

PUBLIC

February 10, 1997

~~SECRET~~

Mr. J. S. Perry
Site Vice President
Dresden Station
Commonwealth Edison Company
6500 North Dresden Road
Morris, IL 60450

SUBJECT: DRESDEN CONFIRMATORY ACTION LETTER (CAL) MEETING

Dear Mr. Perry:

This refers to the meeting conducted in Region III on January 31, 1997. This meeting was to discuss your progress in completing actions outlined in the Confirmatory Action Letter (CAL) No. RIII-96-016. Topics discussed included your progress in completing the actions outlined in the CAL and other improvement initiatives.

Attached to this letter are the materials your staff presented during the meeting. Your staff indicated that on the slide titled, "PIFs: Potential Discrepancies," the bullet that stated, "The Number of Cells for 250 V Batteries Different in TSUP and UFSAR," should instead state, "The Number of Cells for 250 V Batteries Different in DBD and UFSAR."

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

We appreciated your cooperation in this matter. If you have any questions regarding this meeting, please contact me at 630/829-9603.

Sincerely,

/s/ P. L. Hiland
Patrick L. Hiland, Chief
Reactor Projects Branch 1

Docket Nos: 50-237; 50-249
License Nos: DPR-19; DPR-25

Enclosures:

1. Attendance List
2. Licensee Presentation

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NAME	Roth/co DR		Hiland PLH					
DATE	2/7/97		2/10/97					

OFFICIAL RECORD COPY

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PDR ADDCK 05000237
PDR

J. S. Perry

-2-

cc w/encl: T. J. Maiman, Senior Vice President
Nuclear Operations Division
D. A. Sager, Vice President,
Generation Support
H. W. Keiser, Chief Nuclear
Operating Officer
T. Nauman, Station Manager Unit 1
M. Heffley, Station Manager Units 2 and 3
F. Spangenberg, Regulatory Assurance
Manager
I. Johnson, Acting Nuclear
Regulatory Services Manager
Richard Hubbard
Nathan Schloss, Economist
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H. B. Clayton, w/encl

Enclosure 1

Attendance List

Licensee Personnel

K. Frehafer, Dresden Engineering Assurance Group (DEAG) Supervisor
J. Heffley, BWR Vice President, Dresden
R. Freeman, Engineering Manager
F. Spangenberg, Regulatory Assurance Manager, Dresden
D. Winchester, Site Quality Verification Director
E. Connell, Design Engineering Superintendent
R. Renuart, Chief Engineer, Configuration Management and Engineering Assurance
R. Scott, Supervisor, Independent Safety Engineering Group

NRC Personnel

P. Hiland, Chief, Projects Branch 1, DRP, RIII
R. Gardner, Chief, Engineering Specialists 2, DRS, RIII
K. Riemer, Senior Resident Inspector, Duane Arnold
W. Kropp, Chief, Engineering Specialists 1, DRS, RIII
J. Gavula, Senior Engineering Specialist Inspector, DRS, RIII
R. Capra, Director, Project Directorate III-1, NRR
G. Grant, Director, DRS, RIII
D. Roth, Resident Inspector, Dresden



DRESDEN STATION

Dresden

January CAL Status Meeting

Russ Freeman, Site Engineering
Manager



DRESDEN STATION

CAL Status

- DEAG Status
- Twelve System Parameter Review Status
- SQV Audit Status
- Corporate Involvement
- Calculation Training Complete
- Design Basis Discrepancy PIF Training Complete



DRESDEN STATION

Dresden Engineering Assurance Group

Kenneth Frehafer
DEAG Supervisor



DRESDEN STATION

DEAG Status

- Fully Implemented
- Twelve System Parameter Screening Review
 - Assisted in determining Key Parameters
- Modification Review Planned
 - Partially Implemented Modification Backlog
 - D3R14 Modifications
- DEAG Involved with Resolution of ISI Instrument Uncertainty Issues
- Coordinated 50.54f Response



DRESDEN STATION

DEAG Status

-
- Over 31 Engineering Products Reviewed
 - Emergency License Amendment Activities
 - The HPCI Operability Close-Out Issues
 - Control Room/TSC Operability Issues
 - AEER Operability Issues
 - Thirteen Products Required Re-Work
 - Unverified Inputs
 - Omissions



DRESDEN STATION

DEAG Status

-
- Two PIFs Initiated for Significant Issues
 - Review of ECCS pump NPSH Safety Evaluation
 - Most Limiting PCT Scenario Not Evaluated
 - Corrected as Part of License Amendment
 - Review of Load Reject/Turbine Trip Bypass Setpoint Change
 - TSUP Setpoint Based on Rated Thermal Power Instead of First Stage Turbine Pressure
 - Setpoint Calculation Corrected to Develop Setpoint Based on Rx Power

DEAG Status

- Positive Observations
 - Engineering Initiating More Equipment Related PIFs
- Areas for Improvement
 - Engineering Intra-Discipline Communications for Emergent Issues
 - Attention to Detail



DRESDEN STATION

SCREENING OF KEY PARAMETERS FOR TWELVE RISK SIGNIFICANT SYSTEMS

E. C. Connell, III

Design Engineering Superintendent



DRESDEN STATION

ComEd Commitments

- Screening of key operating parameters on the twelve systems most important from a risk perspective to verify that calculations exist to support those parameters by February 28, 1997.
- The NRC will be immediately informed if critical parameters on any of the twelve systems are discovered to be outside of normal acceptance values.
- Results of the screening will be provided to the NRC on a monthly basis through a meeting and docketed response.



DRESDEN STATION

Project Team

E. Connell

ComEd Project Owner

A. K. Singh

Team Leader

F. Fischer

Electrical

I. Uddin

Electrical

R. Kalita

Instrumentation and Control

A. Ostenso

Instrumentation and Control

J. Neurauter

Mechanical

N. Weber

Mechanical

C. Johnson

Mechanical

R. Engel

Mechanical

J. Reda

Mechanical (Support)



DRESDEN STATION

ComEd Project Support

B. Tsai

L. Raney/R. Johnson

J. Dawn

S. Tutich

J. Tietz

D. Evans

D. Spencer

J. Sword

Nuclear Fuel Service

Probabilistic Safety Analysis

Mechanical Design Engineering

Electrical Design Engineering

System Engineering

System Engineering

System Engineering

System Engineering



Task Name	January					February				March		
	29	5	12	19	26	2	9	16	23	2	9	16
Project Duration												
Project Milestones												
Complete Desk top Instructions												
Develop List of Key Parameters												
Determine Values for Key Parameters												
Identify calculations supporting Key Parameters												
Key Parameter Overview by DEAG												
Verify calculations support Key Parameters												
Complete independent review												
Complete Draft Report												
Review of report by DEAG												
Complete Report-submit to NRC												

Scope of Work

- Twelve Selected System
- Key Parameter Identification Process
- Typical Key Parameters
- Calculation Basis Verification
- NRC Discrepancy Notification Process



DRESDEN STATION

Twelve Systems Selected

- Safety-Related 125/250 Vdc System
- Low Pressure Coolant Injection (LPCI)/Containment Cooling Service Water (CCSW) System
- Feedwater/ Condensate System
- Turbine Building Closed Cooling Water (TBCCW) System
- Main Steam Safety and Relief Valves
- Service Water (SW) System
- Automatic Depressurization System (ADS)



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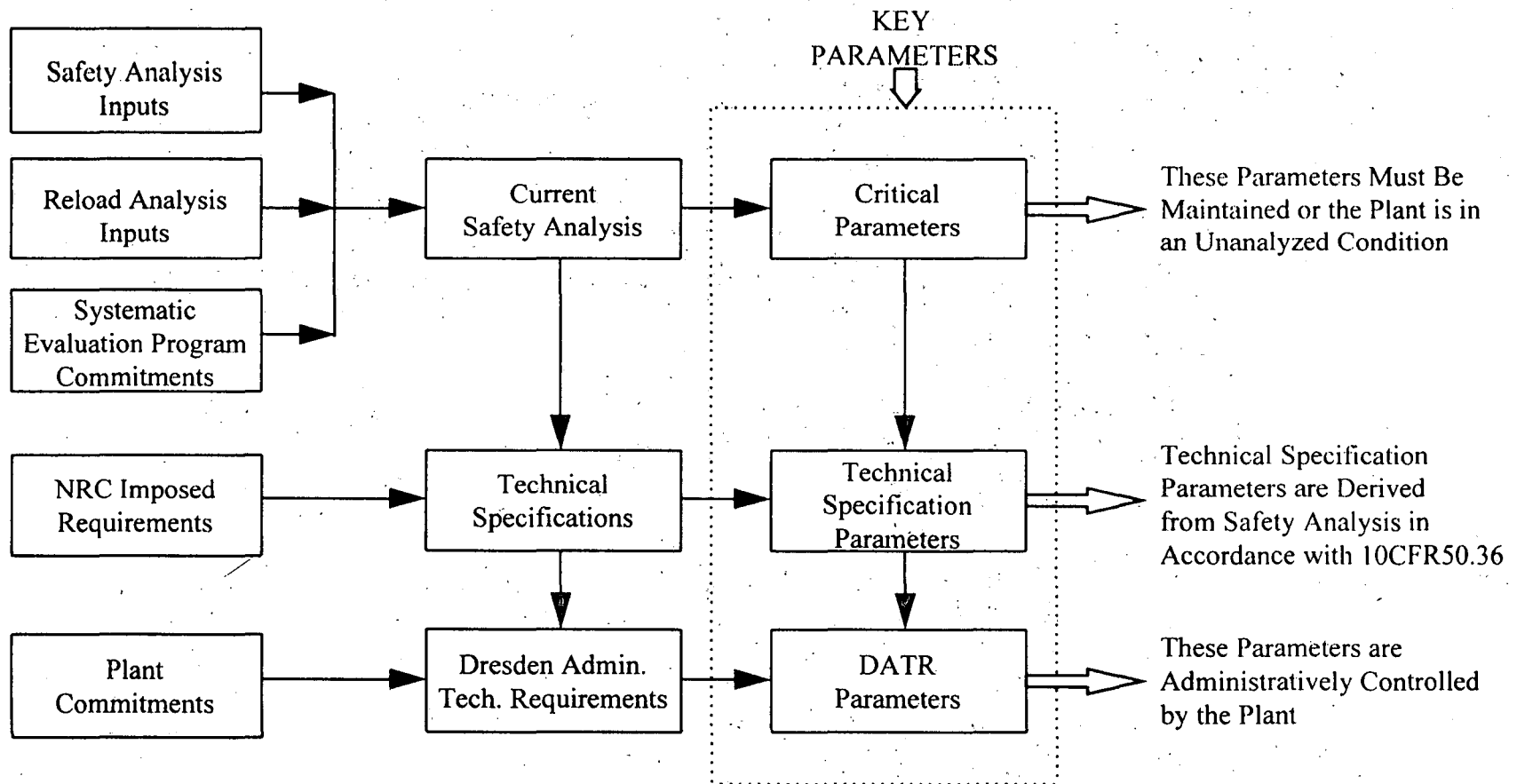
Twelve Systems Selected (Continued)

- 4 kV/480 V ac Auxiliary Power (excluding Diesel Generators) System
- Isolation Condenser System (including Makeup Water)
- Offsite Power System
- Emergency Core Cooling System (ECCS) Initiation Logic
- High Pressure Coolant Injection (HPCI) System



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Identification of Key Parameters



Typical Key Parameters

- Mechanical

- System Flow, Temperature and Pressures
- System Performance (Head Vs. Flow)
- Heat Exchanger Heat Transfer, Flow and inlet Temperatures
- Volume of Tanks
- Valve Opening and Closing Times
- Pump NPSH Requirements
- Maximum Area Temperatures
- “Analytical” or “Process” Limits for instrument setpoints
- Minimum Voltage at Terminals of Motor Driven Components



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Typical Key Parameters (Continued)

- Nuclear
 - Safety Analysis Analytical Model and Analysis Inputs
 - Accident Analysis Model and Analysis Inputs
 - Anticipated Accidents Without Scram (ATWS)
Analysis Assumptions
 - Containment Analytical Models and Analysis Inputs
 - Station Blackout Analysis Assumptions
 - Safe Shutdown Analysis for Fire Protection Analysis
Assumptions

Typical Key Parameters (Continued)

- Electrical and Instrumentation and Control
 - System Voltage Limits
 - Battery Sizing Requirements
 - Electrical Protection and Coordination
 - Short Circuit Current Levels at Supply Buses
 - Equipment Ambient Temperatures
 - “Analytical” or “Process” Limits for instrument setpoints
 - Initiation Permissives
 - Initiation Timing Functions
 - Channel Actuation Logic

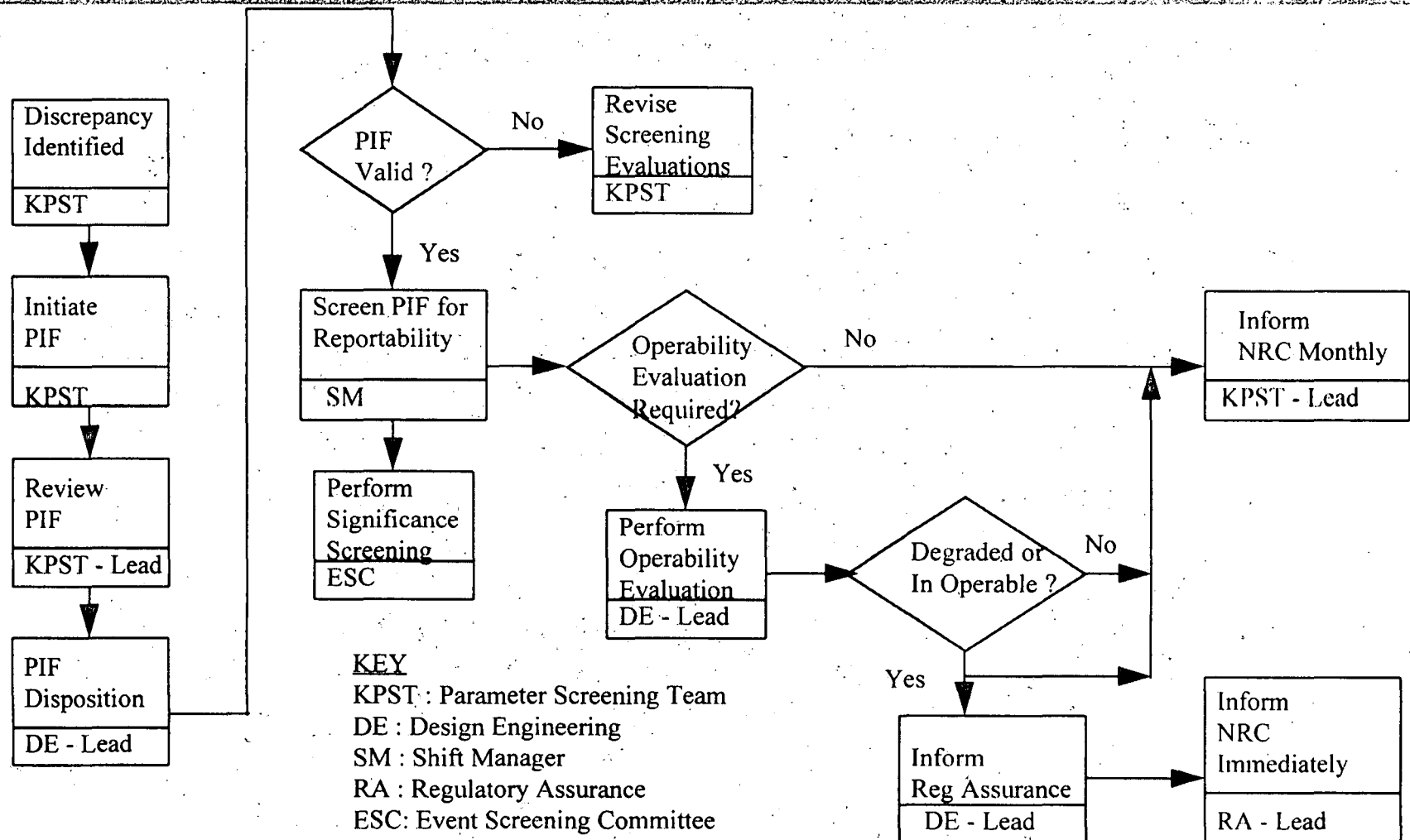


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Calculation Basis Verification Activities

- Identify the Supporting calculations and establish that calculations support the key parameters
- initiate Performance Improvement Forms (PIFs) for missing or incomplete calculations or out of limit parameters
- initiate PIFs for variance between the UFSAR, TSUP and other Documents

NRC Discrepancy Notification Process



PIFs: Missing Calculations

- Missing Calculations for IC
 - Time Delay Setpoint for Initiation of IC System
 - Makeup Flow Rate to IC HX
- Missing Calculations for TBCCW
 - TBCCW HX Capability
 - TBCC Hydraulic Model
- Missing Calculations for CCSW
 - NPSH Calculations



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PIFs: Potential Discrepancies

- Usable Rating of 125Vdc Battery Listed in the UFSAR is Not Applicable
- Min Electrolyte Temp of 60 F in TSUP Inconsistent with 65 F in UFSAR and Design Calcs
- The Number of Cells for 250 V Batteries Different in TSUP and UFSAR
- NPSH for LPCI Pumps Different Between DBD and Pump Curves
- Minimum Water Level for CCSW Suction Bay Different Between TSUP and DATR



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PIFs: Potential Discrepancies (Continued)

- No Requirements for Onsite Storage of Water for Continued Operation of IC
- Inconsistencies in IC DBD
- HPCI: The Pressure Range of the Steam Supply to the Turbine Differs between the Technical Specifications and DOS 2300-03.
- ECCS Initiation Revised Setpoints Not Implemented



DRESDEN STATION

Project Summary

- Project Team and Desk Top Instructions in Place
- Key Parameters and Calculations Identified
- 4 Missing Calculations and 9 Potential Discrepancies Identified
- Calculation Review Initiated
- Project on Schedule



DRESDEN STATION

Corrective Actions *Sargent & Lundy Audit*

Robert Scott

Supervisor

Independent Safety Engineering Group

Dresden Station



DRESDEN STATION

Audit Findings

- CAR AE-96-17-01
 - Sargent & Lundy Failed to Report, Via a Memorandum, a design input error
- CORRECTIVE ACTIONS
 - Sargent & Lundy CARs Issued
 - Additional Calculations and NDIT Logs Reviewed
 - Training Conducted

SIGNIFICANCE LEVEL

- Significance

<u>Level</u>	<u>Description</u>
--------------	--------------------

- | | |
|-----|-----------------------------------|
| – 0 | Editorial |
| – 1 | No Impact on Design Margin |
| – 2 | Potential Impact on Design Margin |
| – 3 | Design Margin Eroded |
| – 4 | Design Margin Exceeded |



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Significance and Trending Matrix

Area	Observation	Accurate		Organized		Usable		Complete							Technical			Legible		S&L Division	Significance Level	Remarks					
		Numerical	Computer Programs	Grammar	Logical	Continuity	Clear & Self-Explanatory	Self-Sufficient	Purpose & Scope	Assumptions	Procedurally Complete	Design Input	References	Engineering Judgment	Results & Conclusions	Limitations	Affected Documents	Methodology	Formulas				Checklist	Computations	Acceptance Criteria	Readable	Reproducible
	ComEd Design Control Process Audit																										
	8982-64-19-1, Rev. 0								X																	0	
	8982-17-19-1, Rev. 0																									N/A	No Comments
	8982-64-19-2, Rev. 0																									N/A	No Comments
	M12-3-95-003																									N/A	No Comments
	5569-31-19-1, Rev. 0																									N/A	No Comments
	8256-11-19-1, Rev. 0																									N/A	No Comments
	5569-31-19-1, Rev. 1																									N/A	No Comments
	VR-10, Rev. 1	X									X			X							X	X				3	Calc Revised & Issued
	VR-17, Rev. 0								X		X	X					X	X								1	Documentation
	MPED 9621-95-00, Rev. 0																	X								1	Documentation
	PMED 8982-62-02, Rev. 0					X	X	X											X							1	Graph revised by ComEd
	0591-387-003, Rev. 2							X	X					X	X			X								3	Duke Revising Base Calc
	DRE96-0134, Rev. 0								X		X						X									2	Calc being revised by S&L
	PMED 8549 62-01, Rev. 0							X	X		X	X														1	Documentation
	9215-111-02, Rev. 0								X																	1	Documentation, calc being superseded by S&L
	D3515		X								X															1	Documentation, calc revised by S&L
	8706-05-EO-S, Rev. 7										X															N/A	No Comments
	8900-15-EO-S, Rev. 4				X						X	X			X											1	Documentation
	DRE-MOV-5, Rev. 0							X																		1	Documentation
	MPED 9621-100-00, Rev. 0							X	X			X						X			X					2	No further action required
	EMD 087487, Rev. 0																									N/A	No Comments
	ATD-0216, Rev. 0							X	X		X			X	X							X				3	Calc Voided by S&L per ComEd
	ATD-0191, Rev. 2										X															1	Documentation, Calc revised by S&L, conclusion unaffected
	ATD-0253, Rev. 1										X															3	Calc revised by S&L, conclusion unaffected



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Audit Findings

- CAR AE-96-17-02
 - 11 of 24 Sargent & Lundy Calculations were Found to Have Deficiencies Needing PIFs
- CORRECTIVE ACTIONS
 - Calculations Revised or Voided as Appropriate
 - Matrix Developed for Trending and Significance
 - Procedures Revised
 - Sargent & Lundy Additional Calculation Reviews (3/17/97)

Audit Findings

- CAR AE-96-17-03
 - Sargent & Lundy Independent Review Process was Ineffective
- CORRECTIVE ACTIONS
 - Awareness Training Performed on Issues
 - Training on Reviewer Exceptions
 - Calculations Revised or Voided
 - Developed Engineering Assurance Program

Audit Findings

- CAR AE-96-17-04
 - Sargent & Lundy Audits were Programmatic in Nature
- CORRECTIVE ACTIONS
 - Increased Use of Technical Specialists
 - Review/Revise Content of Audit Checklists
 - PIP Process Used for Tracking/Trending Weaknesses Identified

Audit Findings

- CAR AE-96-17-05
 - Sargent & Lundy Calculation Not Distributed for Microfilming
- CORRECTIVE ACTIONS
 - Review of Calculation Index Performed
 - Awareness Training Performed

Audit Findings

- CAR AE-96-17-06
 - Sargent & Lundy PIPSYS Software Missing Range of Applicability
- CORRECTIVE ACTIONS
 - Review Method for Describing System Limitations



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Additional Sargent & Lundy Actions/Improvements

- Develop Self Assessment Process
- Develop Engineering Evaluation Process
- Revised Engineering Evaluation Procedure
- Developed Procedure on 3rd Party Reviews
- Revised Procedures for NEP Precedence
- Special Training on Formality



DRESDEN STATION

Nuclear Oversight/SQV IMPROVEMENTS

- Implement Industry Peer Assessment Function (12/97)
- Vertically Integrate Audits/Assessments of Engineering Services (Onsite & Offsite) (12/97)
- Assessment of the NUPIC Process (12/97)
- Increased Monitoring to Provide Real Time Assessments of Engineering Deliverables (Begins 2/97)
- Audit Primary AEs, NSSS, and Fuel Suppliers in 1997



DRESDEN STATION

Corporate Initiatives to Improve Quality and Accessibility of Design Information

Robert Renuart

Chief Engineer, Configuration

Management and Engineering Assurance



DRESDEN STATION

Interface Control with Vendors

- CAR AE-96-17-07 “Failure to Control the Safety Related Design Activities of AEs”
 - Issue is Considered Generic in that the Established Nuclear Design Information Transmittal (NDIT) Process is not Strictly Adhered to Between ComEd and Vendors for ALL Design Activities
 - Tech Alert Issued to All Stations
 - Dual Accountability Established with S&L
 - EA Group will Provide Process Oversight
 - Vendor Audits will Measure Effectiveness



DRESDEN STATION

Status of Short Term Actions

Letter T. Maiman to A. Bill Beach, November 12, 1996

- Establish Engineering Assurance Groups At ALL Six Sites by 2/1/97
 - Completed All Six Sites
 - Established Corp. Sponsored Peer Group
- Develop NEP on How To Handle Conflicts with the USFAR and Design Documents and the Physical Plant by 2/1/97
 - NEP Issued and Training in Progress



DRESDEN STATION

Status of Long Term Actions

- Conduct Engineering Safety System Functional Inspections in 1997
 - Dresden, LaSalle Complete
 - Byron, Zion In Progress
 - Complete All Six Sites by 4/97
 - Cross Station Assessment of Findings due 6/97
- Corp. EA Group will Support Audits of Vendors with Subject Matter Experts



DRESDEN STATION

Status of Long Term Actions

- Establish a 3-Year Plan to Improve the Quality and Accessibility of Design Information
 - Plan Established 12/30/96
 - Issued Letter to A. Bill Beach with Plan 1/30/97
 - Hired Bechtel to Project Manage; ComEd Participation from All Six Sites

Status of Long Term Actions

- **Plan Affects All Six Sites
For Dresden**

- Complete Remaining DBD Topicals (27/37 done)
- Complete Validation of All DBDs
- Review UFSAR Against Procedures, DBDs, other Design Information
- Validate/Reconstitute “Critical Calculations”
- Improve Indexes of Design Information with Cross References, Dependencies, Parameters, etc...