TENNESSEE VALLEY AUTHORITY

5N 157B Lookout Place

MAR 17 1988

Mr. Stewart D. Ebneter, Director
Office of Special Projects
U.S. Nuclear Regulatory Commission
MS 7D24
Washington, D.C. 20555

Dear Mr. Ebneter:

In the Matter of) Docket Nos. 50-327
Tennessee Valley Authority) 50-328

SEQUOYAH NUCLEAR PLANT (SQN) - OPERATIONAL READINESS REVIEW (ORR)

In response to your request, enclosed is a copy of an early SQN ORR report dated June 2, 1987 (The "Matheny" Report). If you have any questions, please telephone me at (615) 751-2729.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley, Director
Nuclear Licensing and
Regulatory Affairs

Enclosure

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U.S. Nuclear Regulatory Commission

MAR 17 1988

Enclosure
cc (Enclosure):
Mr. K. P. Barr, Acting Assistant Director
for Inspection Programs
TVA Projects Division
U.S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Mr. G. G. Zech, Assistant Director
for Projects
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One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852

Sequoyah Resident Inspector
Sequoyah Nuclear Plant
2600 Igou Ferry Road
Soddy Daisy, Tennessee 37379

OFFICE OF NUCLEAR POWER - TVA

CORPORATE OPERATIONAL READINESS REVIEW

SEQUOYAH NUCLEAR PLANT

APRIL 13, 1987 - MAY 8, 1987

0421Y

OPERATING PLANT ASSESSMENT - SQN

INDEPENDENT TEAM

IVA INTERNAL TEAM

DICK MATHENY - WESTINGHOUSE - CORPORATE MANAGER OPERATIONAL READINESS

JIM ROSKOPH - STONE & WEBSTER - PROJECT MANAGER, BROWNS FERRY NUCLEAR PLANT

RON SEIBERLING - INPO - MGR. NUCLEAR MANAGERS REVIEW GROUP

GEORGE TOTO - WESTINGHOUSE - SITE DIRECTOR - WATTS BAR NUCLEAR PLANT

BILL VATTER - INPO - MGR. OPERATIONAL READINESS - BROWNS FERRY NUCLEAR PLANT

JERRY MARTIN - MANAGEMENT ANALYSIS CO. - ASST. PLANT MGR., BROWNS FERRY NUCLEAR PLANT

TERRY OVERLID - TVA ASST. DIR., NUCLEAR MANAGERS REVIEW GROUP

IVA EXTERNAL TEAM

BRIAN DEBS - IMPELL - FORMER NRC INSPECTOR

BILL GERKEN - PRESIDENT - UTILITY OPERATIONS SERVICES

BOB HARRIS - PRESIDENT ICAL INC. - FORMER REGIONAL MANAGER - NUMANCO

RONALD J. RODRIGUEZ - MANAGEMENT ANALYSIS COMPANY, FORMER ASST. GM, RANCHO SECO NUCLEAR SITE

WILLIAM WAGNER - FORMER REACTOR OPERATIONS SUPV. - HOUSTON L&P - WISCONSIN PUBLIC SERVICE

COMBINED NUCLEAR EXPERIENCE: 257 YEARS

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PROLOGUE

THE DECISION TO CONDUCT AN INDEPENDENT REVIEW OF SEQUOYAH UNDER OFFICE OF NUCLEAR POWER (ONP) SPONSORSHIP WAS A COMMITMENT ABOVE AND BEYOND THE THEN EXISTING NUCLEAR PERFORMANCE PLAN (NPP) REQUIREMENTS. THE NPP COMMITTED TO THE INDEPENDENT REVIEW PROCESS AT BROWNS FERRY NUCLEAR PLANT (BFNP) IN VOLUME 3.

AN EXTENSIVE EFFORT WAS ONGOING IN MONITORING AND REPORTING UPON THE SEQUOYAH RESTART PROGRAM. IT WAS DETERMINED TO USE THESE RESULTS TO EVALUATE AND FORECAST POSSIBLE OPERATING PLANT PROBLEMS DURING THE INITIAL SIX TO TWELVE MONTHS OF OPERATING PLANT HISTORY. THIS PLAN WAS REVIEWED AND CONCURRED IN BY ONP MANAGEMENT.

THE ONP MANAGER OF OPERATIONAL READINESS WAS DIRECTED TO ASSEMBLE A REVIEW TEAM OF SENIOR NUCLEAR EXPERIENCED PERSONNEL. THE TEAM WAS MADE UP OF PERSONNEL WORKING WITHIN THE TVA ORGANIZATION AND OUTSIDE SUBCONTRACTOR PERSONNEL, DIVIDED EQUALLY AS POSSIBLE. TEAM PERSONNEL WERE BADGED FOR COMPLETE ACCESS TO THE SEQUOYAH POWER BLOCK.

THE TEAM ASSEMBLED ON APRIL 13, 1987 AND COMPLETED THEIR ONSITE EFFORT ON MAY 8, 1987. TEAM MEMBERS WERE ASSIGNED TO AREAS FOR REVIEW BASED UPON THEIR EXPERIENCE. DAILY MEETINGS WERE HELD TO REVIEW FINDINGS WITH THE ASSEMBLED TEAM. ISSUES BROUGHT TO THE NEXT LEVEL OF DISCLOSURE WERE DISCUSSED WITH THE AFFECTED ORGANIZATIONS. ISSUES BROUGHT THE EXECUTIVE MANAGEMENT'S ATTENTION WERE THE RESULT OF TEAM CONSENSUS. A NUMBER OF ISSUES WERE DOWNGRADED OR DELETED AS A RESULT OF THESE ESCALATED DISCLOSURES.

FORMAL DEBRIEFINGS OF THE TEAM BY MR. WHITE AND HIS STAFF WERE CONDUCTED ON APRIL 29, 1987 AND MAY 7, 1987.

MR. WHITE THEN DIRECTED THAT A FINAL REPORT BE PREPARED FOR HIS REVIEW AND FOLLOW-UP CORRECTIVE ACTION.

TO :

SUBJECT: CORPORATE OPERATIONAL READINESS REVIEW - SEQUOYAH - FOOTNOTES

These footnotes are to be used in conjunction with the subject report.

They were compiled because a number of management personnel asked for the basis of the description and recommendations in the report.

The footnotes reflect the backup notes from various discussions and interviews. They also reflect notes from the daily team debriefings and discussions and thus represent both team consensus and individual input where that input was considered a valid and useful opinion by the team.

CHEMISTRY AREA

ISSUE: THE SUCCESS OF THE PLANT CHEMISTRY PROGRAM IS BASED UPON OPTIMISTIC VIEW OF HOW AND WHEN PROBLEMS WILL APPEAR AND BE MANAGED. LACK OF SUCCESS WILL AFFECT PLANT AND COMPONENT AVAILABILITY.

DESCRIPTION: PROCEDURE COMPLIANCE

EQUIPMENT RELIABILITY

STAFFING

PROBLEM MANAGEMENT

LONGSTANDING PROBLEM - CONDENSATE POLISHING

CHEMISTRY AREA

ISSUE: THE SUCCESS OF THE PLANT CHEMISTRY PROGRAM IS BASED UPON OPTIMISTIC VIEW OF HOW AND WHEN PROBLEMS WILL APPEAR AND BE MANAGED. LACK OF SUCCESS WILL AFFECT PLANT AND COMPONENT AVAILABILITY.

DESCRIPTION: PROCEDURE ACCURACY AND ADEQUACY DEMAND STRETCH OF PERSONNEL SKILLS AND INTERPRETATION THAT EXPERIENCE SAYS WILL LEAD TO NONCOMPLIANCE.

EQUIPMENT RELIABILITY PROBLEMS EXIST THAT LEAD TO INCORRECT ANALYSES AND DEMAND SPECIAL SKILLS OF PERSONNEL.

THE CHEMISTRY DEPARTMENT STAFFING IS INCOMPLETE. MANAGEMENT POSITIONS ARE VACANT OR FILLED BY TEMPORARY PERSONNEL. MANAGEMENT CANDIDATES HAVE DECLINED THE POSITION BASED UPON PERCEPTION OF ORGANIZATION PROBLEMS AND LACK OF PROGRESS IN ELIMINATING PROBLEMS.

PERSONNEL TRAINING AND MANAGEMENT TRAINING WHICH WOULD ENHANCE PROBLEM MANAGEMENT ABOVE IS BEING DEFERRED BEYOND STARTUP.

THE LONGSTANDING RISK OF INADEQUATE CONDENSATE POLISHING TREATMENT DESIGN NEEDS MORE AGGRESSIVE ATTENTION. ASSUMPTIONS MADE ON EARLY DETECTION BY SAMPLING, RESIN EXCHANGE AND PROTECTION LIMITS ARE THE BEST AVAILABLE SOLUTIONS. THE ASSUMPTIONS ON AIR INLEAKAGE AND CONDENSER TUBE LEAKS ARE GOOD ENGINEERING JUDGEMENTS, IF CORRECT. IF OPTIMISTIC, THEY SUGGEST IMPRUDENT MANAGEMENT.

CHEMISTRY RECOMMENDATIONS

FILL THE MANAGEMENT POSITIONS. PICK CAPABLE MANAGER FROM WATTS BAR/BROWNS FERRY AND BACKFILL. PLACE SPECIFIC RESPONSIBILITY UPON SEQUOYAH CHEMISTRY MANAGER TO DEVELOP REPLACEMENT MANAGERS OVER NEXT 6 MONTHS. THE CRITERIA TO IDENTIFY AND DEVELOP FAST TRACK MANAGERS IS READILY AVAILABLE IN THE INDUSTRY.

BEGIN TEAM BUILDING PRACTICES IN CHEMISTRY DEPARTMENT AS SOON AS POSSIBLE. TEAM BUILDING CRITERIA IS AVAILABLE AND CAN BE EFFECTIVELY APPLIED BY THE DEPARTMENT.

PLACE PRIORITY ON IDENTIFIED EQUIPMENT PROBLEMS, OBTAIN FUNDING APPROVAL FOR CORRECTIVE ACTION. THE PROBLEMS ARE NOT MAJOR IN THE OVERALL SCHEME BUT THEY ARE MAJOR TO CHEMISTRY AND LACK OF APPARENT ACTION IS PERCEIVED AS LACK OF INTEREST.

REVIEW THE TRAINING NEEDS. SELECT SPECIFIC TRAINING AREAS THAT FOCUS UPON TECHNICAL ISSUES LIKE STEAM GENERATOR PROBLEMS, HEAT EXCHANGERS FOULING, PUMP SEALS, CORROSION, ETC. USE INDUSTRY OPERATING EXPERIENCE CASE HISTORIES TO SHOW VITAL IMPORTANCE OF CHEMISTRY PROGRAMS AND PERSONNEL. BRING IN UTILITY PERSONNEL WITH SUCCESSFUL CHEMISTRY AND RADIOCHEMISTRY PROGRAMS FOR SEMINAR, DISCUSSION, MOTIVATION. WORK OUT A NEAR-TERM CHEMISTRY SPECIFIC TRAINING PROGRAM WITH THE DIVISION OF NUCLEAR TRAINING AND SHOW PERSONNEL WE ARE INTERESTED IN THEIR SUCCESS.

REVIEW THE LONGSTANDING PROBLEM OF CONDENSATE WATER TREATMENT. ENSURE COMPLETE DISCLOSURE OF RISKS BY CORPORATE CHEMISTRY MANAGER. RECOMMEND VISITS TO OPERATING PLANTS WITH SIMILAR EQUIPMENT AND COOLING WATER SOURCE TO PREPARE PRUDENT MANAGEMENT POSITION. ENSURE RISK ASSUMPTIONS ARE UNDERSTOOD AND ANALYZED IN CONSIDERATION OF FISHBOWL CONCEPT.

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CHEMISTRY ISSUES

FOOTNOTES:

1. INTERVIEWS WITH PERSONNEL IDENTIFY PROCEDURE INADEQUACIES WHICH WERE OVERCOME BY SKILLED CRAFTS. DETAILED ANALYSIS PROCESS PROCEDURES DO NOT ACCOUNT FOR EQUIPMENT PERFORMANCE. MAJOR EFFORT IN PROCEDURE REVISION WAS ONGOING BUT LACK OF CONFIDENCE EXISTED IN IMPROVEMENT BECAUSE OF LACK OF PARTICIPATION AND FEEDBACK.

2. LONGSTANDING PROBLEM OF POOR VOLTAGE REGULATION FOR EQUIPMENT POWER SUPPLY. HIGH TEMPERATURE EFFECTS ON ANALYTICAL EQUIPMENT WERE PREVIOUSLY IDENTIFIED BY INPO.

3. STAFFING PROBLEM IS PERCEIVED AS CONFLICT OF AUTHORITY ISSUE BETWEEN ONP AND PLANT. LACK OF SUCCESS OVER LONG PERIOD REFLECTS LACK OF COMMITMENT AND PRIORITY.

4. LACK OF CONDENSATE POLISHING SOLUTION REFLECTS BROADER ISSUE OF INTERFACE PROBLEM BETWEEN DNE/PLANT.

5. ALL ISSUES ABOVE ARE PERCEIVED BY CHEMISTRY ORGANIZATION AS INDICATION OF LOW PRIORITY, LACK OF INTEREST AND RECOGNITION BY INFORMED MANAGEMENT. MANY PREVIOUS PROBLEMS IDENTIFIED BY INPO REMAIN OPEN. PREVIOUS SEQUOYAH RESPONSES TO INPO TO CORRECT THESE PROBLEMS HAVE NOT BEEN COMPLETED OR RESPONSES NOT ACCEPTED BY INPO.

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LONG-RANGE OPERATIONS STAFFING

ISSUE: A PROBLEM EXISTS THAT WILL AFFECT THE RESTART OF UNIT 1 AND CONTINUED DUAL PLANT OPERATIONAL READINESS OF SQN. THIS PROBLEM IS THE LACK OF A LONG RANGE OPERATOR AVAILABILITY FORECAST WHICH CONSIDERS THE FACTORS LISTED BELOW. AN OPERATOR REPLACEMENT PLAN SHOULD BE INITIATED BASED UPON THE FORECAST.

DESCRIPTION:

DRAINS ON MANPOWER

REQUIRED NUMBERS A NEW PROBLEM

RAPID INCREASING DEMAND

CURRENT PROBLEM ACUTENESS

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LONG-RANGE OPERATIONS STAFFING

BACKGROUND: THE SHORT TERM READINESS OF THE OPERATIONS GROUP TO SUPPORT THE RESTART OF SQN UNIT 2 IS SATISFACTORY. THE PROGRAMS, PROCEDURES, AND PEOPLE TO BE INVOLVED IN THE UNIT 2 RESTART HAVE BEEN REVIEWED. THE PROGRESS SHOWN TO COMPLETE THE UNFINISHED PROGRAMS, CREATE AND REVISE THE OPERATING PROCEDURES AND IMPLEMENT THE UNIT 2 SPECIFIC OPERATING STAFF IS ADEQUATE BUT INCOMPLETE.

ISSUE: A PROBLEM EXISTS THAT WILL AFFECT THE RESTART OF UNIT 1 AND CONTINUED DUAL PLANT OPERATIONAL READINESS OF SQN. THIS PROBLEM IS THE LACK OF A LONG RANGE OPERATOR AVAILABILITY FORECAST WHICH CONSIDERS THE FACTORS LISTED BELOW. AN OPERATOR REPLACEMENT PLAN SHOULD BE INITIATED BASED UPON THE FORECAST.

DESCRIPTION: THE DRAIN ON OPERATOR RESOURCES IS INCREASING BY:

1. OPERATOR SPECIFIC TRAINING.
   - A. NEW 10 CFR 55 REQUIREMENTS
   - B. SPECIFICALLY IDENTIFIED INPO, NRC ITEMS.
   - C. MASSIVE CHANGE IN PROCEDURE REVISION OVER SHORT PERIOD.
2. NON-OPERATOR SPECIFIC TRAINING
   - A. SPECIFIED MANAGEMENT TRAINING
   - B. COINCIDENTAL PROGRAM TRAINING

DESCRIPTION: (CONTINUED)

3. DEMANDS FOR SRO LEVEL PERSONNEL.

   A. OPERATOR TRAINING INSTRUCTORS

   B. INCREASED PROCEDURE DEVELOPMENT AND MAINTENANCE.

   C. UTILIZATION OF SRO LEVEL PERSONNEL BY SUPPORTING ORGANIZATIONS.

4. BUILT-IN PERSONNEL WORK TIME LOSSES

   A. INCREASING LEAVE WITH LONGEVITY.

   B. THE INTRINSIC TIME DELAY TO CREATE RO/SRO LEVEL REPLACEMENT PERSONNEL.

      1. RO - APPROXIMATELY 5 YEARS

      2. SRO - APPROXIMATELY 7 YEARS

   C. THE SRO UPGRADE PROGRAM.

5. ATTRITION

   A. LOSSES INCURRED IN PERSONNEL DEVELOPMENT

   B. LOSSES IN LICENSABILITY WITH AN AGING SUPERVISORY STAFF.

   C. LOSSES THROUGH INTER-TVA TRANSFERS

   D. EXTERNAL LOSSES

THIS IS NOT A NEW PROBLEM. IT HAS EXISTED SINCE SQN WAS STARTED. THE NEW PART OF THE PROBLEM IS THAT THE DEMANDS ON THE AVAILABLE RESOURCE ARE EXPANDING MUCH MORE RAPIDLY THAN BEFORE.

DESCRIPTION: (CONTINUED)

THE PROBLEM CAN BECOME ACUTE AGAIN WHEN:

1. THE DEDICATED SURVEILLANCE INSTRUCTION PERFORMANCE GROUP IS ACTIVATED.

   ASSISTANT MANAGER OF OPERATIONS STATES THAT THIS GROUP IS TO BE COMPOSED OF 3-4 RO LEVEL PERSONNEL.

2. THE DEDICATED PROCEDURE DEVELOPMENT GROUP DOES NOT RETURN TO THE SHIFT INTEGRATION. THE PROCEDURE REWRITE EFFORT WILL CONTINUE AT A HIGH LEVEL OF ACTIVITY FOR MANY MONTHS AS THE SITE PROCEDURE GROUP COMES UP TO SPEED AND FEEDBACK FROM THE FIELD IS RECEIVED FOR INCORPORATION.

3. THE WBN PEOPLE RETURN TO THEIR OWN FACILITY.

LONG RANGE OPERATIONAL STAFFING RECOMMENDATIONS

BEGIN THE AVAILABILITY FORECAST AS SOON AS POSSIBLE. ESTABLISH DEADLINES AND RESPONSIBILITIES FOR THE MILESTONE EVENTS LEADING TO A COMPREHENSIVE FORECAST.

AS A MINIMUM, START WITH CURRENT MANNING LEVELS AND FORECAST SUCH THINGS AS ATTRITION, PROMOTION, TRANSFER, HPP COMMITMENTS TO ENSURE ENOUGH PERSONNEL ARE IN PIPELINE NOW FOR NEXT TWO YEARS (AUOS) FIVE YEARS (ROS) SEVEN YEARS (SROS).

DEVELOP THE OPERATOR REPLACEMENT PLAN CONCURRENT WITH THE AVAILABILITY FORECAST. EMPHASIZE PERSONNEL DEVELOPMENT, JOB ROTATION AMONG GROUPS OTHER THAN OPERATIONS, OPPORTUNITY TO ACT AS LEAD OR SUPERVISOR, PROJECT TASKS, SHORT-TERM TASKS TO PROVIDE NEW OPPORTUNITY AND DEPARTURE FROM ROUTINE AND REPETITIOUS WATCHSTANDING.

ESTABLISH A METHOD TO CONTINUOUSLY REVIEW THE TASK ANALYSIS FOR OPERATOR POSITIONS. THE CHANGES IN OPERATING PHILOSOPHY AND THE IMMENSE PROCEDURE REVISION EFFORT MAKE THIS ESPECIALLY NECESSARY. THE RESULT CAN BE QUICKER AND MORE ACCURATE PERSONNEL TRAINING DEVELOPMENT PROGRAMS AND CONSISTENT OPERATOR PERFORMANCE.

DEVELOP A RESOURCE DEVELOPMENT PLAN FOR OPERATIONS THAT WILL REFLECT THE INTENT OF THE CURRENT MANAGER/SUPERVISOR TRAINING PROGRAMS AND EVENTUALLY THE IMPLEMENTATION OF THE HAY PLAN OR SOME SIMILAR FUTURE OBLIGATION.

CREATE AND DISTRIBUTE A RESOURCE UTILIZATION FORM TO OTHER ORGANIZATIONS. DETERMINE THEIR PLANS TO USE OPERATIONS PERSONNEL TO SUPPORT THEIR EFFORT IN BOTH UNITS. INCLUDE MANPOWER ESTIMATES, DATES, SPECIAL SKILLS, ALTERNATIVES.

MANY OF THESE RECOMMENDATIONS INVOLVE CHANGE OVER EXTENDED PERIODS. NOTHING WILL HAPPEN WITHOUT A PLAN TO BRING TO THE TABLE.

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LONG RANGE OPERATIONS STAFFING

FOOTNOTES:

1. THE 10 CFR 55 INTERPRETATION RANGES FROM NO AFFECT TO ADDING 200 TRAINING HOURS/OPERATOR. DISCUSSION WITH OTHER UTILITIES, INPO, NRC SHOULD REDUCE UNCERTAINTY AND ENHANCE PLANNING.

2. PRESENTLY, SOME 1100 HOURS (1/2 MAN-YEAR) IS NECESSARY FOR TRAINING OF SOME OPERATORS. INPO EVALUATION SHOWS POTENTIAL ADDITIONAL TRAINING NEEDS IN RADIATION PROTECTION, ALARA PLANNING, EXPANSION OF SIMULATOR TRAINING TO ALLOW USE OF CRITIQUES, INDUSTRY EXPERIENCE, ETC, NEW PROGRAM "FUNDAMENTALS OF TEAMWORK & DIAGNOSTIC SKILLS" FOR INITIAL AND REPLACEMENT LICENSE TRAINING PROGRAMS.

3. THE CURRENT CRASH EFFORT UPON PROCEDURE REVISION WILL SUPPORT RESTART. IF PLANT MANAGEMENT DESIRES TO REGAIN CONTROL OF PROCEDURE CONTENT PHILOSOPHY, CONSISTENT APPLICATION OF PROCEDURES AND AVOIDING FIRE DRILLS AND LACK OF PROCEDURE REVIEW TIME, THEY MUST PLAN FOR ADEQUATE QUALIFIED PEOPLE TO STAY WITH THE REVIEW PROGRAM UNTIL IT REFLECTS MANAGEMENT INTENT.

TRANSITION TO AN OPERATING PLANT

ISSUES AND DESCRIPTION:

- THE NEED FOR RAPID RESPONSE OF THE DIVISION OF NUCLEAR ENGINEERING (DNE) TO THE PLANT FOR SUSTAINED SAFE AND RELIABLE OPERATION IS RECOGNIZED BUT REQUIRES DEVELOPMENT AND TEAM BUILDING.

- LARGE NUMBERS OF WORK REQUESTS, ENGINEERING CHANGE NOTICES AND CONDITIONS ADVERSE TO QUALITY REMAIN OPEN FOR EXTENDED PERIODS OF TIME. THIS DOES NOT SUPPORT TVA'S COMMITMENT FOR IMPROVED ACCOUNTABILITY AND FOLLOW THROUGH.

- MITIGATE THE IMPACT OF UNIT 1 STARTUP AND POST STARTUP COMMITMENTS UPON THE PLANT MANAGER. ENHANCE THE PLANT MANAGER'S SUSTAINED CLOSE ATTENTION TO DETAIL DURING THE REMAINING CORE LIFE OF UNIT 2.

- REDUCE THE IMPACT OF ADMINISTRATIVE AND TECHNICAL MEETINGS ON THE AVAILABILITY OF MANAGERS AND SUPERVISORS TO MEET THE COMMITMENT OF INPLANT PRESENCE TO OBSERVE WORK ACTIVITIES AND PROCEDURE COMPLIANCE.

TRANSITION TO AN OPERATING PLANT

ISSUE: THE NEED FOR RAPID RESPONSE OF THE DIVISION OF NUCLEAR ENGINEERING (DNE) TO THE PLANT FOR SUSTAINED SAFE AND RELIABLE OPERATION IS RECOGNIZED BUT REQUIRES DEVELOPMENT AND TEAM BUILDING.

DESCRIPTION: THERE IS A STRONG PHILOSOPHICAL COMMITMENT AT THE SENIOR LEVELS OF ENGINEERING MANAGEMENT TO SUPPORT THE OPERATING PLANT IN A TIMELY AND PROFESSIONAL MANNER. IT IS RECOGNIZED THAT TO DO THIS AND MAINTAIN POSITIVE CONTROL OF THE PLANT DESIGN PRESENTS PROBLEMS FOR DNE. HOWEVER, DNE HAS RECENTLY ISSUED SQEP-60 FOR THE PURPOSE OF ADMINISTRATIVELY CONTROLLING EMERGENCY DESIGN SUPPORT OF THE PLANT. THE PROCEDURE STEPS SEEM COMPLICATED AND LABORIOUS. REVIEW BY TEAM MEMBERS RAISE SERIOUS DOUBTS AS TO THE VALIDITY OF THE PROCEDURE PROVIDING RAPID DESIGN SUPPORT. THE EXPEDITING BY HAND CARRY AND USE OF THE WORD "IMMEDIATE" TO CHANGE A ROUTINE PROCESS MAY RESULT IN LOSS OF NECESSARY DOCUMENTATION FOR CONFIGURATION CONTROL.

THE PLANT MANAGER ACKNOWLEDGED THAT A TRIAL RUN OF THE PROCEDURE HAS BEEN INITIATED FOR A NON-SAFETY SYSTEM CHANGE THAT IS RELATIVELY SIMPLE FROM A DECISION STANDPOINT. IT INVOLVES THE REMOVAL OF A BAFFLE FROM THE INSIDE OF A PIPE. HOWEVER, HE EXPECTS THAT EVEN THIS SIMPLE DECISION CHANGE WILL TAKE SEVERAL DAYS TO GAIN APPROVAL FOR WORK TO COMMENCE. IN FACT, DNE TURNED AROUND THE REQUEST IN LESS THAN 48 HOURS, GENERATING SOME 24 DESIGN CHANGE REQUESTS FOR SIMILAR FUTURE WORK. DNE SEEMED TO BELIEVE THAT THE DESIGN CHANGE COULD NOT BE PROCESSED BY THE PLANT BECAUSE THE PLANT HAD NOT MADE A RELATED PROCEDURE AVAILABLE FOR IMPLEMENATION.

DESCRIPTION: (CONTINUED)

INQUIRIES BY TEAM MEMBERS OF DNE INDICATE THERE IS A RELUCTANCE TO ESTABLISH A DEDICATED ORGANIZATION OF ENGINEERS TO SUPPORT THE DESIGN REQUIREMENTS OF THE OPERATING PLANT. DNE IS DESIGNATING SYSTEM ENGINEERS WITHIN THE ENGINEERING DISCIPLINES. THE MANNING OF THIS EFFORT IS NOT DEFINED. THAT ENGINEERING WILL SUPPORT OPERATING PLANT NEEDS IS UNQUESTIONABLE. HOWEVER, IT DOES NOT SEEM THAT A WELL CONCEIVED PROGRAM TO PROVIDE THIS SUPPORT IN A CONSISTENTLY TIMELY FASHION HAS BEEN COMPLETELY THOUGHT THROUGH TO PREVENT DISRUPTION OF DNE PROJECT WORK, LONGER TERM DESIGN CHANGES, AND DEVELOPMENT OF A "PUT OUT THE FIRE" ENVIRONMENT IN RESPONDING TO OPERATING PLANT NEEDS.

RAPID RESPONSE OF DNE TO OPERATIONS RECOMMENDATIONS

CORPORATE MANAGEMENT SHOULD CONSIDER PLACING CLEARCUT ACCOUNTABILITY WITH TECHNICAL SUPPORT SERVICES TO DEVELOP INTERFACES AND LIMITS OF AUTHORITY WITH DNE FOR PLANT DESIGN SUPPORT. THE EFFORT SHOULD BE A PART OF THE TEAM BUILDING PROCESS BETWEEN DNE AND THE SEQUOYAH PLANT

TRANSITION TO AN OPERATING PLANT

ISSUE: LARGE NUMBERS OF WORK REQUESTS, ENGINEERING CHANGE NOTICES AND CONDITIONS ADVERSE TO QUALITY (CAQR) REMAIN OPEN FOR EXTENDED PERIODS OF TIME. THIS DOES NOT SUPPORT TVA'S COMMITMENT FOR IMPROVED ACCOUNTABILITY AND FOLLOW THROUGH.

DESCRIPTION: APPROXIMATELY 2000 WORK COMPLETE WORK REQUESTS (WRS)/MAINTENANCE REQUESTS (MRS)/SURVEILLANCE INSTRUCTIONS (SIS)ARE AWAITING QUALITY ENGINEERING (QE) REVIEW. IN ADDITION, APPROXIMATELY 1190 WORK COMPLETE ENGINEERING CHANGE NOTICES REMAIN OPEN PENDING FINAL REVIEW. THERE ARE APPROXIMATELY 1600 OLD/NEW CAQS OPEN.

IN 1982 THERE WERE REPORTED DEFICIENCIES IN COMPLETING QUALITY ASSURANCE (QA) REVIEWS OF FIELD COMPLETE MRS (CAR-46-82-45). NRC INSPECTION 85-24 IDENTIFIED 2000 MR/WR BACKLOG AS AN ISSUE. NRC INSPECTION 85-45 ISSUED A SEVERITY LEVEL IV VIOLATION FOR THE BACKLOG ISSUE.

THIS LARGE BACKLOG OF WORK REPRESENT A POTENTIAL POST OPERATIONAL PROBLEM. AS THE REVIEWS ARE COMPLETED, DISCREPANCIES FOUND AS A RESULT OF THE REVIEWS IN PROCEDURAL COMPLIANCE, MATERIAL USED, OR DESIGN DISCREPANCIES COULD NOT ONLY ADVERSELY IMPACT CONTINUED PLANT OPERATION BUT, THEY MIGHT NEGATIVELY IMPACT THE PERCEPTION THAT THE TVA ORGANIZATION AND MANAGEMENT CHANGES HAVE CORRECTED THE LACK OF ATTENTION TO DETAIL AND STRONG CENTRALIZED CONTROL THAT WAS A ROOT CAUSE OF PREVIOUS PROBLEMS. OUR REVIEW OF CLOSED WORK ITEMS TO DATE HAS SHOWN NO SIGNIFICANT SAFETY ISSUES. ITEMS OF MISSING OR POOR CLOSURE DOCUMENTATION, ADDITIONAL OPEN ITEMS, AND LACK OF TRACKING EVIDENCE WERE BROUGHT TO PROPER ATTENTION.

DESCRIPTION: (CONTINUED)

IN REVIEW OF THESE CONDITIONS IT HAS ALSO COME TO LIGHT THAT SOME WRS/MRS APPEAR TO BE LOST. THAT IS, COMPLETED WORK PACKAGES WERE ALLEGEDLY SUBMITTED TO QUALITY ENGINEERING FOR FINAL REVIEW FOR WHICH QE HAS NO RECORD OR CANNOT FIND THE PACKAGE. THIS NEEDS RESOLUTION TO INSURE IT NOT A REAL ISSUE NOR A PERCEIVED ISSUE DURING THE INCREASED LEVEL OF PRE-STARTUP INSPECTIONS.

BACKLOG MANAGEMENT RECOMMENDATIONS

THE TOTAL RESOLUTION TO THE BACKLOG PROBLEM MAY NOT BE ACHIEVABLE BY STARTUP, HOWEVER, MANAGEMENT ATTENTION TO THE PROBLEM SHOULD BE BROUGHT TO ACCOMPLISH THE FOLLOWING:

PLAN DEVELOPED FOR WORK DOWN OF THE BACKLOG.

SUFFICIENT DEDICATED RESOURCES APPLIED TO DEMONSTRATE A SATISFACTORY TREND THAT THE BACKLOG IS DIMINISHING.

DEVELOPMENT OF GUIDANCE AND TRAINING OF REVIEWERS.

ENCOURAGE THE DIALOGUE BETWEEN APPROPRIATE INDIVIDUALS TO RESOLVE INTERPRETIVE ISSUES MORE TIMELY THAN CAN BE ACCOMPLISHED THROUGH MEMORANDUM.

ENCOURAGE DIALOGUE BETWEEN INDIVIDUALS PRIOR TO PROBLEM DOCUMENTATION TO ENSURE PROBLEM IDENTIFICATION IS UNDERSTOOD, NOT REDUNDANT AND A VALID ISSUE FOR ATTENTION.

TRANSITION TO AN OPERATING PLANT

ISSUE: MITIGATE THE IMPACT OF UNIT 1 STARTUP AND POST STARTUP COMMITMENTS UPON THE PLANT MANAGER. ENHANCE THE PLANT MANAGER'S SUSTAINED CLOSE ATTENTION TO DETAIL DURING THE REMAINING CORE LIFE OF UNIT 2.

DESCRIPTION: THERE IS AN INCOMPLETE LONG RANGE PLAN TO MEET THE POST STARTUP COMMITMENTS FOR SQN. OF GREATER CONCERN, THERE IS NO EVIDENCE OF A DELIBERATE PROGRAM TO FULLY ASSESS THE IMPACT OF THE POST STARTUP COMMITMENTS ON THE PLANT MANAGER AND HIS STAFF. THE NUCLEAR PERFORMANCE PLAN HAS COMMITTED TO SUBSTANTIAL IMPROVEMENTS IN THE QUALITY AND NUMBERS OF PROCEDURES, THE QUALITY OF PROCEDURE GUIDANCE GOVERNING THE MAINTENANCE AND PREVENTATIVE MAINTENANCE PROGRAM, AND TRENDING AND CORRECTIVE ACTION RESPONSIBILITY OF THE PLANT MANAGER. THERE IS ALSO A COMMITMENT TO REWRITE ALL MAINTENANCE INSTRUCTIONS (MIS). WE EXPECT THE TOTAL NUMBER OF PROCEDURE CHANGES AND RELATED REVIEW AND APPROVALS TO BE SUBSTANTIAL DUE TO INITIAL USE AND FOCUS UPON PROCEDURE COMPLIANCE AND CORRECTION. THERE IS NO FORMAL PLAN FOR ACCOMPLISHING THIS DURING POST STARTUP. THIS HAS POTENTIAL FOR SIGNIFICANT IMPACT ON THE PLANT MANAGER'S STAFF. IT IS ASSUMED THAT THESE LONG RANGE COMMITMENTS WILL BE ADDRESSED OVER A MATTER OF MONTHS AND NOT YEARS WITH INITIAL EFFORTS ACCELERATING AFTER UNIT 2 STARTUP, THE PLANT MANAGER'S ATTENTION THE DAY-TO-DAY DETAIL OF SAFELY OPERATING UNIT 2 MAY BE DILUTED BY THESE COMMITMENTS.

THE INITIAL PLANNING FOR BRINGING UNIT 1 ON LINE IS UNDERWAY. THIS INITIAL CUT IDENTIFIES A GENERATOR BREAKER CLOSE DATE AT THE END OF 1987. SOME 60 WORK PACKAGES ARE ALSO IDENTIFIED IN THIS INITIAL PLANNING EFFORT. OPERATIONS SUPPORT FOR THE WORK EFFORT WILL APPARENTLY BE CONCENTRATED ON ASSISTING DNE IN WALKDOWNS AND ASSISTING MODIFICATION EFFORTS THROUGH CLEARING EQUIPMENT AND RETURNING IT TO OPERATION FOR TESTING AFTER THE MODIFICATION WORK IS COMPLETE. RECOGNIZING THAT THERE IS COORDINATED PLANNING UNDERWAY BETWEEN OPERATIONS AND SECURITY TO CONTROL ACCESS WHICH MAY IMPACT THE UNIT #1 MODIFICATION WORK, WORK CONTROL BY PLANT MANAGEMENT TO AVOID OPERATING PLANT CONFLICTS WILL BE DEMANDING.

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DESCRIPTION: (CONTINUED)

IT IS GENERALLY ACKNOWLEDGED THAT THE STARTUP OF UNIT 1 WILL BE A MUCH LESS INTENSIVE LEVEL OF EFFORT ON THE PART OF TVA THAN THAT NECESSARY FOR UNIT 2 STARTUP. FURTHERMORE, THE INITIAL STARTUP OF UNIT 1 AND THOSE LESSONS LEARNED APPLIED TO UNIT 2 MADE THE UNIT 2 STARTUP VERY SMOOTH. THIS EXPERIENCE MAY GENERATE AN OVERLY OPTIMISTIC ASSUMPTION WITH REGARD TO THE IMPACT OF UNIT 1 STARTUP ON THE PLANT MANAGER'S ATTENTION TO UNIT 2.

GIVEN THE CURRENT ENVIRONMENT AND SCRUTINY WITH WHICH THE NRC, PRESS AND PUBLIC WILL PLACE ON TVA'S INITIAL OPERATION OF UNIT 2 IT IS IMPERATIVE THAT THE PLANT MANAGER BE PROVIDED THE OPPORTUNITY TO DEVOTE FULL ATTENTION TO UNIT 2. HE SHOULD BE GUIDED IN HIS DAY-TO-DAY DECISION MAKING BY THE PRINCIPLES NECESSARY TO CONVEY TO THE OPERATING ENVIRONMENT A PROACTIVE ATTITUDE TOWARD SAFETY IN ALL ASPECTS OF OPERATIONS, MAINTENANCE, ROOT CAUSE ANALYSIS OF TRANSIENTS AND ANOMALIES, AND CORRECTIVE ACTION.

MITIGATE IMPACT UPON PLANT MANAGEMENT RECOMMENDATIONS

CHARGE A SUBORDINATE WITH THE DAY-TO-DAY RESPONSIBILITY FOR STARTUP PREPARATION FOR UNIT 1 AND MAKE AVAILABLE THE RESOURCES TO CARRY OUT THAT FUNCTION.

DEVELOP THE DETAILED LONG RANGE PLAN TO MEET THE COMMITMENTS, DO A DETAILED ASSESSMENT OF CURRENT AND LONG RANGE IMPACT ON THE DILUTION OF ATTENTION OF THE PLANT MANAGER TO THE OPERATION OF UNIT 2.

UPON STARTUP OF UNIT 2 SHIFT THE CORPORATE ATTENTION TO RESTART OF BROWNS FERRY AND REDUCE THE LEVEL OF EFFORT ON SQN UNIT 1 UNTIL SQN UNIT 2 HAS RUN SUCCESSFULLY THROUGH THE REMAINDER OF THIS CYCLE, REFUELED AND RETURNED TO POWER.

TRANSITION TO AN OPERATING PLANT

ISSUE: REDUCE THE IMPACT OF ADMINISTRATIVE AND TECHNICAL MEETINGS ON THE AVAILABILITY OF MANAGERS AND SUPERVISORS TO MEET THE COMMITMENT OF INPLANT PRESENCE TO OBSERVE WORK ACTIVITIES AND PROCEDURE COMPLIANCE.

DESCRIPTION AND RECOMMENDATIONS:

A STRONG COMMITMENT HAS BEEN MADE FOR TVA'S NUCLEAR MANAGEMENT TO MONITOR FOR PROCEDURE NONCOMPLIANCE. HOWEVER, THE TEAM'S REVIEW WITH FIELD PERSONNEL OF THE FREQUENCY THAT NUCLEAR MANAGERS ARE OBSERVED IN THE FIELD CARRYING OUT THE MONITORING INDICATED THAT THE COMMITMENT'S SPIRIT IS NOT BEING MET. THIS IMPRESSION IS FURTHER SUBSTANTIATED BY THE MANAGERS THEMSELVES. THERE IS A SINCERE EFFORT BY SOME MANAGERS TO GET INTO THE PLANT DAILY. HOWEVER, THE ACTUAL TIME OFTEN IS EARLY IN THE MORNING OR AFTER NORMAL WORKING HOURS IN THE AFTERNOON, NOT THE OPTIMUM TIMES TO OBSERVE PROCEDURE COMPLIANCE OF THE MAJORITY OF FIELD PERSONNEL.

ONE SUBSTANTIAL REASON THAT THIS COMMITMENT IS NOT BEING MORE ACTIVELY MET IS THE NUMBER AND FREQUENCY OF MEETINGS ATTENDED BY LARGE NUMBERS OF MANAGERS AND SUPERVISORS. MORE DISCIPLINE NEEDS TO BE BROUGHT TO THE CULTURE ASSOCIATED WITH MEETINGS. CORPORATE MANAGEMENT SHOULD SPONSOR THIS DISCIPLINED APPROACH WITH GUIDANCE THAT INCLUDES:

1. PREPARATION OF AGENDAS WITH TIME ALLOCATED TO EACH TOPIC.

2. AGENDAS SHOULD IDENTIFY WHAT THE MEETING TOPIC RESULT IS EXPECTED TO BE I.E. A DECISION, A PLAN, INFORMATION COMMUNICATION, INVESTIGATORY FACT FINDING, TRAINING, TECHNICAL DISCUSSION, ETC.

3. LAPSED TIME FOR MEETINGS SHOULD BE CONTROLLED BY THE MEETING CHAIRMAN.

4. ATTENDEES SHOULD BE RESTRICTED TO THOSE NEEDED.

5. SCHEDULED MEETINGS SHOULD BE PERIODICALLY ASSESSED FOR CONTINUING NEED.

IMPACT OF ADMINISTRATIVE AND TECHNICAL MEETINGS

FOOTNOTES:

THE LICENSEE EVENT REPORT ON DIESEL GENERAL LOAD SHEDDING WAS WALKED INTO PORC MEETING. THERE WERE 14 PEOPLE AT MEETING, SOME NOT ABLE TO CONTRIBUTE TO REVIEW. THERE WAS NO PRELIMINARY REPORT, PRELIMINARY REVIEW. THE REPORT WAS NOT WELL ORGANIZED FOR PRESENTATION.

A FIELD CHANGE REQUEST ON PLATFORM THERMAL GROWTH WAS PRESENTED TO 14 PEOPLE IN A MEETING. THE PRESENTATION WAS 10 MINUTES OLD WHEN THE TOPIC WAS REMOVED FROM PORC BECAUSE NECESSARY HANGER DRAWINGS COULD NOT BE VERIFIED.

THE PORC REVIEW OF AN SI WAS CONDUCTED BASED UPON A USQD. THE CHANGES INVOLVED INCLUDED CLARIFICATION REVISIONS, TYPOGRAPHICAL ERRORS AND DATA SHEET REVISIONS. IN EACH OF THESE CATEGORIES THE REPORT SUBMITTED TO PORC INDICATED THERE WERE NO SAFETY QUESTIONS OR ISSUES INVOLVED WHY WAS PORC REVIEW NECESSARY?

RADWASTE AREA

ISSUE: THE SEQUOYAH RADWASTE SYSTEMS, PROGRAM CONTROLS AND OPERATIONAL CONTROLS NEED ATTENTION AND ACTION.

DESCRIPTION: THE RADWASTE PROCESSING SYSTEM IS DEFICIENT

THE RADWASTE PROGRAM CONTROLS ARE MARGINAL COMPARED TO INDUSTRY STANDARDS

THE RADWASTE SYSTEM OPERATIONAL CONTROLS DO NOT PROMOTE GOOD PERFORMANCE

RADWASTE ISSUES

ISSUE: THE SEQUOYAH RADWASTE SYSTEMS, PROGRAM CONTROLS AND OPERATIONAL CONTROLS NEED ATTENTION AND ACTION.

DESCRIPTION: <u>RADWASTE PROCESSING SYSTEM</u>

RADWASTE PROCESSING EQUIPMENT OPERABILITY HAS BEEN MARGINAL FOR EXTENDED PERIODS. CORRECTIVE ACTION REQUESTS ARE LONGSTANDING. CURRENT PROBLEMS REFLECT LACK OF PREVENTIVE MAINTENANCE. THE PROBLEMS FORCE PROCEDURE NONCOMPLIANCE AND POSSIBLE UNAUTHORIZED ATTEMPTS TO MAKE THINGS WORK.

FROM THE RADWASTE OPERATOR'S LOG:

4/13/87 - 2335 WORK REQUEST (WR) #B 228524 SUBMITTED ON VALVE 77-651B (WASTE COLLECTION TANK B (WCT) INLET VALVE STUCK OPEN).

4/14/87 - 1800-1820 PUMPED L&HS TANKS TO WCT #C. ISOLATED WCT #A & B. 77-651B LEAKS THROUGH AND EXTREMELY HARD TO OPERATE. OVERFLOWED WCT #B TO FLOOR. HP HANDLING CLEANUP.

CAUSTIC ADDITION TO CONDENSATE DEMINERALIZER WASTE EVAPORATOR (CDWE) FOR PH ADJUSTMENT IS ACCOMPLISHED USING TEMPORARY BARRELS, PUMP AND TUBING. PH ADJUSTMENT WAS NOT PART OF THE ORIGINAL DESIGN.

OBSERVATION OF WASTE MONITORING TANK (WMT) RELEASE IDENTIFIED THE FOLLOWING: (SEE ATTACHMENT PC-B PROCEDURE COMPLIANCE ISSUE)

1. THE RELEASE FLOW RATE EXCEEDS THE DISCHARGE PERMIT WHEN INITIALLY OPENING THE OVERBOARD DISCHARGE VALVES. THIS IS DUE TO A LACK OF A RECIRCULATION LINE DOWNSTREAM OF THE FLOW INDICATOR OR IMPROPER LOCATION OF THE FLOW INDICATOR.

DESCRIPTION: (CONTINUED)

RADWASTE PERSONNEL BELIEVE THAN HAVE DONE EVERYTHING WITHIN THE CAPACITY TO RECTIFY THE PROBLEMS. FOR INSTANCE THEY HAVE:

INSTALLED A TEMPORARY HOSE FROM CDWE DISTILLATE DISCHARGE TO FCT'S TO PREVENT FLOODING BACK THROUGH THE FLOOR DRAIN SYSTEM.

PROVIDED CONNECTIONS FOR A PORTABLE LIQUID RADWASTE DEMINERALIZER SYSTEM.

REMOVED BORIC ACID EVAPORATORS FROM THE CSSC LIST.

REPEATED RADIOLOGICALLY SIGNIFICANT EVENTS HAVE STRAINED RELATIONS BETWEEN RADWASTE OPERATIONS AND RAD CON.

SPILLS

TANK OVERFLOWS

SYSTEM LEAKS

THESE EVENTS HAVE RESULTED IN RADIOACTIVE CONTAMINATION IN AREAS OF THE AUXILIARY BUILDING AND CONDENSATE DEMINERALIZER REGENERATION AREA. LARGE AMOUNTS OF MANPOWER HAVE BEEN NECESSARY TO RECOVER FROM THESE EVENTS.

THE SYSTEM DESIGN OFTEN RELIES ON THE FLOOR DRAIN PIPING TO ROUTE TANK OVERFLOWS AND OTHER HIGH ACTIVITY LEVEL LIQUIDS.

SPENT RESIN STORAGE TANK (SRST) LEVEL INDICATION IS INOPERABLE. NO PERMANENT HARD PIPE DRAIN IS INSTALLED, A VALVE MUST BE TAKEN APART TO DEWATER THE SRST. THIS ACTION IS REQUIRED IN A VERY HIGH RADIATION AREA.

BECAUSE THE FLOOR DRAINS CANNOT HANDLE THE EFFLUENT VOLUME, THERE ARE OCCASIONS WHERE ADJOINING AREAS BECOME CONTAMINATED AND AIRBORNE RADIOACTIVITY HAS BEEN RELEASED.

DESCRIPTION: (CONTINUED)

RADWASTE PROGRAM CONTROLS

LIQUID DISCHARGES ARE FREQUENT AND THE ANNUAL VOLUME RELEASED IS GREATER THAN COMPARABLE PLANTS.

MANY NON-RADIOACTIVE WATER SOURCES ARE ENTERING THE RADIOACTIVE DRAINS SYSTEM AND BEING PROCESSED AS LIQUID RADWASTE.

THE SOURCES OF LIQUID WASTE CANNOT BE EASILY IDENTIFIED.

THE VOLUME OF SOLID RADWASTE GENERATED HAS BEEN LARGER THAN NECESSARY. THIS DEMONSTRATES A LACK OF PROGRAM MANAGEMENT ATTENTION AND CONTROL.

POWER STORES ISSUES MINIMUM AMOUNTS OF PARTS COMMON (EG: BOX OF BOLTS VERSUS ACTUAL NUMBER NEEDED). THESE EXCESS PARTS OFTEN BECOME UNNECESSARY SOLID WASTE.

RADWASTE OPERATIONS HAS A LARGE PICTURE FILE TO DOCUMENT THE PARTS PROBLEM.

RADWASTE OPERATIONAL CONTROLS

RADWASTE OPERATORS ARE NOT DEDICATED SOLELY TO RADWASTE.

THE RADWASTE OPERATORS ARE OFTEN PULLED BY THE SHIFT ENGINEER TO PERFORM OTHER PLANT TASKS.

DESCRIPTION: (CONTINUED)

RADWASTE OPERATIONAL CONTROLS (CONTINUED)

ASSIGNMENT TO RADWASTE OPERATIONS IS ON A NON-ROUTINE BASIS. THE BASIS FOR ASSIGNMENT IS NOT ONE OF ACQUIRING AND MAINTAINING PROFICIENCY IN DEALING WITH A DIFFICULT SYSTEM IN A HAZARDOUS ENVIRONMENT. THE AMOUNT OF ON-THE-JOB TRAINING DOES NOT APPEAR TO COMPENSATE FOR THE INFREQUENT ASSIGNMENT

SHIFT TURNOVER OFTEN OCCURS IN THE MIDST OF DISCHARGES OR OTHER TASKS, WHICH CAN LEAD TO OPERATING PROBLEMS.

PERSONNEL OFTEN PERFORM SEVERAL TASKS SIMULTANEOUSLY, WHICH DILUTES ATTENTION TO TASK AT HAND.

ATTACHMENT PC-B

RADIOACTIVE WASTE MONITOR TANK RELEASE

THE MONITOR TANK CONTENTS WERE RELEASED TO THE ENVIRONMENT USING PROCEDURE SOI-77.1C2. THE FOLLOWING PROBLEMS RELATED TO PROCEDURE COMPLIANCE WERE OBSERVED DURING THE EVOLUTION:

1. THE PROCEDURE GOVERNS OPERATOR ACTIONS FOR BOTH TANK RECIRCULATION AND RELEASE. THE TIME REQUIRED FOR THESE ACTIVITIES AND TO COMPLETE NECESSARY SAMPLING REQUIRES THE PROCEDURE TO BE TURNED OVER IN PROGRESS AT SHIFT CHANGE. SHIFT TURNOVER DURING AN EVOLUTION CAN CONTRIBUTE TO ERRORS, AND IN THIS CASE COULD BE AVOIDED BY SEPARATING THE ACTIVITIES INTO SEPARATE PROCEDURES.

2. A TEMPORARY CHANGE WAS IN EFFECT FOR THIS PROCEDURE THAT RESULTED IN A DIFFERENT VALVE LINEUP CONFIGURATION BEING IN EFFECT WHEN SHIFT CHANGE OCCURRED. THE DETAILS OF THIS DIFFERENCE AND ITS EFFECT ON SUBSEQUENT ACTIONS WAS NOT COMMUNICATED AT SHIFT CHANGE. THE ONCOMING (SECOND) OPERATOR HAD NOT CONDUCTED THIS ACTIVITY FOR SEVERAL MONTHS AND WAS NOT FAMILIAR WITH THE TEMPORARY CHANGE. ADDITIONALLY, HE DID NOT REVIEW THE TEMPORARY CHANGE PRIOR TO BEGINNING WORK.

3. VALVE LINEUP VERIFICATIONS WERE NOT CONDUCTED IN AN INDEPENDENT MANNER AS REQUIRED BY SI-77.1C2, AI-37 "INDEPENDENT VERIFICATION," AND GOI-6A "VALVE OPERATION." TWO OPERATORS WORKED TOGETHER, WITH ONE PERSON READING THE PROCEDURE AND THE OTHER CHECKING VALVE POSITIONS. AS A RESULT, NEITHER COULD HAVE KNOWN FROM HIS ACTIONS ALONE, THAT THE VALVE LINEUP WAS CORRECT.

4. BECAUSE THE SECOND OPERATOR WAS NOT AWARE OF THE EFFECTS OF THE DIFFERENT VALVE LINEUP RELATED TO THE TEMPORARY PROCEDURE CHANGE, HE BECAME CONFUSED WHEN THE SYSTEM DID NOT RESPOND AS EXPECTED. HE THEN CHANGED SOME VALVE POSITIONS IN A MANNER DIFFERENT FROM THE PROCEDURE INSTRUCTIONS. THIS CAUSED THE RELEASE FLOW RATE TO EXCEED THE PROCEDURE LIMIT. THE FLOW METER AND CHART RECORDER PEGGED AND THE ACTUAL FLOW RATE CANNOT BE DETERMINED.

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5. THE CHANGED PROCEDURE STEPS CANNOT WORK AS WRITTEN. STEP 9 REQUIRES FLOW RATE ADJUSTMENT; HOWEVER, NO FLOW CAN BE OBTAINED UNTIL STEP 10, OPENING A SHUTOFF VALVE, IS COMPLETED. IN ADDITION, EXACT COMPLIANCE WITH STEP 9 (FOLLOWING STEP 10) COULD RESULT IN EXCESSIVE FLOW RATES. THE OPERATOR COMPENSATED FOR THESE PROBLEMS BY PERFORMING THE STEPS OUT OF SEQUENCE AND INTERPRETING THE ADJUSTMENT INSTRUCTIONS OF STEP 9. THE CHANGE HAD BEEN IN EFFECT FOR MORE THAN A MONTH AND HAD BEEN USED SEVERAL TIMES BEFORE THIS OBSERVATION. THIS EVOLUTION IS CONDUCTED 2-3 TIMES PER WEEK.

6. THE OPERATOR DID NOT UPDATE THE RADWASTE STATUS BOARD WHEN REQUIRED BY THE PROCEDURE.

7. SOME STEPS FOR VERIFYING EQUIPMENT STATUS WERE PERFORMED OUT OF SEQUENCE FOR CONVENIENCE. WHILE THESE ACTIONS DID NOT AFFECT THE EVOLUTION, THIS COULD REFLECT POOR PROCEDURE COMPLIANCE ATTITUDE.

8. A PROCEDURE CHANGE TO IMPROVE THE INSTRUCTIONS WAS NOT SUBMITTED.

RADWASTE ATTACHMENT 1

SPENT RESIN STORAGE TANK MODS. (SRST)

PRIORITY OVERALL	BY COMPONENT			
	1	DCR-2225		SRST DRAIN BACKFLUSH CONNECTIONS
		REMOVES TACF 82-266-77 DNE DESIGN AND APPROVAL NEEDED NOT BUDGETED --	1982	
	2	DCR 2242 & 2206		SRST LEVEL INSTRUMENT SYSTEM
		REMOVES TACF 85-73-77 DNE DESIGN AND APPROVAL NEEDED NOT BUDGETED	1985	
	3	A. INDEPENDENT TRANSFER FOR SYSTEM NOT SHARED WITH OTHER SYSTEMS		
		B. A SAMPLING SYSTEM TO SAMPLE RESIN PRIOR TO, CASK/DISPOSAL CONTAINER, LOADING		
	3	DISTILLATE DEMI-DEMINERALIZER CONNECTIONS		TO REDUCE ACTIVITY DISCHARGE TO THE ENVIRONMENT IN LIQUID WASTE WATER RELEASES
		DCR - NONE - BEING FORMALIZED BY SITE SERVICES AND RAD-WASTE PERSONNEL M. SHANKS/S. MORROWS		
		BUDGET - SHOULD NOT BE A CAPITAL PROJECT - O & M BUDGET. CASK DECOM. - SYSTEM MODS.		
	1	DCR 1360 ECN 5916	1983 1981	REPLACES CDCT PUMPS, FILTERS AND RECIRC. PIPING TO DECREASE TANK RECIR. TIME AND DECREASE RELEASE TO ENVIRONMENT TIME.
		REMOVES TACF-81-580-77, 81-00111-77, O&M BUDGET APPROVED FOR FY 88 EQUIPMENT ONSITE - MODIFICATION RESOURCES NOT AVAILABLE		

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PRIORITY

BY
OVERALL COMPONENT

MISC. EQUIPMENT MODS.

	4	DCR 1513 ECN 5911 WB 11398, 11665	1982 1981- 1982	WASTE HEADER INSTALLATION TO TRANSFER/PROCESS WASTE WATER, CLEAN WATER FOR RELEASE.

REMOVES TACFS 82-2442-77, 82-266-77, 82-275-77.
ALL PARTS ARE ONSITE
MODIFICATION RESOURCE HOLDUP
BUDGET APPROVED FOR FY 88

	1	LEAK REDUCTION PROGRAM	DETERMINE THE BEST CORRECTIVE ACTION FOR REDUCTION, THROUGH QUICK IDENTIFICATION AND REPAIR, OF EQUIPMENT LEAKAGE INTO THE WASTE TREATMENT SYSTEM

PENDING A STARTUP DATE. DCRS WILL BE FORMULATED BY IMPELL CORPORATION IN CONJUNCTION WITH DNE AND RADWASTE

1	1	DRY ACTIVE WASTE PROCESSING EQUIPMENT/BUILDING	COMPLETION 8-87

BUDGET APPROVED FOR FY 87

CONDENSATE DEMINERALIER WASTE EVAPORATOR (CDWE) MODS.

2	1	FCR 4302 ECN 6658	REPAIR CDWE FLOOR AND SEAL TO PREVENT BUILDING LEAKAGE TO OUTSIDE AREA.

** THIS IS AN NRC COMMITMENT **
BUDGET APPROVED FOR FY 87
THIS DATE MAY CHANGE PENDING ON NEW SOLIDIFICATION AND DEMIN. SERVICES CONTRACT. THE EXISTING CONTRACT EXPIRES 5/31/87.

	2	DCR 1599 ECN 5878	REDESIGN MOISTURE SEPARATOR REFLUX SUCTION PIPING TO CORRECT INADEQUATE ORIGINAL DESIGN.

BUDGET APPROVED
FCR NEED WRITTEN BY MODIFICATIONS

PRIORITY

BY OVERALL	BY COMPONENT			
3		DCR 2143 ECN 6351		DEMINERALIZER WATER BOOSTER PUMP FOR CDWE INST. PANEL AND DE-SUPERHEATER
		BUDGET APPROVED MODIFICATIONS RESOURCES HOLDUP.		
4		DCR 2178 ECN 6417		ALTERNATE RECIRC. PUMP SEAL (SHOULD COME FROM PRIMARY WATER INSTEAD OF RAW COOLING WATER)
		BUDGET APPROVED MODIFICATION RESOURCES HOLDUP		
5		UPGRADE CDWE VENTILATION AND AIR CONDITIONING SYSTEM		
		NO DCR INITIATED		
6		REROUTE CDWE STEAM TRAPS FROM FLOOR DRAIN TO STEAM CONDENSATE TANK.		
		NO DCR INITIATED - STARTED BY M. SHANKS/S. MORROW		
7		MOISTURE SEPARATOR DRAIN RETURN TO VAPOR BODY INSTEAD OF FLOOR DRAIN		
		NO DCR INITIATED - STARTED BY M. SHANKS/S. MORROW		
8		DCR 1106 ECN 5025	1981	ADDITION OF (2) 2000 GAL. SLURRY TANK FOR CDWE
		BUDGET APPROVED - HOLD REMOVAL OF WASTE AND AUXILIARY WASTE EVAPORATOR		

9	DCR 2110 ECN 6363		CDWE SAMPLE SKID
	BUDGET APPROVED MODIFICATION RESOURCES HOLDUP		
10	CAUSTIC ADDITION SYSTEM FOR PH CONTROL		
	NO DCR INITIATED - STARTED M. SHANKS/S. MORROW		
11	DCR 2152 ECN 6352		CDWE HARD PIPING RETURNS TO FDCT.
	DNE NEEDS COST REDUCTION		
12	DCR 2224		FURTHER CDWE UPGRADE DISTILLATE STRIPPER COLUMN PUMP IMPELLER REPLACEMENT AMMETER INSTALLATION.
	NEEDS PLANT APPROVAL		

BORIC ACID RECOVERY SYSTEM

2	DCR 1514 ECN 6217	1984	UPGRADE THE BORIC ACID EVAPORATOR PACKAGES TO ASSURE MINIMAL OPERATOR ATTENTION AND MINIMAL DOWNTOWN.
	THE EVAPORATOR PACKAGES HAVE BEEN DOWNGRADED TO NON-CSSC MODIFICATION RESOURCE HOLDUP BUDGET APPROVED REMOVED TACFS 84-576-62, 81-467-62, 82-151-62, 82-168-62, 82-213-62, 82-214-62, 82-242-62, 83-7-62		
1	DCR ECN	1980 - 1983	BORIC ACID TANK VENT SYSTEM REDESIGN VENT TO FILTER OFF GAS AND CONTAMINATION REDUCTION.

RADWASTE RECOMMENDATIONS

THE PARTIES INVOLVED WITH RADWASTE POLICIES AT THE SEQUOYAH SITE AND ONP AND THOSE DIRECTLY AFFECTED BY THESE POLICIES SHOULD REACH AGREEMENT UPON EFFECTIVE MEANS TO SEEK COMMON RESOLUTION.

A PLAN AND SCHEDULE SHOULD BE CREATED TO ESTABLISH DEADLINES FOR CORRECTION OF EQUIPMENT PROBLEMS.

A PROGRAM FOR PERSONNEL EDUCATION AND TRAINING ON RADWASTE VOLUME AND WATER MANAGEMENT VOLUME CONTROL SHOULD BE EMPHASIZED AFTER COMMON POLICIES AND PRACTICES ARE DETERMINED AMONG RADCON, OPERATIONS, MAINTENANCE, SITE SERVICES AND OTHER PAPTICIPANTS.

A PROGRAM FOR ON-THE-JOB TRAINING OF RADWASTE OPERATORS SHOULD BE ESTABLISHED. THE TRAINING AT POWER OPERATIONS TRAINING CENTER SHOULD BE REVISED TO TAKE INTO ACCOUNT EXISTING SYSTEM AND AREA CONDITIONS RATHER THAN DESIGNED AND SPECIFIED CONDITIONS.

AN OPPORTUNITY EXISTS FOR ONP TO LEAD AND COORDINATE THIS EFFORT. THESE ARE PROBLEMS OF MANAGING CHANGE AND IMPROVEMENTS. AS SUCH, THEY AFFECT THE TVA SITES. THEY ARE BEYOND THE SCOPE OF ROUTINE PLANT OPERATION AND REQUIRE INTERFACING THAT IS NOT LIKELY TO OCCUR AT A SITE WITH HIGHER PRIORITIES AND DEMANDS.

RADWASTE

FOOTNOTES: INTERVIEWS WITH PERSONNEL ASSIGNED TO RADWASTE OPERATIONS INDICATE SIGNIFICANT ORGANIZATIONAL PROBLEMS THAT CAN LEAD TO POOR PERFORMANCE.

RADWASTE IS WHERE NEW OPERATORS ARE SENT ON FIRST PLANT ASSIGNMENT, ITS THE BOTTOM OF THE LIST.

RADWASTE IS THE END OF THE LINE, NOBODY KNOWS YOU'RE THERE AND NOBODY CARES.

RADWASTE OPERATORS ARE YANKED AROUND TO FILL IN WHATEVER JOB NOBODY ELSE WANTS.

THIS ISN'T THE RADWASTE SYSTEM WE WERE TRAINED ON.

MANY RADWASTE OPERATORS AS WELL AS OTHER OPERATIONS PERSONNEL BELIEVE THAT A RADWASTE SUPERVISOR IS NEEDED. WITHOUT THAT MINIMUM FORM OF RECOGNITION THERE WILL BE NO TEAMWORK, CHANGE IN MORALE OR IMPROVEMENT IN PERFORMANCE.

PROCEDURE REVISION PROCESS

ISSUE: CURRENT PROCEDURE REVISION PROCESS REFLECTS SEVERAL CHANGES IN DIRECTION OF PROPER PROCEDURE CONTROL POLICIES.

DESCRIPTION: NON-INTENT IMMEDIATE PROCEDURE CHANGE METHOD IS NOT EFFECTIVE.

TEMPORARY NON-INTENT PROCEDURE CHANGES ARE NOT DISTRIBUTED IN A TIMELY MANNER.

THE ADMINISTRATIVE DELAYS IN PROCEDURE PROCESSING AND DISTRIBUTION CAN RESULT IN TECHNICAL PROBLEMS IN THE PLANT.

THE PROCEDURE REVISION PROCESS REQUIRES REDUNDANT EFFORT OF MANY PERSONNEL.

THE DIFFICULTY AND DELAY IN PROCEDURE REVISION HAS RESULTED IN DELAY AND MISSED COMMITMENTS IN THE PREVENTIVE MAINTENANCE PROGRAM.

PROCEDURE REVISION PROCESS

ISSUE: THERE IS NO EFFECTIVE METHOD AVAILABLE FOR MAKING CHANGES TO CORRECT PROCEDURAL ERRORS DISCOVERED DURING PROCEDURE PERFORMANCE. CURRENTLY, VIRTUALLY ALL PROCEDURE CHANGES ARE CONSIDERED "INTENT"CHANGES REQUIRING PORC APPROVAL BEFORE USE. THIS VERY CONSERVATIVE APPROACH WILL RESULT IN SIGNIFICANT DELAYS IN COMPLETING PROCEDURES THAT NEED CHANGING AND MAY DETRACT FROM EFFORTS TO IMPROVE PROCEDURE ADHERENCE. A NUMBER OF OTHER PROBLEMS IN PROCEDURE CONTROLS ARE EVIDENT.

DESCRIPTION:

1. NO DIRECT METHOD EXISTS TO MAKE IMMEDIATE, PERMANENT CHANGES THAT DO NOT AFFECT PROCEDURE INTENT. (INTENT CHANGES SHOULD NOT BE AND ARE NOT APPROVED WITHOUT PRIOR PORC APPROVAL.) IMMEDIATE NON-INTENT CHANGES THAT SHOULD BECOME PERMANENT ARE CURRENTLY HANDLED AS TEMPORARY CHANGES THAT EXPIRE IN A MAXIMUM OF 45 DAYS. A REVISION REQUEST FORM SHOULD BE PROCESSED SIMULTANEOUSLY OR SHORTLY AFTER THE TEMPORARY CHANGE TO ENSURE THE CHANGE IS PERMANENTLY CAPTURED. THIS MAY NOT ALWAYS OCCUR. A PROCEDURE GROUP SUPERVISOR SAID THAT EVEN IF THE REVISION REQUEST IS PROMPTLY INITIATED IT IS LIKELY IT WILL NOT BE IMPLEMENTED BEFORE THE 45 DAY PERIOD EXPIRES. MOST PLANTS HAVE IMMEDIATE, PERMANENT, NON-INTENT PROCEDURE CHANGE MECHANISMS THAT REFLECT THE NEED TO RESPOND PROMPTLY TO DIFFERENT LEVELS OF CHANGE SIGNIFICANCE.

2. ALL TEMPORARY CHANGES ARE REMOVED FROM PROCEDURE BOOKS ON THE EXPIRATION DATE WITHOUT INFORMING THE COGNIZANT GROUP'S PROCEDURE COORDINATOR OR THE TEMPORARY CHANGE INITIATOR. THEREFORE, CHANGE INFORMATION NEEDED TO BE PERMANENTLY APPLIED MAY BECOME LOST.

DESCRIPTION: (CONTINUED)

3. TEMPORARY, NON-INTENT CHANGES ARE NOT DISTRIBUTED TO CONTROLLED PROCEDURE BINDERS UNTIL AFTER PORC REVIEW WHICH MAY NOT OCCUR FOR 14 DAYS. THEREFORE, CONTROLLED PROCEDURE COPIES MAY NOT CONTAIN UP-TO-DATE, CORRECT INFORMATION. THIS PROBLEM WAS IDENTIFIED IN THE OCTOBER 1986 INPO EVALUATION. A DOCUMENT CONTROL SUPERVISOR STATED THAT SQN HAS DECIDED TO NOT TAKE ACTION TO CORRECT THIS PROBLEM, WHICH WAS COMMITTED TO INPO, BECAUSE IT WAS ADMINISTRATIVELY TOO DIFFICULT. INPO OBSERVED A DIESEL GENERATOR SURVEILLANCE TEST CONDUCTED WITHOUT AN OUTSTANDING TEMPORARY CHANGE BECAUSE OF NON-TIMELY DISTRIBUTION.

4. PROCEDURE REVISIONS AUTOMATICALLY CANCEL ALL EXISTING CHANGE FORMS IN EFFECT WHEN THE REVISION IS ISSUED. (CHANGE FORM INITIATORS ARE INFORMED WHEN THIS OCCURS.) TEMPORARY CHANGES IMPLEMENTED WHILE A REVISION IS BEING PROCESSED WILL THEREFORE AUTOMATICALLY BE CANCELLED, REQUIRING ADDITIONAL WORK IN RE-INITIATING A TEMPORARY CHANGE FORM TO PREVENT THE INFORMATION FROM BEING LOST.

5. INSTRUCTION CHANGE FORMS (ICF) RESULT IN A PROCEDURE REVISION FOR EACH CHANGE, UNLESS A REVISION IS ALREADY IN PROCESS FOR THAT PROCEDURE WHEN THE ICF IS INITIATED. THIS CAUSES UNNECESSARY PROCEDURE REVISION PROCESSING. MOST PLANTS ALLOW SOME CHANGES TO ACCUMULATE BEFORE A REVISION IS INITIATED. TEMPORARY AND/OR PEN AND INK CHANGES ARE CONTROLLED TO ENSURE THIS DELAY DOES NOT IMPACT PROPER PLANT AND COMPONENT OPERATION.

DESCRIPTION: (CONTINUED)

6. ICFS RESULT IN TWO PORC REVIEWS AS FOLLOWS:

   A. WHEN THE ICF IS INITIATED, SO THAT THE PROCEDURE CAN BE USED.

   B. AFTER THE CHANGE IS SUBSEQUENTLY IMPLEMENTED IN A REVISION.

7. PROCEDURE CHANGES ARE NOT PEN-AND-INK ENTERED INTO THE BODY OF THE PROCEDURE. PROCEDURE USERS MUST REMEMBER TO CHECK COVER SHEET MATERIAL FOR POSSIBLE CHANGES. AT OTHER PLANTS, THIS PRACTICE HAS RESULTED IN CHANGE INFORMATION BEING OVERLOOKED.

8. CHANGES IN THE PHILOSOPHY OF PROCEDURE COMPLIANCE HAVE BEEN MADE SINCE MANY PROCEDURES FOR PLANT OPERATION WERE LAST USED. WHEN THESE PROCEDURES ARE USED AGAIN, PROCEDURE PROBLEMS MAY REQUIRE PROCESSING OF MANY PROCEDURE CHANGES.

9. A RECENT NIGHT ORDER TO THE SHIFT ENGINEERS INSTRUCTED THEM TO USE THE TEMPORARY CHANGE FORMS IN EXTREMELY LIMITED SITUATIONS. IF THIS POLICY IS CONTINUED THROUGH STARTUP MANY SIGNIFICANT DELAYS WILL OCCUR WHILE PROCEDURES ARE BEING CORRECTED.

10. ABOUT HALF OF THE CANCELLED OR DEFERRED PREVENTIVE MAINTENANCE ACTIVITIES COULD NOT BE DONE BECAUSE OF PROCEDURE DISCREPANCIES. THIS IS AN EXAMPLE OF HOW AN ADMINISTRATIVE PROBLEM (DIFFICULTY IN OBTAINING A PROCEDURE CHANGE) CAN CAUSE A TECHNICAL PROBLEM (PREVENTIVE MAINTENANCE WORK NOT BEING DONE).

PROCEDURE REVISION PROCESS RECOMMENDATIONS

PROVIDE AN EFFICIENT MECHANISM FOR ON-THE-SPOT PERMANENT PROCEDURE CHANGES BEFORE IT BECOMES A LARGER ISSUE.

ISSUE RETYPED PROCEDURE REVISIONS ONLY IN THE FOLLOWING SITUATIONS:

A. CHANGES ARE COMPLEX

B. MORE THAN 3-5 CHANGES AFFECT THE PROCEDURE

C. A PROCEDURE CHANGE IS IN EFFECT THAT IS MORE THAN 6-12 MONTHS OLD. (ESTABLISH A DELIMITING PERIOD)

D. FORMAT IS CHANGED OR CHANGE RESULTS FROM A BIENNIAL REVIEW.

MARK PROCEDURE BODY WITH PEN-AND-INK NOTATIONS FOR CHANGES. THIS COULD BE ACCOMPLISHED BY NOTING IN THE MARGIN THAT A CHANGE IS IN EFFECT FOR PARTICULAR STEP. THE USER WOULD THEN BE ALERTED TO REFER TO COVER SHEET MATERIALS.

ENSURE PROCEDURE CHANGES ARE PROMPTLY ENTERED IN ALL CONTROLLED PROCEDURE BOOKS.

TAKE INTO ACCOUNT THE LARGE PROCEDURE REVISION AND VALIDATION EFFORT THAT WILL RESULT FROM INITIAL USE OF REVISED PROCEDURES AND INSTRUCTIONS.

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PROCEDURE REVISION PROCESS

FOOTNOTES:

THE ISSUES OF PROCEDURE COMPLIANCE AND PROCEDURE REVISION ARE ENTWINED TO THE EXTENT THEY MUST BE ADDRESSED CONCURRENTLY. FOR EXAMPLE:

IN THE CHEMISTRY AREA WE FIND THAT PERSONNEL DO NOT ALWAYS COMPLY WITH PROCEDURES BUT ALSO THAT CERTAIN OPERATING PROCEDURES REFER TO CHEMISTRY PROCEDURE TABLES THAT ARE NOT COMPATIBLE.

IN THE RADWASTE MONITOR TANK RELEASE ISSUE WE FOUND PROBLEMS IN THE COMPLIANCE BUT FOUND THAT PROCEDURE STEPS COULD NOT BE FOLLOWED AS WRITTEN.

IN OBSERVING PERFORMANCE OF SI-180 - FIRE PUMP START TEST, WE NOTED THAT DATA THAT SHOULD HAVE BEEN TAKEN CONCURRENT WITH PUMP START WAS NOT REQUIRED BY PROCEDURE SEQUENCE UNTIL A 15 MINUTE RUN WAS COMPLETE. THE PERFORMER WAS MADE VULNERABLE TO NON-COMPLIANCE BY THIS OVERSIGHT.

A PROCEDURE TRAP EXISTS IN SI-84.2. A PANEL TAG CALLS FOR REMOVEL OF AN AC CABLE BEFORE UNPLUGGING THE SIGNAL CABLE. THERE ARE NO PROCEDURE STEPS OR LABELS CALLING FOR AC CABLE REINSTALLATION.

EVEN MORE DISTRESSING IS THE FACT THAT THESE PROCEDURE INADEQUACIES ARE ACCEPTED. THE NECESSARY CHANGES WERE NOT MADE OR IN RECENT OBSERVATION, MADE ONLY UPON PROMPTING BY OBSERVERS. THIS MEANS MANAGEMENT CAN'T REVIEW AND PROCESS NEEDED IMPROVEMENTS.

THESE SAME PROBLEMS PROBLEMS ARE PROMINENT IN THE NMRG REPORT OF RECENT SPILLS. INADEQUATE OR NON-EXISTENT PROCEDURES HAVE ENCOURAGED PERSONNEL TO MOVE AHEAD MAKING THEM VULNERABLE AND TVA IS EXPOSED TO SIGNIFICANT REACTION.

THE CORPORATE READINESS TEAM SPENT SEVERAL HOURS DISCUSSING THESE ISSUES. THE COMPROMISE BETWEEN MINDLESS PROCEDURE FOLLOW AND UNSTRUCTURED PLANT OPERATION REMAINS A CHALLENGE TO ALL NUCLEAR PLANTS. THE CONSENSUS OF THIS EXPERIENCED TEAM IS THAT PROCEDURE COMPLIANCE PRECEDES PROCEDURE REVISION AND ONE CANNOT EXIST WITHOUT THE OTHER. THE CAPABILITY TO INTERPRET AND EXHIBIT JUDGEMENT FOLLOWS A PERIOD OF PROVEN SUCCESS IN PROCEDURE COMPLIANCE AND PROCEDURE ADEQUACY.

0428Y

PROCEDURE COMPLIANCE

ISSUE: PLANT ACTIVITIES WERE OBSERVED WHERE PROCEDURES WERE NOT PROPERLY USED AND NOT CORRECTED WHEN NECESSARY.

DESCRIPTION: POST MAINTENANCE TESTING OF MOTOR OPERATED VALVE

RADIOACTIVE WASTE MONITOR TANK RELEASE

SAFETY MEETING AND CONFINED SPACE ENTRY

NMRG REPORT I-87-01-SQN

REVIEW OF WEEKLY DIESEL BATTERY CHECKS

PROCEDURE COMPLIANCE

ISSUE: PLANT ACTIVITIES WERE OBSERVED WHERE PROCEDURES WERE NOT PROPERLY USED AND NOT CORRECTED WHEN NECESSARY.

DESCRIPTION: DURING POST-MAINTENANCE TEST OF A MOTOR-OPERATED VALVE (MOV) THERE WERE SEVERAL DISCREPANCIES IN PROCEDURE ADEQUACY, COMPLIANCE AND CORRECTIVE ACTION. (SEE ATTACHMENT PC-A)

DURING RELEASE OF RADIOACTIVE WASTE MONITOR TANK EFFLUENT TO THE ENVIRONMENT, THERE WERE SEVERAL PROBLEMS WITH PROCEDURE CHANGE REVIEW, COMPLIANCE AND CORRECTIVE ACTION. (SEE ATTACHMENT PC-B)

DURING THE CONDUCT OF A SAFETY MEETING AND SUBSEQUENT FOLLOW, THE EVIDENCE OF A NON-COMPLIANCE WITH ENTRY TO CONFINED SPACE REQUIREMENTS WAS NOT EMPHASIZED AND RESPONSIBILITY NOT CLEARLY UNDERSTOOD. (SEE ATTACHMENT PC-C)

THE RECENT SPILL EVENTS REPORTED IN NMRG REPORT I-87-01-SQN DESCRIBE SIMILAR INSTANCES OF INADEQUATE PROCEDURES, PROCEDURE REVIEW AND COMPLIANCE. (SEE ATTACHMENT PC-D)

DURING A TABLE TOP REVIEW OF SI-238.1 REVISION (WEEKLY DIESEL BATTERY CHECKS) BY A WATTS BAR (WBN) ELECTRICIAN AND SEQUOYAH (SQN) ELECTRICIAN, OBSERVATIONS WERE MADE AND WRITTEN. THE SQN ELECTRICIAN NOTED AN INCORRECT MEASUREMENT CRITERIA (GREATER THAN SIGN SHOULD HAVE BEEN LESS THAN SIGN). THIS IS TECHNICAL SPECIFICATION DATA COLLECTION ITEM. THE SQN ELECTRICIAN DID NOT COMMENT ON THIS ERROR UNTIL PROMPTED TO SO DO BY THE OBSERVER. THE OBSERVER NOTED THAT THE WBN ELECTRICIAN APPEARED MUCH MORE SENSITIVE TO READING AND COMPLYING WITH THE WRITTEN PROCEDURE THAN THE SQN ELECTRICIAN WHO APPEARED MORE WILLING TO RELY ON HIS KNOWLEDGE OF HOW TO DO THE REQUIRED TASKS.

ATTACHMENT PC-A

MOTOR OPERATED VALVE POST-MAINTENANCE TESTING

VALVE 2-FCV-63-22, A MOTOR-OPERATED, COLD-LEG, SAFETY-INJECTION INITIATION VALVE, HAD REPAIRS MADE TO ITS POWER SUPPLY CABLE. THE POST-MAINTENANCE TEST FOR THIS WORK WAS OBSERVED, AND THE FOLLOWING PROBLEMS RELATED TO PROCEDURE USE AND PROCEDURE QUALITY WERE NOTED.

1. THE PROCEDURE FOR THE POST-MAINTENANCE TEST WAS AN INFORMAL PROCEDURE, WRITTEN BY THE MODIFICATIONS STAFF AND APPROVED BY AN ELECTRICAL MAINTENANCE PLANNER AND THE QA REVIEWER. THIS LEVEL OF APPROVAL MAY NOT MEET THE REQUIREMENTS OF PLANT TECHNICAL SPECIFICATIONS 6.8.1 AND 6.8.2 AND REGULATORY GUIDE 1.33. THESE REFERENCES REQUIRE PORC APPROVED PROCEDURES FOR "MAINTENANCE THAT CAN AFFECT THE PERFORMANCE OF SAFETY-RELATED EQUIPMENT." TVA HAS NOT MADE A FORMAL INTERPRETATION OF THIS REQUIREMENTS EFFECT ON POST-MAINTENANCE TEST PROCEDURES.

2. THE ELECTRICAL MAINTENANCE AND OPERATIONS PERSONNEL WHO PERFORMED THE TEST DID NOT READ THE PROCEDURE BEFORE BEGINNING THE TEST. THE LEAD ELECTRICIAN, WHO DIRECTED THE TEST, WAS NOT AWARE OF THE SCOPE OF THE TEST BEFORE BEGINNING.

3. REQUIRED INITIAL CONDITIONS FOR THIS TEST WERE NOT PROVIDED IN THE PROCEDURE.

4. THE FIRST TEST PROCEDURE STEP HAD BEEN DELETED BY THE ELECTRICAL MAINTENANCE PLANNER. THIS STEP CALLED FOR REMOVING MOTOR POWER FROM THE VALVE BY LIFTING WIRES, WHILE LEAVING CONTROL POWER APPLIED. THIS STEP WAS INCORRECT FOR THIS VALVE, SINCE SEPARATE BREAKERS ARE PROVIDED FOR MOTOR AND CONTROL POWER. THE NECESSARY INSTRUCTION TO OPEN THE MOTOR POWER BREAKER (OR VERIFY OPEN) HAD NOT BEEN PLACED IN THE PROCEDURE. THIS OMISSION DID NOT CAUSE DIFFICULTY SINCE THE MOTOR POWER BREAKER WAS OPEN AT THE START OF THE TEST. HOWEVER, PROBLEMS MAY HAVE OCCURRED IF THE BREAKER HAD BEEN INITIALLY CLOSED.

5. MANIPULATION OF THE VALVE CONTROLS NEEDED TO BE PERFORMED AT THE LOCAL ELECTRICAL PANEL; HOWEVER, THE PROCEDURE DID NOT SPECIFY THIS. THE LEAD ELECTRICIAN AND UNIT OPERATOR ATTEMPTED THE MANIPULATIONS FROM THE MAIN CONTROL BOARD.

6. THE PROCEDURE CALLED FOR "OPEN" AND "STOP" COMMANDS TO BE GIVEN THE VALVE. THE MAIN CONTROL BOARD SWITCH HAS ONLY "OPEN" AND "CLOSE" FUNCTIONS. THE LOCAL PANEL HAS "OPEN," "STOP," AND "CLOSE" FUNCTIONS. THE LEAD ELECTRICIAN AND UNIT OPERATOR ATTEMPTED TO PROVIDE THE "STOP" COMMAND BY TAKING THE MAIN CONTROL BOARD SWITCH TO THE "CLOSE" POSITION, BUT THE DESIRED RESULT (OPENING OF ELECTRICAL CONTACTS) WAS NOT OBTAINED.

7. THE UNIT OPERATOR THEN CONCLUDED THE PROCEDURE WAS INCORRECT, AND THAT CONTROL POWER BREAKER OPERATION WOULD BE NECESSARY TO OPEN THE ELECTRICAL CONTACTS. HE DID NOT RECOGNIZE THAT THE DESIRED RESULTS COULD HAVE BEEN OBTAINED BY OPERATION FROM THE LOCAL PANEL. THE TEST WAS STOPPED, THE CONTROL POWER BREAKER WAS OPENED, AND THE VALVE WAS MANUALLY ALIGNED TO PLACE THE SYSTEM IN A STABLE CONFIGURATION.

8. THE LEAD ELECTRICIAN THEN CAREFULLY READ THE PROCEDURE AND REALIZED THAT THE SCOPE OF THE TEST WAS INAPPROPRIATE FOR THE MAINTENANCE WORK THAT HAD BEEN DONE.

9. THE LEAD ELECTRICIAN AND OTHERS WHO PARTICIPATED IN THE TEST THEN CONSULTED WITH THE FOREMAN. COLLECTIVELY, THEY DECIDED TO DELETE ALL PORTIONS OF THE TEST EXCEPT AN ENERGIZED, OPERATIONAL CHECK TO ENSURE CORRECT PHASE - ROTATION OF THE MOTOR. CONCURRENCE OF THE ELECTRICAL MAINTENANCE PLANNER AND THE QA REVIEWER WERE OBTAINED.

10. THE ORIGINAL SCOPE OF THE TEST, A COMPLETE ELECTRICAL CHECK-OUT, WOULD HAVE BEEN APPROPRIATE FOR THE MAINTENANCE THAT HAD BEEN PLANNED. HOWEVER, THE SCOPE OF THE MAINTENANCE WAS REDUCED. THE POST-MAINTENANCE TEST HAD NOT BEEN RE-PLANNED WHEN THE WORK SCOPE WAS CHANGED.

11. THE PROCEDURE PROBLEMS NOTED IN 3, 4, AND 5 ABOVE WERE NOT COMMUNICATED TO THE PROCEDURE AUTHOR OR OTHERWISE FORMALLY DOCUMENTED FOR FUTURE POST MAINTENANCE TESTING APPLICABILITY.

ATTACHMENT PC-B

RADIOACTIVE WASTE MONITOR TANK RELEASE

THE MONITOR TANK CONTENTS WERE RELEASED TO THE ENVIRONMENT USING PROCEDURE SGI-77.1C2. THE FOLLOWING PROBLEMS RELATED TO PROCEDURE COMPLIANCE WERE OBSERVED DURING THE EVOLUTION:

1. THE PROCEDURE GOVERNS OPERATOR ACTIONS FOR BOTH TANK RECIRCULATION AND RELEASE. THE TIME REQUIRED FOR THESE ACTIVITIES AND TO COMPLETE NECESSARY SAMPLING REQUIRES THE PROCEDURE TO BE TURNED OVER IN PROGRESS AT SHIFT CHANGE. SHIFT TURNOVER DURING AN EVOLUTION CAN CONTRIBUTE TO ERRORS, AND IN THIS CASE COULD BE AVOIDED BY SEPARATING THE ACTIVITIES INTO SEPARATE PROCEDURES.

2. A TEMPORARY CHANGE WAS IN EFFECT FOR THIS PROCEDURE THAT RESULTED IN A DIFFERENT VALVE LINEUP CONFIGURATION BEING IN EFFECT WHEN SHIFT CHANGE OCCURRED. THE DETAILS OF THIS DIFFERENCE AND ITS EFFECT ON SUBSEQUENT ACTIONS WAS NOT COMMUNICATED AT SHIFT CHANGE. THE ONCOMING (SECOND) OPERATOR HAD NOT CONDUCTED THIS ACTIVITY FOR SEVERAL MONTHS AND WAS NOT FAMILIAR WITH THE TEMPORARY CHANGE. ADDITIONALLY, HE DID NOT REVIEW THE TEMPORARY CHANGE PRIOR TO BEGINNING WORK.

3. VALVE LINEUP VERIFICATIONS WERE NOT CONDUCTED IN AN INDEPENDENT MANNER AS REQUIRED BY SI-77.1C2, AI-37 "INDEPENDENT VERIFICATION," AND GOI-6A "VALVE OPERATION." TWO OPERATORS WORKED TOGETHER, WITH ONE PERSON READING THE PROCEDURE AND THE OTHER CHECKING VALVE POSITIONS. AS A RESULT, NEITHER COULD HAVE KNOWN FROM HIS ACTIONS ALONE, THAT THE VALVE LINEUP WAS CORRECT.

4. BECAUSE THE SECOND OPERATOR WAS NOT AWARE OF THE EFFECTS OF THE DIFFERENT VALVE LINEUP RELATED TO THE TEMPORARY PROCEDURE CHANGE, HE BECAME CONFUSED WHEN THE SYSTEM DID NOT RESPOND AS EXPECTED. HE THEN CHANGED SOME VALVE POSITIONS IN A MANNER DIFFERENT FROM THE PROCEDURE INSTRUCTIONS. THIS CAUSED THE RELEASE FLOW RATE TO EXCEED THE PROCEDURE LIMIT. THE FLOW METER AND CHART RECORDER PEGGED AND THE ACTUAL FLOW RATE CANNOT BE DETERMINED.

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5. THE CHANGED PROCEDURE STEPS CANNOT WORK AS WRITTEN. STEP 9 REQUIRES FLOW RATE ADJUSTMENT; HOWEVER, NO FLOW CAN BE OBTAINED UNTIL STEP 10, OPENING A SHUTOFF VALVE, IS COMPLETED. IN ADDITION, EXACT COMPLIANCE WITH STEP 9 (FOLLOWING STEP 10) COULD RESULT IN EXCESSIVE FLOW RATES. THE OPERATOR COMPENSATED FOR THESE PROBLEMS BY PERFORMING THE STEPS OUT OF SEQUENCE AND INTERPRETING THE ADJUSTMENT INSTRUCTIONS OF STEP 9. THE CHANGE HAD BEEN IN EFFECT FOR MORE THAN A MONTH AND HAD BEEN USED SEVERAL TIMES BEFORE THIS OBSERVATION. THIS EVOLUTION IS CONDUCTED 2-3 TIMES PER WEEK.

6. THE OPERATOR DID NOT UPDATE THE RADWASTE STATUS BOARD WHEN REQUIRED BY THE PROCEDURE.

7. SOME STEPS FOR VERIFYING EQUIPMENT STATUS WERE PERFORMED OUT OF SEQUENCE FOR CONVENIENCE. WHILE THESE ACTIONS DID NOT AFFECT THE EVOLUTION, THIS COULD REFLECT POOR PROCEDURE COMPLIANCE ATTITUDE.

8. A PROCEDURE CHANGE TO IMPROVE THE INSTRUCTIONS WAS NOT SUBMITTED.

ATTACHMENT PC-C

SAFETY MEETING

A BRIEF MEETING WAS HELD IN THE ELECTRICAL MAINTENANCE SHOP TO DISCUSS A SAFETY VIOLATION. THE FOLLOWING PROBLEMS WERE OBSERVED DURING THIS MEETING.

1. A GENERAL FOREMAN BEGAN THE MEETING BY STATING THAT THE PERSONNEL HAD DONE EVERYTHING CORRECTLY, BUT HAD FAILED TO PROPERLY DOCUMENT THEIR ACTIONS. THE LACK OF PROPER DOCUMENTATION HE REFERRED TO WAS FAILURE TO OBTAIN A CONFINED SPACE ENTRY PERMIT. APPARENTLY, AIR SAMPLES HAD BEEN OBTAINED FROM THE CONFINED SPACE BEFORE PERSONNEL ENTERED.

2. THE FOLLOWING INFORMATION WAS NOT PRESENTED AT THE MEETING

   A. THE LOCATION OF THE CONFINED SPACE AND THE POSSIBLE HAZARD

   B. WHY THE PERMIT WAS NOT OBTAINED

   C. THE IMPORTANCE OF OBTAINING A PERMIT WHEN NECESSARY.

   D. EACH INDIVIDUAL'S RESPONSIBILITY TO NOT ENTER A CONFINED SPACE UNLESS A PERMIT HAS BEEN ESTABLISHED

3. RESPONSIBILITY FOR ENSURING CONFINED SPACE ENTRY PERMITS ARE OBTAINED WHEN NECESSARY WAS NOT CLEARLY STATED. DURING THE MEETING SOME INDIVIDUALS WERE OVERHEARD TO COMMENT THAT THE RESPONSIBILITY WAS WITH THE SUPERVISOR WHILE OTHERS SAID MAINTENANCE PLANNERS SHOULD INCLUDE THIS IN THE WORK PLAN.

4. THE SERIOUSNESS OF WORKING IN A CONFINED SPACE WITHOUT A PERMIT WAS NOT CONVEYED TO THE PERSONNEL. INSTEAD, THE IMPLICATION OF THE DISCUSSION WAS THAT THIS WAS NOT A BIG PROBLEM.

5. FOLLOW UP INVESTIGATION REVEALED THE FOLLOWING:

A. THE CONTROLLING PROCEDURE FOR CONFINED SPACE ENTRY LACKS SPECIFIC DIRECTION FOR MULTIPLE ENTRY. WHILE NOT SPECIFICALLY PROHIBITED, MULTIPLE ENTRY BASED UPON ONE PERMIT IS CLEARLY BEYOND THE INTENT OF THE CONFINED SPACE CONTROL PROCEDURE.

B. THE CRAFT PERSONNEL HAD BEEN ALLOWED TO OBTAIN THEIR OWN AIR SAMPLES. NO ENTRY OR DATA POINT IS REQUIRED TO VERIFY INSPECTION OR RESULTS OF SAMPLE.

C. THE PROCEDURE DOES NOT SPECIFICALLY PROHIBIT ENTRY INTO A CONFINED SPACE WITHOUT A PERMIT.

D. THIS ENTRY WAS FIRST ENTRY, UNDER CONTROLLED ACCESS PROCEDURE, MADE FOR A LONG PERIOD OF TIME. AS SUCH IT WAS INITIALLY TO HAVE BEEN INSPECTED BY INDUSTRIAL SAFETY. WHEN A DELAY OCCURRED, THE INSPECTION WAS DELEGATED TO THE MAINTENANCE FOREMAN.

E. THE PROCEDURE CALLS FOR A WRITTEN EMERGENCY PLAN DETAILING ESCAPE ROUTES AND RESCUE EQUIPMENT USE. NO EMERGENCY PLAN WAS WRITTEN.

PROCEDURE COMPLIANCE

FOOTNOTES:

1. ITEMS 2-3-4-5 OF ATTACHMENT PC-A ARE CLEARCUT INDICATION OF THE PROCEDURE PHILOSOPHY THAT DETAILS NEED NOT BE SUPPLIED TO PERSONNEL WHO HAVE SKILL AND EXPERIENCE TO PERFORM THE ACT AND OBTAIN RESULTS.

1.A. AT THE SAME TIME, ITEMS 2-4-5-6-7 AND 8 OF ATTACHMENT PC-A SHOW THAT SKILL AND EXPERIENCE DID NOT PROVIDE PROPER RESULTS AND THE ACTIONS REFLECT LACK OF PROCEDURE PREPARATION, REVIEW AND UNDERSTANDING.

1.B. WHILE IT MAY APPEAR THIS ISSUE IS ONE OF IMPROPER TEST SCOPE FOR WORK PERFORMED, THE ROOT CAUSE IS PROCEDURE CONTROL AND COMPLIANCE TOGETHER WITH LACK OF CORRECTING PROCEDURE DISCREPANCIES.

2. ITEMS 2-3-5-6 OF ATTACHMENT PC-B REFLECT THE PHILOSOPHY THAT PROCEDURE DETAILS CAN BE REDUCED BASED UPON SKILL AND EXPERIENCE OF THE PERSONNEL.

2.A. ITEMS 2-3-4-5-7 OF ATTACHMENT PC-B INDICATE THAT THE SKILL AND EXPERIENCE AVAILABLE WAS NOT SUFFICIENT TO AVOID NON-COMPLIANCE AND OPERATING VIOLATIONS.

2.B. ITEMS 2-5-8 INDICATE THAT THE TEMPORARY CHANGE PROCESS AND PROCEDURE CORRECTION PROGRAMS ARE NOT EFFECTIVE.

2.C. THE ROOT CAUSE OF PROBLEMS IN ATTACHMENT PC-B ARE VERY SIMILAR OR THE SAME AS IN ATTACHMENT PC-A.

PROCEDURE COMPLIANCE

FOOTNOTES:

3. THE PROCEDURE TO CONTROL CONFINED-SPACE ENTRY LACKS SPECIFIC DIRECTION, APPEARS TO BE MISSING A SECTION COVERING ACCESS CRITERIA "B", REQUIRES JUDGEMENTAL DECISIONS ON CATEGORIZING ALL BUT CATEGORY "A" SPACES, IS NARRATIVE RATHER THAN STEP-BY-STEP. IT HAS DETAILED ATTACHED FORMS BUT LITTLE DIRECTION TO PERSONNEL ABOUT COMPLETING THE FORM.

3.A. ON THE BASIS OF ITS IMPORTANCE IN PREVENTING INJURY OR CASUALTIES, WE STRONGLY RECOMMEND REVIEW AND CORRECTION OF THE PROCEDURE.

3.B. THE ROOT CAUSE OF THE NON-COMPLIANCE IS INADEQUATE PROCEDURE CONTROL, LACK OF EMPHASIS UPON PROCEDURE COMPLIANCE.

RESULTS OF REVIEW - RELATED OPERATING PLANT ISSUES

THIS SECTION CONTAINS ISSUES THAT APPEAR TO HAVE LESS DIRECT IMPACT UPON OPERATING PLANT RELIABILITY AND AVAILABILITY. ALTHOUGH THE TEAM FOUND IT MORE DIFFICULT TO SHOW DIRECT EFFECT THEY HAD NO DOUBT AS TO THE NEED TO ADDRESS THESE ISSUES.

GOALS AND OBJECTIVES

ISSUE: GOALS AND OBJECTIVES ESTABLISHED BY THE NUCLEAR PERFORMANCE PLAN (NPP) ARE NOT VISIBLE AT ALL LEVELS. PLANT SPECIFIC OPERATING PLANT GOALS AND OBJECTIVES ARE NOT ASSIGNED IN A CONSISTENT AND MEASURABLE MANNER.

DESCRIPTION: THE NPP GOALS AND OBJECTIVES ARE PROPERLY WRITTEN IN GLOBAL AND GENERIC LANGUAGE. THESE GOALS AND OBJECTIVES HAVE NOT BEEN TRANSLATED INTO SPECIFIC IMPLEMENTING DIRECTIONS FOR THE ASSIGNED GROUPS AND INDIVIDUALS.

THE LACK OF SPECIFIC IMPLEMENTING DIRECTIONS CONTRIBUTES TO INTERFACE PROBLEMS, MISSED COMMITMENTS, LACK OF ACCOUTABIITY AND UNWANTED SURPRISES TO PLANS AND ASSUMPTIONS.

THE LACK OF DOCUMENTED IMPLEMENTING DIRECTIONS CAN LEAD TO LOSS OF CONTINUITY WHEN ORGANIZATIONAL CHANGES TAKE PLACE.

THE LACK OF SPECIFIC IMPLEMENTING DIRECTIONS INHIBITS ABILITY TO CHANGE WRITTEN DIRECTIONS BASED UPON LESSONS LEARNED, TRENDING RESULTS, NPP REVISIONS, PRIORITIES, ETC. THE BASE REFERENCE FOR ACCOUNTABILITY DOES NOT EXIST.

THE TYPICAL PLANT SPECIFIC GOALS AND OBJECTIVES SUCH AS SCRAM REDUCTION, RADIATION DOSAGE REDUCTION, THERMAL PERFORMANCE, ETC. ARE NOT REDUCED TO SPECIFIC, MEASURED AND UNDERSTOOD RESPONSIBILITIES FOR GROUPS AND INDIVIDUALS.

GOALS AND OBJECTIVES RECOMMENDATIONS

A CORPORATE DIRECTIVE IS NEEDED DESCRIBING THE MINIMUM REQUIREMENTS FOR A GOALS AND OBJECTIVES PROGRAM. THE PROGRAM SCOPE, FORMAT AND ASSIGNED RESPONSIBILITIES SHOULD BE ESTABLISHED.

DURING INITIAL PROGRAM IMPLEMENTATION, THE SITE SHOULD ASSIGN PRIMARY RESPONSIBILITY TO A MANAGER AND STAFF. THE TASK WOULD BE TO ESTABLISH SPECIFIC GOALS AND OBJECTIVES, PERFORMANCE MONITORING METHODS AND REPORTING DEVIATIONS.

OVER A PERIOD OF TIME ESTABLISHED BY THE SITE WITH CORPORATE CONCURRENCE, THE MANAGER AND STAFF WOULD MONITOR AND TREND PERFORMANCE INDICATORS, PROVIDE INPUT TO THE LINE ORGANIZATIONS, ASSIST IN TECHNIQUES, ANALYZE ROOT CAUSE FOR RESULTS AND ENSURE MANAGEMENT AWARENESS.

IT SHOULD BE STRESSED THAT ALTHOUGH THIS SPECIAL TEAM SHOULD NOT EXIST BEYOND A FINITE TIME THE EFFORT IS NOT LIKELY TO SUCCEED BASED UPON EXISTING RESOURCES AND DEMANDS UPON THEM.

PREVENTIVE MAINTENANCE (PM) PROGRAM

ISSUE: NO FORMAL SYSTEMATIC PLAN EXISTS TO ADDRESS HOW SEQUOYAH INTENDS TO DEVELOP A PREVENTIVE MAINTENANCE PROGRAM TO IMPLEMENT VOLUME 2 NPP COMMITMENT. SINCE THIS ACTIVITY IS CONSIDERED A POST RESTART ITEM, IT HAS RECEIVED LITTLE OR NO ATTENTION. LACK OF MANAGEMENT ATTENTION TO THE EXISTING PM PROGRAM COULD RESULT IN NONCOMPLIANCE TO REGULATORY COMMITMENTS.

DESCRIPTION: THE EXISTING PM PROGRAM HAS EVOLVED OVER PLANT LIFE IN REACTION TO EQUIPMENT PERFORMANCE PROBLEMS, REGULATING ISSUES, ETC. CURRENTLY, SEQUOYAH IS COMMITTED TO DEVELOPING AND IMPLEMENTING A COMPREHENSIVE PM PROGRAM.

TO DATE, NO DEFINITIVE FORMAL PROGRAM HAS BEEN DEVELOPED TO MEET THIS NRC COMMITMENT. AS A RESULT, SEVERAL SITUATIONS ARE DEVELOPING OR EXIST WHICH MAY BE INDICATIVE OF OTHER PROBLEMS. SPECIFICALLY:

- CURRENTLY PLANT MAINTENANCE PMS AND SQM-57 APPEAR TO BE IN CONTRADICTION TO OR NOT CONSISTENT WITH SQM-1 AND AI-4.
- THE NUCLEAR QUALITY ASSURANCE MANUAL (NQAM) APPEARS TO BE IN CONTRADICTION TO TECH. SPEC. (TS) 6.8.1 AND REGULATORY GUIDE 1.33.
- NEARLY FIFTY PERCENT OF CANCELLED PMS ARE A RESULT OF A RELUCTANCE TO CHANGE INADEQUATE PROCEDURES.
- PM PROGRAM CHANGES ARE BEING IMPLEMENTED BEFORE GOVERNING APPROVED PROCECEDURES ARE CHANGED, EG. A PM CHANGE PROCESS HAS BEEN IMPLEMENTED BEFORE SQM-57 HAS BEEN REVISED TO REFLECT THE PROCESS. THIS PRACTICE OF NONCOMPLIANCE APPEARS TO BE ACCEPTED BY LOWER PLANT MAINTENANCE MANAGEMENT.

DESCRIPTION: (CONTINUED)

- THE LACK OF PROGRAM PLANNING CURRENTLY LEAVES THE FOLLOWING FUNCTIONS UNANSWERED AND THEIR IMPACT ON THE OPERATING PLANT UNDETERMINED:

  A. THE EXTENT OF MANAGEMENT ATTENTION REQUIRED FOR PROGRAM DEVELOPMENT.

  B. THE EXTENT OF RESOURCES NECESSARY TO DEVELOP THE PROGRAM FROM BOTH THE MAINTENANCE DEPARTMENT AND SUPPORTING OPERATIONS.

PREVENTIVE MAINTENANCE (PM) PROGRAM RECOMMENDATIONS

RESOLVE THE APPARENT PROCEDURAL, TS AND NQAM CONFLICT THROUGH COMPLIANCE AND REVISE THE MAINTENANCE PROGRAM ACCORDINGLY. SINCE TVA EXPECTS SOME STANDARDIZATION OF PM PROGRAMS, CORPORATE LICENSING SHOULD BE INVOLVED TO DEVELOP A UNIFIED POSITION FOR TVA.

- DEVELOP AND RECEIVE APPROVAL FOR A FORMAL SYSTEMATIC PLAN TO DEVELOP PM PROGRAM AT SEQUOYAH WHICH WILL SERVE AS A MODEL FOR THE OTHER TVA PLANTS.

FOSTER A BETTER WORKING LEVEL ATTITUDE TOWARD COMPLIANCE.

- SINCE OUR ORIGINAL DISCUSSION ACTIONS HAVE BEEN TAKEN BY THE MAINTENANCE SUPERINTENDENT TO INSTITUTE A PROGRAM.

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CORPORATE MANAGEMENT STAFFING AND SUPPORT

ISSUE: THERE IS NO STRONG DEDICATED PRESENCE AT THE HEADQUARTERS LEVEL FOR DIRECTING THE IMPROVEMENTS AND MANAGING CHANGES IN MAINTENANCE AND CHEMISTRY PROGRAMS CARRIED OUT AT THE INDIVIDUAL SITES.

DESCRIPTION: WITHIN THE RESPONSIBILITY OF THE DIRECTOR OF NUCLEAR SERVICES IS THE RESPONSIBILITY FOR ESTABLISHING, IMPLEMENTING, AND MAINTAINING PROGRAMS FOR SYSTEMATIC REVIEW AND ASSESSMENT OF TVA NUCLEAR PLANTS IN THE AREAS OF WATER CHEMISTRY AND MAINTENANCE.

AN INDIVIDUAL HAS BEEN HIRED AS THE CORPORATE CHEMISTRY MANAGER. HE HAS BEEN DEDICATED TO SQN TO ESTABLISH A SUCCESSFUL CHEMISTRY PROGRAM. THE COMPLEXITY OF ISSUES RELATED TO THE SQN PROGRAM AND ITS IMPORTANCE TO SUCCESSFUL LONG TERM OPERATION MAY WELL CONSUME HIS AVAILABILITY FOR A NUMBER OF MONTHS. HIS SUSTAINED INVOLVEMENT WITH THE DAY-TO-DAY ACTIVITIES AND THE FRUSTRATION THAT CAN BE GENERATED IN THE CURRENT ENVIRONMENT WILL RENDER HIS EFFECTIVENESS AS A CORPORATE VOICE IN THE CHEMISTRY AREA TO NEAR ZERO. HE IS ACTING MORE AS A PLANT CHEMISTRY MANAGER.

HE SHOULD BE FIRMLY ESTABLISHED AT THE CORPORATE LEVEL TO PROVIDE FOR A CHEMISTRY SUPPORT VOICE IN HEADQUARTERS AND THEREBY MAINTAIN AN AWARENESS AT THE CORPORATE LEVEL THAT MANAGEMENT ATTENTION MUST BE BROUGHT TO BEAR ON THE PERSONNEL STAFFING, TRAINING, AND EQUIPMENT ISSUES WHICH EXIST IN THIS AREA.

IT IS RECOGNIZED THAT A SEARCH IS ON FOR A MAINTENANCE MANAGER. IT IS IMPERATIVE THAT THIS POSITION BE FILLED IMMEDIATELY. FIRST, IT WILL PROVIDE EVIDENCE TO THE OPERATING ENVIRONMENT THAT ONP MANAGEMENT IS MOVING TO CHANGE HOW MAINTENANCE OVERSIGHT IS TO BE CONDUCTED AND

DESCRIPTION: (CONTINUED)

MORE IMPORTANTLY, CONTROLLED AND DIRECTED TO ASSURE SUSTAINED IMPLEMENTATION. SECOND, IT WILL PROVIDE A STRONG VOICE AT THE CORPORATE LEVEL TO ACTIVELY PROMOTE MAINTENANCE SUPPORT FROM OTHER ORGANIZATIONS WHICH PLANT MANAGERS WILL NEED AT AN ACCELERATED PACE TO MAINTAIN PLANT'S OPERATIONAL REALIABILITY. THE PRESENCE OF A STRONG MAINTENANCE VOICE SHOULD ALSO ASSIST IN CHANGING THE EMPHASIS FROM ENGINEERING CONTROL OF THE RESTART EFFORT TO OPERATIONAL CONTROL OF NOT ONLY THE RESTART BUT MORE IMPORTANTLY OF THE POST RESTART PERIOD.

ROOT CAUSE

ISSUE: THE LACK OF ROOT CAUSE ANALYSIS AND ITS LACK OF PRIORITY IN PROBLEM RESOLUTION AT SEQUOYAH IS PERVASIVE.

DESCRIPTION: THE RESISTANCE TO ROOT CAUSE ANALYSIS CAN BE NOTED AT NEARLY ALL LEVELS OF THE ORGANIZATION. DURING REVIEW PRIOR TO ISSUE OF THE ONP DIRECTIVE ON OPERATIONAL READINESS, THE USE OF THE WORDS "ROOT CAUSE" WAS CHANGED TO THE "UNDERLYING CAUSE".

THE WORDS "ROOT CAUSE" DO NOT APPEAR IN THE SEQUOYAH OPERATIONAL READINESS REVIEW PROCEDURE SQA-190 ALTHOUGH A KEY ELEMENT OF THIS PROGRAM IS IDENTIFICATION AND DOCUMENTATION OF CORRECTIVE ACTION ON OUTSTANDING ISSUES.

THE PREVIOUS CAQR PROGRAM DOCUMENTS CONTAIN DOZENS OF INSTANCES OF LACK OF ROOT CAUSE RESPONSE, INADEQUATE RESPONSE, INCORRECT RESPONSE. MOST OF THEM WERE SIGNED OFF EVEN THOUGH THESE ROOT CAUSE INADEQUACIES EXISTED.

THERE ARE MANY LICENSEE EVENT REPORTS WHICH DO NOT INDICATE THE CONDUCT OF ADEQUATE ROOT CAUSE ANALYSIS. THERE IS NO INDICATION THAT THE RELATED CAUSES ARE ANALYZED FOR A MORE BASIC AND COMMON ROOT CAUSE.

THE SEQUENCE OF RECENT SPILL EVENTS ARE SYMPTOMS OF REPEATED PROBLEMS WITHOUT IN-DEPTH ANALYSIS OF CAUSE AND PREVENTIVE MEASURE WITH LONG-TERM IMPACT. THOSE WHO PUT THE NMRG REPORT TOGETHER ON THE SPILL EVENTS ARE AWARE OF THE LACK OF IN-DEPTH ROOT CAUSE ANALYSIS AND APPARENT LACK OF PRIORITY FOR SUCH EFFORT.

THE TEAM NOTED THE EXISTENCE OF PROCEDURES THAT CONTROL ROOT CAUSE ANALYSIS, TRENDING REQUIREMENTS, ORGANIZATIONAL ASSIGNMENTS FOR THESE EFFORTS. IT WAS A CLEAR CONSENSUS THAT THESE PROCESSES AND COMMITMENTS WERE AT A VERY LOW STATE OF ACTIVITY AND PRIORITY.

DESCRIPTION: (CONTINUED)

THE MEMBERS OF THE TEAM THAT HAVE HAD GOOD EXPERIENCE AND RESULTS FROM EFFORTS TOWARD ROOT CAUSE ANALYSIS AND REPORTING INDICATE THAT THERE MUST BE A STATE OF MIND TO PURSUE ROOT CAUSE AND USE IT IN PLANT MANAGEMENT. THAT STATE OF MIND IS NOT EVIDENT AT TVA.

RESULTS OF REVIEW - IMPROVEMENTS AND STRENGTHS

AS A RESULT OF THE CORPORATE OPERATIONAL READINESS REVIEW TEAM EVALUATION, THE FOLLOWING AREAS ARE NOTED AS EVIDENCE OF IMPROVEMENT AND/OR STRENGTH OF ORGANIZATION.

- THE RADIOLOGICAL WORK PERMIT PROGRAM HAS SIGNIFICANTLY IMPROVED THE PERCEPTION OF WORK FORCES REGARDING THE CREDIBILITY OF RADCON PRACTICES AND POLICIES IN THE WORKPLACE.

- THERE IS EVIDENCE OF ALARA SENSITIVITY AND IMPORTANCE IN MAINTENANCE PLANNING BASED UPON EXAMPLES OF WORK PACKAGES PREPARATION.

- THE RADCON DEPARTMENT ACTIONS UPON INPO EVALUATION FINDINGS APPEARS RESPONSIVE AND PROGRESSIVE.

- THE QUALITY INHERENT IN THE SURVEILLANCE INSTRUCTION PROGRAM IS AN IMPROVEMENT.

- THE GENERAL APPEARANCE OF THE SEQUOYAH UNIT 2 POWER BLOCK IS GOOD AND PRESENTS A READY-TO-OPERATE IMAGE.

- THE OPERATIONS STAFFING FOR RESTART AND INITIAL OPERATIONS IS SATISFACTORY AND THE OPERATIONS STAFF IS MOTIVATED TO STARTUP AND OPERATE SEQUOYAH UNIT 2.

- MANAGEMENT OF TVA IS AWARE OF THE EXISTING PROBLEMS AND CHALLENGES TO RESTART AND INITIAL PLANT OPERATING AVAILABILITY.