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

November 4, 2015

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

SUBJECT: SUMMARY REPORT – 628th MEETING OF THE ADVISORY COMMITTEE ON REACTOR SAFEGUARDS, OCTOBER 7-10, 2015

Dear Chairman Burns:

During its 628th meeting, October 7-10, 2015, the Advisory Committee on Reactor Safeguards (ACRS) discussed several matters and completed the following reports, letter, and memoranda:

REPORTS

Reports to Stephen G. Burns, Chairman, NRC, from John W. Stetkar, Chairman, ACRS:

- "Report on the Safety Aspects of the Construction Permit Application for SHINE Medical Technologies, Inc. Medical Isotope Production Facility," dated October 15, 2015

- "Report on the Reactor Oversight Process Enhancements," dated October 16, 2015

LETTER

Letter to Victor M. McCree, Executive Director for Operations, NRC, from John W. Stetkar, Chairman, ACRS:

- "Interim Staff Guidance, 'Guidance for the Evaluation of Acute Chemical Exposures and Proposed Quantitative Standards'," dated October 20, 2015

MEMORANDA

Memoranda to Victor M. McCree, Executive Director for Operations, NRC, from Edwin M. Hackett, Executive Director, ACRS:

- "Draft Regulatory Guide", dated October 13, 2015
    - Regulatory Guide 1.212, Revision 1, "Sizing of Large Lead-Acid Batteries"
- "Documentation of Receipt of Applicable Official NRC Notices to the Advisory Committee on Reactor Safeguards for October, 2015," dated October 9, 2015

HIGHLIGHTS OF KEY ISSUES

1. Construction Permit Application of SHINE Medical Technologies, Inc. (SHINE)

The Committee met with representatives of the NRC staff and SHINE to discuss the SHINE construction permit application and the associated draft safety evaluation report for a medical isotope production facility to be located in Janesville, Wisconsin. SHINE's facility would produce molybdenum-99 (^{99}Mo), the precursor for technetium-99m, an important diagnostic medical radioisotope, without relying on highly enriched uranium.

During the discussion, SHINE provided an overview of the proposed site, facility, and processes to generate ^{99}Mo. The proposed SHINE facility consists of eight irradiation units which use an accelerator-driven neutron source to induce subcritical fission in low enriched uranium. After irradiation, radioisotopes of interest are extracted by a chemical separation process in the radioisotope production facility. SHINE also discussed the initiating events and scenarios for postulated accidents. The staff provided an overview of the licensing process being used for SHINE. The two-step process includes a construction permit application consisting of a preliminary safety analysis and environmental report, followed by an operating license application with a final safety analysis. The staff evaluated the SHINE preliminary design, determined that SHINE complied with the requisite regulatory requirements, and concluded there is sufficient information to issue a construction permit. Areas determined to require further technical or design information are being tracked as regulatory commitments.

Committee Action

The Committee issued a letter report to the NRC Chairman on this matter, dated October 15, 2015, recommending that the construction permit for the SHINE medical isotope production facility should be approved.

2. Reactor Oversight Process Enhancements

The Committee met with representatives of the NRC staff to discuss the project to enhance the Reactor Oversight Process (ROP). The staff discussed the inputs to ROP enhancement from ongoing programmatic assessment and feedback, the ROP self-assessment process, as well as several evaluations of the ROP from external sources. The staff discussed enhancements to the following areas of the ROP: Baseline Inspections, Licensee Assessment Program, Significance Determination Process, Communications, and ROP Self-Assessment.

Committee Action

The Committee issued a letter report to the NRC Chairman on this matter, dated October 16, 2015, with the following recommendation and conclusions: 1) The ROP enhancement actions proposed by the staff are timely and beneficial, and should be implemented, 2) The proposed enhancements to the Baseline Inspection Program, which include changes to the Component Design Basis Inspection process and the Problem Identification and Resolution process, should increase the effectiveness of the licensees' overall engineering programs, 3) There is no objection to the change in the definition of "degraded cornerstone" whereby the equivalence relationship between White-to-Yellow findings is changed from two to three, and 4) The action to make the Significance Determination Process more timely is beneficial.

3. Interim Staff Guidance (ISG), "Guidance for the Evaluation of Acute Chemical Exposures and Proposed Quantitative Standards"

The Committee met with representatives of the NRC staff, industry, and the Nuclear Energy Institute to discuss the ISG. The staff discussed the memorandum of understanding between the NRC and the Occupational Safety and Health Administration; namely, that in addition to the radiation risk from licensed materials, the NRC is also responsible for the chemical risk from licensed material and plant conditions that may present an increased risk to workers. The staff further explained that the ISG will provide for improved evaluation of potential chemical risks to fuel cycle facility workers. The industry's position as discussed by the Nuclear Energy Institute is that existing licensee programs ensure worker protection and that the new proposed standard is unnecessary, impractical, and constitutes an unanalyzed backfit.

Committee Action

The Committee issued a letter to the Executive Director for Operations on this matter, dated October 20, 2015 with the following recommendations: 1) The ISG should be issued, and 2) Once the staff has gained sufficient experience with it, the interim staff guidance should be incorporated into NUREG-1520, "Standard Review Plan for Fuel Cycle Facilities License Applications."

4. ACRS Assessment of the Quality of Selected NRC Research Projects – FY 2015

The Committee completed its FY 2015 assessment of the quality of the following NRC research projects:

- NUREG/CR-7178, "Uranium Sequestration During Biostimulated Reduction and in Response to the Return of Oxic Conditions in Shallow Aquifers," December 2014

- NUREG-2162, "Weld Residual Stress Finite Element Analysis Validation: Part 1 – Data Development Effort," March 2014

These projects were selected from a list of candidate projects suggested by the Office of Nuclear Regulatory Research. They were found to be more than satisfactory, professional works that satisfy research objectives and with some important elements of innovation and insight.

Committee Action

The Committee will finalize and issue its FY 2015 quality assessment report. The Committee anticipates receiving a list of candidate projects for quality assessment in FY 2016 prior to its March 2016 meeting.

RECONCILIATION OF ACRS COMMENTS AND RECOMMENDATIONS

The Committee considered the Executive Director for Operations' response of September 4, 2015, to comments and recommendations included in the July 21, 2015 ACRS letter on "Nine Mile Point Nuclear Station Unit 2 Maximum Extended Load Line Limit Analysis Plus (MELLLA+) License Amendment Request." The Committee was satisfied with the Executive Director for Operations' response.

SCHEDULED TOPICS FOR THE 629th ACRS MEETING

The following topics are scheduled for the 629th ACRS meeting, to be held on November 4-7, 2015:

- Davis-Besse Nuclear Power Station License Renewal
- Fukushima Tier 2 and 3 Recommendations
- Risk Management Regulatory Framework
- Status of the Revised Fuel Cycle Oversight Process Cornerstones

Sincerely,

/RA/

John W. Stetkar
Chairman

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Sincerely,

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John W. Stetkar
Chairman

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