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POLICY ISSUE
(Information)

SECY-90-402

December 12, 1990

For: The Commissioners

From: James M. Taylor
Executive Director for Operations

Subject: ORDER MODIFYING LICENSE TO CONVERT FROM HIGH-ENRICHED
TO LOW-ENRICHED URANIUM FUEL (IOWA STATE UNIVERSITY)

Purpose: To inform the Commission of a conversion order issued pursuant
to 10 CFR Section 2.204 to require compliance with 10 CFR 50.64,
which requires that non-power reactors convert from high-enriched
to low-enriched uranium (LEU) fuel.

Background: On May 27, 1986, 10 CFR 50.64, "Limitations on the Use of Highly
Enriched Uranium (HEU) in Domestic Non-Power Reactors," became
effective. This regulation is applicable to all NRC-licensed
non-power reactors, including three reactors owned by commercial
entities, one reactor owned by the National Institute of
Standards and Technology (NIST), and those reactors owned by
universities. In part, the regulation requires conversion from
the use of high-enriched to low-enriched uranium fuel, provided
suitable fuel and funding are available through the U.S.
Department of Energy (DOE) or another appropriate Federal agency.

Discussion: In accordance with COMLZ-87-43, wherein the Commission requested
that NRR inform it of subsequent conversion orders, we have
enclosed the order that NRR issued for the conversion of the
reactor licensed to the Iowa State University. The required
30-day period for request of hearing has expired without a
request being filed.

The staff has informed the Commission when orders to convert
from HEU to LEU have been issued in SECY-87-171 (Rensselaer
Polytechnic Institute), SECY-89-011 (Ohio State University and
Worcester Polytechnic Institute), and SECY-90-184 (Manhattan
College).

NOTE: TO BE MADE PUBLICLY AVAILABLE
IN 10 WORKING DAYS FROM THE
DATE OF THIS PAPER

CONTACT:
T. Michaels, NRDE/NRR
49-21102

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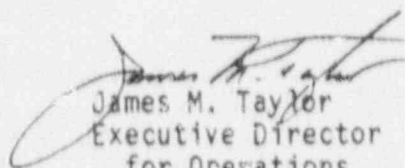
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Rensselaer Polytechnic Institute, Ohio State University and Worcester Polytechnic Institute are operating with LEU. The orders for Manhattan College and Iowa State University will become effective when the fuel is received. For Manhattan College, the fuel is expected to be received in January 1991, and for Iowa State University, the fuel is expected to be received in May 1991. In SECY-90-184, the staff summarized the status of HEU to LEU conversion.

Coordination: The Office of the General Counsel has reviewed this paper and has no legal objection to it.


James M. Taylor
Executive Director
for Operations

Enclosure:
Order Modifying License
for Iowa State University

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of)	
IOWA STATE UNIVERSITY)	Docket No. 50-116
(Iowa State University)	Facility Operating License No. R-59
Argonaut-Type Training Reactor)	Amendment No. 8

ORDER MODIFYING LICENSE

I.

Iowa State University (the licensee) is the holder of Facility Operating License No. R-59 (the license) issued on October 16, 1959, and subsequently renewed on October 21, 1983, by the U.S. Nuclear Regulatory Commission (the Commission). The license authorizes operation of the Iowa State University Argonaut-Type Training Reactor (the facility) at a power level of up to 10 kilowatts (kw) (thermal). The facility is a training reactor located in Ames, Iowa, and is contained in the Nuclear Engineering Laboratory, which is located on the west edge of the main campus of Iowa State University. The mailing address is Nuclear Engineering Department, Iowa State University, 261 Sweeney Hall, Ames, Iowa 50010.

II.

On February 25, 1986, the Commission promulgated a final rule in Section 50.64 of Title 10 of the Code of Federal Regulations (10 CFR) limiting the use of high-enriched uranium (HEU) fuel in domestic research and test reactors (non-power reactors) (see 51 FR 6514). The rule, which became effective on March 27, 1986, requires that each licensee of a non-power reactor replace HEU fuel at its facility with low-enriched uranium (LEU) fuel acceptable

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to the Commission (1) unless the Commission has determined that the reactor has a unique purpose and (2) contingent upon Federal Government funding for conversion-related costs. The rule is intended to promote the common defense and security by reducing the risk of theft and diversion of HEU fuel used in non-power reactors and the adverse consequences to public health and safety and the environment from such theft or diversion.

Sections 50.64(b)(2)(i) and (ii) require that a licensee of a non-power reactor (1) not initiate acquisition of additional HEU fuel, if LEU fuel that is acceptable to the Commission for that reactor is available when the licensee proposes that acquisition, and (2) replace all HEU fuel in its possession with available LEU fuel acceptable to the Commission for that reactor, in accordance with a schedule determined pursuant to 10 CFR 50.64(c)(2).

Section 50.64(c)(2)(i) of the rule, among other things, requires each licensee of a non-power reactor, authorized to possess and to use HEU fuel, to develop and to submit to the Director of the Office of Nuclear Reactor Regulation (Director) by March 27, 1987, and at 12-month intervals thereafter, a written proposal (proposal) for meeting the rule's requirements.

Section 50.64(c)(2)(i) also requires the licensee to include the following in its proposal: (1) a certification that Federal Government funding for conversion is available through the U.S. Department of Energy (DOE) or another appropriate Federal agency and (2) a schedule for conversion, based upon availability of fuel acceptable to the Commission for that reactor and upon consideration of other factors such as the availability of shipping casks, implementation of arrangements for the available financial support, and reactor usage.

Section 50.64(c)(2)(iii) requires the licensee to include in its proposal, to the extent required to effect conversion, all necessary changes to the license, to the facility, and to the licensee's procedures (all three types of changes hereafter called modifications). This paragraph also requires the licensee to provide supporting safety analyses so as to meet the schedule established for conversion.

Section 50.64(c)(2)(iii) also requires the director of the Commission's Office of Nuclear Reactor Regulation (NRR) to review the licensee's proposal, to confirm the status of Federal Government funding, and to determine a final schedule, if the licensee has submitted a schedule for conversion.

Section 50.64(c)(3) requires the Director of NRR to review the licensee's supporting safety analyses and to issue an appropriate enforcement order directing both the conversion and, to the extent consistent with protecting the public health and safety, any necessary modifications. In the statement of considerations of the final rule, the Commission explained that in most cases, if not all, the enforcement order would be an order to modify the license under 10 CFR 2.204 (see 51 FR 6514).

Section 2.204 provides, among other things, that the Commission may modify a license by issuing an amendment on notice to the licensee that it may demand a hearing with respect to any part or all of the amendment within 20 days from the date of the notice or such longer period as the notice may provide. The amendment will become effective on the expiration of this 20-day-or-longer period. If the licensee requests a hearing during this period, the amendment will become effective on the date specified in an order made after the hearing.

Section 2.714 states the requirements for a person whose interest may be affected by any proceeding to initiate a hearing or to participate as a party.

III.

On November 28, 1988, the Director of NRR received the licensee's proposal, including its proposed modifications, supporting safety analyses, and schedule for conversion. The conversion consists of replacement of high-enriched with low-enriched uranium fuel elements. The fuel elements contain materials testing reactor (MTR)-type fuel plates, with the fuel meat in the form of uranium silicides dispersed in an aluminum matrix. These plates contain an enrichment of less than 20 percent with the U-235 isotope. The Attachment to this Order includes the changes to the licensing conditions and technical specifications that are needed to amend the facility license. Based on the licensee's submittals and the requirements of 10 CFR 50.64, I have determined that the public health and safety and the common defense and security require the licensee to convert the facility from the use of HEU to LEU fuel pursuant to the modifications stated in the Attachment in accordance with the schedule included herein following.

IV.

Accordingly, pursuant to Sections 51, 53, 57, 101, 104, 161b., 161i., and 161o. of the Atomic Energy Act of 1954, as amended, and to the Commission's regulations in 10 CFR 2.204 and 50.64, IT IS HEREBY ORDERED THAT:

On the later date of either receipt of low-enriched uranium fuel elements

by the licensee or 30 days following the date of publication of this Order in the FEDERAL REGISTER Facility Operating License No. R-59 is modified by amending the license conditions and technical specifications as stated in the Attachment to this Order.

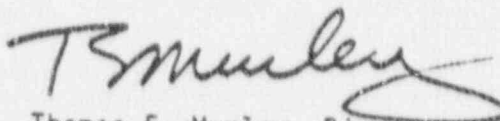
V.

Pursuant to the Atomic Energy Act of 1954, as amended, the licensee or any other person adversely affected by this Order may request a hearing within 30 days of the date of this Order. Any request for a hearing shall be submitted to the Director, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Assistant General Counsel for Hearings and Enforcement at the same address. If a person other than the licensee requests a hearing, that person shall set forth with particularity in accordance with 10 CFR 2.714 the manner in which the person's interest is adversely affected by this Order.

If a hearing is requested by the licensee or a person whose interest is adversely affected, the Commission shall issue an order designating the time and place of any hearing. If a hearing is held, the issue to be considered at such hearings is whether this Order should be sustained.

This Order shall become effective on the later date of either the receipt of low-enriched uranium fuel elements by the licensee or 30 days following the date of publication of this Order in the FEDERAL REGISTER or, if a hearing is requested, on the date specified in an order following further proceedings on this Order.

FOR THE NUCLEAR REGULATORY COMMISSION



Thomas E. Murley, Director
Office of Nuclear Reactor Regulation

Dated at Rockville, Maryland
this 12 day of September 1990

Attachments:
As stated