

November 9, 2010

MEMORANDUM TO: Anthony P. Ulses, Chief
Reactor Systems
Division of Safety Systems
Office of Nuclear Reactor Regulation

FROM: Jennifer M. Gall, General Engineer (NSPDP) /RA/
Reactor Systems
Division of Safety Systems
Office of Nuclear Reactor Regulation

SUBJECT: MEETING WITH NUMERICAL APPLICATIONS, INC AND
INDUSTRY REPRESENTATIVES TO DISCUSS GOTHIC AND
ITS APPLICABILITY TO ISSUES ARISING FROM NRC
GENERIC LETTER 2008-01, "MANAGING GAS
ACCUMULATION IN EMERGENCY CORE COOLING, DECAY
HEAT REMOVAL, AND CONTAINMENT SPRAY SYSTEMS"

On October 18th and 19th, 2010, the Nuclear Regulatory Commission (NRC) staff met with the Numerical Applications, Inc, utility representatives, and other stakeholders at NRC headquarters concerning the applicability of Gothic to issues discussed in Generic Letter (GL) 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems." Enclosure 1 lists the meeting attendees. Enclosure 2 contains the slides from the non-proprietary presentations.

A public meeting notice was issued on October 10, 2010, and was posted on the NRC's external (public) web page (ADAMS Accession No. ML102780194). The notice included the meeting agenda. The discussions on the 18th included an overview of GOTHIC and many examples of situations where GOTHIC has been applied. The discussions on the 19th included the GOTHIC Governing Equations, Constitutive Models and Solution Methods, GOTHIC gas transport modeling approach, and GOTHIC qualification and validation.

In opening remarks, NRC staff noted the continuing work and cooperation of the industry on gas management issues. The purpose of the meeting was stated to be an exchange of information to give NRC a better understanding of GOTHIC and its applicability to gas management issues.

Mr. Tom George presented the history and basic design of GOTHIC. He discussed the various modeling options, optional user inputs, solution methods, and the quality assurance methods. The second presentation walked through various examples of situations where GOTHIC has been applied, including situations where its use was approved by NRC. See Enclosure 2 for all of the presentation slides.

The second day of the meeting was almost entirely dedicated to proprietary information on the GOTHIC code including the governing equations, constitutive models, solution methods, and a gas transport modeling approach. The purpose of these discussions was to give NRC a better understanding of how GOTHIC works and how it is applied to gas transport problems. There was one non-proprietary presentation covering examples of GOTHIC Qualification. This presentation covered many examples of GOTHIC results compared to experimental results. The slides from this presentation are in Enclosure 2.

MEETING CONTACTS: Warren Lyon, NRR/SRXB
301-415-2897,
warren.lyon@nrc.gov

Jennifer Gall, NRR/SRXB
301-415-3253
Jennifer.gall@nrc.gov

Enclosures:

1. Meeting Attendees
2. Presentation Slides

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OFFICE	DSS/SRXB	DSS/SRXB
NAME	JGall	AUlses
DATE	11/ 09 /10	11/ 09 /10

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Enclosure 1
List of Meeting Attendees

Name	Organization
J. Riley	NEI
N. Block	Red Wolf Associates
J. Sinoeis	Red Wolf Associates
A. Ulses	NRC/NRR
J. Gall	NRC/NRR
W. Lyon	NRC/NRR
D. Beaulieu	NRC/NRR
D. Helton	NRC/RES
M. Pope	Numerical Applications Inc. (NAI)
J. Harrell	NAI
T. George	NAI
S. Wiser	Dominion Resources
T. Kendall	Next Era Energy
F. Rahn	EPRI

ENCLOSURE