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DEC 10 1990

Docket Nos. 50-327, 50-328
License Nos. DPR-77, DPR-79

Mr. Oliver D. Kingsley, Jr.
Senior Vice President, Nuclear Power
Tennessee Valley Authority
6N 38A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Dear Mr. Kingsley:

SUBJECT: ENFORCEMENT CONFERENCE SUMMARY
(NRC INSPECTION REPORT NOS. 50-327/90-34 AND 50-328/90-34)

This letter refers to the Enforcement Conference held at our request on November 27, 1990. This meeting concerned activities authorized for your Sequoyah facility. The issues discussed at this conference related to repetitive problems associated with management control of overtime for personnel performing safety-related work. It is our opinion that this meeting was beneficial and has provided a better understanding of the inspection findings, the enforcement issues, and the status of your corrective actions. We are continuing our review of these issues to determine the appropriate enforcement action. A list of attendees, summary, and a copy of your handout are enclosed.

A management meeting was conducted after the enforcement conference to discuss various issues of interest. A list of attendees, summary, and a copy of your handout for the management meeting are enclosed.

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 matter, please contact us.

Sincerely,

(Original signed by J. Milhoan)

Stewart D. Ebneter
Regional Administrator

Enclosures: (See page 2)

IE01

Enclosures:
1. Enforcement Conference List of Attendees
2. Enforcement Conference Summary
3. Enforcement Conference Handout
4. Management Meeting List of Attendees
5. Management Meeting Summary
6. Management Meeting Handout

cc w/encls:
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bcc w/encls: (See page 3)

bcc w/encls:
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TVA/RII	TVA/RII	IVA/RII	EICS/RII	ORA/RII
JBrady:vyg	WLittle	BWilson	GJenkins	JMilhoan
12/6/90	12/6/90	12/10/90	12/10/90	12/ /90

ENCLOSURE 1

ENFORCEMENT CONFERENCE LIST

OF ATTENDEES

NRC

S. D. Ebneter, Regional Administrator, Region II (RII)
J. L. Milhoan, Deputy Regional Administrator, RII
B. A. Wilson, Chief, TVA Projects, TVAP/RII
G. R. Jenkins, Director, Enforcement and Investigation Coordination Staff, (EICS)
W. S. Little, Section Chief, TVA Projects, TVAP/RII
P. E. Harmon, Senior Resident Inspector, Sequoyah Plant, TVAP/RII
B. Uryc, Senior Enforcement Specialist, EICS
J. B. Brady, Project Engineer, TVA Projects, TVAP/RII

TVA

O. D. Kingsley, Senior Vice President, Nuclear Power
J. Bynum, Vice President, Nuclear Operations
M. O. Medford, Vice President, Nuclear Assurance, Licensing and Fuels
J. Wilson, Vice President, Sequoyah
C. A. Vondra, Sequoyah Plant Manager
R. Lumpkin, Quality Assurance Manager
M. Sullivan, Radiological Control Manager
M. Cooper, Site Licensing Manager

ENCLOSURE 2

ENFORCEMENT CONFERENCE SUMMARY

The licensee provided a historical summary of the issue from 1988 to November 1990 which identified the repetitive nature of the violations. The licensee explained that the issues regarding the use of overtime exceeded the scope of failing to follow procedures in the authorization of overtime because they were embedded in the culture at Sequoyah. As a result, licensee management initially underestimated the magnitude of the task associated with correcting the problem. Corrective action was effective in some areas, while in other areas the corrective action was not effective at all. The licensee described the revised integrated corrective action plan and stated that a corporate standard on the control of overtime was being prepared. Some of the corrective actions involved disciplinary action against supervisors and implementation of a computerized tracking system to assist in control of overtime. The licensee planned continued management attention to this issue because of the nature of the problem and additional QA monitoring to verify the effectiveness of the corrective actions.

Enclosure 3

TVA/NRC ENFORCEMENT CONFERENCE

IR 50-327,328/90-34

NOVEMBER 27, 1990

TVA/NRC ENFORCEMENT CONFERENCE

AGENDA

I.	INTRODUCTION	O. D. KINGSLEY
II.	HISTORICAL SEQUENCE	C. A. VONDRA
III.	POST UNIT 1 CYCLE 4 REFUELING OUTAGE CORRECTIVE ACTIONS	C. A. VONDRA
IV.	QA MONITORING RESULTS AND TVA FINDINGS	C. A. VONDRA
V.	ROOT AND CONTRIBUTING CAUSES	J. L. WILSON
VI.	INTEGRATED CORRECTIVE ACTION PLAN	J. L. WILSON
VII.	CONCLUSION	O. D. KINGSLEY

I. INTRODUCTION

- WEAKNESSES IDENTIFIED IN ADMINISTRATIVE CONTROLS, CLARITY OF EXPECTATIONS AND CULTURE REGARDING OVERTIME USE

- PREVIOUS CORRECTIVE ACTION PLAN UNREALISTIC IN CONSIDERATION OF TIMEFRAME, MAGNITUDE OF IMMINENT WORKLOAD, AND EXTENT OF OVERTIME CULTURE

- INSUFFICIENT MANAGEMENT OWNERSHIP AND REINFORCEMENT OF EXPECTATIONS TO ENSURE EFFECTIVELY IMPLEMENTED

- TVA MONITORING OF EFFECTIVENESS OF PREVIOUS CORRECTIVE ACTION IDENTIFIED NEED FOR ADDITIONAL CORRECTIVE ACTION

- ADVERSE SAFETY CONSEQUENCES WERE NOT IDENTIFIED AS A RESULT OF DEFICIENCIES IN AUTHORIZING OVERTIME

- SPECIFIC AND BROAD CORRECTIVE ACTIONS BEING TAKEN TO INSTITUTIONALIZE PROCESSES, CONTROLS AND PHILOSOPHY REGARDING OVERTIME USE

II. HISTORICAL SEQUENCE

MARCH 14/24, 1988	VIOLATION EXAMPLES CITED FOR FAILURE TO FOLLOW ADMINISTRATIVE PROCEDURES; PROCEDURE CLARIFIED, EMPHASIS PROVIDED, INDIVIDUAL COUNSELLED
DECEMBER 1988	QA MONITORING DID NOT IDENTIFY ANY PROBLEMS INVOLVING OVERTIME USE OR ADMINISTRATION OF REQUIREMENTS
FEBRUARY 1990	QA MONITORING OF OVERTIME USAGE RELATIVE TO FIRE PROTECTION PROGRAM IMPLEMENTATION DID NOT IDENTIFY PROBLEMS
MARCH 15, 1990	U1C4 REFUELING OUTAGE BEGINS; OPERATIONS' PERSONNEL LOANED FOR OUTAGES
MAY 1990	OPERATIONS SUPERINTENDENT DIRECTS SOSs TO ENSURE OVERTIME GUIDELINES TAKE PRECEDENCE OVER UNION LETTER OF AGREEMENT
MAY 15, 1990	LETTER FROM VP, NUCLEAR OPERATIONS TO INFORM INTERNATIONAL IBEW REPRESENTATIVE OF INTENT TO NO LONGER USE GUIDELINES FOR SIX-GROUP OPERATOR WORK SCHEDULE
JUNE 1, 1990	QA MONITORING INITIATED AS RESULT OF EMPLOYEE CONCERN

II. HISTORICAL SEQUENCE (CONTINUED)

JUNE 2, 1990	END OF U1C4 REFUELING OUTAGE
JUNE 5, 1990	NRC RESIDENT INSPECTOR IDENTIFIES CONCERNS REGARDING OVERTIME USE AND APPROVAL DOCUMENTATION
JUNE 18, 1990	QA MONITORING RESULTS IN CAQR DOCUMENTING EXAMPLES OF FAILURE TO FOLLOW PROCEDURES
JULY 1990	OVERTIME MONITORING ENHANCED AND ESCALATED TO VP, NUCLEAR OPERATIONS
JULY 26, 1990	IR 90-22 AND NOV 90-22-01 ISSUED
AUGUST 10, 1990	SENIOR VP, NUCLEAR POWER DISCUSSES OVERTIME CORRECTIVE ACTION PLAN IN SITE STAFF MEETING
AUGUST 24, 1990	SENIOR VP, NUCLEAR POWER DISCUSSES OVERTIME CONTROLS WITH SITE MANAGEMENT
AUGUST 31, 1990	TVA RESPONSE TO NOV 90-22-01
AUGUST - SEPTEMBER 1990	TVA INITIATES CORRECTIVE ACTIONS IN PREPARATION FOR U2C4 REFUELING OUTAGE

II. HISTORICAL SEQUENCE (CONTINUED)

SEPTEMBER 7, 1990	U2C4 REFUELING OUTAGE BEGINS; MANPOWER INCREASED OVER U1C4 (RADCON, QA, MODIFICATIONS)
SEPTEMBER 14-19, 1990	UNIT 1 REACTOR TRIPS AND MAIN TRANSFORMER SWAPOUT
SEPTEMBER 17-28, 1990	NRC LICENSED OPERATOR REQUALIFICATION EXAMS
SEPTEMBER 27, 1990	QA BEGINS PREPARATION FOR MONITORING ACTIVITY
OCTOBER 4, 1990	QA MONITORING OF SITE IMPLEMENTATION FOR WEEK OF SEPTEMBER 24 BEGINS
OCTOBER 8, 1990	MAIN STEAM CHECK VALVE UNIT 1 FOURTEEN DAY FORCED OUTAGE BEGINS
OCTOBER 15, 1990	QA DISCUSSES MONITORING RESULTS WITH PLANT MANAGER AND VP, NUCLEAR OPERATIONS
OCTOBER 17, 1990	QA MONITORING REPORT APPROVED; ORGANIZATIONAL REVIEWS TO VERIFY EXTENT AND CAUSE
OCTOBER 17, 1990	REVISION INITIATED TO PROCEDURE TO DISALLOW ANY "BLANKET" APPROVALS

II. HISTORICAL SEQUENCE (CONTINUED)

OCTOBER 1990	PLANT MANAGER MEETS WITH OPERATIONS AND MAINTENANCE MANAGEMENT REGARDING IDENTIFIED PROBLEMS
OCTOBER 22, 1990	VP, NUCLEAR OPERATIONS AND PLANT MANAGER DISCUSS PROBLEMS IN STAFF MEETINGS; "BLANKET" APPROVALS DISALLOWED
OCTOBER 24, 1990	NIGHT ORDER ISSUED TO PROVIDE ADDITIONAL DOCUMENTATION GUIDANCE
OCTOBER 25, 1990	PLANT MANAGER ISSUES MEMORANDUM ADDRESSING USE OF EXCESSIVE OVERTIME AND IMPLEMENTING CORRECTIVE ACTION PLAN
OCTOBER 26, 1990	QA DISCUSSES RESULTS OF MONITORING ACTIVITY WITH NRC RESIDENT INSPECTOR
OCTOBER 30, 1990	MEMORANDUM SUMMARIZING QA MONITORING RESULTS SENT FROM SITE QUALITY MANAGER TO THE MANAGER, NUCLEAR QUALITY ASSURANCE
NOVEMBER 2, 1990	NIGHT ORDER ISSUED TO FURTHER CLARIFY DOCUMENTATION REQUIREMENTS

II. HISTORICAL SEQUENCE (CONTINUED)

NOVEMBER 3, 1990	REVISED RESPONSE TO NRC INITIATED IDENTIFYING NEED FOR ADDITIONAL CORRECTIVE ACTION; ADDITIONAL CORRECTIVE ACTIONS INITIATED
NOVEMBER 5, 1990	NRC MONTHLY EXIT IDENTIFIES POTENTIAL VIOLATION 90-34-01
NOVEMBER 6, 1990	TVA OFFICIALLY NOTIFIES NRC OF ADDITIONAL CORRECTIVE ACTION PLAN
NOVEMBER 16, 1990	TVA REVISES RESPONSE TO NOV 90-22-01
NOVEMBER 19, 1990	VP, NUCLEAR OPERATIONS MEETS WITH INTERNATIONAL UNION REPRESENTATIVE REGARDING PRECEDENCE OVER UNION AGREEMENT

III. POST UNIT 1 CYCLE 4 REFUELING OUTAGE CORRECTIVE ACTIONS

- EXPECTATIONS AND REQUIREMENTS REINFORCED TO MANAGEMENT
  - MINIMIZE THE USE OF OVERTIME
  - FULL COMPLIANCE WITH PROCEDURES
- CONTROLS FOR PREAPPROVAL OF OVERTIME IMPROVED
  - OUTAGE AND NON-OUTAGE LIMITS ESTABLISHED
  - WEEKLY PERFORMANCE AGAINST LIMITS MONITORED BY SITE MANAGEMENT
- TRACKING/CONTROL PROCESSES REVIEWED
  - EVALUATION OF ADEQUACY OF ADMINISTRATIVE PROCESSES FOR CONTROLLING AND APPROVING OVERTIME
  - EVALUATION OF ADEQUACY OF ADMINISTRATIVE PROCESSES FOR ENSURING EMPLOYEES ARE FAMILIAR WITH POLICIES AND REQUIREMENTS
  - UPGRADE OF ADMINISTRATIVE PROCESSES AS NECESSARY

III. POST UNIT 1 CYCLE 4 REFUELING OUTAGE CORRECTIVE ACTIONS (CONTINUED)

- GOVERNING PROCEDURES ENHANCED
  - CLARIFIED THE DOCUMENTATION FOR AUTHORIZING OVERTIME
  - CLARIFIED APPLICABILITY OF REGULATORY LIMITS
  - DESCRIBED TVA'S OVERTIME POLICY FOR ALL SITE PERSONNEL
- MEETINGS CONDUCTED WITH EMPLOYEES TO CLARIFY EXPECTATIONS AND REQUIREMENTS
  - ENSURED EMPLOYEE FAMILIARITY WITH OVERTIME POLICY AND SPECIFIC REQUIREMENTS
  - CLEARLY DEFINED ACCOUNTABILITY FOR REQUIREMENTS
  - SITE-WIDE DISPATCH ISSUED TO APPRISE EMPLOYEES OF CHANGES TO THE OVERTIME POLICY
- QA MONITORING TO BE CONDUCTED TO ASSESS EFFECTIVENESS OF CORRECTIVE ACTIONS
  - TO IDENTIFY DEFICIENCIES AND FACILITATE FURTHER CORRECTIVE ACTIONS
  - TO IDENTIFY AREAS FOR IMPROVEMENTS
  - TVA UNDERESTIMATED EXTENT OF OVERTIME PROBLEM

IV. QA MONITORING RESULTS AND TVA FINDINGS

- LACK OF APPROVAL DOCUMENTATION
- APPROVAL DOCUMENTATION DEFICIENCIES
- CONFUSION REGARDING DOCUMENTATION REQUIREMENTS
- COMPLEXITY OF MANUAL TRACKING UNDER HEAVY WORKLOAD
- INTENT OF OVERTIME POLICY NOT TOTALLY UNDERSTOOD
- OVERTIME POLICY NOT TOTALLY ACCEPTED
- MANAGEMENT DID NOT ENSURE POLICY AND REQUIREMENTS EFFECTIVELY IMPLEMENTED
- EXTENT OF OVERTIME CULTURE NOT FULLY RECOGNIZED BY MANAGEMENT
- INCONSISTENCIES IN DUTY PLANT MANAGER APPROVAL OF OVERTIME

IV. QA MONITORING RESULTS AND TVA FINDINGS (CONTINUED)

BREAKDOWN OF OVERTIME BY OPERATOR GROUP

NOTE: DATA IS SHOWN IN PERCENT OVERTIME PER INDIVIDUAL IN THAT CATEGORY. EXCLUDES HOLIDAY PAY. SHIFT TURNOVER IS NOT INCLUDED.

	SOS	ASOS[4]	RO[4]	AUO
PRE U1C4 OUTAGE	2%	2%	7%	5.7%
U1C4 OUTAGE	7.4%	20%	17.2%	11%
PRE U2C4 OUTAGE[1]	10.3%	6.7%	16.2%[2]	13%
U2C4 OUTAGE	5.6%	22%	28%[2]	24%[3]
ESTIMATE THROUGH FY91	2-3%	4%	15-20%	10-15%

RANGE OF OVERTIME (THROUGH 11-11-90)

SHIFT	580-750 HOURS	480-1060 HOURS
OUTAGE SUPPORT	900-1200 HOURS (30% MORE THAN SHIFT SRO)	670-1120 HOURS (15% MORE THAN SHIFT RO)

(1) 5 SOSs AND THREE WEEK PERIOD TWO CREWS IN REQUALIFICATION TRAINING.

(2) 5 ROs PULLED FOR SRO UPGRADE TRAINING.

(3) LOST 8 AUOs BETWEEN OUTAGES.

(4) NOT INCLUDED ARE SROs AND ROs REQUIRED FOR OUTAGES.
OUTAGE SROs AVERAGED 36% OVERTIME FOR 24 WEEKS
OUTAGE ROs AVERAGED 34% OVERTIME FOR 24 WEEKS

IV. QA MONITORING RESULTS AND TVA FINDINGS (CONTINUED)

CURRENT AND FUTURE STAFFING INCLUDING LOSS OF EMPLOYEES

	SOS	ASOS	RO	AUO
CURRENT	6	18	20	61
DURING U2C4 OUTAGE	6	14	16	69
FUTURE NON-OUTAGE	6	24	30	60

- 6 SROs LOST THIS CALENDAR YEAR: 2 TO WBN, 1 TO MAINTENANCE, 1 TO TRAINING, 1 TO QA, AND 1 LEFT TVA
- 3 ROs LOST THIS CALENDAR YEAR; ALL LEFT TVA
- 5 ROs CURRENTLY OFF SHIFT FOR SRO UPGRADE TRAINING
- 8 AUOs ON LOAN FROM BROWNS FERRY RETURNED

V. ROOT AND CONTRIBUTING CAUSES

- ROOT: ISSUES REGARDING USE OF OVERTIME WERE EMBEDDED IN CULTURE; MANAGEMENT DID NOT RECOGNIZE THE MAGNITUDE OF THE TASK

- CONTRIBUTING:
  - INSUFFICIENT TIME TO EFFECTIVELY TRAIN MANAGEMENT AND WORKFORCE
  - WEAKNESSES IN TRACKING MECHANISMS AND APPROVAL FORM
  - HEAVY WORKLOAD STRAINED CAPABILITIES OF OVERTIME CONTROL PROCESSES AND RESOURCES
  - REINFORCEMENT AND OVERSIGHT INSUFFICIENT
  - INSUFFICIENT MANAGEMENT PRIORITY ON OVERTIME LIMITATION

VI. INTEGRATED CORRECTIVE ACTION PLAN

- OVERTIME USE:

  - PREAPPROVAL REQUIREMENTS STRENGTHENED
  - CAP PLACED ON MAXIMUM OVERTIME HOURS
  - OPERATORS REMOVED FROM CONTROL BOARD POSITIONS IF POSSIBLE WHEN GUIDELINES EXCEEDED
  - SITE VP REVIEW OF EACH EXCEPTION TO GUIDELINES
  - MANLOADING TARGETS FOR OUTAGES TO BE REEVALUATED (MAY 1991)
  - SCHEDULE EVALUATIONS TO BE PERFORMED FOR TARGET AREAS (MARCH 1991)
  - STAFFING COMPOSITION STUDIES TO BE PERFORMED FOR TARGET AREAS (MARCH 1991)
  - SCHEDULES TO BE REEVALUATED AS EMERGENT ISSUES OCCUR (IMMEDIATE)
  - ASSESSMENT OF PERSONNEL ERRORS VERSUS OVERTIME USE CONDUCTED

VI. INTEGRATED CORRECTIVE ACTION PLAN (CONTINUED)

- OVERTIME ADMINISTRATION:
  - BLANKET APPROVALS DISALLOWED
  - DISCIPLINARY ACTION TAKEN FOR NON-COMPLIANCE
  - PROCEDURE/FORM ENHANCEMENTS INITIATED (DECEMBER 7, 1990)
  - ADDITIONAL TRAINING PLANNED (DECEMBER 21, 1990)
  - COMPUTERIZED TRACKING SYSTEM INITIATED (JANUARY 31, 1991)
  - UNION AGREEMENT DISCUSSIONS ONGOING
  - TECHNICAL SPECIFICATION BEING SUBMITTED (DECEMBER 14, 1990)
  - QA MONITORING SCHEDULED (JANUARY 1991, U1C5, AND AS NEEDED)

VII. CONCLUSION

- PREVIOUS CORRECTIVE ACTION PLAN WAS UNREALISTIC DUE TO:
  - EXTENT OF PROBLEM
  - INSUFFICIENT MANAGEMENT FOCUS
- TVA IDENTIFIED THE NEED FOR ADDITIONAL CORRECTIVE ACTION
- NO SPECIFIC ADVERSE SAFETY CONSEQUENCES WERE IDENTIFIED
- BOTH SPECIFIC AND BROAD CORRECTIVE ACTIONS BEING TAKEN TO PROPERLY IMPLEMENT CONTROLS AND CHANGE CULTURE

ENCLOSURE 4

MANAGEMENT MEETING LIST

OF ATTENDEES

NRC

S. D. Ebneter, Regional Administrator, Region II (RII)
J. L. Milhoan, Deputy Regional Administrator, RII
B. A. Wilson, Chief, TVA Projects, TVAP/RII
W. S. Little, Section Chief, TVA Projects, TVAP/RII
P. E. Harmon, Senior Resident Inspector, Sequoyah, TVAP/RII
J. B. Brady, Project Engineer, TVA Projects, TVAP/RII

TVA

O. D. Kingsley, Senior Vice President, Nuclear Power
J. Bynum, Vice President, Nuclear Operations
M. O. Medford, Vice President, Nuclear Assurance, Licensing and Fuels
J. Wilson, Vice President, Sequoyah
C. A. Vondra, Sequoyah Plant Manager
R. Lumpkin, Quality Assurance Manager
M. Sullivan, Radiological Control Manager
M. Cooper, Site Licensing Manager

ENCLOSURE 5

MANAGEMENT MEETING SUMMARY

The licensee discussed various issues and provided current actions being taken in the areas of ALARA, Incident Investigations and Plant Events, Implementation of Corrective Actions and Major Work Initiatives, Personnel Errors, and Operations Department Performance. The licensee provided an update on ALARA for the Unit 2 outage as committed to during a meeting with the NRC on September 24, 1990. ALARA comparisons were presented for similar work performed on each unit. The licensee presented their findings and corrective actions for weaknesses identified with incident investigations for current plant events. The licensee discussed the effectiveness of corrective actions in relation to the September reactor trips. Personnel Errors were addressed in relation to the Nuclear Instrumentation System miscalibration events that occurred on each unit in 1990. The licensee assessed the recent performance of the operations department and identified several areas that needed strengthening.

Enclosure 6

TVA/NRC MANAGEMENT MEETING

NOVEMBER 27, 1990

TVA/NRC MANAGEMENT MEETING

AGENDA

I.	INTRODUCTION	J. R. BYNUM
II.	ALARA	C. A. VONDRA
III.	INCIDENT INVESTIGATIONS AND PLANT EVENTS	C. A. VONDRA
IV.	IMPLEMENTATION OF CORRECTIVE ACTIONS AND MAJOR WORK INITIATIVES	C. A. VONDRA
V.	PERSONNEL ERRORS	C. A. VONDRA
VI.	OPERATIONS DEPARTMENTAL PERFORMANCE	J. R. BYNUM
VII.	CONCLUSION	O. D. KINGSLEY

I. INTRODUCTION

- COMPLETION OF CYCLE 4 OUTAGES MARKS A CRITICAL POINT FOR SEQUOYAH

- CRITICAL SELF-ASSESSMENT HAS DECLINED

- TARGETED AREAS FOR IMPROVEMENT HAVE BEEN IDENTIFIED
  - ALARA
  - INCIDENT INVESTIGATIONS AND PLANT EVENTS
  - IMPLEMENTATION OF CORRECTIVE ACTIONS AND MAJOR WORK INITIATIVES
  - PERSONNEL ERRORS
  - OPERATIONS DEPARTMENTAL PERFORMANCE

- ORGANIZATION ALIGNMENT AND NEW SITE VP TO BETTER FOCUS RESOURCES

- MANAGEMENT INVOLVEMENT TO ENSURE EFFECTIVE IMPLEMENTATION OF IMPROVEMENTS AND CONTINUED SELF-ASSESSMENT

II. SQN ALARA PROGRAM PERFORMANCE

UNIT 1 CYCLE 4 REFUELING OUTAGE

- EXPOSURE: GOAL - 585 MANREM (715 MANREM PREPLAN)
  ACTUAL - 868 MANREM

- EXTENSIVE POST-OUTAGE CRITIQUES - INHOUSE, NSRB, INPO, NRC

- EXTENSIVE PRE-UNIT 2 CYCLE 4 OUTAGE INITIATIVES

  - ADDITIONAL SHIELDING AND CRITICAL PATH TIME TO INSTALL
  - PLASMA ARC IMPROVEMENT
  - MOCK UP TRAINING INITIATIVES
  - ADDITIONAL VIDEO AND COMMUNICATIONS EQUIPMENT
  - NEW NOZZLE DAMS
  - EXTENSIVE DEPARTMENTAL AND CREW ALARA MEETINGS
  - RESCHEDULING OF ACTIVITIES FOR ALARA CONSIDERATIONS (E.G., 69 HOURS ADDED TO OUTAGE DURATION)

II. SQN ALARA PROGRAM PERFORMANCE (CONTINUED)

OUTAGE SUMMARY COMPARISON

	U1C4	U2C4
RWP ENTRIES	44348	44778
GOAL (PREPLAN)	585 (715)	800
ACTUAL (TOTAL)	868	685
UHI REMOVAL	46.7	50.1
RTD MOD	141.7	89.1
STEAM GENERATORS	152.7	118.8
RCP MAINTENANCE	31.9	18.9
HANGERS	50.1	28
POST ACCIDENT MONITORING	58.3	49.2

HIGHLIGHTS:

C-ZONE GOAL OF < 10 PERCENT CONTAMINATED AREA ACHIEVED
RTD WORK WAS INDUSTRY BEST FOR 4 LOOP PLANT
RESPIRATOR USAGE REDUCED BY 40 PERCENT
COMPLETED PHOTOGRAPHY OF UNIT 2 FOR SURROGATE TRAVEL
MEASUREMENTS COMPLETED FOR PROCUREMENT OF REACTOR HEAD SHIELD
SIGNIFICANT IMPROVEMENT IN LINE "BUY-IN"
SIGNIFICANT IMPROVEMENT IN PERSONNEL EXIT INTERVIEWS

II. ?ON ALARA PROGRAM PERFORMANCE (CONTINUED)

LESSONS LEARNED FROM U2C4:

- IMPROVE VENTING PROCEDURES FOR HEPA SYSTEMS
- IMPROVE SCHEDULING OF ALARA/RWP BRIEFINGS
- IMPROVE COORDINATION OF SHIELDING/INSULATION ACTIVITIES
- REQUIRE SKILLED CRAFT FOR SHIELDING INSTALLATION
- IMPROVE TIMELINESS OF DESIGN CHANGE ISSUANCE
- IMPROVE CAVITY DECONTAMINATION METHODS
- REEVALUATE OPTIMUM JOB CREW SIZE
- DETAILED IN PROGRESS CRITIQUE ADDRESSING TASK SPECIFIC ITEMS

II. SQN ALARA PROGRAM PERFORMANCE (CONTINUED)

CURRENT INITIATIVES (ACTION PLAN SUMMARY):

- HEAD SHIELDING
- SURROGATE TRAVEL
- SOURCE TERM REDUCTION AND DOSE RATE STUDY
- ALARA TRAINING IMPROVEMENTS
- ADMINISTRATIVE DOSE LIMITATIONS

III. INCIDENT INVESTIGATIONS AND PLANT EVENTS

ISSUES:

- INADEQUATE MANAGEMENT OVERSIGHT AND PRIORITY
- INAPPROPRIATE DEDICATION OF RESOURCES
- UNTIMELY INVESTIGATIONS AND CORRECTIVE ACTIONS
- NARROWLY FOCUSED ROOT CAUSE AND CORRECTIVE ACTIONS
- INAPPROPRIATE THRESHOLD FOR INVESTIGATIONS

ACTIONS BEING TAKEN:

- HEIGHTEN MANAGEMENT ATTENTION, OVERSIGHT AND PRIORITY
  - WEEKLY REVIEWS WITH SITE VP FOR ONGOING OR OPEN INVESTIGATIONS
- ENSURE APPROPRIATE SELECTION OF MEMBERS AND DEDICATION OF RESOURCES
  - LIST OF QUALIFIED MEMBERS BEING ESTABLISHED TO PROMOTE CONSISTENCY
  - RULES BEING ESTABLISHED FOR ASSIGNMENT AND DEDICATION TO TEAM

III. INCIDENT INVESTIGATIONS AND PLANT EVENTS (CONTINUED)

- IMPLEMENTATION OF NEW CORPORATE STANDARD
  - SCREENING CRITERIA ADDED FOR CATEGORY 1 AND 2 EVENTS
  - IMMEDIATE RESPONSE FOR CATEGORY 1 EVENTS
  - EMPHASIS ON MAINTAINING PHYSICAL CONDITIONS
  - TIMEFRAME FOR REPORT TIED TO CATEGORY OF EVENT
  - INCORPORATES ROOT CAUSE ANALYSIS METHODS
  - INCORPORATES POST-TRIP REVIEWS FOR CONSISTENCY

- EVALUATE BROADNESS OF INVESTIGATION AND CORRECTIVE ACTION EFFORTS
  - INCREASE USE OF NUCLEAR EXPERIENCE REVIEW
  - EXPAND CONSIDERATION OF SIMILAR EVENTS
  - ESTABLISH GUIDANCE REGARDING BROADNESS REVIEWS
  - ASSIGN RESPONSIBILITY FOR BROADNESS REVIEW

- CONDUCT ANALYSIS OF EVENTS INVOLVING PERSONNEL ERROR
  - OVERALL EVALUATION OF COMMON CAUSE
  - EVALUATION FOR COMMON ORGANIZATIONS, DISCIPLINES, SPECIFIC INDIVIDUALS, ETC.

- INCORPORATE RESULTS OF ONGOING ASSESSMENTS

IV. IMPLEMENTATION OF CORRECTIVE ACTIONS AND MAJOR WORK INITIATIVES

ISSUES:

- RESOLUTION OF PROBLEMS NOT WELL DEFINED AND EXECUTED
- CORRECTIVE ACTIONS NOT TIMELY OR COMPREHENSIVE
- COMMUNICATIONS AND ORGANIZATIONAL INTERFACES INEFFECTIVE

IV. IMPLEMENTATION OF CORRECTIVE ACTIONS AND MAJOR WORK INITIATIVES (CONTINUED)

SEPTEMBER 19, 1990 UNIT 1 REACTOR TRIP

EVENTS:

SEPTEMBER 14, 1990 - REACTOR TRIP FROM 98 PERCENT ON LOW-LOW S/G LEVEL DUE TO FEEDWATER TRANSIENT CAUSED BY AN INVERTER FAILURE

- DECISION MADE TO PLACE SPARE TRANSFORMER IN SERVICE

SEPTEMBER 16, 1990 - TURBINE TRIP FROM 13 PERCENT FROM TRANSFORMER SUDDEN PRESSURE RELAY ACTUATION DUE TO COOLER SHUTDOWN

SEPTEMBER 19, 1990 - REACTOR TRIP FROM 60 PERCENT ON TURBINE TRIP DUE TO CORRODED AND SHORTED TERMINALS ON TRANSFORMER GAS RELAY

FINDINGS:

- SPARE TRANSFORMER PLACED IN SERVICE FOLLOWING FIRST TRIP WITHOUT ADEQUATE CHECKOUT
- CORRODED SPARE TRANSFORMER RELAY CONTACTS IDENTIFIED PRIOR TO PLACING IN SERVICE FOLLOWING FIRST TRIP BUT NOT CORRECTED OR COMMUNICATED TO PLANT MANAGEMENT
- TRANSFORMER CONDITION AND CHECKOUT PLAN NOT EFFECTIVELY COMMUNICATED
- DEFINITION OF RESPONSIBILITIES BETWEEN PLANT MAINTENANCE AND TRANSMISSION AND CUSTOMER SERVICES NOT WELL DEFINED
- OVERALL ACTION PLAN NOT CLEARLY DEFINED OR COMMUNICATED

IV. IMPLEMENTATION OF CORRECTIVE ACTIONS AND MAJOR WORK INITIATIVES (CONTINUED)

ACTIONS BEING TAKEN:

- LETTER FROM VP, NUCLEAR OPERATIONS, ISSUED DEFINING REQUIREMENTS FOR ACTIONS PLANS
  - WHO INITIATES
  - WHEN INITIATED
  - SPECIFIC WRITTEN ASSIGNMENTS WITH DUE DATES
  - PERIODIC STATUS CHECKS
  - METHOD TO VERIFY ACTIONS COMPLETE
  - COMMUNICATIONS/INTERFACE PLAN

- MANAGEMENT INVOLVEMENT REQUIRED IN DEVELOPMENT, STATUS AND VERIFICATION OF COMPLETED ACTIONS
  - DUTY PLANT MANAGER APPROVAL OF INITIAL ACTION PLANS
  - PERIODIC STATUS BRIEFINGS WITH DUTY PLANT MANAGER AND/OR SITE VP
  - LINE MANAGERS ASSIGNED RESPONSIBILITY FOR VERIFICATION OF COMPLETED ACTIONS

V. PERSONNEL ERRORS

ISSUES:

- UNACCEPTABLE RATE OF OCCURRENCE
- INCONSISTENT INTERPRETATION OF PERSONNEL PERFORMANCE
- LACK OF SYSTEMATIC AND RIGOROUS APPROACH TO ACTIVITIES
- INSUFFICIENT SELF CHECKING
- WEAKNESSES IN WRITTEN COMMUNICATIONS

V. PERSONNEL ERRORS (CONTINUED)

UNIT 1 CYCLE 4 NIS MISCALIBRATION

EVENT: INTERMEDIATE RANGE AND POWER RANGE DETECTORS NONCONSERVATIVELY CALIBRATED DURING STARTUP DUE TO ERRORS IN THE PREDICTION METHODOLOGY

FINDINGS:

- EQUATION USED FOR POWER RANGE PREDICTION INAPPROPRIATELY UTILIZED MIX OF BOL AND EOL DETECTOR CURRENTS AND POWER FRACTIONS
- EQUATION HAD BEEN UTILIZED FOR SEVERAL YEARS AND REVIEWED ON MULTIPLE OCCASIONS
- QUESTION WAS RAISED CONCERNING METHODOLOGY DURING U1C4 OUTAGE BUT NOT PURSUED
- METHODOLOGY USED FOR INTERMEDIATE RANGE PREDICTION WAS TECHNICALLY INACCURATE
- CONCERNS WERE RAISED REGARDING OBSERVED ERRORS BUT WERE INITIALLY ATTRIBUTED TO INHERENT MEASUREMENT INACCURACIES AT LOW POWER
- NONCONSERVATISMS WERE CORRECTED BY 24 PERCENT POWER
- CONSEQUENCES OF MISCALIBRATION BOUNDED BY UFSAR ACCIDENT ANALYSIS

V. PERSONNEL ERRORS (CONTINUED)

UNIT 1 CYCLE 4 NIS MISCALIBRATION (CONTINUED)

CORRECTIVE ACTIONS AND PREPARATIONS FOR UNIT 2 CYCLE 4 STARTUP

- CHANGES MADE IN REACTOR ENGINEERING MANAGEMENT AND PERSONNEL; SPECIALIZED TRAINING CONDUCTED
- EXPERIENCED WBN AND WESTINGHOUSE PERSONNEL UTILIZED TO SUPPLEMENT SQN STAFFING DURING STARTUP
- EVALUATION OF PREDICTION METHODOLOGY WITH WESTINGHOUSE AND INPO
- REVISION OF PROCEDURES TO INCORPORATE IMPROVED METHODOLOGY AND CONSERVATISM FACTORS
- REVISION OF PROCEDURES TO PROMOTE IDENTIFICATION AND CORRECTION OF NIS ANOMOLIES
- REVIEW OF REACTOR ENGINEERING PROCEDURES FOR POWER ASCENSION BY WESTINGHOUSE AND INPO

V. PERSONNEL ERRORS (CONTINUED)

UNIT 1 CYCLE 4 NIS MISCALIBRATION (CONTINUED)

- TABLE TOP REVIEWS OF ADMINISTRATIVE PROCESSES, CONTROLS, RESPONSIBILITIES, AND INTERFACES
- VP NUCLEAR OPERATIONS PROGRAMMATIC REVIEW:
  - NIS CALIBRATION PROCESS
  - CONDUCT OF REACTOR PHYSICS TESTING
  - ADMINISTRATIVE CONTROLS
  - ORGANIZATIONAL INTERFACES
  - VERIFICATION METHODS
  - MANAGEMENT OVERSIGHT OF PROCESS
- PRESENTATION OF REVIEW RESULTS TO SENIOR VP, NUCLEAR POWER
- REDUCTION OF TRIP SETPOINTS AND APPLICATION OF ADDITIONAL CONSERVATISM DURING INITIAL STARTUP
- EXTENSIVE PREJOB BRIEFINGS FOR INVOLVED PERSONNEL

V. PERSONNEL ERRORS (CONTINUED)

UNIT 2 CYCLE 4 NIS MISCALIBRATION

EVENT: INTERMEDIATE RANGE DETECTORS NONCONSERVATIVELY CALIBRATED DURING STARTUP DUE TO FAILURE TO IMPLEMENT STARTUP CALIBRATION PROCEDURE

FINDINGS:

- INTERMEDIATE RANGE DETECTORS INAPPROPRIATELY CONSIDERED OPERABLE FOLLOWING GAMMAMETRIC WORKPLAN IMPLEMENTATION
- COMMUNICATIONS/INTERFACES BETWEEN REACTOR ENGINEERING AND INSTRUMENTATION PERSONNEL INEFFECTIVE
- PROCEDURAL VERIFICATION PROCL. NOT FOLLOWED
- ERRORS NOT DETECTED DURING INITIAL C TICALITY
- OPERATION LIMITED TO POINT OF ADDING HEAT
- POWER RANGE DETECTORS CORRECTLY SET AND FULLY OPERABLE
- CONSEQUENCES BOUNDED BY UFSAR ACCIDENT ANALYSIS; NO CREDIT TAKEN FOR INTERMEDIATE RANGE TRIP

LACK OF DISCIPLINE BY LINE MANAGEMENT IN CONDUCTING PERSONAL FOLLOWUP AND VERIFICATION

V. PERSONNEL ERRORS (CONTINUED)

UNIT 2 CYCLE 4 NIS MISCALIBRATION (CONTINUED)

CORRECTIVE ACTIONS TAKEN:

- DIRECTION PROVIDED BY VP NUCLEAR OPERATIONS FOR ACTION PLAN DEVELOPMENT WITH EMPHASIS ON PLAN ADEQUACY, CHECK POINTS, CLEAR ASSIGNMENTS AND RESPONSIBILITIES, CLEAR COMMUNICATION CHANNELS AND VERIFICATION THAT ACTIONS ARE COMPLETE

- INTERMEDIATE RANGE DETECTORS CALIBRATED AND POWER RANGE DETECTOR CALIBRATION VERIFIED

- STARTUP AND POWER ASCENSION PROCEDURES REVIEWED FOR OPEN-ENDED ACTIONS; PROCEDURES BEING REVISED TO INCORPORATE SIGNOFFS FOR VERIFICATION OF COMPLETED ACTIONS

- WORKPLANS PROCESS REVIEWED FOR CLOSEOUT AND BASIS FOR DETERMINATION OF OPERABILITY

- WORKPLANS AFFECTING TECHNICAL SPECIFICATIONS SETPOINTS OR CRITICAL PLANT PARAMETERS REVIEWED FOR PROPER POST MODIFICATION CALIBRATION OR PROCEDURE/DRAWING CHANGE

- INCIDENT INVESTIGATION AND HPES EVALUATION CONDUCTED

- LESSONS LEARNED TO BE DISCUSSED IN LINE ORGANIZATION PRESENTATIONS

- COMMUNICATION OF LINE MANAGEMENT'S RESPONSIBILITY FOR FOLLOWUP AND VERIFICATION

V. PERSONNEL ERRORS (CONTINUED)

ACTIONS BEING TAKEN:

- ANALYSIS OF PERSONNEL ERROR DISTRIBUTION
  - OVERALL EVALUATION FOR COMMON CAUSES
  - EVALUATION FOR COMMON ORGANIZATIONS, DISCIPLINES, SPECIFIC INDIVIDUALS, ETC.
- CLARIFICATION OF BASIS FOR UNACCEPTABLE PERSONNEL PERFORMANCE
  - PROVIDE ILLUSTRATIVE GUIDELINES
  - ENSURE CONSISTENT BASIS AND APPLICATION OF DISCIPLINARY ACTION
- IMPROVEMENT IN WORK PRACTICES AND REINFORCEMENT OF PERFORMANCE AND EXECUTION STANDARDS
  - LINE ORGANIZATION PRESENTATIONS DEVELOPED BY HPES COORDINATOR AND SITE MANAGEMENT INVOLVING
    - LESSONS LEARNED FROM RECENT EVENTS
    - EMPHASIS ON SELF CHECKING
    - ACTION PLAN DEVELOPMENT AND IMPLEMENTATION
    - DISCUSSION OF HPES AND PERSONNEL ERROR PANEL (PEP) IMPLEMENTATION
    - PROCEDURAL ADHERENCE
  - BROADEN IMPLEMENTATION OF HPES
    - ADDITIONAL TRAINING OF HPES EVALUATORS
    - HPES EVALUATORS ASSIGNED TO INCIDENT INVESTIGATION TEAMS

V. PERSONNEL ERRORS (CONTINUED)

ACTIONS BEING TAKEN (CONTINUED):

- IMPROVEMENT AND STANDARDIZATION OF WRITTEN COMMUNICATIONS
  - STANDARDIZE WORKPLANS (MODIFICATIONS)
  - STANDARDIZE WORK PACKAGES (WORK PLANS, WORK ORDERS, SIs, TIs)
- ASSESSMENT OF ADEQUACY OF PREJOB BRIEFINGS
  - ASSESSMENT BY LINE MANAGERS TO PLANT MANAGER/SITE VP
- INCREASED SUPERVISORY INVOLVEMENT IN FIELD ACTIVITIES
  - ACTION PLANS BY LINE MANAGERS TO PLANT MANAGER/SITE VP

VI. OPERATIONS DEPARTMENTAL PERFORMANCE

ISSUES:

- COMMAND AND CONTROL
- PACE OF OPERATOR RESPONSE
- FORMALITY OF COMMUNICATIONS
- SELF-CHECKING
- CONSISTENCY IN PROCEDURE UTILIZATION
- SELF ASSESSMENT

VI. OPERATIONS DEPARTMENTAL PERFORMANCE (CONTINUED)

ACTIONS BEING TAKEN:

- REINFORCEMENT AND MONITORING OF EXPECTATIONS
  - ADDITIONAL TRAINING EMPHASIS
  - SPECIFIC MANAGEMENT EVALUATION DURING TRAINING
  - WEEKLY MANAGEMENT CONTROL ROOM OBSERVATION
- CONDUCT OF OPERATIONS BRIEFINGS
  - LESSONS LEARNED FROM RECENT EVENTS
  - COMMAND AND CONTROL
  - SELF-CHECKING
  - OPERATOR INDEPENDENT ACTIONS
  - OFF-NORMAL PROCEDURE IMPLEMENTATION STANDARDS

VI. OPERATIONS DEPARTMENTAL PERFORMANCE (CONTINUED)

ACTIONS BEING TAKEN (CONTINUED):

- ANALYSIS OF OPERATING PERSONNEL - CHANGES WILL BE MADE
  - QUALIFICATION FOR ROLES
  - PROPER CREW MIX
  - UNDERSTANDING OF AND BUY-IN TO MANAGEMENT EXPECTATIONS
  - OWNERSHIP OF PLANT
  - INTERFACE WITH WORK CONTROL AND MAINTENANCE
- RECRUITMENT OF EXPERIENCED OPERATIONS PERSONNEL FROM BEST OPERATING PLANTS
- REVIEW OF AND ENHANCEMENT TO CONDUCT OF OPERATIONS PROCEDURE
- COMMUNICATIONS EQUIPMENT EVALUATION
- PROCUREMENT OF DISTINCTIVE CLOTHING

VII. CONCLUSION

- ACCOMPLISHMENTS OF CYCLE 4 REFUELING OUTAGES WILL RESULT IN LONG-TERM SAFETY AND RELIABILITY BENEFITS

- THE MAGNITUDE OF THE OUTAGE EFFORTS AND COMPETING PRIORITY TO ENSURE SUCCESSFUL PERFORMANCE OF THOSE EFFORTS DIMINISHED FOCUS IN SOME AREAS

- SELF ASSESSMENT INITIATIVES AND PROCESS IMPROVEMENT EFFORTS ARE IDENTIFIED: ALARA, INCIDENT INVESTIGATIONS, IMPLEMENTATION OF CORRECTIVE ACTIONS AND MAJOR WORK INITIATIVES, PERSONNEL ERRORS, AND OPERATIONS DEPARTMENTAL PERFORMANCE

- EFFORTS FOCUSED AT UPGRADING STANDARDS OF PERFORMANCE AND REINFORCING A RIGOROUS AND SYSTEMATIC APPROACH TO EXECUTION OF ACTIVITIES

- HEIGHTENED MANAGEMENT OVERSIGHT AND INVOLVEMENT TO REINFORCE EXPECTATIONS AND PROVIDE ADDITIONAL VERIFICATION