

# FORT ST. VRAIN

## PROJECT UPDATE

*Presentation  
to the  
Nuclear  
Regulatory  
Commission*

290026



**Public Service<sup>®</sup>**

Public Service Company of Colorado

9512290351 951215  
PDR ADOCK 05000267  
P PDR

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**FORT ST. VRAIN UPDATE**

**PUBLIC SERVICE COMPANY OF COLORADO**

**PRESENTATION TO THE**

**NUCLEAR REGULATORY COMMISSION**

**December 7, 1995 (Washington)**

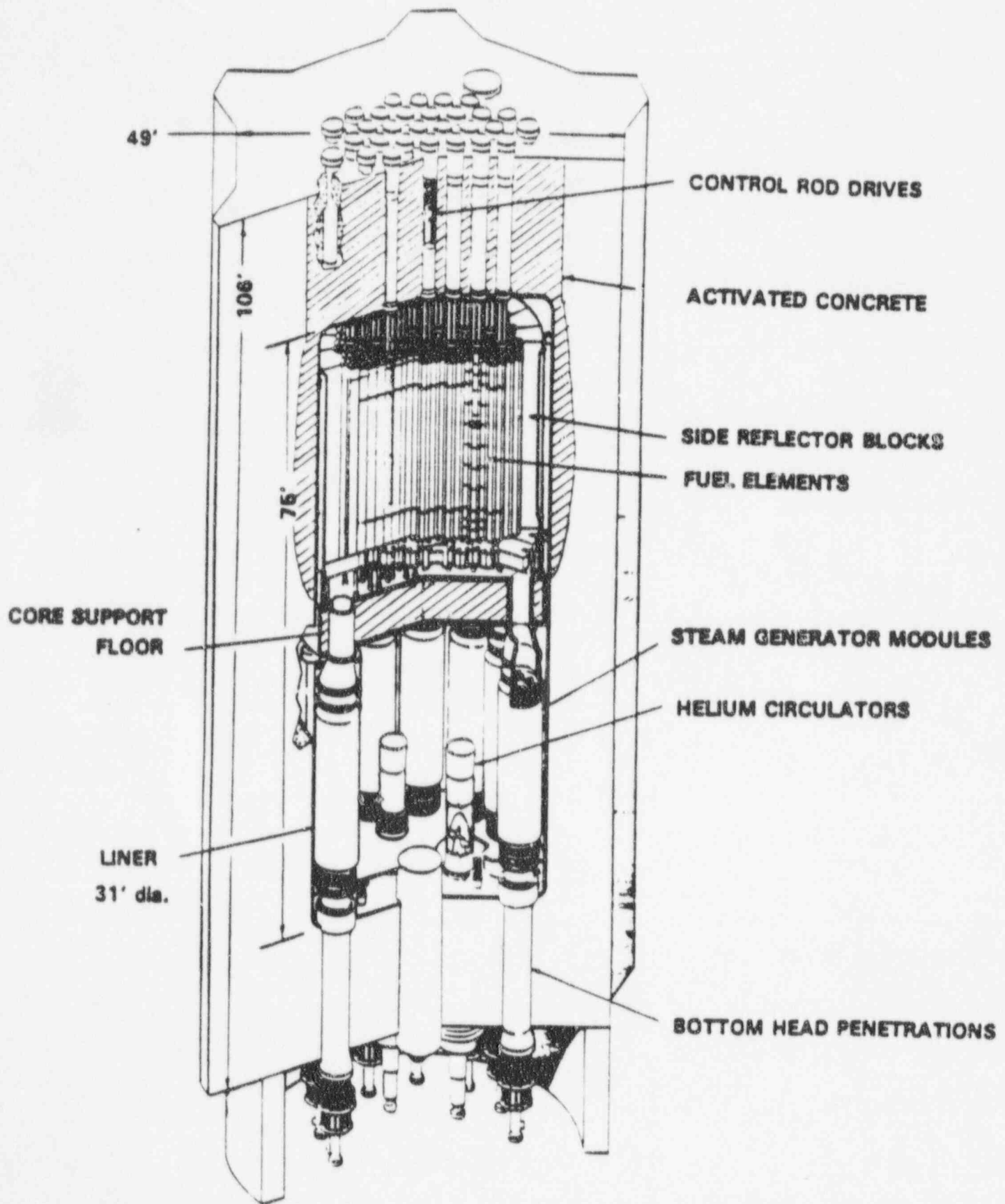
**December 15, 1995 (Region IV)**

## **AGENDA**

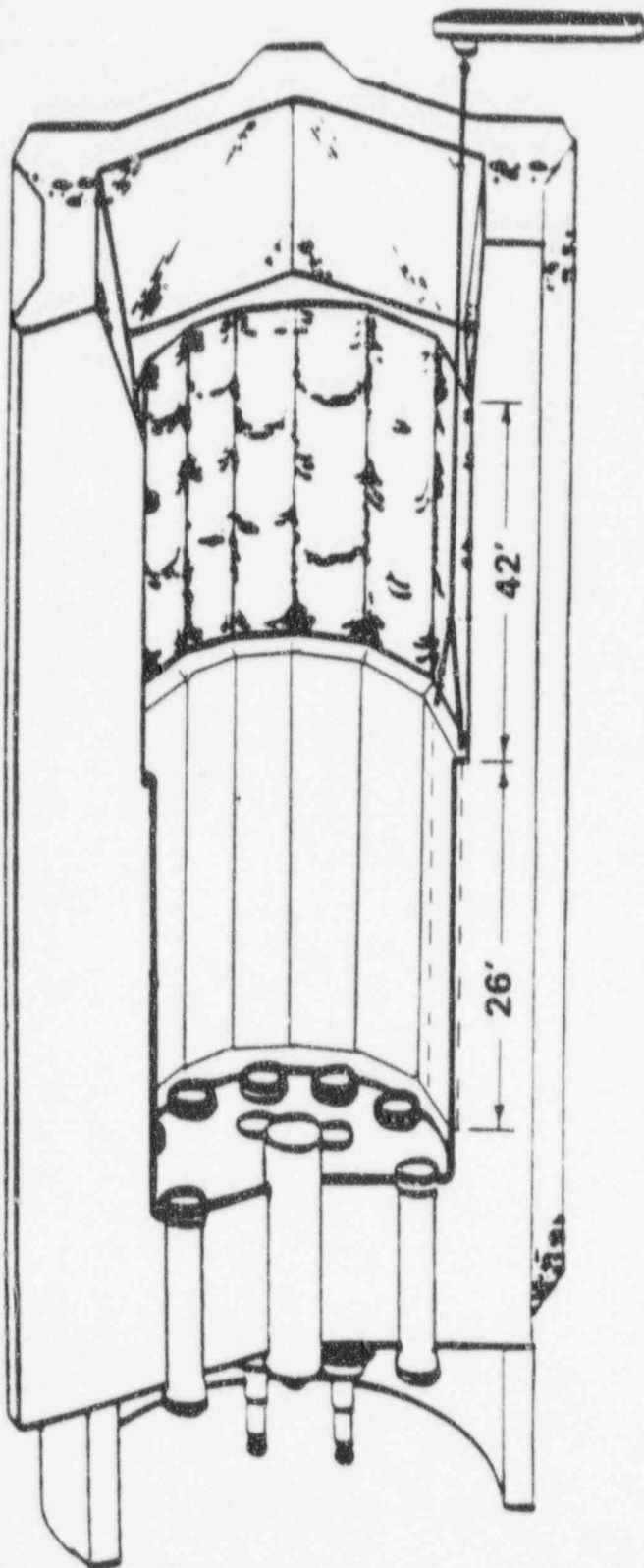
- **Decommissioning Status**
  - **Safety and Radiological Performance**
  - **Final Release Survey**
- **Spent Fuel Status -- DOE Agreement**
- **PSCo Corporate Merger**
- **Repowering Status**
- **Present Concerns**
- **Conclusions**
- **Supplemental Information**

**DECOMMISSIONING STATUS**

# PRESTRESSED CONCRETE REACTOR VESSEL (PCRV)



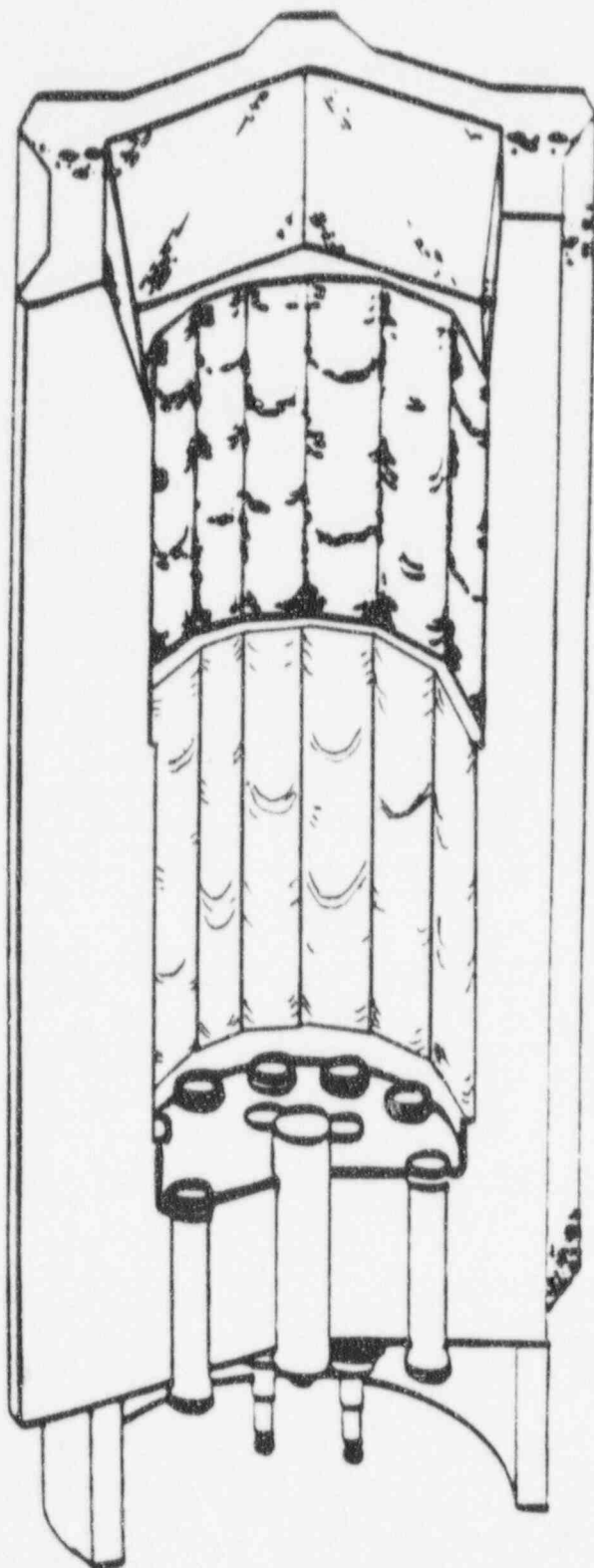




A SERIES OF VERTICAL  
CONCRETE CUTS ARE  
MADE USING THE  
VERTICAL TENDON  
TUBES AS CONDUITS  
FOR THE DIAMOND  
WIRE SAW.

THE CONCRETE SLABS  
ARE REMOVED AND  
PACKAGED FOR  
SHIPMENT.

PCRV ACTIVATED CONCRETE REMOVAL



**AFTER FINAL  
CLEAN-UP THE  
PCR V WILL BE  
LEFT AS SHOWN**

**STEEL PLATE  
CLOSURES WILL  
BE MADE FOR  
THE TOP HEAD  
AND THE PCR V  
WILL BE LEFT  
FOR LONG TERM  
STORAGE FOR  
DISMANTLEMENT  
IN THE FUTURE.**

**PCR V FINAL DISPOSITION**

## DECOMMISSIONING STATUS

### PROGRESS SINCE MAY 1995:

- Removal of 12 Steam Generators Complete
- Removal of Activated Upper Beltline Concrete Complete
- Removal of Fuel Storage Wells Complete
- Removal of Shield Water System Complete, Release of Shield Water Complete
- Final Survey of Buildings Outside Restricted Area Complete
- PCRV and BOP Dismantlement, Decontamination Activities Are Approximately 90% Complete
- Characterization Surveys and Decontamination of Reactor Building Structures and Systems Are In Progress



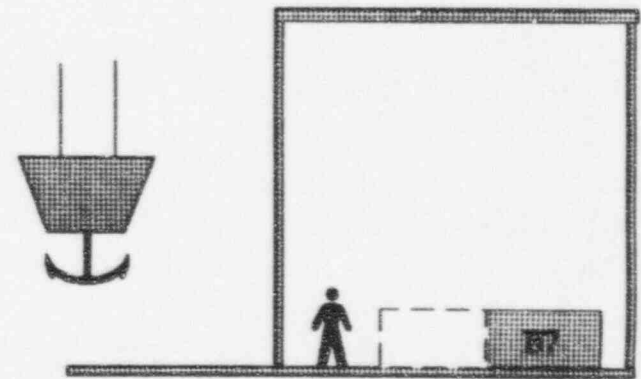
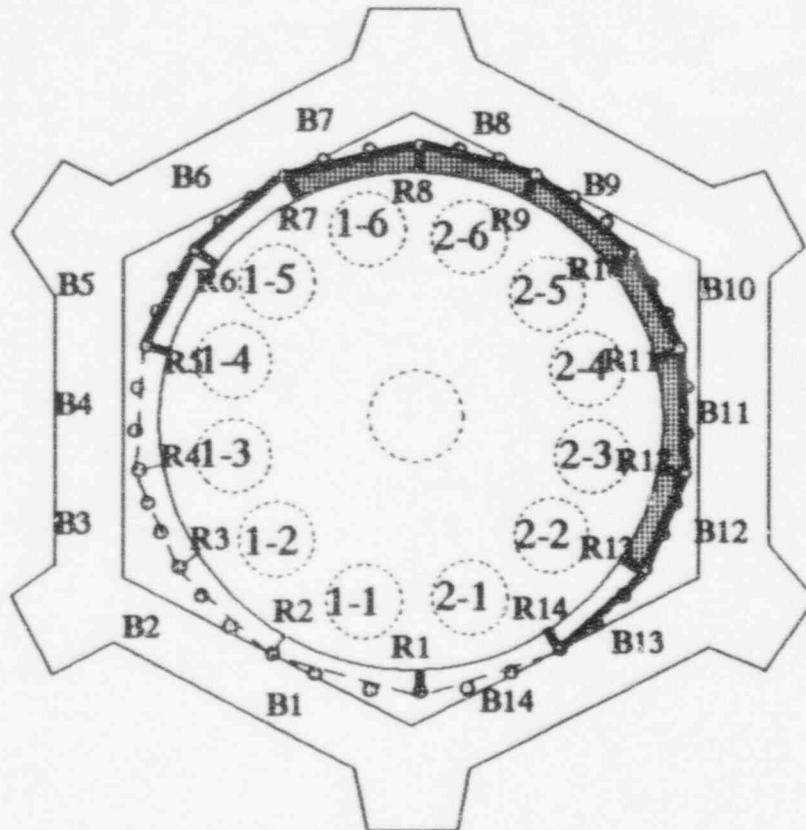
## DECOMMISSIONING STATUS

### REMAINING ACTIVITIES:

- Removal of Lower Beltline Concrete from PCRV
- Removal of Lower Plenum Insulation
- Decontamination of Embedded Piping and PCRV Internal Surfaces
- Characterization and Decontamination of Reactor Building Surfaces and Systems
- Remove Reactor Building Ventilation System and Liquid Waste System
- Final Radiological Survey
  - Turbine Building Surfaces
  - Buildings and Areas Inside Restricted Area
  - Unaffected Systems
  - Effluent Pathways
  - Reactor Building Surfaces
  - Affected Systems
  - Open Land Areas

DATE: 12-06-95

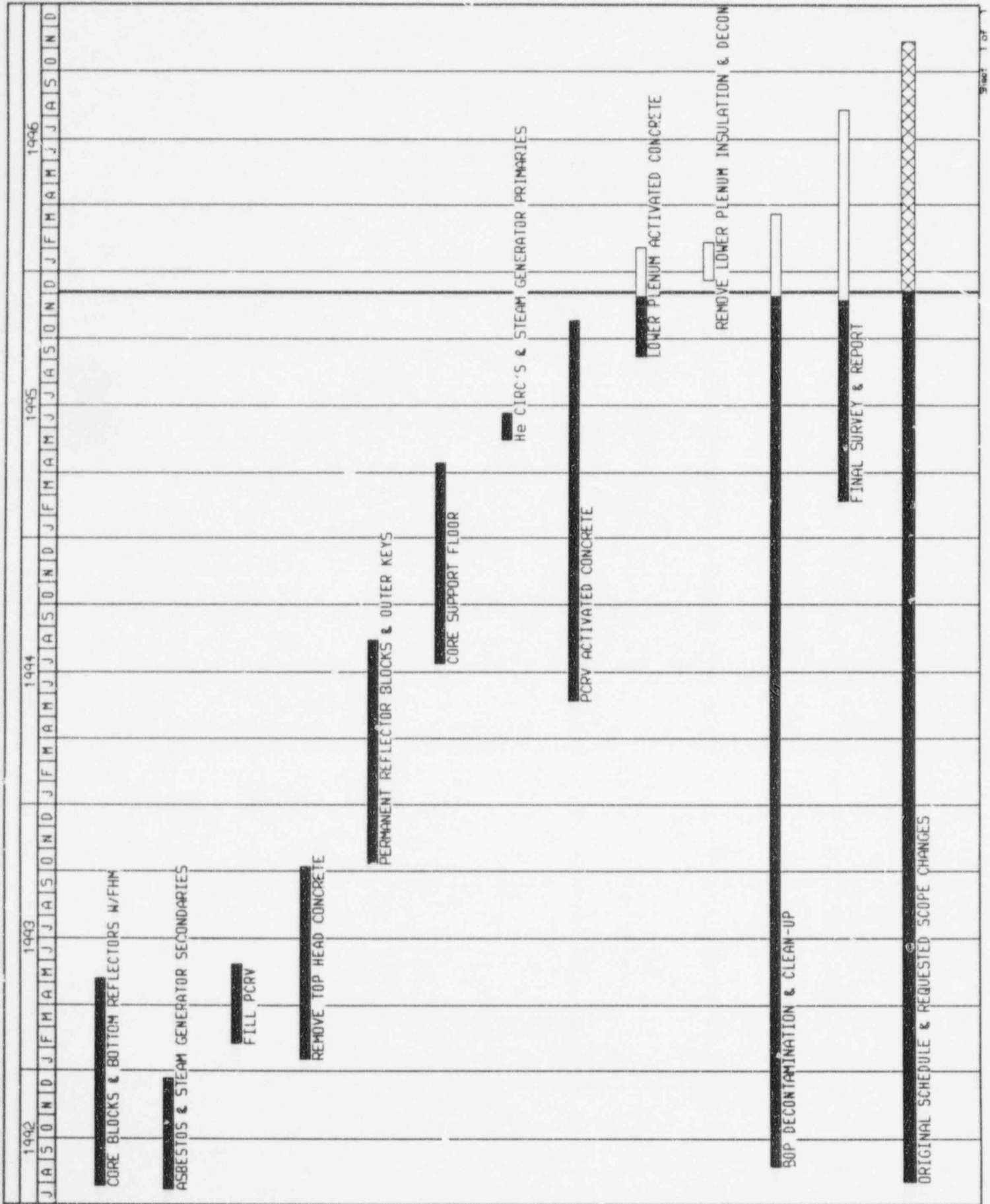
# PCRVR



**NOTE: RADIAL CONCRETE CUT R2 IS IN PROGRESS AND BACK CUT B4 IS ALSO IN PROGRESS.**

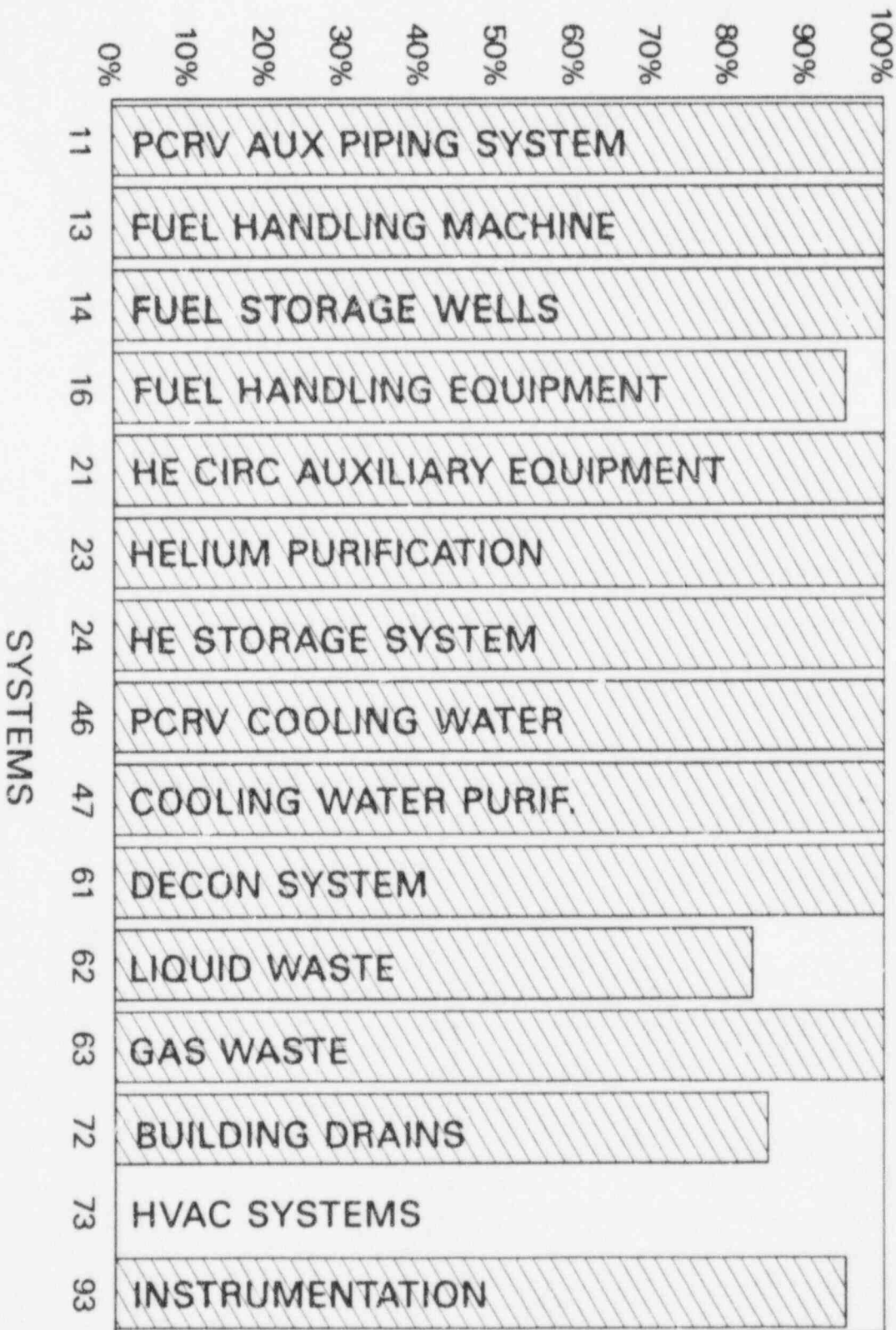
 CUT COMPLETE

PREPARED BY BOB GUNNERSON



# BOP SYSTEMS

PHYSICAL WORK - PERCENT COMPLETE



SYSTEMS



## SAFETY AND RADIOLOGICAL PERFORMANCE

### OCCUPATIONAL RADIATION EXPOSURES: (Person-REM)

Total Estimate per Decommissioning Plan	433
Expected Total Project Dose	392
Actual Dose to 12/1/95	366

### LOW LEVEL RADIOACTIVE WASTE SHIPPING: (Cubic Feet Shipped from FSV)

Total Project Estimate	245,000
Shipped to 12/1/95	218,600

- 71,380 Curies
- 442 Shipments



## SAFETY AND RADIOLOGICAL PERFORMANCE (Continued)

### TIME WORKED IN RADIOLOGICALLY CONTROLLED AREAS (RCA): (Person-Hours)

Actual RCA Hours to 12/1/95	573,000
Original Project Estimate (per Decommissioning Plan)	367,100

### PERSONNEL CONTAMINATIONS: (Contaminations per 10,000 RCA hours)

FSV	4.5
PWR Outages	6.5
BWR Outages	14.5

### LOST WORKDAY INDICATORS:

- Only 3 Lost Time Work Injuries
- Lost Work Day Incidence Rate (per 200,000 hours):

FSV	0.47
Typical Construction Projects (National Bureau of Labor Statistics)	6.9

- Severity Rate (per 200,000 hours):

FSV	45.7
Typical Construction Projects	132

## FINAL RELEASE SURVEY

1. REMAINS MAJOR CHALLENGE OF PROJECT
2. PROGRAM OVERVIEW:

FSV Buildings, Systems, and Land Areas Divided Into 9 Survey Groupings

Groups A through I Include:

- 289 Survey Packages
- 100,300 Measurement Locations
- 390,900 Measurements

## FINAL RELEASE SURVEY (Continued)

### 3. EMBEDDED PIPING REPRESENTS SIGNIFICANT CHALLENGE

- 30,000 feet of Small Diameter Piping
- 5% of Measurements May Exceed Fixed Contamination Site Specific Guideline Values (SGLV)
  - ▶ FSV SGLVs are 4,000 dpm/100 cm<sup>2</sup> (Average), 12,000 dpm/100 cm<sup>2</sup> (Individual)
  - ▶ All Measurements Are Expected < 50,000 dpm/100 cm<sup>2</sup> After Aggressive Decontamination
- PSCo/WT Submitted Proposed Treatment on October 12, 1995:
  - ▶ Aggressive Decontamination
  - ▶ Fill Piping With Grout That Exceeds SGLVs
  - ▶ NRC Approval of Measurements That Cannot Be Reduced Below 100,000 dpm/100 cm<sup>2</sup>
  - ▶ Requested Approval By December 31, 1995
- Dose Consequences 2.4 mRem Per Year -- from 100,000 dpm/100 cm<sup>2</sup>
- Cost of Additional Decontamination or Removal Efforts to Meet SGLVs Is From \$3.1 Million to \$33.9 Million -- Not ALARA

## **FINAL RELEASE SURVEY**

(Continued)

### **4. BACKGROUND**

#### **Widely Varying Background Complicates Demonstration That Exposure Rate Meets Release Criteria**

- **Release criteria is 5  $\mu$ R/hr above background**
- **Background varies from 5 - 30  $\mu$ R/hr**
- **WT developing methodology including use of in situ gamma spectrometer**
- **Need to Ensure NRC's Confirmatory Survey Uses Same Survey Protocol, Groundrules as PSCo**

### **5. CONCLUSION**

- **NRC Inspected Final Survey Program September 25-28**
  - ▶ **Reviewed Procedures and Records**
  - ▶ **ORISE Performed Independent Field Measurements**
  - ▶ **GPU Independent Measurements Were Consistent With SEG, Expect Consistent with ORISE**
  - ▶ **NRC Found that Program Was Being Implemented in Sound Manner**
  - ▶ **Survey Packages Were Thorough, Although Incomplete At Time of Inspection**
- **PSCo Appreciates NRC Efforts to Perform Confirmatory Survey In Parallel With PSCo/WT Final Survey -- Significant Savings in Time and Possible Rework**
- **Excellent Communications With NRC Staff**

## **SPENT FUEL STATUS - DOE AGREEMENT**

### **PSCo AND DOE HAVE REACHED AGREEMENT IN PRINCIPLE**

- **DOE Takes Title to All FSV Fuel in ISFSI**
- **DOE Takes Title to ISFSI When 10 CFR 72 License Transfer Occurs, With NRC Approval**
- **DOE Takes Title to 2 New Spent Fuel Shipping Casks**
- **DOE Pays PSCo \$16 Million of ISFSI Costs**
- **DOE Responsible For All Future Costs Before and After Title Transfer, e.g., Maintenance, Defueling, Decommissioning, Regulatory Changes**



## **PSCo CORPORATE MERGER**

**On August 23, 1995, PSCo and Southwestern Public Service Company (SPS) of Amarillo, Texas Announced Intent for Merger, Under New Holding Company**

- **PSCo Will Remain an Entity Under New Holding Company, and Will Retain Existing Licenses**
- **Current Financial Assurance Provisions Unchanged**
- **SPS Has Substantial Generating Capacity with Primarily Coal and Natural Gas -- No Nuclear Involvement**
- **PSCo Will Own 61.9 % of Common Equity of New Holding Company; SPS Will Own 38.1 %**
- **NRC Concurrence Will Be Requested In Accordance With Information Notice 89-25**

## REPOWERING STATUS

### PROJECT CONSTRUCTION IS PROCEEDING ON SCHEDULE

- **Combustion Turbine and Generator Arrived On-site By Rail On September 6, 1995**
  
- **Installation 45% Complete**
  
- **Natural Gas Pipe Installation In Progress**
  - ▶ **NRC Approval Received July 31, 1995**
  
- **First Ignition Startup Test Scheduled for February 2, 1996**

## **PRESENT DECOMMISSIONING CONCERNS**

- **Completion of Final Survey for Site Release**
- **Approval of Embedded Piping Treatment**
- **Confirmation That Established FSV Site Release Criteria Will Not Be Subject to Change**
- **Final License Termination Process**
- **Successful Completion of ISFSI License Transfer to DOE**

## CONCLUSION

- FORT ST. VRAIN DECOMMISSIONING IS PROGRESSING WELL
- RADIOLOGICAL AND INDUSTRIAL SAFETY PERFORMANCE IS EXCELLENT
- THE PROJECT WILL BE COMPLETED AHEAD OF PROGRAM SCHEDULE AND UNDER BUDGET
- PSCo APPRECIATES NRC'S PROFESSIONALISM AND DEDICATION DURING FSV DECOMMISSIONING PROJECT

## SUPPLEMENTAL INFORMATION

- STAFFING CHART



# FORT ST. VRAIN

## DECOMMISSIONING STAFF LEVELS

Legend

WESTINGHOUSE TEAM
  CONTRACT EMPLOYEES
  PSC EMPLOYEES

