



ZPPR Test Bed Information

Materials and Fuels Complex Building 776 – Zero Power Physics Reactor (ZPPR) Cell

Background

The Zero Power Physics Reactor (ZPPR) was operated between 1969 and 1990 before being placed into nonoperational standby. The ZPPR reactor and auxiliary equipment have since been removed from the facility. However, the facility still consists of a reactor cell area and control room. NRIC plans to utilize the cell area to host reactor demonstration and other nuclear projects. As such, several improvements and modifications are planned to provide the noted capabilities.



Why?

The ZPPR cell will offer unique capabilities that make it attractive for NRIC projects:

- Originally built to house a nuclear reactor
- Safeguards Category 1 and Hazard Category 2 Facility
- HEU and Pu Fuel capable
- Fuel production and reactor could be located at the same site, avoiding transportation costs and risks
- Co-located with other capabilities at the Materials and Fuels Complex (MFC): hot cells, fuel fabrication, characterization, analytical chemistry laboratories, machine shop, etc.
- Capable of accepting large packages (>12' diameter) through confinement boundary

Facility Description

The ZPPR cell (floor plan shown) is cylindrical in construction with a usable 40-foot diameter and 25-foot height. The facility will provide safety-class

confinement supporting the operation of nuclear reactors. Other specifications and considerations include:

Existing

- Floor loading capable of 3,000 psf or 500,000 lbs total
- 200 kVA, 480V electrical service available
- ~1,300 square feet available
- Co-located Control Room

Planned

- 500 kW heat rejection capability with variable controls
- Class 1E battery backup power as well as a non- safety-related 100 kW diesel generator available
- Available compressed gas systems
- Roof entry point for installation of equipment and reactor packages.

For more information, please contact nric@inl.gov