With TV camera, personnel take "quick look" inside TMI Unit 2 reactor core

by Rita Scott, EG&G Idaho

EG&G Idaho personnel recently provided technical support and specialized equipment for the first "quick look" at the damaged Three Mile Island Unit 2 reactor core since the accident in March 1979.

GPU Nuclear, operator of the nuclear power station in Pennsylvania, has announced success of the day-long operation on July 21 which obtained videotapes of the reactor core by means of a miniature underwater TV camera.

GPU Nuclear officials said the camera showed no visible damage to the reactor's internal components above the fuel, but the top five feet of the fuel assemblies in the central core area are a bed of rubble. Officials said the videotapes appear to confirm previous studies predicting a rubble bed at the upper center of the 12-foot long fuel assemblies where the temperatures were highest during the accident.

Willis Bixby, manager of DOE-Idaho's TMI Site Office, administers the Department's research program at the reactor station. Some 45 EG&G Idaho employees conduct DOE's program there under manager Harold Burton.

For the Quick Look, EG&G Idaho personnel assigned to TMI designed a liquid sampling device to determine whether water in the reactor vessel was clear enough to permit using the camera. Water obtained with the sampling device indicated sufficient clarity and the camera was then lowered into the vessel.

The inspection marks a significant advance in DOE's TMI-2 research program and is important to the ongoing reactor recovery program being conducted by GPU Nuclear.

The Quick Look was similar to successful experiments conducted in March on the nearby TMI-1 undamaged reactor. These tests were conducted as part of the TMI-2 Technical Information and Examination Program

The Unit 2 Quick Look and the earlier Unit 1 experiments were made possible by adapting a standard technique for uncoupling control rod drive mechanisms and developing a new technique for through-head examination.

According to GPU Nuclear, the four-man, Quick Look team, dressed in bulky protective gear and breathing from respirators, climbed atop the 20-ton concrete missile shields and after uncoupling a leadscrew at the top of the core from a control rod assembly, retracted it. The high resolution, black-and-white camera, with its own light source, was then manipulated, much like a marionette, on a thin 36' long cable into the core.

Photography was controlled by remote focus and monitored on a portable TV. These pictures were videotaped for later examination. Technicians also took samples of vented gas and reactor coolant and obtained the leadscrew itself.

The Quick Look was another step in the activities aimed at removing the reactor vessel head. It will be followed by attempts to uncouple all control rod drive mechanisms and the completion of through-head examination and head removal prerequisites.

These are all preliminary to removing the actual core which, when recovered, will be shipped to INEL. Once here, portions of the material will be examined at various locations in a three-to-five-year research program. The leadscrew is also being shipped to INEL for analysis by EG&G Idaho.

An agreement with GPU Nuclear calls for the DOE to take possession of the core for research, but GPU Nuclear will pay for storage and ultimate disposal outside Idaho.

The program calls for an upgrading of facilities at INEL's Test Area North, with EG&G Idaho being responsible for coordinating the program.

INEL will be the lead laboratory for examining the TMI core.

EBR-II changes announced

Gearing up to handle special projects as well as ongoing reactor safety tests in EBR-II, Argonne National Laboratory has announced several organizational changes in the EBR-II Engineering Department.

Roy McConnell has undertaken project management responsibilities for EBR-II special projects. One of his first responsibilities as research project manager will be to develop a plan to use EBR-II as a test facility for new sodium-heated steam generators being developed and built for the U.S. Breeder Reactor Program.

John Sackett has assumed the responsibilities of EBR-II associate director, Engineering. He will be in charge of the technical management of the EBR-II Engineering Department. Part of his duties will include providing engineering hardware for experimental programs and developing experimental programs related to breeder reactor plant designs.

Robert Forrester has been named manager of Operations Analysis Section of EBR-II. He will be overseeing and developing safety analyses for experiments in EBR-II and analytical support to the national effort to develop a commercial breeder reactor for power production.

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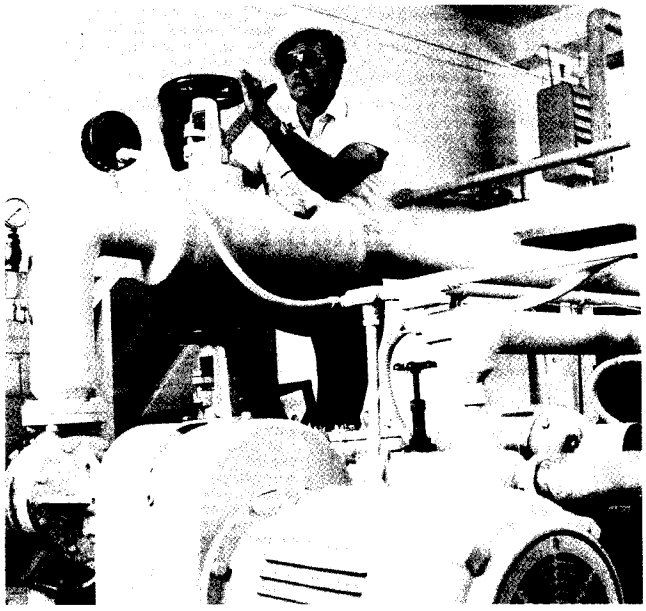

COST-SAVING IDEAS are getting EG&G Idaho employees financial rewards. Vernon Johnson, a senior operator at ATR, saw that the unloading of diesel oil at TRA 627 was taking nearly twice as long as it should, meaning longer hours of work and more money spent. He suggested, because the diesel oil unloading pump was too small, that a bypass be installed around it; also, since the delivery trucks had fast and efficient unloading pumps, that these be used. After researching the suggestion, the Cost Reduction Plan committee found the labor and money savings worthy of awarding Johnson $100. (Photo by Boyd Thomas, EG&G Idaho.)