

July 6, 2006

Mr. Walter L. Cox, III, Manager
Radioactive Materials Branch
Radiation Protection Section
Department of Environment & Natural Resources
3825 Barrett Drive
Raleigh, NC 27609-7221

Dear Mr. Cox:

This letter discusses the issue of Agreement State and U. S. Nuclear Regulatory Commission (NRC) jurisdiction over the use of a reactor pool to store radiation sources and use them as an irradiator. This issue arose over a year ago when a research reactor proposed this to the NRC project manager for its reactor facility. You raised this issue when the North Carolina State University (University) brought the proposal to your staff.

After careful consideration and review, we have concluded that the activities carried out in the reactor pool, regardless of the material involved, are under the jurisdiction of the NRC. Therefore, if the University desires to pursue the use of its reactor pool for such purposes, it should submit an amendment request with the appropriate supporting information to its NRC reactor project manager.

Enclosed is a brief description of the basis for our determination. If you have any questions on our determination or the enclosed material, please contact me at 301-414-3340 or Mr. Dennis Sollenberger at 301-415-2819.

Sincerely,

/RA/

Janet R. Schlueter, Director
Office of State and Tribal Programs

Enclosure:
As stated

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NRC/AGREEMENT STATE JURISDICTION
OVER WET IRRADIATORS
LOCATED IN RESEARCH REACTOR POOLS

PURPOSE:

This document sets out the basis for the U.S. Nuclear Regulatory Commission's (NRC) determination regarding licensing a wet pool irradiator located in a research reactor pool.

BACKGROUND:

The North Carolina (NC) Agreement State Program has notified the NRC that the North Carolina State University (University) desired to relocate a 10,000 Curie (Ci) wet irradiator from the University of Michigan to be placed and operated in its research reactor pool. The irradiator would be used for research purposes. The State of NC is prepared to issue the University a license based on its regulations equivalent to 10 CFR Part 36, including any specific conditions required by NRC to place the wet irradiator in the reactor pool.

The University's reactor staff also contacted the NRC's research reactor staff and inquired about how this type of arrangement could be implemented. This type of licensing has been done in the past by issuing specific license conditions for the 10 CFR Part 50 licensee to ensure that the wet irradiator would not interfere with the reactor operations, (this has been done at the University of Massachusetts/Lowell Research Reactor). In that situation, both the reactor and the byproduct materials were licensed by NRC when initially licensed. In the current case, in NC, the research reactor is licensed by NRC and the wet irradiator, if not located in the research reactor pool, would be licensed by the State.

DISCUSSION/ANALYSIS:

The placement of a wet irradiator in a research reactor pool (licensed by NRC) in an Agreement State raises the following questions, which are responded to in turn:

1. Can NRC license such an operation under its Part 50 license for the research reactor located in an Agreement State?

The NRC jurisdiction for a reactor includes the Price-Anderson (P-A) indemnity area. For a research reactor, the P-A area may vary but would cover the reactor pool. The 10 CFR Part 50 license covers the source, byproduct and special nuclear material that is related to reactor operations. The management of the byproduct material in the irradiator sources could adversely affect the reactor operations and the material would be located in the P-A area. Therefore, the NRC would need to control the wet irradiator under the 10 CFR Part 50 license. This reservation of authority is covered within reactor operations under 10 CFR 150.15(a)(1). The statutory basis for the reservation of authority in § 150.15(a)(1) is provided in Section 274c of the Atomic Energy Act (AEA) of 1954, as amended, which states "No agreement ... shall provide for discontinuance of any authority and the Commission shall retain authority and responsibility with respect to regulation of (1) the construction and operation of any production or utilization facility ..."

2. If the university is in an Agreement State, does the State license the irradiator even when it is located in the research reactor pool?

No. See answer to (1) above. The NRC would work with the Agreement State to ensure that the irradiator operations are acceptable to the Agreement State and consistent with the State regulations for wet irradiators (which must be compatible with NRC's irradiator regulations).

3. Is there any jurisdictional issue with the State licensing the irradiator in the reactor pool if the State and NRC agree on the conditions to be put on the irradiator and the Technical Specifications for the research reactor?

Yes. See answer to (1) above.

4. Are there any potential conflicts between the security requirements for research reactors and irradiators less than 10,000 Ci of Co-60?

There will not be any conflicts since the security objective is the same for both types of facilities. The staff believes that the security measures for the research reactor are sufficient to address the security concerns for pool irradiators (<10,000 Ci), that are co-located in the reactor pool.

5. If the NRC has already licensed an irradiator in a research reactor pool under NRC jurisdiction, does the irradiator activity need to be separated from the Part 50 license if the State becomes an Agreement State?

See answer in (1) above. Since jurisdiction over the wet irradiator in a research reactor pool would remain with NRC, no action is needed.

CONCLUSION:

The NRC has concluded that jurisdiction over activities in a research reactor pool will remain under NRC jurisdiction because the activities could adversely impact the reactor operation. The regulatory and statutory bases for this reservation of authority are found in 10 CFR 150.15(a)(1) and Section 274c of the AEA, respectively.