

September 1, 2005

MEMORANDUM TO: Andrea D. Lee, Chief
Corrosion and Metallurgy Section
Materials Engineering Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

FROM: Joseph Muscara, Senior Technical Advisor */RA/Todd Mintz/ for*
Materials Engineering Branch
Division of Engineering Technology
Office of Nuclear Regulatory Research

SUBJECT: MEETING SUMMARY OF THE INTERNATIONAL COOPERATIVE
GROUP AND RESEARCH PROGRAM FOR PROACTIVE
MATERIALS DEGRADATION MANAGEMENT

On August 16 and 19, 2005, staff from the Office of Nuclear Regulatory Research and contractors from Pacific Northwest National Laboratory, held the first formal meeting to plan an International Cooperative Group and Research Program focused on Proactive Materials Degradation Management (PMDM). This planning meeting was held in conjunction with the 12th International Conference on Environmental Degradation of Materials in Nuclear Power Systems-Water Reactors at Snowbird, Utah. Participants were from a range of countries including the United States, Canada, France, Sweden, Belgium, Korea, Japan, United Kingdom, Czech Republic, Finland, Switzerland, Spain, and Germany. Participants represent utilities, regulators, manufacturers, universities, and research labs. This activity is supported by the Commission's SRM M041108AB.

The first part of the public meeting was held on Tuesday, August 16, 2005 and consisted of four presentations. The first presentation was given by Mr. Robin Dyle of Southern Nuclear Operating Company. The purpose of Mr. Dyle's presentation was to explain the industry's actions with regard to their Proactive Materials Degradation Assessment (PMDA) program. In particular, Mr. Dyle illustrated the industry's degradation action matrix, how it can be implemented, and how it can be improved in the future. The second presentation by Dr. Joseph Muscara of the Office of Nuclear Regulatory Research introduced some of the PMDA work that has been sponsored by the NRC. In particular, his presentation gave a detailed overview of the NRC's PMDA program that assembled a panel of international experts which used a Phenomena Identification Ranking Table (PIRT) technique to evaluate degradation phenomena for thousands of PWR and BWR components. The third presentation by Dr. Joseph Muscara, described the way in which an international cooperative group and research program focused on PMDM could be organized. It was made clear that the presentation was to be interactive, and that the information contained in the talk was a platform upon which to be developing the international cooperative group. The organization for the international cooperative group, described by this presentation, was modeled after the NRC's current steam generator

international cooperative agreement. The final presentation of the day was given by Dr. Peter Ford, who is one of the expert panelists for the NRC's PMDA program described previously. In particular, Dr. Ford presented some of the results from the PMDA PIRT exercise, describing the type of research that would be needed in order to be proactive.

The public meeting continued on Friday, August 19, 2005 and was split into two sessions. The first session started off with a round of questions and answers. Some of the concerns that were raised were the costs of being involved. Another concern was how smaller countries would be able to participate. It was explained that the costs could be viewed in person-years rather than dollars, and that it may be possible for small countries to join together as one participant. After the question and answer session concluded, presentations were made by organizations which would like to participate in the international cooperation. Presentations were conducted by Francisco Javier Perosanz of the Research Center for Energy, Environment and Technology (CIEMAT), Patrick Pinhero of Idaho National Laboratory (INL), Milan Brumovsky of the Nuclear Research Institute Rez PLC. (Public Limited Company), and Paul Sherburne of Framatome.

The second session on Friday started out with a presentation by Dr. John Hickling of the Electric Power Research Institute (EPRI). This presentation focused on EPRI's current PMDA research. Following Dr. Hickling's presentation, Dr. Steve Doctor of Pacific Northwest National Laboratory (PNNL) discussed some of the NRC's sponsored PMDA work which PNNL has been conducting. This PNNL PMDA work is examining current in-service inspection criteria and determining if it is effective. Following this presentation, Dr. Steve Doctor gave a final presentation discussing what future research is needed for non-destructive evaluation (NDE) in order to be proactive. The public meeting was concluded with a final round of questions.

Attachments:

Agenda

List of Attendees for August 16 and 19, 2005 Public Meeting

Copy of handouts for Dr. Joeseeph Muscara's Presentation

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DATE	9/1/05	9/1/05	9/1/05	9/1/05

OFFICE	SISP Review	SISP Review
NAME	Originator J. Muscara	Branch Chief R. Croteau
DATE	9/10/05	9/1/05

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**Cooperative Group and Research Program for
Proactive Materials Degradation Management (PMDM)
Planning Meeting #1 - August 16 & 19, 2005
Snowbird Resort, Salt Lake City, Utah, USA**

Preliminary Agenda

<i>Tuesday Afternoon, August 16, 2005</i>		
1:30 pm – 1:45 pm	Welcome & Meeting Overview	Joe Muscara, US NRC
1:45 pm – 2:30 pm	Materials Management Initiative Overview	Robin Dyle, Southern Co.
2:30 pm – 3:30 pm	Overview of PMDM Activities: Summary of PIRT Assessment	Joe Muscara, US NRC
3:30 pm – 4:30 pm	Overview of PMDM International Cooperative Group Program	Joe Muscara, US NRC
4:30 pm – 5:15 pm	PMDM Key Research Areas	Peter Ford
Friday, August 19, 2005 (final will be set on Tuesday)		
8:00 am – 9:00 am	Questions and Answers	All
9:00 am – 10:00 am	Presentations by Attendees and Discussion	TBD
10:00 am – 10:15 am	Break	
10:15 am – 11:00 am	Assessment of NDE Techniques/ISI Programs for Degradation Detection	Steve Doctor, PNNL
11:00 am – noon	Discussion of Key NDE Research & Development Needs	Steve Doctor, PNNL
1:00 pm – 2:00 pm	Overview of EPRI Corrosion Gap Research Projects	John Hickling, EPRI
2:00 pm – 3:00 pm	Presentations by Attendees and Discussion	TBD
3:00 pm – 3:15 pm	Break	
3:15 pm – 4:30 pm	Separate into working groups to discuss/identify key research issues for (1) Materials/Degradation Mechanisms; (2) NDE & Monitoring and (3) Mitigation, Repair & Replacement	
4:30 pm – 5:00 pm	Wrap-up, Final Discussions and Next Steps	

List of Attendees for August 16 and 19, 2005 Public Meeting
International Cooperative Group and Research Program focused on
Proactive Materials Degradation Management (PMDM)

NAME	ORGANIZATION
Hipólito González	NRC/RES/DET/MEB
Joseph Muscara	NRC/RES/DET/MEB
Todd Mintz	NRC/RES/DET/MEB
C.E. Carpenter	NRC/RES/PMPDAS
Mike Wright	AECL
Robert Tapping	AECL
Yogen Garud	APTECH Engineering Services Inc.
Boedan Alexandreanu	Argonne National Laboratory
Ian Woolsey	British Energy
Emmanuel Herms	CEA
Philippe Dubvisson	CEA
Francisco Javier Perosanz	CIEMAT
Peter Ford	Consultant
Jeff Gorman	Dominion Engineering Inc.
Claude Amzallag	EDF
Jean-Paul Massoud	EDF
Nicolas Verdier	EDF
Allan McIlree	Electric Power Research Institute
Bob Carter	Electric Power Research Institute
John Hickling	Electric Power Research Institute
Raj Pathania	Electric Power Research Institute
Armin Roth	Framatome ANP GmbH
Paul Sherburne	Framatome ANP Inc.
Peter Scott	Framatome ANP Inc.
Steve Fyfitch	Framatome-ANP
Peter Andresen	GE Global Research
Larry Nelson	General Electric Co.
Martin Morra	General Electric Global Research
Young J. Kim	General Electric Company
Hannu Hänninen	Helsinki University of Technology

Jiro Kuniya	Hitachi Ltd.
Junya Kaneda	Hitachi Ltd.
James Cole	Idaho National Laboratory
Patrick Pinhero	Idaho National Laboratory
Timothy Roney	Idaho National Laboratory
Koji Arioka	Institute of Nuclear Safety Systems Inc.
Marc Le-Calvar	IRSN
Itaru Suzuki	Ishikawajima Harima Heavy Industries
Kiyotomo Nakata	Japan Nuclear Energy Safety Organization
Amy Lloyd	Kinectrics Inc.
Bongsang Lee	Korea Atomic Energy Research Institute
Jeiwon Yeon	Korea Atomic Energy Research Institute
Joung Soo Kim	Korea Atomic Energy Research Institute
Kjell Pettersson	KTH University (Sweden)
Charles Larie	Laborelec
Ji Hyun Kim	Massachusetts Institute of Technology
Kentaro Yoshimoto	MHI
Ernie Eason	Modeling & Computing Services
Tzu-Ping Cheng	MRL/ITRI
Tsung-Kuang Yeh	National Tsing Hua University
Ronald De Lair	Novelty Test Consulting
Ian Bramwell	Nuclear Installations Inspectorate
Milan Brumovsky	Nuclear Research Institute
Ed Simonen	Pacific Northwest National Laboratory
Steve Bruemmer	Pacific Northwest National Laboratory
Steve Doctor	Pacific Northwest National Laboratory
Hans-Peter Seifer	Paul Scherrer Institute
Arthur Motta	Pennsylvania State University
Digby Macdonald	Pennsylvania State University
Mark Williamson	R. Brooks Associates
Mick Mayfield	R. Brooks Associates
Bjorn Forssgren	Ringhals AB
Pal Efsing	Ringhals AB

Ian Armson	Rolls-Royce
Martin Widera	RWE Power AG
Terry McAlister	SCE & G VC Summer Nuclear Station
Serguei Gavrilov	SCK.CEN
Chi Bum Bahm	Seoul National University
Il Soon Hwang	Seoul National University
Seung Gi Lee	Seoul National University
Tae Hun Lee	Seoul National University
David Tice	Serco Assurance
Robin Dyle	Southern Nuclear Operating Company
Gustavo Cragolino	Southwest Research Institute
Roger Staehle	Staehle Consulting
Barry Gordon	Structural Integrity Associates
Anders Jenssen	Studsvik AB
Martin König	Studsvik AB
Karen Gott	Swedish Nuclear Power Inspectorate
Christer Jansson	SwedPower AB
Hannes Speidel	Swiss Federal Nuclear Safety Inspectorate
Markus O. Speidel	Swiss Academy of Materials Science
Dan Hopkins	Texas Utilities Electric
Kenro Takamori	Tokyo Electric Power
Toshio Yonezawa	Tokyo University
Mikiro Itow	Toshiba Corp.
Robert Gérard	Tractebel Engineering
Jim Stevens	TXU Power
Thomas Devine	U.C. Berkeley, California
Gary S. Was	University of Michigan
Todd Allen	University of Wisconsin
Ulla Ehrnstén	VTT Industrial Systems
Joyce Conermann	Westinghouse
Rich Jacko	Westinghouse Electric Company
Warren H. Bamford	Westinghouse Electric
Kirby Woods	