September 6, 1995

Florida Power and Light Company
ATTN: Mr. J. H. Goldberg
President - Nuclear Division
P. O. Box 14000
Juno Beach, FL 33408-0420

SUBJECT: MEETING SUMMARY - PRESENTATION ON ENGINEERING AT FLORIDA POWER AND LIGHT - ST. LUCIE DOCKET NOS. 50-335 AND 50-389 AND TURKEY POINT DOCKET NOS. 50-250 AND 50-251

Gentlemen:

This refers to the meeting conducted at your request at the NRC Region II office in Atlanta, Georgia, on August 10, 1995. The purpose of the meeting was for you to present a self-assessment of Engineering performance at Florida Power and Light (FPL). It is our opinion, that this meeting was beneficial.

Enclosed is a List of Attendees, the Meeting Agenda, and the FPL Presentation Handout. The agenda included discussions on the following topics: St. Lucie Engineering; St. Lucie Condenser Cleaning; St. Lucie 24 Month Fuel Cycle; Turkey Point Engineering/Tech Support; Turkey Point Sequencer Modifications; Turkey point Thermal Uprate and FPL Met Lab Capabilities.

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 and its enclosures will be placed in the NRC Public Document Room.

Should you have any questions concerning this letter, please contact us.

Sincerely,

Orig signed by Kerry D. Landis

Kerry D. Landis, Acting Chief
Reactor Projects Branch 2
Division of Reactor Projects

Docket Nos. 50-335, 50-389
License Nos. DPR-67, NPF-16

Docket Nos. 50-250, 50-251
License Nos. DPR-31, DPR-41

Enclosures: 1. List of Attendees
2. Meeting Agenda
3. FPL Presentation Handout

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cc w/encls: Continued see page 3

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COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

OFFICIAL RECORD COPY DOCUMENT NAME: G:\FPLENGMT

LIST OF ATTENDEES

Florida Power Corporation

P. Banaszak, Acting Technical Manager, Turkey Point
B. Bohlke, Vice President, Engineering
W. Bush, Instrument and Control Supervisor
B. Dawson, Licensing Manager, St. Lucie
J. Hoffman, Site Engineering Manager Turkey Point
R. Kundalkar, Engineering Manager, Turkey Point
T. Luke, Component Systems and Inspection Manager
C. O'Farrill, Project Manager for 24 Month Cycle
H. Paduano, Manager, Licensing and Special Projects
B. Skelley, Group Manager, Production Engineering
M. Snyder, Technical Staff Manager, St. Lucie
E. Thompson, Project Engineer, Turkey Point
E. Weinkam, Licensing Manager, Turkey Point
D. West, Wite Engineering Manager ST. Lucie

Nuclear Regulatory Commission

C. Casto, Chief, Division of Reactor Safety, Engineering Branch, RII
R. Croteau, Project Manager, NRR
S. Ebneter, Regional Administrator, RII
A. Gibson, Director, Division of Reactor Safety (DRS), RII
T. Johnson, Senior Resident Inspector, Turkey Point, RII
K. Landis, Chief, Reactor Projects Section 2B (RP2B), DRP, RII
E. Merschoff, Director, Division of Reactor Projects (DRP), RII
L. Reyes, Deputy Regional Administrator, RII
R. Schin, Project Engineer, RP2B, DRP, RII

Enclosure 1

FPL

NRC FPL ENGINEERING MEETING

AGENDA

I. Introduction - W. Bohlke

II. St. Lucie Engineering - D. West

III. St. Lucie Condenser Cleaning - M. Snyder

IV. St. Lucie 24 Month Fuel Cycle - C.O'Farrill

V. Turkey Point Engineering/Tech Support - R.Kundalkar/J.Hoffman

VI. Turkey Point Sequencer Modifications - W. Skelley

VII. Turkey Point Thermal Uprate - L. Thompson

VIII. FPL Met Lab Capability - T. Luke

IX. Closing Comments - W. Bohlke

NRC FPL
ENGINEERING
MEETING

ST. LUCIE ENGINEERING

Dan West
Manager, Site Engineering

STATUS OF ST. LUCIE ENGINEERING TODAY

- BEGAN JOURNEY TOWARD A/E INDEPENDENCE IN 1990...
- IN 1995 THERE IS ONLY ONE ENGINEERING PACKAGE BEING PREPARED BY AN A/E
- DEVELOPED IN-HOUSE ENGINEERING DESIGN EXPERTISE
- WE NOW HAVE AN IMPROVED UNDERSTANDING OF THE DESIGN BASES OF OUR PLANTS
- THIS RESULTS IN IMPROVED OWNERSHIP, QUALITY, AND FASTER RESPONSE TO PLANT OPERATIONAL PROBLEMS

  EXAMPLES: SAFETY-RELATED BATTERY CELL FAILURE
  INTAKE COOLING WATER TEMPERATURE MARGIN
  NUCLEAR INSTRUMENT DETECTOR FAILURE

- AN ON-GOING CHALLENGE IS EQUIPMENT OBSOLESCENCE
  ONE-FOR ONE REPLACEMENTS: EQUIVALENCY EVALUATIONS
  MINOR CHANGES: MINOR ENGINEERING PACKAGE: REAL TIME LIST
  COMPLEX CHANGES: ENGINEERING PACKAGE: NUCLEAR INSTRUMENTATION

SITE ENGINEERING REAL TIME LIST

PURPOSE:

TO PROVIDE EFFECTIVE AND EFFICIENT REAL TIME ENGINEERING SUPPORT TO THE PLANT ORGANIZATION

SCOPE:

THE RTL PROGRAM IS INTENDED FOR THOSE ACTIVITIES THAT ARE:

- LOW COST
- LIMITED ENGINEERING SCOPE (<100 MAN-HOURS)
- NON-OUTAGE RELATED
- IMPLEMENTED VIA THE PLANT WORK ORDER PROCESS

PROCESS:

- PLANT DEPARTMENT IDENTIFIES A NEED FOR ENGINEERING SUPPORT THAT FITS THE SCOPE OF THE RTL
- ENGINEERING SUPERVISORS MEET WITH PLANT DEPARTMENT SUPERVISORS ON A REGULAR BASIS TO DISCUSS NEW ITEMS, STATUS EXISTING ITEMS, AND PRIORITIZE THE WORK OFF SEQUENCE
- THE ITEM IS REMOVED FROM THE LIST (AND AN OPEN SLOT BECOMES AVAILABLE) ONLY AFTER ENGINEERING HASS ISSUED THE PRODUCT AND IT HAS BEEN IMPLEMENTED BY THE PLANT.

BENEFITS:

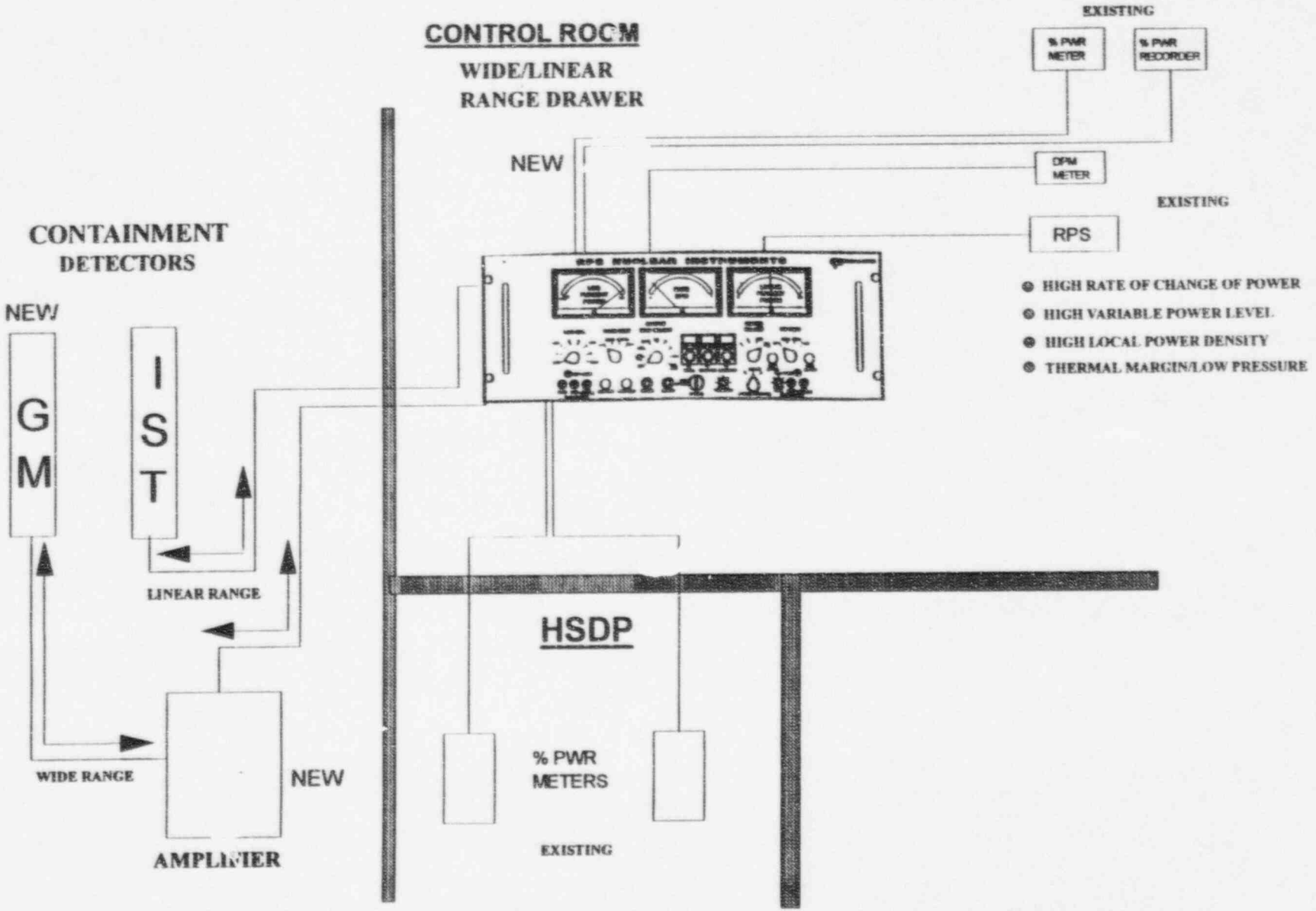
- ENHANCES COMMUNICATIONS BETWEEN WORKING LEVEL SUPERVISORS IN ENGINEERING, MAINTENANCE, AND OPERATIONS.
- ENSURES PLANT PRIORITIES ARE ENGINEERING PRIORITIES
- ENSURES EFFICIENT UTILIZATION OF ENGINEERING RESOURCES

DEALING WITH OBSOLESCENCE:

RPS NUCLEAR INSTRUMENTATION (NI) REPLACEMENT

- REPLACING ALL FOUR NI LINEAR AND WIDE RANGE CHANNEL ELECTRONICS IN BOTH UNITS
- NI'S PROVIDE:
  - REACTOR POWER INDICATION TO OPERATORS
  - INPUT TO REACTOR PROTECTION SYSTEM (RPS) TRIP FUNCTIONS
- USE OF MODERN/PROVEN ANALOG TECHNOLOGY WILL:
  - INCREASE RELIABILITY/DECREASE DOWNTIME
  - PROVIDE KNOWLEDGEABLE VENDOR SUPPORT
  - READILY AVAILABLE SPARE PARTS
  - COMMON EQUIPMENT BETWEEN UNITS
- GREATER EQUIPMENT AVAILABILITY WILL :
  - MINIMIZE DURATION/FREQUENCY IN RPS LCO ACTION STATEMENTS
  - PROVIDES OPERATORS WITH MORE TIME TO DEVOTE TO OTHER AREAS OF THE PLANT
  - MINIMIZES I&C MAINTENANCE'S BURDEN OF CRITICAL REAL-TIME REPAIRS OF SAFETY SIGNIFICANT EQUIPMENT

DEALING WITH OBSOLESCENCE: RPS NUCLEAR INSTRUMENTATION REPLACEMENT



ST. LUCIE ENGINEERING SUPPORT OF OPERATIONS AND MAINTENANCE

- **PROVIDING EXTENSIVE SUPPORT TO PLANT DURING REFUELINGS**
  KEY PLAYER IN 35 DAY OUTAGE
  ENGINEERING PACKAGES ISSUED WELL IN ADVANCE
  ENGINEERS DESIGNATED AS PROJECT MANAGERS
  DESIGN ENGINEERS WORK IN MAINTENANCE DEPARTMENTS
  ENGINEERING SUPERVISORS WORK AS SHIFT DIRECTORS

- **CONTINUED PROGRESS RESOLVING OPERATOR WORK AROUNDS**
  ACHIEVED DARK ANNUNCIATOR BOARDS ON BOTH UNITS
  CADD PLANT SYSTEM FLOW DIAGRAMS

- **EXPANDING USE OF PROBABILISTIC RISK ASSESSMENT**
  ROUTINELY USED IN SAFETY EVALUATIONS
  INCORPORATED INTO ON-LINE MAINTENANCE PROCESS

- **CONTINUED CONTROL OF ENGINEERING/MAINTENANCE BACKLOGS**
  BACKLOG TEAMS ENSURE CLOSEOUT

- **IMPROVING PROBLEM SOLVING/ROOT CAUSE ANALYSIS**
  ROSEMOUNT TRANSMITTERS
  RWT BOTTOM CORROSION
  CONDENSER DOWNPOWERS

- **ISSUED ADDITIONAL MAINTENANCE SPECIFICATIONS**
  MISCELLANEOUS ATTACHMENTS
  VALVE REPLACEMENTS

- **CONTINUED ABANDONED EQUIPMENT PROGRAM**
  AIRLOCK AUTO TESTER
  DEGASSIFIER SYSTEM

- **STREAMLINING MAINTENANCE PROCESS FOR SITE SUPPORT SYSTEMS**
  WATER TREATMENT PLANT
  HYPOCHLORITE PLANT

- **APPLIED HURRICANE ANDREW LESSONS LEARNED TO HURRICANE ERIN**
  PLANT STAFFING
  OFF-SITE SUPPORT
  COMMUNICATIONS

NRC FPL
ENGINEERING
MEETING

PSL 24-MONTH FUEL CYCLE IMPLEMENTATION PROJECT

Carl G. O'Farrill
Engineering Project Manager

PSL 24-MONTH FUEL CYCLE IMPLEMENTATION PROJECT

- BENEFITS
- SCOPE
- SCHEDULE
- CHALLENGES

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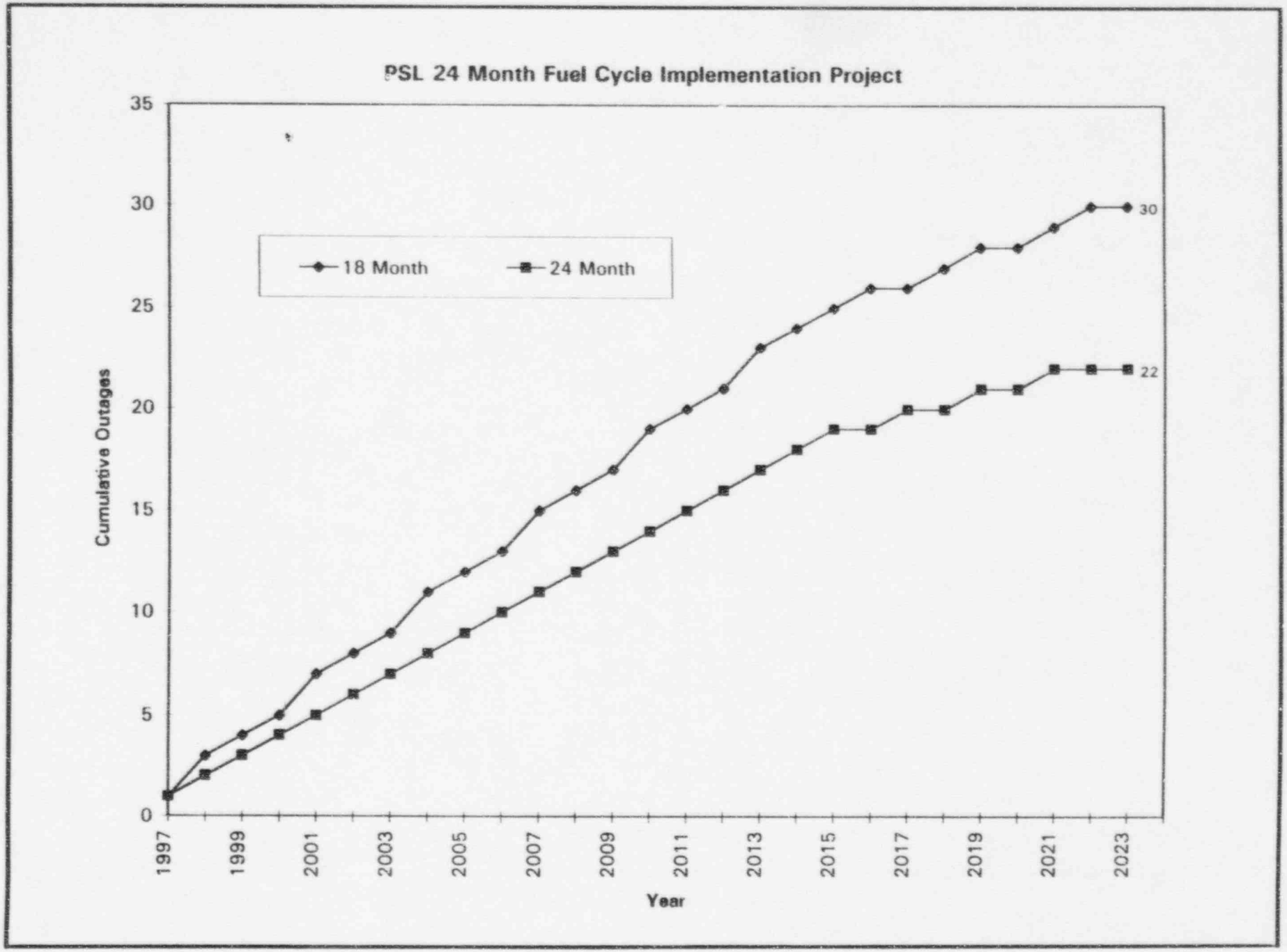
PSL 24-MONTH FUEL
CYCLE
IMPLEMENTATION
PROJECT

BENEFITS: Economic and Operational

- $100 million cost savings
- Increased Availability
- Reduced Personnel Exposure
- Reduced Low-Level Radioactive Waste
- Reduced Cumulative Shutdown Risk


PSL 24 Month Fuel Cycle Implementation Project
Cumulative Outages
Year
18 Month
24 Month
30
22
0
5
10
15
20
25
30
35
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019
2021
2023

FPL

PSL 24-MONTH FUEL CYCLE IMPLEMENTATION PROJECT

SCOPE: Comprehensive review with the objective to provide assurance of reliable safe operation with a 24-month fuel cycle strategy.

- TECHNICAL SPECIFICATION CHANGES
  - 18 Proposed License Amendments for U-2
  - NRC GL 91-04 Guidance
  - PSA Review
- DESIGN DOCUMENT REVIEW & UPDATE
  - FSAR
  - EQ Doc Pacs
- EQUIPMENT MAINTENANCE REVIEW
  - All Critical Systems
  - IST & ISI program
- Modifications
  - Additional TSP baskets for Unit 2 RCB sump
  - Possible instrument changes

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PSL 24-MONTH FUEL CYCLE IMPLEMENTATION PROJECT

SCHEDULE: Project duration is 1995 through 1998

- U-2 Cycle 10 6/97
  - U-2 PLA Submittal 6/96
  - NRC Approval 4/97
- U-1 Cycle 15 4/98
  - U-1 PLA Submittal 4/97
  - NRC Approval 4/98

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PSL 24-MONTH FUEL CYCLE IMPLEMENTATION PROJECT

CHALLENGES: Continued reliable safe operation

- Instrument Drift
  - Historical review of past performance
  - Statistical evaluation of drift
  - Instrument change
- Equipment Reliability
  - Historical maintenance review of past performance
  - Extend PM interval where justified
  - Increase frequency or new PMs where needed
  - Establish PM Basis document
- Steam Generators
  - Deferred implementation until Unit-1 SG replacement
  - Unit-2 SG performance exemplary
- Core Behavior
  - ASI instability - training, core simulation predictions
  - BOC positive MTC- training, core simulation predictions
- Refueling
  - Fuel assembly bow - training, fuel load guidelines, mechanical design change

NRC FPL ENGINEERING MEETING

ST. LUCIE PLANT

THERMAL PERFORMANCE

IMPROVEMENTS

MICHAEL SNYDER
TECHNICAL STAFF MANAGER

ST. LUCIE PLANT THERMAL PERFORMANCE IMPROVEMENTS

- SIGNIFICANT CONDENSER FOULING REDUCED THERMAL PERFORMANCE.

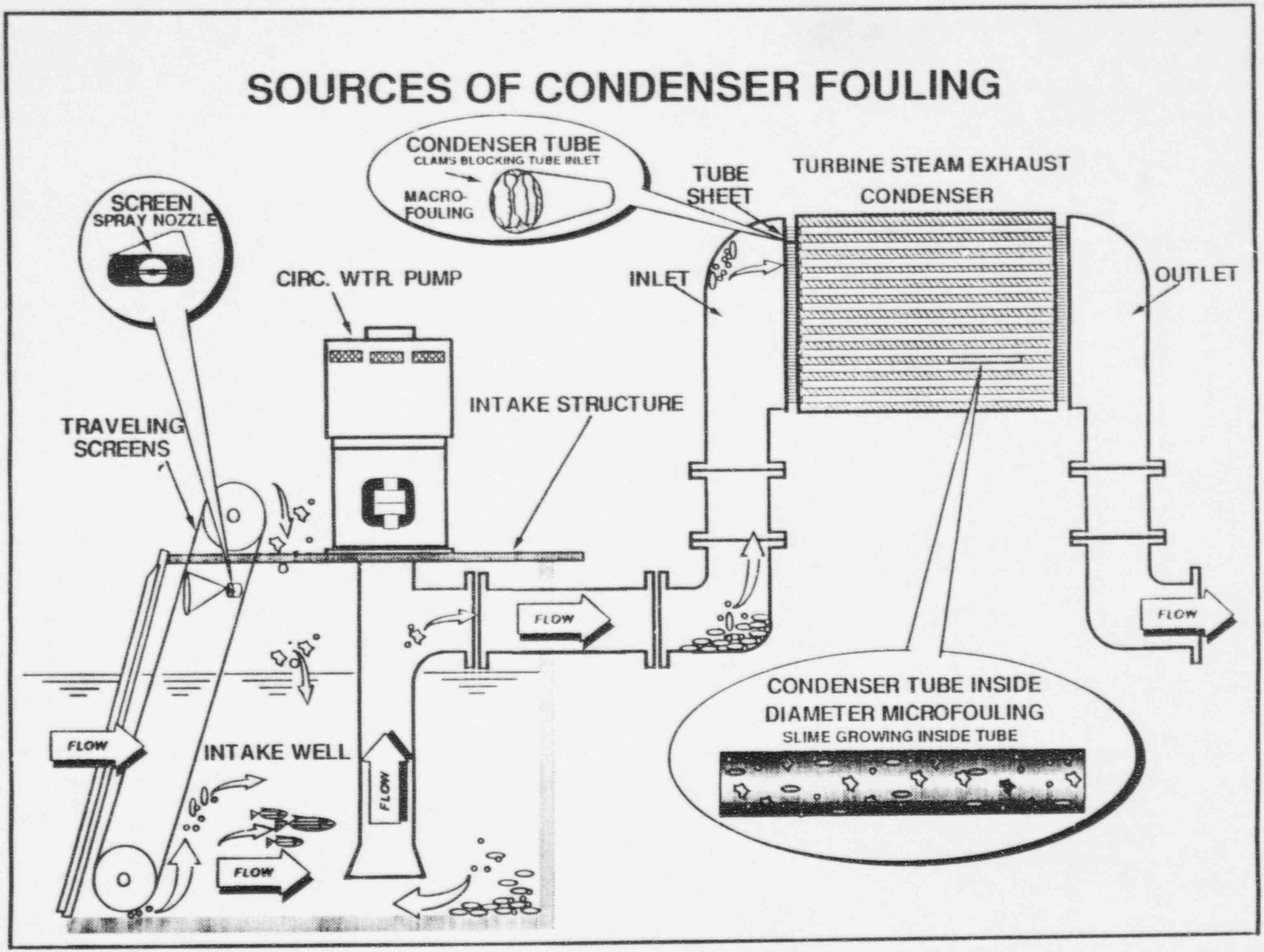
- CONDENSER CLEANING RESULTS IN FREQUENT DOWN POWER TRANSIENTS.

  STABLE PLANT OPERATIONS UNNECESSARILY CHALLENGED.

- LONG TERM BIOFOULING STUDY CONDUCTED.

  INSPECTIONS AND SIDE STREAM CULTURES

  MICROFOULING AND MACROFOULING


SOURCES OF CONDENSER FOULING
CONDENSER TUBE
CLAMS BLOCKING TUBE INLET
MACRO-FOULING
TUBE SHEET
TURBINE STEAM EXHAUST CONDENSER
SCREEN
SPRAY NOZZLE
CIRC. WTR. PUMP
INLET
OUTLET
INTAKE STRUCTURE
TRAVELING SCREENS
FLOW
FLOW
FLOW
FLOW
INTAKE WELL
CONDENSER TUBE INSIDE DIAMETER MICROFOULING
SLIME GROWING INSIDE TUBE

Testing of various countermeasures for effectiveness

- Chemical treatments
  - Intake well coatings
  - Clamicide
  - Hypochlorite
- Thermal Treatments
  - "Shake & Bake"
- Mechanical Treatments
  - Clam Traps
  - Mechanical cleaning with debris strainer

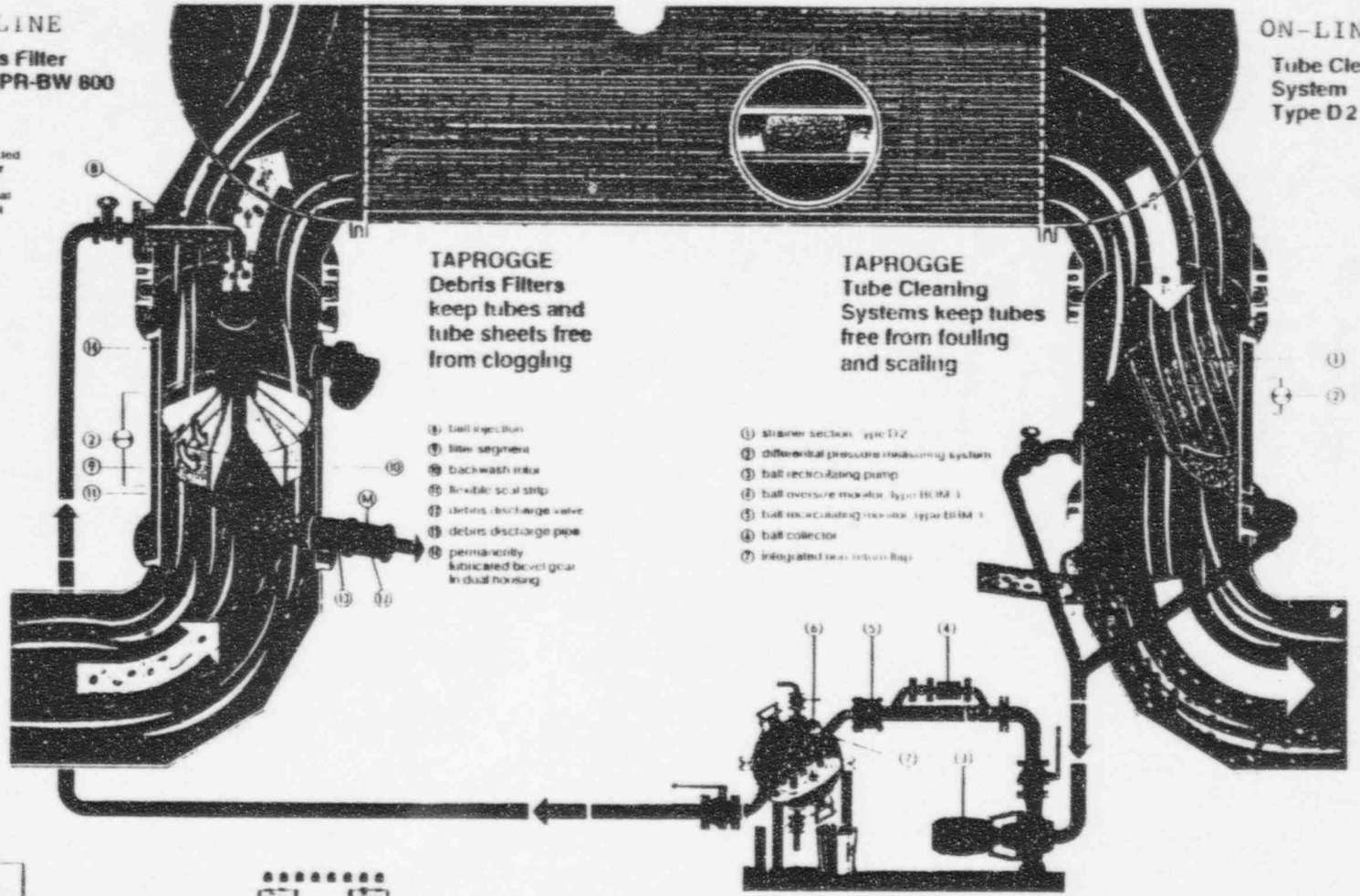
MECHANICAL CLEANING WITH DEBRIS STRAINER

- DEBRIS FILTER IN EACH CONDENSER INLET
- INLET SPONGE BALL INJECTION NOZZLES
- DISCHARGE SPONGE BALL STRAINERS

ON-LINE

Debris Filter Type PR-BW 800

Cleaning balls specifically selected for the condenser design and tube material insure that every tube is kept clean

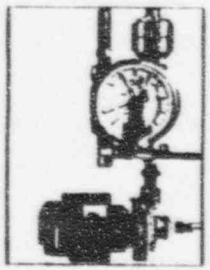


TAPROGGE Debris Filters keep tubes and tube sheets free from clogging

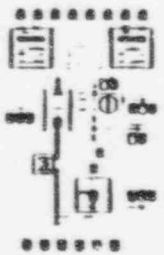
TAPROGGE Tube Cleaning Systems keep tubes free from fouling and scaling

ON-LINE

Tube Cleaning System Type D 2



Differential pressure monitoring
Continuous monitoring of debris load of the filter by differential pressure measuring system with automatic control and flushing device, micro switch and local indication



Programmable logic control
State of the art protection
Low voltage pilot lamps and control
Separate control and power sections
Detailed system mimic with component identification

Ball collector, type C 40

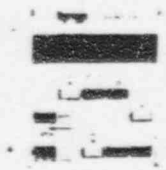
Ball charge and removal through quick opening ports
Integrated non return flap prevents reverse flow

Ball recirculating pump
Mechanical seal and lubrication of friction surfaces

Monitoring of ball quantity

Continuous monitoring of the number of balls in circulation
BRM 1 indicates recirculating ball quantity and stores operational data

Monitoring of ball diameter



Continuous monitoring of ball oversize
BOM 1 indicates ball oversize and stores operational data

Condenser Cleaning System

Implementation

- Taprogge

  Unit 2 - October, 1995

  Unit 1 - March, 1996

- Other saltwater system - Intake Cooling Water

- Improvements/Reliability

TURKEY POINT NUCLEAR PLANT

ENGINEERING/TECH SUPPORT

STATUS REPORT

TURKEY POINT NUCLEAR PLANT

ENGINEERING/TECHNICAL SUPPORT

INTRODUCTION . . . . . RAJ KUNDALKAR
ENGINEERING MANAGER

EFFECTIVE PLANT SUPPORT . . . . . JACK HOFFMAN
SITE ENGINEERING MANAGER

SEQUENCER CORRECTIVE ACTIONS . . . . . WILLIAM SKELLEY
PEG MANAGER

THERMAL UPRATE PROJECT . . . . . LIZ THOMPSON
PROJECT ENGINEER

CHALLENGES/OPPORTUNITIES . . . . . RAJ KUNDALKAR
ENGINEERING MANAGER

EFFECTIVE PLANT SUPPORT

J. R. HOFFMAN

SITE ENGINEERING MANAGER

OPERATIONS SUPPORT

MAINTENANCE SUPPORT

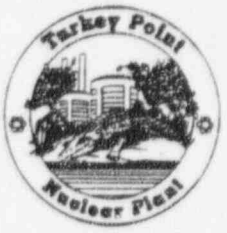
OUTAGE PERFORMANCE

EFFECTIVE ROOT CAUSE DETERMINATION

EFFECTIVE MANAGEMENT OF ENGINEERING BACKLOGS

RELIABILITY IMPROVEMENTS

INITIATIVES



SUSTAINED PERFORMANCE

- OPERATIONS SUPPORT
  - OPERATOR WORK AROUND PROGRAM
    - TEAM FORMED TO RESOLVE LONG STANDING EQUIPMENT PROBLEMS THAT REQUIRE INCREASED OPERATOR ACTION
    - CONSISTS OF OPERATIONS, ENGINEERING, MAINTENANCE AND TECHNICAL SUPPORT
    - IDENTIFIES, PRIORITIZES, AND INVESTIGATES THE APPROPRIATE COURSE OF ACTION
    - NO NUCLEAR SAFETY ISSUES, MAINLY BOP SYSTEMS
    - 19 ISSUES ORIGINALLY IDENTIFIED
    - LIST EXPANDED TO 30 ITEMS WITH 13 COMPLETED
  - PSA AND ON-LINE ACTIVITIES
    - PSA TOOLS USED IN DAILY OPERATIONS SURVEILLANCE ACTIVITIES
    - PSA UTILIZED IN DESIGN MODIFICATION PROCESS
  - ABANDONED EQUIPMENT PROGRAM
    - PROGRAM FORMED IN 1994 TO ADDRESS PLANT EQUIPMENT NO LONGER USED
    - TEAM HEADED BY ENGINEERING AND TECH SUPPORT
    - PROCESS AND PROCEDURES DEVELOPED TO UPDATE OPERATING DRAWINGS, FSAR AND DESIGN BASIS DOCUMENTS
    - 20 DESIGN PACKAGES PLANNED FOR ISSUANCE IN 1995, WITH 16 COMPLETED
    - RECOGNIZED AS INPO STRENGTH
  - CONTROL ROOM ENHANCEMENTS
    - ANNUNCIATOR DARK BOARD PROJECT
    - UPGRADE OF OPERATOR WORKSTATIONS

SUSTAINED PERFORMANCE

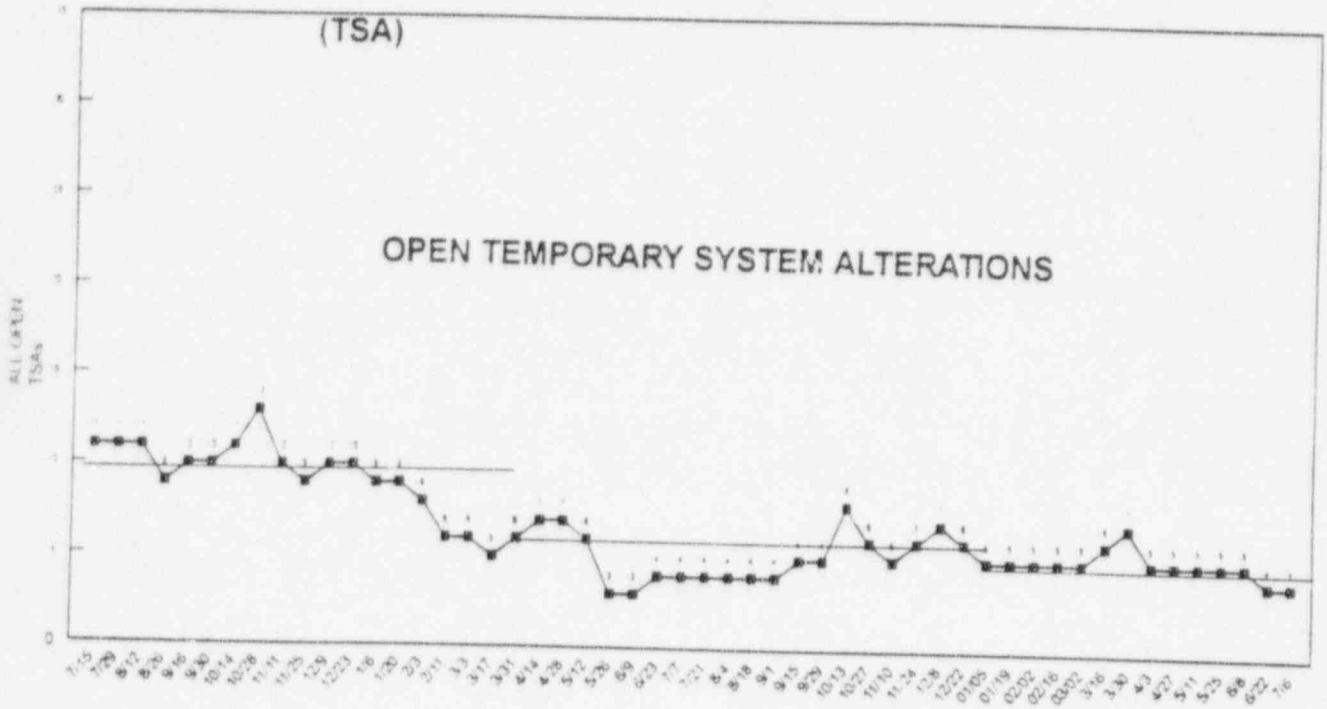
- MAINTENANCE SUPPORT
  - CRANKING DIESEL ELIMINATION PROJECT
    - ELIMINATES DEPENDENCE ON FOSSIL PLANT CRANKING DIESELS AND ASSOCIATED MAINTENANCE
    - B-STANDBY SG FEEDWATER PUMP DIESEL DRIVER MODIFICATION COMPLETE
    - REPOWERING OF REG GUIDE 1.97 INSTRUMENTATION COMPLETE
  - INSTRUMENT AIR SYSTEM UPGRADE
    - HIGH COST ASSOCIATED WITH DIESEL AIR COMPRESSOR RENTAL AND FUEL
    - ADDING 2 FULL CAPACITY COMPRESSORS PER UNIT (ONE ELECTRIC AND ONE DIESEL)
    - ELECTRIC COMPRESSORS POWERED FROM C-BUS AND USED PRIMARILY DURING NORMAL OPERATION
    - DIESEL COMPRESSORS PROVIDE BACKUP AND OFF NORMAL OPERATION
    - COMPRESSORS INSTALLED AND UNDERGOING STARTUP TESTING WITH TURNOVER SCHEDULED FOR MID-AUGUST
  - MAINTENANCE SPECIFICATION PROGRAM
    - CREATED TO PREFORM UP-FRONT ENGINEERING FOR REPETITIVE MAINTENANCE TASKS
    - HELPS REDUCE PWO BACKLOG
    - APPROXIMATELY 30 MAINTENANCE SPECS

SUSTAINED PERFORMANCE

- OUTAGE PERFORMANCE
  - PRE-OUTAGE PLANNING
    - EARLY IDENTIFICATION OF MODIFICATIONS
    - EARLY ISSUANCE OF DESIGN PACKAGES (6 MONTH GOAL FOR MAJOR MODS, 60 DAY GOAL FOR MINOR MODS)
  - OUTAGE SUPPORT
    - BREAKER TO BREAKER COVERAGE
    - RESPONSIBLE DESIGN ENGINEERS ONSITE DURING MODIFICATION IMPLEMENTATION
    - SYSTEM ENGINEERS FUNCTION AS TASK MANAGERS
    - ENGINEERS ROTATE TO OTHER PLANT DEPARTMENTS
  - SHUTDOWN RISK ASSESSMENT
    - PLANT PROCEDURE DEVELOPED
    - OUTAGE SCHEDULES REVIEWED AND TEMPORARY CHANGE NOTICES ISSUED FOR INCREASED AWARENESS AND CONTINGENCY ACTIONS
    - WEEKLY SYSTEM REPORTS WITH 7 DAY LOOK AHEAD STATUS
    - NO RISK SIGNIFICANT EVENTS HAVE OCCURRED
  - POST-OUTAGE SELF ASSESSMENT
    - PERFORM INTERNAL ENGINEERING SELF ASSESSMENT
    - PROVIDE INPUT TO OUTAGE MANAGEMENT CRITIQUE

SUSTAINED PERFORMANCE

- EFFECTIVE ROOT CAUSE DETERMINATION
  - CV-4-200A ACTUATOR BOLTING FAILURE
    - CVCS LETDOWN ORIFICE ISOLATION VALVE
    - ALSO PROVIDES A CONTAINMENT ISOLATION FUNCTION
    - EXTENSIVE ROOT CAUSE DETERMINED FAILURE TO BE FATIGUE RELATED AND ATTRIBUTED TO BOLTED CONNECTION DESIGN AND INSTRUMENT AIR PRESSURE FLUCTUATIONS
    - ALL PNEUMATIC VALVES OF SIMILAR DESIGN REVIEWED FOR POTENTIAL SUSCEPTIBILITY
    - ENHANCEMENTS IDENTIFIED AND TO BE IMPLEMENTED IN UPCOMING REFUELING OUTAGES
  - COOLING CANAL GRASS INFLUX EVENT/RESOLUTION
    - TEAMS IMMEDIATELY FORMED TO REVIEW EVENT
    - PROCEDURAL ENHANCEMENTS MADE FOR ICW SYSTEM FOULING SCENARIOS
    - DEFLECTOR PLATE REFURBISHMENT IMPROVED SCREEN WASH SYSTEM PERFORMANCE
- EFFECTIVELY MANAGING ENGINEERING WORKLOAD
  - ENGINEERING WORK PRIORITIZATION SYSTEM RECOGNIZED AS A STRENGTH IN RECENT INPO AUDIT
  - EFFECTIVE CONTROL OF THE FOLLOWING BACKLOGS
    - TEMPORARY SYSTEM ALTERATIONS
    - DRAWINGS
    - CONDITION REPORTS
    - PROCUREMENT ENGINEERING EVALUATIONS
    - PLANT DESIGN MODIFICATIONS

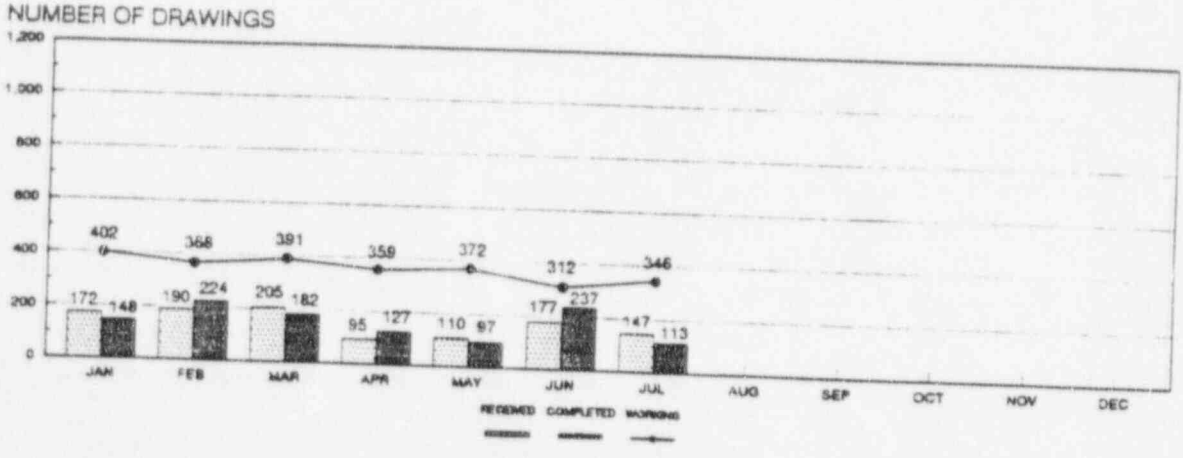


DRAWING UPDATE SUMMARY

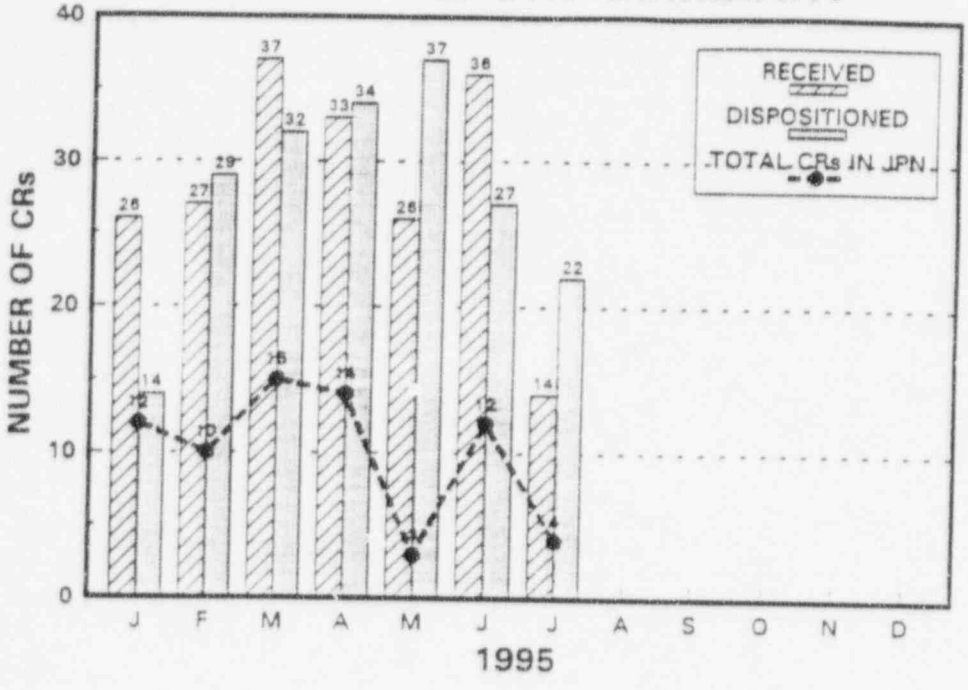
TURKEY POINT

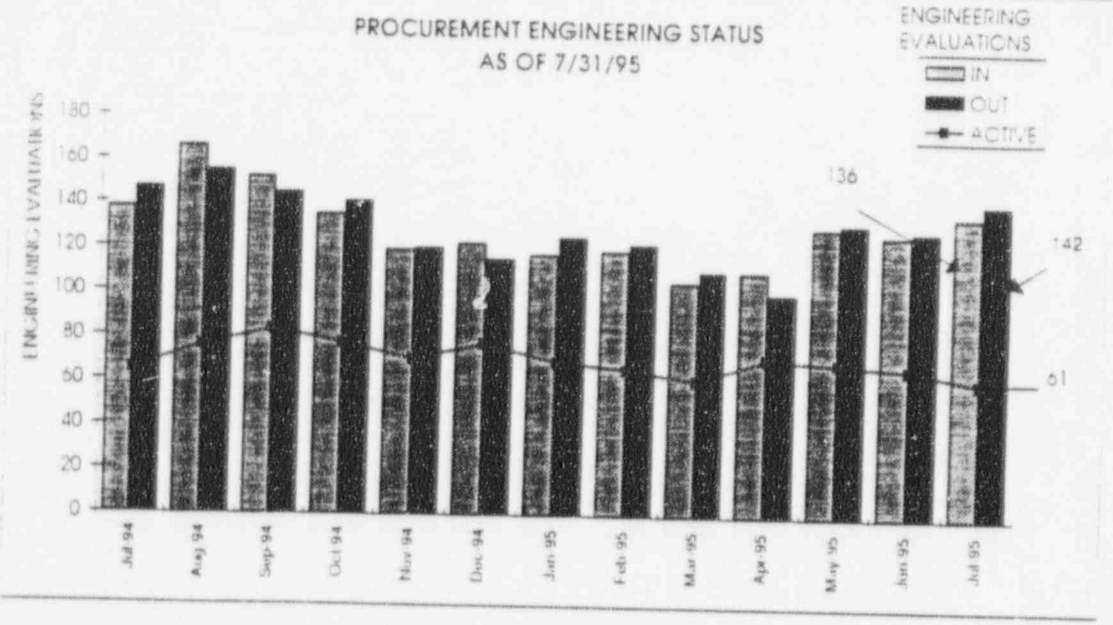
MONTHLY ACTIVITY

(JULY 95)



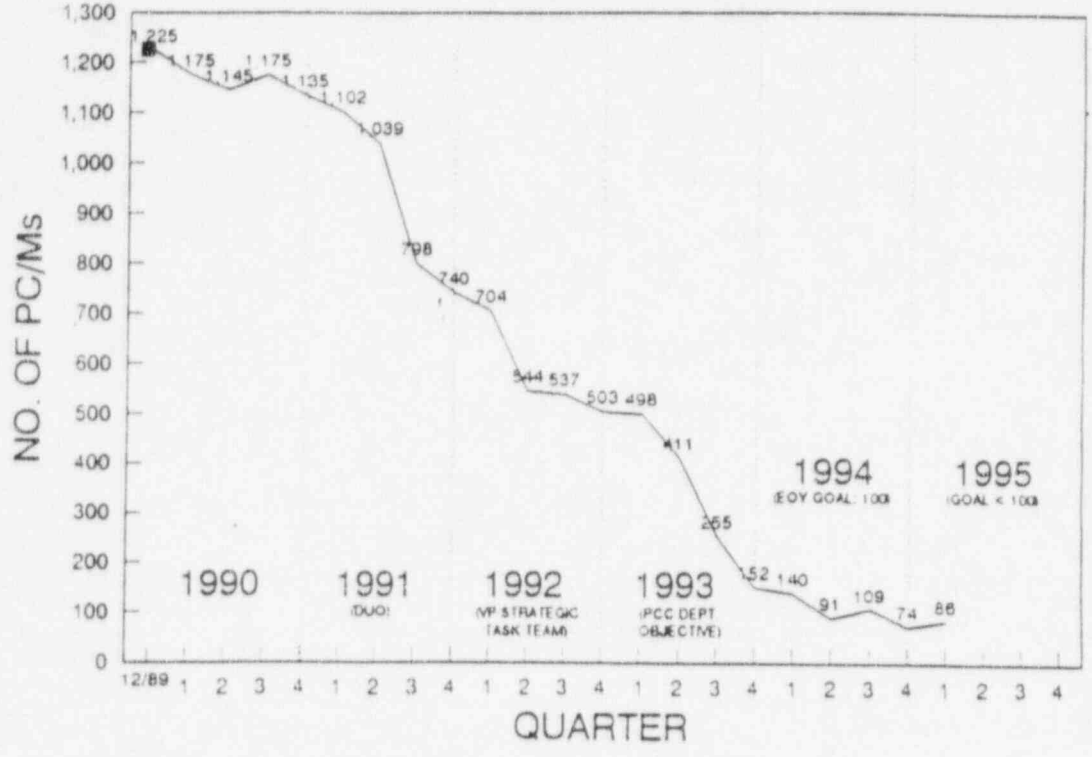
CONDITION REPORT SUMMARY



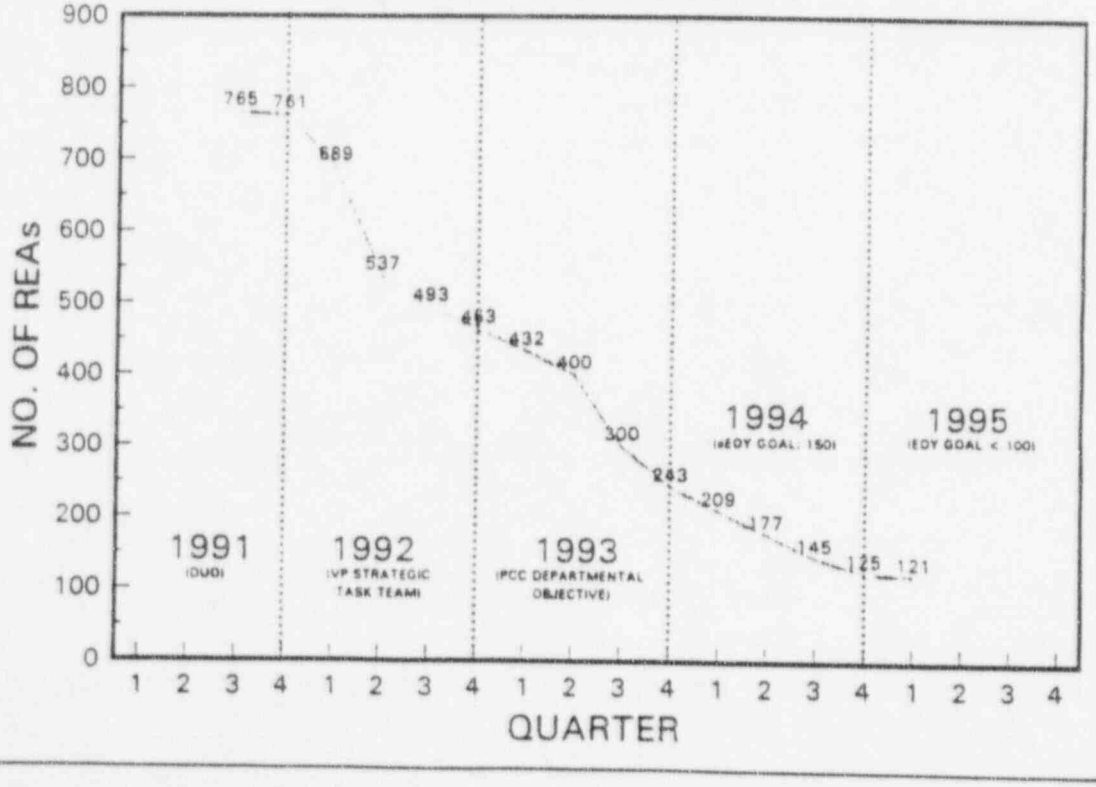


	Jul-94	Aug-94	Sep-94	Oct-94	Nov-94	Dec-94	Jan-95	Feb-95	Mar-95	Apr-95	May-95	Jun-95	Jul-95
IN	138	166	142	135	119	122	117	119	105	110	130	127	136
OUT	147	155	145	141	120	115	125	122	110	100	132	129	142
ACTIVE	65	76	83	77	70	77	69	66	61	71	69	67	61

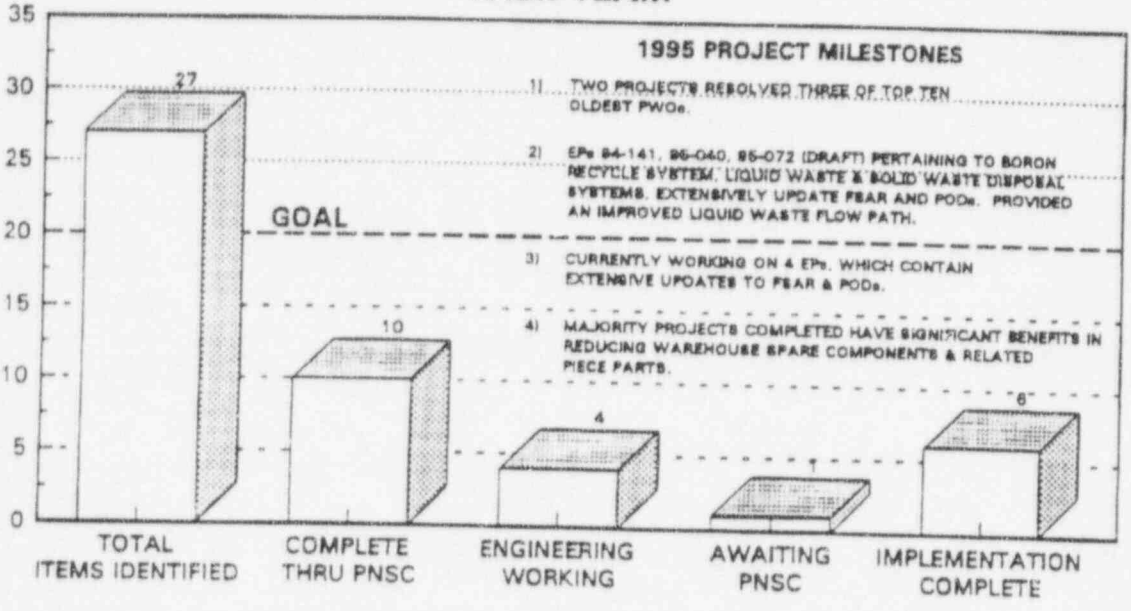
PTN PC/M SUMMARY



PTN REA SUMMARY

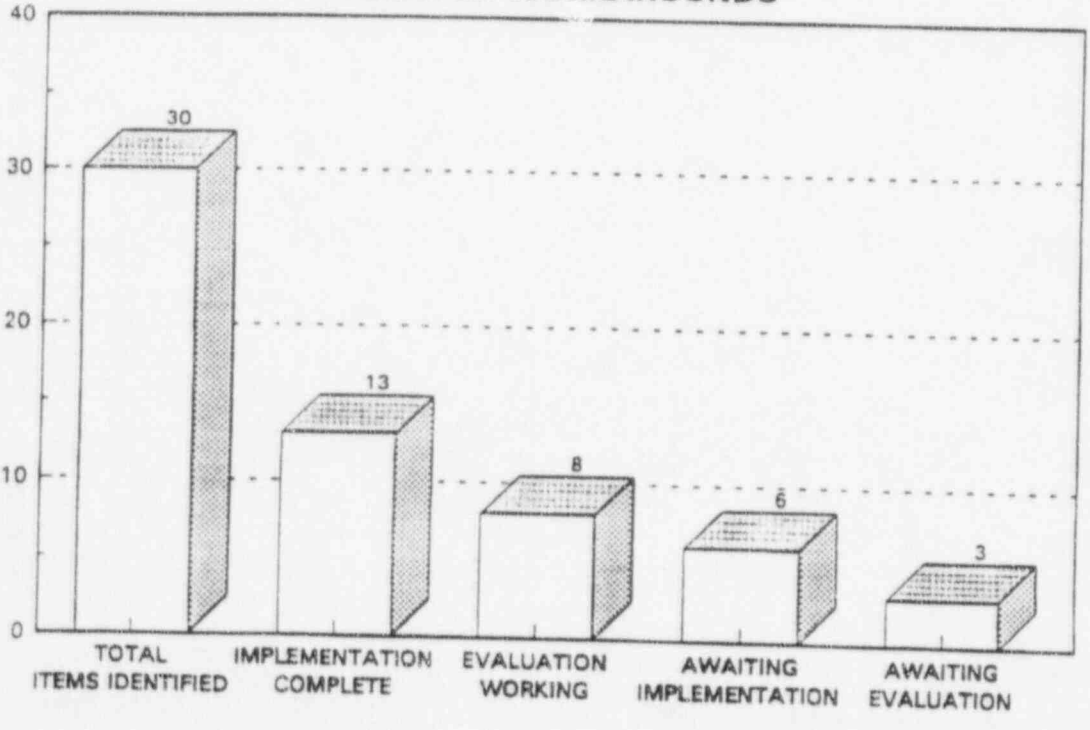


ABANDONED EQUIPMENT TASK TEAM



GOAL: 20 PACKAGES COMPLETE & READY FOR IMPLEMENTATION ON OR BEFORE DECEMBER 31, 1995

OPERATOR WORKAROUNDS

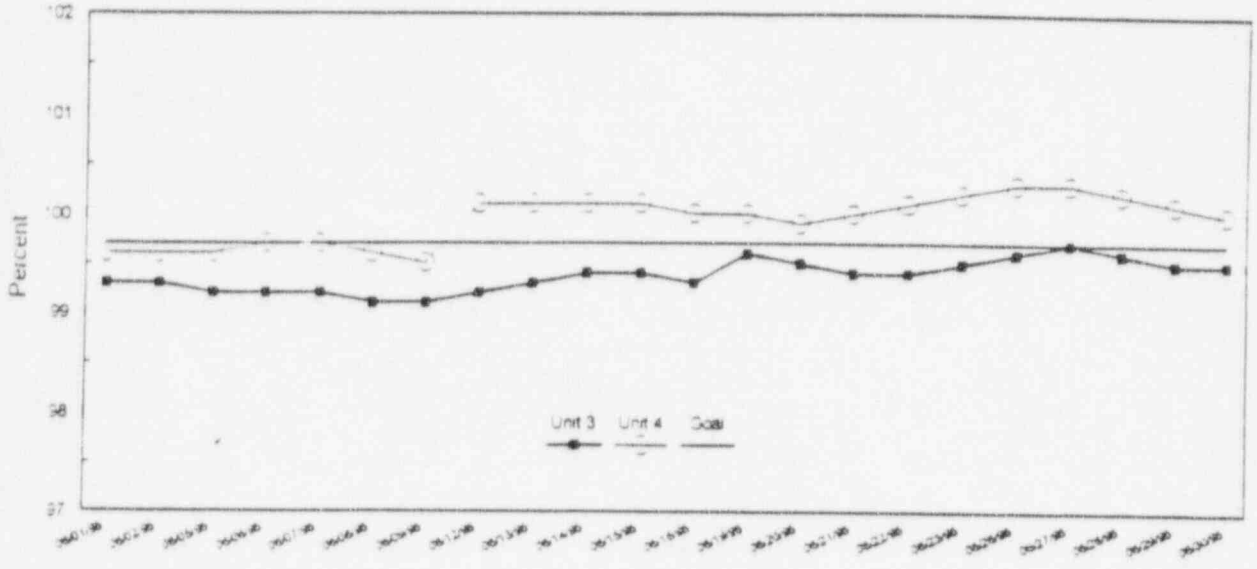


RELIABILITY IMPROVEMENTS

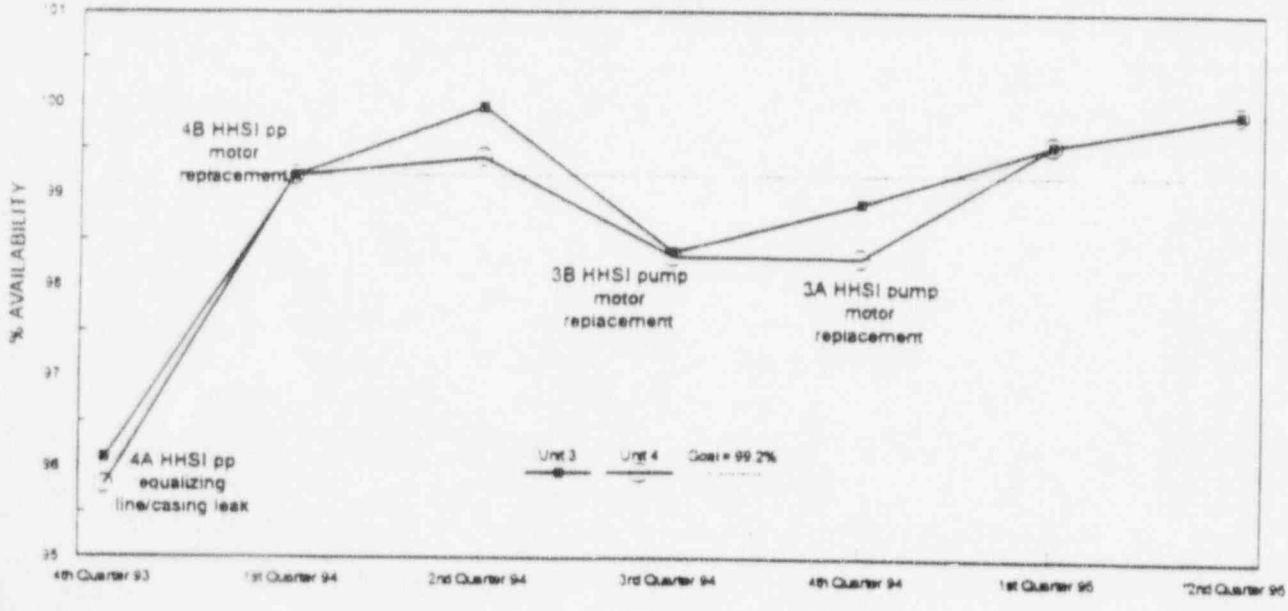
- ON-LINE SECONDARY CHEMISTRY MONITORING
  - CENTRALIZED LAB FOR SECONDARY CHEMISTRY SAMPLING
  - PLACED IN SERVICE IN LATE 1994
  - PROVIDES CONTINUOUS MONITORING OF 18 SAMPLE POINTS PER UNIT
- FLOW ACCELERATED CORROSION
  - CONTINUE TO MAINTAIN AN AGGRESSIVE FLOW ACCELERATED CORROSION PROGRAM
  - DEVELOP COMPREHENSIVE OUTAGE PLAN FOR INSPECTIONS AND PIPING REPLACEMENT
  - UNIT 3 MSR DRAIN LINE REPLACEMENT SCHEDULED FOR THIS OUTAGE
- C-BUS RELAY RELOCATION
  - RELOCATED RELAYS TO PRECLUDE TRIPS DURING MAINTENANCE ACTIVITIES
- ROD CONTROL POWER SUPPLY UPGRADE
  - ORIGINAL POWER SUPPLIES SUSCEPTIBLE TO FAILURE DUE TO LOW SERVICE LIFE
  - REPLACED WITH MILITARY GRADE POWER SUPPLIES WITH SIGNIFICANTLY LONGER SERVICE LIFE
- REFUELING EQUIPMENT TASK TEAM
  - TASK TEAM ESTABLISHED TO IMPROVE FUEL HANDLING EQUIPMENT RELIABILITY
  - PM SCHEDULES REVIEWED
  - NUMEROUS RECOMMENDATIONS AND UPGRADES IDENTIFIED FOR UPCOMING OUTAGES
- THERMAL PERFORMANCE MONITORING PROGRAM RECOGNIZED AS A STRENGTH DURING RECENT INPO EVALUATION

Thermal Performance

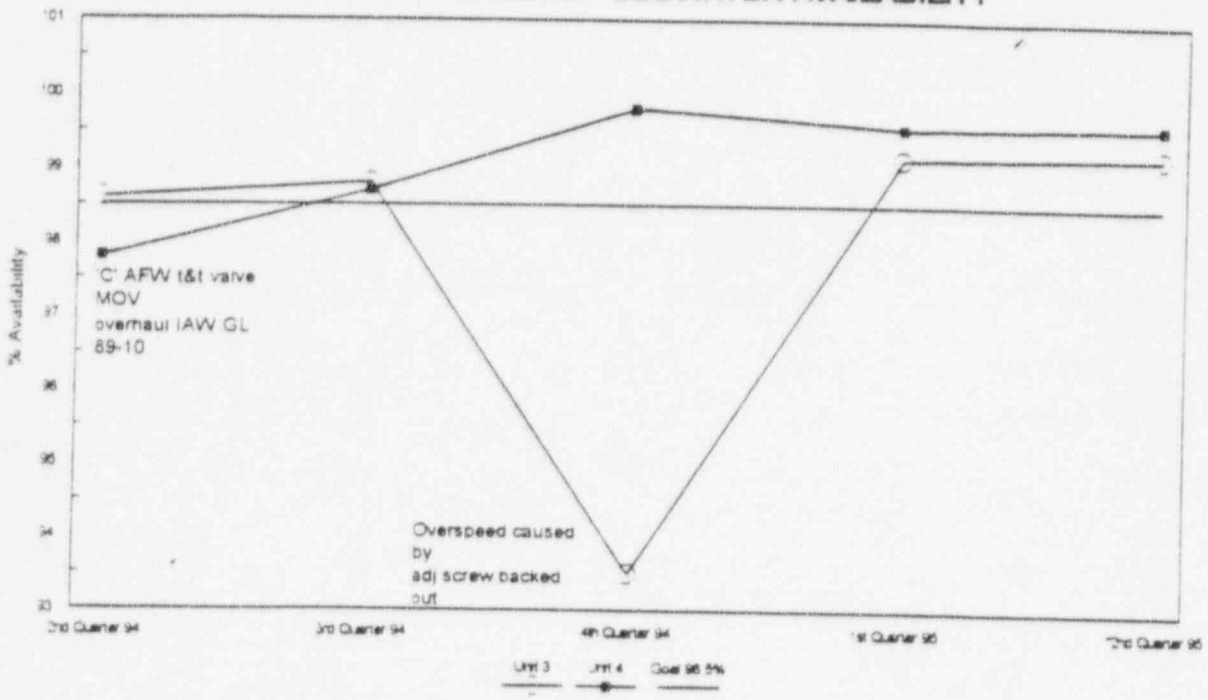
Unit 3 and Unit 4



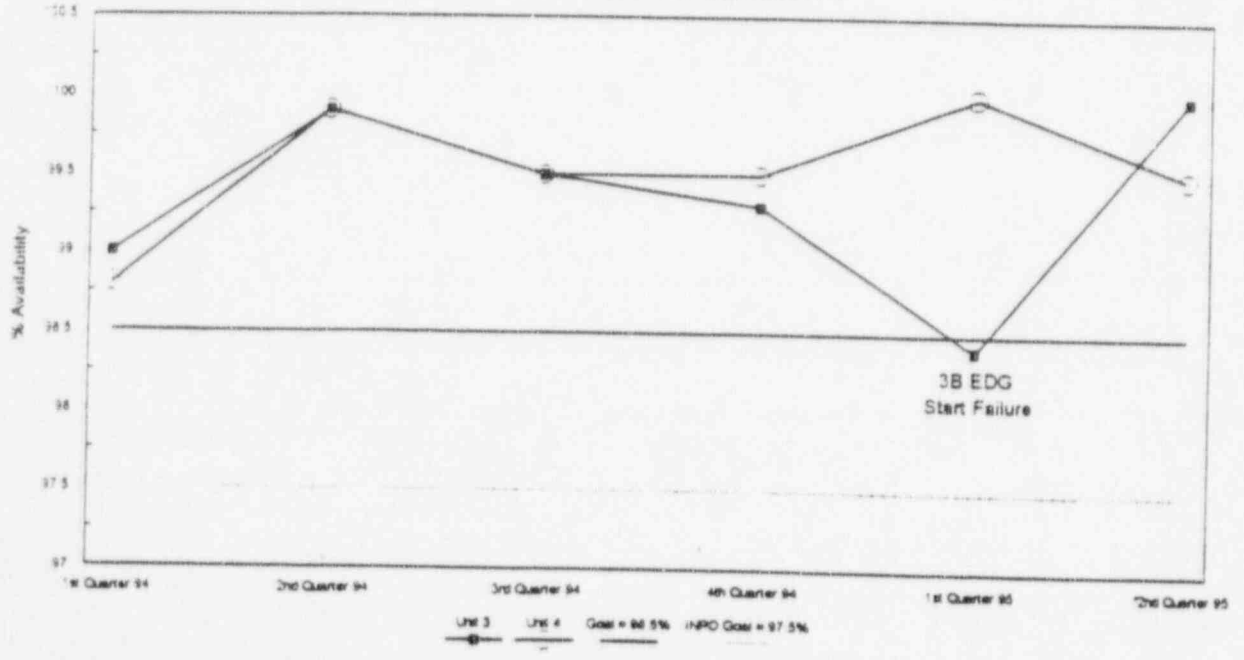
UNIT 3 & 4 SAFETY INJECTION AVAILABILITY



UNIT 3 & 4 AUXILIARY FEEDWATER AVAILABILITY

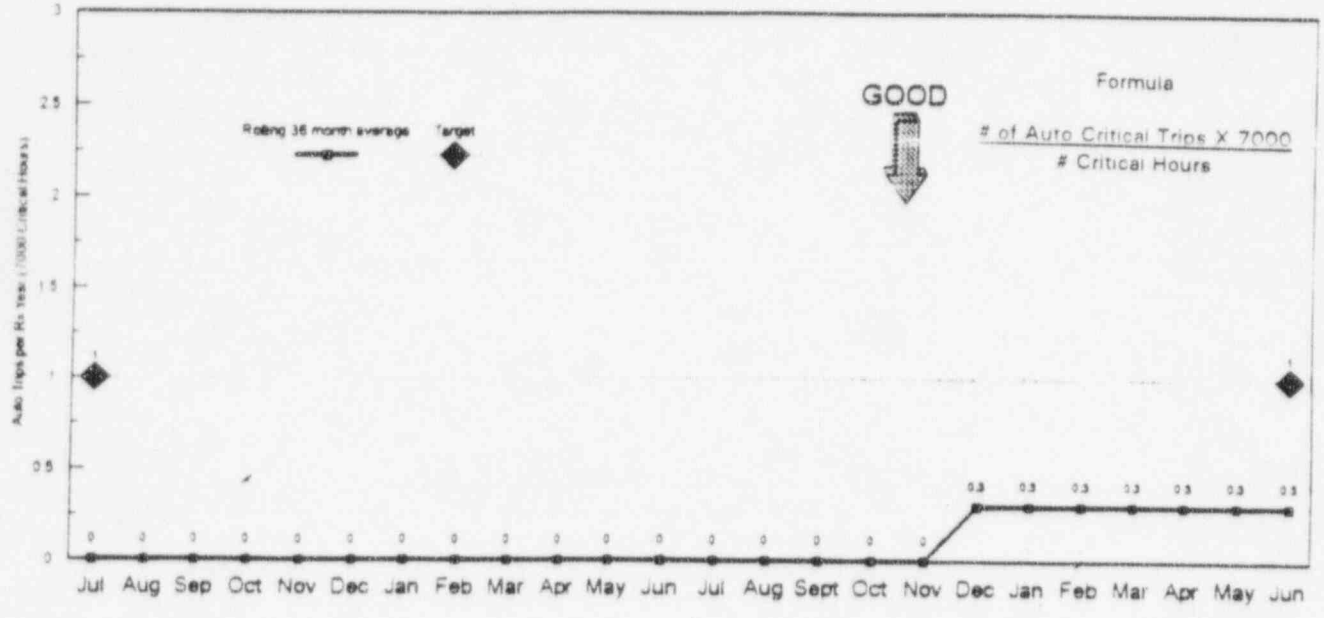


UNIT 3 & 4 EDG AVAILABILITY



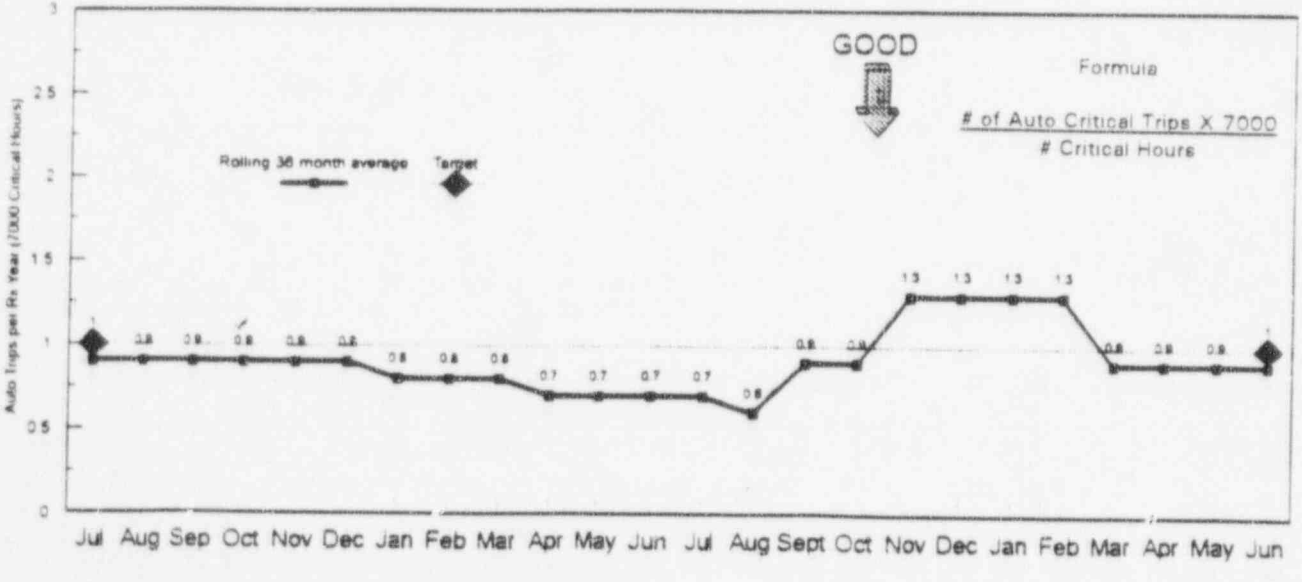
Turkey Point Plant Reactor Trip Rate

Unit 3



Turkey Point Plant Reactor Trip Rate

Unit 4



Indicator based on INPO standard of 36 month rolling calendar

INITIATIVES

- IN-HOUSE CORE DESIGN
  - DEVELOP THE CORE LOADING PATTERNS AND CALCULATE SAFETY ANALYSES INPUTS
  - REVIEW AND APPROVE ALL FUEL RELATED ENGINEERING SERVICES FUEL MECHANICAL DESIGN CHANGES
- FUSE LIST ENHANCEMENT PROGRAM
  - AGGRESSIVE FUSE WALKDOWN PROGRAM DEVELOPED
  - SCOPE INCLUDES 4411 FUSES
- SMALL BORE PIPING MODIFICATIONS
  - UNISOLABLE SMALL BORE HIGH ENERGY PIPING
  - VIBRATION INDUCED FATIGUE IS THE PREVALENT FAILURE MECHANISM
  - MODIFICATIONS DEVELOPED TO PRECLUDE FUTURE FAILURES
- CONDITION REPORT TRENDING
  - QUARTERLY REVIEW OF CONDITION REPORTS
  - MANAGEMENT TOOL FOR IDENTIFYING ADVERSE TRENDS
- CONTINUED PROFESSIONAL DEVELOPMENT
  - 4 INDIVIDUALS RECENTLY COMPLETED SRO CERTIFIED TRAINING, BRINGING TOTAL TO 12
  - INPO ACCREDITED ESP TRAINING FOR ALL SITE ENGINEERS AND TECHNICAL PERSONNEL

NRC PRESENTATION
AUGUST 10, 1995

EMERGENCY LOAD SEQUENCER MODIFICATIONS

William A. Skelley
Manager Production Engineering Group

BACKGROUND

ROOT CAUSES

DESIGN VERIFICATION AND VALIDATION PROCESS

LESSONS LEARNED - SUMMARY

VIDEO

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

BACKGROUND

SEQUENCER DESIGN

LOAD SEQUENCERS PROVIDE

- BUS STRIPPING AND LOAD SEQUENCING
- LOCA, LOOP AND LOOP/LOCA DESIGN BASIS EVENTS

DIGITAL PROGRAMMABLE LOGIC CONTROLLERS (PLC) DESIGN

- REPLACED RELAY SYSTEM DURING EPS UPGRADE (1990/1991)

FOUR INSTALLED SEQUENCERS - ONE PER SAFETY TRAIN

- FIFTH TRAINING SEQUENCER

DIGITAL PLC DESIGN INCLUDES

- CONTINUOUS AUTOMATIC TEST FEATURE
- MANUAL TEST FEATURE

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

BACKGROUND

THREE SOFTWARE DESIGN DEFECTS REPORTED IN LER 94-005

INTERACTION BETWEEN TEST MODE & VALID SIGNAL

CONTAINMENT SPRAY PUMP START ANOMALY

LOAD CENTER BREAKER ANOMALY

SOFTWARE AND HARDWARE CORRECTIVE ACTIONS

CORRECT LOGIC DEFECTS

REMOVE THE AUTO TEST DESIGN FEATURE
- SIMPLIFY DESIGN
- MANUAL TESTING MAINTAINED

MORE EXTENSIVE SOFTWARE V&V PROGRAM

IMPLEMENTATION SCHEDULE

IMPLEMENT MODIFICATIONS DURING NEXT SCHEDULED REFUELING OUTAGES
- DURING BUS OUTAGE

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

ROOT CAUSES

ORIGINAL SOFTWARE PROGRAMMING LOGIC ERRORS

ORIGINAL SOFTWARE VERIFICATION & VALIDATION ACTIVITIES FAILED TO DETECT THE SOFTWARE ERRORS

CONTRIBUTING CIRCUMSTANCES:

- AUTOMATIC TEST FEATURES REQUIRED COMPLEX SOFTWARE DESIGN
- ORIGINAL V&V PLAN RELIED TOO HEAVILY ON TESTING AS OPPOSED TO SOFTWARE DESIGN ANALYSIS
- ORIGINAL TEST PLAN NOT ADEQUATE

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

SOFTWARE VERIFICATION AND VALIDATION PROCESS

DESIGN VERIFICATION & VALIDATION STRATEGY

TRAIN ENGINEERS ON SOFTWARE V&V METHODS

- INDUSTRY SOFTWARE V&V EXPERTS CONDUCTED TRAINING

SEPARATE DESIGN AND V&V ACTIVITIES

- SEPARATE DESIGN AND V&V TEAMS ESTABLISHED
- INDEPENDENCE OF VERIFICATION TEAM MAINTAINED

ENHANCED V&V PLAN PREPARED

- MORE STRUCTURED AND THOROUGH PROCESS THAN ORIGINAL V&V PROCESS
- V&V PLAN REVIEWED BY INDUSTRY SOFTWARE V&V EXPERTS

COUNTERMEASURES TO
- SOFTWARE PROGRAMMING LOGIC ERRORS
- ORIGINAL V&V ACTIVITIES FAILED TO DETECT SOFTWARE ERRORS

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

SOFTWARE VERIFICATION AND VALIDATION PROCESS

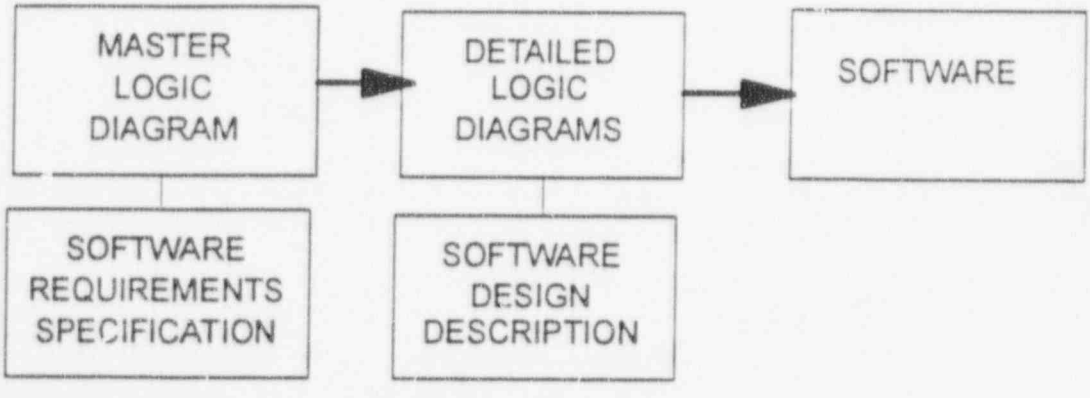
ENHANCED VERIFICATION & VALIDATION PROCESS

SCOPE OF V&V COVERED ENTIRE SOFTWARE DESIGN

FOLLOWED GUIDANCE OF IEEE STANDARDS FOR SOFTWARE VERIFICATION AND VALIDATION PLANS

ENHANCED SOFTWARE REQUIREMENTS SPECIFICATION AND DESIGN DESCRIPTION

V&V METHODS FOCUS ON DESIGN ANALYSIS TO IDENTIFY SUBTLE CONDITIONS



COUNTERMEASURES TO:
- ORIGINAL V&V ACTIVITIES FAILED TO DETECT SOFTWARE ERRORS
- ORIGINAL V&V PLAN RELIED TOO HEAVILY ON TESTING AS OPPOSED TO LOGIC ANALYSIS

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

SOFTWARE VERIFICATION AND VALIDATION PROCESS

ENHANCED V&V ANALYSES

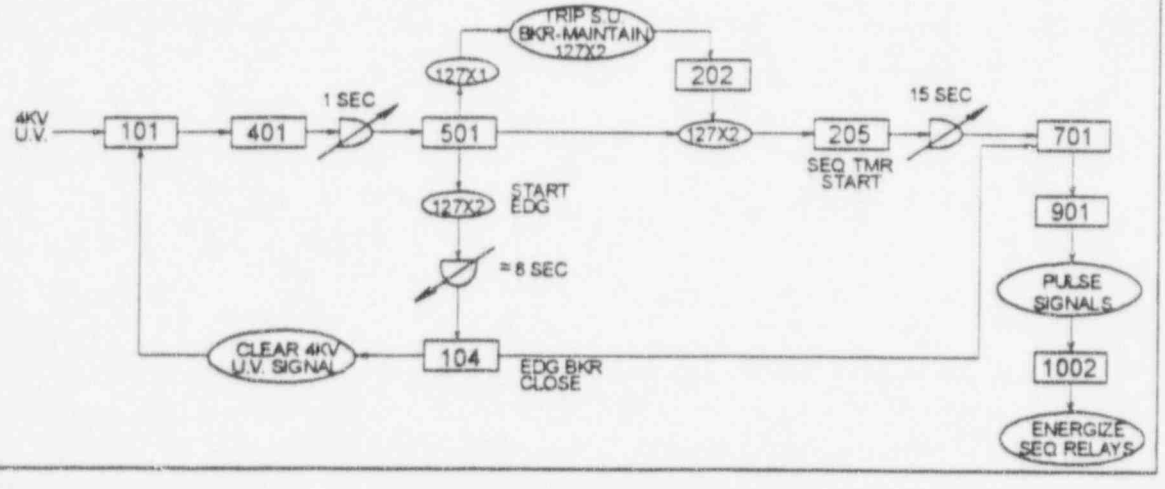
ADDED SEGMENT CRITICALITY ANALYSIS

- EACH SEGMENT EVALUATED FOR OPERATION, INHIBITS, SEAL-INS, INTERFACES, ETC.

ADDED CONTROL FLOW ANALYSIS

- INTEGRATED ANALYSIS OF LOGIC SEGMENTS
- WALK THROUGH FOR ALL DESIGN BASIS EVENTS

ATTACHMENT 2-CONTROL FLOW ANALYSIS
LOGIC SEGMENT FLOW DIAGRAM
LOOP-4KV U.V.



COUNTERMEASURES TO:

- ORIGINAL V&V ACTIVITIES FAILED TO DETECT SOFTWARE ERRORS
- ORIGINAL V&V PLAN RELIED TOO HEAVILY ON TESTING AS OPPOSED TO DESIGN ANALYSIS

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

SOFTWARE VERIFICATION AND VALIDATION PROCESS

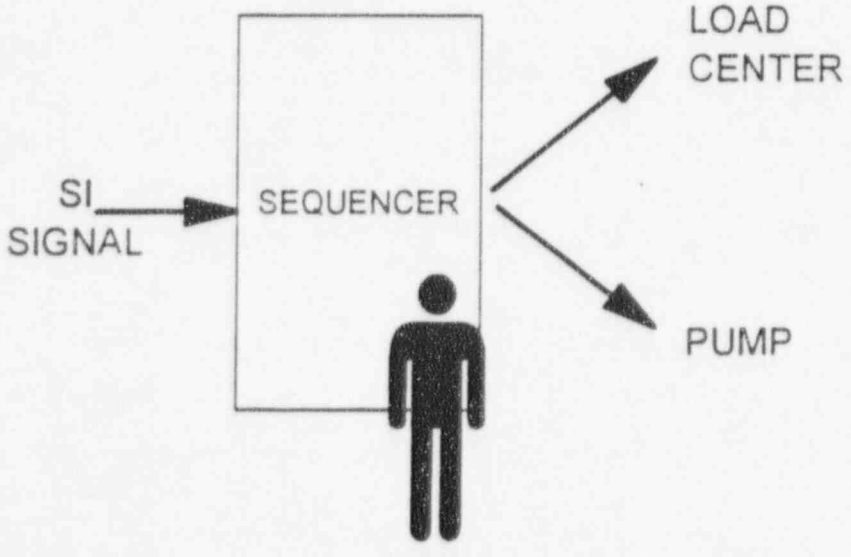
ENHANCED V&V ANALYSES

ADDED INTERFACE REQUIREMENTS ANALYSIS

- EXTERNAL CONTROL CIRCUIT INTERACTIONS
- POSSIBLE OPERATOR INTERACTIONS

ADDED DETAIL FAILURE MODES & EFFECTS ANALYSIS

- EFFECT/DETECTABILITY OF A HARDWARE FAILURE OF ANY INPUT OR OUTPUT



COUNTERMEASURES TO:

- ORIGINAL V&V ACTIVITIES FAILED TO DETECT SOFTWARE ERRORS
- ORIGINAL V&V PLAN RELIED TOO HEAVILY ON TESTING AS OPPOSED TO DESIGN ANALYSIS

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

SOFTWARE VERIFICATION AND VALIDATION PROCESS

VALIDATION TESTING

ENHANCED TEST PLAN

- ADDED A TEST SPECIFICATION DOCUMENT

NUMBER OF TEST CASES SIGNIFICANTLY INCREASED

- 455 TEST CASES SPECIFIED
- ALL COMBINATIONS OF TEST MODES AND INPUTS TESTED
- 70 TESTS ASSOCIATED WITH MODIFICATION PERFORMANCE
- STRESS TESTS CONDUCTED

COMPUTER USED TO SIMULATE PLANT RESPONSE FOR CRITICAL TIMING

SEQUENCE OF EVENTS RECORDER USED

- DOCUMENT/EVALUATE ALL INPUT AND OUTPUT STATE CHANGES
- ALLOWED REVIEW OF INTERMEDIATE PROGRAM STATES
- AVOIDS TRAP OF RELIANCE ON ACCEPTABLE END RESULTS

COUNTERMEASURES TO:

- ORIGINAL V&V ACTIVITIES FAILED TO DETECT SOFTWARE ERRORS
- ORIGINAL TEST PLAN NOT ADEQUATE

SEQUENCER MANUAL TEST MODE 1995 V&V TESTING MATRIX

	MANUAL TEST SCENARIOS															
	STRIPPING TESTS					SEQUENCING TESTS										
DESIGN BASIS EVENTS	BUS CLEAR	480V DV	480V UV W/SI	4KV UV	LOOP THEN LOCA	LOOP	LOOP/ LOCA	LOOP/ LOCA OTHER UNIT	LOCA	LOCA OTHER UNIT	LOOP/ LOCA W/HHCP	LOCA W/HHCP	LOOP/ LOCA W/HHCP <13	LOCA W/HHCP <13	LOOP/ LOCA W/HHCP >13	LOCA W/HHCP >13
LOOP	322	200 201	205	207 208	212	214 215 216	219 220 221	231 232 233	398	254 255	256 257 258	420	278 279 280	431	300 301 302	442
LOOP/LOCA	323	334	345	355	366	375	222 223 224	392	245 246	407	259 260 261	272 273	281 282 283	294 295	303 304 305	316 317
LOOP THEN LOCA	324	335	346	356	210	217	385	240	399	408	267	421	289	432	311	443
LOOP/LOCA OTHER UNIT	325	336	347	209	367	376	386	234 235 236	400	409	416	422	427	433	438	444
LOOP THEN LOCA OTHER UNIT	326	337	348	357	211	218	227 228	239	401	410	266	423	288	434	310	445
LOCA	199	338	349	358	368	377	229 230	393	243 244	411	268 269	270 271	290 291	292 293	312 313	314 315
LOCA OTHER UNIT	327	339	206	359	213	378	387	241 242	402	249 250 251	417	424	428	435	439	446
LOOP/LOCA W/HHCP < 13	328	340	350	360	369	379	225	394	403	412	262	276	284	298	306	320
LOCA W/HHCP < 13	329	341	351	361	370	380	388	237	247	252	264	274	286	296	308	318
LOOP/LOCA W/HHCP > 13	330	342	352	362	371	381	226	395	404	413	263	277	285	299	307	321
LOCA W/HHCP > 13	331	343	353	363	372	382	389	238	248	253	265	275	287	297	309	319
LOCA THEN LOOP	332	202	203 204	364	373	383	390	396	405	414	418	425	429	436	440	447
LOCA OTHER UNIT THEN LOOP	333	344	354	365	374	384	391	397	406	415	419	426	430	437	441	448

NUMBERS IN TABLE INDICATE V&V TEST CASE NUMBER

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

LESSONS LEARNED

COMPLEX SOFTWARE V&V IS A CONTINUOUS PROCESS FROM DESIGN SPECIFICATION THROUGH LIFE OF THE SOFTWARE.

- PLANNING OF V&V ACTIVITIES IS IMPORTANT
- DESIGN ANALYSIS REVIEW OF SOFTWARE IS CRITICAL
- REQUIRES CAREFUL REVIEW AND DOCUMENTATION AT ALL STAGES OF THE JOB.

SUMMARY

THE SEQUENCER SOFTWARE V&V PROCESS WAS

- MORE COMPREHENSIVE
- SUBSTANTIALLY MORE IN DEPTH
- VALIDATION TESTING WAS THOROUGH

THE FPL ENGINEERING SOFTWARE DESIGN AND V&V TEAMS

- HAD GREATER UNDERSTANDING OF NUCLEAR PLANT SYSTEMS
- PUT IN PLACE DESIGN CONTROLS TO ASSURE A SUCCESSFUL SOFTWARE MODIFICATION AND V&V PROCESS.

TURKEY POINT NUCLEAR POWER PLANT
EMERGENCY LOAD SEQUENCER

VIDEO

TURKEY POINT NUCLEAR PLANT

ENGINEERING/TECHNICAL SUPPORT

THERMAL POWER UPRATE PROJECT

E. A THOMPSON

PROJECT ENGINEER

I. UPRATE PROGRAM

II. OPERATIONAL BENEFITS

III. MODIFICATIONS

IV. PROJECT SCHEDULE

FPL

TURKEY POINT NUCLEAR PLANT

ENGINEERING/TECHNICAL SUPPORT

Turkey Point Nuclear Plant

I. UPRATE PROGRAM

- CURRENT LICENSE CORE POWER LEVEL - 2200 MW_{TH}/UNIT
- PLAN TO RE-LICENSE TURKEY POINT UNITS 3 & 4

  UPRATED CORE POWER LEVEL - 2300 MW_{TH}/UNIT
  31 MW_E/UNIT OUTPUT GAIN PROJECTED, 62 MW_E TOTAL

  MAJOR RE-ANALYSIS

  - LARGE BREAK LOCA
  - SMALL BREAK LOCA
  - STEAM GENERATOR TUBE RUPTURE
  - NON-LOCA TRANSIENTS
  - RADIOLOGICAL DOSE CALCULATIONS
  - CONTAINMENT ANALYSES
  - STRUCTURES, SYSTEMS, AND COMPONENTS

  LIMITED PHYSICAL MODIFICATIONS

  - NO MAJOR EQUIPMENT CHANGES

- BENEFITS

  DESIGN BASIS IMPROVED AND UPDATED

  OPERATIONAL FLEXIBILITY AND MARGIN

  GREATER IN-HOUSE EXPERIENCE AND KNOWLEDGE

  BENEFIT TO THE RATE PAYER
  - REDUCES SYSTEM FUEL EXPENSE
  - LOWEST COST CAPACITY MANAGEMENT OPTION

  BENEFIT TO THE FPL SHAREHOLDER

  - DEFERRAL OF CASH REQUIREMENTS FOR NEW GENERATION
  - BETTER UTILIZATION OF EXISTING ASSETS

  3% REDUCTION IN OVERALL COST PER MWH

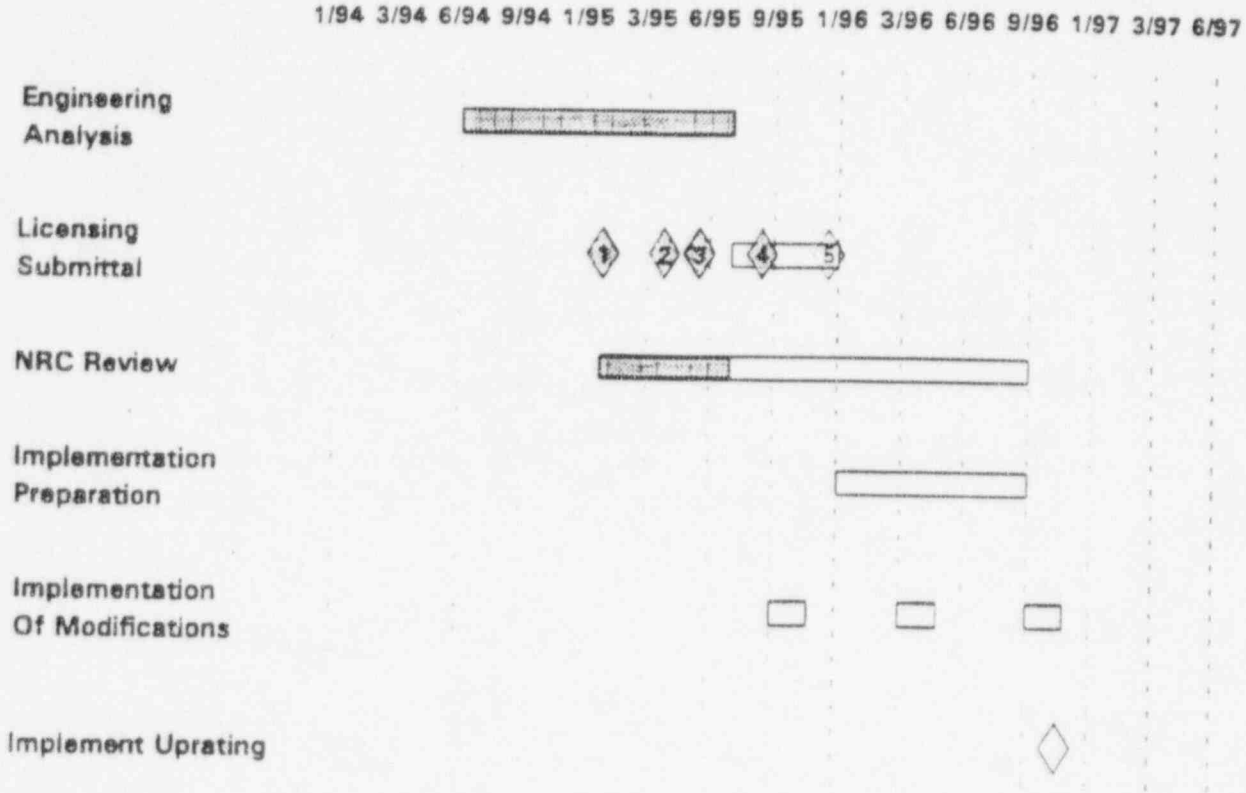
II. OPERATIONAL BENEFITS

- MSSV/PSV TOLERANCE INCREASE
  - ± 3% JUSTIFIED FOR MSSVs
  - + 2% - 3% JUSTIFIED FOR PSVs
- HHSI PUMPS
  - LARGE BREAK LOCA
  - SMALL BREAK LOCA
  - ONE DEGRADED PUMP ASSUMED
- COMPONENT COOLING WATER (CCW)
  - CCW HEAT EXCHANGER ALLOWED INCREASED FOULING
  - CLEANING NEEDED LESS OFTEN
  - ANALYZED POST-LOCA SYSTEM TEMPERATURES INCREASED
- EMERGENCY CONTAINMENT COOLERS (ECC)
  - CCW AND CONTAINMENT ANALYSES
  - CONTAINMENT TEMPERATURE AND PRESSURE PROFILES SHOW 1 ECC NEEDED < 24 HOURS, 2 ECCs > 24 HOURS
  - SWING ECC WILL NO LONGER AUTO START; MAY BE MANUALLY STARTED WITHIN 24 HOURS
- $OP\Delta T$, $OT\Delta T$
  - SIGNIFICANT INCREASE IN OPERATING MARGIN
  - $K_1 = 1.24$
- STEAM GENERATOR LO-LO LEVEL REACTOR TRIP
  - SAFETY ANALYSES USE 4%
  - NOMINAL TRIP SETPOINT OF 10% SUPPORTED
  - IMPROVES ABILITY TO WITHSTAND FEEDWATER PUMP TRIP

III. MODIFICATIONS

- REVISED THERMAL DESIGN PROCEDURE (RTDP) IMPLEMENTATION
  - $OT_{\Delta}T$, $OP_{\Delta}T$ AND STEAM GENERATOR LO-LO LEVEL SETPOINT CHANGES
- SALEM ASYMMETRICAL ROD WITHDRAWAL ROD CONTROL SYSTEM CHANGES
  - PREVENTS KNOWN ROD CONTROL SYSTEM MALFUNCTION
- CCW HEAT EXCHANGER PEDESTALS
  - STRENGTHENS PEDESTALS TO ACCEPT HIGHER CCW TEMPERATURES
- MAIN STEAM SAFETY VALVE TAILPIPES
  - INCREASES TAILPIPE SIZE TO 12" DIAMETER
- CONDENSER TUBE STAKING
  - PREVENTS TUBE VIBRATION DUE TO HIGHER FLOWS
- ECC AUTO-START LOGIC CHANGE
- CONDENSATE STORAGE TANK LEVEL SWITCH RELOCATION
  - INCREASES LOW LEVEL ALARM POINT
- POST-ACCIDENT SAMPLING SYSTEM COOLER PIPING CHANGE
  - INCREASES CCW PIPE SIZE TO COOLER
- POTENTIAL HEATER DRAIN SYSTEM CHANGES (UNIT EFFICIENCY)
  - INCREASE DRAIN FLOW FROM #5 FEEDWATER HEATER
- UPRATING SETPOINTS, SCALING AND IMPLEMENTATION
  - IMPLEMENTS UPRATING

IV. PROJECT SCHEDULE



Licensing Submittals				
No.	Topic	Planned Submittal Date	Requested Approval Date	Review Duration
1	Leak Before Break	2/2/95A	6/23/95A	Complete
2	Revised Thermal Design Procedure	5/5/95A	1/31/96	9 months
3	Instrumentation Tech Spec Format	5/23/95A	11/30/95	6 months
4	Small Break LOCA	7/26/95A	5/31/96	9 months
5	Uprating	12/29/95	9/30/96	9 months

CHALLENGES/OPPORTUNITIES

- EQUIPMENT AGING ISSUES
  - COMPONENT OBSOLESCENCE: HAGAN MODULES
  - FLOW ACCELERATED CORROSION
  - ABANDONED EQUIPMENT PROGRAM
- CONTINUED IMPROVEMENT OF SELF-ASSESSMENT TECHNIQUES
  - FLUX MAPPER SYSTEM, REFUELING EQUIPMENT
  - SERVICE WATER OPERATION PERFORMANCE INSPECTION SELF ASSESSMENT
  - SEQUENCER
- MAINTENANCE RULE PREPARATION
  - ISSUES ASSOCIATED WITH NEW REGULATION
  - SCOPING COMPLETE

FPL

COMPONENT SUPPORT
AND
INSPECTIONS

METALLURGICAL LABORATORY CAPABILITIES

J. T. LUKE
MANAGER
COMPONENT SUPPORT AND
INSPECTIONS

FPL

MET LAB CAPABILITIES

METALLURGICAL EXAMINATION:

Function: Perform Failure Analysis Evaluations

Analytical techniques used include:

- Visual Examinations
- Sample Cutting & Sectioning
- Macroscopic Examinations
- Fractography
- Metallography
- Chemical Analysis
- Hardness Testing
- Remote Capabilities
- Documentation

MET LAB CAPABILITIES

Created to provide quick response with in-house resources to support operation of the nuclear units.

CAPABILITIES:

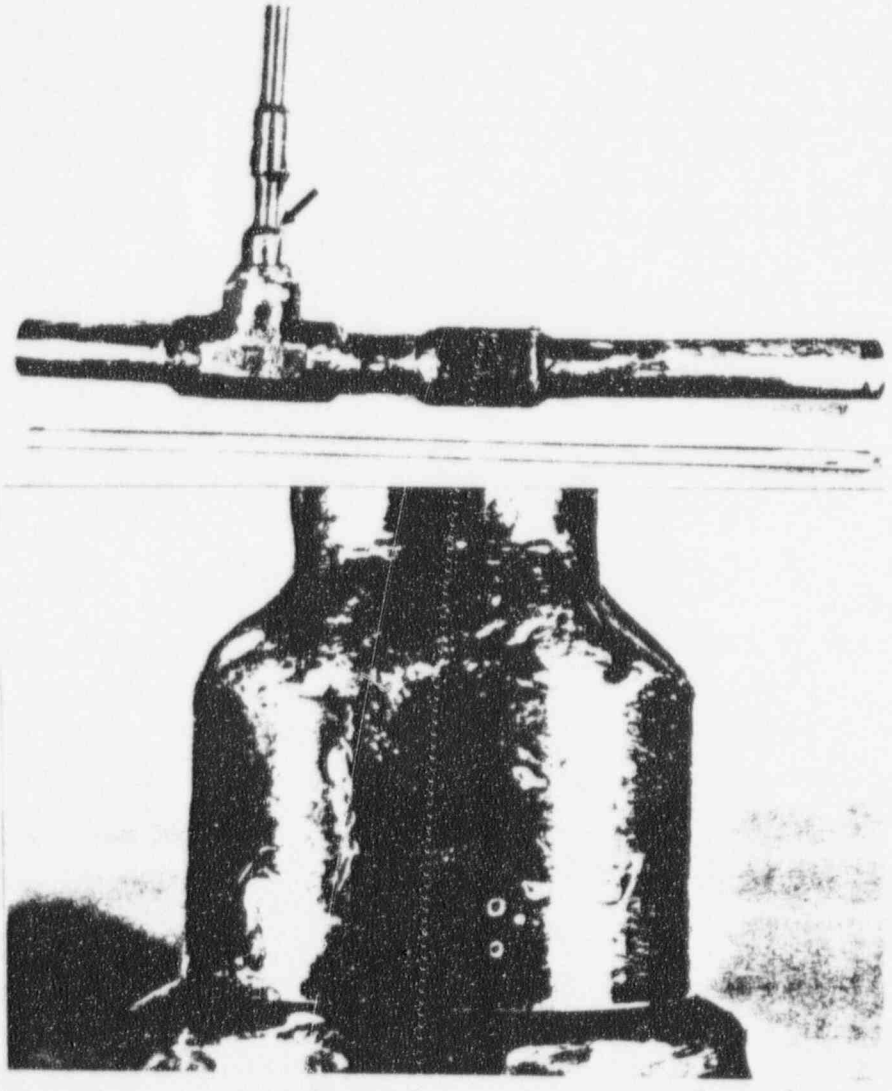
- Metallurgical Examination
- NDE Services

MET LAB CAPABILITIES

FPL

VISUAL EXAMINATIONS:

- Photograph & document as-received condition



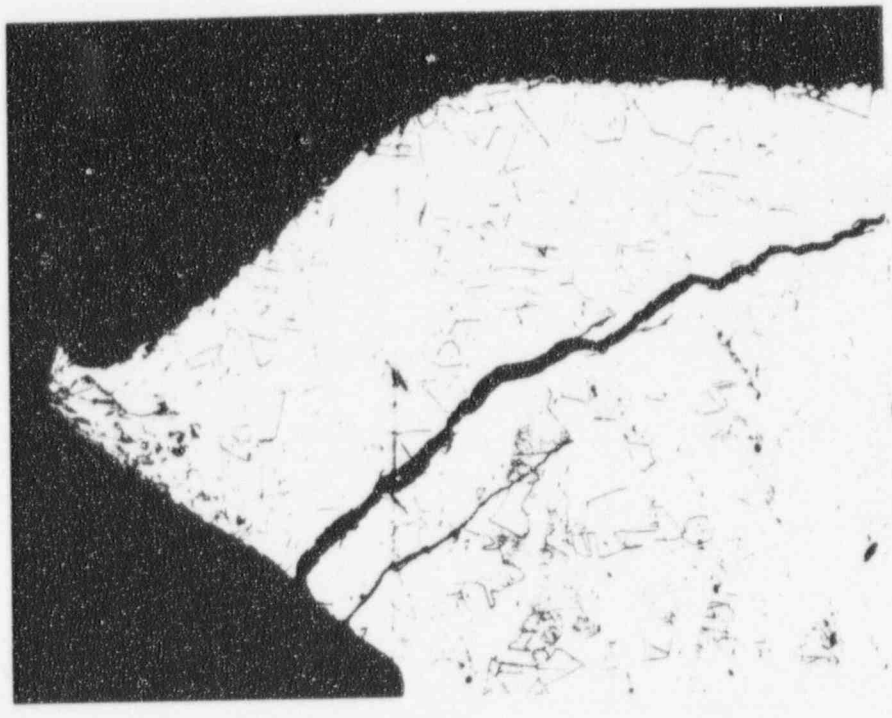
Photograph showing as-received section of DEH piping

MET LAB CAPABILITIES

FPL

SAMPLE CUTTING & SECTIONING:

- To facilitate further examination



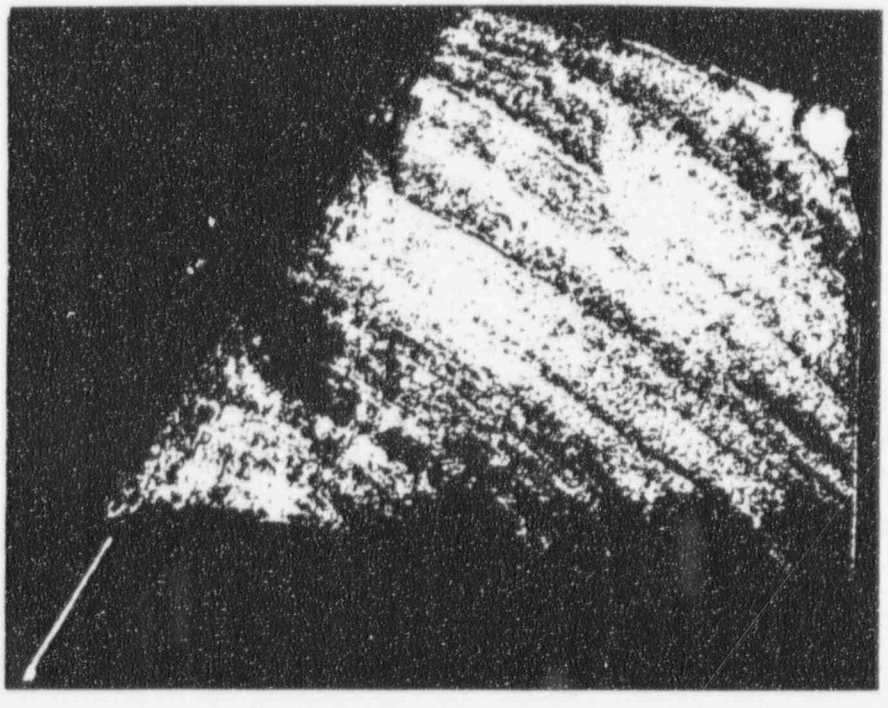
Photomicrograph of metallographically prepared specimen (37.5X) showing transgranular crack paths of two parallel cracks in thread root.

FPL

MET LAB CAPABILITIES

MACROSCOPIC EXAMINATIONS:

- Use light optical microscope
- Magnification from 3x to 70x
- Surface features recorded photographically
- Cracking, pitting, crack arrest lines



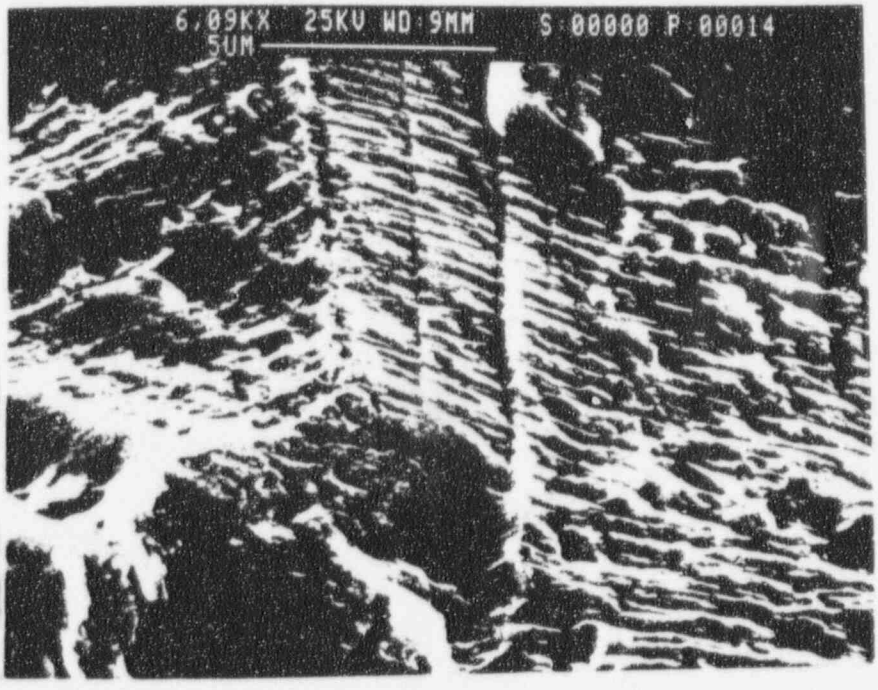
Photomacrograph (8X) showing crack arrest lines or beach marks in root region of turbine blade

FPL

MET LAB CAPABILITIES

FRACTOGRAPHY:

- Use scanning electron microscope
- Magnification to 100,000x
- Looking at surface to determine failure mechanism
- Fatigue, ductile overload, brittle fracture



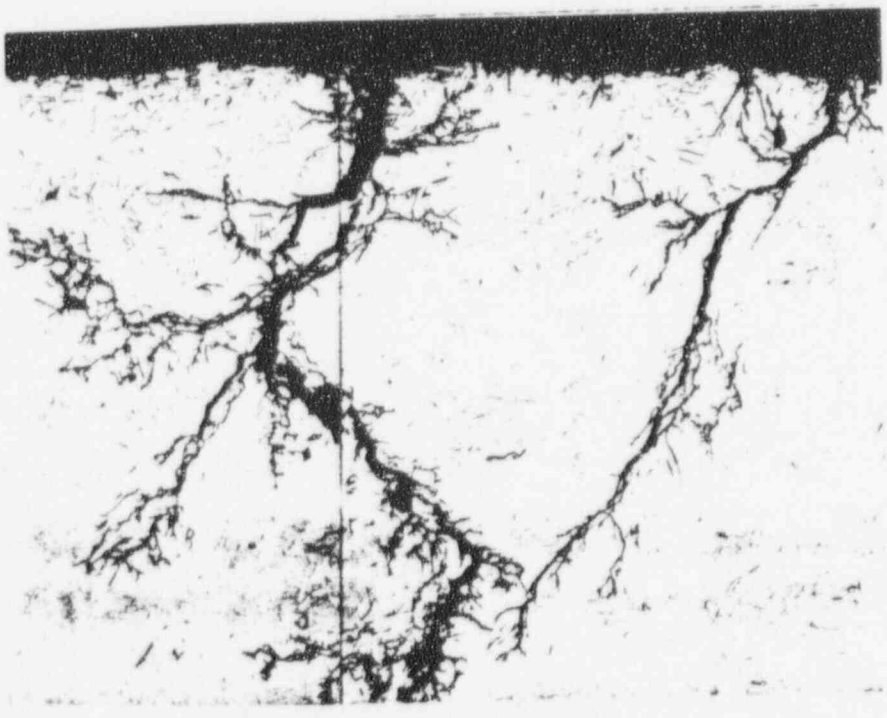
SEM photomicrograph showing patch of finely spaced fatigue striations on fracture surface of socket weld joint

FPL

MET LAB CAPABILITIES

METALLOGRAPHY:

- Samples mounted, ground & polished
- Use light optical microscope
- Magnification to 1500x
- Evaluate microstructure & contained defects such as stress corrosion cracking



Photomicrograph (37.5X) of metallographically prepared specimen showing branched, transgranular stress corrosion cracking

FPL

MET LAB CAPABILITIES

CHEMICAL ANALYSIS:

- Elemental composition of alloys & deposits
- Optical Emission Spectrometer
- X-Ray Fluorescence
- Energy Dispersive Spectroscopy (EDS)

HARDNESS TESTING:

- Provides indication of mechanical properties & thermal treatment
- Use Rockwell, Knoop & Vickers methods

REMOTE CAPABILITIES:

- Portable equipment for use at the plants

DOCUMENTATION:

- Produce detailed reports for all evaluations including high resolution photographs
- Reports distributed & stored in electronic format

FPL

NRC FPL ENGINEERING MEETING

CLOSING COMMENTS

BILL BOHLKE
VICE PRESIDENT
ENGINEERING & LICENSING