

January 25, 2006

Dr. Steven L. Ceccio
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Michigan Memorial Laboratory
2301 Bonisteel Boulevard
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Ann Arbor, MI 48109

SUBJECT: UNIVERSITY OF MICHIGAN - ENVIRONMENTAL ASSESSMENT RE:
FORD NUCLEAR REACTOR - AMENDMENT DECOMMISSIONING PLAN
(TAC NO. MC8931)

Dear Dr. Ceccio:

Enclosed is a copy of the Environmental Assessment and Finding of No Significant Impact related to your application for amendment of Facility Operating License No. R-28 for the University of Michigan Ford Nuclear Reactor (FNR) submitted on June 18, 2004. The proposed amendment would approve the decommissioning plan for the University of Michigan FNR.

The assessment is being forwarded to the Office of the Federal Register for publication.

Sincerely,

/RA/

Patrick J. Isaac, Project Manager
Research and Test Reactors Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-02
License No. R-28

Enclosure: Environmental Assessment

cc w/enclosure: Please see next page

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University of Michigan

Docket No. 50-02

cc:

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Test, Research, and Training Reactor Newsletter
University of Florida
202 Nuclear Sciences Center
Gainesville, FL 32611

UNITED STATES NUCLEAR REGULATORY COMMISSIONUNIVERSITY OF MICHIGANDOCKET NO. 50-02UNIVERSITY OF MICHIGAN FORD NUCLEAR REACTORENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering the issuance of a license amendment to Facility Operating License No. R-28, issued to the University of Michigan (UM or the licensee), that would allow decommissioning of the UM Ford Nuclear Reactor (FNR) located at the North Campus in Ann Arbor, Washtenaw County, Michigan.

ENVIRONMENTAL ASSESSMENTIdentification of the Proposed Action

By letter dated June 18, 2004, the licensee submitted a decommissioning plan in accordance with Title 10 of the Code of Federal Regulation Part 50.82(b)(5) (10 CFR 50.82(b)(5)) in order to dismantle the 2 megawatts thermal (MWt) FNR, to dispose of its component parts and radioactive material, and to decontaminate the facility in accordance with the proposed dismantling plan to meet the Commission's unrestricted release criteria. After the Commission verifies that the release criteria have been met, Facility Operating License No. R-28 would be terminated. The licensee submitted an Environmental Report on June 18, 2004, that addressed the estimated environmental impacts resulting from decommissioning the UM FNR.

A "Notice and Solicitation of Comments Pursuant to 10 CFR 20.1405 and 10 CFR 50.82(b)(5) Concerning Proposed Action to Decommission the University of Michigan Ford Nuclear Reactor (FNR)" was published in the FEDERAL REGISTER on September 8, 2004 (69 FR 54326). No comments were received during the comment period.

Need for the Proposed Action

The proposed action is necessary to permanently cease operations of UM FNR. The licensee needs this license change because it no longer plans to conduct licensed activities at the UM FNR. As specified in 10 CFR 50.82, any licensee may apply to the Nuclear Regulatory Commission for authority to surrender a license voluntarily and to decommission the affected facility. Additionally, 10 CFR 51.53(d) stipulates that each applicant for a license amendment to authorize decommissioning of a production or utilization facility shall submit with its application an environmental report that reflects any new information or significant environmental change associated with the proposed decommissioning activities. Upon completion of the decommissioning activities, UM is planning to use the area that would be released for other academic purposes.

Environmental Impact of the Proposed Action

Residual radioactive contamination resulting from past reactor operations is contained in the FNR facility. All decontamination will be performed by trained personnel in accordance with previously reviewed procedures, and will be overseen by experienced health physics staff. Solid and liquid waste will be removed from the facility and managed in accordance with NRC regulations. The operations are calculated to result in a total occupational radiation exposure of about 4.8 person-rem. Radiation exposure to the general public during decommissioning is expected to be negligible. This will be accomplished by keeping the public at a safe distance and by meeting NRC requirements for effluent releases during decommissioning.

Occupational and public exposure may result from offsite disposal of the low-level residual radioactive material from the FNR. The handling, storage, and shipment of this radioactive material are to meet the requirements of 10 CFR 20.2006, "Transfer for Disposal and Manifest," and 49 CFR Parts 100-177, "Transportation of Hazardous Materials." It is

anticipated that about 112 ft³ of irradiated hardware will be shipped during one truck shipment in Type B shipping casks to a waste processor. A volume of 11,000 ft³ of other waste in strong tight containers will be shipped during 27 truck shipments to the Envirocare of Utah facility. Included in the other waste shipment is mixed waste consisting primarily of activated and/or contaminated lead with a volume of 43 ft³ and cadmium with a volume of 1 ft³. Radiation exposure to the general public during waste shipments is expected to be negligible. In addition, Liquid waste that is generated during the decommissioning activities will be released to the environment in accordance with the regulations in 10 CFR Part 20, Subpart K, "Waste Disposal," or will be solidified and disposed of as solid waste in accordance with state and Federal guidelines.

The licensee analyzed accidents applicable to decommissioning activities. These accidents involve inhalation of hazardous or radioactive materials, confined space issues, heavy equipment movement, external radiation exposure, and dermal contact with radioactive and hazardous materials. To minimize the risk from identified hazards, procedures and conformance with FNR license and regulatory requirements will be used.

Based on the review of the specific proposed activities associated with the dismantling and decontamination of the UM FNR facility, the staff has determined that the proposed action will not increase the probability or consequences of accidents, change any effluents that may be released off site, and cause any significant increase in occupational or public radiation exposure. Therefore, the staff concludes that there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential non-radiological impacts, the proposed action does not involve any historic sites. In addition to the lead and cadmium discussed above, asbestos is present at the UM FNR facility. Asbestos will be removed by a licensed asbestos abatement contractor. Decommissioning activities will not affect non-radiological facility effluents and have no other

environmental impact. The licensee states that there are no significant plant communities and no wetlands within the site.

There are three species listed as threatened or endangered under the Federal ESA within Washtenaw County. These are Indiana bat (*Myotis sodalis*), the Mitchell's satyr butterfly (*Neonympha mitchellii mitchellii*), and the Eastern prairie fringed orchid (*Platanthera leucophaea*). There are no records of any of these three species on the UM FNR site. Therefore, the staff concludes that there are no significant non-radiological environmental impacts associated with the proposed action. Accordingly, the NRC staff concludes that there are no significant environmental impacts associated with the proposed action.

Alternatives to the Proposed Action

The licensee has proposed to use the DECON alternative for the UM FNR facility. The DECON alternative is where the equipment, structures, and portions of the facility containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use. As a first alternative to the proposed DECON method, SAFSTOR will be used. In SAFSTOR, the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use. As a second alternative, the ENTOMB alternative is where radioactive contaminants are encased in a structurally long-lived material, such as concrete; the entombed structure is appropriately maintained; and continued surveillance is carried out until the radioactivity decays to a level permitting release of the property for unrestricted use.

The SAFSTOR, ENTOMB, and no-action alternatives would entail continued surveillance and physical security measures to be in place and continued monitoring by licensee personnel. The SAFSTOR and no-action alternatives would also require continued maintenance of the facility. The radiological impacts of SAFSTOR would be less than the

DECON option because of radioactive decay prior to the start of decommissioning activities. However, this option involves the continued use of resources during the SAFSTOR period. The ENTOMB option would also result in lower radiological exposure than the DECON option but would involve the continued use of resources. UM FNR has determined that the proposed action (DECON) is the most efficient use of the existing facility, since it proposes to use the space that will become available for other academic purposes. These alternatives would have no significant environmental impact. In addition, the regulations in 10 CFR 50.82(b)(4)(i) only allow an alternative if it provides for completion of decommissioning without significant delay.

Alternative Use of Resources

This action does not involve the use of any resources not previously considered in the Environmental Report submitted on June 18, 2004, for the UM FNR facility.

Agencies and Persons Contacted

In accordance with the NRC staff's stated policy, on November 22, 2005, the NRC staff consulted with the Michigan State official, Chris Antieau, Department of Environmental Quality, Land and Water Management Division, regarding the environmental impact of the proposed action on the Coastal Zone Management Act. The state official stated that he concurred with the environmental assessment and had no comments. In addition, the staff contacted U.S. Fish and Wildlife Service (FWS) regarding the environmental impact of the proposed action to threatened or endangered species. The FWS provided the NRC staff with a list of threatened and endangered species to assist the NRC staff to determine if the UM FNR proposed action would cause any environmental impact in reference to the Endangered Species Act. On December 2, 2005, the NRC staff also consulted with the Michigan State Official, Robert D. Skowronek, Department of Environmental Quality, Waste and Hazardous Materials Division. Mr. Skowronek had no comments.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated June 18, 2004, which is available for public inspection, and can be copied for a fee, at the U.S. Nuclear Regulatory Commission's Public Document Room (PDR), located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland. The NRC maintains an Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents. These documents may be accessed through the NRC's Public Electronic Reading Room on the internet at <http://www.nrc.gov>. Persons who do not have access to ADAMS or who have problems in accessing the documents located in ADAMS may contact the PDR reference staff at 1-800-397-4209, 301-415-4737 or by email at pdr@nrc.gov.

Dated at Rockville, Maryland, this day of

FOR THE NUCLEAR REGULATORY COMMISSION

Brian E. Thomas, Branch Chief
Research and Test Reactors Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation