January 12, 2004

MEMORANDUM TO: Martin J. Virgilio, Director
Office of Nuclear Material Safety
and Safeguards

FROM: Robert C. Pierson, Director ***/RA/***
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Materials Safety
and Safeguards

SUBJECT: FCSS ACTIONS TO IMPLEMENT NMSS DIRECTOR'S DECISION ON DIFFERING PROFESSIONAL VIEW CONCERNING MODELING CHEMICAL CONSEQUENCE EFFECTS FOR DETERMINING SAFETY REQUIREMENTS AT THE PROPOSED MIXED OXIDE FUEL FABRICATION FACILITY, DOCKET NUMBER 070-03098 (NMSS-DPV-2002-03)

I am responding to your memorandum dated October 3, 2003, that directed actions associated with the subject Differing Professional View (DPV).

DPV Position 1, Director's Decision 1

***I request that the Division of Fuel Cycle Safety and Safeguards (FCSS) ensure that sufficient information is docketed to demonstrate the reasonableness of the Mixed Oxide (MOX) site specific application of the code results for safety related decision-making.***

The FCSS staff agrees with this recommendation and based on the following information believes the appropriate actions are already completed. On June 21, 2001, staff issued a request for additional information (RAI) to Duke Cogema Stone & Webster (DCS) which requested this information. The specific request is item number 46 of this RAI (Attachment 1). DCS provided its response on August 31, 2001, including electronic copies of site-specific data that staff used to independently assess the use of ARCON96 for safety related decision-making (Attachment 2).

Based on the review of the information docketed in the DCS Construction Authorization Report (Attachment 3), the August 31, 2001, RAI response, and the FCSS independent assessment, I have confirmed that sufficient information was docketed to support the use of ARCON96. In addition, I have also confirmed that the information provided by the applicant was reviewed by

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the staff, and that the results of these evaluations provide a sufficient basis for a safety-related decision. Further, I have directed the staff preparing the final SER to ensure that the staff's review of this docketed information is thoroughly documented (Attachment 4). Copies of the reviewed information are attached.

In addition, FCSS believes it is important to address points raised in the DPV, that ". . . other applicable applicant documents have not been reviewed prior to the decision." (DPV, p. 1), or that "MOX management appeared to act in an arbitrary and capricious manner," (DPV, p. 9), or ". . . without an adequate basis, the Agency (and the applicant) gives the appearance of arbitrarily selecting a code" were not addressed. In light of the aforementioned RAI and staff evaluations of site-specific applicability: (1) the application and additional documents were reviewed prior to staff making a determination; (2) Nuclear Regulatory Commission (NRC) management ensured the results of the staff review were technically and logically sound and supported the conclusion reached, thus NRC management was not arbitrary or capricious in it's decisions; and (3) the use of the code was supported by Regulatory Guides and the staff's handbook for nuclear fuel-cycle facility accident analysis (NUREG/CR-6410) as well as thorough documentation from the applicant supporting its use.

DPV Position 2, Director's Decision 2

***I request that FCSS issue guidance to ensure that its managers and staff involved with development, endorsement, use or acceptance review of automated scientific codes are familiar with relevant sections of Volume 2 of the NRC's Management Directives and NUREG/BR-0167, Software Quality Assurance Program and Guidelines.***

Based on its evaluation of available review guidance, FCSS has concluded that sufficient guidance on consequence assessment is provided to the staff. This guidance is in Standard Review Plans (SRPs), such as "Standard Review Plan for the Review of License Application for a Fuel Cycle Facility" (NUREG-1520), and "Standard Review Plan for the Review of an Application for a Mixed Oxide (MOX) Fuel Fabrication Facility" (NUREG-1718) (Attachment 5). Both SRPs reference the "Nuclear Fuel Cycle Facility Accident Analysis Handbook" (NUREG/CR-6410) as a compendium of acceptable methods for consequence assessment, including atmospheric dispersion of airborne contaminants. In these review documents are criteria the staff can apply to endorse, use or accept scientific codes supporting fuel-cycle facility applications. Management has reviewed these documents, as part of this response, and believes it is acceptable to use them in the MOX review. It is important to note that this FCSS conclusion was supported by the Panel which "found that suitable documentation exists to guide NRC development, endorsement, and acceptance of automated scientific codes" (Sept. 30, 2003, memo to M. Virgilio, p. 2).

FCSS has also evaluated the applicability of Volume 2 of the NRC's Management Directives and NUREG/BR-0167, "Software Quality Assurance Program and Guidelines." The results of this evaluation found that neither offer guidance that was useful to the staff's review of the MOX application.

DPV Position 2, Director's Decision 3

***I request that FCSS identify this for consideration in the next NMSS/RES "user-need" interface meeting.***

A user-need memo to the Office of Nuclear Regulatory Research (RES) has been issued. The ADAMS Accession Number is ML033160142. The user-need memo requests assistance from RES in: (1) establishing a collaborative process involving agency stakeholders (e.g., Office of Nuclear Materials Safety and Safeguards (NMSS), Office of Nuclear Reactor Regulations (NRR) and RES) for coordinating Program Office needs for development and application of automated scientific codes used to model dispersion of the same or similar hazardous material, suitable for use for NMSS and NRR applications; (2) determining how best to inform other regulators (e.g., U.S. Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), Occupational Safety and Health Administration (OSHA) and U.S. Department of Energy (DOE)) and stakeholders of NRC development and application of generic scientific codes used to model dispersion of the same or similar hazardous material, when appropriate; (3) establishing an NRC public web page to inform internal and external stakeholders about NRC code work; and (4) evaluating the usefulness of the collaborative process, the effectiveness of informing other regulators, and the usefulness of the public information web page, to determine whether such activities would be useful for all generic automated scientific codes used for NRC applications. This effort should help staff determine what type of collaborative process is needed.

DPV Position 3, Director's Decision 4

***I request that FCSS issue guidance so that reviewers have sufficient understanding of automated scientific codes to determine which code is appropriate (i.e., reasonable) for the intended use (e.g., providing site specific condition input for consideration in safety related decision-making). The reviewer's understanding should be sufficient enough to determine what code is appropriate (e.g., reasonable) for its intended use, its site specific application, and its results.***

The response to Director's Decision 2, provides information to show that sufficient guidance is available for evaluating the acceptability of codes used to support the licensing of fuel-cycle facilities. In addition, license reviewers are technically competent by virtue of education and experience and must undergo a qualification process for their positions. The staff qualification program is a training and testing program which includes, for example, extensive instruction, on-the-job experience, self-study and, ultimately, oral review by knowledgeable and experienced staff and management. Based on the FCSS evaluation done in response to the director's decision, I have concluded that the existing qualification process ensures staff with the relevant expertise are capable of doing high-quality, technically-sound reviews in their area of expertise including selection and application of relevant cases. The criteria established in the qualification program are well defined and are applicable to appropriate technical reviewers within specific disciplines. FCSS believes the reviewer education and experience as well as the reviewer qualification program coupled with existing regulatory guidance provides a sound foundation for selection and use of codes.

Based on the actions as addressed in this memo and on the information presented, FCSS has concluded that no further actions are necessary on the Director's Decisions.

Attachments:
1. Staff RAI 46
2. DCS Response to RAI 46
3. DCS Construction Authorization Request excerpt
4. Staff's Draft SER and Draft SER, Rev 1 excerpt
5. NUREG-1718 excerpt

cc:
Robert L. O'Connell, IMNS
Margaret V. Federline, NMSS
Alexander Murray, FCSS

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