

October 28, 1999

Tennessee Valley Authority
ATTN: Mr. J. A. Scalice
Chief Nuclear Officer and
Executive Vice President
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: MEETING SUMMARY - SEQUOYAH NUCLEAR PLANT (SNS)

Dear Mr. Scalice:

This refers to the open management meeting that was conducted at your request at the Nuclear Regulatory Commission Region II Office on October 21, 1999, to discuss the significance determination process evaluation for a turbine building railroad bay flooding event that occurred on June 30, 1999. A list of attendees and a copy of your presentation handout are enclosed.

It is our opinion that this meeting was beneficial in that we were able to clearly understand your position on the risk significance of this event.

In accordance with Section 2.790(a) of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this meeting, please contact us.

Sincerely,

(Original signed by Paul E. Fredrickson)

Paul E. Fredrickson, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos. 50-327, 50-328
License Nos. DPR-77, DPR-79

Enclosures: 1. List of Attendees
2. Licensee Presentation Handout

cc w/encls:
Karl W. Singer
Senior Vice President
Nuclear Operations
Tennessee Valley Authority
Electronic Mail Distribution

cc w/encls continued: See page 2

IE45

cc w/encls: Continued
Jack A. Bailey, Vice President
Engineering and Technical Services
Tennessee Valley Authority
Electronic Mail Distribution

Masoud Bajestani
Site Vice President
Sequoyah Nuclear Plant
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General Counsel
Tennessee Valley Authority
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N. C. Kazanas, General Manager
Nuclear Assurance
Tennessee Valley Authority
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Mark J. Burzynski, Manager
Nuclear Licensing
Tennessee Valley Authority
Electronic Mail Distribution

Pedro Salas, Manager
Licensing and Industry Affairs
Sequoyah Nuclear Plant
Tennessee Valley Authority
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D. L. Koehl, Plant Manager
Sequoyah Nuclear Plant
Tennessee Valley Authority
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Debra Shults, Manager
Technical Services
Division of Radiological Health
Electronic Mail Distribution

County Executive
Hamilton County Courthouse
Chattanooga, TN 37402-2801

Distribution w/encls:
 R. W. Hernan, NRR
 H. N. Berkow, NRR
 PUBLIC

OFFICE	RII:DRP						
SIGNATURE	<i>Pat</i>						
NAME	PTaylor alt						
DATE	10/22/99	10/ /99	10/ /99	10/ /99	10/ /99	10/ /99	10/ /99
COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

LIST OF ATTENDEES

Name

Title

NRC Staff

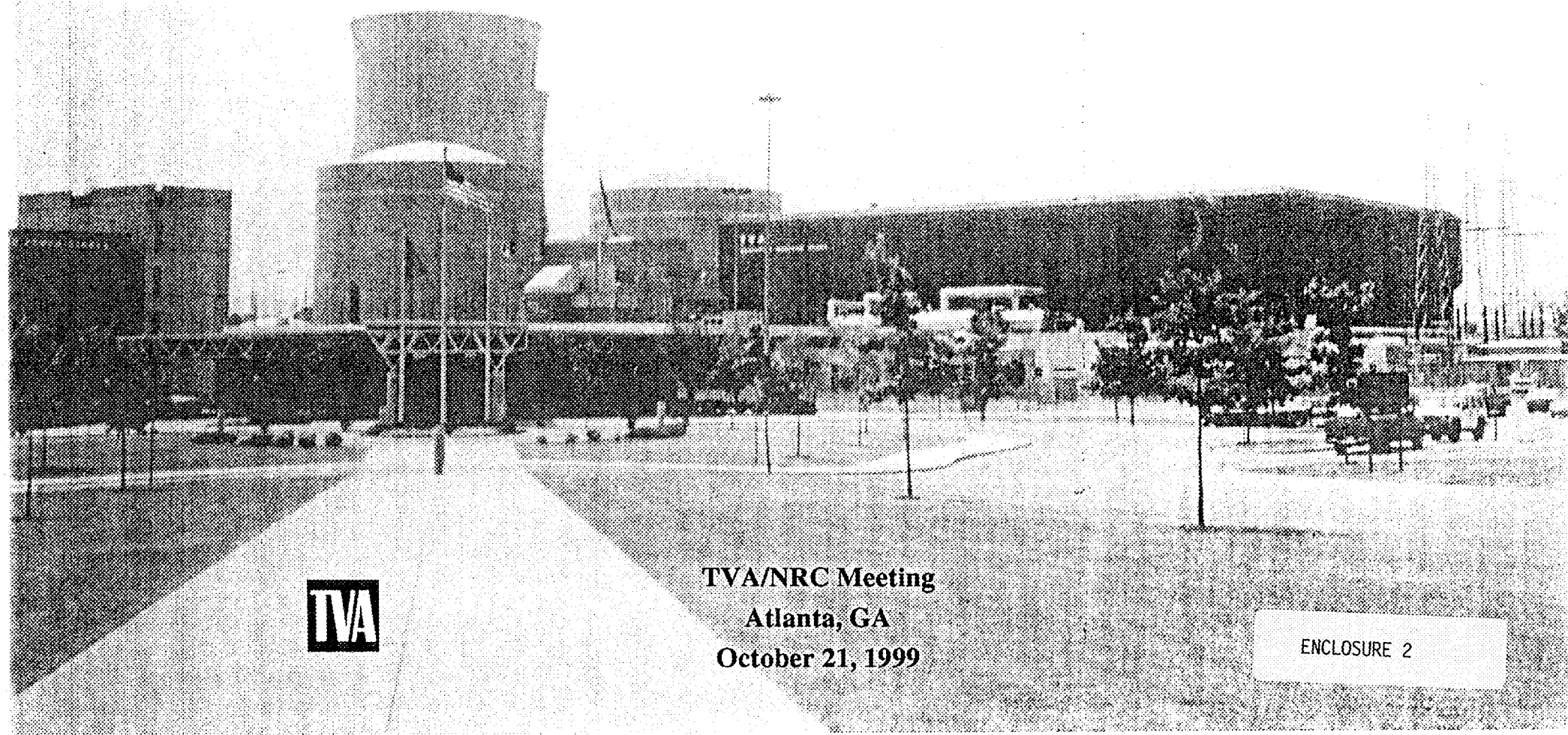
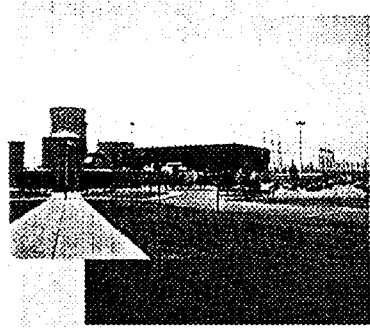
L. Reyes	Regional Administrator, Region II (RII)
L. Plisco	Director, Division of Reactor Projects (DRP), RII
C. Casto	Deputy Director, DRP, RII
P. Fredrickson	Branch Chief, Branch 6, DRP, RII
G. Belisle	Maintenance Branch Chief, Division of Reactor Safety (DRS), RII
W. Rogers	Senior Reactor Analyst, DRS, RII
M. Ernstes	Reactor Engineer, DRS, RII
S. Sparks	Senior Enforcement Specialist, RII
S. Dinsmore	Office of Enforcement
B. Westreich	Office of Enforcement
D. Coe	Senior Reactor Analyst, Office of Nuclear Reactor Regulation (NRR)
M. Branch	Significance Determination Process Task Lead, NRR Transition Task Force
S. Wong	Risk Analyst, NRR
P. Koltay	Senior Reactor Operations Engineer, NRR
R. Gibbs	Senior Resident Inspector, Sequoyah Nuclear Plant

TVA/Sequoyah Staff

M. Bajestani	Site Vice President
D. Koehl	Plant Manager
M. Lorek	Site Engineering Manager
P. Salas	Licensing and Industry Affairs Manager
J. Bajraszewski	Senior Licensing Project Manager
W. Justice	Lead Mechanical Engineer
P. Osborne	Lead Civil Engineer
C. Carey	Probabilistic Assessment Engineer
M. Waller	Probabilistic Assessment Engineer
R. King	Operations Training Instructor

Sequoyah Nuclear Plant

Turbine Building Railroad Bay Flooding Significance Determination Process Evaluation



TVA/NRC Meeting
Atlanta, GA
October 21, 1999

ENCLOSURE 2

Agenda

- Introduction M. Bajestani
- Drain System History M. J. Lorek
- Drain System Overview P. D. Osborne
- SDP Evaluation Overview W. M. Justice
- Conclusion M. Bajestani

Introduction

- Event overviews
- Address specific staff questions
- Significance determination process (SDP) results

Drain System History

Event Date	Description	Cause	Loss of Offsite Power/Loss of Electrical Circuits
July 11, 1994	Storm floods TBRR Bay	Clogged drains, 1-inch rainfall in 15 minutes	No
October 18, 1994	Cleaning completed on catch basins and storm drain pipes, removal of chemical spill mat, piping blocked over 50% by sediment	-----	-----
September 1, 1995	Large storm no flooding, no adverse effects	1.38-inch rainfall in 15 minutes	No
April 1999	TACF installs two hoses that temporarily routes the bus duct cooler drains to Curb Drain No. 21	-----	-----
June 30, 1999	Storm floods TBRR Bay	0.67-inch rainfall in 15 minutes, system blockage from bus duct cooler drain discharge	No

Drain System Overview

- System design (FSAR/IPEEE)
 - No credit for system performance in FSAR
 - “. . . all underground drains were assumed clogged and the surface drainage to be full.”
 - No credit for system performance in IPEEE
 - Protected from flooding during a local PMP by slope at the plant yard
- System capability
 - Storm drains were able to accommodate large storm in 1995
 - 1.38 inches in 15 minutes
 - System demonstrated the capability to handle rainfall events with maximum intensity expected in a 25-year storm
 - Records kept by TVA indicate the maximum hourly rainfall recorded since 1974 to be 2.6 inches in one hour
- System maintenance
 - PMs are in place to clean drains of debris
 - Last PM performance completed January 15, 1999

SDP Evaluation Overview

- Initial risk evaluation
 - SQN PSA model was used
 - Changes were made to the model to reflect flooding of the unit boards
 - Failed short-term recovery of offsite power (1 hour)
 - Modified long-term recovery to only credit diesels
 - Bayesian update of LOSP frequency
 - Resulted in an increase in LOSP initiating event frequency of $1\text{E-}3/\text{year}$
 - Risk evaluation showed increase in CDF of $1.7\text{E-}7/\text{year}$ (Green)

SDP Evaluation Overview

- **Second evaluation performed** (based on NRC Staff guidance in the September 7, 1999 letter and a subsequent September 16, 1999 conference call)
 - SQN PSA model was used
 - Initiating event frequency was determined from site specific historical rainfall data
 - No credit was taken for operator action
 - Did not mitigate flooding event
 - Did not recover flooded unit boards
 - Risk evaluation showed an increase in CDF of $8.5E-7$ /year (Green)

SDP Evaluation Overview

- **Third evaluation performed** (Based on NRC Staff guidance in the October 7, 1999 letter and a subsequent October 18, 1999 conference call)
 - Applied an initiating event frequency consistent with NRC Staff's judgment
 - 0.2/year or 1 flood induced LOSP every 5-years
 - Used simplified event tree with values taken from SQN PSA
 - Credited high temperature RCP seal O-rings
 - No credit taken for operator action
 - Did not mitigate flooding event
 - Did not recover flooded unit boards
 - Risk evaluation showed an increase in CDF of 4.9E-7/year (Green)

SDP Evaluation Overview

- Risk evaluation results
 - Original Level III evaluation demonstrated the CDF increase was Green
 - Subsequent evaluations based on NRC guidance have resulted in more realistic assumptions relative to:
 - Initiating event frequencies
 - RCP seal LOCA
 - Each of the subsequent evaluations demonstrated the CDF increase to be Green

Conclusions

- Due to the lack of established precedence, excessive effort has been expended
- Lessons learned must be applied to minimize future efforts
- We believe that the condition does not warrant increased attention and that the evaluation results in a Green regulatory response band