N24. Mini-Sub In Use At Con Edison's Indian Point 2

A Phantom-300 submersible remotely operated vehicle (SROV) was further developed under research sponsored by Con Edison. The Phantom-300 is intended for use in visual inspection, foreign object search and retrieval (FOSAR), and related operations in various vessels, refueling cavity, and the spent fuel pool at Indian Point 2. The SROV is equipped with a 3 degree-of-freedom manipulator, a vacuum interface to the existing Tri-Nuclear underwater vacuum/filtration system, and a specially designed radiation-hardened camera. The new camera represents a significant improvement in the design of SROV cameras. The camera is capable of providing sharp images (suitable for ASME Section XI VT-1 examinations) in the highly irradiated beltline region and the lower internals of the reactor vessel. The camera system was specially designed to ensure that all circuitry sensitive to radiation is located at the operator's console, rather than in the submerged environment. Should failure ever occur, the circuitry could be repaired quickly in an uncontaminated environment.

The Phantom has since seen service locating repair areas within the refueling water storage tank, and inspecting highly radioactive racks in the spent fuel pool. The SROV is expected to provide annual benefits that exceed the initial cost of purchase.

For more, see Pentek Ink., Volume 5, No. 2, Fall 1989 (Pentek, 1026 Fourth Avenue, Coraopolis, PA 15108).