

February 28, 2002

LICENSEE: Duke Energy Corporation

FACILITY: McGuire Nuclear Station, Units 1 and 2

SUBJECT: SUMMARY - MEETING WITH DUKE ENERGY ON SPENT FUEL POOL  
BORAFLEX UPDATE (TAC NOS. MB3570 AND MB3571)

Representatives of Duke Energy Corporation (DEC), met with members of the U.S. Nuclear Regulatory Commission (NRC) staff at NRC Headquarters on February 5, 2001, in Rockville, Maryland. The meeting addressed issues identified in the staff's meeting with DEC on December 11, 2001, regarding Duke's use of the RACKLIFE and BADGER programs for their analysis of the McGuire spent fuel pool boraflex panels. A list of attendees is provided in Attachment 1 and the handouts provided in the meeting are included in Attachment 2.

Mr. Ray Lambert of the Electric Power Research Institute (EPRI), made a presentation of the history of Boraflex from its introduction in the late 1970's to recent events. Mr. Lambert focused on EPRI's role during these years and indicated that over three million dollars had been spent on research and development during these years. He summarized Boraflex activities by stating that an in-depth understanding of Boraflex has been developed that (a) permits degradation to be managed, (b) maintains adequate safety margins in pools, (c) has kept reactors operating and (d) allows time for utilities to seek and select long term solutions. His summary also enumerated other specific EPRI Boraflex products.

Mr. Lambert's presentation indicated that, beginning in 1986, EPRI started a project to assist utilities and selected the Northeast Technology Corporation (NETCo), as their primary contractor to assist in this work. Dr. Kenneth Lindquist, of NETCo, presented information on the BADGER and RACKLIFE programs. RACKLIFE is used to select Boraflex panels for BADGER testing. The Boron-10 Areal Density Gage for Evaluating Racks (BADGER) testing device, consisting of a Cf-252 neutron source and a neutron detector assembly, was described in detail.

RACKLIFE Model Objectives were described as: 1) providing a management tool to extend the useful service life of Boraflex spent fuel storage racks and 2) predicting Boraflex degradation in spent fuel pools for user-specified fuel discharge and pool cleanup scenarios such as (a) computing gamma dose to Boraflex panels, (b) computing total (reactive and polymerized) silica in the bulk pool and in Boraflex panel cavities and (c) computing boron carbide loss from Boraflex. Information was presented on the composition of Boraflex, mechanism of dissolution of silica in water, polymerization of silica acid, silica mass balance in spent fuel pools, and RACKLIFE input and output. Dr. Lindquist's conclusions were that (a) RACKLIFE models when used in tandem with BADGER testing provide a reliable means to predict future Boraflex performance, (b) the approach utilizes a predictive model coupled with measurement technique to monitor the slow deterioration of a plant component and (c) the approach is analogous to that used in many plants to monitor steam generation tube wastage. A short video was shown

which illustrated the use of BADGER in a plant, as presented in Dr. Lindquist's slides numbered approximately 5 through 14.

At the conclusion of the meeting, the NRC staff indicated that the presentations provided much useful information that would contribute to an improved understanding of the uses of RACKLIFE and BADGER.

***/RA/***

Robert E. Martin, Senior Project Manager, Section 2  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-369 and 50-370

Attachments: 1. Attendance List  
2. Duke Presentation

cc w/atts: See next page

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ATTENDEES LIST

FEBRUARY 5, 2002

MEETING WITH DUKE ENERGY

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Francis Akstulewicz	NRC/SRXB
Jimmy Glenn	Duke/McG Engineering
David Jones	Duke/SFP Management
Keith Waldrop	Duke/SFP Management
Marcus Nichol	Duke/SFP Management
Michael Wilder	Duke/McG Reg Compliance
Craig Harbuck	NRC/RTSB
Tony Attard	NRC/SRXB
Yuri Orechwa	NRC/SRXB
Louise Lund	NRC/DE/EMCB
Carolyn Lauron	NRC/DE/EMCB
Kris Parczewski	NRC/DE/EMCB
Ray Lambert	EPRI
Ken Lindquist	Northeast Technology Corp.
Udit Singh	Entergy Nuclear Northeast
John Weiss	Entergy Nuclear Northeast
Maureen Conley	Platts/McGraw Hill

McGuire Nuclear Station

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