



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

MAR 23 1994

J. Michael Sollie, QA Manager
North Bros. Co.
Nuclear Group
8 Weatherstone Ct.
Sharpsburg, GA 30277

Dear Mr. Sollie:

In response to your letter to me signed March 12, 1994, I have the following comments:

1. All safety concerns identified in Section 1.1 of NUREG-0897, Revision 1 can affect the performance of safety systems designed to provide long term cooling after a loss-of-coolant accident (LOCA). In particular, item 2 (LOCA generated insulation debris effects) is a complex phenomena that is both plant design specific and LOCA transient dependent. Regulatory Guide 1.82, Rev. 1 (which you referenced) can be used for plant specific evaluation purposes.
2. With respect to your question(s) related to Items (d) and (e) Section (2) on page 2-3 of NUREG-0897, Rev. 1, those insulations (e.g. molded insulations with closed-cell structure and antisweat insulations) are examples of five insulation types (or categories) that were identified in the survey that was used to prepare this report. Category (d) and (e) insulations at that time (CY 1984) were not identified as the principal or dominant types employed in U.S. nuclear power plants. Since we are aware that considerable insulation changeout has occurred since publication of NUREG-0897, Rev. 1, I would recommend plant specific reviews of installed insulations before proceeding with plant analyses.
3. Your suggestion that nuclear plants planning replacement of thermal insulation refer to Generic Letter 85-22, RG 1.82, Rev. 1 and various information notices and bulletins issued in the last three years dealing with these issues is a sound one.

Since you also raised questions related to "buoyancy", "water temperature", "water chemistry", etc., some of these topics may be discussed at the public meeting we plan to hold on March 30, 1994. A copy of the information notice for the 3/30/94 meeting is enclosed for your information.

9404130276 940323
PDR NUREG
0897 C PDR

120010

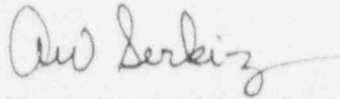
LF02
11

J. Michael Sollie

- 2 -

MAR 23 1994

If I can be of further assistance, please contact me (301-492-3942).



Aleck W. Serkiz, Senior Task Manager
Engineering Issues Branch
Division of Safety Issue Resolution
Office of Nuclear Regulatory Research

Enclosure: Meeting Notice

cc: C. Serpan
P. Norian
M. Marshall
PDR



UNITED STATES
 NUCLEAR REGULATORY COMMISSION
 WASHINGTON, D. C. 20555

03/30/94 MEETING NOTICE

DATE & TIME: Wednesday, March 30, 1994
 8:00am to 4:30pm

MAR 15 1994

LOCATION: Conference Rooms A & B
 Nicholson Lane South Building
 5650 Nicholson Lane
 Rockville, Maryland 20852

SUBJECT: POTENTIAL FOR THE LOSS OF ECCS IN BWRs DUE TO LOCA GENERATED
 DEBRIS (STRAINER BLOCKAGE STUDY)

PURPOSE: This meeting will provide a forum for reviewing the analysis being performed by Science and Engineering Associates (SEA). The focus will be on calculational methods for estimating LOCA generated debris and attendant BWR suction strainer blockage effects. The initial insights and results of the analysis will be discussed. Also, this meeting will provide an update on information discussed in a prior public meeting on September 15, 1993.

SEA's Preliminary Draft Report No. 95-554-06-A:1, Parametric Study of the Potential for BWR ECCS Strainer Blockage Due to LOCA Generated Debris", January 20, 1994 will be the principal reference for this meeting, and it has been placed in the public document room. A list of pertinent references are included with this notice.

This meeting provides an opportunity for all interested and knowledgeable parties to discuss their views and to introduce pertinent information related to this study.

PARTICIPANTS: NRC Hdqs. - P. Norian, A. Serkiz, M. Marshall, M. Virgilio,
 R. Barrett, R. Lobel, R. Elliott, J. Hickman

SEA - G. Zigler, F. Sciacca, D. Rao, W. Thomas

Industry - R. Sgarro, BWROG/PP&L
 other BWROG representatives
 B. Houston, EPRI - Charlotte
 G. Hart, PCI
 B. Alpha, TRANSCO

NOTICE: Meetings between NRC technical staff and applicants, or other industry representatives are open for interested members of the public, petitioners, intervenors, or other parties to attend as observers pursuant to "Open Meeting Statement of NRC Staff Policy," 43 Federal Register 28058, 06/28/78.

CONTACT: Aleck Serkiz Michael L. Marshall Jr.
 301-492-3942 301-492-3713
 fax number: 301-492-3892

TENTATIVE 03/30/94 MEETING AGENDA

- 8:00 - 8:15 Introductory remarks (A. Serkiz)
- 8:15 - 10:30 Review of initial analysis and methodology (SEA staff).
- 10:30 - 10:45 Break
- 10:45 - 12:00 Debris generation and transport considerations (SEA staff).
- 12:00 - 1:00 Lunch
- 1:00 - 3:00 Work done since January 1994 (SEA staff)
- 3:00 - 3:15 Break
- 3:15 - 3:45 Future work efforts and tentative timetable (RES staff).
- 3:45 - 4:30 Wrap-up discussions.

03/30/94 MEETING BACKGROUND REFERENCES

1. NUREG-0869, Rev. 1, "USI A-43 Regulatory Analysis," October 1985.
2. NUREG-0897, Rev. 1, "Containment Emergency Sump Performance," October 1985.
3. NUREG/CR-2772, "Hydraulic Performance of Pump Suction Inlets for Emergency Core Cooling Systems in Boiling Water Reactors," June 1982.
4. NUREG/CR-2791, "Methodology for Evaluation of Insulation Debris Effects," September 1982.
5. NUREG/CR-2982, Rev. 1, "Buoyancy, Transport, and Head Loss of Fibrous Reactor Insulation," July 1983.
6. NUREG/CR-3394, Vols. 1 & 2, "Probabilistic Assessment of Recirculation Sump Blockage due to Loss of Coolant Accidents," July 1983.
7. NUREG/CR-4792, Vol. 1, "Probability of Failure in BWR Reactor Coolant - Piping," March 1989.
8. Regulatory Guide 1.82, Rev. 1, "Water Sources for Long-Term Cooling Following a Loss-of-Coolant Accident," November 1985.
9. Generic Letter 85-22, "Potential for Loss of Post-LOCA Recirculation Capability Due to Insulation Debris Blockage," December 3, 1985.
10. NRC Bulletin No. 93-02, "Debris Plugging of Emergency Core Cooling Suction Strainers," May 11, 1993.
11. NRC Bulletin No. 93-02, Supplement 1, "Debris Plugging of Emergency Core Cooling Suction Strainers," February 18, 1994.
12. NRC Info. Notice 88-28, "Potential for Loss of Post-LOCA Recirculation Capability Due to Insulation Debris Blockage," May 19, 1988.
13. NRC Info. Notice 90-07, "New Information Regarding Insulation Material Performance and Debris Blockage of PWR Containment Sumps," January 30, 1990.
14. NRC Info. Notice 92-71, "Partial Plugging of Suppression Pool Strainers at a Foreign BWR," September 30, 1992.
15. NRC Info. Notice 93-94, "Potential for Loss of Emergency Cooling Function Due to a Combination of Operational and Post-LOCA Debris in Containment," April 26, 1993.
16. NRC Info. Notice Supplement 1, May 6, 1993.
17. LER 93-007-00, "Potential Plugging of ECCS Suction Strainers by Containment Debris," July 2, 1993.

18. BWROG Report, "Pipe Break Probabilities in Boiling Water Reactors," November 1993.
19. BWROG Report, "Operator Response to a Loss of ECCS," November 1993.
20. PCI Report, "Air Blast Destructive Testing of NUKON[®] Insulation Simulation of a Pipe Break LOCA", October 1993.
21. PCI Report, "Head Loss Tests with Blast Generated NUKON[®] Insulation Debris," October 1993.
22. TRANSCO Report, "Experimental Measurements on the Characteristics of Flow Transport, Pressure Drop, and Jet Impact on Thermal Insulation, NRC Guide 1.82," May 1992.
23. TRANSCO Report, "The Effects of pH and Thermal Exposure on the Head Loss of Series A Shreds, NRC Guide 1.82," May 1992.
24. TRANSCO Report, "Measurements on the Sink Rate and Submersion Time for Fibrous Insulation", May 22, 1993.
25. TRANSCO Report, "Postulations of the Range of Fibrous Insulation Debris Size Generated by High Energy Jet Impact," April 1993.
26. SEA Preliminary Draft Report, "Parametric Study of the Potential for BWR ECCS Strainer Blockage Due to LOCA Generated Debris," January 1994.

03/30/94 MEETING NOTICE DISTRIBUTION

Central Files

Public Document Room

Branch Reading Files

J. Murphy, RES\DSIR

C. Serpan, RES\DSIR\EIB

P. Norian, RES\DSIR\EIB

A. Serkiz, RES\DSIR\EIB

M. Marshall, RES\DSIR\EIB

S. Flory, RES

M. Virgilio, NRR\DSSA

R. Barrett, NRR\DSSA\SCSB

R. Lobel, NRR\DSSA\SCSB

R. Elliott, NRR\DSSA\SCSB

R. Pulsifer, NRR\PDIII-2

J. Hickman, NRR\PDIII-1

J. White, RGN1\RPB2

P. Eapen, RGN1\EB

G. Zigler, SEA

F. Sciacca, SEA

D. Rao, SEA

W. Thomas, SEA

L. England, BWROG

R. Sgarro, BWROG and PP&L

L. Gifford, General Electric Company

W. Houston, EPRI

D. Mavet, EPRI

P. Bessette, Duane Arnold Energy Center

J. Kinsey, Duane Arnold Energy Center

P. Roney, Perry Nuclear Power Plant

M. Hayner, Perry Nuclear Power Plant

H. Reppert, Perry Nuclear Power Plant

R. Loeffler, Perry Nuclear Power Plant

M. Mjaatvedt, PP&L

G. Hart, PCI

B. Alpha, TRANSCO

E. Wolbert, TRANSCO

G. Hecker, ARL

H. Wolff, Sierra Nuclear Corp.

L. Barnes, Sequoia Consulting Group

R. Siegel, Allied Marine Service

A. Bilanian, CDI