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FEB 27 1991

Docket No. 50-83  
License No. R-56

University of Florida  
ATTN: Dr. W. C. Vernetson  
Director of Nuclear Facilities  
202 Nuclear Sciences Center  
Gainesville, FL 32611

Gentlemen:

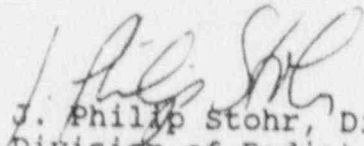
SUBJECT: MANAGEMENT MEETING SUMMARY

This letter refers to the Management Meeting held at our request on January 29, 1991. This meeting concerned activities authorized for your Nuclear Reactor Facility. The issues discussed at this meeting related to your research reactor program, your performance, and current issues. A list of attendees, a meeting summary, and a copy of your handout are enclosed.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this matter, please contact us.

Sincerely,

  
J. Philip Stohr, Director  
Division of Radiation Safety  
and Safeguards

Enclosures:

1. List of Attendees
2. Meeting Summary
3. Handout

cc w/encls: (See page 2)

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Dr. J. S. Tulenko, Chairman  
Nuclear Engineering Sciences Department  
University of Florida  
202 Nuclear Sciences Center  
Gainesville, FL 32611

Dr. Ratib A. Karam, Director  
Neely Nuclear Research Center  
Georgia Institute of Technology  
900 Atlantic Drive, NW  
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Garry D. Miller, Associate Director  
Nuclear Reactor Program  
North Carolina State University  
Box 7909  
Raleigh, NC 27695-7909

Dr. R. U. Mulder, Director  
Reactor Facility  
University of Virginia  
Charlottesville, VA 22901

Administrator  
Department of Environmental Regulation  
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State of Florida  
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State Planning and Development  
Clearinghouse  
Office of Planning and Budgeting  
Executive Office of the Governor  
The Capitol Building  
Tallahassee, FL 32301

Dr. Mary E. Clark, Chief  
Office of Radiation Control  
Department of Health and  
Rehabilitative Services  
1317 Winewood Boulevard  
Tallahassee, FL 32999

State of Florida

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ENCLOSURE 1

LIST OF ATTENDEES

University of Florida

W. Bolch, Member, Reactor Safety Review Subcommittee  
D. Munroe, Radiation Control Officer  
M. Ohanian, Chairman, Reactor Safety Review Subcommittee  
W. Properzio, Director, Environmental Health and Safety  
J. Tulenko, Chairman, Nuclear Engineering Sciences Department  
W. Vernetson, Nuclear Facility Director

Nuclear Regulatory Commission

S. Ebnetter, Regional Administrator, Region II (RII)  
B. Mallett, Deputy Director, Division of Radiation Safety and Safeguards (DRSS), RII  
E. McAlpine, Chief, Radiation Safety Projects Section (RSPS), DRSS, RII  
C. Bassett, Senior Radiation Specialist, RSPS, DRSS, RII  
P. Holmes-Ray, Senior Resident Inspector, Crystal River Nuclear Power Plant  
T. Michaels, Senior Program Manager, Non-Power Reactors, Decommissioning and Environmental Project Directorate, Division of Reactor Projects - III, IV, V and Special Projects, Office of Nuclear Reactor Regulation (NRR)

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ENCLOSURE 2

MANAGEMENT MEETING SUMMARY

A Management Meeting was held at the Nuclear Science Center on the campus of the University of Florida (UFL) on January 29, 1991, to discuss the licensee's research reactor program, past performance and current issues. The meeting was held at the request of the NRC.

The NRC Regional Administrator opened the meeting by discussing how the agency has established an organization, both at the regional and the headquarters levels, to deal with the needs and concerns of the non-power reactor (NPR) community. He then reviewed the training program that has been established for those inspectors who perform inspections of NPRs. The training program is designed to ensure that the inspectors give the appropriate level of attention to the rules and regulations that the licensees are required to follow. The Regional Administrator also indicated that these types of management meetings were intended to improve understanding, communication, and the working relationship between the NPRs and the NRC.

The UFL Nuclear Facility Director presented a slide presentation which outlined the characteristics of the University of Florida training reactor (UFTR), the role of the UFTR in the region, and an overview of the usages of the UFTR. UFL representatives went on to express concern about various subjects including: 1) the number of inspections at the facility, 2) the need, on occasion, to cancel a class in order to respond to inspection activities, 3) lack of good communications at times, 4) training on the new 10 CFR Part 20, and 5) Technical Specification changes that get revised by the NRC after being submitted by the licensee.

Following the discussion, both the NRC and the UFL representatives agreed to strive for better communications in the future and to maintain the good working relationship that has existed. The NRC Regional Administrator closed the meeting by thanking the UFL officials for the opportunity to visit the facility and discuss these issues. The UFL Nuclear Facility Director then conducted a tour of the UFTR facility for the NRC representatives.

**UNIVERSITY OF FLORIDA  
TRAINING REACTOR**

**MANAGEMENT MEETING  
PRESENTATION**

for

**Nuclear Regulatory Commission  
Region II Representatives**

**William G. Vernetson  
Director of Nuclear Facilities**

**UNIVERSITY OF FLORIDA**

**January 29, 1991**

# UNIVERSITY OF FLORIDA TRAINING REACTOR KEY CHARACTERISTICS

- **Rated Power** 100 KWth
- **Fuel:** MTR Plate - Type  
Metal Alloy  
93% Enriched
- **Core Geometry:** Two Slab Arrangement  
in Six Fuel Boxes  
  
Four 11-Plate Fuel  
Bundles Per Fuel Box
- **Max Thermal Flux:** 1.8E12 (Small Volume)
- **Control:** 4 Swinging Vane-type  
Cadmium Loaded Blades
- **Cooling Flow** 40 GPM
- **Coolant Temperature**  
  
Cc. Inlet: 105°F  
Core Outlet: 120°F
- **Pressure:** 1 Atmosphere (Nominal)
- **Instrumentation:** B-10 Proportional Chamber  
Fission Chamber  
CIC/UIC

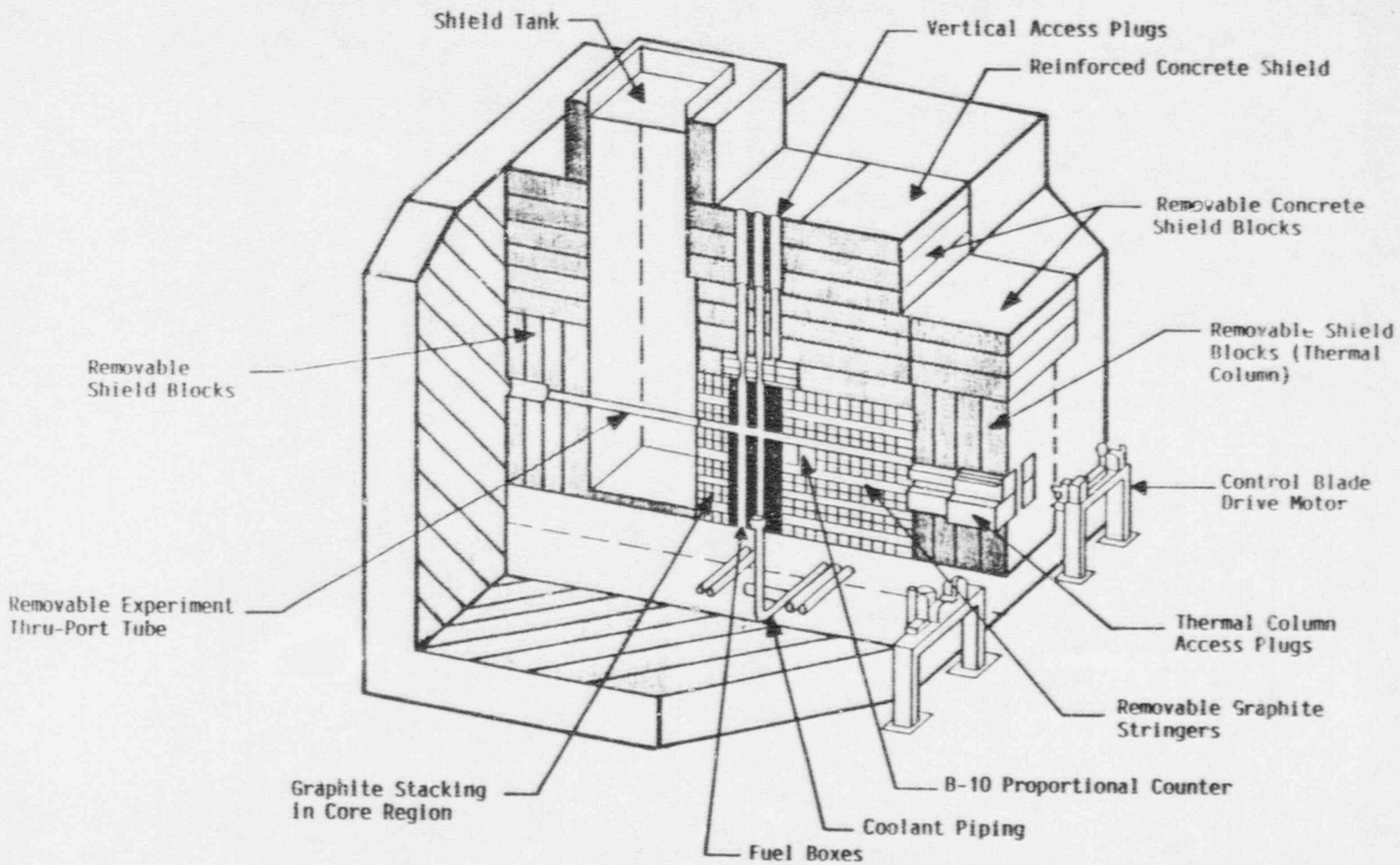


FIGURE 1 CUTAWAY VIEW OF THE UFT-1



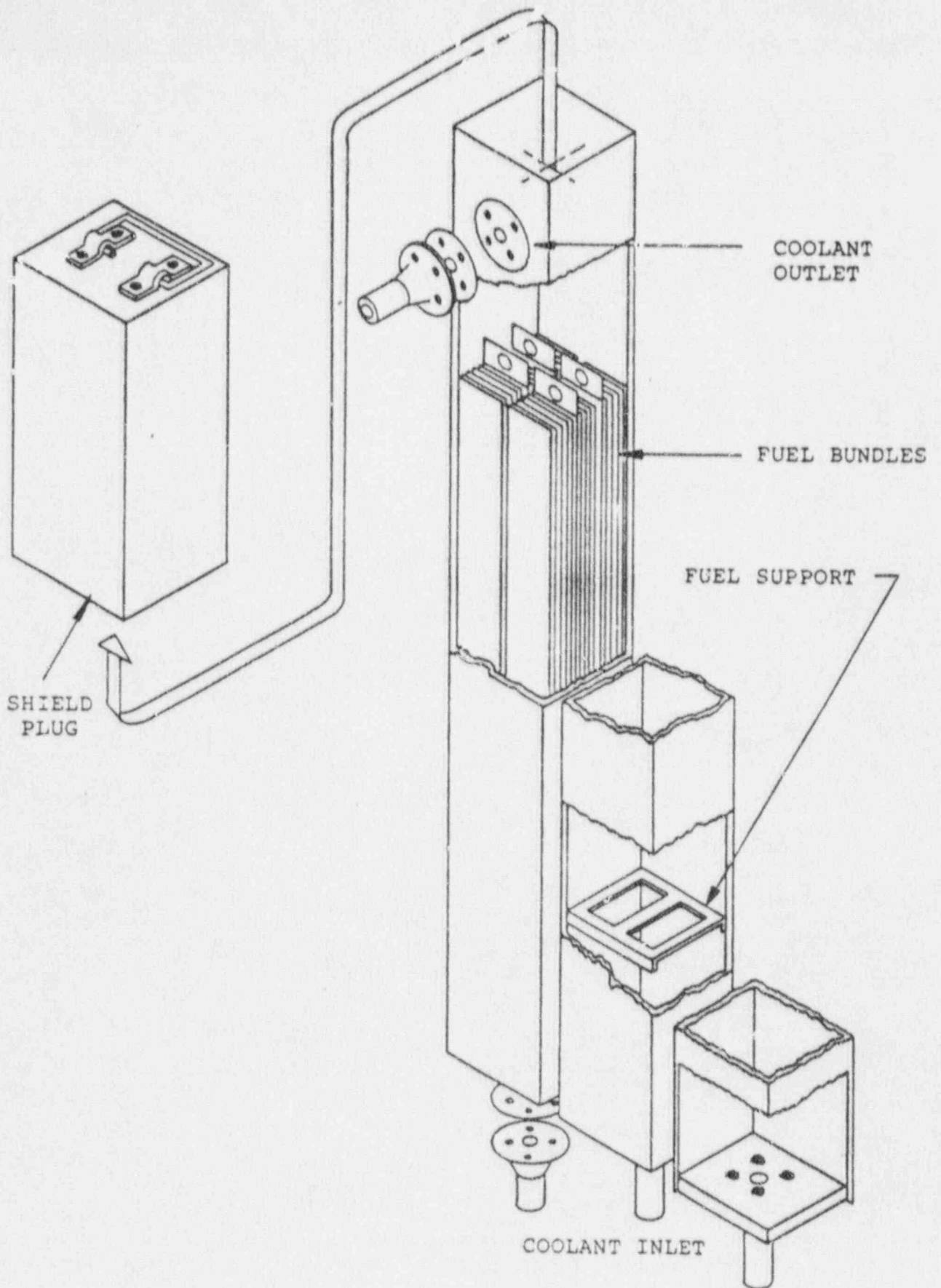
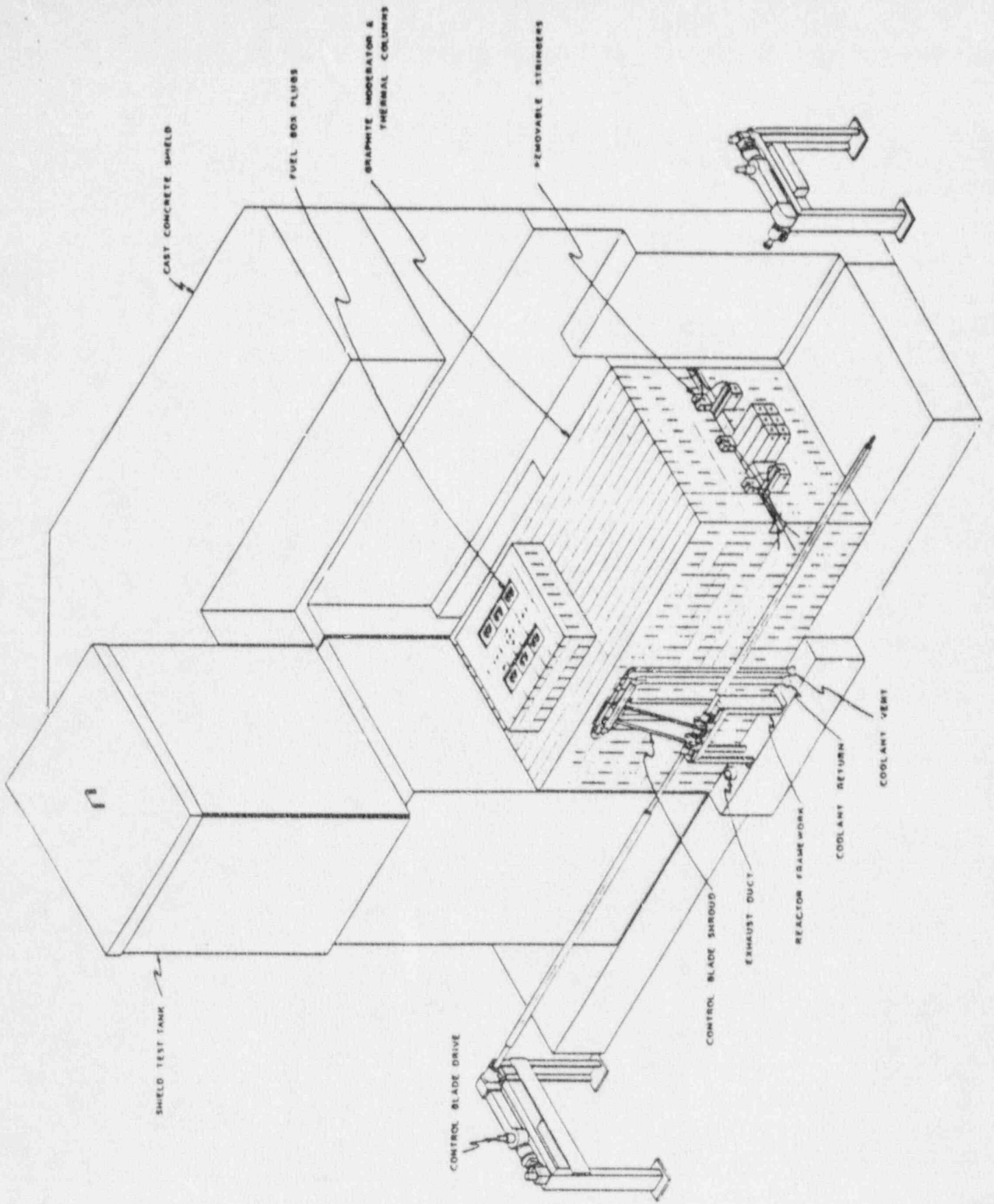


Figure 4-9. ISOMETRIC OF UFTR FUEL BOXES.



## UFTR Regional Role

- **UNIQUE REGIONAL FACILITY TO SERVE FLORIDA AND THE SOUTHEAST**
  - Initial Startup at 10 kw in 1959
  - Power Increase to 100 kw in 1969
  - Relicensed for 20 Years in 1982
  - Planning HEU/LEU Conversion in 1992
  
- **STATE OF FLORIDA**
  - Large Distances Between Population Centers
  - Emerging Technological Base
  - Emerging University System
  - Unique Community College System
  
- **EVOLVING/SHIFTING HISTORICAL USAGE RECORD**
  - 1960s (Basic Nuclear Research)
  - 1970s (Utility RO Training/Plasma Research)
  - 1980s (Decreasing Utility Training/Reactor Sharing)
  - 1990s (RX Sharing, HEU/LEU, Diversification, ...)
  
- **NES DEPARTMENT AFFILIATION**
  - Historical Leader
  - Large/Well Established Department
  - Diverse but Limited Usage

## RECENT UFTR FACILITY USAGE DATA

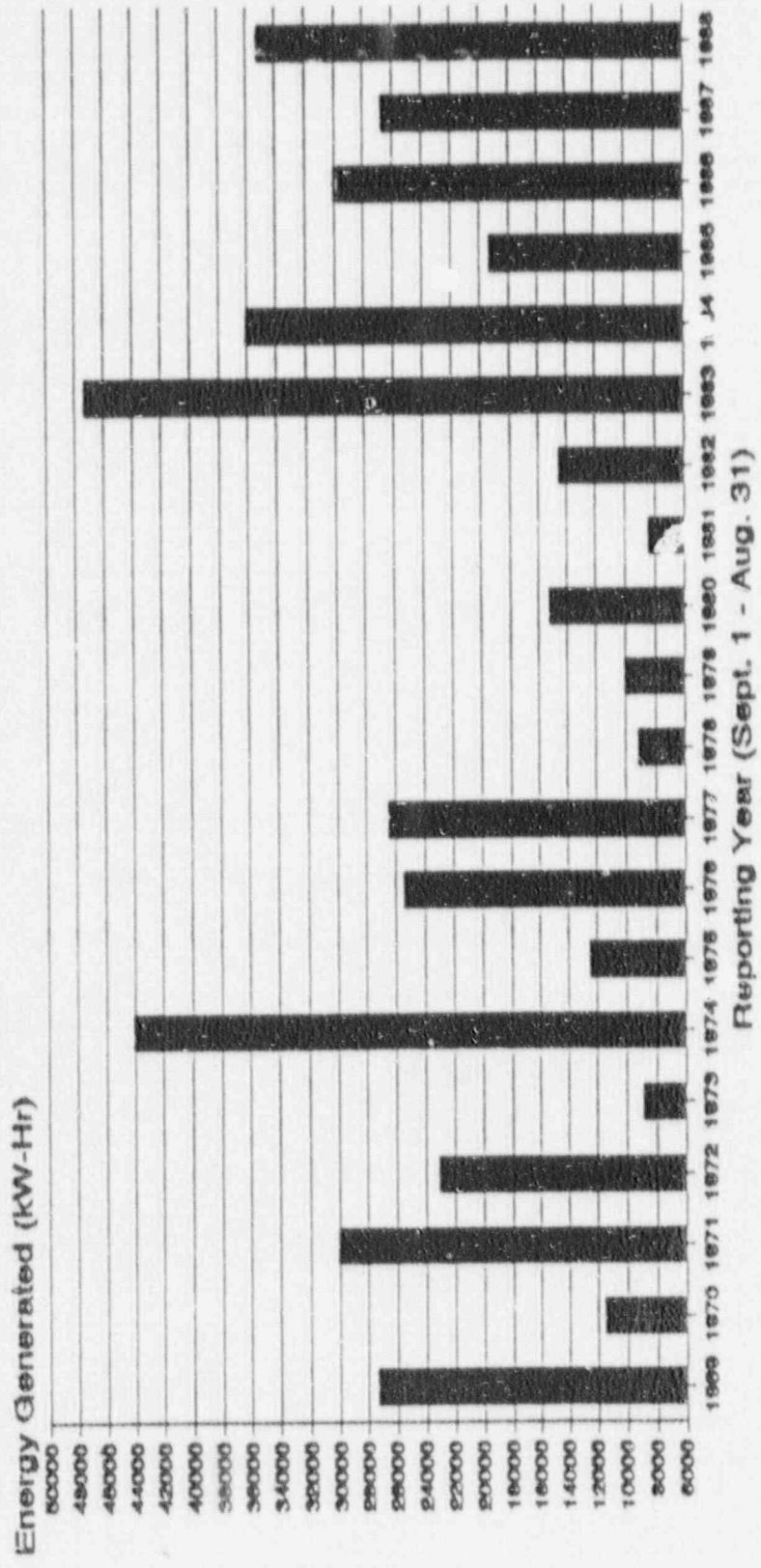
### ● PRODUCTIVE USAGE TIME COMMITMENT

- 30+ hours per week
- 15-20 hours critical per week
- 5-10 EFPHs per week

### ● BROAD SPECTRUM OF USAGE

- Education
- Lab/Special Project Courses
  - Lecture Segments for UF Courses
  - Lectures/Exercises for Visiting Academic Units
- Training (Utility/College/Other)
- Research Projects
- Irradiation and Other Services
- Demonstrations and Tours

# UFTIR INTEGRATED POWER HISTORY



# Overview of Reactor Facility Usages

## ● EDUCATION

- Secondary Schools
- Community Colleges
- Colleges/Universities

## ● TRAINING

- Secondary Schools
- Community Colleges
- Colleges/Universities
- Utilities

## ● RESEARCH

- Facility Life Extension
- Plasma Kinetics
- NAA for Trace Element Identification
- Special Detector Development
- Neutron Radiography Facility Development

## ● SERVICE (TYPICAL)

- Irradiated Boraflex Evaluation
- Processed Quartz Evaluation
- Generation of Radionuclides
- Source Regeneration
- Selective Dielectric Irradiation  
for Color Center Analysis
- Tracer Analysis of Elemental Diffusion
- NDE of Electronic Components

## ● PUBLIC INFORMATION

## UF USAGE OF UFTR

### ● REGULAR USERS

- Advanced Materials Research Center
- Chemistry Department
- Environmental Engineering Sciences
- Innovative Nuclear Space Power Institute
- Nuclear Engineering Department

### ● OCCASIONAL USER DEPARTMENTS

- Anthropology
- Aquaculture
- Electrical Engineering
- Engineering Science and Mechanics
- Pharmacology
- Physics
- Radiation Oncology
- Radiology

# External Educational Users

## ● UNIVERSITIES

- Florida A & M University
- Florida Atlantic University
- Florida Institute of Technology
- Florida State University
- Southeast Missouri State University
- Stetson University
- University of Central Florida
- University of South Florida (Tampa)
- University of South Florida (St. Petersburg)
- University of West Florida
- University of Wisconsin (Eau Claire)

## ● COLLEGES

- Florida Southern
- Rollins

## ● COMMUNITY COLLEGES

- Central Florida Community College
- Florida Community College at Jacksonville
- Santa Fe Community College
- Hillsborough Community College

## ● HIGH SCHOOLS

## ● MIDDLE SCHOOLS



## Training Usages

- REACTOR OPERATOR TRAINING
  - Utilities
  - UF Students
  - UFTR Staff
  - Non-UF Students
  
- HEALTH PHYSICS TRAINING
  - Community Colleges
  - State Universities
  - UF Students
  - UFTR Staff
  
- ANALYTICAL LABORATORY TRAINING
  - High Schools/Community Colleges
  - External Colleges/Universities
  - UF Students

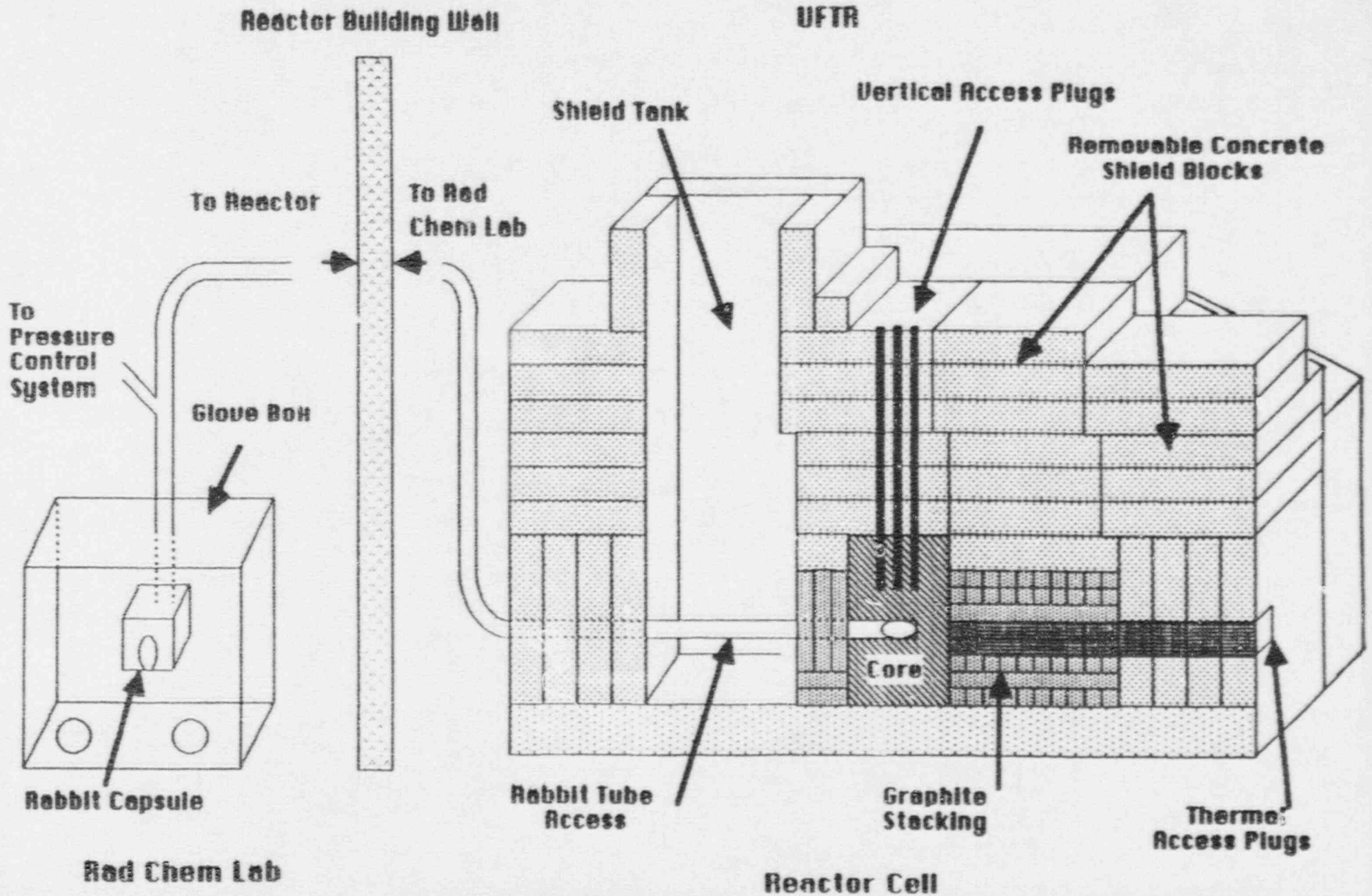
## Research Usages

- **UFTR LIFE EXTENSION (UFLEX)**
  - HEU-TO-LEU Fuel Conversion Studies
  - Gaseous Effluent Characterization
  - Gaseous Effluent Mitigation
  - Radiation Protection Instrumentation Evaluation
  
- **UFTR FACILITY ENHANCEMENT**
  - Rabbit System Improvements
  - Neutron Radiography Facility
  - Prompt Gamma Analysis Facility
  - Experimental Port Characterization

## RESEARCH USAGES (Continued)

- INSTRUMENTAL NEUTRON ACTIVATION ANALYSIS
  - NBS/NIST/USGS Standards Correlation
  - Evaluation of Environmental Mercury
  - Mercury Uptake in Fish
  - Trace Element Characterization of Dielectrics
  - Various Student Projects
  
- PLASMA KINETICS
  - Detector Development
  - Reactor Fuel Characterization
  
- BASIC PHYSICS
  - Dielectric Color Center Investigations
  - Semiconductor Diffusion Studies

# The Rabbit System



# Neutron Activation Analysis Laboratory

## Recent and Current Projects in Trace Element Analysis

- DRILLING FLUID EFFECTS ON SEAGRASS COMMUNITIES (Cr,Ba,Sc)
- VOLCANIC ROCKS (REEs, Ta)
- TAMPA BAY ESTUARINE SEDIMENTS (RARE EARTHS)
- KINETICS OF SODIUM TRANSFER IN DNA (Na)
- EVALUATION OF QUARTZ STOCK PROCESSING (Cl,Ti,F)
- DIELECTRIC (TOPAZ) MATERIAL ORIGINS (Nd, Sm, ...)
- EGYPTIAN AND FLORIDIAN PHOSPHATE ORES (REEs)
- TRACE ELEMENT EVALUATION OF GEOLOGIC QUARTZ (GEOSYNCHRONOMETRY)
- IN-HOUSE STANDARDS CERTIFICATION (USGS vs NBS-NIST)
- BIOGEOCHEMICAL ASSESSMENT OF OIL FIELDS

# **User-Oriented Facility Improvements**

## ● **RABBIT SYSTEM**

- Reimplementation
- Standardized/Increased Capacity
- Improved Reliability
- Improved Radiation/Shielding Control

## ● **NAA LABORATORY**

- PC-based Analyzers/ORTEC Software
- Electronic Balance
- NIST/USGS Standards Availability
- Drying/Sample Preparation Facilities
- User Services/Training

## ● **NEUTRON RADIOGRAPHY FACILITY**

- Nonpermanent Installation
- Darkroom Facilities
- IQI/BPI
- Film Densitometer

## ● **TRAINING PROGRAM DEVELOPMENT**

- Reactor Operations Laboratory
- Health Physics Cooperative Work

## **Planned User-Oriented Improvements**

- **NAA LABORATORY UPGRADE**
  - Instrument/Detector Replacement
  - Implementation of Scintillation Detector Systems
- **NEUTRON RADIOGRAPHY SYSTEM IMPROVEMENTS**
- **IMPLEMENTATION OF FACILITY-BASED PC-BASED ON-LINE DATA ACQUISITION/ANALYSIS SYSTEM**
- **DEVELOPMENT OF PROMPT GAMMA FACILITY**

## Summary Status Report

- FACILITY NEEDS UPGRADE/MODERNIZATION
- USAGE AT HISTORICAL HIGH IN 1988-1990
- DOE IS A KEY SUPPORT SOURCE
  - REACTOR SHARING
  - HEU/LEU CONVERSION
  - TRTR NEWSLETTER
- FACILITY IS A REGIONAL ASSET
- MANY IMPROVEMENTS HAVE BEEN IMPLEMENTED
- MORE IMPROVEMENTS ARE PLANNED
- OPTIMISTIC OUTLOOK



**CURRENT STATUS OF  
R-56 LICENSEE**

- **FULL COMPLIANCE**
- **RECEPTIVE TO REGULATORY REQUESTS**
- **REDUCED ACTIVITY DUE TO PERSONNEL LOSSES**
- **THREE TRAINEES IN LICENSING**
- **ADVERTISED FOR/PLAN TO HIRE NEW MANAGER**