos built using post-tensioning as the primary circumferential reinforcement worldwide. VSL's scope included design assistance to the engineer of record, material supply, access equipment, technical support during the slip, and supervision and labor for strand installation, stressing, and injection grouting.

The reinforcement included 366 horizontal post-tensioning tendons in the walls, using the VSL ES6-12 anchorage System and galvanized duct with 4 to 12 -0.6" strands per tendon.

Strand installation, stressing, and grouting operations were completed at the four intersection wall locations and the eight external pilasters.

The slip was completed in 9 days, with VSL technical support on-site continuously during the duct and anchorage placement.

Once the slip was completed, access to work was achieved using swing-stages supported with steel beams placed at the roofs of the silos.

VSL's work was performed from November 2003 through February 2004, during the second coldest winter on record locally. Significant snowfall and subzero temperatures made progress challenging, yet with a strong focus on safety, both cold related and otherwise, the job was completed with no incidents.

The job required close coordination between the various trades working in close proximity and constant communication between parties working above and below VSL's work locations to phase the work to avoid having personnel under an active work zone.



▲ Three 187' tall interconnected silos were constructed.

The strand installation, stressing and grouting operations were completed successfully, with cold-weather grouting made possible through a variety of heating methods.

**OWNER**

Reliant Energy

**MAIN CONTRACTOR**

T. E. Ibberson Company

**DESIGN ENGINEER**

Van Sickle Allen & Associates

**PT SUBCONTRACTOR**

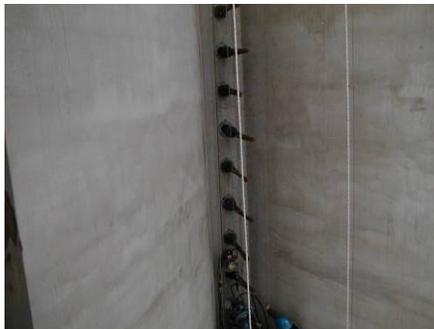
VSL

**VSL ENTITY**

VStructural



▲ Tendon stressing and grouting was performed after the silos were slipformed



▲ Strand installation, stressing and grouting were completed at the four intersection wall locations

◀ Reinforcement included 366 horizontal post-tensioning tendons



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