UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, DC 20555 - 0001

March 15, 2016

The Honorable Stephen G. Burns
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: NON-POWER PRODUCTION OR UTILIZATION FACILITIES
PROPOSED LICENSE RENEWAL RULEMAKING

Dear Chairman Burns:

During the 632nd meeting of the Advisory Committee on Reactor Safeguards, March 3-5, 2016, we completed our review of the Non-Power Production or Utilization Facilities Proposed License Renewal Rulemaking. The Research and Test Reactors Subcommittee reviewed these matters at its meeting on February 3, 2016. During our review, we had the benefit of discussions with representatives of the NRC staff. We also had the benefit of the referenced documents.

RECOMMENDATION

The staff should proceed with this proposed rulemaking for licensing of Non-Power Production or Utilization Facilities.

BACKGROUND

The Atomic Energy Act includes considerations for licensing research reactors and test facilities, as well as considerations for licensing commercial nuclear power reactors. The Atomic Energy Act accords to research reactors and test facilities special status and specifies that these reactors be subject to minimal regulation consistent with adequate protection of the public health and safety. A regulatory process for these reactors has been established that permits renewable licenses of twenty year duration. For a variety of reasons and exigent circumstances, a backlog in the processing of the license renewals developed. This backlog is being relieved. The staff has undertaken, with Commission encouragement, a revision of the regulations, to avoid recurrence of such a backlog and to improve the safety documentation for the research reactors and test facilities.

The staff proposes nine changes to the regulations:

- Define “Non-power Production or Utilization Facilities” (NPUFs)
- Eliminate license terms for research reactors
- Consolidate license renewal requirements for testing facilities and medical isotope production facilities
- Require NPUF licensees to submit updated final safety analysis reports every five years
- Amend the timely license renewal process for test reactors and medical isotope production facilities
- Provide an accident dose criterion of 0.01 Sievert (1 rem) for NPUFs other than test reactors
- Extend applicability of 10 CFR 50.59, “Changes, tests, and experiments,” to NPUFs regardless of the decommissioning status
- Clarify existing environmental reporting requirements
- Eliminate NPUF financial qualification information requirements for license renewal

We comment on the first seven of these proposed changes in the discussions below. The final two proposed changes lay outside our charter and expertise.

DISCUSSION

The staff proposes to define NPUF as a term that encompasses:

- Research reactors with power of 10 MWt or less if there are no notable safety considerations, and 1 MWt or less if there are notable safety considerations
- Testing facilities with power greater than 10 MWt, or greater than 1 MWt if there are notable safety considerations
- Commercial medical radioisotope irradiation and production facilities

“Notable safety considerations” that distinguish research reactors and test reactors include circulating loops through the reactor core used for fuel experiments and experimental volumes with cross-sections larger than 103 cm^2 (16 in^2) in the core.

The staff proposes the term NPUF so that they can more easily systematize the regulation of small reactors and new radioisotope systems, such as the one proposed by SHINE Medical Technologies, coming into the regulatory system. There are 36 licensed research and test reactors of which five are permanently shut down and in decommissioning. One of the reactors is classed as a test facility. Two applications for medical isotope production facilities have been submitted.

The staff proposes that the research reactors be given licenses that do not expire once they have renewed their licenses following the guidance provided in NUREG-1537. The NRC will continue to monitor and inspect the reactor facilities as they have in the past and the licensees will remain obligated to report promptly any deviations from technical

specifications. Licensees will be required to provide to the NRC updates to their final safety analysis report every five years. This proposed change amounts to 'licensing under sufferance' which has been used successfully for power reactors in many countries for decades. Submission of updates to the final safety analysis report should assure adequate attention to configuration control of the research reactors and that licensees have adequate familiarity with the licensing bases of their facilities. This requirement for systematic and periodic reexamination provides added confidence that changes which may affect safety are identified and managed throughout the life of the facility.

Licensing terms for test facilities and for commercial medical isotope production facilities will continue much as they have in the past. The staff proposes to consolidate the regulatory requirements for renewal of these licenses in a new section of the Code of Federal Regulations – 10 CFR 50.135. These licensees will be required to submit updated final safety analysis reports every five years.

Staff proposes that applications for license renewal be submitted at least two years prior to expiration of the license. This proposal is being made to allow sufficient time for the staff to review the renewal application without complications of license expiration during the review period.

The research reactors typically have low inventories of radionuclides and these radionuclides are not located in highly pressurized reactors. On the other hand, the research reactors are located typically in high population areas such as universities with short exclusion boundaries. The accident dose criterion found in 10 CFR Part 100 (0.25 Sievert or 25 rem) appears inappropriately large for these facilities. The radiation dose limit for individual members of the public (0.001 Sievert or 0.1 rem) established by 10 CFR Part 20 appears unduly restrictive as an accident dose criterion. Staff proposes to adopt the 0.01 Sievert (1 rem) Protective Action Guide defined by the Environmental Protection Agency as an accident dose criterion for the research reactors. Test facilities will still be subject to the 10 CFR Part 100 accident dose criterion.

Current wording in the regulations makes 10 CFR 50.59 no longer applicable to NPUFs that have ceased operation and have returned their fuel to the Department of Energy. This has mandated that NRC consider license amendments and add license conditions for decommissioning facilities that are essentially identical to the requirements of 10 CFR 50.59. Staff proposes changes to the regulations that eliminate this additional administrative burden and make 10 CFR 50.59 applicable to NPUFs regardless of decommissioning status.

CONCLUSION

We conclude that that the staff has developed a practicable revision to the licensing process for NPUFs that is well conceived and should serve to reduce administrative challenges that have arisen in the past while preserving the adequate protection of the health and safety of the public.

Sincerely,

/RA/

Dennis C. Bley
Chairman

REFERENCES

1. U.S. Nuclear Regulatory Commission, Draft SECY Paper, “Proposed Rulemaking: Non-Power Production or Utilization Facility License Renewal (RIN 3150-A196),” February 25, 2016 (ML16055A134 - Package).

2. U.S. Environmental Protection Agency, EPA 400-R-92-001, “Manual of Protective Action Guides and Protective Actions for Nuclear Incidents,” May 1992.

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OFFICE	ACRS	SUNSI Review	ACRS	ACRS	ACRS
NAME	QNguyen	QNguyen	MSnodderly f/MLB	ADValentin	ADV for DCB
DATE	03/15/2016	03/15/2016	03/15/2016	03/05/2016	03/05/2016

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