

September 25, 1996

EA 96-244

Mr. J. E. Cross  
President  
Generation Group  
Duquesne Light Company  
Post Office Box 4  
Shippingport, Pennsylvania 15077

SUBJECT: NRC ENFORCEMENT CONFERENCE MEETING SUMMARY

Dear Mr. Cross:

This refers to the predecisional enforcement conference held between your staff and NRC representatives on August 28, 1996, at the NRC Region I office. The purpose of this enforcement conference was to discuss the apparent violation identified in NRC Inspection Report Nos. 50-334/96-05 and 50-412/96-05, being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedures for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. The apparent violation was the failure to comply with 10 CFR 50.62 which requires a reliable system to provide an alternate means of tripping the turbine and actuating auxiliary feedwater under conditions indicative of an Anticipated Transient Without Scram (ATWS).

During the meeting, your staff presented the details of the event during which the ATWS Mitigating System Actuation Circuitry (AMSAC) failed to respond as expected. New information, not available during the inspection, was presented regarding the lifting of a feedwater relief valve and its correspondence to the fluctuations observed in feedwater flow during the event. In addition, your staff described the identification of the AMSAC problem, the root cause, and the corrective actions taken to prevent recurrence. The status of efforts of a focused design review being performed on AMSAC and three other systems was discussed.

In concluding remarks, Mr. Miller emphasized the importance of an on-going engineering sensitivity for potential design issues.

A copy of the handout material used by your staff in this predecisional enforcement conference is attached.

By separate correspondence, dated September 11, 1996, you have been advised of the results of our deliberations on this matter.

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J. E. Cross

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In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room.

Sincerely,

James T. Wiggins, Director  
Division of Reactor Safety

Docket Nos. 50-334  
50-412

Enclosures:

1. Attendance List
2. Handout Material

cc w/encls:

Sushil C. Jain, Vice President, Nuclear Services  
T. P. Noonan, Vice President, Nuclear Operations  
L. R. Freeland, Manager, Nuclear Engineering Department  
B. Tuite, General Manager, Nuclear Operations Unit  
K. L. Ostrowski, Manager, Quality Services Unit  
R. Brosi, Manager, Nuclear Safety Department  
M. Clancy, Mayor  
Commonwealth of Pennsylvania  
State of Ohio

Distribution w/encls:

Region I Docket Room (with concurrences)

PUBLIC

Nuclear Safety Information Center (NSIC)

D. Screnci, PAO

NRC Resident Inspector

P. Eselgroth, DRP

D. Haverkamp, DRP

J. Shannon, DRS

W. Ruland, DRS

M. Kalamon, DRP

D. Kern, Surry Site, RII

J. Stolz, NRR

D. Brinkman, NRR

W. Dean, OEDO

R. Zimmerman, ADPR, NRR

J. Goldberg, OGC

J. Lieberman, OE (OEMAIL)

D. Holody, EO, RI

Inspection Program Branch, NRR (IPAS)

R. Correia, NRR

R. Frahm, Jr., NRR

DRS File

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DATE	09/24/96		09/25/96		09/25/96		09/ /96		09/ /96

OFFICIAL RECORD COPY

## MEETING ATTENDEES

### Beaver Valley Power Station

J. Arias	Director, Licensing
R. Brosi	Manager, Nuclear Safety
J. Cross	Senior Vice President
R. Fedin	Supervisor, Independent Safety Engineering Group
K. Halliday	Director, Electrical Engineering

### U. S. Nuclear Regulatory Commission

A. Blough	Deputy Director, Division of Reactor Safety
P. Eselgroth	Chief, Branch 7, Division of Reactor Projects
J. Ganiere	Electrical Engineer, Office of Nuclear Reactor Regulation
D. Holody	Manager, Office of the Regional Administrator
H. Miller	Regional Administrator
W. Ruland	Chief, Electrical Engineering Branch, DRS
J. Shannon	Reactor Engineer, Electrical Engineering Branch, DRS
K. Smith	Regional Counsel
K. Young	Reactor Engineer, Electrical Engineering Branch, DRS

### Pennsylvania Department of Environmental Resources

M. Murphy	Bureau of Radiation Protection
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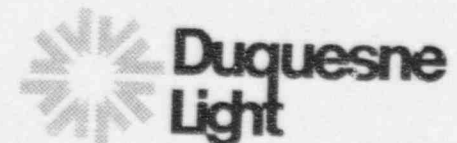
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# Predecisional Enforcement Conference

Beaver Valley Power Station

August 28, 1996

King of Prussia, PA



# Duquesne Light Participants

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|------------------|------------------------------------|
| ◆ J. E. Cross    | Sr. V.P. and Chief Nuclear Officer |
| ◆ R. K. Brosi    | Manager, Nuclear Safety            |
| ◆ J. Arias       | Director, Licensing                |
| ◆ K. E. Halliday | Director, Electrical Engineering   |
| ◆ R. W. Fedin    | Supervisor, ISEG                   |

# Agenda

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- ◆ Opening Remarks
- ◆ AMSAC Background
- ◆ Problem Identification & Immediate Corrective Actions
- ◆ Preliminary Reviews & Industry Notifications
- ◆ Root Cause Analysis
- ◆ Additional Corrective Actions
- ◆ Comprehensive Actions to Prevent Recurrence
- ◆ Focused Design Reviews
- ◆ Safety Significance and Closing Remarks

# AMSAC Background

- ◆ Designed in response to 10 CFR 50.62
- ◆ Provide protection against a total loss of feedwater (FW) with ATWS
- ◆ Unit 1 1988 (1R7) Unit 2 1989 (2R4)
- ◆ Foxboro design using Westinghouse Owners Group generic approved design
- ◆ Initiates on 2/3 Low FW flow signal



# Problem Identification

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- ◆ Unit 1 Turbine/Reactor trip May 31, 1996 (LER 1-96-008)
- ◆ Post trip follow-up ISEG Overview
- ◆ Initial assessment: expected response to a unit trip

## Problem Identification (Cont'd)

- ◆ Multiple timer resets prevented actuation
- ◆ AMSAC timer fluctuations correlates with FW flow alarms
- ◆ Notified NSS, AMSAC declared inoperable
- ◆ “A” FW flow instrument signal suspected, FW system interaction with AMSAC
- ◆ Also applicable to Unit 2

# Immediate Corrective Actions

- ◆ Basis for Continued Operation (BCO)
- ◆ Time limit applied (Admin. LCO) to restore in 7 days or reduce power to  $< 40\%$
- ◆ FW flow instrument calibration identified “C” instrument

# Preliminary Reviews and Industry Notification

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- ◆ Reviewed Industry Information available on AMSAC
- ◆ Reviewed BVPS availability information
- ◆ Reviewed past BVPS post trip data
- ◆ Initiated Nuclear Network entry to notify the industry

# Root Cause Analysis

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- ◆ Prior trips with data, AMSAC initiated when expected
- ◆ Root cause determined to be design incompatible with FW pressure pulsations
- ◆ Previous identified design deficiencies would not have prevented actuations

# Additional Corrective Actions

- ◆ Modification to lower setpoint for a flow instrument failure
- ◆ Incorporated AMSAC modifications at both units within the seven day limits

# Comprehensive Actions to Prevent Recurrence

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- ◆ Conducted a focused design review of both unit's AMSAC systems
- ◆ Focused design reviews of 3 other systems
- ◆ Basis for the selection of the 3 systems:
  - Installed after initial licensing
  - Customized generic designs
  - Include T/S and non-T/S systems



# AMSAC Focused Design Review

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- ◆ Current design
- ◆ Additional enhancements to improve reliability:
  - Computer power supply annunciator
  - Test matrix development
  - Jumper configuration



# Focused Design Review of Other Systems

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- ◆ Inadequate Core Cooling Monitor
- ◆ Post Accident Sampling System
- ◆ High Energy Line Break Isolation System
- ◆ Results will be reviewed for generic conclusions with additional corrective actions as appropriate
- ◆ Schedule for completion

# Safety Significance

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- ◆ Required by 10 CFR 50.62
- ◆ Low Core Damage Frequency Impact of  $1 \text{ E} - 11$  without AMSAC
- ◆ If AMSAC was required and did not actuate, procedures and training are in place to ensure manual actions are taken

# Closing Remarks

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- ◆ Insightful identification of a subtle initial design deficiency not likely to be found through routine efforts or past reviews
- ◆ Appropriate immediate corrective actions
- ◆ Comprehensive long term corrective actions to prevent recurrence
- ◆ Expanded actions to identify similar generic issues