

PROJECT PROFILE

LIMERICK NUCLEAR PROJECT

SEPTEMBER 17, 2007

CLIENT Philadelphia Electric Company (PECO)

LOCATION Limerick, PA, USA

DESCRIPTION Limerick Generating Station, located in Limerick Township, Montgomery County, PA, is a two-unit nuclear generation facility capable of producing enough electricity for over 1 million homes. The plant site is 3punctuated by two natural-draft hyperbolic cooling towers, each 507 feet tall, which help cool the plant. Limerick's two boiling water reactors, designed by General Electric, are each capable of producing 1,143 net megawatts. Unit 1 began commercial operation in February 1986, with Unit 2 going on-line in January 1990.



Limerick Generating Station

PECO constructed the \$10 billion project using Bechtel Power Corporation as the engineer and construction manager. Under construction at the time of the Three Mile Island nuclear incident, the project underwent a “re-engineering” of parts of the design and of its documentation, monitoring and verification procedures in response to new, more stringent requirements of the Nuclear Regulatory Commission.

While an employee of Bechtel, William A. Wheatley, now Chairman of THE WHEATLEY COMPANIES^(SM), was assigned to the project management field staff in 1984, as Lead Civil Field Installation Engineer, as part of the project “re-engineering.” Mr. Wheatley supervised a staff of 60 engineers whose function was to provide engineering support in the field and supervision of work by contractors on the reactor building, the reactor itself, and the other buildings in the plant, with a special emphasis on meeting new requirements being promulgated by the Nuclear Regulatory Commission. Among these were new requirements regarding verification of the air-tight integrity of the primary and secondary containment structures (the reactor vessel itself and a second structure that surrounds and contains



THE WHEATLEY COMPANIES ^(SM)



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the vessel). These structures must be able to seal and maintain airtight integrity in the event of a nuclear incident or accident.

Mr. Wheatley managed the re-engineering of the foundations of the reactor vessel to new standards regarding resistance to earthquake forces, the reactor secondary containment structure, and the spent fuel storage facility.

When the reactor vessel head was to be installed on the vessel, it was discovered that both the vessel and the vessel head were slightly out of round. While both were within specified tolerances, the cumulative effect was a vessel head that would not seal properly to the vessel. This was not acceptable because the vessel with its head in place provides the primary containment for the radiation released within the reactor. Mr. Wheatley supervised the re-design of the head attachment, the re-machining of contact surfaces to achieve a seal, and the re-design of the Thiokol[®] O-ring seal.

When the secondary containment was complete, Mr. Wheatley wrote new procedures for a Negative Leak Rate Test of the secondary containment to demonstrate the air-tight integrity of the structure, and obtained regulatory approval for the procedure. He then supervised the performance of the testing. The Nuclear Regulatory Commission then accepted the vessel and secondary containment structures, and the plant was subsequently licensed, starting commercial operations in 1986.



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