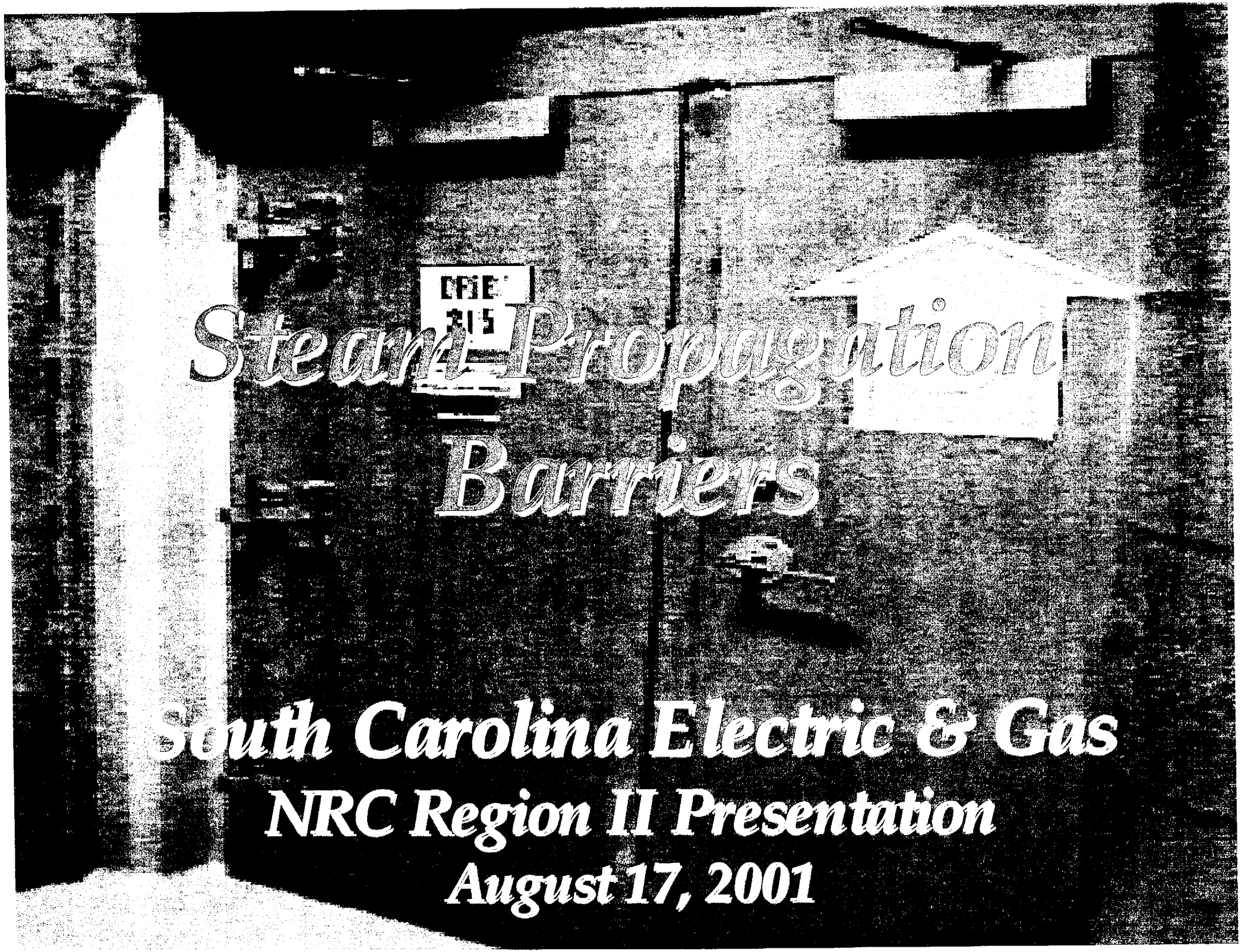
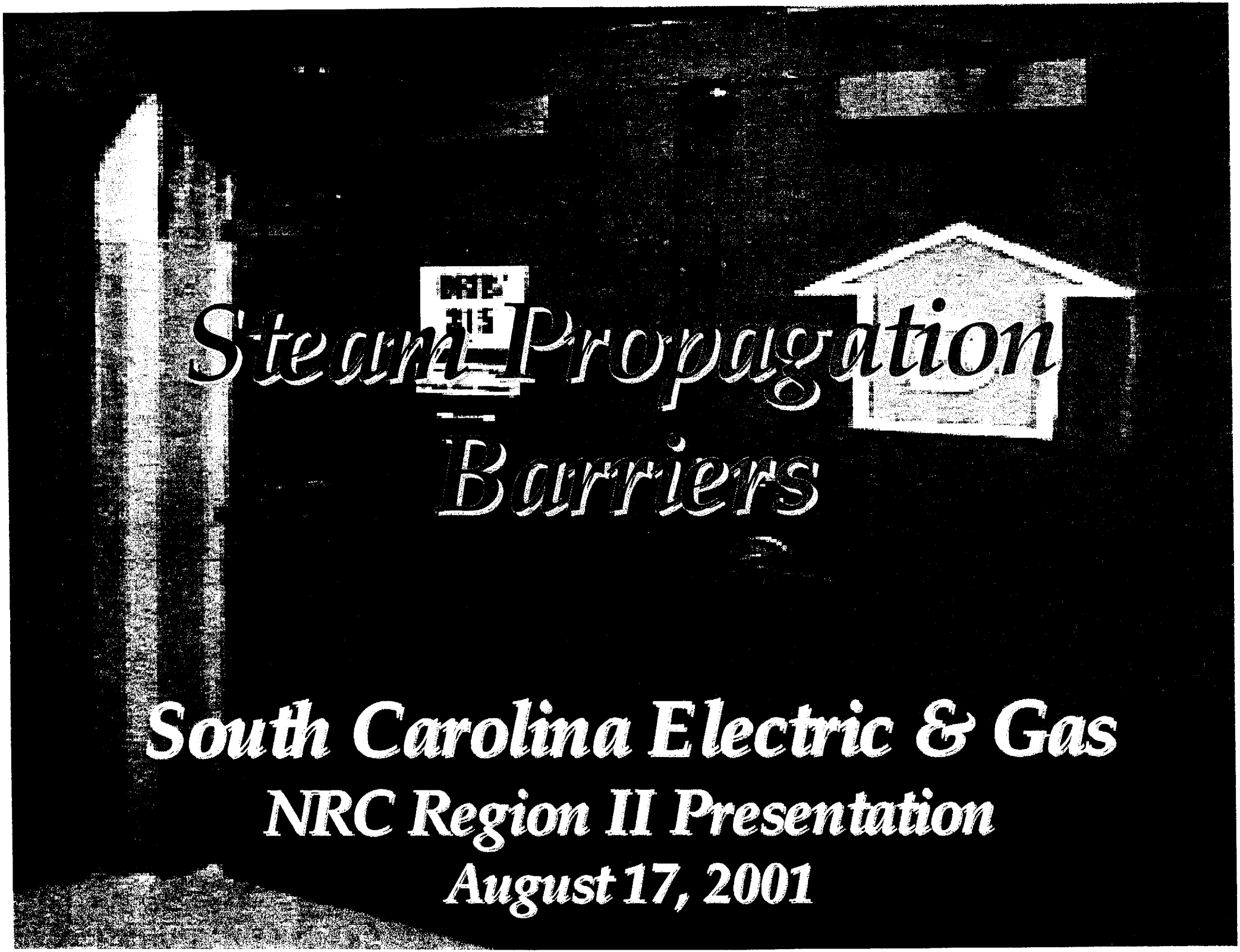

Steam Propagation
Barriers
South Carolina Electric & Gas
NRC Region II Presentation
August 17, 2001


Steam Propagation
Barriers
South Carolina Electric & Gas
NRC Region II Presentation
August 17, 2001

Participants

Steve Byrne	Sr. VP, Nuclear
Tom Keckeisen	Supv., FP
Arnie Cribb	Licensing Engr.
Mel Browne	Mgr. NL&OE

What We Hope to Communicate

- Here to Explain Rationale for Decisions
- Done to Improve Safety & Reliability
  - Industry breaker issue
  - Commitment

What We Hope to Communicate

- Show responsiveness
  - Compensatory Measures
  - Modifications
  - Actions to Prevent Similar Conditions
  - Sought Consensus

What We Hope to Communicate

- Issue is Not Black & White
  - 1988 for VCS
  - Davis Besse Resident Inspector Initiated TIA
    - AOT Guidance Not Clear
  - February 1999 - Industry/NRR Meeting
  - March 1999 - Region II Presentation
- Mullion is Not Key Issue

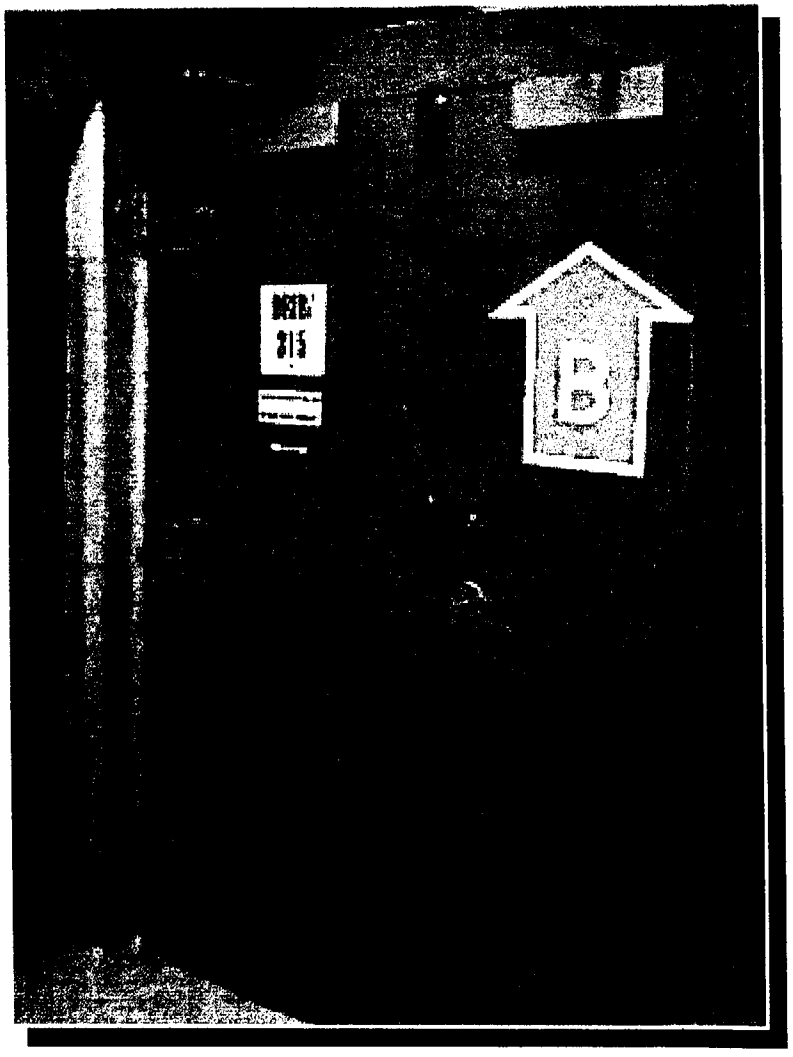
What We Hope to Communicate

- Not viewed as support equipment
  - Design Feature
  - Not like power
  - Normal ingress/egress
- Looking for consistent treatment

SPB Controls

Tom Keckeisen

Supervisor, Fire Protection



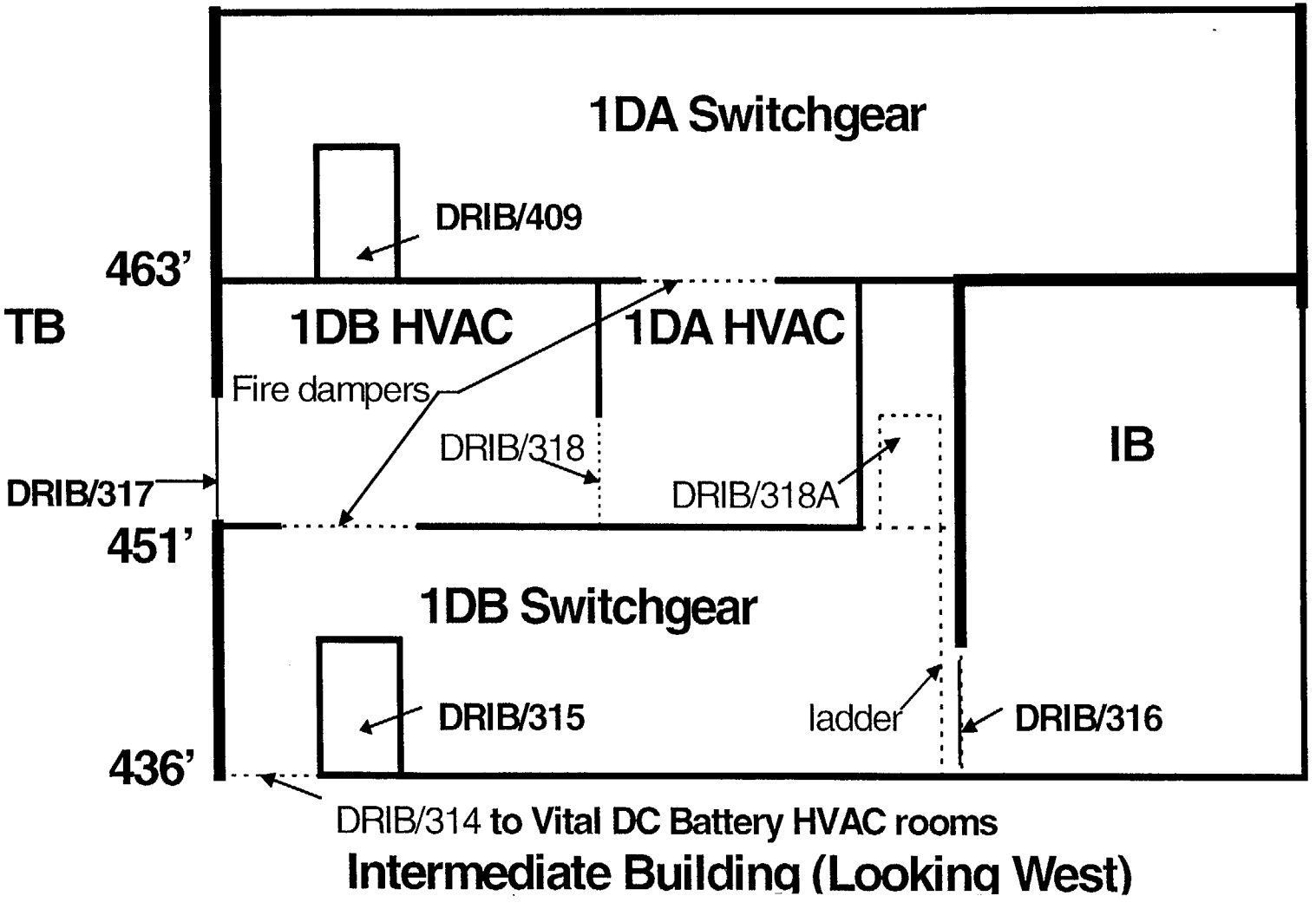
Steam Propagation Barrier (SPB) Design

- FSAR 3.11:
  - Electrical equip. location for EQ purposes defined by environmental zones.
  - Environmental zone boundaries shown on plant drawings
  - Barriers or penetrations (doors) design not described
  - Reference drawings do not identify barrier design features

Steam Propagation Barrier (SPB) Design

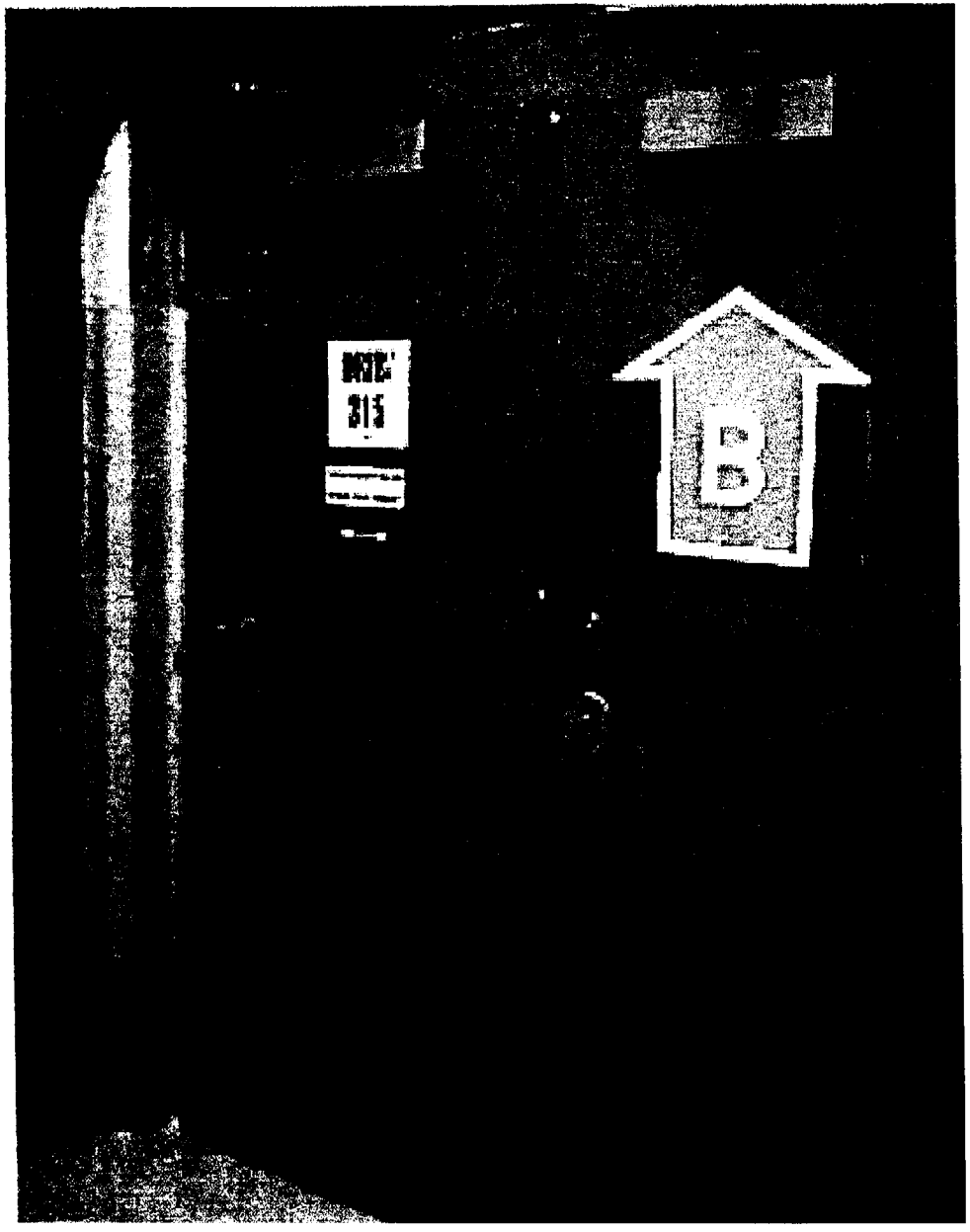
- SPBs and doors are a design feature per design specifications and drawings
  - Double doors designed with a removable center mullion to allow for equipment movement
  - SPBs not designed to separate redundant trains

Vital AC Switchgear Room Configuration

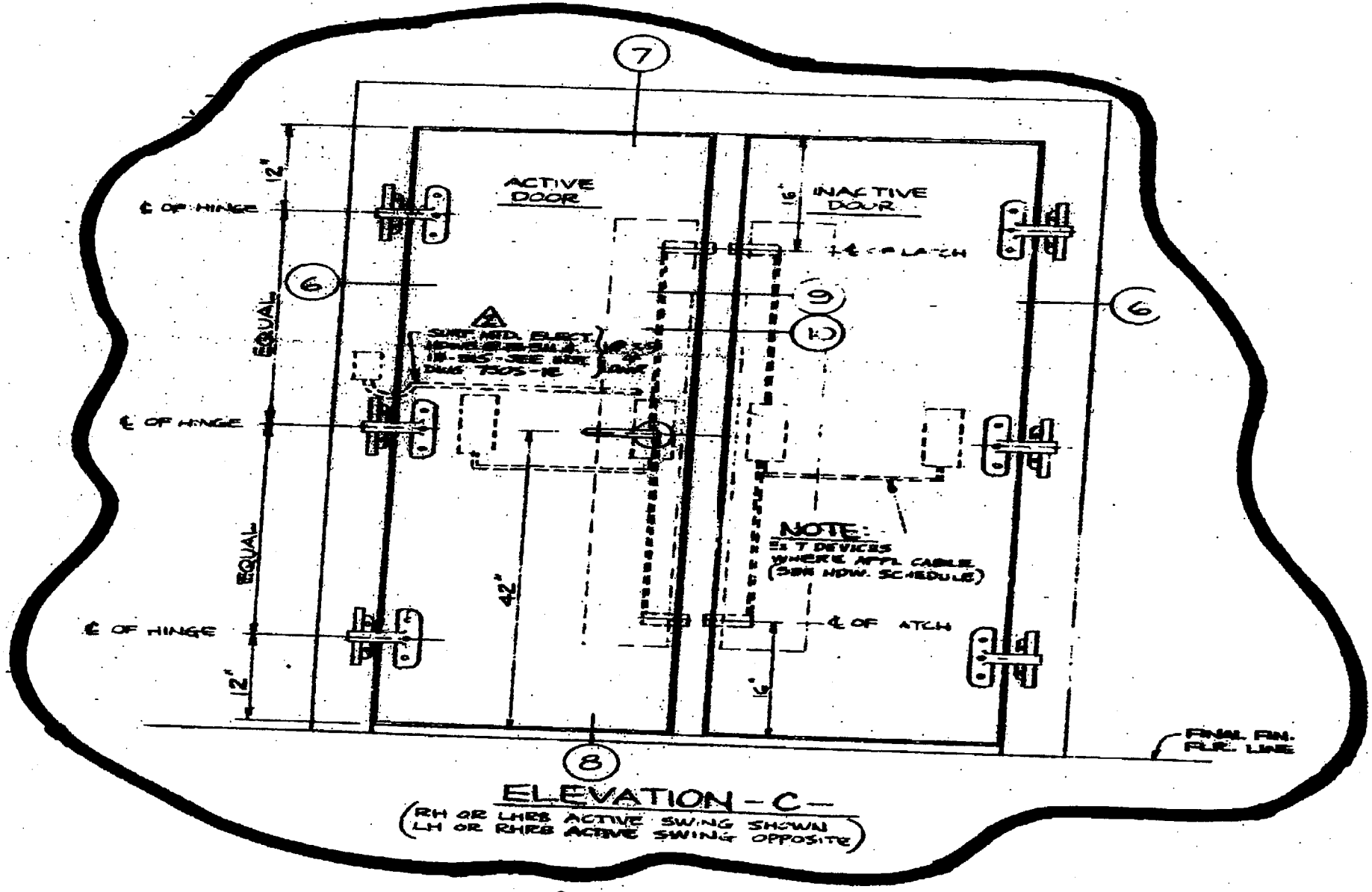


Intermediate Building (Looking West)

SPB Double Door



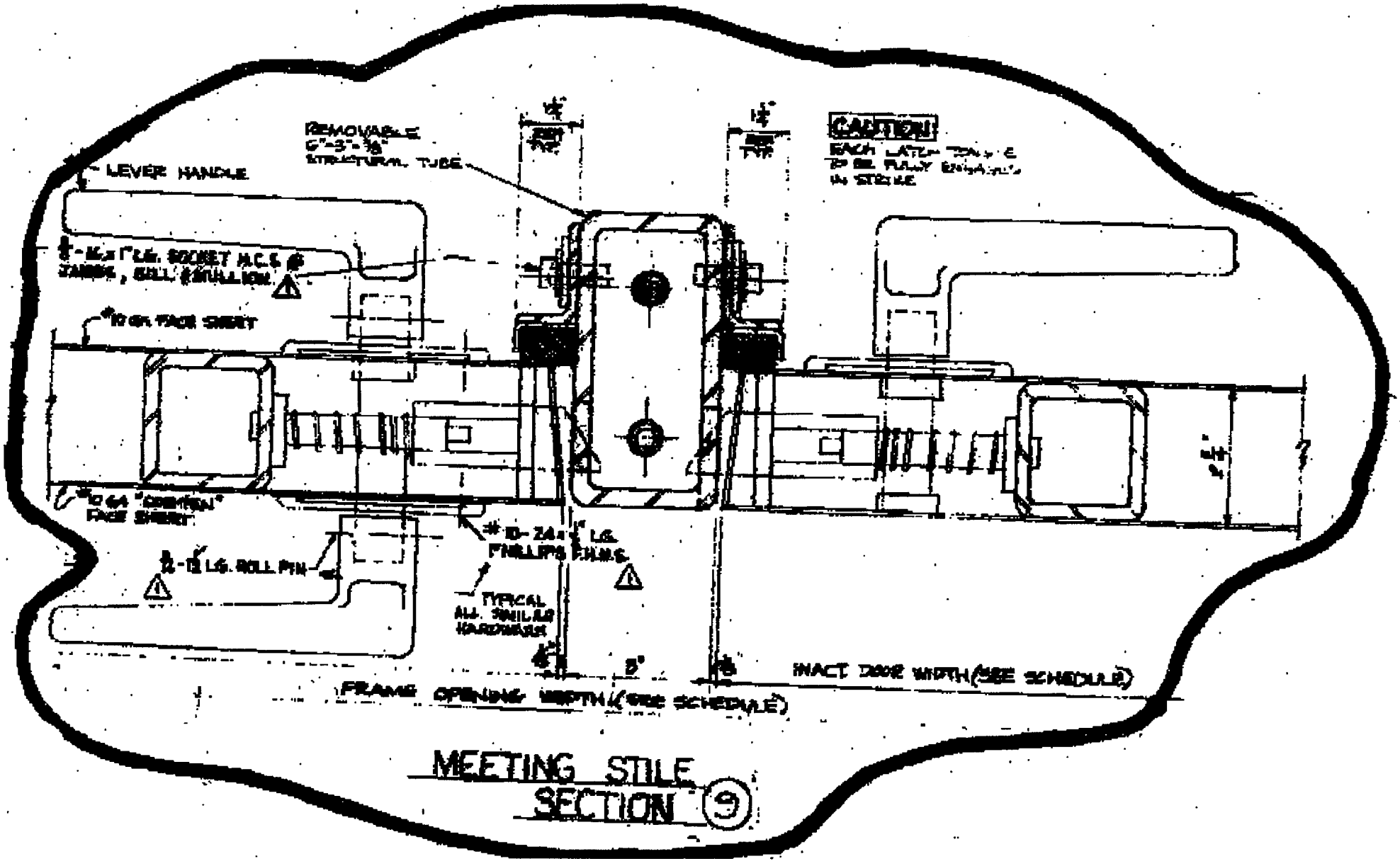
SPB Double Door



ELEVATION – C –

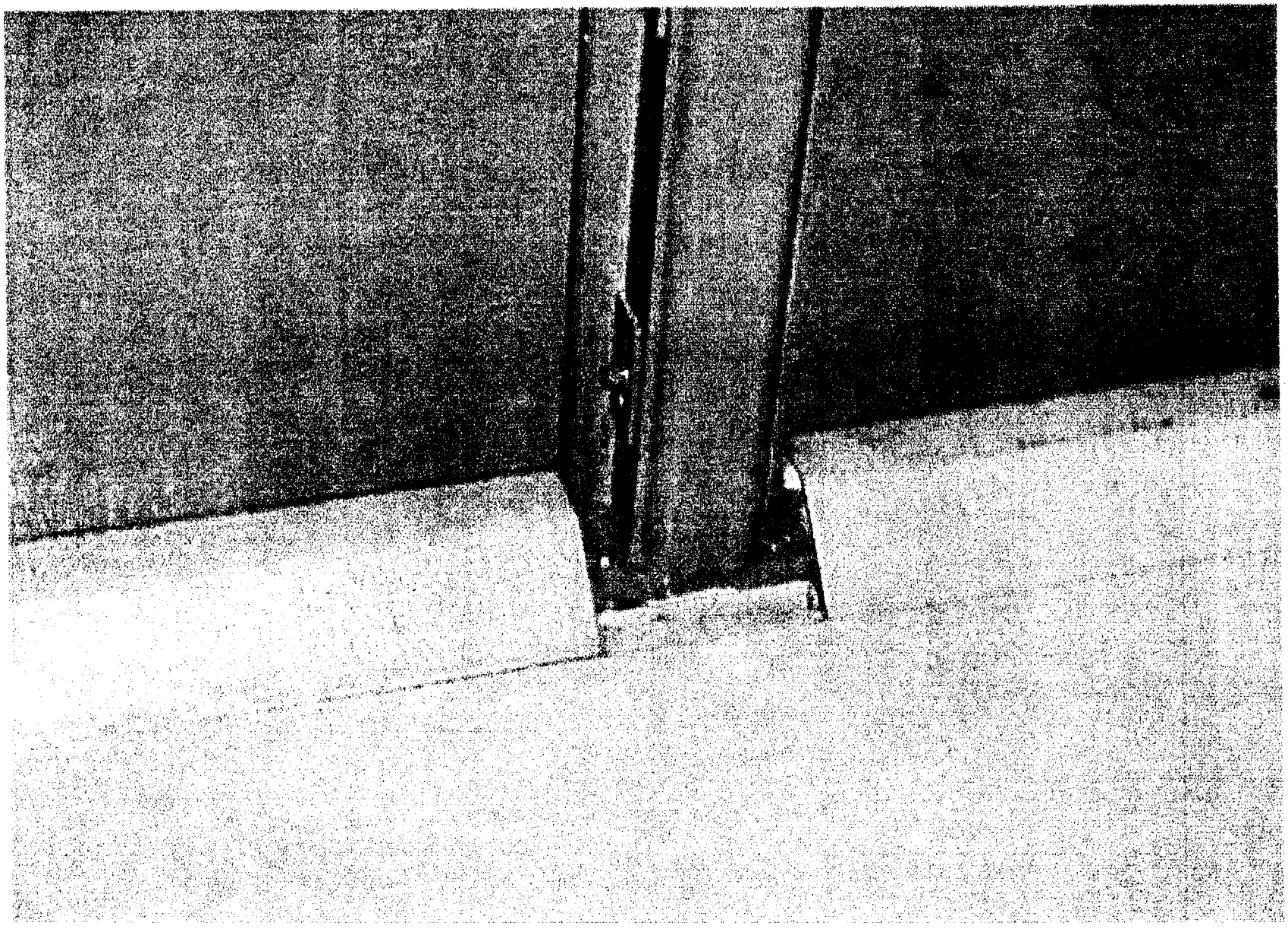
(RH OR LHRB ACTIVE SWING SHOWN
LH OR RHRB ACTIVE SWING OPPOSITE)

Double Door Center Mullion

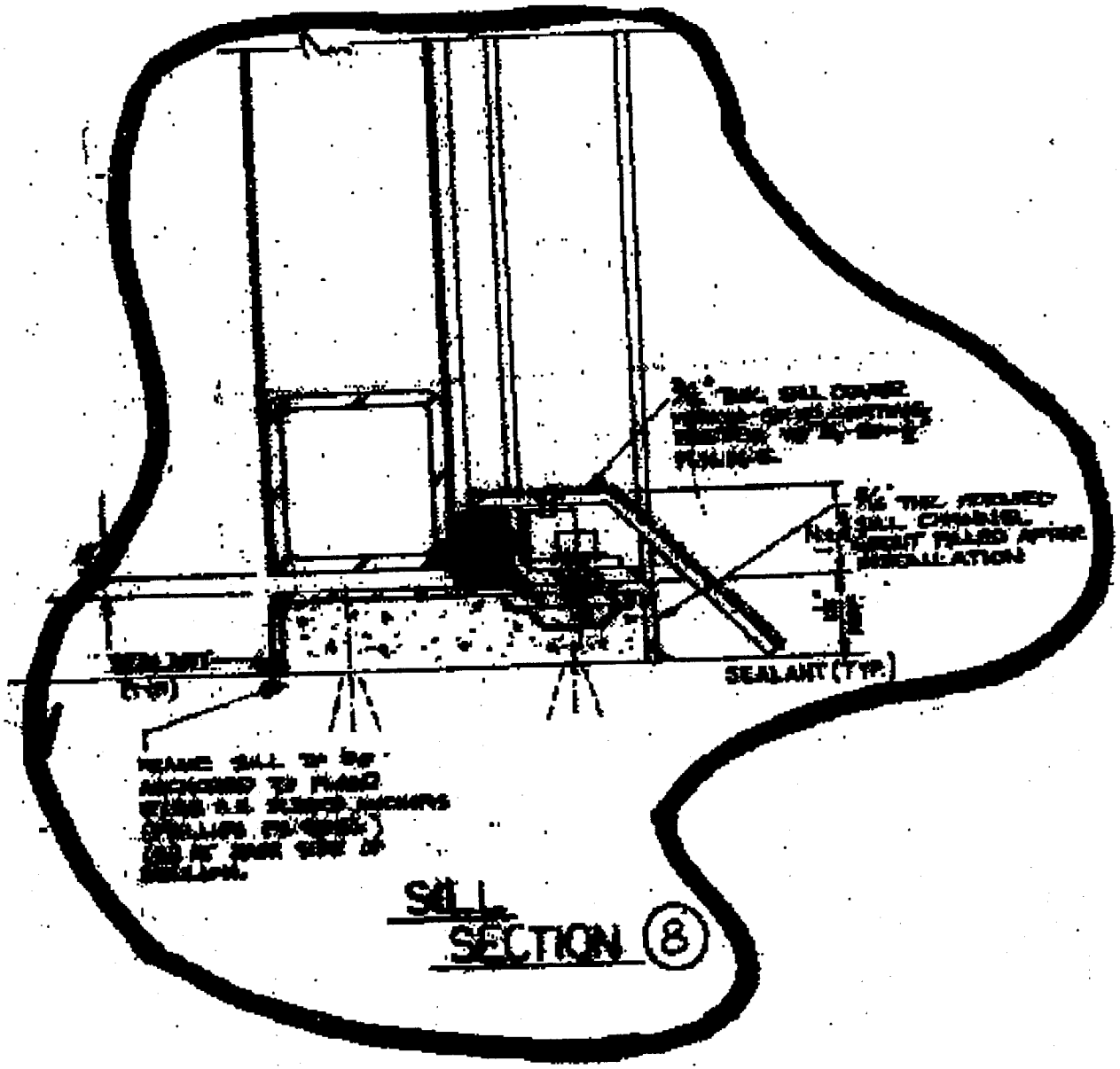


MEETING STILE
SECTION 9

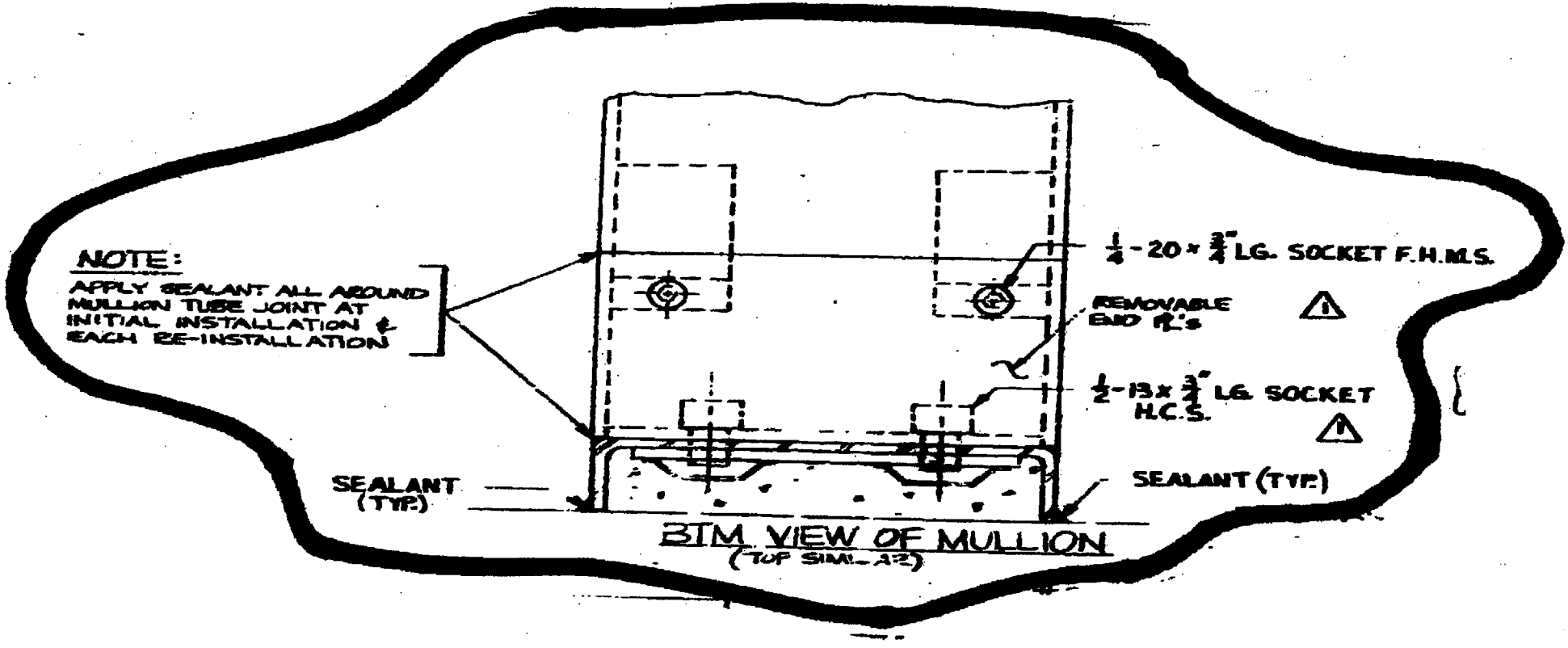
Double Door Center Mullion



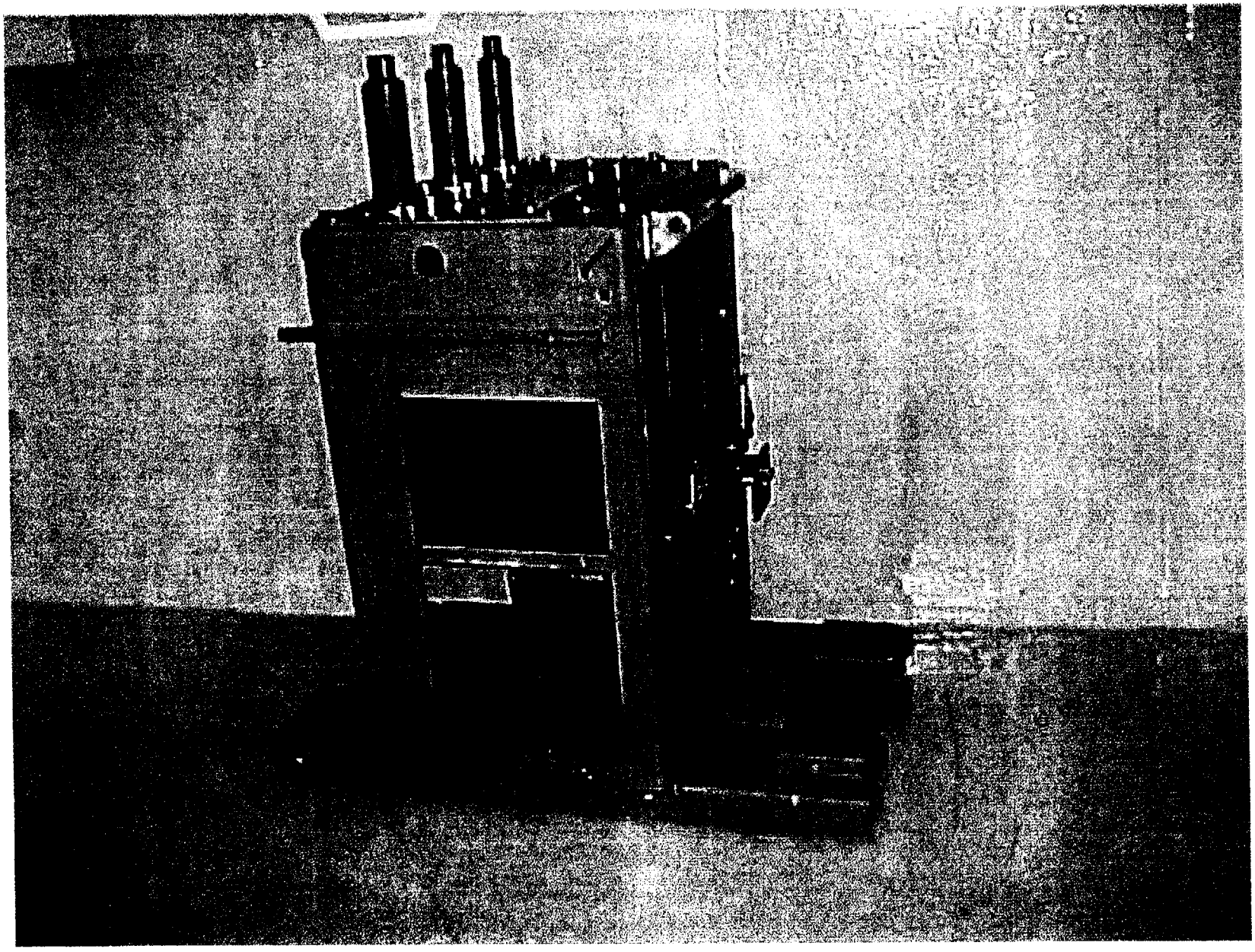
Double Door Center Mullion



Double Door Center Mullion

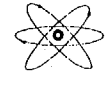


7.2 kV Breaker



History of SPB Control

- Prior to 1988: no specific SPB controls
- 6/88: Identified SPB design defects
  - LER & part 21 report
  - Plant entered mode 4
  - Temporary compensatory measures & repairs implemented
- 9/88: Implemented temporary controls
  - No SPB removals without engineering evaluation
- 11/89: Issued OPS special instruction
  - No SPB removals without engineering evaluation
  - Doors allowed to be blocked open less than 12hrs



History of SPB Control

- 11/89: Issued OPS special instruction
  - No SPB removals without engineering evaluation
  - Doors allowed to be blocked open less than 12hrs
  - Only blocked open to support required operations, maintenance, and surveillance activities
  - Open not specifically defined but includes physically blocking door with ramps, hoses, cables, etc., including removal of center mullion

History of SPB Control

- 10/90: Incorporated administrative controls in FPP
  - No change in controls
  - Doors can be blocked open for up to 12 hours
  - Normal use of doors not considered "change to the facility"

History of SPB Control

- 12/95: PRA to relax existing controls
  - Identified some areas to be more risk "significant" than others
  - CDF remains less than 1E-6 provided total time does not exceed 1632 hours per rolling 18 month period
- 7/96: SPB doors scoped into MR
  - Standby components
  - Established performance criteria related to reliability

History of SPB Control

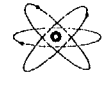
- 11/96: Revised FPP to incorporate the risk insights from the PRA
  - "Non-risk significant" SPBs allowed to be removed from service for up to 7 days provided the total cumulative time was less than specified in the PRA
  - Control of "risk significant" SPBs remained unchanged

History of SPB Control

- 1/98 to 7/98: Door IB-315 to 1DB blocked open to perform SR breaker maintenance
  - Performed per procedure 7 times
  - Total of approximately 30 hours
- 7/98: RI questions SPB controls measures
  - During a scheduled 1DB breaker change-out
- 8/98: NRC issues URI 98006-01

History of SPB Control

- 9/98: Final scheduled 1DB breaker change-out
  - Performed after discussion with NRC
  - Established more restrictive controls
- 12/98: NRC Insp. Report 98-09
  - (Received 12/28/98) inspectors continue to review URI
  - TIA 98-004 (RIII/Davis-Besse) "provides staff position" included as enclosure



History of SPB Control

TIA 98-004:

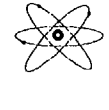
"If a barrier (including a door acting as a barrier) is removed, opened for more than routine ingress and egress, or otherwise made incapable of performing its design safety function, the equipment protected by the barrier should be declared inoperable and the AOT identified in the appropriate Limiting Condition for Operation (LCO) specified in technical specifications (TSs) would apply."

History of SPB Control

- 12/98: FPP-025 revised immediately
  - Discontinue removal of SPBs (rev. 3, 12/29/98)
  - "Routine ingress and egress" only
- 2/99: FPP-025 revised
  - (Rev 3, chg. A) after discussions with NRC RII
  - Defined "routine ingress and egress" and "minor maintenance"
  - Doors allowed to be opened for less than 1 hour, not blocked open and capable of being closed immediately

History of SPB Control

- 4/01: RIS 2001-09 issued
  - VCSNS currently in compliance
  - RIS entered in CER program
- 6/01: Special inspection report 01-08
  - URI closed
  - Issued Apparent Violation 01008-01 "failure to perform a safety evaluation required per 10CFR50.59"



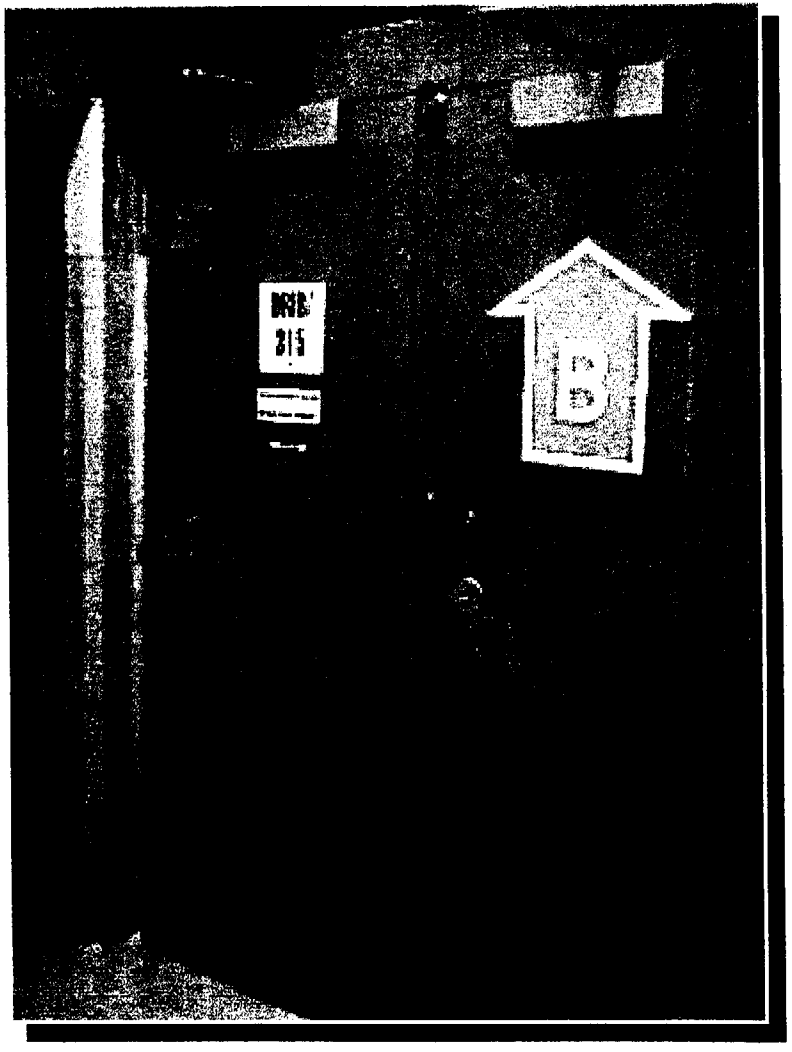
SPB Administrative Controls Summary

- Action were reasonable & prudent
- Normal use includes blocking open and center mullion removal
- Not a change to the facility
- Used to support plant required activities
- Established controls using risk insight
- Recent modifications implemented
- Timely corrective actions implemented

Changing Regulatory Environment

Arnie Cribb

Licensing Engineer



Evolving Guidance

- Changing regulatory environment
  - Revised oversight program in early development
  - Risk informed rule making on the horizon
  - NEI 96-07 not endorsed by the NRC
  - 10 CFR 50.59 and 50.65 (a)(4) being revised

Industry and Regulators Struggle with SPB Issue

- Region IV plants petitioned for Topical Report licensing action
- Region III (Davis-Besse) initiated TIA - identifies a lack of regulatory guidance

Industry and Regulators Struggle with SPB Issue

"…. the RIs found a lack of NRC guidance relating to an acceptable AOT for inoperable hazard barriers protecting equipment (barriers) such as doors for the control room."

-TIA 98-004

Decisions Driven by Safety and Reliability

- Actions driven by breaker reliability
  - IENs, TS, SER referenced in procedure
  - EPRI/NMAC guidance
  - Temporary Instructioin 2515/137
  - 1998 IEN lessons learned
  - Verbal commitment to resident inspector
- Increasing reliability of the plant required using doors at power

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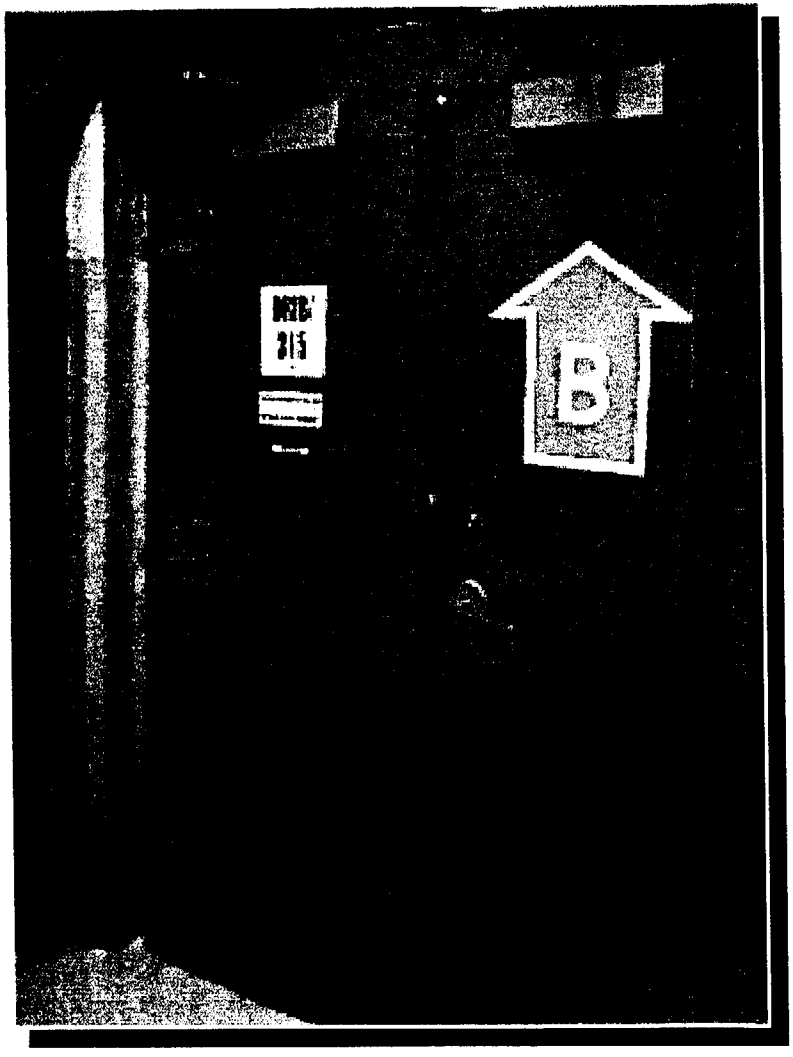
Program Improvements

Mel Browne

Manager, Nuclear Licensing and Operating Experience



Program Improvements

- Broad scope of corrective actions to prevent future similar conditions
  - Barrier control procedures
  - Plant modifications
  - 10cfr 50.59 program update
  - Technical staff knowledge
- Actions represent learning organization

Barrier Control

- Immediate action
  - Incorporated staff guidance
    - Prohibited blocking doors
    - Prohibited mullion removal
  - Applied to all SPB doors
  - Included consideration as "support equipment"

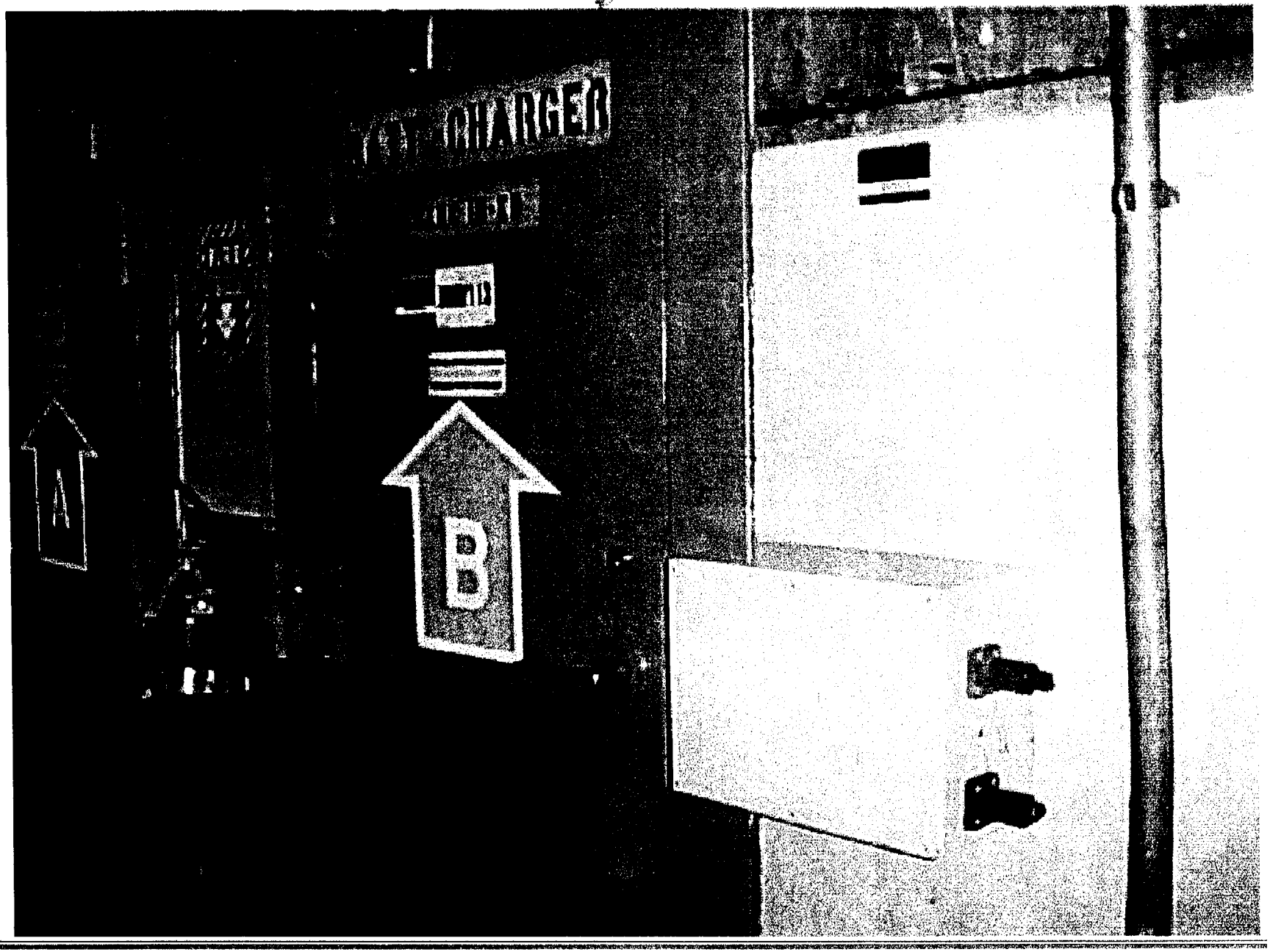
Barrier Control

- Follow-up action
  - Re-defined "normal use of doors"
    - Open < 1 hour
    - Capable of immediate closure
  - Degraded SPB doors placed in corrective action program
    - Review for operability
  - Plant safety review committee awareness
  - RIS 2001-09 in corrective action program

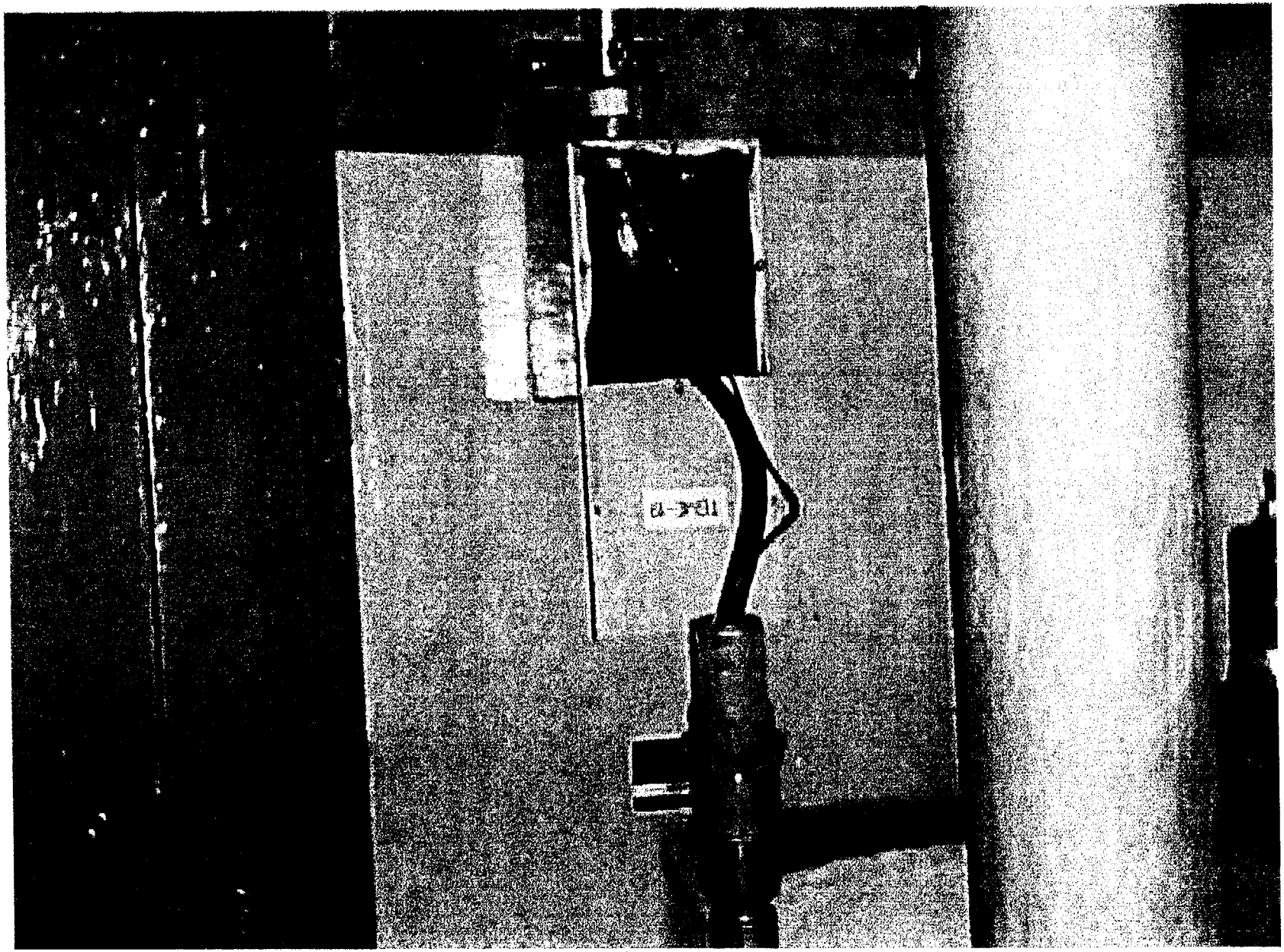
Plant Modifications

- Routine maintenance and testing required for equipment reliability
- Installed plant modifications for cost effective risk improvement
  - Battery charger rooms
  - Chiller rooms

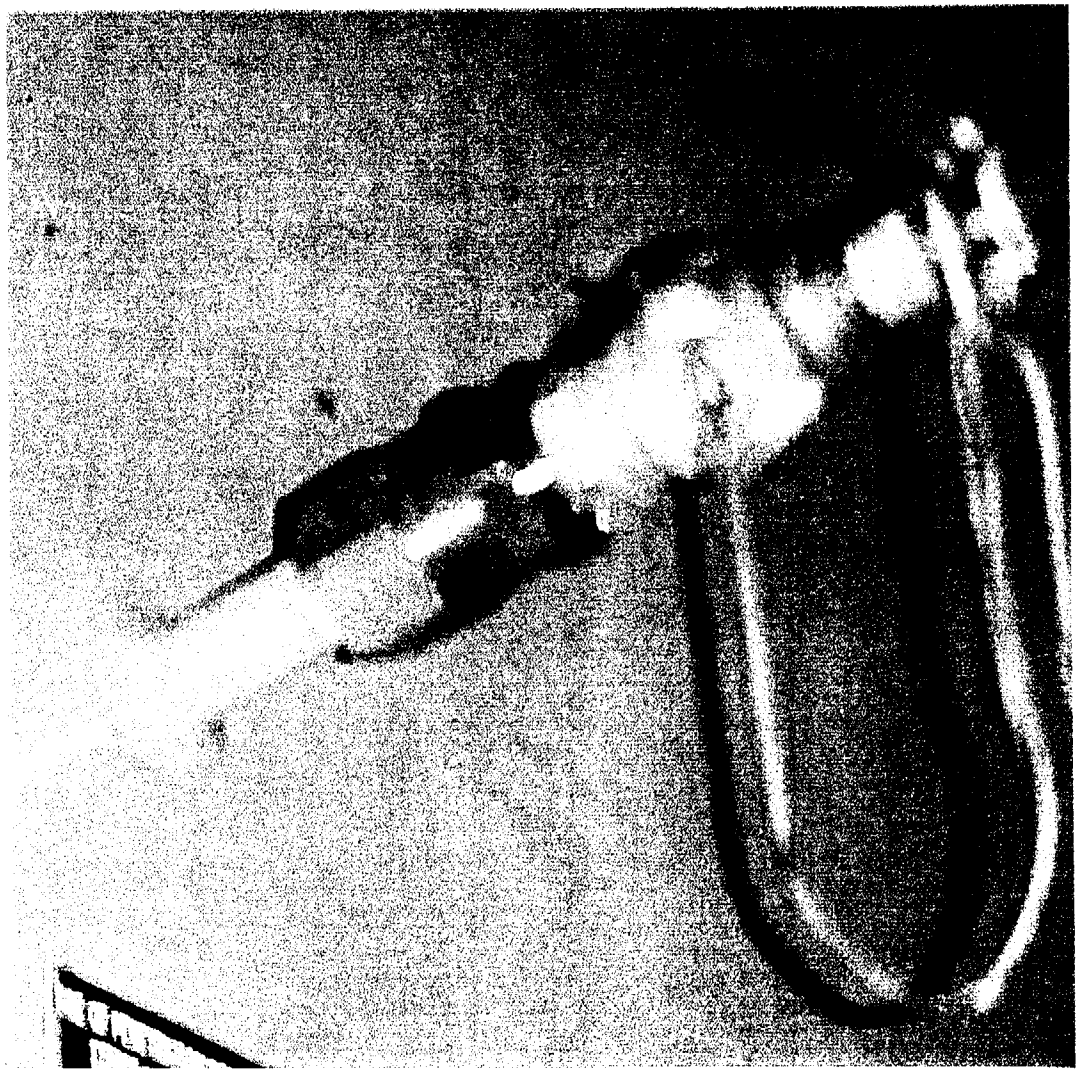
Plant Modifications



Plant Modifications



Plant Modifications



Updated 10CFR 50.59

- Process
  - Implemented updated 10CFR 50.59
  - Adopted standard model - NEI 96-07, Rev. 1
  - Emphasis on multiple elements of a change
  - Independent review/approval
- Training
  - Classroom and computer based training
  - Elements of change
  - Individual qualifications/certification

Technical Staff Knowledge

- Accredited Engineering Training Program
- Significant improvements since 1998
- Increased technical content of subject
  - Accident analysis
  - Technical specification bases

Fair and Consistent Treatment

- No actual safety consequence
- Potential safety consequence judged to be a balance between improved breaker reliability benefit and risk of steam intrusion through open door
- Sought consensus on regulatory interpretation
- Risk tools not available when criteria set

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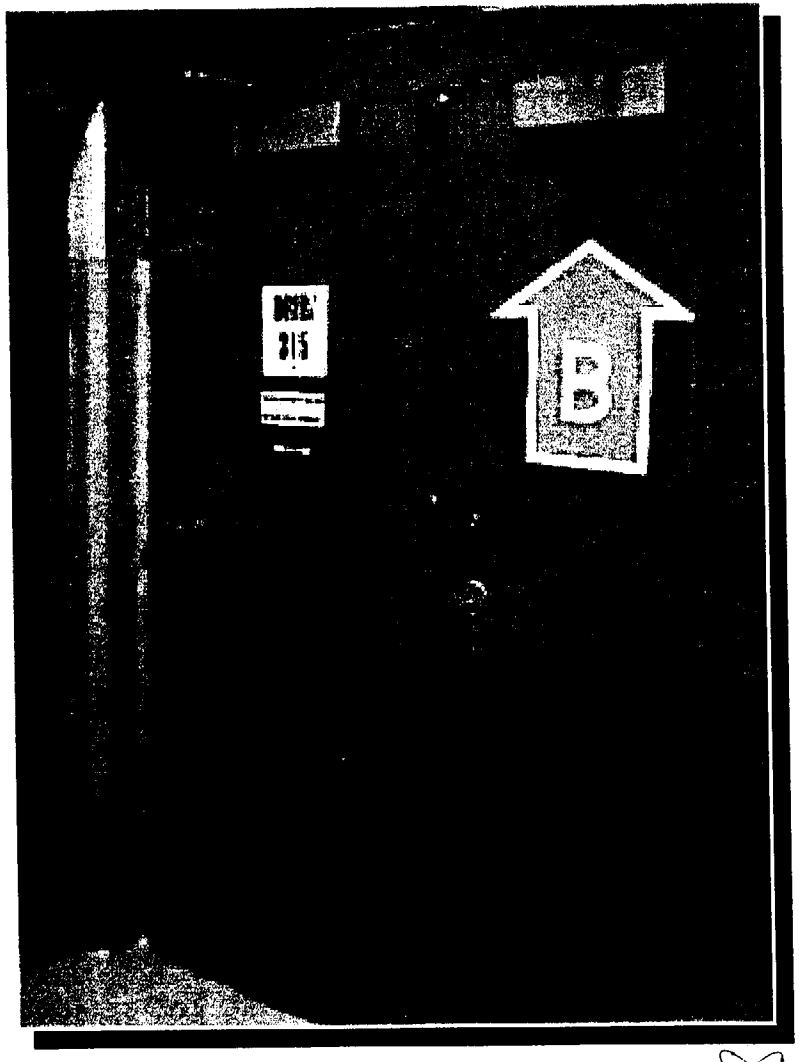
Summary and Closing Statements



Steve Byrne

Sr. Vice President, Nuclear

Summary and Closing Statements

- Here to Explain Rationale for decisions
- Done to Improve Safety & Reliability
- Show responsiveness
- Issue is Not Black & White
- Mullion is not key issue
- Not viewed as support equipment
- Looking for consistent treatment