UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

JUL - 2 2003

Paul D. Hinnenkamp
Vice President - Operations
River Bend Station
Entergy Operations, Inc.
P.O. Box 220
St. Francisville, Louisiana 70775

SUBJECT: REGULATORY CONFERENCE WITH ENTERGY OPERATIONS, INC. CONCERNING THE RIVER BEND STATION

Dear Mr. Hinnenkamp:

This refers to the meeting conducted in the Region IV office of the Nuclear Regulatory Commission, located in Arlington, Texas, on June 23, 2003, to discuss safety concerns identified during the September 18, 2002, event which involved a turbine trip and subsequent reactor scram with a loss of feedwater flow.

Issues discussed at the conference included a synopsis of the event, the apparent violation identified during the special inspection of the event, and a review of the assessment of risk associated with the event.

During the meeting your staff indicated that documentation describing the process your staff used to complete your risk assessment would be provided to NRC within 2 weeks. We will review this information and inform you if additional information is required.

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.

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,

David N. Graves, Chief
Project Branch B
Division of Reactor Projects

Docket: 50-458
License: NPF-47

Enclosures:
1. Agenda
2. Attendance List
3. Licensee Presentation

cc w/enclosures:
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Chief Operating Officer
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Operations Support
Entergy Operations, Inc.
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Electronic distribution by RIV:
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DRP Director **(ATH)**
Acting DRS Director **(TWP)**
Senior Resident Inspector **(PJA)**
Branch Chief, DRP/B **(DNG)**
Senior Project Engineer, DRP/B **(RAK1)**
Staff Chief, DRP/TSS **(PHH)**
RITS Coordinator **(NBH)**

ADAMS: ☒ Yes ☐ No Initials: ______
☒ Publicly Available ☐ Non-Publicly Available ☐ Sensitive ☒ Non-Sensitive

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| RIV:C:DRP/B | | | | |
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| DNGraves;df | | | | |
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| 7/ 2 /03 | | | | |

OFFICIAL RECORD COPY T=Telephone E=E-mail F=Fax

ENCLOSURE 1

# Regulatory Conference Agenda

CONFERENCE WITH ENTERGY OPERATIONS, INC.,
RIVER BEND STATION

JUNE 23, 2003

NRC REGION IV, ARLINGTON, TEXAS

| | | |
|---|---|---|
| 1. | Introduction and Opening Remarks | Pat Gwynn, Acting Regional Administrator |
| 2. | Issue Discussion | Gail Good, Acting Deputy Director, Division of Reactor Projects |
| 3. | Licensee Presentation | |
| 4. | NRC Caucus | |
| 5. | Resume Conference | |
| 6. | NRC Closing Remarks | Pat Gwynn |

# REGULATORY CONFERENCE ATTENDANCE

| | |
|---|---|
| **LICENSEE/FACILITY** | Entergy Operations/ River Bend Station |
| DATE/TIME | June 23, 2003/1:00 p.m. CDT |
| LOCATION | U. S. NRC Region IV Office,<br>611 Ryan Plaza Drive, Suite 400<br>Arlington, TX |

| NAME (PLEASE PRINT) | ORGANIZATION |
|---|---|
| Mike Tschiltz | NRR/DSSA/SPSB |
| GARETH PARRY | NRR/DSSA |
| Patricia Campbell | Winston & Strawn |
| Peter Wilson | NRR/DSSA/SPSB |
| Michael Webb | NRR/DLPM/PD4-1 |
| Jennifer Dixon-Herrity | OE |
| PETER KOLTAY | NRR |
| FRED EMERSON | NEI |
| Phil Qualls | NRR/DSSA/SPLB |
| Daniel Frumkin | NRR/DSSA/SPLB |
| | |
| | |
| | |



Headquarters

| REGULATORY CONFERENCE ATTENDANCE | |
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| DATE/TIME | June 23, 2003/1:00 p.m. CDT |
| LOCATION | U. S. NRC Region IV Office,<br>611 Ryan Plaza Drive, Suite 400<br>Arlington, TX |

| NAME (PLEASE PRINT) | ORGANIZATION |
|---|---|
| Gail M. Good | USNRC, Region IV |
| Pat Gwynn | USNRC, Region IV |
| David Graves | USNRC, Region IV |
| Michael Miller | USNRC, RBS Resident Inspector |
| Karla Smith | US NRC, RIV |
| Gary Sanborn | " |
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# REGULATORY CONFERENCE ATTENDANCE

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| NAME (PLEASE PRINT) | ORGANIZATION |
|---|---|
| Kristi Hoffstatler | Licensing - Entergy - River Bend |
| Ricky Summitt | RSC - consultant |
| Rick Thomas | Licensing - Entergy Headquarters |
| Glenn Ashley | Entergy - Arkansas Nuclear One Licensing |
| Rebecca Nease | Region IV / NRC |
| Michael C. Hay | Region IV / NRC |
| Timothy A. Hope | TXU |
| STEVEN D. KARPYAK | TXU |
| Michael F. Runyan | Region IV / DRS |
| | |
| | |
| | |
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## REGULATORY CONFERENCE ATTENDANCE

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| NAME (PLEASE PRINT) | ORGANIZATION |
|---|---|
| William A Eaton | Entergy Operations, Inc. |
| Rick J. King | " " River Bend |
| William R. Brian | " " " " |
| DEEPAK RAO | Entergy Operations, Inc. |
| Loys Bedell | Entergy Operations, Inc. |
| THOMAS L. HUNT | ENTERGY OPERATIONS, INC |
| Joseph W. Leavines | Entergy Operations, Inc. |
| JOEY A. CLARK | ENTERGY OPERATIONS, INC. |
| Robert BIGGS | ENTERGY OPERATION, INC |
| DAVID P. Loveless | NRC, REGION IV |
| | |
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# River Bend Station

## September 2002 Scram Event
## Risk Perspectives

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# Opening Remarks

## Bill Eaton, VP Engineering

# Agenda

| | |
|---|---|
| • Opening Remarks | B. Eaton |
| • Agenda Review & Timeline | R. King |
| • Event Description | J. Clark |
| • Risk Model/Methodology | D. Rao |
| – PSA Model | |
| – Evaluation Results | |
| • Risk Evaluation | L. Bedell |
| – Internal Risks | |
| • Changes to Model | |
| – External Risks | |
| • Design Basis Review | |
| • Review of Actual Plant Conditions | |
| • Scenarios for September Scram | |
| – Large Early Release | |
| – Fire | |
| • Fire Risk Assumptions | |
| • Detailed Fire Risk Evaluation | |
| • Regulatory Summary | R. King |
| • Closing Remarks | B. Eaton |

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# Timeline

| DATE | Milestone | Risk (ICCDP) |
| --- | --- | --- |
| 9/18/02 | Plant Scram w/ Loss of Feedwater | - |
| | Initial risk evaluation | 9.3 E-7 |
| 11/14/02 | NRC Identified Finding "Procedure Inadequate" | - |
| 1/9/03 | NRC SRA on site @ RBS | 7.7 E-7 |
| 2/7/03 | IR issued | - |
| 3/19/03 | SRA informed of IPEEE actions for 18 fire areas | - |
| 3/31/03 | RBS provided SRA with external events information (IPEEE screening results) | 7.7 E-7 |
| 4/11/03 | Notified of preliminary finding greater than Green | - |
| 5/6/03 | Choice letter received | - |
| 5/20/03 | RBS decision on Reg. Conf. | 5.3 E-7 |

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# Agenda

- Opening Remarks — B. Eaton
- Agenda Review & Timeline — R. King
- Event Description — J. Clark
- Risk Model/Methodology — D. Rao
  - PSA Model
  - Evaluation Results
- Risk Evaluation — L. Bedell
  - Internal Risks
    - Changes to Model
  - External Risks
    - Design Basis Review
    - Review of Actual Plant Conditions
    - Scenarios for September Scram
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  - Fire
    - Fire Risk Assumptions
    - Detailed Fire Risk Evaluation
- Regulatory Summary — R. King
- Closing Remarks — B. Eaton

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# Event Description

- Initial Conditions
  - Mode 1
  - Reactor Power 100%
- Turbine Control System Malfunction
  - Turbine control valves and intercept valves driven closed
  - Bypass valves opened
  - Reactor pressure increased – positive reactivity addition
- High Neutron Flux Reactor Protection Trip
  - Reactor Scram
- Plant performed as expected with the exception of CNM-FCV200

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# Event Description

- Reactor Level 3
  - Feedwater Level Control System set point set down actuated as designed causing a rapid increase in Condensate / Feedwater System Flow
  - Unexpected closing of full flow filtration bypass valve (CNM-FCV200)
  - Reactor feed pumps tripped on low suction pressure
  - RCIC was initiated to maintain Reactor level
  - Condensate System was shutdown by the operators due recognition of leakage

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# Agenda

| | |
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| • Event Description | J. Clark |
| • Risk Model/Methodology<br>—PSA Model<br>—Evaluation Results | D. Rao |
| • Risk Evaluation<br>– Internal Risks<br>• Changes to Model<br>– External Risks<br>• Design Basis Review<br>• Review of Actual Plant Conditions<br>• Scenarios for September Scram | L. Bedell |
| • Large Early Release | |
| • Fire<br>– Fire Risk Assumptions<br>– Detailed Fire Risk Evaluation | |
| • Regulatory Summary | R. King |
| • Closing Remarks | B. Eaton |

# PSA Model

- Current Model
  - Reflects plant design and procedure changes since the IPE submittal, i.e., reflects *the as-built, as-operated plant*.
  - Implemented in EOOS Risk Monitor
  - Reviewed by an industry (BWROG) PSA Certification team.
  - Includes RBS plant specific operating history (failure data and initiating events).
  - Rev 3A (completed November 2002)

- Model Configuration Control
  - Reviews of plant changes (design & procedural) per EN-S PSA Procedure CE-P-05.01
  - PSA Model Change Request (MCR) database used to track issues
  - Important issues are addressed with higher priority

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# PSA Model

- Major Update

  - Currently ongoing, expected to be completed in 1Q ’04
  - Will include upgrades/update to Human Reliability Analysis, Common Cause Failure Analysis
  - Plant specific failure and initiating events data

  - Routine Updates Include:

    - Plant specific initiator frequency update
    - Failure data update (including plant specific)
    - Improving methods in selected model elements
    - Evaluation and keeping up with latest accepted industry practices/standards

# PSA Model

- Long-term enhancements
  - Scheduled
    - External Events PSA
    - Transition Risk
    - Improved LERF Tools
    - Shutdown Risk Models
- Developed interim fire risk tool
  - This really was an accelerated item to assist in the Sept. 18 scram risk evaluation
  - Provided us additional insights that we will apply to all EN-S sites

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# PSA Model

- Accelerated Update
  - Provides more accurate characterization of event
  - Reviewed model changes that would impact CDF
  - Focused primarily on impact to high pressure injection and depressurization
  - Accelerated these update items to support September Scram Risk Assessment

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# Improved Fire Risk Model

- The Sept. 18 scram evaluation has resulted in an Improved Fire Risk Quantification Tool being available for future evaluations at River Bend
- Considerably more realistic than IPEEE screening fire evaluations
- Intend to apply this enhancement to other EN-S PSAs
- Uses the latest tree corresponding to the as built, as operated plant (instead of IPEEE vintage model)
- This tool will help in better managing RBS risk profiles in the future

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# Risk Evaluation Results

| Risk Component for 126-day period | Pre-Special Inspection Risk Evaluation | Initial Entergy Evaluation | After PSA Refinements |
|---|---|---|---|
| Fire Risk | ICCDP 9.3E-7 | Not significant (well below 1E-6) via results from screening method | ICCDP quantified with additional model refinements to be ~3E-10 |
| Internal Events | ICCDP 9.3E-7 | ICCDP ~7.7E-7 using MOR | ICCDP quantified with updated model and shown to be ~5.3E-7 |

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# Risk Evaluation Results

| Risk Component for 126-day period | Pre-Special Inspection Risk Evaluation | Initial Entergy Evaluation | After PSA Refinements |
|---|---|---|---|
| Seismic | Considered to be insignificant | Considered to be insignificant | Confirmed to be insignificant |
| Other External Events (wind, floods, others) | Considered to be insignificant | Considered to be insignificant | Confirmed to be insignificant |

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# Risk Evaluation Results

| **Risk Component for 126-day period** | **Pre-Special Inspection Risk Evaluation** | **Initial Entergy Evaluation** | **After PSA Refinements** |
|---|---|---|---|
| LERF | Considered to be insignificant | Considered to be insignificant | ΔLERF assessed to be below 5E-9 |
| **Total Risk & Conclusion** | **ICCDP 9.3E-7** | **~7.7E-7 (ICCDP) considered external events, assessed to be insignificant** | **~5.3E-7 (ICCDP); <5E-9 (ΔLERF) external events confirmed to be insignificant** |

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# BREAK

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# Agenda

| | |
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| • Event Description | J. Clark |
| • Risk Model/Methodology | D. Rao |
| – PSA Model | |
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| | |
|---|---|
| •Risk Evaluation | L. Bedell |
| •Internal Risks | |
| •Changes to Model | |
| •External Risks | |
| •Design Basis Review | |
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| •Scenarios for September Scram | |
| •Large Early Release | |
| •Fire | |
| •Fire Risk Assumptions | |
| •Detailed Fire Risk Evaluation | |

| | |
|---|---|
| • Regulatory Summary | R. King |
| • Closing Remarks | B. Eaton |

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# Preliminary Significance Determination

- Internal Events ICCDP of 7.7E-7
- All Reactor Scrams would Result in a Loss of Feedwater and Condensate
- Limited Credit For CRD with HPCS and RCIC Failure to Run (after 6 hours)
- Fire ICCDP of 8E-7
- Fire PRA Screening Process used to Determine Fire ICCDP
- The NRC combined internal and external events to derive a best estimate judgment of 1.6E-6.
- The NRC agreed with the internal events number of 7.7E-7 in their letter of May 2, 2003.

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# Risk Evaluation

- Internal Events
  - Changes to Model
- External Events
  - Design Basis Review
  - Review of Actual Plant Conditions
  - Scenarios for September Scram
- Large Early Release
- Fire Risk Events
  - Fire Risk Assumptions
  - Detailed Fire Risk Evaluation

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# Current Model Features

MOR features:

- Div 3-Cross Connect
- Instrument Air Plant Mods
- Component Cooling Water Plant Mods
- Service water 599 valve mod (EDG return valve)
- DC power system modeling refinements in MOR
- RCIC system mods
- Offsite power recovery is more accurate
- CRD availability

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# Internal Events Model

<u>Accelerated Updates</u>:

- Incorporated CRD following HPCS and RCIC failures after 6 hours
- Updated DC Power Model to remove Battery Depletion for Systems that Start Early
- Removed DC Dependencies for MCC Powered Components

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# Internal Events Model

<u>Accelerated Updates:</u>

- Corrected removal of HPCS & RCIC in EOOS calculation (Increase in CDF)
- Updated HPCS and RCIC Failure to Start Probabilities based on plant specific data
- Updated Common Cause Failure of ADS Valves Based on NUREG/CR-5497

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# Internal Events Results Based on Model

*Incremental Risk = (instant. CDF (/yr) – base CDF) * Actual Time (days) / 365 d/yr*

5.27E-7 = (9.95E-6/yr – 8.46E-6/yr) * 126/365

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# Risk Evaluation

- Internal Events
  - Changes to Model
- External Events
  - Design Basis Review
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  - Scenarios for September Scram
- Large Early Release
- Fire Risk Events
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  - Detailed Fire Risk Evaluation

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# External Event Overview

- External Event Review
  - Seismic
  - High Winds (Hurricanes, Tornadoes)
  - External Flooding
  - Transportation
  - Other (Severe Weather, Lightning, External Fire)

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# Design Basis Information

- Feedwater and Condensate are not credited for DBA External Events.
- Feedwater and its Support Systems are Non-Seismic Category and Non-Safety Related.
- All Feedwater support systems are not protected from weather events (offsite power lines).

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# Qualitative Review of Actual Data

- Seismic frequency for RBS is very low (>0.5g seismic event = 1.2E-6/yr)
- Highest average Wind < 10 mph
- Mild Drought (flooding less likely)
- Security changes reduce transportation events
- Looked at all scenarios and eliminated them as possible contributors to risk.
- **Meets 1975 Standard Review Plan for IPEEE and design basis.**

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# Risk Evaluation

- Internal Events
  - Changes to Model
- External Events
  - Design Basis Review
  - Review of Actual Plant Conditions
  - Scenarios for September Scram
- Large Early Release
- Fire Risk Events
  - IPEEE Methodology
  - Detailed Fire Risk Evaluation

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# Large Early Release

- Major Contributors to LERF
  - Containment Isolation
  - Hydrogen Igniters
  - Suppression Pool Bypass

- Level 1 Cutsets show Major Contributors Not Impacted by Event

- ΔLERF Impact Estimated at ~5E-9

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# Risk Evaluation

- Internal Events
  - Changes to Model
- External Events
  - Design Basis Review
  - Review of Actual Plant Conditions
  - Scenarios for September Scram
- Large Early Release

- Fire Risk Events
  - Fire Risk Assumptions
  - Detailed Fire Risk Evaluation

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# Fire Risk Overview

- IPEEE Fire Risk Assumptions
- IPEEE Screening Process
- Re-Evaluated Fire Areas w/ Feedwater Credit
- Fire Risk Results
  - Fire ICCDP = 8E-7 Based on IPEEE Fire Screening Process

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# Fire Protection Design

- Post-Appendix R Plant
- Divisional Cable Separation
- Strong Fire Barriers
- Predominantly IEEE-383 Cable
- Little reliance on manual actions
- Detection and suppression in most areas
- IPEEE screening method does not measure the impact of post Appendix R designs

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# Fire Risk Assumptions - IPEEE

- All Fires in the Appendix R Fire Areas result in a Reactor Scram
- Generally Only Credited SSA Equipment
- Very little credit for automatic or manual suppression
- Components fail in worst case position
- No Credit for Thermo-Lag Fire Barriers

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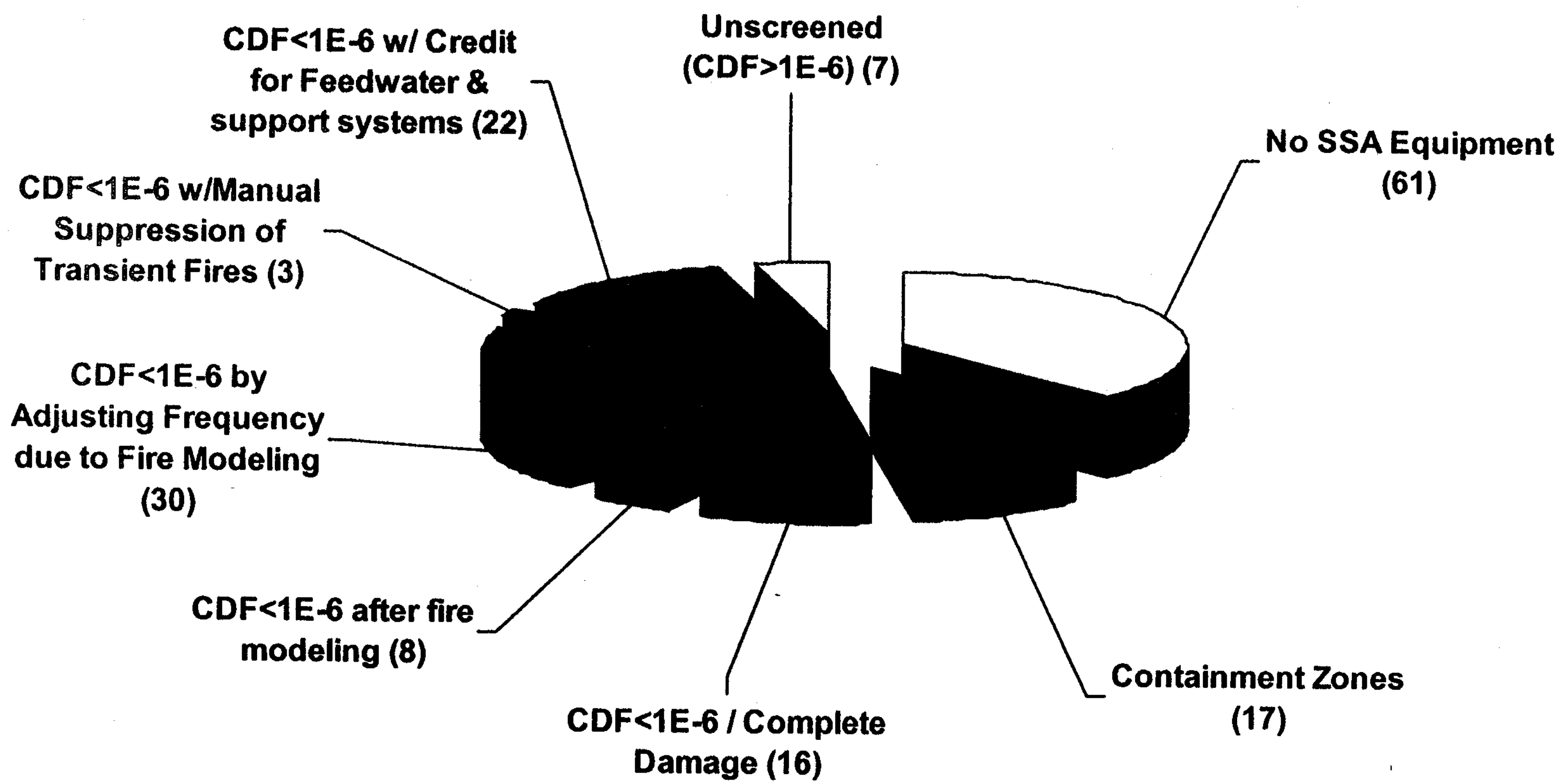
# Fire Risk Assumptions – IPEEE

- Fire Damage assumed immediate and complete
- No Credit for Roving Fire Watches
- Fire Severity only Credited in Main Control Room and Div. I and II EDG rooms
- No Credit for Limitation of Transient Combustibles

# IPEEE Screening Process




164 Appendix R Fire Zones

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# Re-Evaluation of Feedwater Areas

- Reviewed fire zones to identify those that credited feedwater
- Two techniques used for re-evaluation
  - Review for scram potential
  - Calculate fire severity factors

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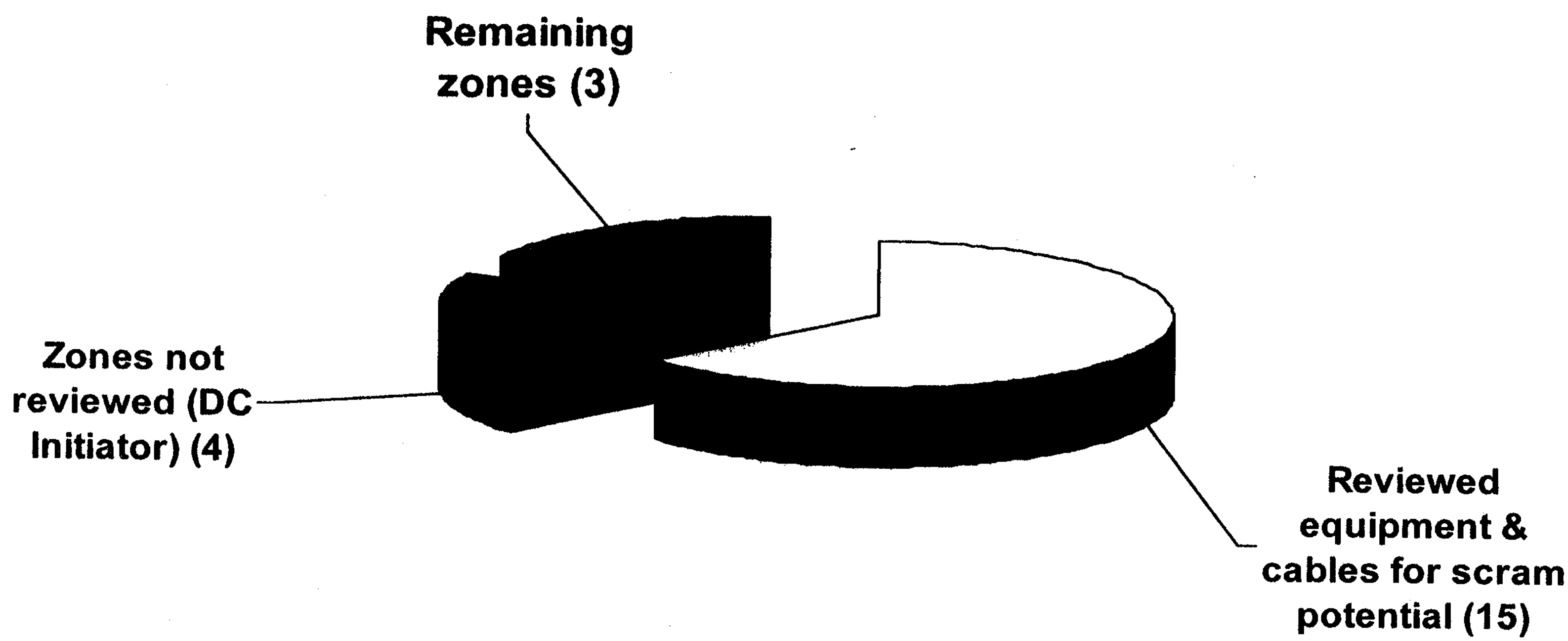
# Fire-Area Evaluation Process




22 Fire Zones w/ Credit for Feedwater & Support Systems

# Fire Zone Screening Method

| Fire Screen | # Zones Credited for Feedwater | Impact of Crediting FW | Other Areas of Evaluation |
|---|---|---|---|
| Unscreened | 7 FW not credited, cannot easily determine damage to FW or Supports, Delta CDF evaluated as 0. | Base CDFs drop from E-6 range to E-9 range. Also scram potential drops. | Scram Potential, Severity Factors |
| Feedwater Credit, Manual Suppress | 22 FW credited. Risk impact evaluated.<br>3 FW not credited. Cannot easily determine damage to FW or Supports, Delta CDF evaluated as 0. | Base CDFs drop from E-7 range to E-10 range. Also scram potential drops. | Done.<br>Scram Potential, Severity Factors |
| Fire Scenario Frequency | 30 FW not credited. Screened w/o evaluating FW. | Base CDFs drop from E-7 range to E-11 range. Also scram potential drops. | Scram Potential, Severity Factors, Manual Suppression |
| Fire Modeling | 8 FW not credited. Screened w/o evaluating FW. | Based CDFs drop from E-7 range to E-12 range. Also scram potential drops. | Scram Potential, Severity Factors, Manual Suppression, Fire Scenario Frequency |
| All Damage | 16 FW not credited. Screened w/o evaluating FW. | Based CDFs drop from E-7 range to E-14 range. Also scram potential drops. | Scram Potential, Severity Factors, Manual Suppression, Fire Scenario Frequency, Fire Modeling. |
| Containment | 17 FW not credited. Screened qualitatively. | Evaluation of scram potential. | Scram Potential, Severity Factors, Manual Suppression, Fire Scenario Frequency, Fire Modeling. |
| No SSA | 61 FW not credited. Screened qualitatively. | Evaluation of scram potential. Scrams bounded by internal events PSA. | Scram Potential, Severity Factors, Manual Suppression, Fire Scenario Frequency, Fire Modeling. |

**Fire Risk for zones is insignificant.**

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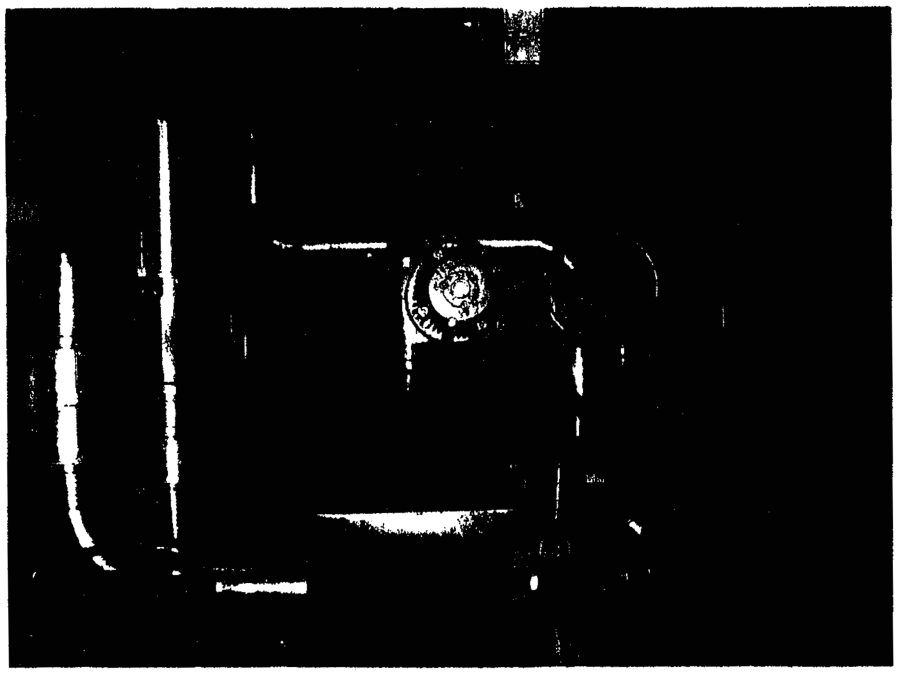
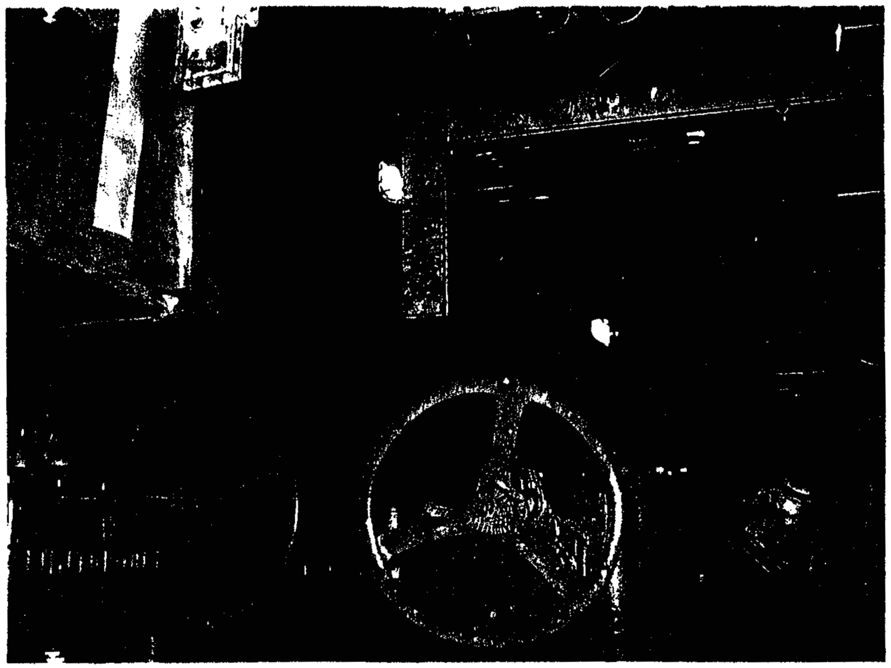
# Fire Area Examples

Example 1:

Consider zone AB-2/Z-1 in the River Bend Fire PSA, the HPCS Room.





# Entergy AB-2/Z-1 Fire PSA Updates

This room contains the following equipment and cables in addition to HPCS equipment:

- DFR, Auxiliary Building Floor drain system, level switches, pumps (non-safety)
- RMS, RHR Room East Radioactivity Monitors, (non safety)
- SSR, Reactor Plant Sample System (non-safety)
- HVR HPCS Room Unit Cooler power cable.
- JPB, non-safety 120V power to receptacle in instrument rack.
- RHS, RHR Pump Room 2C, Elevator Area, RPCCW Area , and RHR Hoist area temperature (both divisions I and II). These isolate E12-MOVF008 and E12-MOVF009 shutdown cooling isolation valves. These valves are required to open approximately 72 hours after shutdown for cooling and are addressed in the safe shutdown analysis.
- ERS, Earthquake recording system (non-safety)

# AB-2/Z-1 Fire PSA Updates

| | **Initial Entergy evaluation** | **After PSA Refinements** | **Comments** |
|---|---|---|---|
| Baseline w/Feedwater available | 4.64E-11 | 0<br>Review of cable routings showed that a fire in this zone would not cause a plant scram | PSA Refinements include:<br>•Model update<br>•Use of updated model in the fire risk quantification |
| Case w/Feedwater unavailable | 5.64E-8<br>(would screen per IPEEE) | 0<br>Review of cable routings showed that a fire in this zone would not cause a plant scram | |
| Δ CDF | 5.64E-8<br>Feedwater did not impact the result (it was not envisioned that a ΔCDF would be determined using this information) | 0 | |

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# Fire Severity Factors

- ***Definition:*** *Fraction of historical fires (EPRI Fire Events Database) in the area that are severe*
- Calculated Fire Severity Factors for 22 zones w/ feedwater credit
- Fire frequency reduced by the fire severity
- Severity factors ranged from 0.01 to 0.24

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# Fire Severity Factors

- NSAC-178L, "EPRI Fire Events Database" used for evaluation
- NSAC-178L also used for IPEEE Fire Frequencies
- Review of EPRI TR-1003111 (Update of NSAC-178L) - We've looked at the standard and confirmed no significant impact.

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# Fire Severity Split Fraction

| Qualitative Meaning | Value |
|---|---|
| Clear indication of a severe fire | 1.0 |
| Incomplete or inadequate information to formulate a clear understanding of event but the description or other similar events would indicate that the event was not severe. | 0.5 |
| Indication that the event was not severe but extenuating circumstance could have altered this evaluation such as a delay in response to the fire or the presence of additional combustible material that did not happen to ignite. | 0.1 |
| Very unlikely that the event was a severe fire, but cannot be completely ruled out based on the information provided. | 0.05 |
| Clearly meets criteria for exclusion as a severe fire | 0.0 |

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# Fire Area Examples

## Example 2:

Consider zone in the Fire PSA, the C18 Room (DIV1 DC)

This room contains the following equipment and cables in addition to Division 1 DC Power:

- Ventilation system cables for battery room temperature control and monitoring (non-safety).

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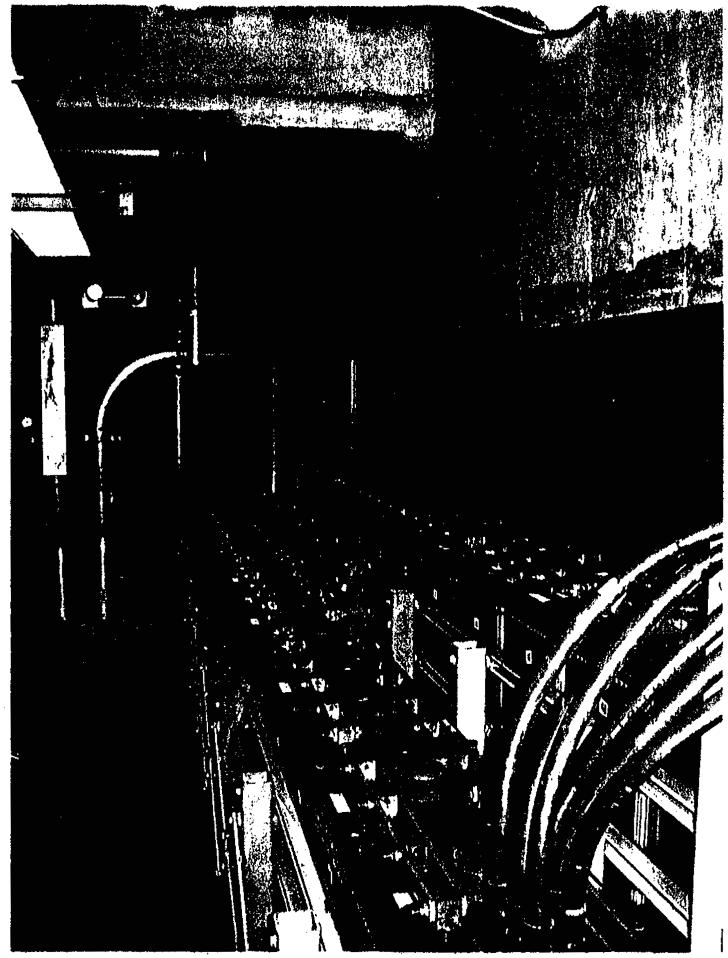
# Battery Room



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# C18 Fire PSA Updates

| | Initial Entergy evaluation | After PSA Refinements | Comments |
|---|---|---|---|
| Baseline CDF/yr for zone w/ Feedwater available | 3.80E-09 | 3.04E-11 | PSA Refinements include:<br>•Model update including DC power refinement<br>•Application of Fire Severity Factor for this zone<br>•No credit taken for auto or manual suppression of fire |
| Case CDF/yr for zone w/ Feedwater unavailable | 4.92E-07 | 3.31E-11 | |
| Δ CDF/yr | 4.88E-07<br>Feedwater did not impact the result (it was not envisioned that a ΔCDF would be determined using this information) | 2.74E-12 | |

# Fire Risk Results by Zone

| Fire Zone | Severity Factor | Base CDF/yr | Case CDF/yr (w/o feedwater) | ΔCDF/yr |
|---|---|---|---|---|
| C-13A | 0.02 | 5.64E-13 | 2.97E-12 | 2.41E-12 |
| C-13B | 0.02 | 5.64E-13 | 2.97E-12 | 2.41E-12 |
| C-18 | 0.014 | 3.04E-11 | 3.31E-11 | 2.74E-12 |
| C-19 | 0.014 | 2.44E-11 | 2.72E-11 | 2.74E-12 |
| C-20 | 0.014 | 2.16E-12 | 1.67E-10 | 1.65E-10 |
| C-21 | 0.014 | 1.81E-12 | 1.40E-10 | 1.38E-10 |
| C-23 | 0.014 | 3.04E-12 | 2.80E-10 | 2.77E-10 |
| C-26 | 0.014 | 3.19E-12 | 3.56E-10 | 3.53E-10 |
| **Total** | | **6.61E-11** | **1.01E-09** | **9.43E-10** |

**Even if a Severity Factor of .1 is assumed, ΔCDF < 10E-8.**

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# Fire Risk Results

*Incremental Risk = (instant. CDF (/yr) – base CDF) * Actual Time (days) / 365 d/yr*

3.27E-10 = (1.01E-9 - 6.61E-11) * 126/365

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# Agenda

- Opening Remarks — B. Eaton
- Agenda Review & Timeline — R. King
- Event Description — J. Clark
- Risk Model/Methodology — D. Rao
  - PSA Model
  - Evaluation Results
- Risk Evaluation — L. Bedell
  - Internal Risks
    - Changes to Model
  - External Risks
    - Design Basis Review
    - Review of Actual Plant Conditions
    - Scenarios for September Scram
  - Large Early Release
  - Fire
    - Fire Risk Assumptions
    - Detailed Fire Risk Evaluation
- Regulatory Summary — R. King
- Closing Remarks — B. Eaton

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# Preliminary Significance Determination

- Inspection Report 02-07:

  *"… installed a plant modification, in a temporary condition, without providing sufficiently detailed operating procedures and/or operator training."*

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# Risk Results Summary

| PSA | Pre-Special Inspection Risk Evaluation (9/02) | Initial Entergy Evaluation (1/03 – 3/03) | After PSA Refinements (6/03) |
|---|---|---|---|
| Internal Events | 9.3 E-7 (ICCDP) | ~7.7E-7 (ICCDP) | ~5.3E-7 (ICCDP) |
| External Events (including fires) | 0 | Screened: Insignificant (<1E-6) | <1E-9 |
| Total Risk | 9.3 E-7 (ICCDP) | ~7.7E-7 (ICCDP) considered external events, assessed to be insignificant | ~5.3E-7 (ICCDP); external events confirmed to be insignificant |

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# Regulatory Summary

Very Low Safety Significance Conclusion:

**GREEN**

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# Agenda

| | |
|---|---|
| • Introduction | R. King |
| • Opening Remarks | B. Eaton |
| • Event Description | J. Clark |
| • Risk Model/Methodology | D. Rao |
| – PSA Model | |
| – Evaluation Results | |
| • Key Assumptions | L. Bedell |
| – Internal Risks | |
| – External Risks | |
| • Seismic | |
| • Flooding | |
| • Hurricane | |
| • High Wind | |
| • Transportation | |
| – Large Early Release | |
| – Fire | |
| • Regulatory Summary | R. King |
| • Conclusion | B. Eaton |