

UNIVERSITY OF FLORIDA TRAINING REACTOR

LICENSE NUMBER: R-56

UPDATED PROPOSAL SUBMITTED TO  
THE NUCLEAR REGULATORY COMMISSION  
TO MEET 10 CFR 50.64 REQUIREMENTS  
FOR UPDATING SCHEDULING OF UFTR CONVERSION  
FROM HEU TO LEU FUEL

Dr. William G. Vernetson  
Director of Nuclear Facilities

March 26, 1993

# **UNIVERSITY OF FLORIDA TRAINING REACTOR FUEL CONVERSION FROM HIGH ENRICHED TO LOW ENRICHED URANIUM FUEL**

## **INTRODUCTION**

This proposal is submitted to the Nuclear Regulatory Commission to meet the requirement that the licensee for the University of Florida Training Reactor (UFTR), as a licensee of a non-power reactor authorized to possess and use high enriched uranium (HEU) fuel shall develop and submit a proposal to replace all HEU fuel possessed under the R-56 license with available low enriched uranium (LEU) fuel acceptable to the Nuclear Regulatory Commission on a schedule determined pursuant to 10 CFR 50.64 Paragraph (c) (2). This proposal addresses the overall process of conversion from initial preparations following receipt of funding to support conversion to final verification, testing, and summary reporting on the converted UFTR. Three primary phases have been identified for control and administration of the overall process of conversion as follows:

- I. Preparation for Conversion.
- II. Conversion (assuming NRC order to convert).
- III. Review and Verification of Conversion.

Table I contains a listing of key activities involved in each phase of the conversion from receipt of funding for conversion from the Department of Energy (DOE) to final submittal of summary reports to DOE and NRC on the conversion.

## **PHASE I: PREPARATION FOR CONVERSION**

Phase I commenced with receipt of funding for conversion from DOE to cover Phase I only. This funding was considered to be certified per the letter contained in Appendix I of the 1987 proposal; this proposal was submitted to the Department of Energy and official

notice of receipt of funding was received with a letter dated November 12, 1987. Because of errors in the contract description provided by DOE, the full approval for receipt of funding was delayed until receipt of the confirming letter dated December 21, 1987. Copies of both letters as well as the 1987 certification letter are enclosed in Appendix I along with documentation showing the extension of the current DOE grant to support Phase I work which has been delayed beyond the original grant period.

Initial efforts in the process to convert the UFTR from use of high enriched to low enriched fuel (HEU-LEU) consisted of preliminary tests and an evaluation to determine whether the SPERT-type fuel available to the R-56 licensee but currently under license SNM-1050 could be qualified for use in the UFTR. Visual and radiographic test results to date were positive in this regard. Unfortunately, equipment failures and the need to move the SPERT (SNM-1050) fuel storage facility impacted the schedule during the 1988 year so the radiographic tests were not completed until April, 1989 along with relicensing the SPERT fuel storage facility. Overall, the results of the radiographic tests of the SPERT fuel were positive showing that the condition of the fuel was such that its integrity was assured. Phase I then continued with activities to justify a fuel selection, either SPERT or silicide, based upon results of prequalification testing of existing SPERT fuel and identifying any modifications in existing reactor systems necessitated by use of the new fuel.

Several previously unconsidered potential complications noted in late 1988 were investigated in 1989. This effort was directed to maintaining and/or improving the UFTR neutronics characteristics while minimizing the overall cost of UFTR conversion. The only two fuels that have been considered are the existing SPERT  $\text{UO}_2$ , stainless steel clad fuel presently under the SNM-1050 license and the newly developed silicide fuel available through the RERTR program at Argonne National Laboratory.

The first choice had been to use the already existing SPERT fuel for which a number of neutronics and thermal-hydraulics analyses are in existence. This would be the cheaper fuel if acceptable since it is already manufactured. However, even after completion of the prequalification program for the qualification tests used to assure the SPERT fuel can meet UFTR requirements without compromising safety, it was necessary to assure this SPERT fuel could be used without requiring costly modifications which could outweigh the low initial cost of SPERT fuel (no manufacturing costs) and have impact on core neutronics per earlier analyses. The Department of Energy was receptive to this evaluation of the two fuels and work in this area progressed well in 1989. Unfortunately, the complexity and cost of potential structural (the SPERT fuel loading would weigh about 2000 pounds versus the present 50 pound core loading), shielding, fuel arrangement and cooling system changes necessitated by use of the SPERT fuel resulted in a milestone decision in August, 1989 not to utilize the SPERT fuel for conversion but rather to utilize the standard plate-type silicide fuel. The anticipated cooling system fuel arrangement and shielding changes potentially necessitated by use of the SPERT fuel were especially strong factors in the decision since space in the UFTR facility is already limited and the facility had been cited for two violations in this area in 1989.

In parallel with selection of the plate type silicide LEU fuel and identification of necessary reactor systems changes, safety analysis were being performed for the selected LEU fuel conversion and associated system changes. Implementation of the neutronics codes to be used was underway during 1989 and several codes had been implemented and run for test cases. Therefore, UFTR conversion calculations were progressing reasonably well until the loss in August, 1989 of the graduate student performing the neutronics cal-

culations as he decided to pursue his advanced degree at another university. Unfortunately, he left with much of his work inadequately undocumented. The unavailability of another qualified student committed to assume this responsibility resulted in further delays. Nevertheless, a student project in Fall, 1989 resulted in some progress in assuring neutronics methodology would be adequate though many calculations had to be updated and repeated due to errors in and poor documentation of the previous work. It was hoped that this individual would remain on the project for his thesis work. This retention effort was successful and the neutronics analyses were able to move forward in 1990.

Several errors due to poor documentation necessitated restarting the safety analysis when the student began work on it in early 1990. Although he spent a period at Argonne National Laboratory working with the RERTR group to receive training in the use of the codes, it still required some time for the student to become proficient in use of the codes in-house. Unfortunately several formatting and other flaws in the implemented codes used for the neutronics analysis also slowed progress in 1990. These were cleared up as part of the work on assuring proper code methodology during 1990.

Early in 1991 a student thesis project had resulted in good progress in assuring the neutronics methodology to be adequate and the necessary "benchmark" modelling of the existing core was nearly complete. Only scoping calculations had been completed for the LEU core with the number of fuel plates per bundle not yet set when the 1991 proposal required by 10 CFR 50.64(c)(2) was submitted. It was expected that DOE-supplied funding support of this work would be extended beyond the April 30, 1991 end date per verbal communications so this work could be concluded along with basic thermal-hydraulic analyses to conclude the required HEU-to-LEU conversion safety analyses. Unfortunately this grant was not officially extended until March, 1992. It was also expected that the individual

working on this neutronics analysis would complete his thesis work by mid-1991. The "benchmark" static calculations on the existing UFTR HEU core were completed and an internal report generated in April, 1991. The individual working on the neutronics analysis completed his thesis work in May, 1991 making his defense on May 10, 1991 but continuing his work until May 23, 1991. After the number of fuel plates per bundle was set at 14 from the neutronics analysis, thermal hydraulics analyses were begun in August, 1991. These analyses had to be completed before the entire analysis package could be assembled for submission to NRC. A graduate assistant had nearly concluded working on the thermal hydraulics area as the 14 plate fuel bundle arrangement had been selected for the conversion in March, 1992. The lack of official grant extension made the financial support of this effort more difficult but a draft report of this thermal hydraulics work was produced in June, 1992 with the final report now complete except for several tables and figures.

A no-cost extension of the Department of Energy Grant DE-FG05-88ER75387 entitled "Conversion of University of Florida Reactor to Low Enriched uranium(LEU)" was submitted to Ms. Ann Rydalch via a letter dated April 25, 1991 with a copy supplied to Keith Brown. The extension was agreed to be until April 30, 1992. Unfortunately, no further information had been received on the no-cost extension until March, 1992 making some plans and efforts difficult to implement. In addition, time consuming efforts have also been in progress with the Department of Energy representatives in Idaho to investigate the possibility of replacing the UFTR core fuel boxes which make reloading and unloading the core difficult and time consuming. DOE representatives even visited the UFTR facility and observed operations as well as reviewed drawings as several days were spent in discussions of how best to proceed. This unexpected work effort has occupied much time and is progressing slowly but a decision not to change the fuel boxes was finally reached in

summer, 1992. Similarly efforts to review fuel drawings and to evaluate the holddown/spreader pin in use in each fuel box has occupied some considerable facility time. This latter effort is now essentially complete.

At this time, work is progressing to incorporate all the analysis completed to date into a single FSAR update to include the Technical Specifications with some kinetics calculations remaining in the neutronics area and the completion of several tables and figures in the final report on thermal hydraulics in progress. This work is expected to be completed by April, 1993. The entire package of results will then be assembled as a Revision to the UFTR Safety Analysis Report by early June, 1993 with the project then expected to progress as indicated in the updated Table II.

As indicated, previous delays had necessitated an extension in the initial DOE grant which had been received as documented in Appendix I with another extension requested and verbally agreed to pick up from April, 1991 to April, 1992 requested as indicated above. Another funding extension is being requested to run forward from April 30, 1992 to assure continuous funding throughout the remainder of the conversion process with a new grant to be required for Phase II. In addition to neutronic and thermal-hydraulic analysis, shielding and effluent analyses will be documented to identify any changes in procedures, security plan, technical specifications or other license documents that must be considered as part of conversion. These should be minimal. This submittal will also contain documentation detailing the various tests and surveillances planned as part of the conversion. At this point a complete set of licensing documents for the conversion will be submitted along with a conversion application for review and approval. This result is now expected by June, 1993. Assuming resolution of all questions, this submittal will conclude the Phase I licensee efforts. Phase I will then conclude with the issuance by the NRC of the



specific Order to Convert.

## **PHASE II. CONVERSION (Assuming NRC Order to Convert)**

Phase II (Conversion) will begin with receipt of the NRC Order directing the conversion and any necessary changes to the license, facility and/or procedures per 10 CFR 50.64(c)(3). This second phase is not yet funded by the existing DOE grant for which an extension will be requested and will include all final tests conducted with the HEU fuel to serve primarily as the basis for later comparison with similar tests with LEU fuel. Phase II will then involve a number of key activities aimed ultimately at having LEU fuel replace HEU fuel at the UFTR facility to include:

1. Shutdown core decay for several weeks followed by core unloading and shipment of irradiated HEU fuel.
2. Qualification of the selected LEU fuel (as applicable).
3. Implementation of required facility changes necessitated for use of LEU fuel; this may involve some changes related to having both HEU and LEU fuel on site simultaneously for a brief time.
4. Receipt of unirradiated LEU fuel.
5. Shipment of irradiated HEU fuel.
6. Documentation of all changes.
7. Completion of all requirements for core loading with LEU fuel followed by loading of the LEU fuel and startup testing to low power.
8. Documentation and record organization for the LEU fuel implementation.

## **PHASE III: REVIEW AND VERIFICATION OF CONVERSION**

Phase III (Review and Verification of Conversion) will consist of a series of activities



designed to verify the quality of the conversion process to include both the physical implementation of the LEU fuel and the documentation of the implementation. Activities in Phase III will include:

1. Completion of startup as well as power testing and related surveillances.
2. Verification and evaluation of UFTR operational characteristics.
3. Review of conversion plan and data for consistency.
4. Approval for return of UFTR to normal operations.
5. Return to normal operations.
6. Submission of Final Report to NRC/DOE summarizing HEU operational conditions and comparing these results with the predictions contained in the Safety Analysis submitted to NRC at the end of Phase I and approved as part of the Order to Convert.

## SUMMARY CONCLUSIONS

As noted earlier, a relatively detailed list of the various elements that must be obtained, produced or otherwise generated as required throughout the three phases of the UFTR conversion from HEU to LEU fuel is presented in Table I. The current plan continues to be to generate as much of the required safety analysis and design work in-house as possible. Only items such as silicide fuel(now the selected fuel) would be designed and manufactured outside the administrative control of the UFTR licensee. At this point, without having identified all required changes, it is not possible to delineate exactly what other external support may be needed. The neutronics and thermal-hydraulics analyses are all being conducted in-house which has necessitated some external support from the RERTR program at Argonne National Laboratory to assure proper code implementation at the University of Florida to carry out the required safety analysis. Work has progressed

slowly with delays due to SPERT fuel inspection delays, graduate student changes and inability to identify qualified graduate students to work on the project for their thesis work up until the last 2-1/2 years when progress on the use of the neutronics methodology was delayed by several code inconsistencies and lack of documentation which have now been corrected. The effort to generate the submittal package is underway and is expected to progress rapidly during April with submittal in June, 1993.

The overall flow diagram for HEU to LEU conversion of the UFTR is presented in Figure 1. Key stages in the three phases, as well as key input items at the various stages, are indicated at each stage. Nevertheless, there is still some uncertainty in the exact plan of events in Phase II such as whether LEU fuel will be accepted on site prior to shipping HEU fuel off site. Another concern is the physical fit of the fuel in the fuel boxes which will necessitate some considerable experimental measurement and verification efforts after this year. These items are now under consideration.

Finally, Table II contains an updated tentative schedule (Revision 7) for the major milestone events in the UFTR conversion process commencing with the notification of receipt of funding effective in November, 1987 and concluding with submittal of a final report to NRC and DOE summarizing the results of the conversion by June, 1995. It should be noted that this schedule is tentative and, as required by 10 CFR 50.64, will be updated yearly. There has been considerable schedule slippage during the past few years. The schedule is also subject to variations caused by availability of replacement fuel or other items involved in required facility changes as well as variations in the level of DOE funding after the first two year period (now extended) for which funding has been received. Other areas which may impact the schedule are the availability of a shipping cask especially for irradiated HEU fuel (we are currently using our HEU fuel at a rate of about 1.5 MW-Days

energy generation per year so it will probably require a fuel cask versus a 6M container though this may depend on the cooling period) and final usage of the UFTR with HEU fuel to provide a basis for comparison of changes in operating characteristics or to meet education, research and service commitments. Within these constraints and conditions, the schedule in Table II is one which the licensee is committed to meeting and which the licensee considers relatively realistic based upon expected resources, and recent progress with neutronics calculations.

Although much of the detail of the conversion process has depended upon the final selection of fuel types, this selection is now finalized, therefore, the information, especially the tentative schedule in Table II provided in this updated proposal, shows that the LEU conversion at the UFTR has progressed during this year although significant delays have occurred during the year again due to requirements to work with student assistants to document completion of the thermal hydraulics calculations and to work with the Department of Energy, EG&G Idaho on fuel design and utilization. In the meantime we lost the individual working on the submittal package in mid year. At this point reactor staff including the Director are planning to complete the package without graduate assistant support which has proven unreliable in supporting this project. The key decisions remaining will involve identification and evaluation of system changes required by the conversion, especially concerning utilization of the existing fuel boxes, shipment of used fuel and delivery of new fuel as well as development and implementation of a test program for both the HEU and LEU cores some of this uncertainty is also involved with the possibility of DOE replacement of UFTR fuel boxes. The schedule will likely be most impacted, however, in the near future by the times required for completing and documenting the safety analysis in a submittal package and perhaps for manufacture of the LEU fuel. The schedule

presented in Table II is considered to be realistic and should be attainable now that the neutronics methodology has been proven acceptable, neutronics calculations are complete for both the HEU and LEU core and thermal hydraulics calculations are also complete except for several relatively minor documentation points. All analyses show the 14 plate LEU fuel bundle is acceptable for the conversion. As a result we should be able to conclude in a few additional months making the proposed schedule for first submittal realistic.

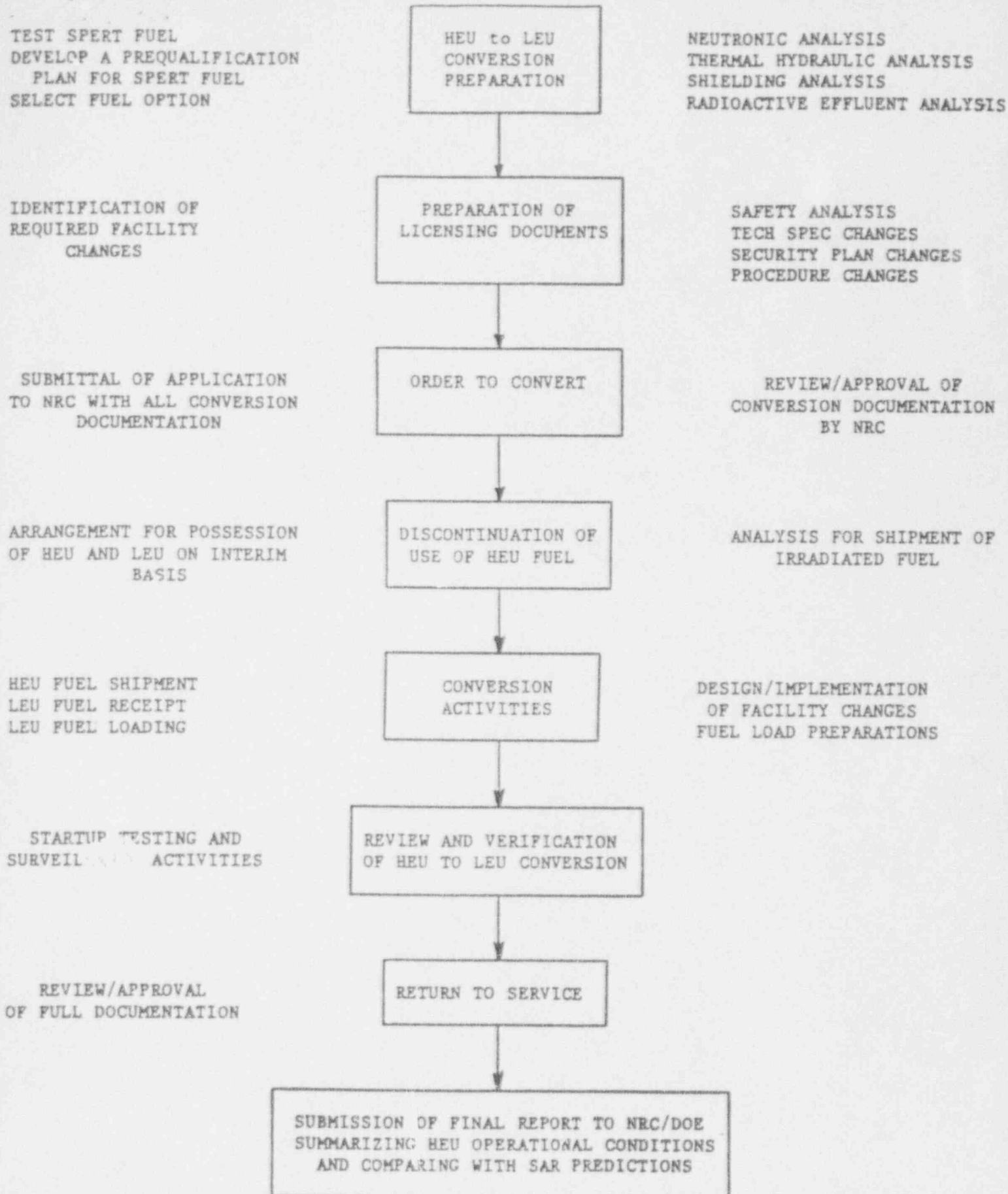


Figure 1. University of Florida Training Reactor HEU to LEU Conversion Flow Diagram

TABLE I

University of Florida Training Reactor  
Key Activities for HEU-to-LEU Fuel Conversion

I. PHASE I - PREPARATION FOR CONVERSION

- A. Receipt of Funding from Department of Energy
- B. Analysis of UFTR-Specific LEU Conversion Options
  - 1. Pretesting of Selected SPERT Fuel Pins
  - 2. Development of a Qualification Program for SPERT Fuel Pins
  - 3. Completion of Pre-Qualification Testing of Spert Fuel
  - 4. Evaluation of Comparative Conversion Options (SPERT VS. SILICIDE)
  - 5. Selection of LEU Fuel Option for UFTR Conversion
- C. Safety Analysis/Licensing Studies
  - 1. Neutronic Analysis of LEU-Fueled UFTR
  - 2. Thermal-Hydraulic Analysis for LEU-Fueled UFTR
  - 3. Shielding Analysis for LEU-Fueled UFTR
  - 4. Radioactive Effluent Analysis as Required
- D. Identification of Changes in the R-56 License, Technical Specifications, Facility, Security Documents and Procedures Under the Scope of 10 CFR 60.64(c)(3) as Necessitated by Fuel Conversion
- E. Preparation of Full Submittal to NRC to Support Conversion Including all Supporting Documents

II. PHASE II - CONVERSION

- A. NRC Order to Convert
- B. Fuel-Related Activities
  - 1. Qualification of Selected LEU Fuel
  - 2. Final UFTR Operations with HEU Fuel
  - 3. Shipment of Irradiated Fuel
  - 4. Receipt of LEU Fuel
- C. Implementation of Required Changes in R-56 License per Item ID.
- D. LEU Fuel Loading Activities
  - 1. Completion of Preparations for Core Load
  - 2. Loading of LEU Fuel
  - 3. Startup Testing and Surveillance
- E. Completion of Startup Documentation

III. PHASE III - REVIEW AND VERIFICATION OF CONVERSION

- A. Completion of Startup Testing and Related Surveillances
- B. Completion of Power Testing and Surveillances
- C. Determination of UFTR Operational Characteristics
- D. Return to Normal Operations
- E. Submission of Final Conversion Report to NRC/DOE

TABLE II

(Revision 7)

University of Florida Training Reactor  
Tentative Milestone Schedule  
for HEU to LEU Fuel Conversion

I.	Effective Date of Receipt of Funding	November, 1987
II.	Date of Full Submittal to NRC of Application to Convert (including all necessary documents)	June, 1993
III.	Date of NRC Order to Convert	September, 1993
	A. Date of Completion of All Plans to Convert	May, 1994
	B. Date of Receipt of LEU Fuel	July, 1994
	C. Date of Completion of Any Final Tests With HEU Fuel	October, 1994
	D. Date of Removal of HEU Fuel	December, 1994
	E. Date of Shipment of HEU Fuel	March, 1995
	F. Date of Loading of LEU Fuel	May, 1995
	G. Date of Completion of Determination of Initial Operational Parameters With LEU (Startup and Power Operations Testing)	August, 1995
	H. Date of Submittal of Report to NRC/DOE Summarizing New Operational Characteristics and Comparing With Predictions of Safety Analysis	October, 1995



## APPENDIX I

LETTERS OF NOTIFICATION THAT  
FEDERAL GOVERNMENT FUNDING FOR  
UFTR CONVERSION IS AVAILABLE AND  
HAS BEEN RECEIVED FROM THE  
DEPARTMENT OF ENERGY

U.S. DEPARTMENT OF ENERGY  
 NOTICE OF FINANCIAL ASSISTANCE AWARD

under the authority of Public Law 95-91 DEPARTMENT OF ENERGY ORGANIZATIONAL ACT

and

subject to legislation, regulations and policies applicable to (cite legislative program title):  
 CONVERSION OF UNIVERSITY REACTOR

1. PROJECT TITLE LEU FUEL CONVERSION		2. INSTRUMENT TYPE X GRANT COOPERATIVE AGREEMENT	
3. RECIPIENT (Name, address, zip code, area code & telephone no.) UNIVERSITY OF FLORIDA 225 GRINTER HALL GAINESVILLE, FLORIDA 32611		4. INSTRUMENT NO. DE-PG07-88ER75387	5. AMENDMENT NO. NONE
6. BUDGET PERIOD FROM: 11/15/89 THRU: 04/30/92		7. PROJECT PERIOD FROM: 11/15/87 THRU: 04/30/92	
8. RECIPIENT PROJECT DIRECTOR (Name and telephone No.) WILLIAM G. VERNETSON (904) 392-1408		9. TYPE OF AWARD NEW CONTINUATION RENEWAL X REVISION SUPPLEMENT	
10. RECIPIENT BUSINESS OFFICER (Name and telephone No.) BILLARD C. MARSHALL (904) 392-1582		11. ADMINISTERED FOR DOE BY (Name, address, zip, telephone No.) (TO BE ASSIGNED) U.S. DEPARTMENT OF ENERGY CHICAGO FIELD OFFICE 9800 SOUTH CASS AVENUE ARGONNE, ILLINOIS 60439	

12. RECIPIENT TYPE		13. EMPLOYER I.D. NUMBER/SSN	
STATE GOV'T	INDIAN TRIBAL GOV'T	HOSPITAL	FOR PROFIT ORGANIZATION
LOCAL GOV'T	X INSTITUTION OF HIGHER EDUCATION	OTHER NONPROFIT ORGANIZATION	C P SP
		INDIVIDUAL OTHER (Specify)	

14. ACCOUNTING AND APPROPRIATIONS DATA				15. EMPLOYER I.D. NUMBER/SSN
a. Appropriation Symbol	b. B & R Number	c. FT/APP/OC	d. CFA Number	87081002
N/A	N/A	N/A	N/A	

16. BUDGET AND FUNDING INFORMATION			
a. CURRENT BUDGET PERIOD INFORMATION		b. CUMULATIVE DOE OBLIGATIONS	
1) DOE Funds Obligated This Action	\$ 0	(1) This Budget Period	\$ 0
2) DOE Funds Authorized for Carry Over	\$ 0	(Total of lines a.(1) and a.(3))	
3) DOE Funds Previously Obligated in this Budget Period	\$ 85957	(2) Prior Budget Periods	\$ 169431
4) DOE Share of Total Approved Budget	\$ 85957	(3) Project Period to Date	\$ 169431
5) Recipient Share of Total Approved Budget	\$ 0	(Total of lines b.(1) and b.(2))	
6) Total Approved Budget	\$ 85957		

7. TOTAL ESTIMATED COST OF PROJECT \$ 169431  
 This is the current estimated cost of the project. It is not a promise to award nor an authorization to expend funds in this amount.

8. AWARD/AGREEMENT TERMS AND CONDITIONS  
 This award/agreement consists of this form plus the following:  
 a. Special terms and conditions (if grant) or schedule, general provisions, special provisions (if cooperative agreement)  
 b. Applicable program regulations (specify) N/A  
 c. DOE Assistance Regulations, 10 CFA Part-600, as amended, Subparts A and X B(Grants) or C(Cooperative Agreements)  
 d. Application/proposal dated November 17, 1989, X as submitted with changes as negotiated

9. REMARKS  
 THE PURPOSE OF THIS AMENDMENT IS TO TRANSFER THIS GRANT FROM THE U.S. DEPT. OF ENERGY, IDAHO FIELD OFFICE, IDAHO FALLS, IDAHO, TO THE U.S. DEPT. OF ENERGY, CHICAGO FIELD OFFICE, ARGONNE, ILLINOIS. THE EFFECTIVE DATE OF TRANSFER IS 2/29/92.

10. EVIDENCE OF RECIPIENT ACCEPTANCE		11. AWARDED BY	
(Signature of Authorized Recipient Official)	(Date)	(Signature)	(Date)
		VIRGINIA L. SANDWICH	2-25-92
(Name)			
(Title)		CONTRACTING OFFICER	
		(Title)	



Department of Energy

Oak Ridge Operations  
Post Office Box E  
Oak Ridge, Tennessee 37831

205 NOV 17 1987

MR

November 12, 1987

Mr. Dillard C. Marshall  
Assistant Director  
Office of Research Administration  
University of Florida  
Gainesville, FL 32611

Dear Mr. Marshall:

GRANT NO. DE-FG05-88ER75387 - AMENDMENT NO. A000

Enclosed are two copies of the subject grant document which have been signed on behalf of the Department of Energy.

If this document is satisfactory, please have the two enclosed copies signed by the proper official on behalf of your organization and return one fully executed copy to this office. The remaining fully executed copy is for your retention.

In addition, please have executed the enclosed Assurance of Compliance - Nondiscrimination in Federally Assisted Programs, and return the signed original to this office together with the executed copy of the grant and a completed Form DOE-538, Notice of Energy RD&D Project. Please return two copies of the DOE-538.

Sincerely,

Charles D. Crowe  
Contracting Officer  
Contract Management Branch  
Procurement & Contracts Division

AD-423:Lyle

Enclosures:

1. Grant (2 cys.)
2. Assurance of Compliance
3. DOE 538 (3 cys)





Department of Energy

Oak Ridge Operations  
Post Office Box E  
Oak Ridge, Tennessee 37831

December 21, 1987

RECEIVED DEC 27 1987

Dr. William G. Vernetson  
Director of Nuclear Facilities  
College of Engineering  
University of Florida  
Gainesville, FL 32611

Dear Dr. Vernetson:

GRANT NO. DE-FG05-88ER75387 (REVISED PROJECT DESCRIPTION)

In response to telephone conversations with you and with Keith Brown at Argonne, enclosed is a revised project description for your grant from the Department of Energy to cover cost of the conversion from HEU to LEU fuel in University of Florida's training reactor. I apologize for the confusion and delay in this revision reaching you.

Please substitute the attached Part II, Project Description and Reporting Requirements, for the one transmitted to Dillard Marshall on November 12, 1987, and have Mr. Marshall sign the award and return an original to us as soon as possible. You will not be able to draw down any money from Letter of Credit on this award until the original copy is returned to us.

Thank you for calling our attention to the fact that your award is different from the other reactor fuel conversion awards the Department of Energy has.

Sincerely,

*Martha A. Lyle*

Martha A. Lyle  
Contract Specialist  
Contract Management Branch  
Procurement and Contracts Division

AD-423:Lyle

Enclosure:  
Part II of Grant DE-FG05-88ER75387

cc: Dillard C. Marshall, Asst. Dir.  
Research Administration  
University of Florida  
223 Grinter Hall  
Gainesville, FL 32611





**Department of Energy**

Idaho Operations Office  
785 DOE Place  
Idaho Falls, Idaho 83402

December 19, 1989

205 DEC 20 '89

ML

Mr. Dillard C. Marshall  
University of Florida  
223 Grinter Hall  
Gainesville, Florida 36211

SUBJECT: Grant No. DE-FG07-88ER75387

Dear Mr. Marshall:

We are enclosing three copies of the subject grant which have been signed on behalf of DOE. Please have all three copies signed by an authorized official and return two fully executed copies to this office within two weeks from the date of this letter. The third fully executed copy is for your retention.

Should you have any questions, please contact Ann Rydalch on (208) 526-9617.

Sincerely,

A handwritten signature in cursive script, reading "Trudy A. Thorne", is positioned above the typed name.

Trudy A. Thorne  
Contract Specialist  
Financial Assistance Branch

Enclosure

UNIVERSITY OF FLORIDA  
OFFICIAL AWARD ACCEPTANCE

DATE PRINTED: 12/21/89

NOTIFICATION OF ACCEPTANCE (NOA) FOR THE PRESIDENT  
OF THE UNIVERSITY OF FLORIDA, ACTING ON BEHALF OF  
THE BOARD OF REGENTS

QUESTIONS - PLEASE CONTACT THE UF DIVISION  
SPONSORED RESEARCH, AWARD ADMINISTRATION  
205 GRINTER HALL, 392-1582

TITLE: PROPOSAL FOR GOV'T SUPPORT TO COVER COST OF UFTR CONVERSION  
FROM HEU TO LEU FUEL

ADMINISTRATIVE DATA

UPN#: 87081002 RELATED UPN#: (F048)  
AGENCY: U S DEPT OF ENERGY  
DIVISION: DE-PG05-88ER75387  
AGENCY NO: DE-PG05-88ER75387  
TYPE: ☐ NEW (N) ☐ CONTINUATION (C)  
☐ RENEWAL (R) ☐ SUPPLEMENTAL (S)  
☒ EXTENSION ☐ REVISED  
CATEGORY: ☒ RESEARCH (R) ☐ TRAINING (T)  
☐ OTHER (O)  
PROGRAM: ☐ CONTRACT (C) ☐ PUR. ORDER (P)  
☐ COOP. AGREE (A) ☐ SPA (S)  
☐ MEMO OF UND (M) ☒ GRANT (G)  
TEMP: ☐ C.V. RANTEED BY:                       
PEPM: ☐ SUPERSEDES:                       
BUDG BEG: 11/15/87 BUDG END: 04/30/91  
PROJ BEG: 11/15/87 PROJ END: 04/30/91  
PROJECT PERIOD #: 87081002  
FUNDS RESTRICTED ☒ YES ☐ NO  
HISTORY UPN#: 87081002 FLA DEMO PROJ: N

AWARD DATE: 01/05/88  
P.I.: VERNETSON W G  
SSN: 216-44-9124  
COLL: EIES - ENGINEERING  
DEPT: NUCLEAR ENGINEERING SCIENCES  
CO-PI:                       
SSN:                       
COLL:                       
DEPT:                       
HEGIS #: 210920  
HUMAN SUBJECTS APPROVAL #:                       
HS APPROVAL EXPIRES:                       
LAB ANIMAL APPROVAL #:                       
RECOMBINANT DNA/RNA:                      BIOHAZARDS  
PROPRIETARY/CONFIDENTIAL:                       
SUBCONTRACTOR: UF  
PRIME NAME:                       
NO:                       
OTHER:                     

COST DATA

APPLICABLE INDIRECT COST WILL ACCRUE TO THE UNIT(S) AS SPECIFIED ON PROPOSAL.

DUAL INVOLVEMENT:                     

IDC RETURN CODE: Y

ON-CAMPUS  
ACCOUNT NO: 450912612  
DIRECT AMOUNT: \$ NO COST EXT  
INDIRECT AMOUNT: \$ -0-  
RATE 45.0% BASE MTD  
TOTAL AMOUNT: \$ NO COST EXT  
COST SHARING REQUIRED: \$                     

OFF-CAMPUS  
ACCOUNT NO:                       
DIRECT AMOUNT: \$                       
INDIRECT AMOUNT: \$                       
RATE:                      BASE:                       
TOTAL AMOUNT: \$                       
COST SHARING REQUIRED: \$                     

TOTAL FUNDING OF THIS AWARD: \$ NO COST EXT  
TOTAL COST SHARING OF THIS AWARD: \$                       
UNRECOVERED INDIRECT COST: \$                       
CUMULATIVE PROJECT FUNDING: \$ 169,431.00  
CFDA #:                     

REMARKS

DEPT CONTACT: EIES  
ADDRESS:                     

Dillard C. Marshall  
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