February 5, 1996

LICENSEE: Commonwealth Edison Company (ComEd)

FACILITIES: Dresden, Unit 3

SUMMARY: SUMMARY OF NOVEMBER 15, 1995, MEETING DISCUSSING OPERATION OF DRESDEN, UNIT 3, WITH THE DEGRADED CORE SHROUD

On November 15, 1995, the subject meeting was held at the licensee's request to provide an opportunity for the licensee to discuss operation of Dresden, Unit 3, with the degraded core shroud for greater than 15 months with the NRC staff. Enclosure 1 is a list of the meeting attendees. A copy of the licensee's presentation is included as Enclosure 2.

The licensee discussed its proposal to operate Dresden, Unit 3, for greater than 15 months above 212 degrees Fahrenheit. On July 21, 1994, the staff had issued a safety evaluation (SE) which allowed power operation of Dresden, Unit 3, above 212 degrees Fahrenheit for 15 months. Due to unforeseen extended outages during the current fuel cycle, Dresden, Unit 3, has had to reschedule the next refueling outage from March 1996 to September 1996. As a result of the rescheduling, Dresden, Unit 3, will operate for an additional 3.5 months (15 months to 18.5 months) above 212 degrees Fahrenheit. During the meeting, the licensee provided an overview of its November 10, 1995, submittal justifying operation of Dresden, Unit 3, for an additional 3.5 months above 212 degrees Fahrenheit with the degraded core shroud.

Original signed by:
John F. Stang, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-249

Enclosures: 1. List of Meeting Attendees
2. Licensee's Handouts

cc w/encls: See next page
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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

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NOVEMBER 15, 1995

OPERATION OF DRESDEN, UNIT 3, WITH THE DEGRADED CORE SHROUD

LIST OF ATTENDEES

NRC

John Stang
James Medoff
Jai Rajan
Kamal Manoly
Kerri Kavanagh
Robert Capra
Robert Hermann
William Koo

Commonwealth Edison Company

Tom Spry
Robert Scott
Ken Sturtecky
Keith Beardsley
Gerald Whitman
Bob Rybak
Frank Spangenberg
J. D. Williams
Tom Behringer
Mike Heffley
Peter Holland

Enclosure 1

DRESDEN UNIT 3 CORE SHROUD

November 15, 1995

ComEd

ENCLOSURE 2

Agenda

- Introductions
- Background Information
- Dresden Unit 3 Operating Status
- Dresden Unit 3 Operational Chemistry Performance
- Operational & Planning Issues
- Flaw Evaluation Methodology
- Compliance With BWR-VIP Guidelines

Agenda Continued

- Flaw Evaluation Results
- Resolution Of Uncertainties Identified In July 21, 1994 Safety Evaluation
- Safety Consequences Evaluation
- Conclusions And Next Actions

Dresden/Quad Cities Core Shroud Background

- April 1994, During Special Planned Inspections Detected Core Shroud Cracking At Dresden 3 and Quad 1
- April To July 1994, ComEd And NRC Evaluation of Core Shroud Cracking
- July 21, 1994, NRC Safety Evaluation Issued Permitting 15 Months Of Operation And Identifying Analysis Uncertainties

Dresden/Quad Cities Core Shroud Background Continued

- August, 1994, ComEd Restarts D3 And QC1
- August To December 1994, ComEd And BWR-VIP Performed Additional Work To Resolve Uncertainties
- December 14, 1994, ComEd Submits Revised Flaw Evaluations And Resolution Of Uncertainties, Did Not Request Extension Of 15 Month Operating Period

Dresden/Quad Cities Core Shroud Background Continued

- January 1995, NRC Issues Safety Evaluation Which Maintains 15 Months Of Operation
- November 10, 1995, ComEd Submits Final Flaw Evaluation For Dresden 3 Core Shroud
- Requesting Extension Of D3 Operating Period to a Maximum Of 18.5 Months

Dresden 3 Operating Status

- Dresden 3 Restart On August 5, 1994
- D3 Hot Operation Factor 54% Through October 1995
- Restart from Manual Scram On November 6, 1995
- Unit Is Currently Operating

Dresden 3 Operational Chemistry Performance

- Excellent Water Chemistry Historically And During Current Cycle
- Established Goal to Achieve EPRI TR-103515 Draft Guidelines During Current Cycle Until Shroud Was Repaired
- Actual Cycle Performance Is Significantly Better Than Water Chemistry Goals

Dresden 3 Operational Chemistry Performance Continued

- Conductivity Performance-Goal Of 0.3 uS/cm, Achieved 0.086 uS/cm Cycle Average
- Chlorides Performance-Goal Of 5 ppb, Achieved 0.36 ppb Cycle Average
- Sum Of Chlorides And Sulfates-Goal Of 5 ppb, Achieved 2.48 ppb Cycle Average

Dresden 3 Operational Chemistry Performance Continued

- Currently No Hydrogen Addition; Modification To Install Hydrogen Addition Is Being Designed, Currently Scheduled For Installation At D3R14
- ComEd Plan Is To Maintain Strict Chemistry Limits To Add Margin
- Long Term Plan Is To Implement Hydrogen Addition At Both Dresden Units

ComEd Operational And Planning Issues

- Proactive Shroud Repair Installed During D2 And QC2 1995 Refueling Outages
- QC2 Installation 25 Days
- D2 Installation 18 Days
- Lesson Learned-Use Of The Same Key Personnel Is Vital To A Safe and Effective Shroud Repair Installation

ComEd Operational And Planning Issues Continued

- QC1 Refueling Outage And Shroud Repair Must Occur In Spring Of 1996 To Meet QC 15 Month Operating Period Limit
- Core Shroud Repair At QC1 Must Follow The Chemical Decontamination And RPV Beltline Inspections
- Dresden 2 Refueling Outage Will Be Completed In January 1996

ComEd Operational And Planning Issues Continued

- Dresden 3 Refueling Outage Best Start Date Is September 7, 1996
- Allows Adequate Planning Time To Assure A Safe Refueling Outage
- Assures Availability Of The Same Key Shroud Repair Personnel From Quad Cities

Flaw Evaluation Methodology

- Followed Requirements Of "BWR-VIP Core Shroud Inspection And Flaw Evaluation Guidelines"
- Satisfied Requirements Of "BWR-VIP Core Shroud NDE Uncertainty And Procedure Standard"
- Used ASME Section XI, Appendix C, Flaw Evaluation Criteria

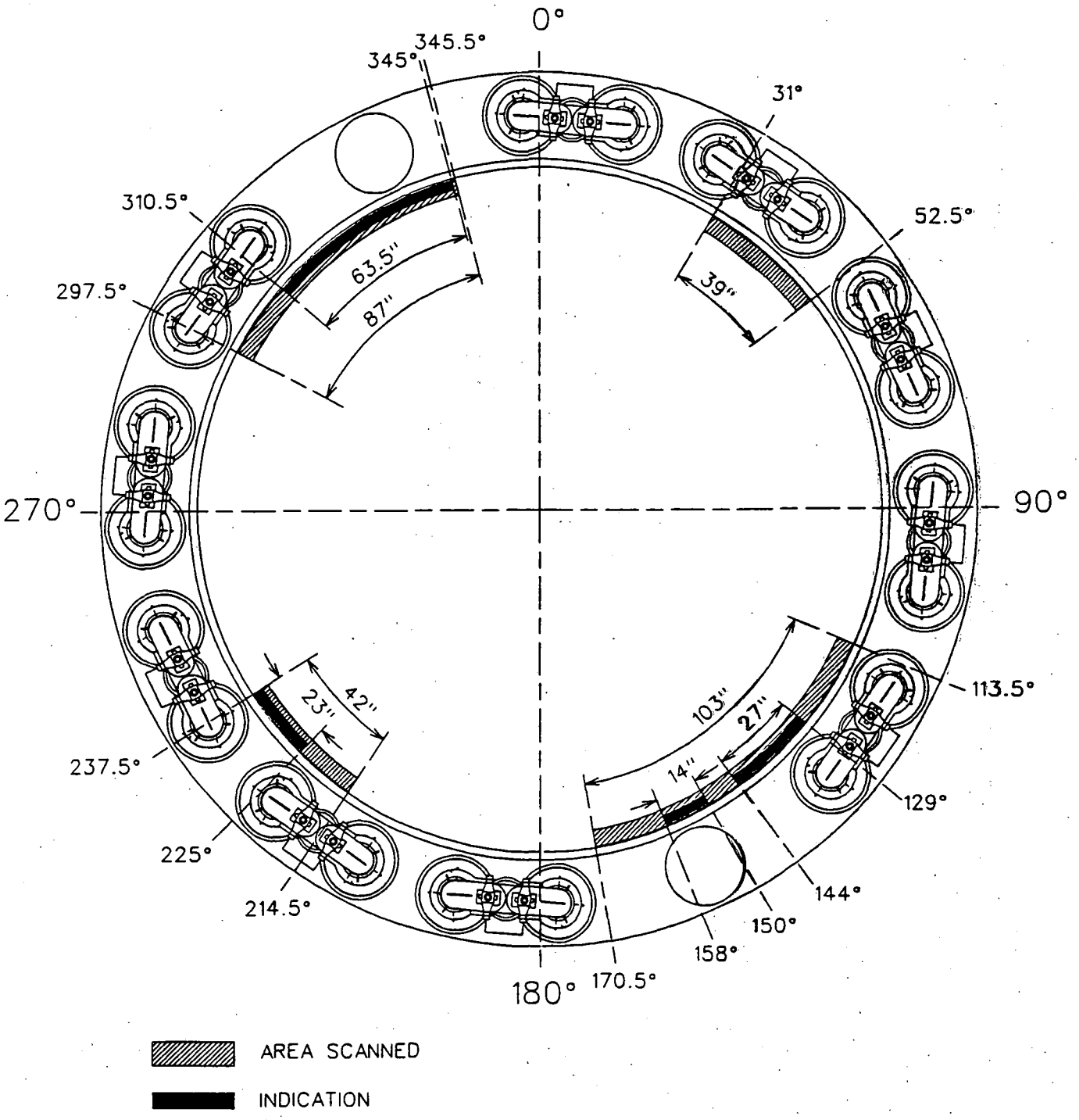
Flaw Evaluation Methodology Continued

- Used NUREG-0313 Crack Growth Rate Of 5.0E-5 Inches/Hour
- Performed Flaw Evaluation Using Conservative Analysis Parameters
  - Neglected The Fillet Weld
  - Used Conservative Crack Growth Rate
  - Included NDE Uncertainty Factors
  - Evaluated Beyond Design Basis Loading Cases

Compliance With BWR-VIP Guidelines

Inspection and Flaw Assessment Criteria	BWR-VIP Approach	UT Flaw Detection Approach
Analysis Method	Use Limit Load, LEFM Or EPFM Where Appropriate	Satisfied, Used Limit Load Based On Low Fluence Levels At H5
Inspection Uncertainty • Depth • Length	Use Factors To Reduce Ligament Based On Uncertainty	Satisfied, Deducted For Near Surface Flaw Depth Of 0.3" And 0.4" From Each End Of Ligament For Inspection Uncertainty
Flaw Separation	Account For Potential Overlap Of Adjacent Flaws	Satisfied, Neglected Any Areas With Detected Flaws And Included Proximity Rules
Qualified Inspection Techniques	Use Qualified UT Or VT Techniques	Satisfied, Used Both Qualified UT And VT

H5 UT Examination Results



Flaw Evaluation Results For UT Flaw Detection Approach

Critical Loading Case	Initial Ligament Size (Inches)	Safety Factor For 18.5 Months Of Operation	Months Of Operation
SSE	2.00"	1.86	25
SSE	2.75"	2.34	37
MSLOCA+SSE	2.00"	1.83	24
MSLOCA+SSE	2.75"	2.29	38
RRLOCA+SSE	2.00"	1.80	24
RRLOCA+SSE	2.75"	2.26	36

Resolution Of Uncertainties From July 1994 Safety Evaluation

- Magnitude Of RRLB Steady State Blowdown Loads
  - Performed A New TRACG Thermal Hydraulic Analysis
  - Results Independently Verified By BWR-VIP Using The COMPACT 3D Program
  - Shroud Maximum Resultant Force Increased By 400%
  - Shroud Maximum Resultant Moment At H5 Increased By 486%

Resolution Of Uncertainties From July 1994 Safety Evaluation Continued

- Magnitude Of MSLB Differential Pressure
  - Performed New TRACG Thermal Hydraulic Analysis
  - Incorporated Test Data For Separator Flow Losses Into Thermal Hydraulic Analysis
  - Peak Shroud Head Differential Pressure Decreased By 22%
  - Peak Core Support Plate Differential Pressure Decreased By 10%
  - Results Independently Verified By BWR-VIP Using RETRAN-02 Program

Resolution Of Uncertainties From July 1994 Safety Evaluation Continued

- Confirmation Of Existence And Size Of H5 Reinforcing Fillet
  - Operating Margin Exists With Fillet Weld Neglected
  - Performed UT To Confirm Size And Flaw Free Volume Of The Fillet Weld
  - Independent Verification Of Methodology And Results By EPRI NDE Center
  - Fillet Weld Size Reduced To Lower Bound Limit Of 0.75"
- More Operating Margin Exists With Appropriate Consideration Of The Fillet

Resolution Of Uncertainties From July 1994 Safety Evaluation Continued

- IGSCC Crack Growth Rates
  - Previous Assessment Used Plant Specific Water Chemistry To Support The Use Of Lower Crack Growth Rates
  - New Evaluation Uses NUREG-0313 IGSCC Crack Growth Rate Of 5.0E-5 Inches/Hour

Resolution Of Uncertainties From July 1994 Safety Evaluation Continued

- Core Spray System Functionality
  - Previous Assessment Was Based On Shroud Movements Associated With A Postulated Failure At H5 Only
  - Performed Sensitivity Study To Demonstrate Core Spay System Functionality Associated With Core Shroud Movements Due To Postulated Failures At All Horizontal Welds
- November 10, 1995 Flaw Evaluation Incorporated The Resolution Of All Of These Uncertainties

Safety Assessment Results

- Safety Assessment Assuming Postulated Through Wall Failure Of H5 Submitted On December 14, 1994
- Previous Assessment Remains Valid For Current Loads
- Results Of Assessment Demonstrate That Safe Shutdown Can Be Achieved For All Design Basis And Beyond Design Basis Events Considered

Safety Assessment Results Continued

- Control Rod Insertion Achieved Under All Events
- Floodable Volume To 2/3 Core Height Achieved By Intact RCPB Or Intact Shroud Under All Events
- Boron Injection Achieved Under All Applicable Events
- Core Spray Function Achieved Under All Events

Conclusions And Next Actions

- Quad Cities 1 Will Be Shut Down In The Spring Of 1996 And Shroud Repair Will Be Installed Within the 15 month Operating Period
- Resolved The Uncertainties Identified In The July 1994 Safety Evaluation
- Satisfied BWR-VIP Guidelines

Conclusions And Next Actions Continued

- Dresden 3 Refueling Outage Start Date of September 7, 1996 Will Assure the Most Safe and Reliable Shroud Repair Installation
- Significant Shroud Operating Margin Exists To Assure Safe Operation Of Dresden Unit 3 For A Period Of 18.5 Months
- Your Approval Is Requested To Extend The D3 Operating Period To 18.5 Months