April 23, 2008

MEMORANDUM TO: Luis A. Reyes
Executive Director for Operations

FROM: Brian W. Sheron, Director ***/RA/***
Office of Nuclear Regulatory Research

SUBJECT: MEMORANDUM OF UNDERSTANDING AMONG THE U.S. NUCLEAR REGULATORY COMMISSION, U.S. DEPARTMENT OF ENERGY, AND THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ON THE DEVELOPMENT OF NEXT GENERATION SIMULATION TOOLS FOR EVALUATING CEMENTITIOUS BARRIERS AND MATERIALS

I respectfully recommend that you authorize the U.S. Nuclear Regulatory Commission (NRC) Office of Nuclear Regulatory Research (RES) to enter into a Memorandum of Understanding (MOU) with the following Federal agencies:

- U.S. Department of Energy (DOE), Office of Engineering and Technology and Office of Environmental Management
- U.S. Department of Commerce (DOC), National Institute of Standards and Technology, Building & Fire Research Laboratory,

This MOU will facilitate the development of simulation tools that will support better assessment of radioactive contaminant fluxes released from cementitious barriers and radioactive waste forms in radioactive waste facilities and nuclear facilities containing radioactive fluids (e.g., spent fuel pools).

Our objective is to reduce redundancies and improve the common technology for evaluation of cementitious materials performance. We intend to achieve this through exchange of technical ideas and through enhanced scientific understanding of chemical and physical processes. By entering into this MOU, the cooperating Federal agencies seek mutual benefit from their respective research and development (R&D) programs and effective exchange of information between their technical staff and contractors. This exchange of information supports environmental risk assessments, joint efforts to improve the scientific bases for implementing models, protocols for establishing linkages between disparate databases and models, and development and use of a common model-data framework.

Staff has included several additional organizations in the planning phases for this program. These organizations expect to remain fully engaged for the life of the project due to their specific expertise regarding cementitious science, materials science, and modeling. They include the

CONTACT: Jacob Philip, RES/DRA
(301)415-6211

Consortium for Risk Evaluation with Stakeholder Participation (CRESP) at Vanderbilt University in Nashville, TN; the Savannah River National Laboratory (SRNL) in Aiken, SC; SIMCO Technologies Inc., in Quebec City, Canada; and the Energy Research Centre of the Netherlands (ECN) in Petten, Holland.

No NRC dollars will be allocated to implement this MOU. DOE will fund NIST and some of the other organizations mentioned above as part of the project effort. NRC will contribute full-time equivalents (FTEs) in kind for the review of products from the MOU and for participation in workshops and technical meetings. During these meetings, NRC staff will represent agency needs for evaluation tools and discuss NRC experience under various field conditions. Time expended annually by the NRC in the project will be approximately 0.25 FTEs per year, split between RES and the Office of Federal and State Materials and Environmental Management Programs (FSME). Staff considers this a sound investment in interagency co-operation. FSME has requested that RES pursue work under the MOU in their recent user needs memorandum.

The MOU framework includes a steering committee composed of staff points of contact for each Federal agency involved. The NRC point of contact will be a member of RES Division of Risk Analysis, Environmental Transport Branch. In addition, staff from FSME will be closely involved and will support RES at the steering committee meetings and in review of the progress under the partnership. The NRC Office of the General Counsel has reviewed the enclosed MOU and has no legal objection.

Enclosure:
As stated

	/RA/	05/05/08
Approved:	R. W. Borchardt Executive Director for Operations	Date

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R. W. Borchardt Date
Executive Director for Operations

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OFFICE	SUNSI Review	RES/DRA/ETB	RES/DRA/ETB	QTE
NAME	JPhilip	JPhilip	WOtt	CHsu By email
DATE	03/27/2008	03/27/2008	03/27/08	03/24/08
OFFICE	OGC	RES/DRA	FSME	RES
NAME	RBaum	CLui	LCamper	BSheron
DATE	03/7/08	04/15/08	4/15/08	04/23/08

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