



TECHNICAL
PRESS INFORMATION
N.S. SAVANNAH

COMPILED FOR THE
U.S. ATOMIC ENERGY COMMISSION
U.S. DEPARTMENT OF COMMERCE
MARITIME ADMINISTRATION

BY NEW YORK SHIPBUILDING CORPORATION, CAMDEN, NEW JERSEY

APPENDIX "B"

MOCK-UP OF NUCLEAR POWER PLANT

The mock-up is a full scale model of the SAVANNAH's nuclear power plant and is located at the New York Shipbuilding Corporation, Camden, New Jersey, shipyard. The arrangement of components and piping is exactly the same as on the SAVANNAH itself, down to the smallest detail. The overall mock-up is approximately 70 feet long and 55 feet high.

There are several important reasons for building the mock-up. Most important is the training of personnel. The crew will be able to move about in this "plant" just as they would on board ship. Maintenance and repair procedures can be set up and checked, using the mocked-up plant. Another purpose is to check the design for exact clearances, eliminating interferences ahead of shipboard installation.

The basic material of construction is light gage sheetmetal. This is used on large components such as the reactor, boilers and primary piping. Cardboard and plastic tubing are used to simulate the piping systems; rubber and plastic tubing for electrical systems. Where lighting is required, the actual wiring is used.

The containment vessel is outlined in skeleton form to permit a clear view of the internals.

Ladders and gratings are made of portable aluminum sections, arranged to provide access to all components.

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Lifting gear is arranged to permit removal of equipment through either 42 inch manway, or through the main opening on top of the containment vessel.

The two primary loops are mocked-up to different outside dimensions. One loop includes the thickness of thermal insulation on the primary piping, boiler and other components. The other loop shows detail of bare piping and equipment.

Several of the components can be disassembled to demonstrate maintenance and repair procedures. A primary pump or primary gate valve can be removed from the loop and shipped out of the containment vessel through the 42 inch manway. The operation of plugging tubes in the heat exchangers can be simulated. Pressurizer heating elements can be removed and replaced.

A quarter section of the reactor is bared in the vicinity of the flange, showing bolting detail.

The SAVANNAH will have a closed circuit television system, allowing the operator to view the nuclear power plant. For this reason, the various components are painted with specially chosen colors to give best contrast on a black-and-white screen.

The concrete shielding which encompasses the lower part of the containment vessel is shown in section. This allows a view of the equipment located in the vestibule between the shield and the vessel. Where piping and electrical lines penetrate the concrete shielding, openings for the services are incorporated in the mock-up.