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Licensee Event Report (LER) Compilation

For month of August 1988

Oak Ridge National Laboratory

Prepared for
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Abstract

This monthly report contains Licensee Event Report (LER) operational information that was processed into the LER data file of the Nuclear Safety Information Center (NSIC) during the one month period identified on the cover of the document. The LERs, from which this information is derived, are submitted to the Nuclear Regulatory Commission (NRC) by nuclear power plant licensees in accordance with federal regulations. Procedures for LER reporting for revisions to those events occurring prior to 1984 are described in NRC Regulatory Guide 1.16 and NUREG-1061, Instructions for Preparation of Data Entry Sheets for Licensee Event Reports. For those events occurring on and after January 1, 1984, LERs are being submitted in accordance with the revised rule contained in Title 10 Part 50.73 of the Code of Federal Regulations (10 CFR 50.73 - Licensee Event Report System) which was published in the Federal Register (Vol. 48, No. 144) on July 26, 1983. NUREG-1022, Licensee Event Report System - Description of Systems and Guidelines for Reporting, provides supporting guidance and information on the revised LER rule.

The LER summaries in this report are arranged alphabetically by facility name and then chronologically by event date for each facility. Component, system, keyword, and component vendor indexes follow the summaries. Vendors are those identified by the utility when the LER form is initiated; the keywords for the component, system, and general keyword indexes are assigned by the computer using correlation tables from the Sequence Coding and Search System. Questions concerning this report or its contents should be directed to

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	<u>Page</u>
Licensee Event Reports.....	1
Component Index.....	126
System Index.....	129
Keyword Index.....	133
Vendor Code Index.....	143

[1] ARKANSAS NUCLEAR 2 DOCKET 50-368 LER 88-007
 UNPLANNED AUTOMATIC ACTUATION OF PLANT PROTECTION SYSTEM DUE TO LOSS OF POWER
 CAUSED BY PERSONNEL ERROR DURING MAINTENANCE ACTIVITIES.
 EVENT DATE: 042388 REPORT DATE: 060388 NSSS: CE TYPE: PWR

(NSIC 209648) ON 4/23/88 AT 1255 HOURS, AN INADVERTENT PLANT PROTECTION SYSTEM (PPS) ACTUATION OCCURRED WHEN A MAINTENANCE TECHNICIAN DEENERGIZED AT 12 VOLT DC POWER SUPPLY TO THE SYSTEM. THE SYSTEM HAD BEEN PARTIALLY DEENERGIZED PRIOR TO THIS OCCURRENCE DUE TO AN UNRELATED MAINTENANCE ACTIVITY ON A 120 VOLT VITAL POWER INVERTER. A REACTOR TRIP SIGNAL AND ALL ENGINEERED SAFETY FEATURES (ESF) ACTUATION SIGNALS WERE GENERATED AS A RESULT OF THE PPS ACTUATION. THE PLANT WAS IN COLD SHUTDOWN WITH A LIMITED AMOUNT OF ESF EQUIPMENT ALIGNED FOR AUTOMATIC OPERATION AT THE TIME OF OCCURRENCE. THE OPERATING LOW PRESSURE SAFETY INJECTION (LPSI) PUMP BEING USED FOR DECAY HEAT REMOVAL (DHR) FLOW TRIPPED AUTOMATICALLY CAUSING A TEMPORARY LOSS OF DHR. THE PUMP WAS RESTARTED AND DHR REESTABLISHED WITHIN FIVE MINUTES OF THE INITIATING EVENT. NO SIGNIFICANT HEATUP OCCURRED DURING THE TIME THAT FLOW WAS INTERRUPTED. THE EMERGENCY DIESEL GENERATORS (EDGS) STARTED AND OPERATED IN A RUNNING STANDBY CONDITION FOR A SHORT PERIOD OF TIME AND WERE THEN SECURED. OTHER ESF EQUIPMENT ALIGNED FOR AUTOMATIC OPERATION ACTUATED AS DESIGNED. THE PPS POWER SUPPLY WAS REENERGIZED AND THE ACTUATION SIGNALS WERE CLEARED. THE CAUSE OF THE ACTUATION WAS DETERMINED TO BE A COGNITIVE PERSONNEL ERROR ON THE PART OF THE MAINTENANCE TECHNICIAN.

[2] ARKANSAS NUCLEAR 2 DOCKET 50-368 LER 88-009
 CONTROL ELEMENT ASSEMBLY DROP TIME EXCEEDED THAT ALLOWED BY TECH SPECS AND
 ASSUMED BY SAFETY ANALYSES DUE TO INCORRECT TESTING METHOD.
 EVENT DATE: 050388 REPORT DATE: 060688 NSSS: CE TYPE: PWR
 VENDOR: COMBUSTION ENGINEERING, INC.

(NSIC 209650) ON 5/1/88, WHILE IN MODE 3 OPERATION FOLLOWING THE SIXTH REFUELING OUTAGE, CONTROL ELEMENT ASSEMBLY (CEA) DROP TIME TESTING WAS CONDUCTED WHICH INDICATED THAT THE ALLOWABLE TECH SPEC TIME LIMIT FOR CEA INSERTION WAS NOT MET FOR CERTAIN CEAS. SINCE A NEW TEST METHOD WAS BEING USED FOR MEASURING DROP TIMES, EVALUATION OF THE TEST METHOD AND ADDITIONAL TESTING WAS PERFORMED. ON 5/3/88, IT WAS CONCLUDED THAT THE DROP TIMES MEASURED ON 5/1/88 WERE VALID. THE CAUSE WAS DETERMINED TO BE A DEFICIENCY IN THE METHOD FOR PERFORMING CEA DROP TIME TESTING USED FOR PREVIOUS CYCLES. PREVIOUS TESTS HAD NOT ACCURATELY REFLECTED THE ACTUAL CEA DROP TIME ASSOCIATED WITH A REACTOR TRIP. AN INHERENT TIME DELAY FACTOR CAUSED BY THE DESIGN OF THE ELECTRICAL SYSTEM FOR THE CEA DRIVE MECHANISMS WAS NOT RECOGNIZED OR ACCOUNTED FOR DURING THE DEVELOPMENT AND IMPLEMENTATION OF THE PROCEDURE SPECIFYING THE TEST METHOD TO BE USED TO MEASURE CEA DROP TIMES. ARKANSAS NUCLEAR ONE, UNIT 2 (ANO-2) DESIGN BASIS ACCIDENT ANALYSES WERE REVIEWED TO DETERMINE THE IMPACT OF THE INCREASED CEA DROP TIME ON CYCLE 7 OPERATION. THESE REVIEWS CONCLUDED THAT THE ANALYSES WERE CONSERVATIVE WITH THE EXCEPTION OF TWO EVENTS THE CORE PROTECTION CALCULATORS DNER POWER UNCERTAINTY MULTIPLIER WAS CONSERVATIVELY INCREASED.

[3] ARKANSAS NUCLEAR 2 DOCKET 50-368 LER 88-008 REV 01
 UPDATE ON LOSS OF REACTOR COOLANT SYSTEM NORMAL MAKEUP/EMERGENCY BORATION
 CAPABILITY DUE TO GAS BINDING OF CHARGING PUMPS CAUSED BY ERRNEOUS VOLUME CONTROL
 TANK WATER LEVEL INDICATION.
 EVENT DATE: 050488 REPORT DATE: 061788 NSSS: CE TYPE: PWR

(NSIC 209651) ON 5/4/88 AT 1010 HOURS, WITH THE UNIT IN HOT STANDBY FOLLOWING A REFUELING OUTAGE, A LOSS OF ALL REACTOR COOLANT SYSTEMS (RCS) NORMAL MAKEUP/EMERGENCY BORATION CAPABILITY OCCURRED. AN ERRONEOUS INDICATION OF WATER LEVEL IN THE VOLUME CONTROL TANK (VCT) ALLOWED THE VCT TO BE PUMPED DRY WHICH RESULTED IN A LOSS OF SUCTION AND GAS BINDING OF THE CHEMICAL AND VOLUME CONTROL SYSTEM (CVCS) CHARGING PUMPS AND SYSTEM PIPING. NORMAL MAKEUP/EMERGENCY BORATION

CAPABILITY WAS FULLY RESTORED AT 1420 HOURS. BY 1530 HOURS THE VCT WAS REFILLED AND THE CVCS RETURNED TO NORMAL OPERATION. THE ERRONEOUS WATER LEVEL INDICATION WAS CAUSED BY A LEAK ON A THREADED FITTING FOR ONE OF TWO REDUNDANT VCT WATER LEVEL TRANSMITTERS. THE LEAK ALLOWED THE TRANSMITTER'S COMMON REFERENCE LEG TO DRAIN RESULTING IN AN INDICATED VCT WATER LEVEL HIGHER THAN ACTUAL WATER LEVEL. NO EQUIPMENT DAMAGE OCCURRED AND RCS INVENTORY AND BORON CONCENTRATION WERE MAINTAINED THROUGHOUT THE EVENT. BOTH VCT WATER LEVEL TRANSMITTERS, 2LT-4857 AND 2LT-4861, HAD BEEN REPLACED DURING THE OUTAGE. NO SEALANT HAD BEEN USED ON THE TRANSMITTERS' THREADED FITTINGS AND NO LEAK CHECK WAS PERFORMED FOLLOWING REPLACEMENT OF 2LT-4857 AND PRIOR TO PLACING THE INSTRUMENT IN SERVICE.

[4] ARKANSAS NUCLEAR 2 DOCKET 50-368 LER 88-010
LEAK IN THE COMMON REFERENCE LEG FOR SAFETY INJECTION TANK "D" WATER LEVEL
TRANSMITTERS FOLLOWING SYSTEM MODIFICATION RESULTS IN VIOLATION OF TECH SPEC.
EVENT DATE: 052588 REPORT DATE: 062988 NSSS: CE TYPE: P&R

(NSIC 209850) ON MAY 25, 1988 FROM 0417 HOURS UNTIL MAY 26 AT 0356 HOURS, SAFETY INJECTION TANK (SIT) "D" WAS INOPERABLE DUE TO A WATER LEVEL LESS THAN THAT REQUIRED BY TECH SPECS. THIS WAS DISCOVERED FOLLOWING THE IDENTIFICATION AND REPAIR OF A LEAK ON THE COMMON REFERENCE LEG FOR THE NARROW RANGE (NR) WATER LEVEL INSTRUMENTS FOR THE "D" SIT. THE LEAK CAUSED AN ERRONEOUS WATER LEVEL INDICATION AND RESULTED IN THE CONTROL ROOM OPERATORS INADVERTENTLY DECREASING THE TANK LEVEL BELOW TECH SPEC REQUIREMENTS. THE CAUSE OF THE LEAK WAS A LACK OF DETAIL IN THE PLANT'S MODIFICATION PROCESS RELATED TO PROPER METHODS FOR CONNECTING AND LEAK TESTING FITTINGS ASSOCIATED WITH WATER LEVEL TRANSMITTERS AND TUBING. PROCEDURES ARE BEING REVISED TO INCLUDE ADDITIONAL INSTRUCTIONS FOR CONNECTING INSTRUMENT AND TUBING FITTINGS AND LEAK TESTING. THE TOTAL VOLUME OF BORATED WATER AVAILABLE IN THE SITS WAS NOT DECREASED BELOW THE VALUE ASSUMED IN THE SAFETY ANALYSIS DURING THIS EVENT. THERE WERE NO ADVERSE SAFETY CONSEQUENCES AS A RESULT OF THIS EVENT.

[5] ARNOLD DOCKET 50-331 LER 88-005
PREMATURE TERMINATION OF FIRE WATCH DUE TO INADEQUATE POST-MAINTENANCE TESTING.
EVENT DATE: 052788 REPORT DATE: 062788 NSSS: GE TYPE: BWR
VENDOR: CARDOX CORP.

(NSIC 209734) ON MAY 27, 1988 AT 1430 HOURS THE PLANT WAS OPERATING AT 100% POWER, WHEN MAINTENANCE ACTIVITIES ON PSV 8522A (PILOT CONTROL VALVE FOR FIRE SUPPRESSION CARBON DIOXIDE INJECTION TO THE CABLE SPREADING ROOM) WERE COMPLETED. THE CONTINUOUS FIRE WATCH, WHICH WAS IN PLACE ON THE CABLE SPREADING ROOM, WAS SECURED WHEN THE CABLE SPREADING ROOM FIRE SUPPRESSION SYSTEM WAS RETURNED TO SERVICE. DURING FOLLOW-UP REVIEW OF THE MAINTENANCE DOCUMENTATION, IT WAS DETERMINED THAT THE POST-MAINTENANCE TESTING WAS INADEQUATE TO ENSURE THAT THE SOLENOID VALVE WOULD OPERATE AUTOMATICALLY AS DESIGNED. THE FIRE WATCH FOR THE CABLE SPREADING ROOM WAS RE-ESTABLISHED AT 1550 HOURS ON THE SAME DAY. FOLLOW-UP TESTING FOUND THE SOLENOID VALVE FAILED TO CYCLE IN THE MANNER REQUIRED BY THE SURVEILLANCE TEST PROCEDURE. INOPERABILITY OF CABLE SPREADING ROOM FIRE SUPPRESSION SYSTEM WITHOUT A TIMELY COMPENSATORY CONTINUOUS FIRE WATCH IS A CONDITION PROHIBITED BY PLANT TECH SPECS. MAINTENANCE ACTIVITIES WERE COMPLETED ON MAY 28 AND THE CABLE SPREADING ROOM FIRE SUPPRESSION SYSTEM TESTED SUCCESSFULLY AND RESTORED TO NORMAL SERVICE AT 1130 HOURS. A DEPARTMENTAL INSTRUCTION IS BEING DEVELOPED TO PROVIDE IMPROVED GUIDANCE ON POST-MAINTENANCE TESTING REQUIREMENTS. THERE WAS NO AFFECT ON PUBLIC HEALTH AND SAFETY AS A RESULT OF THIS EVENT.

[6] BEAVER VALLEY 1 DOCKET 50-334 LER 88-011
 THERMAL SHIELD BOLT REPLACEMENT.
 EVENT DATE: 010388 REPORT DATE: 070188 NSSS: WE TYPE: PWR
 VENDOR: WESTINGHOUSE ELEC CORP.-NUCLEAR ENERGY SYS

(NSIC 209738) ON 1/3/88, WITH THE UNIT IN THE SIXTH REFUELING OUTAGE, DESIGN CHANGE PACKAGE (DCP) 798 "UPFLOW CONVERSION" WAS INITIATED. DURING THE INITIAL ACTIVITIES, ONE OF THE TWELVE BOLTS WHICH SECURE THE THERMAL SHIELD TO THE LOWER CORE BARREL WAS FOUND SEVERED, WITH THE THREADED PORTION OF THE BOLT EXTENDING THROUGH THE LOWER COR BARREL. THE BOLT WAS REMOVED AND WAS SUBSEQUENTLY EXAMINED BY AN OFFSITE VENDOR. THE CAUSE FOR FAILURE WAS IDENTIFIED BY THE VENDOR TO BE TRANSGRANULAR FRACTURE, HOWEVER THERE WERE NO FATIGUE STRIATIONS OBSERVED. THE FATIGUE STRIATIONS MAY HAVE BEEN REMOVE DURING THE EXAMINATION PREPARATION. DCP 878 "THERMAL SHIELD BOLT REPLACEMENT" WAS DEVELOPED TO REMOVE AND REPLACE THE BROKEN BOLT. A REPLACEMENT BOLT OF THE SAME MATERIAL AND A SIMILAR DESIGN WAS USED. THE REPAIR WAS PERFORMED BY A CONTRACTED TEAM OF UNDERWATER DIVERS WITH THE CORE BARREL LIFTED OUT OF THE REACTOR. ULTRASONIC TESTING WAS PERFORMED ON THE OTHER 11 BOLTS WITH NO FATIGUE STRIATION INDICATIONS OBSERVED. THERE WERE MINIMAL SAFETY IMPLICATIONS AS A RESULT OF THIS EVENT. THE REMAINING 11 BOLTS MAINTAINED THE CORE BARREL IN ITS PROPER ORIENTATION DURING THE PERIOD BETWEEN FAILURE AND REMOVAL. ADDITIONALLY, THE BOLT WAS PREVIOUSLY IDENTIFIED AS A LOOSE PART, FOR WHICH THE NSSS VENDOR HAD PREVIOUSLY PROVIDED SAFETY EVALUATIONS FOR CONTINUED OPERATION.

[7] BEAVER VALLEY 1 DOCKET 50-334 LER 88-003 REV 01
 UPDATE ON INADVERTENT START OF AUXILIARY FEEDWATER PUMP DUE TO PROCEDURAL DEFICIENCY.
 EVENT DATE: 022588 REPORT DATE: 051888 NSSS: WE TYPE: PWR

(NSIC 209484) ON 2/25/86, WITH THE UNIT IN HOT STANDBY, SURVEILLANCE TESTING OF THE STEAM-DRIVEN AUXILIARY FEEDWATER PUMP (FW-P-2) WAS BEING CONDUCTED. THE TEST INCLUDED TESTING OF THE INLET STEAM SUPPLY VALVES FROM THE EMERGENCY SHUTDOWN PANEL (ESP). THE INLET VALVES WERE STROKED AND FW-P-2 WAS SHUTDOWN. CONTROL OF THE VALVES WAS THEN TRANSFERRED TO THE CONTROL ROOM. DURING THE TRANSFER A MOMENTARY LOSS OF POWER OCCURRED IN THE CIRCUITRY FOR THE INLET STEAM SUPPLY VALVES. THIS INITIATED A START DEMAND SIGNAL FOR FW-P-2, HOWEVER THE PUMP WOULD NOT START BECAUSE IT WAS PREVIOUSLY SHUTDOWN AND IT WAS NOT LATCHED. AN ADDITIONAL START SIGNAL FOR THE MOTOR-DRIVEN AUXILIARY FEEDWATER PUMPS (FW-P-3A,3B) WAS GENERATED WHEN FW-P-2 FAILED TO DEVELOP THE REQUIRED DISCHARGE PRESSURE AFTER 10 SECONDS. FW-P-3B STARTED, HOWEVER FW-P-3A DID NOT START. FW-P-3B WAS IMMEDIATELY SHUTDOWN. THE CAUSE FOR THE START OF FW-P-3B WAS DUE TO A PROCEDURAL DEFICIENCY IN THE SURVEILLANCE TEST. THE PROCEDURE WAS REVISED TO TRANSFER STEAM INLET VALVE CONTROL WITH THE VALVES OPEN. THE FAILURE OF FW-P-3A TO START WAS DUE TO A MOMENTARY STICKING OF A PRESSURE SWITCH. THE PRESSURE SWITCH WAS RETESTED SATISFACTORILY. THERE WERE NO SAFETY IMPLICATIONS TO THE PUBLIC AS A RESULT OF THIS EVENT. THE MOTOR-DRIVEN AUXILIARY FEEDWATER PUMPS ARE DESIGNED TO START UPON DEGRADED STEAM-DRIVEN PUMP OPERATION (UFSAR SECT. 10.3.5.2.2).

[8] BEAVER VALLEY 1 DOCKET 50-334 LER 88-005 REV 01
 UPDATE ON CONTAINMENT ISOLATION VALVES OMISSION FROM SURVEILLANCE TESTING.
 EVENT DATE: 040588 REPORT DATE: 051988 NSSS: WE TYPE: PWR
 VENDOR: MASONILAN INTERNATIONAL, INC.

(NSIC 209531) ON 4/5/88, A REVISION OF THE TRAIN B CONTAINMENT ISOLATION VALVE TRIP TEST WAS BEING PREPARED IN ORDER TO CORRECT TYPOGRAPHICAL ERRORS. DURING THE PRE-REVISION REVIEW, IT WAS DISCOVERED THAT THERE WERE THREE FIRE PROTECTION VALVES WHICH RECEIVED A TRAIN B CONTAINMENT ISOLATION PHASE A (CIA) SIGNAL TO CLOSE WHICH WERE NOT INCLUDED IN THIS TEST. A PROCEDURE REVISION WAS IMMEDIATELY

INITIATED TO INCLUDE THESE VALVES IN THIS TEST. A SPECIAL PROCEDURE WAS INITIATED TO VERIFY THESE VALVES WILL STROKE CLOSED UPON RECEIVING A CIA SIGNAL. ADDITIONAL REVIEW VERIFIED THAT ALL OTHER CIA VALVES WERE FULLY TESTED. THE THREE VALVES WERE VERIFIED TO BE IN THE QUARTERLY STROKE TEST VERIFYING MANUAL OPERABILITY AND ABILITY TO STROKE. INVESTIGATION DETERMINED THAT VALVES WERE, WHEN INSTALLED IN 1982, CORRECTLY ADDED TO THE TECHNICAL SPECIFICATIONS REQUIRING TESTING. THE VALVES WERE NOT ADDED TO THE TESTING PROGRAM DUE TO PERSONNEL ERROR BY THE INVOLVED PROCEDURE ENGINEER. SINCE 1982, BEAVER VALLEY HAS INITIATED A FORMAL, STRUCTURED, PRE-DESIGN CHANGE PROCEDURE REVIEW TO INSURE THAT ALL PROCEDURE CHANGES REQUIRED BY A DESIGN CHANGE ARE PERFORMED. THERE WERE MINIMAL SAFETY IMPLICATIONS DUE TO THIS EVENT AS THE VALVES WERE TESTED TO VERIFY MANUAL OPERABILITY THROUGHOUT THIS EVENT AND WERE NORMALLY MAINTAINED IN A CLOSED/FAIL-SAFE POSITION.

[9] BEAVER VALLEY 1 DOCKET 50-334 LER 88-006
 ESP ACTUATION DUE TO THE INADVERTENT ENERGIZATION OF SLAVE RELAY K643B.
 EVENT DATE: 051988 REPORT DATE: 062088 NSSS: WE TYPE: PWR

(NSIC 209736) ON MAY 19, 1988, AT 0545 HOURS, WITH THE PLANT AT 100% REACTOR POWER, AN INADVERTENT ACTUATION OF SLAVE RELAY K643B OCCURRED CAUSING A PARTIAL TRAIN 'B' ESP ACTUATION OF THE CONTAINMENT DEPRESSURIZATION SYSTEM. THE ACTUATION OCCURRED WHEN A GROUND WAS INTRODUCED INTO THE SOLID STATE PROTECTION SYSTEM WHILE ELECTRICIANS WERE PERFORMING MAINTENANCE ON THE 'B' QUENCH SPRAY PUMP DISCHARGE VALVE. AN ACTUAL CONTAINMENT SPRAY DID NOT OCCUR DUE TO SPECIFIC PLANT CONFIGURATION. A WIRING CHANGE TO THE VALVE'S POSITION CONTACTS WILL BE EVALUATED TO PREVENT A REOCCURRENCE. THERE WERE NO SAFETY IMPLICATIONS RESULTING FROM THIS EVENT BECAUSE THE CONTAINMENT DEPRESSURIZATION SYSTEM TRAIN 'A' WAS AVAILABLE AT ALL TIMES TO MITIGATE THE CONSEQUENCES OF ANY ACCIDENT THAT MAY HAVE OCCURRED AND NO ACTUAL CONTAINMENT SPRAY OCCURRED. ALSO, ALL CONTAINMENT CONDITIONS WERE NORMAL.

[10] BEAVER VALLEY 2 DOCKET 50-412 LER 88-006 REV 01
 UPDATE ON 2 OF 4 REFUELING WATER STORAGE TANK LEVEL CHANNELS INOPERABLE.
 EVENT DATE: 022188 REPORT DATE: 051988 NSSS: WE TYPE: PWR
 VENDOR: ROSEMOUNT, INC.

(NSIC 209488) ON 2/21/88, AT 0850 HOURS, OPERATORS RECEIVED CONTROL ROOM INDICATION THAT THE "C" REFUELING WATER STORAGE TANK (RWST) LEVEL TRANSMITTER WAS INDICATING A LOW-LOW LEVEL. OPERATORS IMMEDIATELY VERIFIED THAT THE OTHER TRANSMITTERS WERE INDICATING NORMAL LEVEL. INVESTIGATION DETERMINED THAT THE TRANSMITTER'S SENSING LINES WERE FROZEN, EVEN THOUGH ITS ASSOCIATED HEAT TRACING WAS ENERGIZED. MAINTENANCE THAWED THE FROZEN LINE WITH A PORTABLE HEATER. AS A PRECAUTIONARY MEASURE, A TENT WAS ERECTED AROUND THE LEVEL TRANSMITTERS AND THE PORTABLE HEATER WAS PLACED IN THE TENT. AT 1630, THE "A" TRANSMITTER AGAIN FROZE, INDICATING LOW-LOW LEVEL. INVESTIGATION DETERMINED THAT THE TENT/PORTABLE HEATER HAD RAISED THE LOCAL TEMPERATURE TO THE POINT WHERE THE THERMOSTAT'S FOR THE "A" AND "C" TRANSMITTERS HAD DEENERGIZED THEIR HEAT TRACING. AT 1726, THE SETPOINTS FOR THESE THERMOSTATS WERE RAISED, RE-ENERGIZING THE HEAT TRACE. AT 1722, BEFORE THE RE-ENERGIZED HEAT TRACING COULD BE EFFECTIVE, THE SENSING LINES FOR THE "A" TRANSMITTER FROZE, CAUSING THE TRANSMITTER TO FAIL LOW. AT 1743, THE "A" TRANSMITTER THAWED. ENGINEERING IS INVESTIGATING IMPROVEMENTS IN THE HEAT TRACING FOR THESE SENSING LINES. THERE WERE NO SAFETY IMPLICATIONS DUE TO THIS EVENT, AS THE OTHER TWO TRANSMITTERS WERE FULLY OPERABLE.

[11] BEAVER VALLEY 2 DOCKET 50-412 LER 88-007 REV 01
 UPDATE ON REACTOR TRIP DUE TO REACTOR COOLANT PUMP TRIP CAUSED BY A LOSS OF 4KV BUS 2A MOTOR LOADS.
 EVENT DATE: 040488 REPORT DATE: 052388 NSSS: WE TYPE: PWR

VENDOR: WESTINGHOUSE ELEC CORP.-NUCLEAR ENERGY SYS

(NSIC 209541) ON 4/4/88 AT 0800 HOURS, WITH THE UNIT IN POWER OPERATION AT 100% REACTOR POWER, A SURVEILLANCE TEST OF THE 4KV AND 480VAC NORMAL 1 BUS UNDERVOLTAGE (UV) PROTECTION WAS INITIATED. THIS TESTING INVOLVES USING A BLOCKING RELAY IN THE UV CIRCUITRY WHILE TESTING THE UV PROTECTION RELAYS. DURING TESTING OF THE 2A 4KV BUS, ACTUATION OF THE UNDERVOLTAGE RELAYS OCCURRED CAUSING A LOSS OF 2A 4KV BUS MOTOR LOADS. THIS CAUSED THE "A" REACTOR COOLANT PUMP TO TRIP INITIATING A REACTOR TRIP, AT 0847 HOURS, DUE TO THE LOW FLOW IN THAT COOLANT LOOP. THE OPERATORS STABILIZED THE PLANT IN HOT STANDBY USING THE EMERGENCY OPERATING PROCEDURE. THE CAUSE FOR THE UV PROTECTION RELAY ACTUATIONS WAS DETERMINED TO BE A MALFUNCTIONING BLOCKING RELAY. THE CONTACT SPACING WAS FOUND TO BE OUT OF ADJUSTMENT CAUSING IMPROPER OPERATION. THIS RELAY WAS ADJUSTED AND CALIBRATED USING A RELAY CALIBRATION PROCEDURE. THE UNDERVOLTAGE PROTECTION SURVEILLANCE TEST WAS PERFORMED SATISFACTORILY AND THE RELAY WAS RETURNED TO SERVICE. THERE WERE NO SAFETY IMPLICATIONS TO THE PUBLIC AS A RESULT OF THIS INCIDENT. THE UNDERVOLTAGE PROTECTION IS DESIGNED TO SHED THE LOADS ON THE RESPECTIVE BUS BEFORE ANY DAMAGE TO THE LOADS ARE RECEIVED DUE TO THE OPERATION AT A REDUCED VOLTAGE. THIS TYPE OF EVENT IS DISCUSSED IN THE FINAL SAFETY ANALYSIS REPORT, SECTION 8.3.1.1.11.

[12] BIG ROCK POINT DOCKET 50-155 LER 88-004
POTENTIAL PROBLEM IN INTERPRETING LIMITORQUE OPERATOR LUBRICANT INFORMATION.
EVENT DATE: 053188 REPORT DATE: 061788 NSSS: GE TYPE: BWR
VENDOR: LABOUR CO.

(NSIC 209589) THIS REPORT IS WRITTEN TO INFORM OTHER LICENSEES OF A POTENTIAL PROBLEM IN INTERPRETING LIMITORQUE LUBRICATION INFORMATION WHEN CONDUCTING VALVE OVERHAULS. DURING A RECENT NRC INSPECTION, A CONCERN WAS RAISED THAT A MOTOR OPERATED VALVE (MOV) OVERHAUL PROCEDURE DID NOT SPECIFY THE LUBRICANT FOR USE IN THE LIMIT SWITCH ASSEMBLY. LIMITORQUE MANUALS RECOMMEND A DIFFERENT LUBRICANT FOR THE LIMIT SWITCH ASSEMBLY (BEACON 325 OR MOBIL 28) THAN THE MAIN GEAR BOX (NEBULA EP-0). FURTHER REVIEW OF MAINTENANCE RECORDS SHOWED THAT NEBULA EP-0 HAD BEEN USED IN THE LIMIT SWITCH ASSEMBLY ON THREE QUALIFIED VALVE OPERATORS. SINCE THE PLANT WAS IN A REFUELING OUTAGE, THE LUBRICANT IN THE AFFECTED VALVES WAS IMMEDIATELY CHANGED TO MOBIL 28. SUBSEQUENT ENGINEERING EVALUATION CONCLUDED THAT NEBULA EP-0 WAS ACCEPTABLE FOR USE IN THE LIMIT SWITCH ASSEMBLY UNDER BIG ROCK POINT ENVIRONMENTAL CONDITIONS.

[13] BRAIDWOOD 2 DOCKET 50-457 LER 88-008 REV 01
UPDATE ON INADEQUATE CAPACITOR CONNECTION RESULTS IN DEGRADED INSTRUMENT BUS VOLTAGE AND SUBSEQUENT REACTOR TRIP.
EVENT DATE: 022088 REPORT DATE: 051988 NSSS: WE TYPE: PWR
VENDOR: GENERAL ELECTRIC CO.

(NSIC 209680) AT 0626 ON FEBRUARY 20, 1988, DURING THE PERFORMANCE OF STARTUP TEST BWSU RD-70, THERE WAS A LOSS OF POWER TO INSTRUMENT BUS 212. THIS RESULTED IN A REACTOR TRIP SIGNAL BEING GENERATED, AND CAUSED THE REACTOR TRIP BREAKERS TO OPEN. THIS LOSS OF POWER ALSO CAUSED A BORON DILUTION PROTECTION SYSTEM ACTUATION. AN EQUIPMENT OPERATOR WAS SENT TO THE BUS AND HE RE-ENERGIZED IT FROM ITS CONSTANT VOLTAGE TRANSFORMER. ACTION TO PREVENT RECURRANCE WILL BE TO CONDUCT AN INSPECTION OF ALL "FAST-ON-CONNECTORS" FOR HEAT DAMAGE TO THE SAME CONNECTIONS FOR EACH INVERTER ON BOTH UNITS. THERE HAVE BEEN NO PREVIOUS OCCURRENCES.

[14] BRAIDWOOD 2 DOCKET 50-457 LER 88-009
MANUAL REACTOR TRIP DUE TO INOPERABLE ROD CONTROL SYSTEM.
EVENT DATE: 053088 REPORT DATE: 061488 NSSS: WE TYPE: PWR
VENDOR: WESTINGHOUSE ELECTRIC CORP.

(NSIC 209768) AT 0348 ON MAY 30, 1988, WHILE WITHDRAWING CONTROL BANK RODS, AN URGENT AND NON-URGENT ALARM OCCURRED FOLLOWED BY THE RELEASE OF RODS IN SHUTDOWN BANKS C, D, E, AND GROUP 2 RODS IN SHUTDOWN BANK A AND CONTROL BANKS A AND C. AT 0406 THE REACTOR WAS MANUALLY TRIPPED. THE ROOT CAUSE OF THIS EVENT WAS THE FAILURE OF A MISCELLANEOUS ELECTRIC ROOM (MER) VENTILATION FAN. THIS FAILURE CAUSED THE TEMPERATURE OF THE ROD CONTROL POWER CABINETS TO INCREASE TO THE THERMAL OVERLOAD PROTECTION SETPOINT. ACTUATION OF THE THERMAL OVERLOAD PROTECTION DE-ENERGIZED THE POWER SUPPLIES WHICH RESULTED IN THE RODS BEING RELEASED. TEMPORARY COOLING FANS WERE INSTALLED IN THE MER UNTIL THE VENTILATION FAN REPAIRS WERE COMPLETED. PROCEDURAL REVISIONS ARE BEING PROCESSED TO SPECIFY THE PERSONNEL TO BE NOTIFIED SHOULD THE VENTILATION SYSTEM BECOME INOPERABLE. THIS SHOULD ALLOW APPROPRIATE ACTIONS TO BE TAKEN IN A TIMELY MANNER TO MAINTAIN MER AMBIENT TEMPERATURE WITHIN THE LIMITS OF THE POWER SUPPLIES. ADDITIONALLY, AN ANALYSIS AND EVALUATION OF THE MER VENTILATION SYSTEM TO VERIFY ITS ADEQUACY IN COOLING DURING THE SUMMER MONTHS WILL BE PERFORMED. THERE HAVE BEEN NO PREVIOUS OCCURRENCES.

[15] BRAIDWOOD 2 DOCKET 50-457 LER 88-010
 MISSING SURVEILLANCE DOCUMENTATION DUE TO PERSONNEL ERROR.
 EVENT DATE: 053188 REPORT DATE: 062388 NSSS: WE TYPE: PWR

(NSIC 209769) AT 0800 ON MAY 31, 1988, IT WAS DISCOVERED THAT THE DOCUMENTATION FOR THE PERFORMANCE OF SURVEILLANCE 2BWOS 8.2.1.1-1 UNIT 2 DC BUS TRAIN OPERABILITY WEEKLY SURVEILLANCE COULD NOT BE LOCATED. A THOROUGH SEARCH OF THE SHIFT ENGINEER'S OFFICE AND CONTROL ROOM WAS IMMEDIATELY CONDUCTED. HOWEVER, THE ONLY EVIDENCE THAT COULD BE FOUND THAT INDICATED THAT THE SURVEILLANCE WAS COMPLETED WAS THE GENERAL SURVEILLANCE PROGRAM ENTRY. THE SURVEILLANCE WAS PERFORMED AT 2050 ON MAY 31, 1988, WITH SATISFACTORY RESULTS. THIS EVENT WILL BE REVIEWED WITH THE OPERATING STAFF. THERE HAVE BEEN NO PREVIOUS OCCURRENCES.

[16] BROWNS FERRY 1 DOCKET 50-259 LER 88-015
 FAILURE TO MONITOR OFF-GAS STACK EFFLUENTS DUE TO PROCEDURAL INADEQUACY AND PERSONNEL ERROR.
 EVENT DATE: 050888 REPORT DATE: 060388 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: BROWNS FERRY 2 (BWR)
 BROWNS FERRY 3 (BWR)

(NSIC 209600) ON MAY 8, 1988, AT 1856 HOURS, WITH ALL THREE UNITS DEFUELED, CHEMISTRY LABORATORY PERSONNEL DISCOVERED THAT THE POWER WAS OFF TO THE OFF-GAS STACK LIGHTING WHICH PROVIDED POWER TO THE RADIOACTIVE GASEOUS STACK EFFLUENT TEMPORARY MONITORING SYSTEM. THE POWER WAS LOST FROM 1345 HOURS TO 1906 HOURS ON MAY 8, 1988, DUE TO THE PERFORMANCE OF SPECIAL TEST 88-17, DIESEL GENERATOR B EMERGENCY LOAD ACCEPTANCE TEST. THE NORMAL OFF-GAS STACK RADIATION MONITORS HAD BEEN DECLARED INOPERABLE PRIOR TO THIS EVENT AND TEMPORARY CONTINUOUS MONITORING HAD BEEN ESTABLISHED UNDER SURVEILLANCE INSTRUCTION (SI) 4.8.B.1.A.2, EFFLUENT RELEASE RATE BY MANUAL SAMPLING - UNIT 0. THIS PROCEDURE DID NOT COMPLY WITH THE REQUIREMENT FOR TEMPORARY ALTERATIONS TO HAVE A SYSTEM STATUS CHANGE DOCUMENTED IN THE SHIFT OPERATIONS SUPERVISORS'S OFFICE WHILE THE TEMPORARY CONDITION IS ESTABLISHED. DURING THE LOSS OF POWER AT THE STACK THE 4-HOUR SAMPLE FLOW CHECK, REQUIRED BY THE PLANT'S TECH SPECS WAS MISSED. THE FAILURE TO PERFORM THE SAMPLE FLOW CHECK HAS BEEN ATTRIBUTED TO PERSONNEL ERROR. THIS COMBINATION OF THE PROCEDURE DEFICIENCIES OF SI 4.8.B.1.A.2 AND THE PERSONNEL ERROR CAUSED THE UNMONITORED FLOW OF RADIOACTIVE GASEOUS STACK EFFLUENTS FOR 5 HOURS AND 21 MINUTES.

LONG-TERM PRESENCE OF WATER IN THE CONTAINMENT SPRAY HEADER THAT PROMPTED THE INVESTIGATIONS AND INSPECTIONS THAT REVEALED TWO SPRAY NOZZLES WITH 20 PERCENT OF THEIR SPARGER HOLES CLOGGED WITH RUST PARTICLES AND LOOSE RUST IN THE UNIT 2 LOWER CONTAINMENT SPRAY HEADER. ON MAY 27, 1988, IT WAS DETERMINED THAT THE RUST IN THE HEADER HAD THE POTENTIAL OF DEGRADING THE CONTAINMENT SPRAY FUNCTION OF THE RHR SYSTEM ON UNIT 2. LEAKING ISOLATION VALVES AND THE EXTENDED OUTAGE IS THE CAUSE OF RUST IN THE HEADER. THE IMMEDIATE CORRECTIVE ACTION WAS TO STOP THE PERFORMANCE OF THE HYDROSTATIC PRESSURE TEST, DEPRESSURIZE THE SYSTEM AND DRAIN THE LOWER CONTAINMENT SPRAY HEADER. VISUAL INSPECTIONS WERE PERFORMED ON THE UNITS 1, 2, AND 3 CONTAINMENT SPRAY HEADERS. THESE INSPECTIONS HAVE IDENTIFIED A 170 DEGREE CIRCUMFERENCE OF THE UNIT 2 LOWER CONTAINMENT SPRAY HEADER AS THE ONLY PROBLEM AREA.

[20] BROWNS FERRY 3 DOCKET 50-296 LER 88-016
 PERSONNEL ERROR RESULTED IN A VIOLATION OF TECHNICAL SPECIFICATIONS.
 EVENT DATE: 032088 REPORT DATE: 062888 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: BROWNS FERRY 2 (BWR)

(NSIC 209803) ON MARCH 20, 1988, AT 2000 HOURS, WITH ALL THREE BROWNS FERRY UNITS DEFUELED A PERSONNEL ERROR RESULTED IN THE REQUIREMENTS OF TECHNICAL SPECIFICATION (TS) TABLE 3.2.K NOTE "ACTION D" NOT BEING MET. ON JUNE 1, 1988, AT 1330 HOURS, DURING THE CONIZANT ENGINEER REVIEW OF SURVEILLANCE INSTRUCTION (SI) 4.8.B.1.A.1 "AIRBORNE EFFLUENT RELEASE RATE" DATA PACKAGE, TWO OFF-GAS STACK FLOW ESTIMATES WERE FOUND TO BE OUTSIDE OF THE 4-HOUR TS REQUIREMENT. ON MARCH 20, 1988, THE STACK FLOW MONITOR WAS INOPERABLE. WITH THIS INSTRUMENT INOPERABLE THE STACK FLOW RATE ESTIMATES ARE NORMALLY RECORDED EVERY 4 HOURS AS REQUIRED BY THE PLANT'S TSS. ON MARCH 20-21, 1988, STACK FLOW RATES WERE RECORDED AT 1400 HOURS, 2000 HOURS, 0200 HOURS AND 0600 HOURS. THIS GAVE AN INTERVAL OF 6 HOURS FOR TWO READINGS. THIS WAS ATTRIBUTED TO PERSONNEL ERROR BY THE ASSISTANT UNIT OPERATORS (AUOS) RESPONSIBLE FOR RECORDING THESE READINGS. THE AUOS BECAME INVOLVED IN OTHER DUTIES AND NEGLECTED TO TAKE READINGS WITHIN 4 HOURS AS REQUIRED BY THE PLANT'S TSS. THE OPERATIONS SUPERVISOR HAS COUNSELED THE INDIVIDUALS INVOLVED.

[21] BRUNSWICK 1 DOCKET 50-325 LER 88-006 REV 01
 UPDATE ON BOLT HEAD FAILURES OF 5/16-INCH X 1 1/2 -INCH SILICON BRONZE CARRIAGE BOLTS IN BUS/BAR CONNECTIONS OF ELECTRICAL SWITCHBOARDS.
 EVENT DATE: 021988 REPORT DATE: 063088 N.S: GE TYPE: BWR
 OTHER UNITS INVOLVED: BRUNSWICK 2 (BWR)
 VENDOR: GENERAL ELECTRIC CO.

(NSIC 209811) DURING A SCHEDULED UNIT 1 MAINTENANCE OUTAGE CONCURRENT WITH THE UNIT 2 1988 REFUEL/MAINTENANCE OUTAGE, NUMEROUS FAILURES OF THE 5/16 INCH X 1 AND 1/2 INCH SILICON BRONZE CARRIAGE BOLTS IN THE UNITS' 125/250 VOLT (V) DIRECT CURRENT (DC) SWITCHBOARDS WERE IDENTIFIED DURING SCHEDULED INSPECTIONS. EACH FAILURE CONSISTED OF EITHER BOTH BOLTS BROKEN (CRACKED OR SEPARATED BOLT HEAD) AT A GIVEN BUS/BAR CONNECTION (FEW FAILURES), OR ONE OF THE TWO BOLTS BROKEN (MOST COMMON FAILURE). ON 2/19/88, AN ENGINEERING ASSESSMENT DETERMINED A COMMON MODE FAILURE MECHANISM INVOLVING THE BOLTS EXISTED, WHERE STRUCTURAL INTEGRITY OF THE SUBJECT BUS/BAR CONNECTIONS COULD NOT BE ASSURED FOR A DESIGN SEISMIC EVENT. THE FAILURES ARE ATTRIBUTED TO INTERGRANULAR STRESS CORROSION CRACKING. FAILED AND ACCESSIBLE (THOSE NOT REPLACED WERE EVALUATED AND FOUND ACCEPTABLE TO NOT REPLACE) SILICON BRONZE BOLTS WERE REPLACED WITH BOLTS MADE FROM A MILD CARBON STEEL WHICH ARE NOT EXPECTED TO EXPERIENCE CRACKING IN THE SWITCHGEAR ENVIRONMENT PER VENDOR RECOMMENDATION. GENERAL ELECTRIC HAS EVALUATED THE MECHANICAL/ELECTRICAL INTEGRITY OF A ONE BOLT BUS/BAR CONNECTION AND HAS DETERMINED THAT THIS CONNECTION IS SATISFACTORY.

[22] BRUNSWICK 1 DOCKET 50-325 LER 88-008 REV 02
 UPDATE ON FATIGUE CRACK FAILURES OF A AND C DIESEL GENERATOR BUILDING VENTILATION
 SUPPLY FANS.
 EVENT DATE: 030288 REPORT DATE: 072788 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: BRUNSWICK 2 (BWR)
 VENDOR: JOY MANUFACTURING CO.

(NSIC 209980) DURING UNIT 1 POWER OPERATION AT 100% CONCURRENT WITH THE UNIT 2
 1988 REFUEL/MAINTENANCE OUTAGE, AT 1500 HOURS ON 3/2/88, A DETERMINATION WAS MADE
 THAT A GENERIC FAILURE MECHANISM EXISTED FOR THE SUPPLY FANS OF THE UNITS' COMMON
 DIESEL GENERATOR (DG) BUILDING VENTILATION SYSTEM. THE A FAN FAILED ON 12/13/87,
 THE C FAN FAILED ON 3/1/88, (BOTH FAILURES DUE TO CRACKED BLADES) AND A LIQUID
 PENETRANT (LP) TEST OF THE B FAN BLADES, WHICH HAD NOT FAILED, SHOWED LINEAR
 INDICATIONS USUALLY REPRESENTATIVE OF CRACKS. SERVICE LIVES WERE SIMILAR IN THE
 A, B, AND C FAN ROTORS. THE BUILDING D SUPPLY FAN ROTOR HAD PREVIOUSLY BEEN
 REPLACED AFTER APPROXIMATELY TEN YEARS SERVICE. THE CRACKING IS ATTRIBUTED TO
 MECHANICALLY STRESSING THE FAN BLADE MATERIAL (CAST 365 ALUMINUM) DUE TO
 EXCESSIVE START/STOP CYCLING OF THE FANS. THIS RESULTED FROM INADEQUATE CONTROLS
 (PROCEDURAL AND INSTRUMENTATION) FOR MAINTAINING DIESEL GENERATOR BUILDING
 TEMPERATURE. THE A AND B FAN ROTORS WERE REPLACED AND WERE RETURNED TO SERVICE
 ON 02/12/88 (A) AND 3/13/88 (B). APPROPRIATE PROCEDURE CHANGES WERE IMPLEMENTED
 ON 4/21/88 TO REDUCE START/STOP CYCLING OF THE FANS ON AN INTERIM BASIS. AFTER
 RECEIPT OF A REPLACEMENT ROTOR AND HOUSING, C FAN WILL BE RETURNED TO SERVICE.
 THE FANS' TEMPERATURE CONTROL LOOP WILL BE MODIFIED TO FURTHER REDUCE THE
 START/STOP CYCLING.

[23] BRUNSWICK 1 DOCKET 50-325 LER 88-011 REV 01
 UPDATE ON INOPERABILITY OF HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM (E41)
 RESULTING FROM FAILURE OF HPCI PUMP SUPPRESSION POOL SUCTION SUPPLY OUTBOARD
 ISOLATION VALVE.
 EVENT DATE: 042088 REPORT DATE: 062988 NSSS: GE TYPE: BWR
 VENDOR: LIMITORQUE CORP.

(NSIC 209728) AT 0930 HOURS ON 4/20/88, PERFORMANCE OF MAINTENANCE SURVEILLANCE
 TEST IMST-HPC127M AND THE REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM REVEALED
 THE HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM (E41) PUMP SUCTION FROM THE
 SUPPRESSION POOL, E41-F041, WOULD NOT OPEN. UNIT 1 WAS AT 100%. THE HPCI SYSTEM
 WAS DECLARED INOPERABLE. THE RCIC, RESIDUAL HEAT REMOVAL/LOW PRESSURE COOLANT
 INJECTION, AUTOMATIC DEPRESSURIZATION SYSTEMS, AND THE A AND B CORE SPRAY
 SUBSYSTEMS WERE OPERABLE. E41-F041 WOULD NOT OPEN DUE TO A FAILURE OF THE VALVE
 DIRECT CURRENT (DC) POWERED MOTOR, LIMITORQUE CORP. PART NO. 150-B56-189. THE
 FAILED MOTOR WAS REPLACED AND THE VALVE WAS RETURNED TO SERVICE. THE HPCI SYSTEM
 WAS RETURNED TO STANDBY READINESS AT 0857 HOURS ON 4/22/88. ANALYSIS OF THE
 FAILED MOTOR AT THE CP4L TEST FACILITY CONCLUDED THE MOST PROBABLE CAUSE OF THE
 FAILURE WAS BREAKDOWN OF THE MOTOR WINDING INSULATION CAUSED BY HIGH INDUCTIVE
 VOLTAGE SURGES ACROSS THE MOTOR SHUNT COIL WHICH OCCURS WHEN THE MOTOR POWER
 SUPPLY CIRCUIT BREAKER IS OPENED. OTHER FAILURES OF DC-POWERED MOTORS HAVE BEEN
 REPORTED IN LERS 1-87-023 AND 2-87-001. BY 1-20-89, PLANT MODIFICATIONS WILL BE
 IMPLEMENTED TO INSTALL SURGE PROTECTION WITHIN THE SHUNT COIL CIRCUITRY OF DC
 MOTOR CONTROL CIRCUITRY ON UNITS 1 AND 2.

[24] BRUNSWICK 1 DOCKET 50-325 LER 88-013
 FAILURE OF SERVICE WATER SYSTEM NUCLEAR HEADER SUPPLY ISOLATION VALVE SW-117 TO
 OPEN DUE TO OXIDATION OF THE VALVE GEARED LIMIT SWITCH ELECTRICAL CONTACTS.
 EVENT DATE: 042488 REPORT DATE: 052388 NSSS: GE TYPE: BWR
 VENDOR: LIMITORQUE CORP.

(NSIC 209411) DURING UNIT 1 POWER OPERATION AT 97%, IT WAS DISCOVERED AT
 APPROXIMATELY 1800 HOURS ON 4/24/88, THAT THE SERVICE WATER (SW) SYSTEM NUCLEAR

HEADER SUPPLY ISOLATION VALVE TO THE SW VITAL HEADER, SW-V117, WOULD NOT OPEN. THIS WAS FOUND WHILE CYCLING VARIOUS SW SYSTEM VALVES IN ORDER TO FACILITATE THE TEMPORARY REPAIR OF A PINHOLE LEAK ON THE SW VITAL HEADER. THE CONSEQUENCES OF THIS EVENT WERE MINIMAL. SW-V117 WOULD NOT OPEN AS THE RESULT OF OXIDATION BUILDUP ON THE NO. 4 ELECTRICAL CONTACTS, LIMITORQUE CORP. PART NO. 34534-E, OF THE VALVE OPENING PERMISSIVE GEARED LIMIT SWITCH ROTOR NO. 1. THE OXIDATION OF THE SUBJECT SW-V117 ELECTRICAL CONTACTS WAS REMOVED AND THE VALVE WAS SATISFACTORILY STROKED AND RETURNED TO SERVICE WITHIN 72 HOURS OF THE EVENT. APPROPRIATE PROCEDURE REVISIONS WILL BE IMPLEMENTED TO PROVIDE FOR PERIODIC CLEANING OF THESE TYPE CONTACTS IN LIMITORQUE ACTUATOR TORQUE SWITCHES. THE SUBJECT TEMPORARY REPAIRS TO THE SW VITAL HEADER WERE COMPLETED AT APPROXIMATELY 0000 HOURS ON 4/25/88.

[25] BRUNSWICK 1 DOCKET 50-325 LER 88-010
AUTOMATIC ISOLATION OF UNITS 1 AND 2 COMMON CONTROL BUILDING HEATING,
VENTILATING, AIR CONDITIONING SYSTEM AND EMERGENCY AIR FILTRATION SYSTEM DURING
ROUTINE MAINTENANCE.
EVENT DATE: 050288 REPORT DATE: 052588 NSSS: GE TYPE: BWR
OTHER UNITS INVOLVED: BRUNSWICK 2 (BWR)
VENDOR: WALLACE & TIEMAN, INC.

(NSIC 209409) AT 1310 HOURS ON 5/2/88, THE UNITS' 1 AND 2 COMMON CONTROL BUILDING EMERGENCY AIR FILTRATION SYSTEM AND COMMON CONTROL BUILDING HEATING, VENTILATING, AIR CONDITIONING SYSTEM AUTOMATICALLY ISOLATED DUE TO ACTUATION OF UNIT 1 CHLORINE DETECTOR 1-X-AT-2979 AT THE UNITS' COMMON CHLORINATION SYSTEM CHLORINE LOADING (TANK CAR STORAGE) AREA. UNIT 1 WAS OPERATING AT 100%, WHILE UNIT 2 WAS OPERATING AT 77%. THE RESPECTIVE UNIT 2 CHLORINE DETECTOR, 2-X-AT-2979, DID NOT ACTUATE, AND THERE WAS NO EVIDENCE OF A CHLORINE LEAK. ROUTINE (WEEKLY) PREVENTIVE MAINTENANCE (PM) OF THE CHLORINE DETECTORS WAS IN PROGRESS, WITH ELECTROLYTE SOLUTION BEING ADDED TO THE 1-X DETECTOR RESERVOIR IN ACCORDANCE WITH PROCEDURE OPM-DET001. THE SUBJECT DETECTOR ALARM SUBSEQUENTLY CLEARED AND THE AFFECTED SYSTEMS WERE RETURNED TO THEIR NORMAL CONFIGURATION. THE SAFETY CONSEQUENCES OF THIS EVENT WERE MINIMAL. THE CAUSE OF THIS EVENT COULD NOT BE DETERMINED. IT IS FELT THE DETECTOR ACTUATION MAY HAVE RESULTED FROM ADDITION OF THE ELECTROLYTE SOLUTION, AS EXPERIENCE WITH THESE TYPE DETECTORS HAS SHOWN THEY ARE SENSITIVE TO MINOR DISTURBANCES. NO FURTHER ACTION IS PLANNED REGARDING THIS EVENT, AS IT IS CONSIDERED AN ISOLATED OCCURRENCE.

[26] BRUNSWICK 1 DOCKET 50-325 LER 88-012
INOPERABILITY OF HIGH PRESSURE COOLANT INJECTION HPCI SYSTEM (E41) DUE TO FAILURE
OF HPCI TURBINE STEAM INLET ISOLATION VALVE, DURING OPERABILITY TESTING.
EVENT DATE: 052888 REPORT DATE: 062788 NSSS: GE TYPE: BWR
VENDOR: ANCHOR/DARLING VALVE CO.

(NSIC 209729) AT 2130 HOURS ON 5/28/88, WHILE PERFORMING THE OPERABILITY TEST OF THE UNIT 1 HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM (E41), PERIODIC TEST (PT)-09.2, THE HPCI TURBINE STEAM SUPPLY ISOLATION VALVE, E41-F001, WOULD NOT OPEN. UNIT 1 WAS OPERATING AT 100% POWER. THE HPCI SYSTEM WAS DECLARED INOPERABLE. THE REACTOR CORE ISOLATION COOLING, RESIDUAL HEAT REMOVAL/LOW PRESSURE COOLANT INJECTION, AUTOMATIC DEPRESSURIZATION SYSTEMS, AND THE A AND B CORE SPRAY SUBSYSTEMS WERE OPERABLE. E41-F001 WOULD NOT OPEN DUE TO FAILURE OF THE VALVE MOTOR WINDINGS RESULTING FROM MECHANICAL AND THERMAL BINDING OF THE VALVE DISC WITHIN THE VALVE BODY. THIS WAS DUE TO INADEQUATE DISC-TO-BODY CLEARANCE TOLERANCES RESULTING FROM A PRIOR REBUILD OF THE VALVE DURING THE UNIT 1985 REFUELING/MAINTENANCE OUTAGE. THE INADEQUATE VALVE DISC-TO-BODY TOLERANCES ARE ATTRIBUTED TO PROCEDURAL INADEQUACIES AND LACK OF IN-DEPTH VALVE REPAIR TRAINING OF THE PERSONNEL INVOLVED WITH THE REBUILD OF THE VALVE. THE BINDING IS ALSO FELT TO HAVE PLAYED A ROLE IN A PRIOR FAILURE OF THE VALVE MOTOR ON 12/31/87 (REPORTED IN LER 1.87.023). A HOLE WAS DRILLED IN THE VALVE DISC TO ALLEVIATE

THE THERMAL BINDING PROBLEM, THE VALVE WAS REBUILT AND SATISFACTORILY TESTED, AND AT 2202 HOURS ON 6/6/88 THE HPCI SYSTEM WAS RETURNED TO STANDBY READINESS.

[27] BRUNSWICK 2 DOCKET 50-324 LER 88-001 REV 01
 UPDATE ON MANUAL REACTOR SCRAM DUE TO DECREASING MAIN CONDENSER VACUUM AND FAILURE OF PRIMARY CONTAINMENT GROUP 2 VALVES TO CLOSE ON ISOLATION SIGNAL.
 EVENT DATE: 010288 REPORT DATE: 060188 NSSS: GE TYPE: BWR
 VENDOR: ASCO VALVES
 GENERAL ELECTRIC CO.
 GENERAL ELECTRIC CORP. (NUCLEAR ENG DIV)

(NSIC 20948) WHILE PERFORMING A ROUTINE REACTOR SHUTDOWN IN PREPARATION FOR THE UNIT 2 1988 REFUELING AND MAINTENANCE OUTAGE, A MANUAL REACTOR PROTECTION SYSTEM TRIP (SCRAM) WAS INITIATED AT 0017 HOURS ON 1/2/88, DUE TO A DECREASING CONDENSER VACUUM. REACTOR POWER WAS APPROX. 55% AND VACUUM HAD DECREASED TO APPROX. -32 INCHES MERCURY. DURING THE EXPECTED VESSEL LEVEL SHRINK FOLLOWING THE SCRAM, VESSEL LEVEL DECREASED TO APPROX. 153 INCHES, THUS INITIATING PRIMARY CONTAINMENT ISOLATION VALVE GROUPS 2, 6, AND 8 AT LOW LEVEL 1 (> 162.5"). OPERATOR VERIFICATION OF THESE VALVE CLOSURES DETERMINED THAT THE GROUP 2 VALVES 2-G16-F003, -F004, -F019, AND -F020 FAILED TO CLOSE. THESE ARE THE INBOARD AND OUTBOARD ISOLATION VALVES FOR THE DRYWELL FLOOR DRAIN SUMP (F003, F004) AND THE DRYWELL EQUIPMENT DRAIN SUMP (F019, F020). THE REMAINING SAFETY SYSTEMS OPERATED AS DESIGNED DURING THIS EVENT. INVESTIGATION OF THE DECREASING VACUUM CONDITION DETERMINED IT RESULTED FROM NUMEROUS LEAKS ON THE MAIN TURBINE AND MAIN STEAM REHEAT INTERCONNECTING PIPING TO THE MAIN TURBINE, WHICH WERE REPAIRED DURING THE UNIT OUTAGE. TO DATE, THE CAUSE OF THE GROUP 2 FCIVS FAILURE TO CLOSE HAS NOT BEEN DETERMINED. BY 12/6/88, A SUPPLEMENT TO THIS REPORT WILL BE ISSUED TO UPDATE THE ROOT CAUSE DETERMINATION OF THE FAILURE TO CLOSE.

[28] BRUNSWICK 2 DOCKET 50-324 LER 88-002 REV 01
 UPDATE ON FAILURE OF DRYWELL HEAD OUTER SEAL AND REACTOR FEEDWATER B21 PRIMARY CONTAINMENT ISOLATION VALVES B21-F010B AND F032B REVEALED THROUGH LOCAL LEAK RATE TESTING.
 EVENT DATE: 010488 REPORT DATE: 053188 NSSS: GE TYPE: BWR
 VENDOR: ANCHOR/DARLING VALVE CO.

(NSIC 20950) DURING THE UNIT 2 1988 REFUEL/MAINTENANCE OUTAGE, TYPES B AND C LOCAL LEAK RATE TESTING (LLRT) REVEALED NONQUANTIFIABLE LEAKAGE AT THE DRYWELL HEAD FLANGE SEAL AND AT REACTOR FEEDWATER SYSTEM (B21) A LINE PRIMARY CONTAINMENT ISOLATION VALVES B21-F032B (OUTBOARD) AND B21-F010B (INBOARD). AS SUCH, A CALCULATED PRIMARY CONTAINMENT LEAKAGE RATE OF > 0.60 L/A RESULTED, BASED UPON THE MAXIMUM PATHWAY ANALYSIS METHOD FOR ANALYZING CONTAINMENT LEAKAGE. CONSEQUENTLY, TECH SPEC 3.6.1.2B WAS EXCEEDED. LABORATORY ANALYSIS DETERMINED THAT LEAKAGE OF THE DRYWELL HEAD FLANGE SEAL, WHICH IS OF DOUBLE SEAL O-RING CONSTRUCTION, RESULTED FROM DEFORMATION/EXTRUSION OF THE OUTER O-RING AT THREE LOCATIONS. THIS WAS ATTRIBUTED TO INCOMPLETE FORMULATION/PROCESSING DURING MANUFACTURE OF THE O-RING. LEAKAGE OF B21-F010B RESULTED FROM FAILURE OF THE VALVE SOFT SEAT MATERIAL. LEAKAGE OF B21-F032B RESULTED FROM FAILURE OF THE VALVE STEM PACKING. THE SOFT SEAT IN F010B WAS REPLACED WITH A SEAT OF A MATERIAL BASED UPON AN IMPROVED MANUFACTURING METHOD, AND THE PACKING IN F032B WAS REPLACED WITH A DIFFERENT TYPE, RECOMMENDED IN GENERAL ELECTRIC SERVICE INFORMATION LETTER NO. 399. AND THE VALVES WERE RETURNED TO SERVICE. THE DRYWELL HEAD FLANGE SEAL O-RINGS, MANUFACTURED BY I. B. MOORE WERE REPLACED.

[29] BRUNSWICK 2 DOCKET 50-324 LER 88-010
 AUTO-ISOLATION OF REACTOR WATER CLEANUP SYSTEM INLET BOARD ISOLATION VALVE G31-F001 WHILE PLACING B RWCU FILTER DEMINERALISER INTO SERVICE.
 EVENT DATE: 042088 REPORT DATE: 052088 NSSS: GE TYPE: BWR

OPERATIONS AND COMMUNICATIONS WAS CONDUCTED; THE SAT DISCONNECTS ARE LOCKED WITH UNIQUE LOCKS FOR EACH UNIT, ETC.

[32] BYRON 2 DOCKET 50-455 LER 88-004
 MAIN FEEDWATER PUMP TRIP DUE TO IMPROPER ISOLATION OF ELECTROHYDRAULIC CONTROL
 FLUID SUPPLY RESULTING IN REACTOR TRIP.
 EVENT DATE: 050688 REPORT DATE: 060388 NSSS: WE TYPE: PWR

(NSIC 209506) ON APRIL 27, 1988, AN OUT-OF-SERVICE CONDITION ON THE 2C MAIN FEEDWATER PUMP (MFP) WAS TEMPORARILY LIFTED TO PERMIT OPERATION OF THE MFP, AND THE PUMP WAS STARTED AND PLACED IN SERVICE. ON MAY 6 A LICENSED REACTOR OPERATOR (NSO) NOTED THAT THE TEMPORARY LIFT WAS DUE TO EXPIRE ON THAT DAY AND REQUESTED A DISPOSITION FROM A LICENSED SENIOR REACTOR OPERATOR (SCRE). THE SCRE DIRECTED THE NSO TO TERMINATE THE TEMPORARY LIFT BY RETURNING THE EQUIPMENT TO ITS ORIGINAL OUT-OF-SERVICE CONDITION. BOTH THE SCRE AND THE NSO INCORRECTLY BELIEVED THAT RETURNING THE VALVE TO ITS ORIGINAL POSITION ON THE TEMPORARY LIFT PAPERWORK TO ITS OUT-OF-SERVICE CLOSED POSITION WOULD NOT AFFECT THE OPERATION OF THE 2C MFP. AT 1214 ON MAY 6 WITH UNIT 2 AT 50% POWER AN EQUIPMENT OPERATOR CLOSED THE VALVE, WHICH ISOLATED ELECTROHYDRAULIC (EH) FLUID SUPPLY TO THE 2C MFP. AT 1215 THE 2C MFP TRIPPED DUE TO LOW EH FLUID PRESSURE. STEAM GENERATOR LEVELS LOWERED RAPIDLY AND THE NSO MANUALLY TRIPPED THE REACTOR IN ANTICIPATION OF AN AUTOMATIC TRIP. OPERATOR ACTIONS TAKEN FOLLOWING THE REACTOR TRIP WERE CORRECT, AND STABLE PLANT CONDITIONS WERE ACHIEVED IN HOT STANDBY AT 1330. SEVERAL CAUSES CONTRIBUTED TO THE IMPROPER CLOSURE OF THE EH VALVE. THE NSO AND THE SCRE COMMITTED COGNITIVE PERSONNEL ERRORS BY FAILING TO RECOGNIZE THE CONSEQUENCES OF THE RETURN TO OUT OF SERVICE CONDITION.

[33] BYRON 2 DOCKET 50-455 LER 88-005
 TECH SPEC VIOLATION DUE TO OPERATIONAL MODE CHANGES MADE WHILE AUXILIARY
 FEEDWATER PUMP INOPERABLE DUE TO LEVEL SWITCH FAILURE.
 EVENT DATE: 050688 REPORT DATE: 060688 NSSS: WE TYPE: PWR
 VENDOR: MAGNETROL, INC.

(NSIC 209679) THE 2L DIESEL DRIVEN AUXILIARY FEEDWATER PUMP (AFP) HAD BEEN OPERATED TWICE ON MAY 6, 1988. THE SECOND OPERATION WAS AN AUTOMATIC START DUE TO LOW STEAM GENERATOR LEVELS FOLLOWING THE TRIP OF A MAIN FEED PUMP AND RESULTANT REACTOR TRIP. FOLLOWING AN INVESTIGATION FOR ROOT CAUSE OF THE REACTOR TRIP, UNIT 2 ENTERED THE STARTUP OPERATIONAL MODE AT 2355 AND THE POWER OPERATIONS MODE AT 0111 ON MAY 7, 1988. AT ABOUT 0300 THE 2B AFP FUEL OIL DAY TANK LEVEL WAS DISCOVERED TO BE LESS THAN THE TECH SPEC LIMIT. LEVEL WAS NOT RESTORED UNTIL 1030 ON MAY 8, 1988. IT IS MOST LIKELY THAT LEVEL DROPPED BELOW THE ALLOWABLE LIMIT DURING ONE OF THE 2B AFP RUNS ON MAY 6, 1988, HOWEVER THE APPROPRIATE ALARM DID NOT ACTUATE. BECAUSE THE LICENSED OPERATORS WERE UNAWARE OF THE LOW DAY TANK LEVEL, THE TWO OPERATIONAL MODE CHANGES WERE MADE IN VIOLATION OF TECH SPEC 3.0.4. THE ROOT CAUSE OF THE EVENT WAS THE FAILURE OF THE DAY TANK LOW LEVEL SWITCH TO GENERATE THE ATTENDANT ANNUNCIATOR ACTUATION. CONTRIBUTING TO THE DELAY IN THE RESTORATION OF DAY TANK LEVEL WERE INCONSISTENCIES BETWEEN THE OPERATING LOGS AND A PLACARD AFFIXED TO THE DAY TANK. THE FAULTY LOW LEVEL SWITCH WAS REPLACED WITH A LIKE SWITCH. PLANT PROCEDURES ARE BEING REVISED TO MINIMIZE RECURRENCE OF THIS EVENT. THERE HAVE BEEN NO PREVIOUS OCCURRENCES OF THIS EVENT.

[34] CALLAWAY 1 DOCKET 50-483 LER 88-004 REV 01
 UPDATE ON REACTOR TRIP ON SHORTED JUMPER DURING TURBINE TESTING AND LOW STEAM
 LINE PRESSURE SAFETY INJECTION DUE TO INADEQUATELY MONITORED RCS TEMPERATURE.
 EVENT DATE: 021388 REPORT DATE: 053188 NSSS: WE TYPE: PWR

(NSIC 209546) ON 2/13/88 AT 0355 CST, A REACTOR TRIP OCCURRED DURING TURBINE SURVEILLANCE TESTING. THE MECHANICAL TRIP PISTON HAD FAILED TO RESET. PFR

[37] CALVERT CLIFFS 1 DOCKET 50-317 LER 88-003
 INCORRECT STEAM GENERATOR TUBE PLUGGED DUE TO PERSONNEL ERROR.
 EVENT DATE: 120986 REPORT DATE: 052288 NSSS: CE TYPE: PWR

(NSIC 209404) DURING EDDY-CURRENT TESTING OF CALVERT CLIFFS STEAM GENERATOR NO. 12 ON 4/23/88, A PLUG WAS FOUND IN THE OUTLET TUBE SHEET IN A TUBE ADJACENT TO THE TUBE WHICH SHOULD HAVE BEEN PLUGGED. COMBUSTION ENGINEERING (CE) HAD INSTALLED THE PLUG ON 12/9/86. THE CAUSE WAS PERSONNEL ERROR. CONTRIBUTING FACTORS WERE AN INOPERABLE TUBE POSITION INDICATING SYSTEM ON THE ROBOTIC ARM BEING USED AND POOR VIDEO MONITORING CLARITY. CALVERT CLIFFS PERSONNEL, ASSISTED BY A DIFFERENT CONTRACTOR, ARE BEING USED NOW AND WERE USED PRIOR TO USING CE, WITH NO INCIDENTS OF THIS NATURE. USE OF CE IN THE FUTURE WILL DEPEND ON THEIR RESPONSE TO THIS EVENT. THE OUTLET END OF THE DEFECTIVE TUBE HAS BEEN PLUGGED. THE INCORRECTLY PLUGGED TUBE HAS BEEN TESTED AND EVALUATED AS GOOD.

[38] CALVERT CLIFFS 2 DOCKET 50-318 LER 88-004
 LOW STEAM GENERATOR WATER LEVEL REACTOR TRIP DUE TO #21 STEAM GENERATOR FEED PUMP TRIP.
 EVENT DATE: 042788 REPORT DATE: 052088 NSSS: CE TYPE: PWR
 VENDOR: INDIKON
 ROCHESTER INSTRUMENT SYSTEMS, INC.

(NSIC 209405) AT 0648, APRIL 27, 1988, CALVERT CLIFFS UNIT 2 TRIPPED ON LOW STEAM GENERATOR WATER LEVEL AFTER #21 STEAM GENERATOR FEED PUMP TRIPPED FOR NO APPARENT REASON. SUBSEQUENT TESTING AND INVESTIGATION HAS YIELDED NO PRIOR SYMPTOMS OR ROOT CAUSE FOR THE PUMP TRIP. IN ADDITION TO THE PERMANENT MONITORING EQUIPMENT, TEMPORARY MONITORING EQUIPMENT HAS BEEN INSTALLED ON THE TRIP CIRCUITRY ASSOCIATED WITH VARIOUS STEAM GENERATOR FEED PUMP TURBINE TRIPS. THE #21 ATMOSPHERIC DUMP VALVE WAS AUTOMATICALLY CONTROLLING REACTOR COOLANT SYSTEM TEMPERATURE IMPROPERLY. A CONTROL SIGNAL OF INCORRECT MAGNITUDE FROM THE REACTOR REGULATING SYSTEM WAS FOUND. THE CONTROL SIGNAL WAS READJUSTED. CORRECTIVE ACTION: 1. THE TEMPORARY ADDITIONAL MONITORING OF THE TRIP CIRCUIT FOR #21 STEAM GENERATOR FEED PUMP WILL BE CONTINUED IN AN EFFORT TO DETERMINE THE ROOT CAUSE OF THIS EVENT. SPECIFIC CORRECTIVE ACTIONS TO PREVENT RECURRENCE CAN NOT BE DELINEATED UNTIL THE ROOT CAUSE IS DETERMINED. 2. AN EVALUATION OF REPLACEMENTS FOR THE CURRENTLY INSTALLED TURBINE THRUST BEARING WEAR MONITOR IS IN PROGRESS.

[39] CATAWBA 1 DOCKET 50-413 LER 88-003 REV 01
 UPDATE ON WIDE RANGE TEMPERATURE MONITORING INSTRUMENTATION TECHNICALLY INOPERABLE DURING CERTAIN ACCIDENT CONDITIONS DUE TO INSTALLATION AND DESIGN DEFICIENCIES.
 EVENT DATE: 011688 REPORT DATE: 062288 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: CATAWBA 2 (PWR)

(NSIC 209663) ON 1/15/88 AT 1030 HRS, WITH UNIT 2 IN MODE 6, REFUELING, 6 OF THE 8 UNIT 2 REACTOR COOLANT (NC) SYSTEM WIDE RANGE (W/R) HOT AND COLD LEG RESISTANCE TEMPERATURE DETECTOR (RTD) CABLES WERE DISCOVERED TO HAVE BEEN IMPROPERLY INSTALLED. THE RTD CABLES WERE ORIGINALLY SUPPLIED BY WESTINGHOUSE WITH A SEALED STAINLESS STEEL BELLOWS HOSE TO MAINTAIN ENVIRONMENTAL QUALIFICATION. THE AFFECTED UNIT 2 RTD CABLES AND BELLOWS HOSES HAD BEEN CUT DURING INITIAL INSTALLATION. AS A RESULT, THE RTD'S ENVIRONMENTAL QUALIFICATION WAS INVALID. SINCE THE CORRESPONDING UNIT 1 RTD'S WERE SUSPECTED TO BE SIMILARLY INSTALLED, THEY WERE DECLARED INOPERABLE AT 1400 HOURS, AND UNIT 1 SHUTDOWN WAS COMMENCED AT 1400 HOURS. UNIT 1 ENTERED MODE 3, HOT STANDBY, AT 0541 HOURS, AND MODE 4, 1, AT 2230 HOURS, ON JANUARY 16, 1988. SUBSEQUENTLY, THE CORRESPONDING UNIT 1 W/R HOT AND COLD LEG RTD CABLES WERE ALSO FOUND TO BE IMPROPERLY INSTALLED. UNIT 1 WAS IN MODE 1, POWER OPERATION, AT 100% POWER AT THE TIME OF DISCOVERY. BOTH UNITS HAVE OPERATED IN ALL MODES WITH THE AFFECTED RTD'S TECHNICALLY INOPERABLE. THIS INCIDENT IS ATTRIBUTED TO AN INSTALLATION

OCCURRED AS A RESULT OF VALVE MOTION. THE HEALTH AND SAFETY OF THE PUBLIC WERE UNAFFECTED BY THIS EVENT.

[45] CATAWBA 2 DOCKET 50-414 LER 88-019
 REACTOR TRIP DUE TO OPERATOR AID COMPUTER TRAINING AND SOFTWARE DEFICIENCIES.
 EVENT DATE: 052788 REPORT DATE: 062788 NSSS: WE TYPE: PWR

(NSIC 209840) ON 5/27/88, AT 1403:21 HRS, AN UNDERVOLTAGE CONDITION OCCURRED ON THE 240/120 VAC AUXILIARY CONTROL POWER SYSTEM DISTRIBUTION PANEL 2KXPB. THIS UNDERVOLTAGE CONDITION OCCURRED WHILE CYCLING THE ALTERNATE SOURCE TO KXPB BREAKER IN AN ATTEMPT TO CLEAR AN INDICATED ALTERNATE SOURCE UNDERVOLTAGE. THE INDICATED UNDERVOLTAGE CONDITION WAS NOTICED WHILE ISOLATING THE 2KXPB INVERTER FOR CORRECTIVE MAINTENANCE. THE PANEL'S POWER SUPPLY HAD PREVIOUSLY BEEN SWAPPED TO THE ALTERNATE SOURCE TO KXPB SUPPLY FROM REGULATED AC POWER SOURCE, 2RDB. UPON NOTICING THE LOW ALTERNATE SOURCE VOLTAGE INDICATION ON THE MANUAL BYPASS SWITCH, 2KXMB, THE INVOLVED NUCLEAR OPERATIONS SPECIALIST (NOS) REQUESTED ASSISTANCE FROM CONTROL ROOM PERSONNEL. A CONTROL ROOM OPERATOR (CRO) UTILIZED THE OPERATOR AID COMPUTER (OAC) GRAPHICS TO VERIFY THAT A LOW VOLTAGE WAS INDICATED. THE CRO RECOMMENDED THAT THE NOS CYCLE THE ALTERNATE SOURCE TO KXPB BREAKER TO CLEAR THE UNDERVOLTAGE CONDITION. CYCLING THE BREAKER CAUSED AN APPROXIMATE 5 SECOND LOSS OF POWER TO THE LOADS SUPPLIED BY THE KXPB DISTRIBUTION PANEL, ONE OF WHICH WAS THE CONTROL POWER TO MAIN FEEDWATER PUMP TURBINE (CFPT) 2B. THIS RESULTED IN A DECREASE IN CFPT 2B SPEED, LOW STEAM GENERATOR LEVELS, AND A SUBSEQUENT AUTOMATIC REACTOR TRIP. THE UNIT WAS AT 100% POWER AT THE TIME OF THIS INCIDENT. THIS INCIDENT HAS BEEN ATTRIBUTED TO A MANAGEMENT DEFICIENCY, DUE TO A LACK OF TRAINING.

[46] CATAWBA 2 DOCKET 50-414 LER 88-020
 MANUAL REACTOR TRIP DURING UNIT FAST RECOVERY CAUSED BY LOSS OF AUTOMATIC FEEDWATER CONTROL TO STEAM GENERATOR 2C DUE TO APPARENT CONTROL MALFUNCTION.
 EVENT DATE: 052888 REPORT DATE: 062788 NSSS: WE TYPE: PWR
 VENDOR: MOORE PRODUCTS COMPANY
 WESTINGHOUSE ELECTRIC CORP.

(NSIC 209841) ON MAY 28, 1988, AT 2355 HOURS, A MANUAL REACTOR TRIP WAS INITIATED BY CONTROL ROOM PERSONNEL TO PREVENT AN AUTOMATIC CHALLENGE OF THE REACTOR PROTECTION SYSTEM ON STEAM GENERATOR (S/G) 2C LOW-LOW LEVEL. OPERATIONS PERSONNEL WERE PERFORMING THE UNIT FAST RECOVERY PROCEDURE FOLLOWING A MAY 27, 1988, TRIP AND WERE IN THE PROCESS OF UNISOLATING THE MAIN FEEDWATER (CF) CONTROL VALVES. THE CONTROL ROOM OPERATOR HAD JUST OPENED THE CF CONTROL VALVE OUTLET ISOLATION VALVES AND WAS IN THE PROCESS OF OPENING THE INLET ISOLATION VALVES WHEN S/G 2C NARROW RANGE LEVEL BEGAN TO RAPIDLY DECREASE. SUBSEQUENT EFFORTS BY CONTROL ROOM PERSONNEL DID NOT STOP THE LEVEL DECREASE IN S/G 2C, AND THE REACTOR WAS SUBSEQUENTLY TRIPPED. THE REACTOR TRIP IN CONJUNCTION WITH LOW-TAVG RESULTED IN A FEEDWATER ISOLATION, AND THE SUBSEQUENT LOW-LOW LEVEL SIGNAL FOR S/G 2C RESULTED IN AN AUXILIARY FEEDWATER ACTUATION. THE UNIT WAS IN MODE 1, POWER OPERATION, AT APPROXIMATELY 15% POWER AT THE TIME OF THIS INCIDENT. THIS INCIDENT IS CLASSIFIED AS EVENT CAUSE CODE X, OTHER. IT IS SPECULATED THAT DEBRIS IN THE SUPPLY AIR MAY HAVE PREVENTED THE ELECTRIC TO PNEUMATIC (E/P) CONVERTER FOR 2CF48, THE S/G 2C CF BYPASS CONTROL VALVE, FROM OPERATING PROPERLY. THIS INCIDENT IS ALSO CLASSIFIED A CONTRIBUTING EVENT CAUSE CODE X, OTHER.

[47] CLINTON 1 DOCKET 50-461 LER 88-015
 INCORRECT COMMAND DURING CHANNEL FUNCTIONAL TEST LEAVES FLUSH VALVE PARTIALLY OPEN AND RESULTS IN INOPERABLE OFF GAS PRETREATMENT RADIOACTIVITY MONITOR AND INVALID HYDROGEN SAMPLES.
 EVENT DATE: 041988 REPORT DATE: 060888 NSSS: GE TYPE: BWR
 VENDOR: EBERLINE INSTRUMENT CORP.

IDENTIFYING THE PRO .R DOCUMENTS TO BE UTILIZED IN DETERMINING CONTAINMENT BOUNDARIES, AND TRAINING PERSONNEL ON THEIR USE. THE MAINTENANCE WORK REQUEST PROCEDURE WILL BE CHANGED TO REQUIRE THAT, WHEN SEALS/PENETRATIONS ARE WORKED, A JOB STEP BE INCLUDED FOR DETERMINING IF THE SEALS/PENETRATIONS ARE PART OF CONTAINMENT BOUNDARIES. THE ILLINOIS POWER COMPANY PENETRATION SEAL PROGRAM WILL BE REVIEWED FOR POSSIBLE IMPROVEMENTS AND REVISED AS NECESSARY.

[50] CONNECTICUT YANKEE DOCKET 50-213 LER 87-018 REV 01
 UPDATE ON PERSONNEL ERROR RESULTS IN DECLARATION OF EEQ MOVS AS INOPERABLE.
 EVENT DATE: 112087 REPORT DATE: 062388 NSSS: WE TYPE: PWR
 VENDOR: LIMITORQUE CORP.
 RELIANCE ELECTRIC COMPANY

(NSIC 209576) ON NOVEMBER 17, 1987 WITH THE PLANT SHUTDOWN IN MODE 6, INVESTIGATIONS DETERMINED THAT GREASE HAD BEEN INSTALLED IN THE MOTOR HOUSINGS OF 20 EEQ LIMITORQUE MOVS AND SEVERAL OF THE MOVS WERE NOT IN THEIR QUALIFIED CONFIGURATION. ASSESSMENT OF THESE CONDITIONS RESULTED IN DECLARATION OF THE AFFECTED MOVS AS INOPERABLE ON NOVEMBER 20, 1987. THE ROOT CAUSE OF THIS EVENT WAS EVALUATED VIA THE HPES AND MORT REVIEW SYSTEMS. CORRECTIVE ACTIONS INCLUDE REWORK OF ALL MOVS AFFECTED BY GREASE AND RESTORATION OF ALL MOVS TO QUALIFIED CONFIGURATION. THIS SUPPLEMENTAL REPORT CONTAINS ADDITIONAL INFORMATION ON ROOT CAUSE AND LONG TERM CORRECTIVE ACTIONS. THIS EVENT IS REPORTABLE PER 10CFR50.73(A)(2)(V) AS IT COULD HAVE PREVENTED FULFILLMENT OF A SAFETY FUNCTION. THIS EVENT IS ALSO REPORTABLE PER 10CFR50.73(A)(2)(VII) IN THAT, AS A SINGLE EVENT, IT COULD HAVE CAUSED INDEPENDENT CHANNELS IN MULTIPLE SYSTEMS TO BECOME INOPERABLE.

[51] CONNECTICUT YANKEE DOCKET 50-213 LER 88-013
 DESIGN DEFICIENCY IDENTIFIED IN CHARGING PUMP MOTOR OPERATED SUCTION VALVES.
 EVENT DATE: 050288 REPORT DATE: 053188 NSSS: WE TYPE: PWR
 VENDOR: WESTINGHOUSE ELECTRIC CORP.

(NSIC 209497) ON MAY 2, 1988 AT 0345, WITH THE PLANT IN COLD SHUTDOWN, THE VOLUME CONTROL TANK (VCT) ISOLATION VALVE (CH-MOV-257) FAILED TO CLOSE DURING SURVEILLANCE TESTING. IT WAS DETERMINED THAT THIS POTENTIAL SINGLE FAILURE COULD DISABLE THE CHARGING PUMPS. UPON FURTHER REVIEW, IT WAS DETERMINED ON MAY 6, 1988 THAT A SECOND SINGLE FAILURE EXISTED IF THE REFUELING WATER STORAGE TANK ISOLATION VALVE (BA-MOV-373) FAILED TO OPEN. THE FAILURE OF CH-MOV-257 TO OPERATE WAS DETERMINED TO BE CAUSED BY BINDING OF THE MECHANICAL INTERLOCK WITHIN THE REVERSING STARTER ASSEMBLY FOR THE VALVE'S MOTOR OPERATOR. THE REVERSING STARTER WAS REPLACED WITH A NEW MODEL WHICH CONTAINS AN IMPROVED MECHANICAL INTERLOCK DEVICE. ALL OTHER MOTOR OPERATED VALVES WITH THIS TYPE OF INTERLOCK WERE INSPECTED AND ALTHOUGH NO SIMILAR BINDING PROBLEMS WERE IDENTIFIED, THE INTERLOCKS ON FIVE ADDITIONAL VALVES WERE REPLACED AS A PRECAUTIONARY MEASURE. TO PROTECT THE CHARGING PUMPS FROM THESE SINGLE FAILURE CONCERNS, A DESIGN CHANGE WAS IMPLEMENTED WHICH TRIPS THE CHARGING PUMPS UPON RECEIPT OF A SAFETY INJECTION SIGNAL. ADDITIONAL LONG-TERM HARDWARE MODIFICATIONS ARE ALSO BEING EVALUATED. THIS EVENT IS REPORTABLE UNDER 10CFR50.73(A)(2)(V) BECAUSE A CONDITION EXISTED WHICH ALONE COULD HAVE PREVENTED THE ABILITY TO ADEQUATELY REMOVE DECAY HEAT AND MITIGATE THE CONSEQUENCES OF AN ACCIDENT.

[52] CONNECTICUT YANKEE DOCKET 50-213 LER 88-014
 FAILURE TO TAKE SAMPLES WITH SERVICE WATER EFFLUENT MONITOR OUT OF SERVICE.
 EVENT DATE: 051188 REPORT DATE: 060788 NSSS: WE TYPE: PWR

(NSIC 209517) ON 5/11/88 AT 0720, WITH THE PLANT IN COLD SHUTDOWN, IT WAS DETERMINED THAT EFFLUENT SAMPLE PUMP P-8-1A WAS TAKEN OUT OF SERVICE FOR MAINTENANCE ON MAY 10, 1988 AT 1300 RENDERING SERVICE WATER EFFLUENT RADIATION

MONITOR R-18 INOPERABLE. SERVICE WATER DISCHARGES CONTINUED FOR 18 HOURS WITHOUT SAMPLING WHICH IS IN VIOLATION OF PLANT TECHNICAL SPECIFICATIONS. THE ROOT CAUSE OF THIS EVENT IS PERSONNEL ERROR. CONTRIBUTING FACTORS WERE PROCEDURE INADEQUACY AND A MISINTERPRETATION OF THE TECHNICAL SPECIFICATIONS. THE FOLLOWING CORRECTIVE ACTIONS HAVE BEEN TAKEN TO PRECLUDE RECURRENCE OF THIS EVENT: 1. AN OPERATIONS DEPARTMENT INSTRUCTION HAS BEEN WRITTEN WITH SPECIFIC GUIDANCE ON REQUIRED OPERATOR ACTIONS WHEN RADIATION MONITORS ARE DISABLED; 2. A TECHNICAL SPECIFICATION CHANGE REQUEST WILL BE INITIATED TO CLARIFY THE POTENTIAL AMBIGUITY BETWEEN NORMAL SERVICE WATER EFFLUENT AND EFFLUENT THAT INCLUDES LIQUID WASTE WATER. 3. AN ANNUNCIATOR RESPONSE PROCEDURE WILL BE REVISED TO ADDRESS SAMPLING REQUIREMENTS WHEN R-18 IS INOPERABLE DUE TO INADEQUATE FLOW THROUGH THE MONITOR. THIS EVENT IS REPORTABLE UNDER 10CFR50.73(A)(2)(I)(B) SINCE IT INVOLVES A CONDITION PROHIBITED BY THE PLANT'S TECH SPECS.

[53] CONNECTICUT YANKEE DOCKET 50-21 LER 88-015
 DESIGN DEFICIENCY IDENTIFIED IN RESIDUAL HEAT REMOVAL PUMP SEAL COOLERS.
 EVENT DATE: 051888 REPORT DATE: 061488 NSSS: WE TYPE: PWR

(NSIC 209590) ON MAY 18, 1988 AT 1600 HOURS, WITH THE PLANT IN COLD SHUTDOWN (MODE 5), IT WAS DETERMINED THAT A POTENTIAL SINGLE FAILURE CONDITION EXISTED THAT COULD DISABLE BOTH RESIDUAL HEAT REMOVAL (RHR) PUMPS DURING A HYPOTHETICAL LOSS OF COOLANT ACCIDENT. IF ONE SERVICE WATER ISOLATION VALVE (SW-MOV-5 OF 6) TO THE RHR HEAT EXCHANGERS FAILED TO OPEN, SEAL COOLER FLOW TO BOTH RHR PUMPS COULD HAVE BEEN BYPASSED THROUGH THE ISOLATED RHR HEAT EXCHANGER. THE ROOT CAUSE OF THIS EVENT WAS A DESIGN DEFICIENCY. CORRECTIVE ACTION WAS TO INSTALL A CHECK VALVE IN EACH RHR PUMP COOLING WATER LINE. FUNCTIONAL TESTING DEMONSTRATED THAT THE NEW CHECK VALVES PREVENTED BYPASS FLOW THROUGH AN ISOLATED RHR HEAT EXCHANGER AND VERIFIED THAT THERE WAS ADEQUATE FLOW TO THE RHR PUMP SEAL COOLERS. THIS EVENT IS REPORTABLE UNDER 10CFR50.73(A)(2)(V) BECAUSE A CONDITION EXISTED THAT ALONE COULD HAVE PREVENTED THE FULFILLMENT OF THE SAFETY FUNCTION OF A SYSTEM NEEDED TO REMOVE RESIDUAL HEAT.

[54] COOK 1 DOCKET 50-315 LER 88-003
 PROCEDURE INADEQUACY RESULTS IN NOT TIME RESPONSE TESTING LOW SETPOINT POWER RANGE NEUTRON FLUX REACTOR TRIP.
 EVENT DATE: 052088 REPORT DATE: 062088 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: COOK 2 (PWR)

(NSIC 209624) AS A RESULT OF A COMMITMENT IN LER 50-315/87-014, AN EXTENSIVE RE-REVIEW OF REACTOR TRIP SYSTEM INSTRUMENTATION TIME RESPONSE TESTING PROCEDURES VERSUS THE TECHNICAL SPECIFICATION (AND OTHER SOURCE DOCUMENTS) REQUIREMENTS WAS UNDERTAKEN. IT WAS OBSERVED THAT THE TIME RESPONSE TEST PROCEDURE FOR THE NUCLEAR INSTRUMENTATION SYSTEM (NIS) POWER RANGE NEUTRON FLUX (PRNF) REACTOR TRIP ONLY INCLUDED THE HIGH SETPOINT TRIP. THE TECHNICAL SPECIFICATION SPECIFIES A RESPONSE TIME FOR THE PRNF REACTOR TRIP, BUT DOES NOT SPECIFY THE HIGH SETPOINT AND LOW SETPOINT AS SEPARATE FUNCTIONAL UNITS. ON MAY 20, 1988, IT WAS DETERMINED THAT THE LOW SETPOINT TRIP WAS TAKEN CREDIT FOR IN THE SAFETY ANALYSIS FOR BOTH UNITS 1 AND 2 AND SHOULD THEREFORE HAVE BEEN TIME RESPONSE TESTED. THE REASON FOR THE OMISSION COULD NOT BE DETERMINED BUT THE LACK OF SPECIFIC DETAIL IN THE TECHNICAL SPECIFICATION IS PRESUMED TO HAVE CONTRIBUTED TO THE OMISSION. THE TIME RESPONSE TEST PROCEDURES ARE BEING REVISED TO INCLUDE PRNF LOW SETPOINT TIME RESPONSE TESTING. AN UPDATED LER WILL BE SUBMITTED WHEN THE REVIEW PROGRAM HAS BEEN COMPLETED (EXPECTED COMPLETION DATE MARCH, 1989).

[55] COOK 2 DOCKET 50-316 LER 87-009 REV 01
 UPDATE ON RADIATION MONITOR INOPERABLE WITHOUT TECH SPEC REQUIRED COMPENSATORY SAMPLE DUE TO MISCOMMUNICATION (PERSONNEL ERROR).
 EVENT DATE: 082587 REPORT DATE: 061088 NSSS: WE TYPE: PWR

WOULD HAVE FUNCTIONED AS DESIGNED DURING AN ACCIDENT. ADEQUATE COOLING WAS AVAILABLE TO COOL THE CORE. PUMP CAVITATION WOULD ONLY BE A CONCERN DURING LARGE BREAK LOCA CONDITIONS AND IT IS BELIEVED THAT THE HIGH FLOW RATE WOULD NOT BE SUFFICIENT TO CAUSE A CAVITATION PROBLEM. FURTHERMORE, THE LARGE BREAK LOCA RESULT IS NOT HIGHLY DEPENDENT ON CHARGING PUMP FLOW CAPACITY DUE TO THE RAPID DEPRESSURIZATION TO ACCUMULATOR AND RESIDUAL HEAT REMOVAL PUMP ACTUATION PRESSURES. IT WAS CONCLUDED THAT NO SIGNIFICANT RISK TO PUBLIC HEALTH AND SAFETY EXISTED.

[58] COOPER DOCKET 50-298 LER 88-008 REV 01
 UPDATE ON FAILURE OF RHR INBOARD INJECTION VALVES TO CLOSE DURING SURVEILLANCE TESTING.
 EVENT DATE: 040688 REPORT DATE: 063088 NSSS: GE TYPE: BWR

(NSIC 209719) ON APRIL 6, 1988, DURING PERFORMANCE OF A SURVEILLANCE TEST FOR THE RESIDUAL HEAT REMOVAL (RHR) INJECTION VALVE TRIP LOGIC, THE VALVE CLOSURE CONTROL LOGIC RELAYS FAILED TO ACTUATE. THE LOGIC CIRCUIT IS DESIGNED TO INITIATE CLOSURE OF RHR INJECTION VALVES RHR-MOV-M025A AND B, IF OPENED (AND PREVENT OPENING, IF CLOSED) WHEN A GROUP 2 ISOLATION SIGNAL (HIGH DRYWELL PRESSURE OR LOW REACTOR VESSEL WATER LEVEL) IS ACTUATED AND RHR IS IN THE SHUTDOWN COOLING MODE; I.E., SHUTDOWN COOLING SUCTION VALVES, RHR-MOV-M017 AND 18, ARE OPEN. WHEN THIS PROBLEM WAS DISCOVERED, THE REACTOR WAS IN A COLD SHUTDOWN CONDITION (PRIMARY CONTAINMENT INTEGRITY NOT REQUIRED) AND THE 1988 REFUELING OUTAGE WAS IN PROGRESS. AS SPECIFIED IN REVISION 0, A COMPLETE INVESTIGATION OF THE TEST DEVIATION COULD NOT BE COMPLETED DUE TO PLANT CONDITIONS. SUBSEQUENTLY, THE SURVEILLANCE TEST WAS RE-PERFORMED AS A MEANS TO INITIATE TROUBLESHOOTING. THIS TEST OF THE LOGIC CIRCUIT WAS COMPLETED SATISFACTORILY WITHOUT IMPLEMENTATION OF ANY CORRECTIVE ACTION. NEVERTHELESS, FURTHER INVESTIGATION REVEALED THAT THE CAUSE OF THE PROBLEM WAS DUE TO INCONSISTENT ACTUATION OF THE LIMIT SWITCHES ASSOCIATED WITH THE MOTOR OPERATOR FOR RHR-MOV-M017, RHR SHUTDOWN COOLING OUTBOARD SUCTION VALVE, WHICH WERE USED IN THE TRIP LOGIC CIRCUITS FOR THE RHR INBOARD INJECTION VALVES.

[59] COOPER DOCKET 50-298 LER 88-014
 UNPLANNED ACTUATION OF GROUP 6 ISOLATION DUE TO A FUSE FAILURE WHILE SHUTDOWN.
 EVENT DATE: 050588 REPORT DATE: 060288 NSSS: GE TYPE: BWR

(NSIC 209481) ON MAY 5, 1988, AT 3:27 P.M., WHILE SHUTDOWN FOR THE 1988 REFUELING OUTAGE, AN UNPLANNED GROUP 6 ISOLATION (ISOLATION OF THE SECONDARY CONTAINMENT AND INITIATION OF THE STANDBY GAS TREATMENT (SGT) SYSTEM) OCCURRED WHEN A 24V DC FUSE SUPPLYING POWER TO THE "A" REACTOR BUILDING EXHAUST PLENUM RADIATION MONITOR FAILED. UPON FAILURE OF THE FUSE, AN UNBALANCE IN TRIP RELAY VOLTAGE RESULTED, CAUSING THE UNIT TO FAIL UPSCALE. OTHER THAN LOSS OF NORMAL REACTOR BUILDING VENTILATION, THERE WERE NO RELATED PLANT EFFECTS. THE FUSE WAS REPLACED, THE GROUP 6 ISOLATION WAS RESET, AND NORMAL REACTOR BUILDING VENTILATION WAS RESTORED. NO ADDITIONAL CORRECTIVE ACTION WAS DETERMINED TO BE NECESSARY.

[60] COOPER DOCKET 50-298 LER 88-016
 PIPE SUPPORT DESIGN DEFICIENCIES DISCOVERED DURING DESIGN CHANGE ENGINEERING ACTIVITIES.
 EVENT DATE: 051788 REPORT DATE: 063088 NSSS: GE TYPE: BWR

(NSIC 209720) WHILE EVALUATING A MODIFICATION TO THE EXISTING HIGH PRESSURE COOLANT INJECTION (HPCI) PUMP DISCHARGE PIPING, AN EXISTING SUPPORT WAS FOUND TO BE UNDERDESIGNED FOR THE DESIGN LOADS SHOWN ON THE HANGER DRAWING. AS A RESULT, FURTHER ANALYSES OF THE HPCI PUMP DISCHARGE LINE SUPPORTS WERE CONDUCTED. THESE ANALYSES REVEALED THAT 50 PERCENT OF THE SUPPORTS WERE UNDERDESIGNED FOR THE MAXIMUM POSSIBLE EARTHQUAKE (SAFE SHUTDOWN EARTHQUAKE, OR SSE) LOAD CASE. THE

H7CI PUMP DISCHARGE SYSTEM WAS SURSEQUENTLY MODIFIED TO BRING ALL SUPPORTS UP TO CODE QUALIFICATION (USAS B31.1.0, 1967 EDITION). ALSO, AN EVALUATION OF A REPRESENTATIVE SAMPLE OF SUPPORTS FROM ALL OTHER ESSENTIAL SYSTEMS WAS PERFORMED TO ASSESS POTENTIAL GENERIC CONCERNS. THIS EVALUATION RESULTED IN THE DISCOVERY OF ADDITIONAL SUPPORTS THAT DID NOT MEET CODE ALLOWABLES. A DETAILED OPERABILITY ANALYSIS WAS PERFORMED ON THE AS-FOUND HPCI PUMP DISCHARGE LINE, AND THE LINE WAS DETERMINED TO REMAIN OPERABLE DURING THE SSE LOAD CASE. IN ADDITION, A SAMPLE OF SUPPORTS FROM THE OTHER REMAINING ESSENTIAL SYSTEMS THAT HAD NOT BEEN SUBJECT TO REANALYSES SUBSEQUENT TO THEIR ORIGINAL DESIGN WERE SELECTED. THROUGH REVIEW AND/OR MODIFICATION OF THESE SUPPORTS, THE ASSOCIATED PIPING SYSTEMS WERE DETERMINED TO BE OPERABLE. IN ADDITION, ALL ORIGINAL CLASS IN PIPE SUPPORTS WERE EVALUATED AND MODIFICATIONS MADE AS REQUIRED TO ENSURE QUALIFICATION.

[61] COOPER DOCKET 50-298 LER 88-015
 UNPLANNED ACTUATION OF THE REACTOR PROTECTION SYSTEM AND ENGINEERED SAFETY
 FEATURE GROUP ISOLATIONS DUE TO A PROCEDURAL DEFICIENCY DURING DESIGN CHANGE
 ACTIVITIES.
 EVENT DATE: 052088 REPORT DATE: 061088 NSSS: GE TYPE: BWR

(NSIC 209528) ON MAY 20, 1988, AT 10:41 A.M. WHILE SHUTDOWN FOR THE 1988 REFUELING OUTAGE, AN UNPLANNED ACTUATION OF THE REACTOR PROTECTION SYSTEM (RPS) AND ENGINEERED SAFETY FEATURE (ESF) GROUP ISOLATIONS OCCURRED WHILE PREPARING FOR ACCEPTANCE TESTING OF A NEWLY INSTALLED LEVEL TRANSMITTER. THE SENSING LINE FOR THE LEVEL TRANSMITTER, WHICH ALSO SERVES AS THE VARIABLE LEG FOR SEVERAL OTHER LEVEL INSTRUMENTS IN THE RPS TRIP LOGIC AND PRIMARY CONTAINMENT/REACTOR VESSEL ISOLATION LOGIC, HAD BEEN BACKFILLED AND WAS BEING VENTED. UPON OPENING THE INSTRUMENT VENT, THE LOCALIZED EFFECT SENSED BY THE ATTACHED LEVEL INSTRUMENTS WAS A DECREASE IN VARIABLE LEG PRESSURE; IN EFFECT, AN APPARENT LEVEL DECREASE. THE DECREASE WAS SUFFICIENT TO TRIP BOTH LEVEL TRANSMITTERS, RESULTING IN A TRIP OF BOTH RPS CHANNELS AND, ADDITIONALLY, ACTUATION OF GROUPS 2, 3, AND 6 ISOLATIONS. THE RESPONSE OF THE RPS AND ACTUATION OF GROUPS 2, 3, AND 6 ISOLATIONS OCCURRED AS DESIGNED. SINCE THE PLANT WAS SHUTDOWN, THERE WAS NO IMPACT ON PLANT OPERATIONAL ACTIVITIES. THE CAUSE OF THE EVENT WAS DUE TO A PROCEDURAL DEFICIENCY IN THAT NO SPECIFIC GUIDANCE WAS PROVIDED REFLECTING THE STEPS TO BE TAKEN OR THE POTENTIAL INTERACTIONS THAT COULD OCCUR DURING THE PROCESS.

[62] COOPER DOCKET 50-298 LER 88-017
 UNPLANNED AUTOMATIC ACTUATION OF ENGINEERED SAFETY FEATURES DUE TO HUMAN ERRORS
 DURING SURVEILLANCE TESTING.
 EVENT DATE: 052688 REPORT DATE: 062788 NSSS: GE TYPE: BWR

(NSIC 209721) ON 5/26/88, TWO UNPLANNED ACTUATIONS OF ENGINEERED SAFETY FEATURES (ESFS) OCCURRED WHILE PERFORMING A RECENTLY REVISED SURVEILLANCE TEST TO VERIFY THE INTEGRITY OF ALL CIRCUITS WHICH INITIATE STARTING OF THE DIESEL GENERATORS (DGS). AT THE TIME OF THE PERFORMANCE OF THESE TESTS, THE REACTOR WAS SHUTDOWN AND ACTIVITIES WERE IN PROGRESS TO RECOVER FROM THE 1988 REFUELING OUTAGE WHICH HAD COMMENCED 2/5/88. THE FIRST ESF ACTUATION INVOLVED AN UNPLANNED START OF DG #1 WHEN THE STARTING CIRCUIT FOR DG #2 WAS BEING CHECKED. THE CAUSE WAS DUE TO JUMPER INSTALLATION IN THE 1AN BREAKER CUBICLE IN LIEU OF THE 1BN BREAKER CUBICLE. THE SECOND ESF ACTUATION INVOLVED AN UNPLANNED START OF CORE SPRAY (CS) PUMP B. THE CAUSE WAS DUE TO SELECTING THE WRONG RELAY (ONE MOUNTED BELOW THE NAMEPLATE IDENTIFIER AS OPPOSED TO THE ONE ABOVE) FOR INSTALLATION OF RELAY CONTACT BLOCKS. PERSONNEL ERROR AND HUMAN FACTORS DEFICIENCIES ARE CONSIDERED TO BE THE ROOT CAUSES OF THESE EVENTS. CORRECTIVE ACTIONS TAKEN AFTER EACH UNPLANNED ACTUATION INCLUDED A REVIEW OF THE PROCEDURAL STEPS BY TEST PERSONNEL, A DISCUSSION REGARDING THE ERRORS MADE AND RE-PERFORMANCE OF THE TEST STEPS CORRECTLY. AFTER THE TEST, THE TEST ENGINEER WAS COUNSELLED BY HIS MANAGER.

DURING A SLOW LOSS OF PNEUMATIC SUPPLY, TRANSIENT ANALYSES REQUIRING A MAIN STEAM ISOLATION ASSUME RAPID MSIV CLOSURE IMMEDIATELY UPON INITIATION OF THE TRANSIENT. SINCE MSIV CLOSURE WOULD OCCUR LONG BEFORE A DEGRADED PNEUMATIC SYSTEM PRESSURE COULD BE REACHED, SAFETY SIGNIFICANCE OF THIS EVENT WAS MINIMAL.

[84] DRESDEN 3 DOCKET 50-249 LER 87-026 REV 01
 UPDATE ON LOW REACTOR WATER LEVEL SCRAM SWITCH FOUND BELOW SETPOINT LIMITS DUE TO LOGIC CARD INSTRUMENT DRIFT.
 EVENT DATE: 091587 REPORT DATE: 052088 NSSS: GE TYPE: BWR
 VENDOR: ROSEMOUNT, INC.

(NSIC 20977) AT 2300 HOURS ON SEPTEMBER 15, 1987, WITH DRESDEN UNIT 2 IN THE RUN MODE AT 96% POWER, WHILE PERFORMING DRESDEN INSTRUMENT SURVEILLANCE (DIS) 500-2, THE CHANNEL B REACTOR VESSEL LOW WATER LEVEL SCRAM SETPOINT WAS FOUND AT 13 INCHES BELOW INSTRUMENT ZERO. THIS INSTRUMENTATION ALSO INITIATES AUTOMATIC PRIMARY CONTAINMENT GROUP II AND III ISOLATIONS. THE TECH SPEC LIMIT, WHEN COMPENSATED FOR 100% STEAM FLOW, IS 8 INCHES ABOVE INSTRUMENT ZERO. THE PROXIMATE CAUSE WAS DETERMINED TO BE INSTRUMENT DRIFT OF THE MASTER TRIP UNIT 2-263-140B LOGIC CARD. THE SAFETY SIGNIFICANCE OF THE EVENT WAS DEEMED MINIMAL BECAUSE THE REDUNDANT CHANNEL B SWITCH IN COMBINATION WITH THE A SWITCHES WERE AVAILABLE TO PROVIDE THE AUTOMATIC SCRAM AND PRIMARY CONTAINMENT ISOLATIONS. THE SETPOINT OF MASTER TRIP UNIT 2-263-140B WAS ADJUSTED WITHIN THE LIMITS OF DIS 500-2 WITHIN APPROXIMATELY ONE HOUR. THE LOGIC CARD WAS SUBSEQUENTLY REPLACED AND THE O.D CARD REPAIRED. A FAILED ZENER DIODE WAS THE ROOT CAUSE OF THE TRIP UNIT'S DRIFT. DIS 500-2 WILL CONTINUE TO BE PERFORMED ON A MONTHLY BASIS. THIS WAS THE FIRST OCCURRENCE OF INSTRUMENT DRIFT OF THE ROSEMOUNT MASTER TRIP UNIT AT DRESDEN STATION.

[85] DRESDEN 3 DOCKET 50-249 LER 88-003 REV 01
 UPDATE ON FLUED HEAD ANCHOR SUPPORTS IN EXCESS OF PSAR DESIGN CRITERIA DUE TO DESIGN AND CONSTRUCTION DEFICIENCIES.
 EVENT DATE: 032388 REPORT DATE: 071588 NSSS: GE TYPE: BWR

(NSIC 209939) ON 3/23/88 AT 1115 HRS DURING UNIT 3 OPERATION AT 96% POWER STATION MANAGEMENT WAS NOTIFIED BY THE BWR ENGINEERING DEPARTMENT (BWRED) THAT THREE PRIMARY CONTAINMENT PIPE PENETRATION FLUED HEAD ANCHORS (PHAS) DID NOT MEET FINAL SAFETY ANALYSIS REPORT (PSAR) DESIGN REQUIREMENTS. THIS WAS DISCOVERED AS A RESULT OF ANALYSIS OF PHA DATA FROM PHA INSPECTIONS PERFORMED IN JANUARY OF 1988. TWO OF THE PHAS WERE DETERMINED TO NOT MEET PSAR PIPE RUPTURE DESIGN REQUIREMENTS DUE TO A DESIGN DEFICIENCY WHEN THE ANCHORS WERE REDESIGNED DURING THE 1986 UNIT 3 RECIRCULATION PIPING REPLACEMENT REFUEL OUTAGE. THE THIRD PHA WAS DETERMINED TO BE DEFICIENT DUE TO A BRACE THAT WAS IDENTIFIED AS MISSING DUE TO AN ORIGINAL CONSTRUCTION DEFICIENCY. SUBSEQUENTLY, AT 1147 HOURS ON MAY 4, 1988, WITH UNIT 3 SHUTDOWN IN THE REFUEL MODE, BWRED DETERMINED THAT TWO LOW PRESSURE COOLANT INJECTION (LPCI) FLUED HEADS DID NOT MEET PSAR CRITERIA BECAUSE OF MISSING SHIMS DUE TO AN ORIGINAL CONSTRUCTION DEFICIENCY. ADDITIONALLY, AT 1405 HOURS ON MAY 17, 1988, IT WAS FOUND THAT A MAIN STEAM PHA GUIDE STRUCTURE DID NOT MEET PSAR ALLOWABLE STRESS REQUIREMENTS BECAUSE OF MISSING PINS AND STRUCTURAL PARTS DUE TO AN ORIGINAL CONSTRUCTION DEFICIENCY. ASSESSMENT OF THE PHAS DETERMINED THAT THEY WERE WITHIN OPERABILITY LIMITS AND CAPABLE OF PERFORMING THEIR INTENDED FUNCTIONS UNDER ALL DESIGN BASIS EVENTS.

[86] DRESDEN 3 DOCKET 50-249 LER 88-009
 GROUP II AND GROUP III PRIMARY CONTAINMENT ISOLATIONS DUE TO A MANAGEMENT DEFICIENCY.
 EVENT DATE: 050588 REPORT DATE: 060388 NSSS: GE TYPE: BWR

(NSIC 209555) ON MAY 5, 1988 AT 2050 HOURS, WITH UNIT 3 SHUTDOWN FOR A SCHEDULED

STATUS WITHIN SEVEN DAYS OR A SPECIAL REPORT MUST BE SUBMITTED. THEREFORE, THIS SPECIAL REPORT IS BEING SUBMITTED. TO PREVENT RECURRENCE OF THIS TYPE OF EVENT, THE APPROPRIATE PERSONNEL WILL BE REINSTRUCTED TO ENSURE THAT THE SHIFT FOREMAN IS INFORMED PRIOR TO BREACHING A FIRE BARRIER PENETRATION.

[89] FARLEY 1 DOCKET 50-348 LER 88-013
 FIRE DETECTION SYSTEM INOPERABLE FOR MORE THAN FOURTEEN DAYS.
 EVENT DATE: 042588 REPORT DATE: 052488 NSSS: WE TYPE: PWR

(NSIC 209474) AT 2115 ON 4/11/88, FIRE DETECTION SYSTEM 1A-22 WAS DISABLED IN ORDER TO SUPPORT MODIFICATIONS TO THE CONTAINMENT COOLER SERVICE WATER PIPING. DUE TO THE SCOPE OF THE WORK, THE SYSTEM COULD NOT BE RETURNED TO SERVICE WITHIN FOURTEEN DAYS. TECH SPEC 3.3.3.9 REQUIRES THE FIRE DETECTION SYSTEM TO BE RETURNED TO OPERABLE STATUS WITHIN FOURTEEN DAYS OR A SPECIAL REPORT MUST BE SUBMITTED WITHIN THE FOLLOWING 30 DAYS. THEREFORE, THIS SPECIAL REPORT IS BEING SUBMITTED. THE WORK WAS COMPLETED AND SYSTEM 1A-22 WAS DECLARED OPERABLE AT 1330 ON 5/14/88. TECH SPEC ACTION STATEMENT REQUIREMENTS HAVE BEEN MET FOR THE INOPERABLE FIRE DETECTION SYSTEM.

[90] FARLEY 1 DOCKET 50-348 LER 88-016
 FIRE DOOR INOPERABLE FOR MORE THAN SEVEN DAYS.
 EVENT DATE: 052588 REPORT DATE: 062488 NSSS: WE TYPE: PWR

(NSIC 209743) AT 1200 ON 5-18-88, FIRE DOOR 408 WAS DECLARED INOPERABLE BECAUSE IT HAD BEEN SECURED IN THE OPEN POSITION TO FACILITATE ACCESS TO THE AREA. ON 5-24-88, THE WORK IN THIS AREA WAS COMPLETED AND THE DOOR WAS INSPECTED PRIOR TO RESTORING THE DOOR TO OPERABLE STATUS. DURING THIS INSPECTION, AT APPROXIMATELY 2200 ON 5-24-88, IT WAS DISCOVERED THAT THE DOOR WAS DAMAGED. THE DOOR WAS REPAIRED AND RETURNED TO FUNCTIONAL STATUS AT 0830 ON 6-6-88. TECHNICAL SPECIFICATION 3.7.12 REQUIRES: WITHIN ONE HOUR, EITHER ESTABLISH A CONTINUOUS FIRE WATCH ON AT LEAST ONE SIDE OF THE AFFECTED PENETRATION, OR VERIFY THE OPERABILITY OF FIRE DETECTORS ON AT LEAST ONE SIDE OF THE NON-FUNCTIONAL FIRE BARRIER AND ESTABLISH AN HOURLY FIRE WATCH PATROL. AN HOURLY FIRE WATCH PATROL WAS ESTABLISHED AND MAINTAINED. TECHNICAL SPECIFICATION 3.7.12 ALSO REQUIRES THE DOOR TO BE RETURNED TO FUNCTIONAL STATUS WITHIN SEVEN DAYS OR A SPECIAL REPORT MUST BE SUBMITTED. THEREFORE, THIS SPECIAL REPORT IS BEING SUBMITTED.

[91] FARLEY 2 DOCKET 50-364 LER 88-005
 PERSONNEL ERROR RESULTS IN TERMINATION OF THE WRONG FIRE WATCH PATROL.
 EVENT DATE: 050188 REPORT DATE: 052688 NSSS: WE TYPE: PWR

(NSIC 209423) AT 0800 ON 5-1-88, IT WAS DISCOVERED THAT AN HOURLY FIRE WATCH PATROL REQUIRED BY TECHNICAL SPECIFICATION 3.7.12 HAD NOT BEEN PERFORMED DURING THE PERIOD FROM 1315 ON 4-30-88 UNTIL 0800 ON 5-1-88. THE SHIFT FOREMAN COORDINATING FIRE WATCHES HAD DISCONTINUED FIVE FIRE WATCH PATROLS AT 1315 ON 4-30-88 BECAUSE THE SITUATION REQUIRING THE FIRE WATCH PATROLS HAD BEEN CORRECTED. FOUR OF THESE FIRE WATCH PATROLS WERE DISCONTINUED CORRECTLY. HOWEVER, IN THE FIFTH CASE, THE FIRE WATCH PATROL IN THE WRONG LOCATION WAS DISCONTINUED. THIS EVENT WAS CAUSED BY PERSONNEL ERROR. THE SHIFT FOREMAN INVOLVED IN THIS EVENT HAS BEEN COUNSELED.

[92] FARLEY 2 DOCKET 50-364 LER 88-006
 FIRE DETECTION SYSTEM INOPERABLE FOR MORE THAN FOURTEEN DAYS.
 EVENT DATE: 050188 REPORT DATE: 052688 NSSS: WE TYPE: PWR

(NSIC 209424) AT 1100 ON 4-17-88, FIRE DETECTION SYSTEM 2A-22 WAS DECLARED INOPERABLE DUE TO A SPURIOUS ALARM WHICH WOULD NOT CLEAR. THE SYSTEM COULD NOT

BE RETURNED TO SERVICE WITHIN 14 DAYS. TECHNICAL SPECIFICATION 3.3.3.9 REQUIRES THE FIRE DETECTION SYSTEM TO BE RETURNED TO OPERABLE STATUS WITHIN 14 DAYS OR A SPECIAL REPORT MUST BE SUBMITTED WITHIN THE FOLLOWING 30 DAYS. THEREFORE, THIS SPECIAL REPORT IS BEING SUBMITTED. INVESTIGATIONS HAVE BEEN CONDUCTED IN AN ATTEMPT TO DETERMINE THE CAUSE OF THE SPURIOUS ALARM. TROUBLESHOOTING HAS INDICATED THAT THE PROBLEM IS INSIDE CONTAINMENT. THE AMOUNT OF WORK THAT CAN BE DONE ON THIS SYSTEM IS LIMITED SINCE THE DETECTORS FOR THIS SYSTEM ARE LOCATED IN CONTAINMENT AND ARE INACCESSIBLE DURING POWER OPERATION. FIRE DETECTOR SYSTEM 2A-22 WILL BE REPAIRED DURING THE NEXT OUTAGE OF SUFFICIENT DURATION TO ALLOW REPAIR. TECHNICAL SPECIFICATION ACTION STATEMENT REQUIREMENTS ARE BEING MET FOR THE INOPERABLE FIRE DETECTION SYSTEM.

[93] FERMI 2 DOCKET 50-341 LER 88-016
 FAILED RELAY CAUSES RESIDUAL HEAT REMOVAL SHUTDOWN COOLING OUTBOARD ISOLATION VALVE TO CLOSE.
 EVENT DATE: 042088 REPORT DATE: 052088 NSSS: GE TYPE: BWR
 VENDOR: AGASTAT RELAY CO.

(NSIC 209415) PRIMARY CONTAINMENT ISOLATION SYSTEM (PCIS) LOGIC RELAY A71B-K75 WAS REPLACED AS PART OF A PREVENTATIVE MAINTENANCE PROGRAM ACTIVITY ON APRIL 15, 1988. ON APRIL 20, 1988, AT 1930 HOURS, THE RELAY FAILED WHICH INITIATED A CLOSURE OF THE RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING (SDC) OUTBOARD ISOLATION VALVE, E11-F008. DIVISION II OF THE RHR SDC ISOLATED WHEN E11-F008 CLOSED. THE ISOLATION VALVE WAS REOPENED MANUALLY, AND DIVISION II RHR SDC WAS REESTABLISHED AT 2007 HOURS. THE EVENT WAS CAUSED BY THE FAILURE OF AGASTAT RELAY A71B K75 TO REMAIN IN AN ENERGIZED STATE, FOLLOWING A RESET OF THE E11-F008'S ISOLATION LOGIC. UPON SENSING THE PRESENCE OF AN ISOLATION SIGNAL FROM THE DE-ENERGIZED RELAY, THE ISOLATION VALVE STROKED CLOSED. THE RELAY WAS REPLACED. PCIS LOGIC WAS SUCCESSFULLY TESTED ON APRIL 24, AT 2314 HOURS. E11-F008 WAS THEN RETURNED TO NORMAL OPERATION UPON RESTORATION OF POWER.

[94] FERMI 2 DOCKET 50-341 LER 88-017
 CONTROL CENTER HEATING VENTILATING AND AIR CONDITIONING SHIFTS TO RECIRCULATION MODE BECAUSE OF LOSS OF CONTROL POWER.
 EVENT DATE: 042788 REPORT DATE: 052788 NSSS: GE TYPE: BWR
 VENDOR: GENERAL ELECTRIC CO.

(NSIC 209416) ON APRIL 27, 1988, THE DIVISION II CONTROL CENTER HEATING VENTILATION AND AIR CONDITIONING SYSTEM (CCHVAC) SHIFTED TO RECIRCULATION MODE DUE TO DE-ENERGIZATION OF THE LOCAL PANEL. THIS WAS CAUSED BY A SHORT IN THE PANEL WHEN AN OPERATOR ATTEMPTED TO REMOVE A BURNED OUT INDICATOR LAMP ON THE PANEL. THE INDICATOR LAMP WAS LOOSE AT ITS BASE AND APPARENTLY THE FILAMENTS LEADS CONTACTED UPON BEING ROTATED. THE BURNED OUT INDICATOR LAMP AND THE OPENED FUSE WERE REPLACED. DIVISION II CCHVAC WAS RETURNED TO NORMAL MODE OF OPERATION IN 96 MINUTES.

[95] FERMI 2 DOCKET 50-341 LER 88-018
 FAILURE TO PERFORM SHIFTLY SURVEILLANCE OF INTERMEDIATE RANGE MONITOR WITHIN THE REQUIRED TIME.
 EVENT DATE: 050388 REPORT DATE: 060288 NSSS: GE TYPE: BWR

(NSIC 209533) ON MAY 3, 1988, AN OPERATING SHIFT FAILED TO PERFORM THE TECHNICAL SPECIFICATION REQUIRED TWELVE HOUR SURVEILLANCES WITHIN THE ALLOWABLE TIME REVIEW OF THE ACTIVITIES ON SHIFT INDICATES THAT THE ACTION STATEMENTS WERE MET EXCEPT FOR THE INTERMEDIATE RANGE MONITOR INOPERATIVE CHANNELS. THIS EVENT WAS CAUSED BY A FAILURE OF THE RESPONSIBLE INDIVIDUALS TO ENSURE THE SURVEILLANCES WERE COMPLETED WITHIN THE REQUIRED TIME PERIOD. THE SURVEILLANCES WERE SUCCESSFULLY PERFORMED AT 0042 HOURS MAY 4, 1988, 17 HOURS AND 12 MINUTES AFTER

(NSIC 209740) AT 0315 HOURS ON MAY 28, 1988. THE REACTOR WATER CLEANUP SYSTEM (RWCU) WAS MANUALLY ISOLATED BY OPERATOR ACTION WHEN A STEAM LEAK DEVELOPED WHILE RETURNING THE RWCU TO SERVICE. THE STEAM LEAK WAS OBSERVED TO BE ABOVE THE RWCU PUMP ROOMS. THE SYSTEM WAS ISOLATED AND DEPRESSURIZED BY ESTABLISHING A BLOWDOWN PATH TO THE CONDENSER. THE STEAM LEAK CONTAMINATED A LARGE AREA OF THE REACTOR BUILDING AND THE CLOTHING OF THREE EMPLOYEES WHO WERE IN THE AREA. THESE PERSONNEL SHOWED NO INTERNAL CONTAMINATION AND NO RADIATION WAS RELEASED TO THE ENVIRONMENT. THE LEAK WAS CAUSED BY AN INSTRUMENT LINE PULLING OUT OF ITS COMPRESSION FITTING. THIS APPEARS TO BE DUE TO IMPROPER INSTALLATION. THE INSTRUMENT LINE WAS REPAIRED. THE INVESTIGATION IS CONTINUING INTO THE INSTRUMENT LINE FAILURE. DECONTAMINATION OF THE REACTOR BUILDING IS IN PROGRESS.

[100] FITZPATRICK DOCKET 50-333 LER 88-004
 REACTOR SAFETY/RELIEF VALVE SETPOINT DRIFT.
 EVENT DATE: 052388 REPORT DATE: 061388 NSSS: GE TYPE: BWR
 VENDOR: TARGET ROCK CORP.

(NSIC 209635) DURING NORMAL OPERATION AT 100% RATED POWER ON MAY 23, 1988, A VENDOR INFORMED THE PLANT STAFF THAT 3 OF 5 SAFETY/RELIEF VALVES (SRVS) (AD) THAT HAD BEEN REMOVED FOR TEST DURING A JANUARY 1988 MAINTENANCE OUTAGE DID NOT ACTUATE WITHIN THE ALLOWED +/-1% OF NAMEPLATE SETPOINT AS REQUIRED BY TECHNICAL SPECIFICATION 2.2.1.B. SETPOINT DRIFT AND SINGLE VALVE INOPERABILITY HAVE BEEN PREVIOUSLY EVALUATED AND BEEN ACCEPTABLE WITH RESPECT TO OVERPRESSURE PROTECTION. AN EVALUATION FOR A PREVIOUS EVENT (LER-87-004), WHICH IS EXPECTED TO ALSO BE BOUNDING FOR THIS EVENT, IS IN PROGRESS. THE VENDOR TEST REPORT WITH A COMPLETE EVALUATION OF THE APPARENT SETPOINT DRIFT AND CORRECTIVE ACTION TAKEN IS EXPECTED TO BE COMPLETE BY AUGUST 1988. REVISION OF THIS LER TO REFLECT EVALUATION OF POTENTIAL OVERPRESSURE AND PROVIDE DETAILS CONCERNING THE EVENT CAUSE AND CORRECTIVE ACTION IS EXPECTED BY SEPTEMBER 30, 1988. LER-87-004 AND 85-009 ARE SIMILAR EVENTS INVOLVING SRV SETPOINT DRIFT.

[101] FITZPATRICK DOCKET 50-333 LER 88-005
 FAILURE OF ELECTRIC BAY VENTILATION BACKUP COOLING WATER SUPPLY CHECK VALVES.
 EVENT DATE: 052588 REPORT DATE: 062488 NSSS: GE TYPE: BWR
 VENDOR: VELAN VALVE CORP.

(NSIC 209735) ON FEBRUARY 27, 1987 AND MARCH 25, 1987, WHILE SHUTDOWN FOR REFUEL AND MAINTENANCE, SIX EMERGENCY SERVICE WATER (ESW) (BI) CHECK VALVES THAT SUPPLY VENTILATION SYSTEM BACKUP COOLING FOR NORMAL 4KV (EA) AND PART OF THE SAFETY-RELATED 600V AC (ED) SYSTEMS WERE FOUND INOPERABLE DUE TO AN ACCUMULATION OF MUD AND SCALE WHEN DISASSEMBLED FOR INSERVICE TESTS. AN INITIAL EVALUATION REVEALED THAT NO TECH SPECS OR FINAL SAFETY ANALYSIS REPORT (FSAR) BASIS FOR THE DESIGN OR SAFETY SIGNIFICANCE. LATER EVALUATION ESTABLISHED AN ORIGINAL DESIGN SAFETY BASIS. THE VALVES WERE CLEANED TO RESTORE OPERABILITY PRIOR TO PLANT STARTUP AT THE END OF THE REFUEL CHANGE. PERIODIC FLUSHING WILL BE CONDUCTED TO MAINTAIN OPERABILITY. ADDITIONAL EVALUATION CONTINUES TO ESTABLISH THE BASIS FOR CHANGES TO DESIGN DOCUMENTS, FSAR, AND TECH SPECS AS APPROPRIATE. FAILURE OF THE VALVES TO OPEN TO PROVIDE BACKUP COOLING WHEN NORMAL COOLING FAILS IS NOT BELIEVED TO BE SAFETY SIGNIFICANT DUE TO A LOW HEAT LOAD. THERE HAVE BEEN NO SIMILAR LERS FOR CHECK VALVE FAILURE DUE TO BUILDUP OF MUD AND SCALE. THERE ALSO HAVE BEEN NO SIMILAR LERS INVOLVING LACK OF DESIGN BASIS OR SAFETY CLASSIFICATION DOCUMENTATION.

[102] FT. CALHOUN 1 DOCKET 50-285 LER 88-011 REV 03
 UPDATE ON POTENTIAL FAILURE TO MAINTAIN CONTAINMENT INTEGRITY WHEN REQUIRED.
 EVENT DATE: 032788 REPORT DATE: 070188 NSSS: CE TYPE: PWR

(NSIC 209718) A NOTIFICATION TO THE NRC WAS MADE AT 1133 (CDT), APRIL 19, 1988,

PER 10 CFR 50.72(B)(1)(II)(A), CONCERNING THE LOSS OF CONTAINMENT INTEGRITY, DUE TO THE DISCOVERY OF A NON-INSTALLED SWAGelok CAP ON CONTAINMENT PENETRATION M-38. FOLLOWING THE DISCOVERY, THE CAP WAS INSTALLED AND A THOROUGH INSPECTION OF NON-WETTED SMALL DIAMETER PIPING WAS CONDUCTED TO VERIFY CONTAINMENT INTEGRITY. FORT CALHOUN STATION, UNIT NO. 1 CONTINUED TO OPERATE AT 100 PERCENT POWER THROUGHOUT THIS TIMEFRAME. WHILE PERFORMING A VERIFICATION OF THE CONTAINMENT PENETRATION M-38 PIPING CONFIGURATION, TO BE USED IN THE CONTAINMENT ISOLATION VALVE LEAKAGE SURVEILLANCE TEST, ST-CONT-3, AN ENGINEER DISCOVERED A SWAGelok CAP MISSING FROM A TEST TEE. THE TEST TEE WAS LOCATED UPSTREAM OF PC-743, CONTAINMENT GENERAL AREA HIGH PRESSURE ALARM TRANSMITTER. FOLLOWING THIS DISCOVERY THE CAP WAS REINSTALLED AND TESTED FOR LEAKAGE. TO PREVENT RECURRENCE:

- 1) ST-CONT-3 WILL BE UPGRADED TO INCLUDE: DETAILED DRAWINGS INCLUDING TEST TEES AND PROCEDURAL SIGNOFFS FOR THE REMOVAL AND INSTALLATION OF THE DESIGNATED CAPS.
- 2) A SEPARATE DOCUMENTED AND DOUBLE VERIFIED CHECKLIST OF SWAGelok CAPS WILL BE WRITTEN, AND THIS CHECKLIST WILL BE PERFORMED PRIOR TO POWER OPERATION FOLLOWING A REFUELING OUTAGE TO ENSURE CONTAINMENT INTEGRITY. THESE ACTIONS WILL BE COMPLETED PRIOR TO THE END OF THE 1988 REFUELING OUTAGE.

[103] FT. CALHOUN 1 DOCKET 50-285 LER 88-012
FAILURE TO ISSUE SPECIAL REPORT ON FIRE BARRIER INOPERABILITY.
EVENT DATE: 042888 REPORT DATE: 052788 NSSS: CE TYPE: PWR

(NSIC 209510) ON APRIL 28, 1988, IT WAS DISCOVERED THAT A SPECIAL REPORT ON FIRE BARRIER INOPERABILITY, REQUIRED BY TECH SPEC 5.9.3, HAD NOT BEEN SUBMITTED. THE SPECIAL REPORT PERTAINED TO FIRE BARRIERS FOUND DEGRADED IN FIRE ZONES 1 AND 2 ON MARCH 18, 1988. IN ACCORDANCE WITH TECH SPEC 2.15(7), WITHIN ONE HOUR OPD PERSONNEL DID VERIFY THE OPERABILITY OF FIRE DETECTION AND ESTABLISHED AN HOURLY FIREWATCH PATROL FOR THE FIRE AREAS AFFECTED. A MAINTENANCE ORDER WAS ISSUED TO REPAIR THE FIRE BARRIERS. THE MAINTENANCE ORDER WAS NOT PROPERLY TRACKED AND THE INCOMPLETE WORK WAS NOT DISCOVERED UNTIL APRIL 28, 1988. THE SPECIAL REPORT WAS NOT SUBMITTED WITHIN THE 30 DAY TIME FRAME. THE DEGRADED BARRIERS WERE REPAIRED BY MAY 16, 1988 AND HAS BEEN RETURNED TO OPERABLE STATUS.

[104] FT. CALHOUN 1 DOCKET 50-285 LER 88-012
INADVERTENT START OF EMERGENCY DIESEL GENERATOR D-1 DURING PERFORMANCE OF SURVEILLANCE TEST.
EVENT DATE: 051888 REPORT DATE: 061788 NSSS: CE TYPE: PWR

(NSIC 209617) DURING PERFORMANCE OF ST-ESF-6 P.2 APPENDIX E, MONTHLY EMERGENCY DIESEL GENERATOR SURVEILLANCE TEST, ON MAY 18, 1988 AT APPROXIMATELY 1407 CDT, EMERGENCY DIESEL GENERATOR D-2 TRIPPED, RESULTING IN AN AUTO-START OF EMERGENCY DIESEL GENERATOR D-1. IT WAS LATER DETERMINED THAT THE LOCK-OUT RELAY TRIPPED DUE TO A REVERSE CURRENT FLOW ACROSS THE OUTPUT BREAKER. WHEN THE LOCK-OUT RELAY TRIPPED IT RESULTED IN AN AUTO-START OF EMERGENCY DIESEL GENERATOR D-1. EMERGENCY DIESEL GENERATOR D-1 RESPONDED AS DESIGNED AND WAS SHUTDOWN AND RETURNED TO EMERGENCY STANDBY AT 1415 CDT. THE RESIDENT INSPECTOR WAS IMMEDIATELY NOTIFIED, AND A REPORT TO THE NRC WAS MADE AT 1600 CDT PURSUANT TO 10 CFR 50.72(B)(2)(II). SUBSEQUENT INVESTIGATIONS FAILED TO DETERMINE A ROOT CAUSE FOR THE DIESEL TRIP.

[105] FT. ST. VRAIN DOCKET 50-267 LER 87-019
DAMAGE TO HELIUM CIRCULATOR RESULTS IN EXCESSIVE SHAFT WOBBLE LIKELY DUE TO PREEXISTING CRACKS.
EVENT DATE: 082787 REPORT DATE: 092687 NSSS: GA TYPE: HTGR

(NSIC 209868) CAUSE - STRESS CORROSION CRACKING. ON 7/22/87, "D" CIRCULATOR (S/N C-2101) TRIPPED ON FIXED HIGH SPEED. SUBSEQUENT OPERATION OF THE CIRCULATOR REVEALED EXCESSIVE SHAFT WOBBLE. ON JULY 31, IT WAS DECIDED TO REMOVE "D"

CIRCULATOR AND REPLACE IT WITH A SPARE. PRELIMINARY EVALUATIONS OF THE DAMAGED CIRCULATOR DETERMINED THAT THIS EVENT HAS GENERIC IMPLICATIONS, WHICH WAS IDENTIFIED TO THE NRC ON AUGUST 27. A PRELIMINARY ENGINEERING REPORT WAS PREPARED AND IS BEING SUBMITTED AS PART OF THIS LER. ALTHOUGH THE ROOT CAUSE OF THE CIRCULATOR FAILURE HAS NOT BEEN DETERMINED, PRELIMINARY METALLURGICAL OBSERVATIONS CONFIRMED PRE-EXISTING CRACKS, LIKELY DUE TO STRESS CORROSION CRACKING, IN BOTH THE LABYRINTH SEAL MOUNTING BOLTS, THE STEAM DUCTING-TO-BEARING ASSEMBLY BOLTS AND THE SPRING PLUNGER. THE ENGINEERING REPORT PROVIDES JUSTIFICATION FOR CONTINUED OPERATION, ASSUMING THAT THE ROOT CAUSE IS GENERIC TO ALL CIRCULATORS. THIS JUSTIFICATION IS BASED ON THE FACT THAT ONLY ONE CIRCULATOR IS REQUIRED TO ASSURE SAFE SHUTDOWN AND APPENDIX R COOLING, AND THAT SIMULTANEOUS LOSS OF ALL FOUR INSTALLED HELIUM CIRCULATORS IS CONSIDERED INCREDIBLE. CORRECTIVE ACTIONS INCLUDE CONTINUED INVESTIGATION OF THE FAILURES OBSERVED ON C-2101, AND PROPOSING A TECH SPEC CHANGE TO INCLUDE AN ENHANCED CIRCULATOR IN-SERVICE INSPECTION PROGRAM. THESE ACTIONS WERE SUMMARIZED IN LETTER P-87327 FROM PSC TO NRC DATED SEPT. 21, 1987.

[106] FT. ST. VRAIN DOCKET 50-267 LER 87-020
 LOOP II SHUTDOWN.
 EVENT DATE: 090187 REPORT DATE: 100187 NSSS: GA TYPE: HTGR

(NSIC 209869) CAUSE - PERSONNEL ERROR AND UNUSUAL LINEUP OF COOLANT SYSTEMS. ON 9/1/87, WITH THE REACTOR SHUTDOWN, A LOOP II SHUTDOWN OCCURRED WHEN THE PLANT PROTECTIVE SYSTEM (PPS) TRIP CIRCUITS ON "A" HELIUM CIRCULATOR WERE RESET WHILE RETURNING THE CIRCULATOR TO SERVICE. THE PPS TRIP CIRCUITS ON "A" HELIUM CIRCULATOR WERE RESET WITHOUT RESETTING THE PPS TRIP CIRCUITS ON "C" AND "D" HELIUM CIRCULATORS. THIS ACTION CLEARED AN EXISTING LOOP I OWN PPS TRIP ON LOOP I, AND ALLOWED EXISTING PPS TRIPS ON "C" AND "D" HELIUM CIRCULATORS TO ACTUATE THE LOOP SHUTDOWN PPS TRIP CIRCUIT FOR LOOP II. THE LOOP II SHUTDOWN PPS ACTUATION CAUSED HV-2292 TO CLOSE TO ISOLATE THE NORMAL SECONDARY COOLANT FLOW PATH. SECONDARY COOLANT FLOW TO LOOP II WAS MAINTAINED BY FLOW THROUGH PV-2230. PRIMARY COOLANT FLOW WAS MAINTAINED BY "C" HELIUM CIRCULATOR OPERATING ON PELTON DRIVE. AT NO TIME DID THIS EVENT RESULT IN THE INTERRUPTION OF PRIMARY OR SECONDARY COOLANT FLOW. THE PRIMARY CAUSE OF THIS EVENT WAS PERSONNEL ERROR. CONTRIBUTING TO THE CAUSE OF THIS EVENT WAS THE UNUSUAL LINEUP OF THE PRIMARY AND SECONDARY COOLANT SYSTEMS DURING SHUTDOWN OPERATION. THIS EVENT WILL BE REVIEWED WITH ALL REACTOR OPERATORS DURING AN OPERATING INFORMATION ASSESSMENT GROUP SEMINAR TO ENSURE A COMPLETE UNDERSTANDING OF HOW THIS EVENT OCCURRED, AND HOW TO PREVENT RECURRENCE.

[107] FT. ST. VRAIN DOCKET 50-267 LER 87-023 REV 01
 UPDATE ON HV-2292 OIL LEAK CAUSED FIRE AND MANUAL SCRAM.
 EVENT DATE: 100287 REPORT DATE: 042988 NSSS: GA TYPE: HTGR

(NSIC 209864) CAUSE - MISSING ORIFICE IN HYDRAULIC LINE. ON 10/2/87, AT APPROX. 19 HRS. WITH THE REACTOR AT 27% POWER, A FIRE WAS IDENTIFIED IN THE THERMAL RELIEF VALVE. HYDRAULIC OIL ESCAPED FROM THE HV-2292 THERMAL RELIEF VALVE, RESULTING IN OPEN FLAMES AND CONTACTED EXPOSED HOT SURFACES OF HV-2292, RESULTING IN OPEN FLAMES AND HEAVY SMOKE. A MANUAL SCRAM WAS INITIATED APPROX. 10 MINUTES LATER DUE TO LOSS OF CONTROL WITH NORMAL PRIMARY AND SECONDARY FLOW CONTROL. THE PLANT FIRE BRIGADE EXTINGUISHED THE FIRE IN LESS THAN TWENTY MINUTES WHILE THE REACTOR SIDE EQUIPMENT OPERATOR ISOLATED THE HYDRAULIC OIL SUPPLY TO THE LEAKING VALVE. OUTSIDE ASSISTANCE WAS CALLED AND PROVIDED FIRE WATCHES TO PREVENT REFLASH FIRES. THE PLANT'S EMERGENCY RESPONSE PLAN WAS PUT INTO EFFECT AND THE EMERGENCY STATIONS WERE STAFFED TO COORDINATE A SAFE PLANT SHUTDOWN AND COORDINATE THE FIRE RECOVERY ACTIVITIES. THE ROOT CAUSE OF THE FIRE WAS A MISSING ORIFICE IN THE HYDRAULIC LINE LEADING TO THE THERMAL RELIEF VALVE FOR HV-2292. CORRECTIVE ACTIONS NECESSARY TO SUPPORT RESTART OF THE PLANT HAVE BEEN COMPLETED. LONG TERM FIRE RECOVERY ENHANCEMENT EVALUATIONS HAVE BEEN COMPLETED AND THE FIRE RECOVERY

PROGRAM IS CONSIDERED CLOSED. FOLLOWUP ACTIONS WILL BE TRACKED AS IDENTIFIED THROUGH PSC'S NORMAL WORK PRIORITIZATION PROCESS.

[108] FT. ST. VRAIN DOCKET 50-267 LER 88-001
TECH SPEC SURVEILLANCE NOT PERFORMED WITHIN REQUIRED INTERVAL.
EVENT DATE: 010288 REPORT DATE: 020188 NSSS: GA TYPE: HTGR

(NSIC 209863) CAUSE - PERSONNEL ERROR. ON 1/2/88, WITH THE REACTOR OPERATING AT APPROX. 30% POWER, THE "A", "B", "C", AND "D" HELIUM CIRCULATORS OPERATING ON THEIR STEAM DRIVES, AND BOTH SECONDARY COOLANT LOOPS IN NORMAL OPERATION, RESULTS DEPARTMENT PERSONNEL FAILED TO PERFORM THE DAILY LINEAR CHANNEL HEAT BALANCE CALIBRATION. SINCE FORT ST. VRAIN TECH SPEC SR-5.4.1.1.4 REQUIRES THE LINEAR CHANNELS BE ADJUSTED DAILY TO AGREE WITH THE HEAT BALANCE CALCULATION, THIS EVENT CONSTITUTES OPERATION IN VIOLATION OF THE TECH. SPECS. WHEN A TRIP OF THE "B" HELIUM CIRCULATOR AT 1204 HOURS DELAYED PERFORMANCE OF THE LINEAR POWER CHANNEL HEAT BALANCE CALIBRATION SURVEILLANCE, THE RESULTS DEPARTMENT SUPERVISOR INSTRUCTED THE RESULTS TECHNICIAN ASSIGNED TO PERFORM THE SURVEILLANCE THAT HE COULD PROCEED HOME. DUE TO AN OVERSIGHT BY THE RESULTS SUPERVISOR, NO ADDITIONAL ARRANGEMENTS WERE MADE TO ENSURE A RESULTS TECHNICIAN PERFORMED THE LINEAR POWER CHANNEL CALIBRATION ON JANUARY 2, 1988. THE RESULTS DEPARTMENT SUPERVISOR WAS INSTRUCTED ON THE IMPORTANCE OF ENSURING COMPLETION OF THIS SURVEILLANCE ON A DAILY BASIS. NO FURTHER CORRECTIVE ACTION IS NEEDED.

[109] FT. ST. VRAIN DOCKET 50-267 LER 88-002
LOOP 1 SHUTDOWN AND MANUAL SCRAM DUE TO MISCONNECTED SPEED SENSING CABLE.
EVENT DATE: 021088 REPORT DATE: 031188 NSSS: GA TYPE: HTGR

(NSIC 209862) CAUSE - PERSONNEL ERROR. AT 1545 HOURS ON 2/10/88, WITH THE REACTOR OPERATING AT 77% POWER, "A" CIRCULATOR TRIPPED ON PROGRAMMED SPEED LOW BECAUSE OF A MISCONNECTED SPEED SENSING CABLE FROM "B" CIRCULATOR TO THE SPEED CONTROL SYSTEM OF "A" CIRCULATOR. THE TURBINE AND REACTOR RAN BACK TO 50% ON THE CIRCULATOR TRIP, AS DESIGNED. THE MAIN DISCHARGE VALVE ON "L" FEED PUMP FAILED TO CLOSE ON THE CIRCULATOR TRIP, CAUSING THE TWO TURBINE-DRIVEN FEED PUMPS TO BACK THEMSELVES OFF LINE. "A" AND "C" FEED PUMPS WERE SUPPLYING THE EMERGENCY FEEDWATER HEADER AND BACKUP BEARING WATER SYSTEM, WHICH SUPPLIES NORMAL MAKEUP TO THE BEARING WATER SURGE TANKS. THE REDUCTION IN EMERGENCY FEEDWATER HEADER PRESSURE CAUSED A LOSS OF BEARING WATER SURGE TANK MAKEUP AND A DECREASING LEVEL. WHEN THE FEED PUMP OUTPUT CONTROL SYSTEM WAS PLACED IN MANUAL TO RECOVER EMERGENCY FEEDWATER HEADER PRESSURE, MAKEUP TO THE BEARING WATER SURGE TANKS WAS RESTORED TOO RAPIDLY, RESULTING IN BUFFER HELIUM TRIPS OF "B" AND "L" CIRCULATORS AND AN AUTOMATIC SHUTDOWN OF LOOP 1. WITH ONLY ONE CIRCULATOR RUNNING, THE DECISION WAS MADE TO MANUALLY SCRAM THE REACTOR. MEASURES HAVE BEEN INSTITUTED TO PROVIDE POSITIVE CONTROL OF THE INSTALLATION OF THE CIRCULATOR SPEED CABLES. THE DEFECTIVE RELAY THAT PREVENTED THE CLOSURE OF "B" FEED PUMP DISCHARGE VALVE HAS BEEN REPLACED.

[110] FT. ST. VRAIN DOCKET 50-267 LER 88-003
REACTOR SCRAM ACTUATION BY NEUTRON FLUX RATE OF CHANGE HIGH.
EVENT DATE: 021188 REPORT DATE: 031288 NSSS: GA TYPE: HTGR

(NSIC 209867) CAUSE - ELECTRICAL NOISE. AT 0936 HOURS ON FEBRUARY 11, 1988, WITH THE REACTOR SHUTDOWN FOLLOWING A MANUAL SCRAM ON FEBRUARY 10, 1988 (SEE LER 88-002), THE PLANT PROTECTION SYSTEM (PARTICULARLY SCRAM LOGIC AND ALARM CIRCUITRY) WAS ACTUATED BY A NEUTRON FLUX RATE OF CHANGE HIGH. SINCE ALL CONTROL RODS WERE FULLY INSERTED IN THE CORE, NO CONTROL ROD MOVEMENT OCCURRED AT THIS ACTUATION. THE CAUSE OF THIS SCRAM ACTUATION WAS ELECTRICAL NOISE IN THE WIDE RANGE NUCLEAR INSTRUMENTATION CHANNELS. ELECTRICAL NOISE WAS NOT SPECIFICALLY

IDENTIFIED. PUBLIC SERVICE COMPANY HAS ACTIVELY PURSUED THE IDENTIFICATION AND SUPPRESSION OF NOISE SOURCES WITHIN THE PLANT ELECTRICAL SYSTEM. INVESTIGATIONS OF PAST NOISE RELATED ACTUATIONS OF THE PPS HAVE RESULTED IN THE COMPLETION OF SEVERAL SUCCESSFUL CORRECTIVE ACTIONS WHICH HAVE GREATLY REDUCED, BUT NOT ELIMINATED, NOISE INTERFERENCE PROBLEMS WITHIN PPS INSTRUMENTS. PSC WILL CONTINUE TO SUPPRESS OR CORRECT PROBLEM NOISE SOURCES AS THEY ARE IDENTIFIED. IN ADDITION, A CHANGE NOTICE (CN-2762) IS BEING DEVELOPED TO REPLACE OR MODIFY THE EXISTING WRC CABLES IN AN ATTEMPT TO REDUCE THE EFFECTS OF ELECTRICAL NOISE INDUCTION IN THE WRC INSTRUMENTATION.

[111] FT. ST. VRAIN DOCKET 50-267 LER 88-004
 REACTOR MANUALLY SCRAMMED FOLLOWING TURBINE TRIP DUE TO POWER GRID FLUCUATION.
 EVENT DATE: 040488 REPORT DATE: 050488 NSSS: GA TYPE: HTGR

(NSIC 209865) CAUSE - SYSTEM GENERATION DISTURBANCE. AT 1420 HOURS ON 4/4/88, WITH THE PLANT AT 74.4% POWER, AN UPSET ON THE OFF-SITE ELECTRICAL POWER GRID WAS EXPERIENCED. THE GRID FREQUENCY INCREASED TO APPROXIMATELY 60.5 HZ CAUSING THE TURBINE LOAD TO CYCLE WIDELY. THE PRIMARY AND SECONDARY SYSTEMS ATTEMPTED TO FOLLOW THE TURBINE SWINGS BUT THE LARGE LOAD CHANGES ACTUATED A POWER/LOAD UNBALANCE (PLU) CIRCUIT WHICH RESULTED IN A TURBINE TRIP. THE REACTOR OPERATOR MANUALLY SCRAMMED THE REACTOR FOLLOWING THE TURBINE TRIP. THE REACTOR OPERATOR ESTABLISHED STABLE CORE COOLING CONDITIONS, WITH THE PRIMARY AND SECONDARY SYSTEM RESPONDING AS EXPECTED. DURING THE COOLDOWN, THE PLANT EXPERIENCED AN UNPLANNED RADIOACTIVE GAS RELEASE FROM THE CORE SUPPORT FLOOR VENT SYSTEM SAFETY VALVE, DUE TO FLOW RESTRICTIONS IN THE VENT SYSTEM. THE NRC WAS INFORMED BY A NOTIFICATION OF UNUSUAL EVENT. THE ELECTRICAL POWER FREQUENCY UPSET WAS DUE TO A SYSTEM GENERATION DISTURBANCE WHICH CAUSED SEVERAL WESTERN POWER PLANTS TO SHUTDOWN. A MANUFACTURING DEFICIENCY WAS IDENTIFIED IN THE PLU CIRCUIT, WHICH WILL BE CORRECTED DURING THE CIRCULATOR OUTAGE CURRENTLY SCHEDULED FOR JULY 1988. PRIOR TO STARTUP ON APRIL 21, 1988, ONE OF THE TWO CORE SUPPORT FLOOR VENT FILTERS WAS MODIFIED AND AN IN-LINE STRAINER WAS CLEANED TO REDUCE THE FLOW RESTRICTION THROUGH THE SYSTEM. THE SAFETY VALVE SETPOINT WAS RAISED FROM 5 PSIG TO 10 PSIG.

[112] FT. ST. VRAIN DOCKET 50-267 LER 88-005
 NEUTRON FLUX RATE-OF-CHANGE HIGH SCRAM.
 EVENT DATE: 040488 REPORT DATE: 050488 NSSS: GA TYPE: HTGR

(NSIC 209866) CAUSE - ELECTRICAL NOISE. ON 4/4/88, AND AGAIN ON 4/12/88, WITH THE REACTOR SHUTDOWN, THE PLANT PROTECTIVE SYSTEM (PPS) REACTOR SCRAM LOGIC AND ALARM CIRCUITRY WAS ACTUATED ON WIDE RANGE CHANNEL (WRC) NEUTRON FLUX RATE OF CHANGE HIGH. SINCE ALL CONTROL ROD PAIRS WERE ALREADY FULLY INSERTED IN THE CORE, NO CONTROL ROD MOVEMENT OCCURRED AS A RESULT OF THESE ACTUATIONS. THE CAUSE OF THESE SCRAM ACTUATIONS WAS ELECTRICAL NOISE INDUCTION IN THE WIDE RANGE NUCLEAR INSTRUMENTATION CHANNELS. THE SOURCE OF ELECTRICAL NOISE FOR APRIL 4 WAS A MALFUNCTION IN LINEAR POWER CHANNEL 7. THE NOISE SOURCE ON APRIL 12 WAS A CHATTERING ELECTRO-HYDRAULIC CONTROL (EHC) RELAY, KT-873, INITIATED DURING EHC TESTING. THE MALFUNCTION OF LINEAR POWER CHANNEL 7 ON APRIL 4 WAS REPAIRED AND THE CHANNEL WAS VERIFIED TO BE OPERABLE. THE TESTING ON APRIL 12 OF THE EHC RELAY WAS SUSPENDED UNTIL ALTERNATE TEST DIRECTIONS COULD BE IMPLEMENTED. THE TEST WAS THEN COMPLETED WITHOUT FURTHER INCIDENT. PUBLIC SERVICE COMPANY HAS BEEN ACTIVELY PURSUING THE IDENTIFICATION AND SUPPRESSION OF NOISE SOURCES WITHIN THE PLANT ELECTRICAL SYSTEM. INVESTIGATIONS OF PAST NOISE RELATED ACTUATIONS OF THE PPS HAVE RESULTED IN THE COMPLETION OF CORRECTIVE ACTIONS WHICH HAVE GREATLY REDUCED, BUT NOT ELIMINATED, NOISE INTERFERENCE PROBLEMS WITHIN PPS INSTRUMENTS.

[113] FT. ST. VRAIN DOCKET 50-267 LER 88-006
 EXPANSION JOINT FAILURE CAUSING LOSS OF CIRCULATING WATER RESULTING IN A MANUAL
 SCRAM.
 EVENT DATE: 040788 REPORT DATE: 050988 NSSS: GA TYPE: HTGR

(NSIC 209986) CAUSE - DEGRADATION OF JOINT. AT 0505 ON APRIL 7, 1988, WITH THE REACTOR AT 71% POWER, THE REACTOR OPERATOR WAS INCREASING POWER WHEN A "CIRCULATING WATER PUMP (1A) TRIP" ALARM CAME UP. THE OPERATOR BEGAN TO REDUCE LOAD AND DISPATCHED AN AUXILIARY TENDER TO INVESTIGATE. THE AUXILIARY TENDER REPORTED THE CIRCULATING WATER PUMP PIT WAS FULL OF WATER AND SMOKE. AT THE SAME TIME, A "CIRCULATING WATER PUMP (1B) TRIP" ALARM WAS RECEIVED. THE OPERATOR MANUALLY SCRAMMED THE REACTOR REALIZING THAT ALL CIRCULATING WATER WOULD BE LOST. THE OPERATOR THEN WENT TO THE "LOW POWER" POSITION AND PLACED ONE CIRCULATOR PER LOOP ON SELF-TURBINING TO CONSERVE STEAM. THE REACTOR OPERATOR MANUALLY SHUTDOWN LOOP I AND PUT "C" CIRCULATOR ON CONDENSATE. THE DECAY HEAT EXCHANGER WAS CLEARED OUT SO STEAM WAS ROUTED THROUGH "D" CIRCULATOR AND OUT THE REHEAT POWER RELIEF VALVES. REACTOR DEPRESSURIZATION WAS INITIATED AND THE DECAY HEAT EXCHANGER WAS RETURNED TO SERVICE AT APPROX. 0600 HOURS. THE EXPANSION JOINT ON CIRCULATING WATER PUMP "1A" IN THE CIRCULATING WATER PUMP PIT FAILED DUE TO DEGRADATION AND HAS BEEN REPLACED. ALL SIMILAR EXPANSION JOINTS IN THE PLANT HAVE BEEN OR WILL SOON BE INSPECTED AND REPLACED IF NECESSARY.

[114] FT. ST. VRAIN DOCKET 50-267 LER 88-007
 SURVEILLANCE PROCEDURE NOT PERFORMED WITHIN TECH SPEC INTERVAL DUE TO ERROR IN
 COMPUTER SCHEDULING PROGRAM.
 EVENT DATE: 040888 REPORT DATE: 050988 NSSS: GA TYPE: HTGR

(NSIC 209985) CAUSE - INADEQUATE VERIFICATION. ON 4/9/88, WITH THE REACTOR SHUT DOWN FOR MAINTENANCE, IT WAS DETERMINED THAT THE TECH SPEC FREQUENCY LIMIT FOR PERFORMANCE OF SURVEILLANCE SR-4.1.8.C.1/2/3-Q (RESERVE SHUTDOWN HOPPER, ACM DISCONNECT AND LOW PRESSURE ALARM TEST) HAD BEEN EXCEEDED. ALTHOUGH THIS SURVEILLANCE IS PERFORMED QUARTERLY, THE COMPUTER-GENERATED SCHEDULE DID NOT SHOW THE SURVEILLANCE DUE UNTIL 9 MONTHS AFTER THE "LAST COMPLETED" DATE (11/28/87). IMMEDIATE CORRECTIVE ACTION WAS TAKEN TO PERFORM THE SURVEILLANCE AND TO VERIFY THAT NO OTHER SURVEILLANCES WERE IN VIOLATION OF TECH SPEC LIMITS. THE SURVEILLANCE WAS COMPLETED SATISFACTORILY. THERE WAS NO EFFECT ON PUBLIC HEALTH AND SAFETY AS A RESULT OF THIS VIOLATION. THE ROOT CAUSE OF THIS EVENT WAS INADEQUATE VERIFICATION OF THE COMPUTER PROGRAM THROUGH SOFTWARE CONTROLS, WHICH ALLOWED A COMPUTER SCHEDULING PROGRAM ERROR TO NOT BE IDENTIFIED. CORRECTIVE ACTION WILL BE INITIATED TO FORMALIZE THE METHOD FOR CONTROLLING CHANGES TO THE COMPUTER SCHEDULING PROGRAM.

[115] FT. ST. VRAIN DOCKET 50-267 LER 88-009
 REACTOR SCRAM ON HIGH HOT REHEAT TEMPERATURE FOLLOWING HELIUM CIRCULATOR TRIP.
 EVENT DATE: 050688 REPORT DATE: 060588 NSSS: GA TYPE: HTGR

(NSIC 209983) CAUSE - ANALOG AVERAGING. AT 1234 HRS ON 5/6/88, A REACTOR SCRAM ON HIGH HOT REHEAT STEAM TEMPERATURE OCCURRED FOLLOWING A TRIP OF "B" HELIUM CIRCULATOR. THE CAUSE OF THIS EVENT WAS A MALFUNCTION OF AN ANALOG AVERAGING INSTRUMENT IN THE OVERALL PLANT CONTROL SYSTEM WHICH RESULTED IN AN ANALOG AVERAGE HOT REHEAT STEAM TEMPERATURE INDICATION 35F BELOW THE ACTUAL TEMPERATURE. THEREBY PREVENTING THE COLD REHEAT ATTEMPERATION BOOST CIRCUIT FROM OPERATING PROPERLY TO PREVENT THE SCRAM. A DISCREPANCY BETWEEN HOT REHEAT STEAM TEMPERATURES INDICATED BY THE PLANT PROTECTIVE SYSTEM (PPS) AND ACTUAL HOT REHEAT STEAM TEMPERATURES ALSO CONTRIBUTED TO THE CAUSE. THE HOT REHEAT STEAM TEMPERATURE CIRCUIT OF THE OVERALL PLANT CONTROL SYSTEM WAS FUNCTIONALLY TESTED AND PERFORMED AS DESIGNED. ALTHOUGH THE MALFUNCTION OF THE ANALOG AVERAGING INSTRUMENT IN THE OVERALL PLANT CONTROL SYSTEM APPEARS TO BE INTERMITTENT, IT IS READILY DETECTABLE BASED ON OPERATOR OBSERVATIONS. OPERATORS HAVE BEEN MADE

AWARE OF THE INDICATIONS THAT WILL EXIST, AND THE ACTIONS TO BE TAKEN, IF THE PROBLEM REAPPEARS. THE CAUSE OF THE DISCREPANCY BETWEEN PPS INDICATED AND ACTUAL HOT REHEAT STEAM TEMPERATURES HAS NOT YET BEEN DETERMINED. A SUPPLEMENTAL REPORT WILL BE SUBMITTED.

[116] GRAND GULF 1 DOCKET 50-416 LER 88-004 REV 01
 UPDATE ON REACTOR WATER CLEANUP SYSTEM ISOLATION DUE TO PROCEDURAL DEFICIENCY.
 EVENT DATE: 011288 REPORT DATE: 063088 NSSS: GE TYPE: BWR

(NSIC 209763) AT 2325 ON JANUARY 12, 1988 A REACTOR WATER CLEANUP (RWCU) SYSTEM ISOLATION OCCURRED AS OPERATORS PREPARED TO SECURE ONE OF TWO OPERATING RWCU PUMPS. BECAUSE OF THE LOW LEVEL OF DECAY HEAT PRESENT SHORTLY AFTER THE REFUELING OUTAGE, REACTOR PRESSURE WAS DECREASING. OPERATIONS PERSONNEL HAD BEEN INSTRUCTED TO MINIMIZE COOLDOWN DUE TO THE ANTICIPATED TRANSITION TO OPERATIONAL CONDITION 2 ON JANUARY 13, 1988. AFTER OBSERVING SYSTEM FLOW FLUCTUATIONS, OPERATORS REMOVED ONE FILTER/DEMINEALIZER FROM SERVICE. THE OPERATORS NOTED THAT REACTOR PRESSURE HAD DECREASED TO 87 PSIG. THE RWCU SYSTEM FLOW FLUCTUATIONS WERE INDUCED BY HAVING BOTH RWCU PUMPS OPERATING. ONE RWCU PUMP IS NORMALLY REMOVED FROM SERVICE WHEN REACTOR PRESSURE DECREASES TO 100 PSIG. WHEN THE OPERATOR BEGAN TO THROTTLE THE FILTER/DEMINEALIZER BYPASS VALVE, A DIFFERENTIAL FLOW SIGNAL WAS SENSED BY LEAK DETECTION INSTRUMENTATION. THE OPERATOR SECURED BOTH RWCU PUMPS IN AN ATTEMPT TO CLEAR THE HIGH DIFFERENTIAL FLOW ALARM BEFORE THE 45 SECOND TIME DELAY EXPIRED, HOWEVER, THE SIGNAL DID NOT CLEAR AND ALL GROUP 8 CONTAINMENT ISOLATION VALVES CLOSED. OPERATORS PERFORMED A SYSTEM WALKDOWN INSPECTION FOR ABNORMAL LEAKAGE AND VERIFIED SYSTEM INTEGRITY. ONE RWCU PUMP WAS RETURNED TO OPERATION AT 0105 ON JANUARY 13, 1988.

[117] HATCH 1 DOCKET 50-321 LER 88-011
 DESIGN DEFICIENCY COULD AFFECT CONTROL ROOM ENVIRONMENTAL CONTROL SYSTEM.
 EVENT DATE: 050988 REPORT DATE: 060888 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: HATCH 2 (BWR)
 VENDOR: GENERAL ELECTRIC CO.

(NSIC 209530) ON 05/09/88 AT APPROXIMATELY 1220 CDT, BOTH UNIT 1 AND UNIT 2 WERE IN THE SHUTDOWN MODE AT AN APPROXIMATE POWER LEVEL OF 0 MWT (0 PERCENT OF RATED THERMAL POWER). AT THAT TIME, ON-SITE ARCHITECT/ENGINEER (A/E) PERSONNEL, WHO WERE REVIEWING DESIGN CHANGES, DETERMINED THAT A CONDITION EXISTED WHERE THE AUTOMATIC INITIATION OF THE ISOLATION AND PRESSURIZATION MODES OF THE MAIN CONTROL ROOM ENVIRONMENTAL CONTROL (MCREC RIIS CODE VI) SYSTEM COULD BE DEFEATED BY A SINGLE FAILURE. SPECIFICALLY, FOUR AREA RADIATION MONITORS (ARM E'IS CODE IL) WHICH PROVIDE ANTICIPATORY TRIPS (I.E., THEY ARE NOT PART OF THE ESP LOGIC) TO THE MCREC SYSTEM ARE NOT SEISMICALLY QUALIFIED. IN A SEISMIC EVENT AN ELECTRICAL GROUND COULD BE CREATED IN THE LOCAL AUXILIARY TRIP UNITS OF THESE ARMS. THIS WOULD CAUSE FAILURE OF SOME FUSES IN THE ACTUATION LOGIC WHICH WOULD PREVENT AUTOMATIC MCREC SYSTEM ACTUATION. THE ROOT CAUSE OF THIS EVENT IS A DESIGN DEFICIENCY RESULTING FROM FAILURE TO PROPERLY CONSIDER THE SINGLE FAILURE CRITERIA. CORRECTIVE ACTIONS FOR THIS EVENT INCLUDED MODIFYING THE ARMS TO MITIGATE THE CONSEQUENCES OF A SEISMIC EVENT ON MCREC ACTUATION LOGIC AND TESTING THE MODIFICATION.

[118] HATCH 1 DOCKET 50-321 LER 88-009
 LACK OF PROCEDURAL CLARIFICATION RESULTS IN REACTOR SCRAM.
 EVENT DATE: 052088 REPORT DATE: 062088 NSSS: GE TYPE: BWR

(NSIC 209627) ON 5/20/88 AT APPROXIMATELY 0216 CDT, UNIT 1 WAS IN THE RUN MODE AT AN APPROXIMATE POWER OF 488 MWT (APPROXIMATELY 20 PERCENT OF RATED THERMAL POWER). AT THAT TIME, A REACTOR SCRAM OCCURRED WHEN THREE OF THE FOUR MAIN STEAM ISOLATION VALVES (MSIVS RIIS CODE SB) WERE LESS THAN 90 PERCENT OPEN. THIS WAS AN

UNANTICIPATED ACTUATION OF THE REACTOR PROTECTION SYSTEM (RPS EII CODE JC). THE ROOT CAUSE OF THIS EVENT IS PROCEDURE DEFICIENCY. A START UP PROCEDURE DID NOT PROVIDE SUFFICIENT GUIDANCE RELATIVE TO EXCHANGING INSTRUMENT AIR AND NITROGEN SYSTEMS. BOTH SYSTEMS SUPPLY MOTIVE POWER TO THE MSIVS. CORRECTIVE ACTIONS FOR THIS EVENT INCLUDED: 1) RESTORING NITROGEN TO THE MSIVS, 2) TEMPORARILY REVISING PLANT PROCEDURES, AND 3) SCHEDULING PERMANENT REVISIONS TO PLANT PROCEDURES.

[119] HATCH 1 DOCKET 50-321 LER 88-010
DEFICIENT PROCEDURE ALLOWS CONFIGURATION WHERE MONITORS DO NOT MEET OPERABILITY REQUIREMENT.
EVENT DATE: 052588 REPORT DATE: 062288 NSSS: GE TYPE: BWR

(NSIC 209726) ON 5/25/88 AT APPROXIMATELY 1630 CDT, UNIT 1 WAS IN STARTUP MODE AT AN APPROXIMATE POWER LEVEL OF 25 MWT (APPROXIMATELY ONE PERCENT OF RATED THERMAL POWER). AT THAT TIME, PLANT PERSONNEL DETERMINED THAT THE CONFIGURATION OF THE RECOMBINER BUILDING VENTILATION RADIATION NOBLE GAS MONITORS (EII CODE IL) WOULD NOT ANNUNCIATE AN INOPERABLE OR DOWNSCALE CONDITION IN THE MAIN CONTROL ROOM. AS SUCH, A CONFIGURATION EXISTED WHERE THE TECHNICAL SPECIFICATIONS REQUIRED ANNUNCIATION WOULD BE DEFEATED. THIS IS A CONDITION PROHIBITED BY THE PLANT'S TECHNICAL SPECIFICATIONS. THE ROOT CAUSE OF THIS EVENT WAS DETERMINED TO BE PROCEDURE INADEQUACY. SPECIFICALLY, DURING PROCEDURE DEVELOPMENT, IT WAS NOT RECOGNIZED THAT WITH A MONITOR IN STANDBY, NO CONTROL ROOM ANNUNCIATION WOULD OCCUR IF THE IN-SERVICE MONITOR FAILED. THE DESIGN WAS REVIEWED AND FOUND TO BE ADEQUATE. CORRECTIVE ACTIONS FOR THIS EVENT INCLUDED: 1) DEACTIVATING THE STANDBY MONITOR, 2) INITIATING A TEMPORARY PROCEDURE CHANGE, 3) SCHEDULING A PERMANENT PROCEDURE REVISION.

[120] HATCH 1 DOCKET 50-321 LER 88-007
LACK OF ADMINISTRATIVE CONTROL CAUSES POTENTIAL EMERGENCY DIESEL GENERATOR INOPERABILITY.
EVENT DATE: 053188 REPORT DATE: 062988 NSSS: GE TYPE: BWR
OTHER UNITS INVOLVED: HATCH 2 (BWR)

(NSIC 209725) ON 04/30/88 AT APPROXIMATELY 1410 CDT, UNIT 1 WAS IN COLD SHUTDOWN AT AN APPROXIMATE POWER LEVEL OF 0 MWT AND UNIT 2 WAS IN POWER OPERATION AT APPROXIMATELY 2428 MWT. UNIT 2 WAS INVOLVED IN THIS EVENT BECAUSE DIESEL GENERATOR (D/G) LR43-500LB (EII CODE EK) IS SHARED BETWEEN UNIT 1 AND UNIT 2. ON 04/13/88 ITS ROLLUP FIRE DOOR (EII CODE IC) WAS FOUND BROKEN. THE DOOR WAS CLOSED IN ORDER TO PRESERVE ITS FIRE BARRIER INTEGRITY. ON 05/01/88 THE FIRE DOOR WAS OPENED AND A FIRE WATCH WAS POSTED DUE TO A QUESTION OF D/G 1B OPERABILITY WITH THE FIRE DOOR CLOSED. ON 05/24/88 D/G 2A, WHICH IS SIMILAR TO D/G 1B, WAS TESTED WITH ITS FIRE DOOR CLOSED AND TEST DATA INDICATED THE D/G ROOM TEMPERATURE COULD HAVE EXCEEDED DESIGN CONDITIONS. THE EVENT WAS DETERMINED TO BE REPORTABLE ON 5/31/88. THE ROOT CAUSE OF THIS EVENT IS A LACK OF ADMINISTRATIVE CONTROL TO INDICATE THAT CLOSURE OF THE FIRE DOOR MAY AFFECT D/G OPERABILITY. CORRECTIVE ACTIONS FOR THIS EVENT INCLUDED PLACING SIGNS AT EACH D/G ROOM REQUIRING SHIFT SUPERVISOR NOTIFICATION IF THE FIRE DOOR IS FOUND CLOSED. OPERATIONS PERSONNEL WERE GIVEN WRITTEN NOTIFICATION OF THE RELATIONSHIP BETWEEN FIRE DOOR POSITION AND D/G OPERABILITY.

[121] HATCH 2 DOCKET 50-366 LER 88-007 REV 01
UPDATE ON FAILED VALVES DISCLOSE DESIGN DEFICIENCIES AND TECH SPEC VIOLATION.
EVENT DATE: 021288 REPORT DATE: 071188 NSSS: GE TYPE: BWR
OTHER UNITS INVOLVED: HATCH 1 (BWR)
VENDOR: TARGET ROCK CORP.

(NSIC 209920) ON 2/12/88 AT APPROXIMATELY 0900 CST, PLANT MAINTENANCE PERSONNEL WERE PERFORMING LOCAL LEAK RATE TESTING (LLRT) OF SOME VALVES ON THE AIR SUPPLY

LINES SERVING THE PNEUMATIC ACTUATORS FOR TESTING THE TORUS TO DRYWELL VACUUM BREAKERS (EIS CODE BF) IN UNIT 2. THE VALVES DID NOT PASS THE LLRT. AN INVESTIGATION DETERMINED THE VALVES AND THE LINES DID NOT MEET ALL OF THE SYSTEM DESIGN REQUIREMENTS IN THE FINAL SAFETY ANALYSIS REPORT (FSAR). ADDITIONAL INVESTIGATIONS DETERMINED THE SAME VALVES ON UNITS 1 AND 2 WERE NOT CORRECTLY TESTED. THIS IS A CONDITION PROHIBITED BY THE PLANTS' TECHNICAL SPECIFICATIONS. THE UNIT 1 VALVES AND PIPING WERE CORRECTLY DESIGNED. THE ROOT CAUSE OF THESE EVENTS IS DESIGN DEFICIENCY. CORRECTIVE ACTIONS FOR THE EVENTS INCLUDED: 1) INITIATING APPROPRIATE TECHNICAL SPECIFICATION ACTIONS, 2) CORRECTING UNIT 2 VALVE DEFICIENCIES, 3) INITIATING A COMPLETE INVESTIGATION OF THE EVENTS AND STRENGTHENING DESIGN CONTROLS, AND 4) DEVELOPING A DESIGN CHANGE FOR THE UNIT 1 VALVES.

[122] HATCH 2 DOCKET 50-366 LER 88-016
 DEFICIENT PROCEDURE CAUSES MISSED SNUBBER SURVEILLANCE.
 EVENT DATE: 052388 REPORT DATE: 062488 NSSS: GE TYPE: BWR

(NSIC 209647) ON 05/05/88, WHILE PERFORMING A PROCEDURE UPGRADE PROGRAM (PUP) REVIEW ON A SNUBBER SURVEILLANCE PROCEDURE, A MEMBER OF THE PLANT'S NUCLEAR SAFETY AND COMPLIANCE (NSC) DEPARTMENT NOTED THAT SEVEN SNUBBERS HAD BEEN ADDED TO THE PROCEDURE'S INSPECTION LIST WITH NO APPARENT REASON FOR THE ADDITION. AN INVESTIGATION DETERMINED THE SNUBBERS WERE INADVERTENTLY NOT INCORPORATED INTO THE PROCEDURE DURING PREVIOUS PROCEDURE REVISIONS. PLANT PERSONNEL FAILED TO DOCUMENT THE CONDITION FOR INITIAL REPORTABILITY DETERMINATIONS. HOWEVER, THEY DID IMPLEMENT TIMELY PROCEDURE REVISIONS. NSC DETERMINED THE EVENT WAS REPORTABLE ON 5/23/88, BASED ON THE INVESTIGATION. THE ROOT CAUSE OF THIS EVENT IS PROCEDURE INADEQUACY. THE PROCEDURE DID NOT LIST ALL THE INSTALLED SNUBBERS WHICH REQUIRED INSPECTION EACH REFUELING OUTAGE. A PERSONNEL ERROR OCCURRED WHEN PLANT PERSONNEL FAILED TO FULLY FOLLOW ALL ADMINISTRATIVE CONTROLS RELATIVE TO THE DOCUMENTATION OF DEFICIENT CONDITIONS. THE CORRECTIVE ACTIONS FOR THIS EVENT INCLUDED: 1) DEVELOPING A TEMPORARY PROCEDURE CHANGE, 2) INSPECTING THE SNUBBERS, 3) GENERATING A DEFICIENCY REPORT, 4) PERMANENTLY REVISING A UNIT 2 PROCEDURE, 5) COUNSELING PERSONNEL, AND 6) REVIEWING THE UNIT 1 PROCEDURE.

[123] HATCH 2 DOCKET 50-366 LER 88-017
 DEFICIENT PROCEDURE CAUSES LOSS OF FEEDWATER RESULTING IN REACTOR SCRAM.
 EVENT DATE: 052709 REPORT DATE: 062788 NSSS: GE TYPE: BWR
 VENDOR: LIMITORQUE CORP.

(NSIC 209747) ON 05/27/88 AT APPROXIMATELY 6407 CDT, UNIT 2 WAS IN THE RUN MODE AT AN APPROXIMATE POWER LEVEL OF 2384 MWT (APPROXIMATELY 98% OF RATED THERMAL POWER). IN THE PROCESS OF FILLING AND VENTING CONDENSATE PUMP 2N21-C001B (EIS CODE SJ) AN AIR BUBBLE WAS RELEASED INTO THE CONDENSATE SYSTEM TRIPPING THE CONDENSATE BOOSTER PUMPS (EIS CODE SJ) AND REACTOR FEED PUMPS (EIS CODE SJ) ON LOW SUCTION PRESSURE. REACTOR WATER LEVEL DROPPED AND THE REACTOR SCRAMMED ON LOW WATER LEVEL. IN THE EVENT THE REACTOR CORE ISOLATION COOLING (RCIC (EIS CODE BN) SYSTEM DID NOT FUNCTION AS ANTICIPATED. THE ROOT CAUSE OF THIS EVENT WAS A DEFICIENT CONDENSATE AND FEEDWATER SYSTEM OPERATING PROCEDURE. THE PROCEDURE DID NOT GIVE INSTRUCTIONS FOR FILLING AND VENTING A CONDENSATE PUMP WHILE THE UNIT WAS ON LINE. CORRECTIVE ACTIONS FOR THIS EVENT ARE: 1) REPLACING THE LIMIT SWITCH ON A RCIC VALVE, 2) VERBALLY MAKING INVOLVED PERSONNEL AWARE OF CAUSE AND CONSEQUENCES OF THIS EVENT, AND 3) SCHEDULING REVISION TO THE CONDENSATE AND FEEDWATER SYSTEM OPERATING PROCEDURES FOR BOTH UNITS. THE PROCEDURES WILL BE REVISED TO INCLUDE INSTRUCTIONS ON FILLING AND VENTING THE CONDENSATE PUMPS.

[124] HATCH 2 DOCKET 50-366 LER 88-018
 MAIN TURBINE ELECTROHYDRAULIC CONTROL FLUID PRESSURE TRANSIENT RESULTS IN REACTOR
 SCFAM.
 EVENT DATE: 052988 REPORT DATE: 062788 NSSS: GE TYPE: BWR
 VENDOR: GENERAL ELECTRIC CO.

(NSIC 209748) ON 5/29/88 AT APPROXIMATELY 1002 CDT, UNIT 2 WAS IN THE RUN MODE AT AN APPROXIMATE POWER LEVEL OF 1140 MWT (APPROXIMATELY 47 PERCENT OF RATED THERMAL POWER). AT THAT TIME, PLANT OPERATIONS PERSONNEL WERE PERFORMING A NORMALLY SCHEDULED MAIN TURBINE CONTROL VALVE (TCV EIIIS CODE JJ) SURVEILLANCE. DURING PROCEDURE PERFORMANCE, A FULL REACTOR SCRAM OCCURRED. THIS WAS AN UNANTICIPATED ACTUATION OF THE REACTOR PROTECTION SYSTEM (RPS EIIIS CODE JC). THE ROOT CAUSE OF THIS EVENT IS THOUGHT TO BE A FAILURE OF THE DISC DUMP VALVE ASSOCIATED WITH TCV 2 TO SEAT PROPERLY FOLLOWING ACTUATION OF THE TCV DURING TESTING. THE FAILURE OF THE DISC DUMP VALVE TO SEAT PROPERLY IS BELIEVED TO BE THE RESULT OF NORMAL WEAR. CORRECTIVE ACTION FOR THIS EVENT INCLUDED: 1) INSTALLING ORIFICES TO REDUCE PRESSURE TRANSIENTS IN THE ELECTRO HYDRAULIC CONTROL (EHC EIIIS CODE TQ) OIL MANIFOLD AND 2) SCHEDULING REPAIR OR REPLACEMENT OF DISC DUMP VALVES DURING THE NEXT REFUELING OUTAGE.

[125] HOPE CREEK 1 DOCKET 50-354 LER 88-011
 DISCOVERY OF NON-SEISMICALLY QUALIFIED INSTRUMENTATION TUBING INSTALLATION ON 1E
 INSTRUMENT RACKS DUE TO PERSONNEL ERROR.
 EVENT DATE: 042688 REPORT DATE: 052588 NSSS: GE TYPE: BWR

(NSIC 209420) ON APRIL 26, 1988 AT 1650 HOURS, THE PLANT WAS IN OPERATIONAL CONDITION 1 (POWER OPERATION) AT 100% POWER GENERATING 1100 MWE WHEN THE CONTROL ROOM WAS INFORMED THAT SEISMICALLY UNQUALIFIED TUBING SPANS HAD BEEN INSTALLED ON TWO LOCAL INSTRUMENT RACKS. THE DRAIN VALVES LOCATED UPSTREAM OF THE TUBING WERE CLOSED AND TAGGED OUT OF SERVICE, THEREBY ISOLATING THE SEISMICALLY UNQUALIFIED TUBING FROM THE PRIMARY SYSTEM COOLANT AND RESTORING THE "Q" BOUNDARY. THE ROOT CAUSE OF THIS OCCURRENCE WAS THE FAULTY PREPARATION OF THE DESIGN CHANGE WHICH INSTALLED THE TUBING WITHOUT SPECIFIC TUBING SUPPORT REQUIREMENTS - A PERSONNEL ERROR. CORRECTIVE ACTIONS INCLUDE ISOLATION OF THE TUBING FROM PRIMARY COOLANT, EITHER SEISMICALLY QUALIFY THE TUBING OR REMOVE THE TEMPORARY INSTRUMENTATION AND SUBSEQUENT REVISION OF THE DESIGN CHANGE PROCEDURE.

[126] HOPE CREEK 1 DOCKET 50-354 LER 88-013
 AUTOMATIC REACTOR SCRAM ON LOW REACTOR WATER LEVEL SIGNAL DUE TO DESIGN
 DEFICIENCY.
 EVENT DATE: 050588 REPORT DATE: 060688 NSSS: GE TYPE: BWR

(NSIC 209485) ON MAY 5, 1988 AT 0917 HOURS, THE PLANT WAS IN OPERATIONAL CONDITION 1 (POWER OPERATION) AT 100% POWER GENERATING 1090 MWE. ON MAY 5, 1988 AT 0917 HOURS, THE PERFORMANCE OF PREVENTIVE MAINTENANCE ON THE "A" SECONDARY CONDENSATE PUMP AUXILIARY OIL PUMP CIRCUIT BREAKER WAS APPROVED. WHEN THE BREAKER WAS OPENED, THE "A" SECONDARY CONDENSATE PUMP TRIPPED. THE REACTOR WATER LEVEL BEGAN TO DECREASE. AS A RESULT, THE "B" AND "C" REACTOR FEEDWATER PUMP TURBINES (THE "A" TURBINE WAS OUT OF SERVICE) INCREASED IN SPEED TO COMPENSATE FOR THE REDUCTION IN FLOW. THE "B" TURBINE TRIPPED ON OVERSPEED, RESULTING IN A REACTOR WATER LEVEL DECREASE TO LEVEL 3, INITIATING AN AUTOMATIC SCRAM. THE ROOT CAUSE OF THIS OCCURRENCE WAS DETERMINED TO BE THE UNUSUAL DESIGN INTERFACE BETWEEN THE SECONDARY CONDENSATE PUMP AUXILIARY OIL PUMP BREAKER AND THE AUXILIARY OIL PUMP AND THE DIFFICULTY IN TRACKING THIS DESIGN THROUGH SEVERAL TIERS OF ENGINEERING DRAWINGS. CORRECTIVE ACTIONS INCLUDE OPERATOR TRAINING, CAUTION STATEMENTS IN WORK ORDERS, CAUTION TAGS ON BREAKERS, A REVIEW OF BREAKER LOGIC AND VERIFICATION OF THE REACTOR FEEDWATER PUMP TURBINE OVERSPEED TRIP SETPOINTS.

[127] HOPE CREEK 1 DOCKET 50-354 LER 88-015
 UNANTICIPATED LOSS OF SECOND CREF CHILLER DUE TO PROCEDURE AND DESIGN
 DEFICIENCIES.
 EVENT DATE: 052688 REPORT DATE: 062388 NSSS: GE TYPE: BWR

(NSIC 209644) ON 5/26/88, THE PLANT WAS IN OPERATIONAL CONDITION 1 (POWER OPERATION) AT 100% POWER GENERATING 1100 MWE. SHORTLY AFTER MIDNIGHT ON MAY 26, 1988, THE "A" CONTROL ROOM EMERGENCY FILTRATION (CREF) TRAIN CHILLER WAS TAKEN OUT OF SERVICE FOR SCHEDULED PREVENTIVE MAINTENANCE. THE "B" CREF TRAIN WAS IN SERVICE, HOWEVER THE CHILLER FOR THE "B" TRAIN HAD BEEN REMOVED FROM SERVICE. WHEN THE "B" CHILLER WAS RESTARTED AT 0437 HOURS, IT RAN FOR APPROXIMATELY 4 MINUTES BEFORE TRIPPING ON LOW EVAPORATOR PRESSURE. THE "B" TRAIN WAS DECLARED INOPERABLE AT 0500 HOURS AND THE ACTION STATEMENTS OF TECHNICAL SPECIFICATIONS 3.7.2 AND 3.0.3 WERE ENTERED. AN UNUSUAL EVENT WAS DECLARED AT 0600 HOURS AND AN ORDERLY SHUTDOWN WAS BEGUN. TWO ATTEMPTS WERE MADE TO RESTART THE "A" CHILLER HOWEVER IT TRIPPED ON LOW OIL DIFFERENTIAL PRESSURE. EXCESS OIL WAS DRAINED FROM THE COMPRESSOR OIL RESERVOIR AND THE "A" CHILLER WAS RESTORED TO SERVICE. THE UNUSUAL EVENT WAS TERMINATED AT 0640 HOURS ON MAY 26, 1988. THE ROOT CAUSES OF THIS OCCURRENCE WERE A LACK OF UNDERSTANDING OF THE SEASONAL OIL MIGRATION PHENOMENON AND LOW REFRIGERANT LEVEL AND A DEFECTIVE HIGH SIDE FLOAT BALL IN THE ECONOMIZER OF THE "B" CHILLER. CORRECTIVE ACTIONS INCLUDE A REVIEW OF THE OPERATION PROCEDURE, THE SHIFT LOG PROCEDURE, A DESIGN MODIFICATION TO CHILLER, AND A REVIEW OF THE EVENT FOR REQUAL TRAINING.

[128] HUMBOLDT BAY DOCKET 50-133 LER 88-002
 ACTUATION OF THE GAS TREATMENT SYSTEM DUE TO DEGRADATION OF A RESISTOR IN AN ISOLATION MONITOR.
 EVENT DATE: 052188 REPORT DATE: 062088 NSSS: GE TYPE: BWR

(NSIC 209586) ON MAY 21, 1988, WHILE THE UNIT WAS IN MODE N (SHUTDOWN) IN THE PROCESS OF BEING DECOMMISSIONED, THE GAS TREATMENT SYSTEM WAS ACTUATED WHEN A RESISTOR IN THE -60 FOOT ELEVATION ISOLATION MONITOR BECAME DEGRADED. NO ABNORMAL RADIATION LEVELS EXISTED AT THE TIME OF THE ACTUATION. OPERATING PERSONNEL VERIFIED THAT THE PLANT CONDITIONS WERE NORMAL AND RESTORED THE GAS TREATMENT SYSTEM TO THE STANDBY MODE. THE ROOT CAUSE OF THE EVENT WAS MATERIAL DEGRADATION. THE RESISTOR IN THE ISOLATION MONITOR BECAME DEGRADED DUE TO AGE. CORRECTIVE ACTION TO PREVENT RECURRENCE INCLUDES LAYING UP THE DEGRADED ISOLATION MONITOR ALONG WITH ALL THE OTHER ISOLATION MONITORS AS THE PLANT IS IN A MODE THAT DOES NOT REQUIRE THEM TO BE OPERABLE. A REVIEW OF THE REMOVAL FROM SERVICE OF THE ISOLATION MONITORS WAS PERFORMED BASED ON A 10 CFR 50.59 REVIEW.

[129] INDIAN POINT 3 DOCKET 50-286 LER 88-003
 MAIN STEAM ISOLATION VALVE FAILS TO CLOSE DUE TO A CONTROL CIRCUIT FAILURE.
 EVENT DATE: 051188 REPORT DATE: 060988 NSSS: WE TYPE: PWP
 VENDOR: ATWOOD & MORRILL CO., INC.
 MICRO SWITCH

(NSIC 209614) ON MAY 11, 1988, WITH THE REACTOR IN HOT SHUTDOWN IN PREPARATION FOR A MAINTENANCE OUTAGE, A MAIN STEAM ISOLATION VALVE (MSIV) (MS-1-34) FAILED TO CLOSE WHEN "MANUALLY" SIGNALLED FROM THE CONTROL ROOM. ALL OTHER PLANT SYSTEMS WERE FUNCTIONING PROPERLY AT THE TIME. OPERATORS LOCALLY CLOSED MS-1-34. THE PROBLEM WITH THE SYSTEM WAS ISOLATED TO THE CONTROL CIRCUITRY FOR MS-1-34. INVESTIGATION INDICATED PROBABLE INTERMITTENT OPERATION OF THE CONTROL SWITCH. TROUBLESHOOTING EFFORTS COULD NOT REPRODUCE THE MALFUNCTION, HOWEVER, THE MS-1-34 CONTROL SWITCH WAS REPLACED AS A PRECAUTIONARY MEASURE. SUBSEQUENTLY, ALL FOUR MSIVS' CONTROL CIRCUITS WERE TESTED SATISFACTORILY. FOLLOWING REPLACEMENT OF THE MS-1-34 CONTROL SWITCH AND RETESTING, THE PLANT CONTINUED IN COLD SHUTDOWN FOR A SCHEDULED MAINTENANCE OUTAGE. FURTHER TESTING OF THE REPLACED MS-1-34 CONTROL SWITCH IS TO BE UNDERTAKEN. ALL FOUR MSIV CONTROL ROOM CONTROL SWITCHES WILL BE

UPGRADED DURING THE NEXT REFUELING OUTAGE. SHOULD ADDITIONAL INFORMATION BECOME AVAILABLE THAT SIGNIFICANTLY ALTERS (OR ENHANCES) THE PERCEPTION OF THIS EVENT, A SUPPLEMENTAL LER WILL BE ISSUED.

[130] INDIAN POINT 3 DOCKET 50-286 LER 88-004
 ACCUMULATOR TANK LEVEL INSTRUMENT CALIBRATION LEVEL ERROR CAUSED BY INCOMPLETE
 CALCULATIONS USED FOR CALIBRATION PROCEDURES.
 EVENT DATE: 051188 REPORT DATE: 060988 NSSS: WE TYPE: PWR

(NSIC 209619) AT 1330 HOURS ON MAY 11, 1988, WITH THE PLANT AT HOT SHUTDOWN, PROCEEDING TO COLD SHUTDOWN FOR A SCHEDULED MAINTENANCE OUTAGE, AN ULTRASONIC (UT) LEVEL CHECK OF THE COLD LEG ACCUMULATORS DETERMINED THAT ALL FOUR ACCUMULATORS CONTAINED LESS FLUID THAN INDICATED ON THE PROCESS INSTRUMENTATION IN THE CONTROL ROOM. TWO OF THE FOUR ACCUMULATORS WERE FOUND BELOW THE TECHNICAL SPECIFICATION MINIMUM OF 800 CUBIC FEET. AN ENGINEERING ANALYSIS WAS THEN UNDERTAKEN WHICH SHOWED THAT THE ORIGINAL CALCULATIONS USED FOR ACCUMULATOR LEVEL TRANSMITTER CALIBRATIONS HAD NOT TAKEN INTO CONSIDERATION THE WEIGHT OF THE NITROGEN GAS AND THE "AS BUILT" TANK DIMENSIONS. THESE CALCULATIONS WERE CORRECTED AND INCORPORATED INTO THE LEVEL TRANSMITTERS CALIBRATION PROCEDURES. THE TRANSMITTERS WERE RECALIBRATED ON MAY 27, 1988. AN ANALYSIS WAS DONE BY WESTINGHOUSE TO DETERMINE A WORST CASE SCENARIO USING THE NEW CALCULATIONS. WESTINGHOUSE'S ANALYSIS CONCLUDED THAT SUFFICIENT VOLUME EXISTED IN THE ACCUMULATORS TO ADEQUATELY MEET ANY REQUIREMENT FOR ECCS. FOLLOWING THE MAINTENANCE OUTAGE THE REACTOR WAS BROUGHT CRITICAL AND SYNCHRONIZED TO THE BUS ON MAY 29, 1988. FULL REACTOR POWER WAS REACHED ON JUNE 1, 1988.

[131] KEWAUNEE DOCKET 50-305 LER 88-005
 ARGON GAS INTRODUCED INTO RCS DURING REFUELING WELDING PROCESS CAUSES ESF
 ACTUATIONS DURING STARTUP.
 EVENT DATE: 042288 REPORT DATE: 052388 NSSS: WE TYPE: PWR

(NSIC 209400) THIS REPORT DESCRIBES TWO SEPARATE BUT RELATED ENGINEERED SAFETY FEATURE ACTUATIONS. ON 4/22/88, WHILE THE PLANT WAS AT 8% POWER AND WAS BEING RETURNED TO FULL POWER FOLLOWING A REFUELING OUTAGE, A SPIKE ON THE CONDENSER AIR EJECTOR RADIATION MONITOR RESULTED IN AN ACTUATION OF THE STEAM GENERATOR BLOWDOWN ISOLATION. ON 4/26/88, WHILE THE PLANT WAS AT 100% POWER, A SPIKE ON THE AUXILIARY BUILDING VENT STACK RADIATION MONITOR RESULTED IN AN AUTOMATIC ACTUATION OF TRAIN B OF THE AUXILIARY BUILDING SPECIAL VENTILATION SYSTEM. THE INTRODUCTION OF ARGON GAS INTO THE REACTOR COOLANT SYSTEM (RCS) DURING THE 1988 REFUELING OUTAGE WAS THE ROOT CAUSE OF THESE EVENTS. ARGON GAS WAS USED AS AN INERT COVER GAS DURING A WELDING ACTIVITY ON THE PRESSURIZER RELIEF VALVE PIPING AND WAS ABSORBED INTO THE PRESSURIZER LIQUID. THE ARGON WAS SUBSEQUENTLY ACTIVATED IN THE REACTOR DURING THE POWER ESCALATION. ACTIONS HAVE BEEN TAKEN TO VENT THE ARGON GAS FROM THE PRIMARY SYSTEM BY PURGING THE VOLUME CONTROL TANK. THE PURGING ACTION REDUCES THE OVERALL REACTOR COOLANT GASEOUS ACTIVITY. IN ADDITION, THE PRIMARY SYSTEM ACTIVITY CONTINUES TO DECREASE DUE TO THE DECAI OF THE ACTIVATED ARGON GAS IN THE RCS. WELDING PROCEDURES WILL BE REVIEWED AND REVISED AS NECESSARY TO ENSURE THAT ARGON GAS ENTRAINMENT IN THE REACTOR COOLANT SYSTEM DURING THE TUNGSTEN INERT GAS WELDING PROCESS IS MINIMIZED.

[132] KEWAUNEE DOCKET 50-305 LER 88-006
 SPURIOUS OVER TEMPERATURE DELTA TEMPERATURE TRIP SIGNAL IN CONJUNCTION WITH
 MONTHLY SURVEILLANCE OF NUCLEAR INSTRUMENTATION CAUSES REACTOR TRIP.
 EVENT DATE: 050288 REPORT DATE: 050188 NSSS: WE TYPE: PWR
 VENDOR: FOXBORO CO., THE

(NSIC 205182) AT 1124 ON MAY 2, 1988, WITH THE PLANT OPERATING AT 100% POWER THE PLANT EXPERIENCED A REACTOR/TURBINE TRIP. A SPURIOUS TRIP SIGNAL ON THE CHANNEL

IV OVERTEMPERATURE DELTA TEMPERATURE (OT DELTA T) TRIP CIRCUITRY IN CONJUNCTION WITH THE OT DELTA T AT FUNCTION FOR CHANNEL I BEING TRIPPED FOR PERFORMANCE OF A MONTHLY INSTRUMENT CHECK CAUSED THE REACTOR/TURBINE TRIP. THE MONTHLY SURVEILLANCE PROCEDURE SP 48-003E, NUCLEAR POWER RANGE N41 INSTRUMENT CHANNEL TEST AT >10% POWER, REQUIRES THAT THE REACTOR PROTECTION RELATED TO N41 BE PLACED IN A TRIPPED CONDITION. THIS INCLUDED THE CHANNEL I OT DELTA T REACTOR TRIP. FAULTY WIRES IN THE CHANNEL IV OT DELTA T SETPOINT CALCULATOR MADE AN INTERMITTENT CONNECTION CAUSING THE SETPOINT TO SPIKE. WHEN THE SETPOINT DROPPED BELOW THE CHANNEL IV AT VALUE, WHICH HAD REMAINED CONSTANT, THE 2 OF 4 LOGIC FOR OT DELTA T TRIP WAS MADE. THIS RESULTED IN A REACTOR/TURBINE TRIP. THE ROOT CAUSE OF THE EVENT WAS AN EQUIPMENT FAILURE. THE FOXBORO BOX FOR THE CHANNEL IV OT DELTA T SETPOINT CALCULATOR HAD AN INTERMITTENT CONNECTION BETWEEN ITS CONNECTOR PLUG AND AN INTERNAL CIRCUIT BOARD DUE TO FAULTY WIRES. HAD OTHER REACTOR PROTECTION SYSTEM TESTING NOT BEEN IN PROGRESS THIS FAILURE WOULD NOT HAVE RESULTED IN A REACTOR TRIP. THE WIRES IDENTIFIED AS FAULTY WERE REPLACED AND THE SETPOINT CALCULATOR WAS REINSTALLED.

[133] KEWAUNEE DOCKET 50-305 LEP 88-007
 DEGRADATION OF CONTAINMENT INTEGRITY DUE TO MECHANICAL ANOMALY OF ASCO SOLENOID VALVES.
 EVENT DATE: 052888 REPORT DATE: 062788 NSSS: WE TYPE: PWR
 VENDOR: ASCO VALVES

(NSIC 209722) ON MAY 28, 1988 AT 0125, WITH THE PLANT AT FULL POWER, TWO REDUNDANT CONTAINMENT ISOLATION VALVES FAILED TO CLOSE FROM THE CONTROL ROOM DURING PERFORMANCE OF THEIR QUARTERLY INSERVICE TIMING TEST. THE VALVES, RC-507 AND RC-508, IN ADDITION TO MU-1010-1, FAILED TO CLOSE DUE TO A MECHANICAL ANOMALY OF THEIR RESPECTIVE, NORMALLY ENERGIZED SOLENOID VALVES. IMMEDIATE OPERATOR ACTIONS WERE TAKEN TO LOCALLY CLOSE THE CONTROL VALVES IN ORDER TO ENSURE CONTAINMENT INTEGRITY. INVESTIGATION ACTIVITIES PERFORMED ON MAY 28, AND SUBSEQUENT DISCUSSIONS WITH THE VALVE MANUFACTURER (ASCO), DID NOT REVEAL A CATEGORICAL REASON FOR THE SOLENOID CORE ASSEMBLY TO REMAIN HUNG UP IN THE ENERGIZED POSITION WHEN DEENERGIZED. FOLLOW UP TESTING BY THE VALVE MANUFACTURER, AN INDEPENDENT TEST FACILITY, AND WISCONSIN PUBLIC SERVICE CORPORATION IS BEING PLANNED AT THIS TIME TO AID IN DETERMINING THE FAILURE MECHANISM. LONG TERM CORRECTIVE ACTIONS WILL BE DETERMINED BASED ON THE RESULTS OF THIS TESTING. IN THE INTERIM THE FAILED SOLENOID VALVES WERE REPLACED. THE REPLACEMENT SOLENOID VALVES ARE BEING MAINTAINED IN THE NORMALLY DEENERGIZED, CLOSED POSITION EXCEPT FOR SHORT TIME PERIODS WHEN THEIR OPENING WILL BE NECESSARY FOR PLANT OPERATION.

[134] LA SALLE DOCKET 50-373 LER 88-006
 CONTINUOUS CONDUCTIVITY INDICATION INOPERABLE DUE TO VESSEL DRAINDOWN FOR CHEMICAL DECONTAMINATION.
 EVENT DATE: 033088 REPORT DATE: 051988 NSSS: GE TYPE: BW

(NSIC 209477) ON MARCH 30, 1988, AT 1015 HOURS WITH UNIT 1 DEFUELED, THE CONTINUOUS CONDUCTIVITY MONITOR FOR REACTOR WATER SAMPLES WAS DECLARED INOPERABLE. AT THAT TIME, THE UNIT 1 REACTOR VESSEL WAS DRAINED DOWN BELOW THE CONTINUOUS CONDUCTIVITY MONITOR SAMPLE TAP TO ALLOW FOR CHEMICAL DECONTAMINATION OF THE REACTOR RECIRCULATION PIPING. FOR THE DURATION OF THE DECONTAMINATION AND OTHER OUTAGE WORK WHICH REQUIRED REDUCED REACTOR VESSEL LEVEL, MARCH 31 THROUGH APRIL 17, 1988, A REDUCED SAMPLING FREQUENCY WAS USED WHERE VESSEL CONDUCTIVITY WAS ASSUMED TO BE OUTSIDE THE LIMITS OF TECH SPEC TABLE 3.4.4-1, AND WOULD BE VERIFIED TO BE WITHIN SPECIFICATIONS ONCE EVERY 72 HOURS TO SATISFY TECH SPEC 3.4.4.C.1. DURING THE DECONTAMINATION, VESSEL CONDUCTIVITY, PH, AND CHLORIDES WERE WITHIN THE SPECIFICATIONS OF TABLE 3.4.4-1. AFTER THE DECONTAMINATION, WHEN VESSEL LEVEL WAS RAISED, ON APRIL 18, 1988, NORMAL SAMPLING WAS RESUMED. THIS

REPORT IS SUBMITTED VOLUNTARILY DUE TO THE UNUSUAL METHOD OF MEETING THE REACTOR COOLANT CHEMISTRY REQUIREMENTS.

[135] LA SALLE 1 DOCKET 50-373 LER 88-005
 INABILITY OF THE 1A DIESEL GENERATOR TO MEET LOAD ACCEPTANCE CRITERIA DURING SURVEILLANCE TESTING.
 EVENT DATE: 042288 REPORT DATE: 052088 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: LA SALLE 2 (BWR)

(NSIC 209476) ON APRIL 22, 1988, WITH LASALLE UNIT 1 DEFUELED, LASALLE TECHNICAL SURVEILLANCE. LTS-800-5, "1A DIESEL GENERATOR (DG) 24 HOUR RUN SURVEILLANCE," WAS BEING PERFORMED. AT THE START OF THE SURVEILLANCE THE NUCLEAR STATION OPERATOR (NSO) LOADED THE 1A DG TO 2880 KW. AFTER APPROXIMATELY 1 HOUR, CONDITIONS ON THE GRID CHANGED ENOUGH TO DECREASE THE LOADING ON THE DG TO APPROXIMATELY 2850 KW WHICH IS 10 KW BELOW THE MINIMUM OF 2860 KW REQUIRED FOR THE FIRST 2 HOURS OF THIS SURVEILLANCE. THE NSO ATTEMPTED TO INCREASE THE DG LOAD, BUT THE DG LOAD WOULD NOT INCREASE. THE 1A DG WAS DECLARED INOPERABLE AT APPROXIMATELY 2030 HOURS. THE APPARENT CAUSE OF THE 1A DG FAILING TO REACH ITS RATED LOAD CAPABILITY WAS A COMBINATION OF FOLLOWING: 1. A SMALL DIFFERENCE IN TOLERANCE BETWEEN THE FUEL RACKS AND THE NEWLY INSTALLED FUEL INJECTORS. 2. INSUFFICIENT MAXIMUM SPEED SETTING ON THE GOVERNOR TO ACCOMMODATE THE DIFFERENCE IN TOLERANCE BETWEEN THE FUEL RACKS AND THE NEW FUEL INJECTORS. THE SAFETY CONSEQUENCES OF THIS EVENT WERE MINIMAL. IN THE EVENT OF AN ACTUAL LOSS OF OFFSITE POWER THE DG WOULD CLOSE ON TO A DEAD EJS AND CARRY LOAD BASED ON BUS RUNNING LOADS. NO REDUCTION IN LOAD WOULD OCCUR SINCE THE MACHINE IS NOT RUNNING IN PARALLEL WITH THE GRID AND SPEED DROOP CHARACTERISTICS ARE SET AT ZERO DROOP.

[136] LA SALLE 1 DOCKET 50-373 LER 88-007
 ENGINEERED SAFETY FEATURE ISOLATION DUE TO JUMPER FALLING OFF TERMINAL AND SHORTING ISOLATION SYSTEM.
 EVENT DATE: 050388 REPORT DATE: 060188 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: LA SALLE 2 (BWR)

(NSIC 209503) AT 1740 HOURS ON MAY 3, 1988, WITH UNIT 1 DEFUELED IN A REFUELING OUTAGE AND UNIT 2 IN OPERATION CONDITION 1 (RUN) AT 98% POWER, THE ELECTRICAL MAINTENANCE DEPARTMENT WAS INSTALLING A TEMPORARY JUMPER TO BYPASS THE FUEL POOL RADIATION MONITORS. ABOUT ONE MINUTE AFTER THE JUMPER WAS INSTALLED, ONE END OF IT FELL OFF AND MADE CONTACT WITH THE CONTROL PANEL. THIS CAUSED A SHORT IN THE PRIMARY CONTAINMENT ISOLATION SYSTEM WHICH CAUSED A FUSE TO BLOW. LOSS OF THIS FUSE INITIATED A DIVISION 2, GROUP IV (REACTOR BUILDING VENTILATION) ISOLATION TO OCCUR AND ALSO AFFECTED PART OF THE DIVISION 2, GROUP II (CONTAINMENT MONITORING) ISOLATION LOGIC. THE BLOWN FUSE WAS REPLACED, THE ISOLATIONS WERE RESET BY 1017 HOURS, AND ALL SYSTEMS WERE PLACED IN THEIR REQUIRED POSITIONS. CORRECTIVE ACTIONS INCLUDED A TEMPORARY JUMPER DEVICE TO BE BUILT BY THE ELECTRICAL MAINTENANCE DEPARTMENT TO HELP PREVENT RECURRENCE OF THIS TYPE OF EVENT. THIS EVENT IS BEING SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR50.73(A)(2)(IV) DUE TO ACTUATION OF AN ENGINEERED SAFETY FEATURE SYSTEM.

[137] LA SALLE 1 DOCKET 50-373 LER 88-008
 REACTOR PROTECTION SYSTEM TRIP DUE TO INADVERTENT GROUNDING DURING JUMPER INSTALLATION.
 EVENT DATE: 051788 REPORT DATE: 061488 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: LA SALLE 2 (BWR)

(NSIC 209652) ON MAY 17, 1988 AT 1054 HOURS WITH UNIT 1 DEFUELED AND UNIT 2 IN OPERATIONAL CONDITION 1 (RUN) AT 94% POWER, DURING THE INSTALLATION OF TEMPORARY SYSTEM CHANGE 1-949-88 ON UNIT 1, BY THE ELECTRICAL MAINTENANCE (EM) DEPARTMENT, REACTOR PROTECTION SYSTEM (RPS) BUS "B" TRIPPED. THE TEMPORARY SYSTEM CHANGE

REQUIRED INSTALLATION OF FOUR (4) RING LUG TYPE JUMPERS BETWEEN HFA RELAY TERMINALS TO JUMPER OUT THE MAIN STEAM ISOLATION VALVE (MSIV) GROUP I ISOLATIONS INITIATED BY CONDENSER LOW VACUUM LOGIC. AS THE FIRST END OF THE JUMPER WAS BEING INSTALLED IN PANEL 1H13-P611 FOR THE "B" LOGIC CHANNEL, THE OTHER END OF THE JUMPER ACCIDENTALLY CAME IN CONTACT WITH THE SIDE OF THE PANEL WHICH PROVIDED A PATH TO GROUND AND TRIPPED RPS BUS "B". WITH THE TRIP OF RPS BUS "B" ON UNIT 1, A NUMBER OF AUTOMATIC ACTIONS OCCURRED AS A RESULT OF THE SUBSEQUENT GROUP II THROUGH VII ISOLATIONS AND HALF SCRAM. THE SAFETY CONSEQUENCES OF THE EVENT WERE MINIMAL SINCE UNIT 1 WAS DEFUELED. ALL ISOLATIONS AND ACTUATIONS (HALF SCRAM ON UNIT 1, SECONDARY CONTAINMENT ISOLATION AND STANDBY GAS TREATMENT INITIATION) OCCURRED AS EXPECTED FOR THIS EVENT. FOR SHORT TERM CORRECTIVE ACTION THE EM DEPARTMENT HAS SUPPLIED THE SHIFT ENGINEER WITH RUBBER BOOTS TO COVER THE "FREE END" OF RING LUG TYPE JUMPERS FOR INSTALLATION ON ENERGIZED CIRCUITS.

[138] LA SALLE 1 DOCKET 50-373 LER 88-009
 HIGH PRESSURE CORE SPRAY LOW LOW LEVEL INITIATION STATIC-O-RING LEVEL SWITCH
 DIAPHRAGM RUPTURE.
 EVENT DATE: 052988 REPORT DATE: 062888 NSSS: GE TYPE: BWR
 VENDOR: STATIC-O-RING

(NSIC 209749) ON MAY 29, 1988, AT 1730 HOURS, DURING PERFORMANCE OF ALTERNATE ROD INSERTION LEVEL DROP TESTING, LEVEL SWITCH LS-1B21-N031B WAS FOUND TO HAVE AN APPARENT RUPTURED DIAPHRAGM. UNIT 1 WAS DEFUELED FOR LASALLE UNIT 1 SECOND REFUELING OUTAGE. THIS SWITCH FUNCTIONS WITH 3 OTHER SIMILAR SWITCHES (LS-1B21-N031A, C AND D) TO PROVIDE 1 OUT OF 2 TAKEN TWICE LOGIC FOR THE HIGH PRESSURE CORE SPRAY SYSTEM (HPCS) REACTOR LOW LOW WATER LEVEL INJECTION INITIATION. ALTHOUGH THIS SWITCH, LS-1B21-N031B, ALONG WITH LS-1B21-N031D AND THE MAJORITY OF THE OTHER LEVEL INSTRUMENTS ON INSTRUMENT RACK 1H22-P005, WERE MADE INOPERABLE BY THE SWITCH DIAPHRAGM RUPTURE, HPCS INJECTION AND AUTOMATIC SCRAM INITIATIONS WERE NOT PREVENTED BY THIS EVENT BECAUSE REDUNDANT INITIATION LOGIC WAS AVAILABLE. THE HPCS SYSTEM WAS ALREADY INOPERABLE FOR OUTAGE RELATED WORK AND NO IMMEDIATE SAFETY CONCERNS AROSE DUE TO THIS EVENT. A REPLACEMENT SWITCH WAS INSTALLED, CALIBRATED AND FUNCTIONALLY TESTED SATISFACTORY. LEVEL SWITCH LS-1B21-N031B WAS DECLARED OPERABLE AT 1000 HOURS ON JUNE 6, 1988. THE REPLACED SWITCH WAS SENT TO THE MANUFACTURER FOR DISASSEMBLY AND INSPECTION. THIS EVENT IS REPORTED TO THE NUCLEAR REGULATORY COMMISSION AS A LICENSEE EVENT REPORT IN COMPLIANCE WITH THE REQUIREMENTS OF I.E. BULLETIN 86-02, "STATIC-O-RING DIFFERENTIAL PRESSURE SWITCHES."

[139] LA SALLE 1 DOCKET 50-373 LER 88-010
 SPURIOUS AMMONIA DETECTOR TRIP DUE TO DESIGN DEFICIENCY IN THE CHEMCASSETTE TAPE MECHANISM.
 EVENT DATE: 052988 REPORT DATE: 062888 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: LA SALLE 2 (BWR)

(NSIC 209750) AT 1755 HOURS ON MAY 29, 1988, WITH UNIT 1 DEFUELED AND UNIT 2 IN OPERATIONAL CONDITION 1 (RUN) AT 0% AND 53.2% POWER, RESPECTIVELY, THE "A" CONTROL ROOM HVAC SYSTEM (VC) "A" AMMONIA DETECTOR (OXY-VC125YB) TRIPPED. PER DESIGN, AN ENGINEERED SAFETY FEATURE (ESF) DAMPER ACTUATION OCCURRED WHICH ISOLATED THE "A" VC SYSTEM FROM OUTSIDE AIR AND PLACED THE "ODOR EATER" (CHARCOAL ADSORBER) IN OPERATION. THE CONSEQUENCES OF THIS EVENT WERE MINIMAL SINCE THE "A" VC SYSTEM RESPONDED TO THE ESF ACTUATION PER DESIGN. THE INSTRUMENT MAINTENANCE DEPARTMENT INVESTIGATED THE EVENT AND FOUND THAT THE CHEMCASSETTE TAPE WAS BROKEN AT THE TAKEUP SPOOL AND BUNCHED AT THE CAPSTAN ROLLER. THE CHEMCASSETTE TAPE WAS REWOUND, PROPER MOVEMENT OF THE CHEMCASSETTE IN THE DETECTOR WAS VERIFIED, AND THE DETECTOR WAS DECLARED OPERABLE AT 1816 HOURS THE SAME DAY. THE ROOT CAUSE OF THIS EVENT IS A DESIGN DEFICIENCY IN THE CHEMCASSETTE TAPE MECHANISM. A TECH SPEC AMENDMENT REQUEST HAS BEEN SUBMITTED THAT WOULD ALLOW REMOVAL OF THESE DETECTORS IF APPROVED. THIS EVENT IS

REPORTABLE PURSUANT TO THE REQUIREMENTS OF 10CFR50.73(A)(2)(IV) DUE TO THE ACTUATION OF AN ESP SYSTEM.

[140] LA SALLE 2 DOCKET 50-374 LER 88-006
 MISSED LOOSE PARTS MONITOR SURVEILLANCE DUE TO PERSONNEL ERROR.
 EVENT DATE: 051388 REPORT DATE: 061088 NSSS: GE TYPE: BWR

(NSIC 209560) ON MAY 13, 1988, AT 1700 HOURS, WITH UNIT 2 IN OPERATIONAL CONDITION 1 (RUN) AT 86% POWER, IT WAS DISCOVERED THAT LASALLE TECHNICAL SURVEILLANCE LTS-500-12, "LOOSE PARTS MONITOR FUNCTIONAL TEST," HAD NOT BEEN PERFORMED AS REQUIRED BY TECH SPEC SURVEILLANCE REQUIREMENTS 4.3.7.12.B. THE SURVEILLANCE WAS LAST PERFORMED ON APRIL 1, 1988. SINCE THIS SURVEILLANCE IS ON A 31 DAY FREQUENCY, THE SURVEILLANCE HAD A DUE DATE (DATE WITHOUT 25% GRACE PERIOD) OF MAY 1, 1988 AND A CRITICAL DATE (DATE WITH 25% GRACE PERIOD) OF MAY 9, 1988. THE SURVEILLANCE WAS PERFORMED AND REVIEWED, BY 1730 HOURS ON MAY 13, 1988, WITH ACCEPTABLE RESULTS. THE ROOT CAUSE OF THE EVENT WAS THE FAILURE OF PERSONNEL TO PERFORM AN ADEQUATE REVIEW OF THE SURVEILLANCE SCHEDULE. THIS RESULTED IN THE SURVEILLANCE EXCEEDING BOTH ITS DUE DATE AND CRITICAL DATE. THIS EVENT IS BEING REPORTED PURSUANT TO THE REQUIREMENTS OF 10CFR50.73(A)(2)(I), DUE TO THE DEVIATION FROM PLANTS TECH SPECS.

[141] LA SALLE 2 DOCKET 50-374 LER 88-007
 FAILURE OF 2A DIESEL GENERATOR DUE TO IMPROPER INSTALLATION OF CLOSING FUSE AFTER MAINTENANCE.
 EVENT DATE: 052388 REPORT DATE: 062288 NSSS: GE TYPE: BWR

(NSIC 209752) ON MAY 23, 1988 AT 1300 HOURS, WITH UNIT 2 IN OPERATIONAL CONDITION 1 (RUN) AT 93% POWER, THE 2A DIESEL GENERATOR (DG) WAS STARTED IN ACCORDANCE WITH LASALLE OPERATING SURVEILLANCE LOS-DG-M2, "2A DIESEL GENERATOR OPERABILITY SURVEILLANCE". THIS SURVEILLANCE WAS BEING PERFORMED AS A POST-MAINTENANCE TEST TO VERIFY SATISFACTORY STARTING CAPABILITY FOLLOWING REPLACEMENT OF THE AIR START MOTORS. THE POST MAINTENANCE TEST WAS COMPLETED AND PREPARATIONS WERE MADE TO PERFORM A VALID TEST BY PARALLELING THE 2A DG TO THE BUS AND FULLY LOADING THE DG FOR ONE HOUR. WHEN THE NUCLEAR STATION OPERATOR (NSO) ATTEMPTED TO CLOSE THE 2A DG OUTPUT BREAKER, THE BREAKER FAILED TO CLOSE. INVESTIGATION BY TECHNICAL STAFF AND ELECTRICAL MAINTENANCE PERSONNEL OF THE OUTPUT BREAKER CUBICLE REVEALED THE CLOSING FUSE BLOCK TO BE UPSIDE DOWN, EFFECTIVELY OPEN-CIRCUITING THE BREAKER CLOSING CIRCUIT. THE CAUSE OF THIS EVENT WAS PERSONNEL ERROR. THE FUSE BLOCK WAS INSTALLED UPSIDE DOWN WHEN THE OUTPUT BREAKER WAS RETURNED TO SERVICE FOLLOWING THE AIR START MOTOR REPLACEMENT. THE CONSEQUENCES OF THIS EVENT WERE MINIMAL. THE 2A DG WAS ALREADY INOPERABLE PRIOR TO THE EVENT. AT NO TIME WAS THE 2A DG CONSIDERED OPERABLE WHILE THE BREAKER FUSE BLOCK WAS INSTALLED UPSIDE DOWN.

[142] LIMERICK 1 DOCKET 50-352 LER 88-008 REV 01
 UPDATE ON NON-COMPLIANCE WITH TECH SPECS DUE TO MISSING AND INCORRECTLY INSTALLED FIRE RATED PENETRATION CONDUIT SEALS.
 EVENT DATE: 032388 REPORT DATE: 070888 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: LIMERICK 2 (BWR)

(NSIC 209849) ON MARCH 23, 1983, AT 1430 HOURS, IT WAS DISCOVERED THAT AN ELECTRICAL CONDUIT, PENETRATING A FIRE RATED FLOOR SEPARATING SAFE SHUTDOWN FIRE AREAS, LACKED FIRE RATED INTERNAL CONDUIT SEALS. INVESTIGATION REVEALED THAT COMPENSATORY FIREWATCH MEASURES WERE NOT IN PLACE FROM RECEIPT OF THE LICENSE ON OCTOBER 26, 1984, THROUGH NOVEMBER, 1986 AS REQUIRED BY TECH SPEC 3.7.7. IN NOVEMBER, 1986 AN HOURLY FIRE WATCH PATROL WAS INSTITUTED FOR CONTROL ENCLOSURE FIRE AREAS DUE TO UNIT 2 CONSTRUCTION ACTIVITIES. THE CONDUIT PENETRATES A CONTROL ENCLOSURE FIRE RATED FLOOR BETWEEN ACCESS CORRIDOR ROOM 437, AND THE UNIT

2 CABLE SPREADING ROOM. FIRE RATED INTERNAL CONDUIT SEALS WERE INSTALLED ON APRIL 15, 1988. UPON FURTHER EXAMINATION OF THE SEALS FOR CONDUITS, RUNNING FROM ROOM 437 AND TERMINATING IN SWITCHGEAR ROOMS 428 AND 434, IT WAS DETERMINED THAT THEY HAD BEEN INSTALLED IN COMPLIANCE WITH INSTALLATION SPECIFICATIONS AND THE LIMERICK FIRE PROTECTION EVALUATION REPORT (FPER) CONTRARY TO THE REPORT IN LER 88-008 REV. 00. HOWEVER, SUBSEQUENT INSPECTION HAS REVEALED FOUR ADDITIONAL CONDUITS EACH WITH INTERNAL FIRE RATED SEAL PROBLEMS. A NONCONFORMANCE REPORT HAS BEEN INITIATED TO DISPOSITION THE RECENTLY IDENTIFIED CONDUIT SEAL PROBLEMS.

[143] LIMERICK 1 DOCKET 50-352 LER 88-009 REV 02
 UPDATE ON REACTOR WATER CLEANUP ISOLATION DUE TO HIGH REGENERATIVE HEAT EXCHANGER ROOM TEMPERATURE CAUSED BY A PRESSURE RELIEF VALVE LIFTING.
 EVENT DATE: 032488 REPORT DATE: 063088 NSSS: GE TYPE: BWR
 VENDOR: LONERGAN, J.E., CO.

(NSIC 209744) ON MARCH 24, 1988, AT 0448 HOURS, AN ISOLATION OF THE REACTOR WATER CLEANUP (RWCU) SYSTEM OCCURRED. THE ISOLATION OCCURRED WHEN THE REGENERATIVE HEAT EXCHANGER ROOM TEMPERATURE SENSING ELEMENT SENSED A TEMPERATURE ABOVE ITS 122 DEGREE FAHRENHEIT SETPOINT AND INITIATED A NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NSSSS) GROUP III, DIVISION I "STEAM LEAK DETECTION HIGH TEMPERATURE" ISOLATION. UPON RECEIPT OF THE ISOLATION SIGNAL, THE INBOARD ISOLATION VALVE (HV-044-LF001) CLOSED AND THE 'A' AND 'B' RWCU PUMPS TRIPPED AS DESIGNED. THE HIGH ROOM TEMPERATURE CONDITION RESULTED WHEN A PRESSURE RELIEF VALVE (PSV-044-108) LEAKED WATER FROM THE SHELL SIDE OF THE REGENERATIVE HEAT EXCHANGER (10E207) PAST ITS SEAT WHICH FLASHED TO STEAM. THE ISOLATION WAS RESET AT 1207 HOURS AND RWCU WAS BLOCKED TO REPLACE THE LEAKING PRESSURE RELIEF VALVE PSV-044-108 (LONERGAN MODEL D727), LOCATED ON THE REGENERATIVE HEAT EXCHANGER. THERE WAS NO RELEASE OF RADIOACTIVE MATERIAL AS A RESULT OF THIS EVENT. ENGINEERING IS PERFORMING A ROOT CAUSE EVALUATION AND THE RESULTS OF THIS INVESTIGATION ARE EXPECTED BY JULY 29, 1988. A SUPPLEMENTAL REPORT WILL BE ISSUED DETAILING THE RESULTS OF THE ROOT CAUSE INVESTIGATION.

[144] LIMERICK 1 DOCKET 50-352 LER 88-019
 DEFICIENT LOCKING SPRINGS ON AGASTAT RELAYS WHICH MAY DEGRADE OPERABILITY OF SYSTEM CHANNELS REQUIRED BY TECHNICAL SPECIFICATIONS.
 EVENT DATE: 050688 REPORT DATE: 060988 NSSS: GE TYPE: BWP
 VENDOR: AGASTAT RELAY CO.

(NSIC 209643) ON MAY 6, 1988, DURING A QUALITY CONTROL INSPECTION, LOCKING SPRINGS ON 17 AGASTAT RELAYS WERE DISCOVERED MISSING OR UNSECURED. DURING RESTORATION 2 ADDITIONAL UNFASTENED LOCKING SPRINGS WERE DISCOVERED. THE CONDITION OF THE LOCKING SPRINGS MAY HAVE DEGRADED THE SEISMIC QUALIFICATION OF THE RELAYS SUCH THAT THE TECHNICAL SPECIFICATIONS ACTUATION INSTRUMENTATION MINIMUM OPERABLE CHANNEL REQUIREMENTS FOR REACTOR CORE ISOLATION COOLING, CORE SPRAY, HIGH PRESSURE COOLANT INJECTION AND LOW PRESSURE COOLANT INJECTION SYSTEMS, WERE NOT MET. THERE WERE NO ADVERSE CONSEQUENCES AS RESULT OF THIS EVENT. AN EVALUATION IS UNDERWAY TO DETERMINE THE EFFECT OF A SEISMIC EVENT ON THE ABILITY OF THESE RELAYS TO PERFORM THEIR SAFETY FUNCTION WITHOUT THE LOCKING SPRINGS IN PLACE. THE CAUSE OF THE EVENT IS BELIEVED TO BE INADVERTENT DISLODGING OF THE LOCKING SPRINGS DURING WORK ACTIVITIES IN THE RELAY CABINETS. A MEMO HAS BEEN WRITTEN REQUIRING WORK GROUP SUPERVISION TO ADVISE THOSE PERSONS WORKING IN THE AFFECTED CABINETS TO EXHIBIT CARE TO AVOID DISLODGING THE SPRINGS. ADDITIONALLY, A SURVEILLANCE TEST WILL BE WRITTEN TO INSPECT THE LOCKING SPRINGS ON SAFETY-RELATED RELAYS PERIODICALLY.

[145] LIMERICK 1 DOCKET 50-352 LER 88-016
 VARIOUS ENGINEERED SAFETY FEATURE ACTUATIONC DUE TO A FUSE FAILURE.
 EVENT DATE: 050788 REPORT DATE: 060688 NSSS: GE TYPE: BWR
 VENDOR: BUSHMAN EQUIPMENT CO.

(NSIC 209641) ON MAY 7, 1988 AT 0746 HOURS, A CHANNEL 'B' REACTOR PROTECTION SYSTEM (RPS) 1/2 SCRAM AND VARIOUS NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NSSSS) ISOLATIONS (ENGINEERED SAFETY FEATURES) OCCURRED AS THE RESULT OF A BLOWN 60 AMP POWER SUPPLY FUSE. AN AUTOMATIC START OF THE 'B' STANDBY GAS TREATMENT SYSTEM (SGTS) ALSO RESULTED FROM THE LOSS OF THE 'B' CHANNEL INITIATION LOGIC. OPERATORS VERIFIED THAT ALL ISOLATIONS AND AUTOMATIC ACTIONS OCCURRED AS DESIGNED. REACTOR POWER WAS REDUCED TO 80% FROM 90% IN ORDER TO PREVENT DAMAGE TO THE RECIRCULATION PUMP MOTOR SEALS WHICH HAD LOST COOLING WATER AS A RESULT OF THE ISOLATIONS. THERE WAS NO RELEASE OF RADIOACTIVE MATERIAL TO THE ENVIRONMENT AS A RESULT OF THIS EVENT. THE ROOT CAUSE OF THIS EVENT IS BELIEVED TO BE OVERHEATING OF THE FUSE RESULTING FROM INADEQUATE CONTACT BETWEEN THE FUSE AND THE FUSE SPRING CLIPS. FUSE SPRING CLIP CLAMPS HAVE BEEN INSTALLED TO IMPROVE CONTACT BETWEEN THE FUSE AND ITS SPRING CLIPS. THE BLOWN FUSE WAS REPLACED AT 0803 HOURS AND THE 1/2 SCRAM WAS RESET. AT 0807 HOURS, ALL NSSSS ISOLATIONS WERE RESET AND BY 0822 ALL OTHER SYSTEMS WHICH HAD ISOLATED WERE RESTORED TO NORMAL. THE FUSE SPRING CLIPS FOR THE 60 AMP POWER SUPPLY FUSE TO THE 'A' AND 'B' CHANNEL RPS WILL BE INSPECTED AND REPLACED IF NECESSARY DURING AN OUTAGE OF SUFFICIENT DURATION.

[146] LIMERICK 1 DOCKET 50-352 LER 88-017
 REACTOR ENCLOSURE ISOLATION AND ENGINEERED SAFETY FEATURE ACTUATIONS CAUSED BY COMPONENT FAILURE.
 EVENT DATE: 050988 REPORT DATE: 060888 NSSS: GE TYPE: BWR
 VENDOR: ASCO VALVES

(NSIC 209537) ON 5/9/88 AT 2155 HOURS, A REACTOR ENCLOSURE ISOLATION AND NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NSSSS) GROUP VI A AND VI B ISOLATIONS OCCURRED ON LOW DIFFERENTIAL PRESSURE BETWEEN THE REACTOR ENCLOSURE AND OUTSIDE AIR. THE REACTOR ENCLOSURE RECIRCULATION SYSTEM (RERS) AND STANDBY GAS TREATMENT SYSTEM (SGTS), ENGINEERED SAFETY FEATURES, INITIATED AS DESIGNED. PRIOR TO THE EVENT, WITH THE 'A' AND 'C' TRAINS OF THE REACTOR ENCLOSURE VENTILATION SYSTEM IN OPERATION, THE 'A' REACTOR ENCLOSURE EQUIPMENT COMPARTMENT EXHAUST (REECE) FILTER WAS BLOCKED OUT OF SERVICE TO CHANGE ITS PREFILTERS. THE 'B' REACTOR ENCLOSURE AIR (VENTILATION) EXHAUST FAN WAS STARTED IN PREPARATION FOR REMOVAL OF THE 'A' FAN FROM SERVICE AND THE 'A', 'B' AND 'C' EXHAUST FANS TRIPPED AFTER A 6 SECOND TIME DELAY. THE REACTOR ENCLOSURE ISOLATED ON LOW DIFFERENTIAL PRESSURE. THE CAUSE OF THE EVENT WAS A COMPONENT FAILURE OF UNKNOWN CAUSE. WHEN THE 'A' REECE FILTER WAS BLOCKED FROM SERVICE, THE SOLENOID VALVE, WHICH PROVIDES THE PNEUMATIC ACTUATION OF THE FILTER TRAIN'S DISCHARGE DAMPER, FAILED TO FULLY CLOSE AND INSTRUMENT AIR LEAKED FROM THE SOLENOID'S VENT PORT. THE DECREASE IN INSTRUMENT AIR PRESSURE CAUSED THE VENTILATION EXHAUST FAN'S DISCHARGE DAMPERS TO CLOSE, RESULTING IN THE FAN TRIPS.

[147] LIMERICK 1 DOCKET 50-352 LER 88-018
 CONTROL ROOM HVAC ISOLATION RESULTING FROM A HIGH CHLORINE CONCENTRATION SIGNAL BELIEVED TO HAVE BEEN CAUSED BY RAINWATER CONTACTING AN ANALYZER PROBE.
 EVENT DATE: 051188 REPORT DATE: 061088 NSSS: GE TYPE: BWR

(NSIC 209642) ON MAY 11, 1988 AT 1448 HOURS, THE MAIN CONTROL ROOM VENTILATION SYSTEM ISOLATED DUE TO A 'C' CHANNEL HIGH CHLORINE CONCENTRATION SIGNAL. THE 'A' TRAIN OF THE CONTROL ROOM EMERGENCY FRESH AIR SUPPLY (CREPAS) SYSTEM, AN ENGINEERED SAFETY FEATURE, INITIATED AS DESIGNED. THE EVENT OCCURRED DURING RAINY AND WINDY WEATHER CONDITIONS AND THE HIGH CHLORINE CONCENTRATION SIGNAL IS BELIEVED TO HAVE BEEN CAUSED BY RAINWATER COMING IN CONTACT WITH THE CHLORINE

ANALYZER PROBE RESULTING IN A CHEMICAL IMBALANCE IN THE PROBE'S ELECTROLYTE. THE ANALYZER PROBES WERE LOCATED CLOSE TO THE OUTSIDE AIR INTAKE PLENUM. AFTER THE 'C' CHANNEL CHLORINE INDICATOR SPIKED, THE CONTROL ROOM OPERATORS IMPLEMENTED SPECIAL EVENT PROCEDURE SE-2 (TOXIC GAS PROCEDURE). A CHANNEL CHECK OF THE 'A', 'B' AND 'D' CHLORINE DETECTORS WAS PERFORMED BY OPERATIONS PERSONNEL AND VERIFIED TO BE NORMAL. FOLLOWING THE SPIKE ALL CHLORINE CHANNELS INDICATED NORMAL LEVELS (LESS THAN 0.1 PPM). THE ISOLATION WAS RESET AT 1552 HOURS. THE DURATION OF THE CONTROL ROOM ISOLATION WAS 1 HOUR 4 MINUTES. THERE WAS NO CHLORINE INTAKE TO THE CONTROL ROOM. THERE WAS NO RELEASE OF RADIOACTIVE MATERIAL TO THE ENVIRONMENT AS A RESULT OF THIS EVENT. A MODIFICATION TO CREFAS IS CURRENTLY BEING REEVALUATED DUE TO THE MANUFACTURE OF THE CHLORINE DETECTOR, GOING OUT OF BUSINESS.

[148] LIMERICK 1 DOCKET 50-352 LER 88-020
 REACTOR ENCLOSURE SECONDARY CONTAINMENT ISOLATION ON LOW DIFFERENTIAL PRESSURE
 DUE TO A SEVERED INSTRUMENT AIR LINE TUBE.
 EVENT DATE: 052188 REPORT DATE: 061788 NSSS: GE TYPE: BWR

(NSIC 209745) ON MAY 21, 1988 AT 1847 HOURS, A "B" CHANNEL REACTOR ENCLOSURE SECONDARY CONTAINMENT ISOLATION OCCURRED AND THE "B" TRAINS OF THE STANDBY GAS TREATMENT SYSTEM (SGTS) AND REACTOR ENCLOSURE RECIRCULATION SYSTEM (RERS), ENGINEERED SAFETY FEATURES, STARTED AS DESIGNED. THE ISOLATION OCCURRED WHEN DIFFERENTIAL PRESSURE BETWEEN THE REACTOR ENCLOSURE (RE) AND OUTSIDE ATMOSPHERE DECREASED BELOW THE SETPOINT OF NEGATIVE 0.1 INCHES WATER GAUGE. THE "B" TRAIN OF THE SGTS RESTORED AND MAINTAINED REACTOR ENCLOSURE DIFFERENTIAL PRESSURE AT LESS THAN NEGATIVE 0.1 INCHES WATER GAUGE, THUS PREVENTING THE INITIATION OF AN "A" CHANNEL REACTOR ENCLOSURE ISOLATION SIGNAL. THE SGTS MAINTAINED SECONDARY CONTAINMENT DURING THE EVENT AS DESIGNED. THE CAUSE OF THE EVENT WAS A SEVERED INSTRUMENT AIR LINE SERVICING THE "B" REACTOR ENCLOSURE EXHAUST AIR FAN BLADE PITCH DEVICE. THE SEVERED INSTRUMENT AIR LINE TUBING IS BELIEVED TO HAVE BEEN CAUSED BY EITHER VIBRATION INDUCED TO THE TUBING BY THE FAN DISCHARGE DUCTWORK, OR BY A TUBING DEFECT. THE INSTRUMENT AIR LINE WAS REPAIRED, THE REACTOR ENCLOSURE ISOLATION RESET, AND NORMAL REACTOR ENCLOSURE VENTILATION WAS RESTORED AT 2000 HOURS. SIMILAR INSTRUMENT AIR LINE TUBING WAS INSPECTED, WITH NO VIBRATION PROBLEMS NOTED. THERE WAS NO RELEASE OF RADIOACTIVE MATERIAL AS A RESULT OF THIS EVENT.

[149] MAINE YANKEE DOCKET 50-309 LER 88-002 KEV 01
 UPDATE ON UNLOCKED EMERGENCY CORE COOLING SYSTEM VALVES.
 EVENT DATE: 011588 REPORT DATE: 062188 NSSS: CE TYPE: PWR

(NSIC 209723) DURING A REVIEW OF THE EMERGENCY CORE COOLING SYSTEM (ECCS) SURVEILLANCE PROCEDURE, IT WAS DETERMINED THAT SIXTEEN VALVES WERE NOT PROPERLY CONTROLLED AS REQUIRED BY THE PLANT'S TECH SPEC. FOR OPERATION AT POWER, ECCS VALVES THAT AFFECT OPERABILITY MUST BE ALIGNED AND LOCKED IN THE POSITION REQUIRED FOR PROPER SAFEGUARDS OPERATION. ALL THESE VALVES WERE ALIGNED AND CONTROLLED BY PROCEDURE AS REQUIRED BUT WERE NOT LOCKED. THE VALVES WERE LOCKED. AS A RESULT OF THE INCIDENT, THE LICENSEE IDENTIFIED SOME LOCKED VALVE POLICY INCONSISTENCIES AND CONCERNS AND WILL REVIEW THE POLICY TO ENSURE THAT IT DOES NOT UNNECESSARILY REDUCE OPERATIONAL FLEXIBILITY AND THAT IT IS CONSISTENTLY APPLIED IN THE PROCEDURES. A TECH SPEC CHANGE IS BEING CONSIDERED TO PROVIDE A LOCKED VALVE POLICY THAT MINIMIZES IMPACT ON ECCS OPERATIONAL FLEXIBILITY.

[150] MCGUIRE 1 DOCKET 50-369 LER 88-012
 INVESTIGATION OF POSSIBLE VALVE ACTUATOR PROBLEMS.
 EVENT DATE: 020588 REPORT DATE: 071488 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: MCGUIRE 2 (PWR)
 VENDOR: ROTORK INC.

(NSIC 209969) ON 02/03/88, INSTRUMENTATION AND ELECTRICAL (IAE) AND NRC PERSONNEL, INSPECTING SOME VALVES AS PART OF AN EQUIPMENT QUALIFICATION REVIEW, DISCOVERED THAT THE MOTOR HAD FALLEN OFF THE ACTUATOR ON VALVE 2ND-2A, RESIDUAL HEAT REMOVAL PUMP 2A SUCTION VALVE, ON UNIT 2 AT CATAWBA NUCLEAR STATION. IT WAS LATER DETERMINED THAT THE MOTOR HAD DRIVEN ITSELF OFF PAST THE MOUNTING SCREWS WHEN SUBJECTED TO STALL TORQUE BECAUSE THE MOUNTING SCREWS WERE IMPROPERLY INSTALLED. (THE MOTOR STALLED BECAUSE BOTH THE TORQUE AND LIMIT SWITCH HAD BEEN BYPASSED.) THE INCIDENT AT CATAWBA LED TO AN INVESTIGATION TO DETERMINE IF SIMILAR PROBLEMS EXISTED AT MCGUIRE NUCLEAR STATION. FROM THIS INVESTIGATION, IT WAS CONCLUDED BY IAE THAT ONE VALVE ACTUATOR AT MCGUIRE REQUIRED ADDITIONAL WASHERS UNDER THE MOTOR ATTACHMENT SCREWS. VALVE ICF-127B, STEAM GENERATOR B MAIN FEEDWATER TO AUXILIARY FEEDWATER NOZZLE ISOLATION, WAS REMOVED FROM SERVICE UNTIL THE WASHERS WERE ADDED. SEVERAL OTHER MOTOR ATTACHMENTS WHICH WERE PRELIMINARILY DETERMINED TO BE SATISFACTORY WILL BE FURTHER INSPECTED AT THE NEXT REFUELING OUTAGES AFTER 1988. NO CAUSE HAS BEEN ASSIGNED, SINCE THERE WAS NO SPECIFIC EVENT AT MCGUIRE.

[151] MCGUIRE 1 DOCKET 50-369 LER 88-007 REV 01
 UPDATE ON FAILURE ON A PRINTED CIRCUIT CONTROLLER CARD CAUSES STEAM GENERATOR
 FEED REGULATOR VALVE TO CLOSE RESULTING IN TURBINE AND REACTOR TRIP.
 EVENT DATE: 041608 REPORT DATE: 070188 NSSS: WE TYPE: PWR
 VENDOR: CONTROL COMPONENTS
 NAMCO CONTROLS
 PACIFIC VALVES, INC.
 WESTINGHOUSE ELECTRIC CORP.

(NSIC 209830) ON 04/16/88 AT 1033, VALVE ICF-20, STEAM GENERATOR 1C FEEDWATER REGULATING VALVE, CLOSED BECAUSE OF AN UNKNOWN FAULT ON THE ASSOCIATED CONTROLLER CARD IN A CONTROL CABINET. OPERATIONS (OPS) RECOGNIZED THAT UNIT 1 WOULD TRIP AUTOMATICALLY SO THE TURBINE GENERATOR AND REACTOR WERE MANUALLY TRIPPED. ALL SYSTEMS AND EQUIPMENT RESPONDED AS EXPECTED FOLLOWING THE TRIP EXCEPT THAT VALVE 1SV-7, STEAM GENERATOR 1C POWER OPERATED RELIEF, OPENED APPROXIMATELY 10 PSI LOWER THAN ITS SETPOINT BAND, AND THE OPEN LIMIT SWITCH FOR VALVE 1SA-49, STEAM SUPPLY TO AUXILIARY FEEDWATER PUMP TURBINE, FAILED TO ACTUATE. OPS IMPLEMENTED THE REACTOR TRIP AND THE UNIT FAST RECOVERY PROCEDURE. INSTRUMENTATION AND ELECTRICAL (IAE) REPLACED THE FAULTY CONTROLLER CARD, AND UNIT 1 WAS RETURNED TO SERVICE ON 04/17/88 AT 0501. THIS EVENT IS ASSIGNED A CAUSE OF OTHER SINCE THE COMPONENT FAILURE ON THE CONTROL CARD FOR VALVE ICF-20 WAS DUE TO UNKNOWN CAUSE. IAE WILL STUDY THE FAILURE OF THE OPEN LIMIT SWITCH ON VALVE 1SA-49 AND DETERMINE THE IMPLICATIONS TO OTHER ENVIRONMENTALLY QUALIFIED EQUIPMENT. THE FAILED CONTROLLER CARD WILL BE ANALYZED BY WESTINGHOUSE AND A REVISION TO THIS REPORT WILL BE SUBMITTED DESCRIBING THE TEST RESULTS.

[152] MCGUIRE 1 DOCKET 50-369 LER 88-008
 TURBINE DRIVEN AUXILIARY FEEDWATER PUMP AUTO STARTED BECAUSE OF A PERSONNEL ERROR CAUSED BY A HUMAN FACTORS DEFICIENCY.
 EVENT DATE: 050288 REPORT DATE: 060188 NSSS: WE TYPE: PWR
 VENDOR: BINGHAM PUMP CO.

(NSIC 205486) ON 05/02/88 AT APPROXIMATELY 1023, PERFORMANCE (PRP) PERSONNEL WERE LIFTING A LEAD TO PERFORM A VALVE STROKE TEST ON MOTOR DRIVEN AUXILIARY FEEDWATER (CA) PUMP 1A RECIRCULATION VALVE, 1CA-27A. THE LEAD INADVERTENTLY MADE CONTACT WITH THE ELECTRICAL CIRCUITRY OF THE TURBINE DRIVEN (T/D) CA PUMP WHICH THEN AUTOMATICALLY STARTED. AFTER APPROXIMATELY 25 SECONDS OF OPERATION, THE T/D CA PUMP TRIPPED FOR AN UNKNOWN REASON. OPERATIONS (OPS) ATTEMPTED TO RESET THE T/D CA PUMP WITHOUT SUCCESS AND AT 1030, DECLARED THE T/D CA PUMP INOPERABLE. AT 1045, OPS INITIATED AN EMERGENCY WORK REQUEST TO HAVE INSTRUMENTATION AND ELECTRICAL (IAE) TROUBLESHOOT THE ELECTRICAL CIRCUITRY OF THE T/D CA PUMP. IAE FOUND AND REPLACED A BLOWN FUSE IN THE ELECTRICAL CIRCUITRY OF THE T/D CA PUMP.

OPS DECLARED THE T/D CA PUMP OPERABLE AT 1238. THIS EVENT IS ASSIGNED A CAUSE OF PERSONNEL ERROR BECAUSE PROPER EXECUTION OF THE TEST STEP FAILED DURING THE LIFTING OF THE LEAD DUE TO A HUMAN FACTORS DEFICIENCY. PRF WILL REVIEW THIS EVENT REPORT AND BEGIN USING FUSE PULLERS ON ALL LIFTED LEADS. DESIGN ENGINEERING WILL EVALUATE THE USE OF SLIDING LINKS FOR CA PUMP RECIRCULATION VALVES. IAE WILL REPLACE THE INSULATOR BETWEEN TERMINAL B-15 AND B-16.

[153] MCGUIRE 1 DOCKET 50-369 LER 88-009
 AN INADVERTENT ENGINEERED SAFETY FEATURE ACTIVATION OCCURRED DUE TO PERSONNEL ERROR CAUSED BY DEFICIENT COMMUNICATION.
 EVENT DATE: 051880 REPORT DATE: 061788 NSSS: WY TYPE: PWR

(NSIC 209653) ON 05/18/88, AT 1855, THERE WAS AN INADVERTENT ESF ACTUATION FROM THE UNIT 1 TRAIN B DIESEL GENERATOR (D/G) LOAD SEQUENCER (SEQ). PERFORMANCE (PRF) HAD COMPLETED THE D/G 1B SEQ TEST AND HAD INADVERTENTLY RETURNED THE SEQ TO A NORMAL OPERATING ALIGNMENT IN AN INCORRECT ORDER. THE ESF ACTUATION OCCURRED WHEN OPERATIONS (OPS) RESET THE 1B D/G SEQ AT THE REQUEST OF PRF. THE ESF SIGNAL CAUSED AN AUTOMATIC START OF THE 1B AUXILIARY FEEDWATER MOTOR DRIVEN PUMP, THE 1B NUCLEAR SERVICE WATER PUMP, AND THE TRAIN B CONTROL ROOM AREA VENTILATION CHILLER. AT 1900, THE TWO PUMPS AND THE CHILLER WERE STOPPED BY OPS. AT 1930, OPS NOTIFIED THE NRC OF THE ESF ACTUATION. THIS EVENT IS ASSIGNED A CAUSE OF PERSONNEL ERROR DUE TO A MISUNDERSTOOD VERBAL COMMUNICATION BETWEEN PRF TECHNICIAN A AT THE LOCAL 1B D/G SEQ CONTROL PANEL AND PRF ENGINEER A IN THE CONTROL ROOM. THIS MISCOMMUNICATION CAUSED THE STEPS IN THE D/G 1B SEQ TEST PROCEDURE TO BE PERFORMED IN AN INCORRECT ORDER. THIS EVENT IS ALSO ASSIGNED A CONTRIBUTORY CAUSE OF DEFECTIVE PROCEDURE DUE TO THE POOR FORMAT OF THE STEPS IN THE PROCEDURE. THIS EVENT WAS DISCUSSED WITH PRF PERSONNEL STRESSING THE IMPORTANCE OF GOOD COMMUNICATIONS AND EMPHASIZING THAT A PROCEDURE SHOULD NOT BE PERFORMED OUT OF SEQUENCE. THE D/G SEQ TEST PROCEDURES HAVE BEEN PLACED ON HOLD UNTIL MODIFIED TO CLARIFY STEPS.

[154] MCGUIRE 2 DOCKET 50-370 LER 88-004
 TWO INADVERTENT ACTUATIONS OF UNIT 2 ENGINEERED SAFETY FEATURES COMPONENTS OCCURRED DUE TO PERSONNEL ERROR DUE TO PROCEDURE NONCOMPLIANCE.
 EVENT DATE: 051289 REPORT DATE: 071388 NSSS: WE TYPE: PWR

(NSIC 209071) ON 5/11/88, AT APPROXIMATELY 1532, OPERATIONS, PREPARING FOR MAINTENANCE ON TWO AUX FEEDWATER (CA) 2B COMPONENTS, FAILED TO IDENTIFY THAT AN ASSURED SOURCE OF WATER SUCTION ISOLATION VALVE WAS REQUIRED TO BE TAGGED. ALSO WHILE REMOVING MOTOR DRIVEN (M/D) CA PUMP 2B FROM SERVICE, OPERATIONS (OPS) FAILED TO FOLLOW THE PRESCRIBED SEQUENCE OF STEPS ON THE R&R. WHEN OPS LATER VENTED M/D CA PUMP 2B, THE SUCTION HEADER DEPRESSURIZED AND BOTH ASSURED SOURCE OF WATER SUCTION ISOLATION VALVES OPENED ON A LOW SUCTION PRESSURE SIGNAL. OPS REALIGNED CA TRAIN 2B FOR THE IMPENDING MAINTENANCE AND COMPLETED THE REMOVAL PORTION OF THE R&R. ON 5/12/88, AT APPROXIMATELY 1600, OPS AGAIN DEVIATED FROM THE SEQUENCE OF STEPS ON THE R&R. BOTH ASSURED SOURCE OF WATER SUCTION ISOLATION VALVES AGAIN OPENED ON A M/D CA PUMP 2B LOW SUCTION PRESSURE SIGNAL. THE EVENT OF 05/11/88 IS ASSIGNED A CAUSE OF PERSONNEL ERROR. THE EVENT OF 5/12/88 IS ASSIGNED A CAUSE OF PERSONNEL ERROR, BECAUSE PERSONNEL IMPROPERLY FOLLOWED THE CORRECT R&R. OPS HAS REVIEWED THIS EVENT WITH APPLICABLE PERSONNEL AND WARNING TAGS HAVE BEEN PLACED ON BREAKER COMPARTMENTS. OPS IS ADOPTING A DEFINITION OF WHAT CONSTITUTES AN ESF ACTUATION AND ALL LICENSED SROS WILL BE INFORMED.

[155] MCGUIRE 2 DOCKET 50-370 LER 88-002
 BOTH TRAINS OF THE ANNULUS VENTILATION SYSTEM WERE MADE INOPERABLE DUE TO DEFICIENT COMMUNICATION AND PLANNING/SCHEDULING DEFICIENCIES.
 EVENT DATE: 052788 REPORT DATE: 062788 NSSS: WE TYPE: PWR

(NSIC 209833) ON 05/27/88, AT APPROXIMATELY 1630, UNIT 2 UNKNOWINGLY ENTERED THE ACTION STATEMENTS OF TECH SPEC (TS) 3.0.3 WHEN BOTH TRAINS OF THE ANNULUS VENTILATION (VE) SYSTEM BECAME INOPERABLE DURING A UNIT 2 SHUTDOWN ACTIVITY. ON 05/26/88, IN A UNIT 2 OUTAGE SCHEDULING MEETING, INTEGRATED SCHEDULING (IS), OPERATIONS (OPS), AND INSTRUMENTATION AND ELECTRICAL (IAE) MANAGEMENT CONCURRED THAT TEMPORARY CONTROLLED ACCESS DOOR (CAD) READERS COULD BE INSTALLED OUTSIDE THE ENTRANCES TO THE UPPER AND LOWER CONTAINMENT CADS WHILE UNIT 2 WAS OPERATING IF VE OPERABILITY WAS NOT VIOLATED. THIS ACTIVITY WAS SCHEDULED AS AN OPERATIONAL ACTIVITY. THE CAD READERS WERE INSTALLED BY IAE; THEREFORE, INADVERTENTLY VIOLATING VE OPERABILITY. OPS LOGGED UNIT 2 INTO AND OUT OF TS 3.0.3 ON 05/28/88, BECAUSE THE CADS WERE CONTINUOUSLY MONITORED BY SECURITY, AND SECURITY WAS PROVIDED WITH TOOLS TO CUT THE CABLES, ENABLING THEM TO CLOSE THE DOORS UPON REQUEST BY OPS. ALSO, OPS HAD COMMENCED SHUTDOWN OF UNIT 2 FOR THE REFUELING OUTAGE. THIS EVENT IS ASSIGNED A CAUSE OF MANAGEMENT DEFICIENCY BECAUSE OF DEFICIENT COMMUNICATION AND PLANNING/SCHEDULING DEFICIENCIES. THIS EVENT WILL BE REVIEWED WITH APPLICABLE PERSONNEL TO STRESS THE IMPORTANCE OF ADEQUATE COMMUNICATIONS AND ACCURATE WORK REQUEST EVALUATIONS.

[156] MILLSTONE 1 DOCKET 50-245 LER 88-005
 INSUFFICIENT CONTAINMENT SPRAY INTERLOCK SETPOINT.
 EVENT DATE: 052788 REPORT DATE: 062388 NSSS: GE TYPE: BWR

(NSIC 209596) ON MAY 27, 1988, WHILE OPERATING AT 100% POWER (529 DEGREES F, 1032 PSIG) INVESTIGATIONS RESULTING FROM THE POTENTIAL FOULING OF EMERGENCY CORE COOLING SYSTEM (ECCS) SUCTION STRAINERS (LER 88-004-01) AND DESIGN BASIS DOCUMENTATION WORK ON THE LOW PRESSURE COOLANT INJECTION (LPCI) SYSTEM REVEALED THAT THE CONTAINMENT SPRAY 5 PSIG INTERLOCK SETPOINT WAS INSUFFICIENT TO ENSURE THAT ECCS PUMP CAVITATION WOULD NOT OCCUR. THE EVALUATION CONCLUDED THAT WITH ALL SIX ECCS PUMPS OPERATING AND THE FAILURE OF ONE LPCI HEAT EXCHANGER OUTLET VALVE TO OPEN ON THE SERVICE WATER SIDE, THE AVAILABLE NPSH COULD BE INSUFFICIENT TO PREVENT CAVITATION IF THE 5 PSIG INTERLOCK WAS SOLELY RELIED ON TO TERMINATE SPRAYS. THE EMERGENCY OPERATING PROCEDURES HAVE BEEN REVISED TO RESTRICT USE OF CONTAINMENT SPRAY AND TO ENSURE THAT SUFFICIENT PRESSURE IS MAINTAINED TO PRECLUDE ECCS PUMP CAVITATION. THIS EVENT IS REPORTABLE PURSUANT TO 10CFR50.73(A)(2)(V).

[157] MILLSTONE 3 DOCKET 50-423 LER 86-017 REV 01
 UPDATE ON REACTOR TRIP DUE TO SSPS GENERAL WARNING DUE TO FAULTY POWER SUPPLY.
 EVENT DATE: 021386 REPORT DATE: 061588 NSSS: WE TYPE: PWR
 VENDOR: WESTINGHOUSE ELEC CORP.-NUCLEAR ENERGY SYS

(NSIC 209575) AT 1133 ON FEBRUARY 13, 1986, WHILE OPERATING AT 15% REACTOR POWER, THE PLANT RECEIVED A REACTOR TRIP CAUSED BY A GENERAL WARNING ALARM IN BOTH TRAINS OF THE SOLID STATE PROTECTION SYSTEM (SSPS), OPERATORS VERIFIED THAT ALL RODS INSERTED AND THAT ALL REACTOR TRIP BREAKERS OPENED. THE A TRAIN OF SSPS HAD A GENERAL WARNING ALARM PRESENT DUE TO A SURVEILLANCE TEST IN PROGRESS. A SPURIOUS GENERAL WARNING ALARM OCCURRED ON THE B TRAIN OF SSPS. THE CAUSE OF THE SPURIOUS GENERAL WARNING WAS DUE TO A BAD 48 VDC POWER SUPPLY WHICH CAUSED A MOMENTARY VOLTAGE SAG. THE POWER SUPPLY HAS BEEN REPLACED AND THERE HAVE BEEN NO SPURIOUS SSPS GENERAL WARNING ALARMS SINCE THE POWER SUPPLY WAS REPLACED.

[158] MILLSTONE 3 DOCKET 50-423 LER 88-018
 INCORRECT CONTROL BUILDING ISOLATION TRIP SETPOINT DUE TO ADMINISTRATIVE ERROR.
 EVENT DATE: 051988 REPORT DATE: 062088 NSSS: WE TYPE: PWR

(NSIC 209665) AT 1300 HOURS ON MAY 19, 1988 (IN MODE 1) AT 100% POWER, 586 DEGREE, 2250 PSIA, A REVIEW OF THREE PAST RADIATION MONITOR EVENTS REVEALED THAT TWO REPORTABLE EVENTS OCCURRED CONCERNING THE CONTROL BUILDING INLET VENTILATION

HIGH RADIATION CONTROL BUILDING ISOLATION (CBI) TRIP SETPOINT. ON DECEMBER 27, 1985 AND NOVEMBER 21, 1987 MONTHLY SURVEILLANCES INDICATED THAT THE CBI TRIP SETPOINT, FOR TRAIN A AND TRAIN B RADIATION MONITORS RESPECTIVELY, WERE NON-CONSERVATIVE. ON EACH OCCASION THE MONITOR HAD BEEN DEENERGIZED. UPON RESTORATION OF POWER, THE DEFAULT SETPOINT, WHICH HAD BEEN INSTALLED BY THE VENDOR FOR FACTORY TESTING, WAS READ FROM MEMORY. THE MONITOR WAS DECLARED INOPERABLE, CONTROL BUILDING VENTILATION WAS PLACED IN RECIRCULATION PER THE TECHNICAL SPECIFICATIONS AND THE CORRECT CBI TRIP SETPOINT WAS INSTALLED. THE REDUNDANT MONITOR IN THE OPPOSITE TRAIN WOULD HAVE PROVIDED A CBI AT THE CORRECT SETPOINT. THE LONGEST PERIOD AN INCORRECT CBI TRIP SETPOINT WAS IN EFFECT WAS 29 HOURS. ROOT CAUSE OF THE EVENTS WAS ADMINISTRATIVE ERROR. THE DEFAULT CBI TRIP SETPOINT HAD NOT BEEN CHANGED FROM THE FACTORY VALUE TO THAT PRESCRIBED BY THE TECHNICAL SPECIFICATIONS. BY SEPTEMBER 20, 1989 ALL DEFAULT SETPOINTS OF RADIATION MONITORS REQUIRED BY TECHNICAL SPECIFICATIONS WILL BE REVIEWED TO ENSURE CONSERVATIVE VALUES.

[159] NINE MILE POINT 1 DOCKET 50-220 LER 88-013
 DESIGN BASIS OF 125 VDC SYSTEM ALTERED BY DECLASSIFYING MG SETS TO NON-SAFETY RELATED DUE TO PERSONNEL ERROR.
 EVENT DATE: 011488 REPORT DATE: 061388 NSSS: GE TYPE: BWR
 VENDOR: GENERAL ELECTRIC CO.

(NSIC 209591) ON 5/12/88, WITH NINE MILE POINT UNIT 1 (NMP1) IN A REFUELING OUTAGE, IT WAS DISCOVERED THAT THE 125 VDC SYSTEM ELECTRICAL DESIGN WAS NOT IN COMPLIANCE WITH THE NMP1 FINAL SAFETY ANALYSIS REPORT (FSAR). THIS CONDITION WAS DISCOVERED DURING A REVIEW OF THE 125 VDC SYSTEM ELECTRICAL DESIGN FOR REPLACEMENT OF THE STATION BATTERIES. THE ORIGINAL DESIGN BASIS OF THE 125 VDC SYSTEM IN THE FSAR ASSUMES THAT THE BATTERY CHARGING MOTOR GENERATOR SETS (MG SETS) 161 AND 171 WILL BE AVAILABLE FOR ALL POSTULATED EVENTS. THIS ASSUMPTION REQUIRES THAT MG SETS 161 AND 171 BE SAFETY-RELATED. A 10 CFR 50 APPENDIX B DETERMINATION PERFORMED IN 1/83, RECLASSIFIED THE BATTERY CHARGING MG SETS AS NON-SAFETY RELATED. THE ROOT CAUSE FOR THIS EVENT WAS PERSONNEL ERROR WITH A CONTRIBUTING FACTOR BEING THAT THE DESIGN BASIS OF THE 125 VDC SYSTEM IS NOT CLEARLY DETAILED IN ANY SINGLE CONTROLLED PLANT DOCUMENT. THE IMMEDIATE CORRECTIVE ACTION WAS TO DECLARE THE 125 VDC SYSTEM ADMINISTRATIVELY INOPERABLE. THE BATTERY CHARGING MG SETS 161 & 171 HAVE BEEN RECLASSIFIED AS SAFETY-RELATED COMPONENTS. ADDITIONAL CORRECTIVE ACTION WILL INCLUDE THE GENERATION OF A "LESSONS LEARNED TRANSMITTAL" AND CONDUCTING A REVIEW OF ALL MODIFICATIONS AND PREVENTATIVE AND CORRECTIVE MAINTENANCE PERFORMED ON MG SETS 161 AND 171 TO DETERMINE IF THEIR FUNCTION WAS COMPROMISED.

[160] NINE MILE POINT 1 DOCKET 50-220 LER 88-010
 FAILURE TO SUBMIT SPECIAL REPORT WITHIN 30 DAYS DUE TO PERSONNEL ERROR AND SPECIAL REPORT FOR INOPERABLE FIRE DAMPERS.
 EVENT DATE: 041988 REPORT DATE: 051888 NSSS: GE TYPE: BWR

(NSIC 209371) ON APRIL 19, 1988, WITH NINE MILE POINT UNIT 1 (NMP1) IN A REFUELING OUTAGE, IT WAS IDENTIFIED THAT A SPECIAL REPORT WAS NOT SUBMITTED. OCCURRENCE REPORT 86-317, INITIATED ON APRIL 3, 1988, ADDRESSED THREE FIRE DAMPERS THAT WERE IDENTIFIED AS BEING INOPERABLE DURING SURVEILLANCE TEST N1-FST-FPP-C002 (FIRE DAMPER OPERATION AND INSPECTION). WHEN REVIEWING THE OCCURRENCE REPORT, IT WAS DISCOVERED THAT THE SPECIAL REPORT, WHICH WAS REQUIRED DUE TO THE DAMPERS BEING INOPERABLE FOR GREATER THAN 14 DAYS, WAS NOT SUBMITTED ON TIME. TWO OF THE THREE FIRE DAMPERS WERE IDENTIFIED AS BEING INOPERABLE ON FEBRUARY 18, 1988. BASED ON THIS DATE, A SPECIAL REPORT SHOULD HAVE BEEN SUBMITTED ON APRIL 1, 1988. THE ROOT CAUSE FOR THIS EVENT WAS DETERMINED TO BE A PERSONNEL ERROR BY THE FIRE DEPARTMENT, CAUSED BY A PROCEDURAL DEFICIENCY. PROCEDURE ACCEPTANCE CRITERIA DID NOT REQUIRE THAT UNSATISFACTORY DAMPERS ARE LOGGED IN THE FIRE DEPARTMENT'S OCCURRENCE REPORT LOG OR THAT BREACH PERMITS ARE

INITIATED. CORRECTIVE ACTIONS INCLUDE INITIATION OF AN OCCURRENCE REPORT, REVISING PROCEDURE N1-FST-PPP-C002, AND REVIEWING ALL FIRE TECHNICAL SPECIFICATION PROCEDURES FOR SIMILAR PROBLEMS.

[161] NINE MILE POINT 1 DOCKET 50-420 LER 88-014
FAILURE OF CORE SPRAY HIGH POINT VENT ISOLATION VALVE 40-30 TO MEET STROKE REQUIREMENT DUE TO AN EQUIPMENT DESIGN DEFICIENCY.
EVENT DATE: 051088 REPORT DATE: 060988 NSSS: GE TYPE: BWR
VENDOR: LIMITOQUE CORP.

(NSIC 209518) ON 5/10/88, WITH NINE MILE POINT UNIT 1 (NMP1) IN A REFUELING OUTAGE, IT WAS IDENTIFIED THAT THE ACTUAL FULL-OPEN TO FULL-CLOSED STROKE TIME FOR CORE SPRAY HIGH POINT VENT ISOLATION VALVE (IV) 40-30 HAD EXCEEDED ITS TECH SPEC LIMIT. THIS WAS DISCOVERED WHILE CONDUCTING RESEARCH FOR SIGNIFICANT OPERATING EXPERIENCE REPORT (SOER) 86-2, "INACCURATE CLOSED POSITION INDICATION ON MOTOR-OPERATED VALVES". IN ACCORDANCE WITH SITE PROCEDURES, VALVE CLOSURE TIME IS MEASURED FROM THE TIME THE CONTROL SWITCH IS TAKEN TO THE CLOSED POSITION TO THE TIME THE RED INDICATING LAMP GOES OUT. FOR IV 40-30, THE RED LAMP GOES OUT WHEN THE VALVE IS ACTUALLY ONLY 89% CLOSED. BASED ON A REVIEW OF TEST RESULTS SINCE MAY 1, 1986, THE ADDITIONAL 11% OF TRAVEL THE VALVE TAKES BEFORE IT IS FULLY CLOSED HAS RESULTED IN THE ACTUAL FULL-OPEN TO FULL-CLOSED STROKE TIME TO EXCEED THE TECH. SPEC. REQUIREMENT OF 30 SECONDS. THE ROOT CAUSE OF THIS EVENT HAS BEEN DETERMINED TO BE PERSONNEL ERROR AS A RESULT OF A PROCEDURAL DEFICIENCY. ACTION TO CORRECT THE VALVES STROKE TIME WAS NOT INITIATED BECAUSE THE PROCEDURE DID NOT IDENTIFY TECH. SPEC. CRITERIA. CORRECTIVE ACTIONS INCLUDE VALVE MAINTENANCE AND PROCEDURAL REVISIONS. A MODIFICATION REQUEST IS BEING EVALUATED TO CHANGE LIMIT SWITCH WIRING SO THAT THE INDICATING LIGHT MORE ACCURATELY REPRESENTS VALVE POSITION.

[162] NINE MILE POINT 2 DOCKET 50-410 LER 88-007 REV 01
UPDATE ON SHUTDOWN COOLING ISOLATION WHILE VENTING AN INSTRUMENT LINE DUE TO AN UNEXPECTED PRESSURE SURGE.
EVENT DATE: 020188 REPORT DATE: 053188 NSSS: GE TYPE: BWR

(NSIC 209505) WHILE IN COLD SHUTDOWN ON FEBRUARY 1, 1988, THE SHUTDOWN COOLING (SDC) SYSTEM ISOLATED ON A SPURIOUS HIGH REACTOR PRESSURE SIGNAL AT 0403 HOURS. DURING THE EVENT REACTOR PRESSURE WAS ATMOSPHERIC AND COOLANT TEMPERATURE WAS 115F. AN INSTRUMENT AND CONTROL (I&C) TECHNICIAN WAS BACKFILLING A COMMON SENSING LINE TO THE HIGH REACTOR PRESSURE SENSING TRANSMITTER TO REMOVE ENTRAPPED AIR. THE HAND OPERATED FILL PUMP DISCHARGE PRESSURE WAS SUFFICIENT TO INCREASE THE SENSING LINE PRESSURE AT THE TRANSMITTER AND EXCEED THE PRESSURE SETPOINT FOR SDC OPERATION. AS A RESULT, PRIMARY CONTAINMENT ISOLATION GROUP 5 VALVES AND SDC ISOLATED ON A HIGH REACTOR PRESSURE SIGNAL (128 PSIG). THE MOST PROBABLE CAUSE FOR THE UNEXPECTED PRESSURE SURGE IS THAT THE TECHNICIAN MAY HAVE PUMPED TOO QUICKLY. A CONTRIBUTING FACTOR IS A LACK OF AN APPROPRIATE CONNECTION FOR MAINTENANCE. IMMEDIATE CORRECTIVE ACTION WAS TO VERIFY THAT AN ALTERNATE METHOD FOR COOLANT CIRCULATION AND DECAY HEAT REMOVAL WAS AVAILABLE. NORMAL SDC WAS RESTORED AT 0600 HOURS. FURTHER CORRECTIVE ACTIONS INCLUDE A DISCUSSION OF THIS EVENT VIA THE LESSONS LEARNED PROGRAM AND A MODIFICATION REQUEST TO ADD AN APPROPRIATE MAINTENANCE CONNECTION.

[163] NINE MILE POINT 2 DOCKET 50-410 LER 88-018 REV 01
UPDATE ON TECH SPEC VIOLATIONS OCCUR AS A RESULT OF A MISSED LEAK RATE SURVEILLANCE AND FAILURE TO MEET PRIMARY CONTAINMENT SEALING REQUIREMENTS.
EVENT DATE: 040688 REPORT DATE: 070188 NSSS: GE TYPE: BWR

(NSIC 209761) ON APRIL 6, 1988 AT 0955 HOURS WITH THE REACTOR AT 100% RATED THERMAL POWER, IT WAS DISCOVERED THAT NINE MILE POINT UNIT 2 (NMP2) WAS NOT IN

COMPLIANCE WITH TECHNICAL SPECIFICATION (TS) SECTION 3/4.6.1. IT WAS DETERMINED THAT A SURVEILLANCE INTERVAL FOR A PRIMARY CONTAINMENT (PC) PENETRATION HAD BEEN EXCEEDED. THE APPROPRIATE TS ACTION ITEM WAS OBSERVED AND AN UNUSUAL EVENT WAS DECLARED. THE SURVEILLANCE WAS PERFORMED AND PC INTEGRITY WAS VERIFIED. THE PENETRATION DID EXHIBIT HIGH INLEAKAGE RATES AND WAS SCHEDULED TO BE REPAIRED AT THE NEXT UNIT OUTAGE. AT THE NEXT UNIT OUTAGE ON MAY 5, 1988 THE SEALING MECHANISM ASSOCIATED WITH THE PC PENETRATION WAS REPORTED TO BE MISSING. THIS RESULTED IN A SECOND VIOLATION OF TS 3/4.6.1. THE CAUSE OF THE FIRST EVENT HAS BEEN DETERMINED TO BE PERSONNEL ERROR. THE CAUSE OF THE SECOND EVENT HAS BEEN DETERMINED TO BE A FABRICATION DEFICIENCY OF THE PENETRATION. CORRECTIVE ACTIONS FOR THE EVENTS INCLUDE: (1) MODIFICATION AND UPGRADING OF COMPUTERIZED SURVEILLANCE TRACKING SYSTEMS, (2) ISSUANCE OF LESSONS LEARNED DOCUMENTS TO DEPARTMENTS RESPONSIBLE FOR TS SURVEILLANCES, (3) ASSIGNMENT OF ADDITIONAL PERSONNEL TO AID IN SURVEILLANCE TRACKING, (4) REPLACEMENT AND TEST OF THE PENETRATION SEALING MECHANISM, AND (5) TEST ANOTHER SIMILARLY SEALED PC PENETRATION.

[164] NORTH ANNA 1 DOCKET 50-338 LER 88-016 REV 01
 UPDATE ON RECIRCULATION SPRAY HEAT EXCHANGERS NOT PLACED IN DRY LAYUP AS STATED
 IN THE UFSAR.
 EVENT DATE: 051388 REPORT DATE: 071588 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: NORTH ANNA 2 (PWR)

(NSIC 209963) THE RECIRCULATION SPRAY HEAT EXCHANGERS (RSHX) FOR NORTH ANNA WERE DESIGNED FOR DRY LAYUP CONDITIONS DURING NORMAL OPERATIONS. IN LATE 1980, THE RSHXS WERE APPROVED FOR WET LAYUP. FOLLOWING THE MAY 1988 FLOWING OF THE UNIT 2 RSHXS WITH SERVICE WATER (SW), A REEVALUATION OF THE ACCEPTABILITY OF WET LAYUP WAS PERFORMED. AS A RESULT OF THIS REEVALUATION, IT WAS DISCOVERED THAT THE RSHX PURCHASE SPECIFICATIONS ASSUME: NO FOULING. THE MAJOR IMPACT OF BIOLOGICAL FOULING ON THE RSHXS IS DEGRADED HEAT TRANSFER CAPABILITY. THE ORIGINAL REVIEWS PERFORMED UNDER 10CFR50.59 TO ALLOW WET LAYUP DID NOT ACCOUNT FOR THE BIOLOGICAL FOULING WHICH COULD OCCUR DURING WET LAYUP CONDITIONS. THEREFORE, THIS EVENT WAS REPORTABLE PURSUANT TO 10CFR50.73(A)(2)(II)(B). HOWEVER, BASED ON THE RESULTS OF A RECENT EVALUATION, IT WAS DETERMINED THAT THE RSHX'S COULD HAVE TRANSFERRED THE DESIGN BASIS HEAT LOAD AND ASSURED CONTAINMENT DEPRESSURIZATION WHILE IN WET LAYUP. THE RSHXS FOR BOTH UNIT 1 AND UNIT 2 WERE CHEMICALLY CLEANED AND ARE CURRENTLY IN DRY LAYUP.

[165] NORTH ANNA 2 DOCKET 50-339 LER 88-004
 BOTH EMERGENCY DIESEL GENERATORS INOPERABLE THE SAME TIME.
 EVENT DATE: 052088 REPORT DATE: 061788 NSSS: WE TYPE: PWR

(NSIC 209636) AT 1019 HOURS ON MAY 20, 1988, WITH UNIT 2 AT 100 PERCENT POWER (MODE 1), IT WAS DETERMINED THAT THE 2H EMERGENCY DIESEL GENERATOR (EDG) HAD BEEN INOPERABLE WHILE THE 2J EDG WAS OUT OF SERVICE FOR PREPLANNED MAINTENANCE. THE 2H EDG WAS DETERMINED TO BE INOPERABLE WHEN THE 2H EDG OUTPUT BREAKER FAILED TO CLOSE DURING THE PERFORMANCE OF AN OPERABILITY TEST. THE BREAKER FAILED TO CLOSE BECAUSE THE CLOSING SPRINGS WERE NOT CHARGED. THE CLOSING SPRINGS WERE NOT CHARGED BECAUSE THE CHARGING MOTOR BECAME DISENGAGED FROM THE BREAKER HOUSING WHEN THE MOUNTING BOLTS BACKED OUT. THIS EVENT IS REPORTABLE PURSUANT TO 10CFR50.73(A)(2)(V). AS A CORRECTIVE ACTION, THE 2H EDG OUTPUT BREAKER WAS REPLACED WITH A SPARE AND SATISFACTORILY TESTED. ALSO, THE PREVENTATIVE MAINTENANCE PROCEDURE FOR 4160 VOLT BREAKERS HAS BEEN AUGMENTED TO REQUIRE MORE FREQUENT PERIODIC INSPECTION OF THE CHARGING MOTOR AND VERIFICATION OF THE TIGHTNESS OF THE CHARGING MOTOR MOUNTING BOLTS. TO PREVENT RECURRENCE OF SIMILAR EVENTS, THE MOUNTING BOLTS ON THE 4160 VOLT BREAKERS CHARGING MOTORS ARE BEING INSPECTED AND TIGHTENED AS PLANT CONDITIONS PERMIT. SAFETY CONSEQUENCES OF THIS EVENT WERE MINIMIZED. THE 2H EDG WAS CAPABLE OF BEING STARTED AND THE BREAKER CLOSING SPRING COULD HAVE BEEN MANUALLY CHARGED AND CLOSED.

[166] OCONEE 1 DOCKET 50-269 LER 88-005
 INOPERABLE FIRE BARRIER PENETRATION SEALS RESULT IN A CONDITION PROHIBITED BY
 TECH SPECS DUE TO A DESIGN DEFICIENCY.
 EVENT DATE: 051888 REPORT DATE: 062088 NSSS: BW TYPE: PWR
 OTHER UNITS INVOLVED: OCONEE 2 (PWR)
 OCONEE 3 (PWR)

(NSIC 209607) ON MAY 18, 1988, 188 PENETRATION FIRE BARRIERS WERE DECLARED
 INOPERABLE BECAUSE DOCUMENTATION QUALIFYING THEIR SPECIFIC ARRANGEMENTS AS A
 TESTED 3 HOUR FIRE RATED ASSEMBLY COULD NOT BE SUBSTANTIATED. THESE PENETRATIONS
 WERE INSTALLED DURING PLANT CONSTRUCTION USING CRITERIA AND SPECIFICATIONS
 SUPPLIED TO THE STATION BY DESIGN ENGINEERING. THIS INCIDENT WAS DISCOVERED AS A
 RESULT OF DESIGN ENGINEERING REVIEW AND A QA AUDIT. ALL THREE UNITS WERE AT 100%
 POWER DURING THIS INCIDENT. THIS INCIDENT RESULTED IN A CONDITION PROHIBITED BY
 TECHNICAL SPECIFICATION 3.17.6. TECH SPEC 3.17.6 STATES "ALL FIRE BARRIERS
 PENETRATIONS PROTECTING SAFETY RELATED AREAS SHALL BE OPERABLE." IMMEDIATE
 CORRECTION ACTIONS INCLUDED A WALKDOWN TO IDENTIFY ALL INOPERABLE PENETRATION
 FIRE BARRIERS, AND INITIATION OF FIRE WATCH PATROLS. THE ROOT CAUSE OF THIS
 INCIDENT WAS DETERMINED TO BE A DESIGN DEFICIENCY DUE TO THE FAILURE TO SUPPLY
 ACCURATE INSTALLATION SPECIFICATIONS.

[167] OCONEE 1 DOCKET 50-269 LER 88-007
 TECH SPEC VIOLATION DUE TO MISSED FIREWATCHES RESULTING FROM PERSONNEL ERROR AND
 MANAGEMENT DEFICIENCY.
 EVENT DATE: 051888 REPORT DATE: 070688 NSSS: W TYPE: PWR
 OTHER UNITS INVOLVED: OCONEE 2 (PWR)
 OCONEE 3 (PWR)

(NSIC 209797) ON MAY 19, 1988, AT 1600 HOURS WITH UNITS 1, 2 AND 3 AT 100% POWER,
 AN AUDIT OF CONTROLLED ACCESS DOOR (CAD) COMPUTER PRINTOUTS VERSUS THE FIREWATCH
 SURVEILLANCE LOG SHEETS BY AN NRC RESIDENT INSPECTOR, REVEALED THAT FIVE HOURLY
 FIREWATCH TOURS HAD NOT BEEN PERFORMED AS REQUIRED BY TECHNICAL SPECIFICATION
 3.17 ON MAY 18 AND 19, 1988. IN ADDITION, ON JUNI. 6, 1988 IT WAS DISCOVERED THAT
 MULTIPLE FIREWATCHES HAD BEEN MISSED FROM MAY 25, 1988 TO JUNE 4, 1988. THE ROOT
 CAUSE OF THE MISSED FIREWATCH TOURS WAS PERSONNEL ERROR AND MANAGEMENT
 DEFICIENCY. OPERATIONS PERSONNEL FAILED TO MAKE THE FIREWATCH TOURS, AFTER
 HAVING BEEN INFORMED THAT THE TOURS WERE REQUIRED. MECHANICAL MAINTENANCE
 SUPERVISORS DID NOT REVIEW TECHNICAL SPECIFICATIONS OR STATION DIRECTIVES TO
 BECOME FAMILIAR WITH THE FIREWATCH RESPONSIBILITIES. THE SUBSEQUENT CORRECTIVE
 ACTIONS INCLUDED PLACING THE CABLE ROOM AND EQUIPMENT ROOM FIREWATCH TOURS ON
 SEPARATE FIREWATCH SURVEILLANCE LOG SHEETS, DISCUSSION OF THE STATION DIRECTIVE
 ON FIRE-WATCH TOURS WITH ALL OPERATIONS PERSONNEL CONDUCTING THESE TOURS AND
 PROVIDING MECHANICAL MAINTENANCE TECHNICIANS WITH WRITTEN GUIDANCE ON THE
 REQUIREMENTS AND RESPONSIBILITIES OF THE HOURLY FIREWATCH TOURS.

[168] OCONEE 2 DOCKET 50-270 LER 88-001 REV 01
 UPDATE ON SEISMIC INOPERABILITY OF A VITAL POWER INVERTER DUE TO A DEFECTIVE
 PROCEDURE.
 EVENT DATE: 022288 REPORT DATE: 071288 NSSS: BW TYPE: PWR
 VENDOR: EXIDE POWER SYSTEMS

(NSIC 209894) ON FEBRUARY 15, 1988 A BRACE USED TO HELP SECURE PRINTED CIRCUIT
 BOARDS IN VITAL POWER INVERTER 2DIB WAS DISCOVERED MISSING DURING PERFORMANCE OF
 A PREVENTIVE MAINTENANCE PROCEDURE. ON FEBRUARY 22, 1988 IT WAS DETERMINED BY
 DESIGN ENGINEERING THAT THE INVERTER HAD BEEN SEISMICALLY TESTED AND QUALIFIED
 WITH THE BRACE INSTALLED. THEREFORE THE BRACE WAS REQUIRED TO BE INSTALLED FOR
 SEISMIC QUALIFICATION AND OPERABILITY. BECAUSE UNIT 2 OPERATED WITH 2DIB
 INVERTER SEISMICALLY INOPERABLE, IT OPERATED OUTSIDE ITS DESIGN BASIS.
 ADDITIONALLY TECHNICAL SPECIFICATION 3.7.2(H) WAS VIOLATED. AT THE TIME OF

DISCOVERY, UNIT 2 WAS IN A REFUELING OUTAGE. THE ROOT CAUSE OF THIS EVENT WAS DETERMINED TO BE A DEFECTIVE PROCEDURE SINCE NO PROCEDURE WAS IN PLACE REGARDING REMOVAL AND RESTORATION OF THE BRACE. A CONTRIBUTING CAUSE WAS THE LACK OF DOCUMENTATION REGARDING THE NEED FOR THE BRACE. SINCE THE MISSING BRACE COULD NOT BE FOUND, A NEW ONE WAS FABRICATED AND INSTALLED USING THE DESIGN OF THE BRACES IN THE OTHER INVERTERS. ALL THREE UNIT'S INVERTERS WERE INSPECTED TO VERIFY THEIR BRACES WERE INSTALLED.

[169] OCONEE 2 DOCKET 50-270 LER 88-002
 INOPERABILITY OF A PORTION OF EMERGENCY POWER SWITCHING LOGIC DUE TO A DESIGN DEFICIENCY.
 EVENT DATE: 042688 REPORT DATE: 052688 NSSS: BW TYPE: PWR

(NSIC 209385) OCONEE 230 KV SWITCHYARD POWER CIRCUIT BREAKERS (PCBS) 26 AND 27 WERE RECENTLY REPLACED BY NEW HIGHER INTERRUPTING CAPABILITY CIRCUIT BREAKERS. DUE TO TRANSFORMER NOISE DURING CERTAIN MAINTENANCE/TEST CONDITIONS, DUKE SUSPECTED THAT THE CAPACITANCE ACROSS THE REPLACEMENT PCBS #26 AND 27, WAS INDUCING A RESONANCE CONDITION IN CT2 TRANSFORMER CIRCUIT. ON APRIL 26, 1988 IT WAS DETERMINED THAT THE CONDITION COULD ALSO EXIST AS A RESULT OF A TRANSFORMER LOCKOUT. THIS WOULD RESULT IN THE EMERGENCY POWER SWITCHING LOGIC (EPSL) SYSTEM FALSELY SENSING THAT THE STARTUP TRANSFORMER IS A VIABLE SOURCE OF POWER, THUS PREVENTING AN AUTOMATIC TRANSFER TO THE STANDBY POWER SOURCE IN THE EVENT OF A LOCA CONCURRENT WITH A CT2 LOCKOUT CONDITION. WHEN THIS INCIDENT WAS DISCOVERED, UNITS 1 AND 2 WERE AT 100% POWER AND UNIT 3 WAS IN COLD SHUTDOWN. THE IMMEDIATE CORRECTIVE ACTION WAS TO DECLARE STARTUP TRANSFORMER CT2 INOPERABLE, ALIGN UNIT 3 STARTUP TRANSFORMER (CT3) TO UNIT 2 AND FEED UNIT 3 AUXILIARY LOADS FROM STANDBY TRANSFORMER CT5. THE ROOT CAUSE OF THIS INCIDENT WAS DETERMINED TO BE A DESIGN DEFICIENCY SINCE FERRORESONANCE WAS NOT CONSIDERED DURING BREAKER REPLACEMENT DESIGN ANALYSIS.

[170] OCONEE 3 DOCKET 50-287 LER 88-001
 LOW PRESSURE INJECTION SYSTEM DECLARED INOPERABLE DUE TO A MANAGEMENT DEFICIENCY.
 EVENT DATE: 040688 REPORT DATE: 060288 NSSS: BW TYPE: PWR

(NSIC 209511) ON APRIL 6, 1988 AT 0800, ALL THREE LOW PRESSURE INJECTION (LPI) PUMPS ON UNIT 3 WERE DECLARED INOPERABLE BECAUSE NO OPERABILITY TESTS WERE PERFORMED AFTER PREVENTATIVE MAINTENANCE (PM) LUBRICATION. THE PUMPS WERE TESTED AND DECLARED OPERABLE ON APRIL 6, AT 1102. UNIT 3 WAS AT 88% FULL POWER THROUGHOUT THIS INCIDENT. THE ROOT CAUSE OF THIS INCIDENT WAS DETERMINED TO BE A MANAGEMENT DEFICIENCY, BECAUSE MANAGEMENT FAILED TO IMPLEMENT ADMINISTRATIVE CONTROLS TO ENSURE POST LUBRICATION TESTING WAS PERFORMED IN ACCORDANCE WITH AGREED TESTING CRITERION. DURING THIS INCIDENT, THE LPI PUMPS WERE NEVER ACTUALLY INOPERABLE. THE DECISION TO DECLARE THE PUMPS INOPERABLE WAS BASED ON CONSERVATIVE ENGINEERING JUDGMENT AND NOT BECAUSE OF A TECH SPEC AS A RESULT OF ASME CODE REQUIREMENTS. THEREFORE, THERE WAS NO TECH SPEC VIOLATION BECAUSE THE LPI PUMPS WERE OPERABLE THROUGHOUT THIS INCIDENT. PLANNED CORRECTIVE ACTIONS INCLUDE A REVIEW OF PUMP PERIODIC TESTS, REVISION OF LUBRICATION PROCEDURES, AND REVISION OF THE MAINTENANCE LUBRICATION PROGRAM.

[171] OCONEE 3 DOCKET 50-277 LER 88-002
 SHUTDOWN DUE TO OTSG TUBE LEAK.
 EVENT DATE: 041888 REPORT DATE: 061088 NSSS: BW TYPE: PWR
 VENDOR: BABCOCK & WILCOX COMPANY

(NSIC 209620) ON APRIL 17, 1988, AT 1945 HOURS WITH UNIT 3 OPERATING AT 88% FULL POWER, AN EXISTING TUBE LEAK IN A ONCE THROUGH STEAM GENERATOR (OTSG) BEGAN TO INCREASE. THE LEAK RATE APPROACHED THE 0.15 GPM PROCEDURAL LIMIT FOR POWER REDUCTION AS INDICATED ON THE CONDENSATE AIR EJECTOR-RADIATION MONITOR (3RIA-40).

AT 2320, POWER REDUCTION TO COLD SHUTDOWN CONDITIONS WAS BEGUN. AT 0115 ON APRIL 18, 1988 AN UNUSUAL EVENT WAS DECLARED PER THE EMERGENCY PLAN. NO TECHNICAL SPECIFICATION LIMITS WERE EXCEEDED DURING THIS EVENT. THIS EVENT IS NOT REPORTABLE PER 10CFR50.73. THE ROOT CAUSE OF THIS INCIDENT WAS DETERMINED TO BE AN OTSG TUBE LEAK. THE IMMEDIATE CORRECTIVE ACTION WAS TO SHUTDOWN THE UNIT. SUPPLEMENTAL CORRECTIVE ACTION WAS TO IDENTIFY AND PLUG LEAKING TUBES.

[172] OYSTER CREEK DOCKET 50-219 LER 88-003
 POTENTIAL FAILURE OF CONTAINMENT PARTICULATE MONITOR SAMPLE LINE ISOLATION VALVES TO OPERATE DUE TO DESIGN DEFICIENCY.
 EVENT DATE: 052088 REPORT DATE: 061688 NSSS: GE TYPE: BWR

(NSIC 209588) THE PLANT'S CONTAINMENT PARTICULATE MONITOR SAMPLE LINE ISOLATION VALVES' CONTROL CIRCUITRY DOES NOT MEET SINGLE FAILURE CRITERIA AS REQUIRED BY 10CFR50, APPENDIX A, GENERAL DESIGN CRITERION. THIS CONDITION WAS DETERMINED REPORTABLE ON MAY 20, 1988, WHILE THE PLANT WAS OPERATING AT RATED OUTPUT. THE APPARENT CAUSE OF THE CONDITION IS A DESIGN DEFICIENCY WHICH HAS BEEN PRESENT SINCE THE CONTAINMENT PARTICULATE MONITOR WAS INSTALLED IN 1976. THIS CONDITION IS SIGNIFICANT IN THAT IT COULD PLACE THE PLANT OUTSIDE ITS DESIGN BASIS CONTAINMENT LEAK RATE DURING A DESIGN BASIS ACCIDENT. A CONSERVATIVE ANALYSIS INDICATES THAT UNDER THE DESIGN BASIS LOSS OF COOLANT ACCIDENT WITH THIS SINGLE FAILURE PRESENT, OPERATORS WOULD HAVE TO DIAGNOSE AND TAKE CORRECTIVE ACTION WITHIN 6.7 HOURS TO PREVENT EXCEEDING 10% OF THE 10CFR100 LIMITS. DIRECTION BY MEANS OF A STANDING ORDER HAS BEEN PROVIDED TO OPERATORS TO DEENERGIZE THE POWER SUPPLY TO CLOSE THESE VALVES UPON A REACTOR LOW-LOW WATER LEVEL OR A HIGH DRYWELL PRESSURE ALARM. CORRECTIVE ACTION WILL BE TAKEN IN ACCORDANCE WITH THE INTEGRATED LIVING SCHEDULE FOR THE OYSTER CREEK PLANT.

[173] PALISADES DOCKET 50-255 LER 88-007
 PROCEDURAL INADEQUACY RESULTS IN AUXILIARY FEEDWATER ACTUATION SYSTEM ACTUATION.
 EVENT DATE: 042988 REPORT DATE: 053188 NSSS: CE TYPE: PWR

(NSIC 209387) ON APRIL 29, 1988 AT 0145 THE AUXILIARY FEEDWATER ACTUATION SYSTEM (AFAS) WAS ACTUATED WHEN AN INADVERTENT OPENING OF THE STEAM GENERATOR ATMOSPHERIC DUMP VALVES (ADV) (SJ;CV) CAUSED A TEMPORARY LOW LEVEL IN STEAM GENERATOR (SJ;SG) SECONDARY SIDE WATER. SINCE AUXILIARY FEEDWATER PUMP P-8A (SJ;P) WAS OPERATING AT THE TIME OF THE EVENT, NO EQUIPMENT WAS ACTUATED AS A RESULT OF THE AFAS ACTUATION. THE REACTOR WAS IN HOT SHUTDOWN CONDITION WITH A PRIMARY COOLANT SYSTEM (PCS) (AB) TEMPERATURE AND PRESSURE OF 532 DEGREES F AND 2011 PSI RESPECTIVELY. DURING THE PERFORMANCE OF A TECHNICAL SPECIFICATION (TS) SURVEILLANCE PROCEDURE, APPROXIMATELY A 50 MA TEST SIGNAL WAS INPUT INTO REACTOR REGULATING UNIT (JD;90) ONE FOR THE PCS (AB) AVERAGE TEMPERATURE. THIS TEST SIGNAL CORRESPONDS TO APPROXIMATELY 615 DEGREES F. WHEN THE CONTROL ROOM OPERATOR SWITCHED FROM THE IN-SERVICE REACTOR REGULATING UNIT TO THE UNIT BEING TESTED, THE STEAM GENERATOR (SJ;SG) (ADV) (SJ;CV) OPENED. THE ADV OPENING RESULTED IN A BRIEF SECONDARY SIDE LOW LEVEL, CAUSING THE AFAS TO ACTUATE. THE AFAS CIRCUITRY FUNCTIONED AS DESIGNED. NO EQUIPMENT WAS ACTUATED, HOWEVER, THE AUXILIARY FEEDWATER PUMP P-8A (SJ;P) WAS OPERATING AT THE TIME OF THE EVENT. THE EVENT WAS THE RESULT OF TS SURVEILLANCE PROCEDURE RO-21 PERMITTING THE INPUT OF A TEST SIGNAL WHICH WOULD RESULT IN AN ADV QUICK OPEN SIGNAL TO BE GENERATED.

[174] PALISADES DOCKET 50-255 LER 88-008
 DATA ENTRY ERROR RESULTS IN FAILURE TO COMPLETE REQUIRED CONTAINMENT LEAK RATE TEST.
 EVENT DATE: 051288 REPORT DATE: 061388 NSSS: CE TYPE: PWR

(NSIC 209598) ON MAY 12, 1988, AT 0810, CONTAINMENT PENETRATION ME-47 (JM;PEN) WAS DECLARED INOPERABLE DUE TO THE FAILURE TO COMPLETE THE REQUIRED LOCAL LEAK

RATE TEST (LLRT) WITHIN ITS PRESCRIBED TIME LIMITATION. AT APPROXIMATELY 1500, TECH SPEC SURVEILLANCE PROCEDURE RO-32-47, "LLRT - LOCAL LEAK RATE TEST PROCEDURE FOR PENETRATION MZ-47" WAS SATISFACTORILY COMPLETED AND THE PENETRATION DECLARED OPERABLE. MEASURED LEAKAGE WAS 6.5 CC/MIN VERSUS THE ACCEPTANCE CRITERIA OF 13,040 CC/MIN. THE REACTOR WAS CRITICAL, WITH THE PLANT OPERATING AT 100 PERCENT OF RATED POWER, WHEN THE PENETRATION WAS DECLARED INOPERABLE. ON MAY 11, 1988, WHILE COMPILING POST-SURVEILLANCE TEST DATA, A MEMBER OF THE PLANT'S TECHNICAL STAFF IDENTIFIED A RECORDS DISCREPANCY THAT INDICATED THE LAST PERFORMANCE OF RO-32-47 WAS COMPLETED ON DECEMBER 9, 1985. A RECORDS SEARCH WAS PERFORMED TO VERIFY THAT THE LAST TEST PERFORMANCE DATA IN THE REQUIRED TWO YEAR TEST INTERVAL HAD BEEN EXCEEDED. THE RECORDS SEARCH REVEALED NO ADDITIONAL PERFORMANCE OF RO-32-47 SINCE 1985. THE FAILURE TO PERFORM THE TEST WITHIN ITS PRESCRIBED INTERVAL HAS BEEN ATTRIBUTED TO A DATA ENTRY ERROR INTO THE COMPUTER SYSTEM (PPACS) WHICH DEVELOPS THE TECH SPEC SURVEILLANCE SCHEDULE. THE DATA ERROR WAS CAUSED BY A SYSTEM WEAKNESS WHICH ALLOWS TEST COMPLETION DATE INPUTTING WITHOUT SECONDARY VERIFICATIONS.

[175] PALISADES DOCKET 50-255 LER 88-009
FAILURE TO MAINTAIN CONTINUOUS FIRE WATCH AS REQUIRED BY TECH SPECS.
EVENT DATE: 051688 REPORT DATE: 061588 NSSS: CE TYPE: PWR

(NSIC 209599) ON MAY 16, 1988, FROM 2150 TO 2202 HOURS, A CONTINUOUS FIRE WATCH WAS NOT MAINTAINED IN THE CABLE SPREADING ROOM (NF) AS REQUIRED BY PLANT TECH SPEC 3.22.3. THIS TECH SPEC REQUIRES THE "ESTABLISHMENT OF A CONTINUOUS FIRE WATCH WITH BACKUP FIRE SUPPRESSION EQUIPMENT IN THE UNPROTECTED AREA(S) WITHIN ONE HOUR" IF THE SPRINKLER SYSTEM (KP;SRNK) ENCOMPASSING THE AREA IS NOT OPERABLE. THE REACTOR WAS CRITICAL WITH THE PLANT OPERATING AT 100 PERCENT OF RATED POWER AT THE TIME OF THE EVENT. SUBSEQUENT INVESTIGATIONS REVEALED TWO OTHER FAILURES TO MEET FIRE WATCH RESPONSIBILITIES OCCURRED. THESE EVENTS OCCURRED ON MAY 12, 1988 FROM 0056 TO 0059 HOURS AND MAY 16, 1988 FROM 1822 TO 1829 HOURS. EACH OF THE THREE OCCURRENCES WERE RELATED TO ONE SECURITY OFFICER WHO FAILED TO PERFORM HIS DUTIES. THE OCCURRENCES HAVE BEEN ATTRIBUTED SOLELY TO POOR PERFORMANCE OF THE INVOLVED INDIVIDUAL. IT SHOULD BE NOTED THAT NEITHER THE FIRE DETECTION SYSTEM NOR SPRINKLER SYSTEM WERE PHYSICALLY INOPERABLE AT ANY TIME THE CONTINUOUS FIRE WATCH WAS NOT MAINTAINED. HOWEVER, IT WAS FELT THAT SPRINKLER DISPERSION PATTERNS MAY BE AFFECTED DUE TO SCAFFOLDING AND DECKING BEING INSTALLED IN THE CABLE SPREADING ROOM IN SUPPORT OF ASBESTOS REMOVAL.

[176] PALO VERDE 1 DOCKET 50-528 LER 88-014
MAIN STEAM SAFETY VALVE SETPOINTS DISCOVERED OUT OF TOLERANCE.
EVENT DATE: 021088 REPORT DATE: 060688 NSSS: CE TYPE: PWR
OTHER UNITS INVOLVED: PALO VERDE 2 (PWR)
VENDOR: DRESSER INDUSTRIES, INC.

(NSIC 209673) DURING THE PERIOD OF FEBRUARY 12 THROUGH THE 14, 1988, REGULARLY SCHEDULED ASME SURVEILLANCE TESTING WAS CONDUCTED IN PALO VERDE UNIT 2 TO VERIFY THE RELIEF SETTINGS OF THE MAIN STEAM SAFETY VALVES (SB)(PV). THE RESULTS INDICATED THAT SEVENTEEN (17) OF THE TWENTY (20) VALVE RELIEF SETTINGS WERE OUT OF THE TOLERANCE LIMITS SPECIFIED IN TECHNICAL SPECIFICATION (TS) 3.7.1.1 AND THE TESTING REQUIREMENTS ESTABLISHED BY ANPP. FURTHER INVESTIGATION REVEALED THAT SIMILAR SETPOINT DRIFTS WERE IDENTIFIED IN UNIT 1 DURING TESTING CONDUCTED ON SEPTEMBER 26 THROUGH 30, 1987. BECAUSE OF THE VARIANCES IDENTIFIED IN THE AS FOUND DATA OF THE SETPOINTS, A DEFINITIVE ROOT CAUSE CAN NOT BE IDENTIFIED. HOWEVER, IT HAS BEEN DETERMINED THAT THE PERMANENT REMOVAL OF LAGGING AROUND THE AREA OF THE VALVES' SPRINGS CONTRIBUTED TO THE SETPOINT DRIFT. AS CORRECTIVE ACTION THE VALVES HAVE BEEN RESET AND APPROPRIATE TESTING CONDUCTED.

[177] PALO VERDE 1 DOCKET 50-528 LER 88-022
 SHUTDOWN COOLING SYSTEMS VALVE BOLTING FAILURE.
 EVENT DATE: 031988 REPORT DATE: 072588 NSSS: CE TYPE: PWR
 OTHER UNITS INVOLVED: PALO VERDE 2 (PWR)
 PALO VERDE 3 (PWR)
 VENDOR: POSI-SEAL
 TEXAS BOLT COMPANY

(NSIC 209981) ON MARCH 19, 1988, PALO VERDE UNIT 2 WAS IN MODE 6 (REFUELING) WHEN A LEAK WAS DISCOVERED IN A SHUTDOWN COOLING SYSTEM HEAT EXCHANGER OUTLET VALVE. INVESTIGATION REVEALED THAT THE BOLTING WHICH SECURES A GASKET RETAINER PLATE HAD FRACTURED. DURING TORQUE CHECKING OF THE REMAINING BOLTS, ANOTHER BOLT FRACTURED. A ROOT CAUSE ENGINEERING EVALUATION WAS INITIATED WHICH DETERMINED THAT THE BOLTS DID NOT MEET SPECIFICATION REQUIREMENTS AND THAT THEY HAD FAILED AS A RESULT OF STRESS CORROSION CRACKING/HYDROGEN EMBRITTLEMENT. ON JULY 20, 1988, THIS CONDITION WAS DETERMINED TO BE REPORTABLE PURSUANT TO 10CFR21. SIMILAR BOLT FAILURE OCCURRED IN UNIT 3 ON MARCH 21, 1987 DURING CONSTRUCTION AND IN UNIT 2 ON JUNE 2, 1988. AS CORRECTIVE ACTION TO PREVENT RECURRENCE BOLTING MATERIAL CHANGES ARE BEING IMPLEMENTED TO REPLACE THE BOLTING MATERIAL. MATERIAL CHANGES HAVE ALREADY BEEN ACCOMPLISHED IN UNITS 2 AND 3. THERE HAVE BEEN NO PREVIOUS SIMILAR EVENTS REPORTED PURSUANT TO 10CFR50.73.

[178] PALO VERDE 1 DOCKET 50-528 LER 88-013
 AUXILIARY FEEDWATER PUMP DEGRADATION DUE TO EMBRITTLEMENT OF SHAFT SLEEVE.
 EVENT DATE 032588 REPORT DATE: 060388 NSSS: CE TYPE: PWR
 OTHER UNIT INVOLVED: PALO VERDE 2 (PWR)
 PALO VERDE 3 (PWR)
 VENDOR: BINGHAM PUMP CO.

(NSIC 209492) ON MARCH 25, 1988 PALO VERDE WAS IN MODE 1 (POWER OPERATION) AT APPROXIMATELY 100% POWER WHEN THE ESSENTIAL MOTOR DRIVEN AUXILIARY FEEDWATER PUMP DID NOT ACHIEVE ITS RATED PRESSURE IN ACCORDANCE WITH PVNGS TECHNICAL SPECIFICATIONS. AN ENGINEERING EVALUATION COMPLETED ON JUNE 1, 1988 DETERMINED THE ROOT CAUSE TO BE STRESS CORROSION CRACKING/HYDROGEN EMBRITTLEMENT OF THE SHAFT SLEEVE WHICH PERMITTED THE SLEEVE TO MOVE AND EVENTUALLY WEAR THE FOURTH STAGE IMPELLER TO THE POINT THAT IT WAS PERMITTED TO ROTATE FREELY ABOUT THE SHAFT. A SIMILAR EVENT WAS IDENTIFIED INVOLVING THE UNIT 1 NON-ESSENTIAL AUXILIARY FEEDWATER PUMP ON JUNE 1, 1987. AS CORRECTIVE ACTION, MATERIAL CHANGES WILL BE INCORPORATED INTO THE AUXILIARY FEEDWATER PUMPS FOR UNITS 1, 2 AND 3. THIS REPORT IS ALSO BEING SUBMITTED PURSUANT TO 10CFR21.

[179] PALO VERDE 1 DOCKET 50-528 LER 88-012
 SURVEILLANCE TEST PERFORMED LATE DUE TO PROCEDURE ERROR.
 EVENT DATE: 033088 REPORT DATE: 053188 NSSS: CE TYPE: PWR

(NSIC 209445) ON APRIL 28, 1988, PALO VERDE UNIT 1 WAS IN MODE 3 (HOT STANDBY) AT APPROXIMATELY 562 F AND 2250 PSIA WHEN IT WAS IDENTIFIED THAT ON MARCH 30, 1988, AN APPROVED SURVEILLANCE PROCEDURE WAS NOT PERFORMED WITHIN THE ALLOWABLE TECHNICAL SPECIFICATION TIME CONSTRAINTS. CONTROL ELEMENT ASSEMBLY CALCULATOR-2 (CEAC)(CPU) WAS NOT SURVEILLANCE TESTED AS REQUIRED BY SURVEILLANCE REQUIREMENT 4.3.1.3. THE TEST WAS NOT PERFORMED ON CEAC-2 BECAUSE OF A PROCEDURAL ERROR. THE IMMEDIATE CORRECTIVE ACTION WAS TO PERFORM THE SURVEILLANCE TEST ON CEAC-2. FOR CORRECTIVE ACTION TO PREVENT RECURRENCE THE PROCEDURE HAS BEEN REVISED TO ENSURE CEAC-1 AND CEAC-2 ARE TESTED ALTERNATELY EVERY 18 MONTHS. IN ADDITION THE SURVEILLANCE TEST PROGRAM WAS REVIEWED FOR OTHER SIMILAR PROCEDURES AND NONE WERE IDENTIFIED.

[180] PALO VERDE 1 DOCKET 50-528 LER 88-016 REV 01
 UPDATE ON REACTOR TRIP FOLLOWING EARLIER THAN ANTICIPATED CRITICALITY.
 EVENT DATE: 051488 REPORT DATE: 070788 NSSS: CE TYPE: PWR

(NSIC 209861) THIS IS A SUPPLEMENT TO LER 1-88-016-00. AT APPROXIMATELY 0335 MST ON MAY 14, 1988, PALO VERDE UNIT 1 WAS IN MODE 3 (HOT STANDBY) WHEN A REACTOR TRIP OCCURRED AS THE CONTROL ELEMENT ASSEMBLIES (CEA'S) (AA) WERE BEING INSERTED FOLLOWING AN ATTEMPT TO STARTUP THE REACTOR. THE TRIP OCCURRED WHEN CONSERVATIVE RADIAL PEAKING FACTORS (RPF) WERE UTILIZED BY THE CORE PROTECTION CALCULATOR (CPC) (CPU) (JC) AS THE CEA'S WERE BEING INSERTED. THERE WERE NO OTHER SAFETY SYSTEM RESPONSES (INCLUDING ESF ACTUATIONS) AND NONE WERE NECESSARY. THE PLANT WAS IMMEDIATELY STABILIZED IN MODE 3. THE CEA'S WERE BEING INSERTED AFTER CRITICALITY HAD BEEN ACHIEVED EARLIER THAN CALCULATED RESULTING IN THE CEA'S BEING BELOW THE POWER DEPENDENT INSERTION LIMITS OF LCO 3.1.3.6. THE ROOT CAUSE OF THE CRITICALITY OUTSIDE ESTABLISHED GUIDELINES HAS BEEN DETERMINED TO BE NON-CONSERVATIVE OPERATOR PERFORMANCE DURING THE REACTOR STARTUP. ERRORS IN THE INFORMATION UTILIZED FOR CALCULATING THE ESTIMATED CRITICAL CONDITION (ECC) CONTRIBUTED TO THIS EVENT. THE CORRECTIVE ACTION TO PREVENT RECURRENCE WILL BE TO CORRECT THE ERRORS IN THE INFORMATION UTILIZED FOR THE ECC AND IMPROVE THE ADMINISTRATIVE CONTROLS FOR UTILIZING THE ECC. APPROPRIATE DISCIPLINARY ACTION WILL BE TAKEN. THERE HAVE BEEN NO PREVIOUS SIMILAR EVENTS REPORTED PURSUANT TO 10CFR50.73.

[181] PALO VERDE 1 DOCKET 50-528 LER 88-017
 BOTH ESSENTIAL CHILLERS DISCOVERED INOPERABLE.
 EVENT DATE: 052988 REPORT DATE: 062888 NSSS: CE TYPE: PWR

(NSIC 209772) AT APPROXIMATELY 0955 MST ON MAY 29, 1988, PALO VERDE UNIT 1 WAS OPERATING IN MODE 1 (POWER OPERATION) AT APPROXIMATELY 100 PERCENT POWER WHEN IT WAS DISCOVERED THAT THE "A" TRAIN ESSENTIAL CHILLER WOULD NOT START. INVESTIGATION REVEALED THAT ROOT ISOLATION VALVES FOR A FLOW TRANSMITTER, WHICH SUPPLIES A COMPRESSOR "RUN" PERMISSIVE, WERE SHUT. THE "A" TRAIN CHILLER WAS RETURNED TO SERVICE AT APPROXIMATELY 1020 MST. FURTHER INVESTIGATION REVEALED THAT THE SAME CONDITION EXISTED FOR THE "B" TRAIN CHILLER. THE "B" TRAIN CHILLER WAS RETURNED TO OPERABILITY AT APPROXIMATELY 1040 MST. FOLLOWING THIS EVENT, ANPP DETERMINED THAT THE VALVES HAD BEEN SHUT ON MAY 20, 1988, RENDERING THE ESSENTIAL CHILLED WATER SYSTEM INOPERABLE FOR APPROXIMATELY 9 DAYS. THE VALVES WERE SHUT CONTRARY TO APPROVED ADMINISTRATIVE CONTROLS. THE ROOT CAUSE HAS BEEN DETERMINED TO BE COGNITIVE PERSONNEL ERRORS ON THE PART OF THE INDIVIDUALS (UTILITY, LICENSED AND NON-LICENSED) RESPONSIBLE FOR SHUTTING THE VALVES WHILE AFFIXING WARNING LABELS NEAR CHILLER FLOW INDICATOR ISOLATION VALVES. AS CORRECTIVE ACTION, ADMINISTRATIVE GUIDANCE FOR CONTROL AND INSTALLATION OF WARNING LABELS WILL BE DEVELOPED. A HUMAN PERFORMANCE EVALUATION IS BEING CONDUCTED FOR THE PERSONNEL ERRORS AND APPROPRIATE CORRECTIVE ACTION WILL BE TAKEN.

[182] PALO VERDE 2 DOCKET 50-529 LER 88-010 REV 01
 UPDATE ON SURVEILLANCE INTERVAL EXCEEDED FOR PLANT VENT MONITORS.
 EVENT DATE: 041588 REPORT DATE: 062788 NSSS: CE TYPE: PWR

(NSIC 209773) AT APPROXIMATELY 0900 MST, ON APRIL 15, 1988, PALO VERDE UNIT 2 WAS IN MODE 6 (REFUELING) WHEN CHEMISTRY PERSONNEL (UTILITY AND CONTRACTOR, NON-LICENSED) DETERMINED THAT THE ALLOWABLE SURVEILLANCE TEST INTERVAL HAD BEEN EXCEEDED FOR THE PLANT VENT SYSTEM MONITORS (RU-143 AND RU-144)(IL)(MON). SUBSEQUENT TO THE DISCOVERY THAT THE SURVEILLANCE TEST INTERVAL HAD BEEN EXCEEDED, THE S.T. WAS SATISFACTORILY PERFORMED ON APRIL 15, 1988 AT APPROXIMATELY 0946 MST FOR THE LOW RANGE MONITOR (RU-143) AND ON APRIL 16, 1988 AT APPROXIMATELY 1015 MST FOR THE HIGH RANGE MONITOR (RU-144). THE ROOT CAUSE OF THE EVENT WAS A COGNITIVE PERSONNEL ERROR BY A CHEMISTRY TECHNICIAN (CONTRACTOR, NON-LICENSED) TO COMPLETE THE S.T. WITHIN THE ALLOWABLE INTERVAL. THE TECHNICIAN

MISINTERPRETED THE REQUIREMENT TO PERFORM THE S.T. ON A "DAILY" (I.E., ONCE PER CALENDAR DAY) BASIS VICE "ONCE PER 24 HOURS". AS IMMEDIATE CORRECTIVE ACTION, THE APPROPRIATE S.T. ON PLANT VENT SYSTEM MONITOR WAS SATISFACTORILY COMPLETED AT 0946 MST ON APRIL 15, 1988. THE CORRECTIVE ACTION TO PREVENT RECCURRENCE WAS A CHANGE TO S.T.(75ST-9EZ07) TO CHANGE THE TERMINOLOGY TO BE CONSISTENT WITH THE TECHNICAL SPECIFICATION (T.S.) AND A REVIEW OF RADIOACTIVE EFFLUENT S.T.S TO ENSURE THAT THE REQUIREMENTS OF THE T.S. ARE CLEARLY AND EXPLICITLY IMPLEMENTED. NO SIMILAR EVENTS HAVE BEEN REPORTED.

[183] PALO VERDE 2 DOCKET 50-529 LER 88-011
 OVEREXPOSURE OF DECONTAMINATION WORKER TO RADIATION.
 EVENT DATE: 052288 REPORT DATE: 062288 NSSS: CE TYPE: PWR

(NSIC 209774) ON MAY 22, 1988 AT APPROXIMATELY 2340 MST, PALO VERDE UNIT 2 WAS IN MODE 5 (COLD SHUTDOWN), WHEN A DECONTAMINATION WORKER (CONTRACTOR, NON-LICENSED) RECEIVED 2.607 REM WHOLE BODY DOSE TO HIS RIGHT THIGH/UPPER LEG AREA WHICH RESULTED IN A CUMULATIVE WHOLE BODY EXPOSURE FOR THE QUARTER OF 3.209 REM. THE OVEREXPOSURE OCCURRED DURING PREPARATIONS FOR PAINTING THE CONTAINMENT SIDE OF THE REFUELING TRANSFER CANAL AREA WITH STRIPPABLE PAINT. THE PRINCIPAL CAUSES OF THIS EVENT WERE INCOMPLETE DECONTAMINATION, AN INCOMPLETE SURVEY, AND INSUFFICIENT JOB PLANNING. AS IMMEDIATE CORRECTIVE ACTION TO ENSURE THE WORKER WOULD NOT RECEIVE ADDITIONAL RADIOLOGICAL EXPOSURE, THE INDIVIDUAL WAS PROHIBITED FROM FURTHER WORK IN THE RADIOLOGICAL CONTROLLED AREA. AS CORRECTIVE ACTION TO PREVENT RECURRENCE, THE RADIOLOGICAL SURVEY PROCEDURE WILL BE REVISED TO PROVIDE GUIDANCE FOR OBSTRUCTIONS TO SURVEYS AND RESURVEYS FOLLOWING THEIR SUBSEQUENT REMOVAL. ADDITIONALLY, THE RADIOLOGICAL PROGRAM PROCEDURES WILL BE REVIEWED AND REVISED AS NECESSARY. THIS EVENT AND PROCEDURAL CHANGES WILL BE REVIEWED BY THE SUPERVISORS WITH THE RP TECHNICIANS. NO SIMILAR EVENTS HAVE BEEN REPORTED.

[184] PEACH BOTTOM 2 DOCKET 50-277 LER 88-005 REV 02
 UPDATE ON FAILURE OF CONTROL PANELS TO MEET ORIGINAL SEISMIC QUALIFICATIONS DUE TO WELDING INSTALLATION ERROR.
 EVENT DATE: 030388 REPORT DATE: 062888 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: PEACH BOTTOM 3 (BWR)

(NSIC 209711) ON MARCH 3, 1988 WITH UNIT 2 IN COLD SHUTDOWN AND UNIT 3 IN THE REFUELING MODE WITH THE CORE OFFLOADED, IT WAS CONFIRMED THAT THE AS-BUILT ANCHORAGE CONFIGURATIONS OF THE UNIT 2 AND 3 MAIN CONTROL ROOM PANELS DO NOT CONFORM WITH THE ORIGINAL INSTALLATION REQUIREMENTS, AND, THEREFORE, MAY NOT BE SUFFICIENT TO WITHSTAND LOADS DUE TO PEAK SEISMIC CONDITIONS. THE INVESTIGATION WAS CONTINUED AND ON APRIL 18, 1988, CABLE SPREADING ROOM PANELS WERE ALSO FOUND NOT TO CONFORM WITH THE ORIGINAL DESIGN DETAIL. THE OTHER SAFETY-RELATED FLOOR MOUNTED PANELS IN BOTH UNITS WERE INSPECTED FOR VERIFICATION OF ADEQUATE ANCHORAGE. AS A RESULT OF THIS FINAL INSPECTION OF THE REMAINING SAFETY-RELATED FLOOR MOUNTED PANELS, THREE PANELS MUST BE WELDED AND/OR BOLTED, AND FOUR PANELS MUST BE INSPECTED FOR WELD QUALITY. THE CAUSE OF THIS DEFICIENCY WAS ORIGINAL INSTALLATION ERROR DURING ORIGINAL CONSTRUCTION OF THE UNITS IN THE 1970'S. DETAILS FOR CONTROL PANEL WELDING WERE PROVIDED ON THE ORIGINAL DESIGN DRAWINGS, BUT WERE NOT FOLLOWED. CORRECTIVE ACTIONS ARE TO WELD THE BASE CHANNEL OF EACH PANEL TO THE FLOOR EMBED ON THE OUTSIDE OF THE PANEL OR BOLT THE PANELS TO THE CONCRETE FLOOR WHEN THE CONCRETE EMBED IS NOT PRESENT. THIS EFFORT WILL BE COMPLETED PRIOR TO RESTART OF EITHER UNIT.

[185] PEACH BOTTOM 2 DOCKET 50-277 LER 88-008 REV 01
 UPDATE ON FAILURE TO SUBMIT A SPECIAL REPORT CONCERNING INOPERABILITY OF CARDOX SYSTEM IN CONTROL ROOM DUE TO A LACK OF ADEQUATE PROGRAMMATIC CONTROLS.
 EVENT DATE: 032888 REPORT DATE: 042688 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: PEACH BOTTOM 3 (BWR)

(NSIC 209712) ON 3/28/88 WHILE UNIT 2 AND UNIT 3 WERE SHUTDOWN, IT WAS DETERMINED BY THE PEACH BOTTOM ATOMIC POWER STATION (PBAPS) REGULATORY GROUP THAT A SPECIAL REPORT CONCERNING THE INOPERABILITY OF THE CARDOX SYSTEM IN THE CONTROL ROOM WAS NOT SUBMITTED WITHIN THE 30 DAY TIME LIMIT AS REQUIRED BY TECH SPEC 3.14.B.4.B. THIS CONSTITUTES A FAILURE TO COMPLY WITH THE ACTION STATEMENT OF THE TECH SPECS. THIS NONCONFORMING CONDITION HAS EXISTED SINCE 11/15/87. THE SYSTEM WAS REMOVED FROM SERVICE ON 10/1/87 AS A RESULT OF A DISCOVERY BY THE PBAPS FIRE PROTECTION COORDINATOR THAT THE CARDOX HOSE IN THE CONTROL ROOM WAS PRESSURIZED AND HAD BLISTERED. THE CAUSE OF THE FAILURE TO REPORT WAS THE LACK OF ADEQUATE PROGRAMMATIC CONTROLS TO ENSURE PROPER IDENTIFICATION AND COMMUNICATION OF CONDITION, WHICH REQUIRE REPORTING. THE CARDOX SYSTEM REMAINS OUT-OF-SERVICE PENDING COMPLETION OF A MODIFICATION TO REMOVE THE CARDOX SYSTEM FIRE SUPPRESSION CAPABILITY FROM THE CONTROL ROOM. THE FAILURE TO SUBMIT A SPECIAL REPORT PER TECH SPEC 3.14.B.4.B IS A SERIOUS ADMINISTRATIVE DEFICIENCY. TO PREVENT RECURRENCE, THE STRENGTHENED INSTRUCTIONS FOR THE LCO LOG TO IMPROVE THE IDENTIFICATION AND INITIATION OF SPECIAL REPORTS RESULTING FROM THE TIME DEPENDENT EQUIPMENT INOPERABILITIES WILL BE INCORPORATED INTO THE OPERATIONS MANAGEMENT MANUAL.

[186] PEACH BOTTOM 2 DOCKET 50-277 LER 88-010
 PRIMARY CONTAINMENT ISOLATION SYSTEM ACTUATION RESULTING FROM A FUSE BEING PULLED IN ACCORDANCE WITH AN INADEQUATELY REVIEWED BLOCKING PERMIT.
 EVENT DATE: 050688 REPORT DATE: 060388 NSSS: GE TYPE: BWR

(NSIC 209557) ON MAY 6, 1988 AT 1627 HOURS WITH THE UNIT IN COLD SHUTDOWN, A PRIMARY CONTAINMENT ISOLATION SYSTEM (PCIS) GROUP II ISOLATION SIGNAL WAS ACTUATED. A GROUP II ISOLATION INVOLVES THE REACTOR WATER CLEANUP (RWCU) SYSTEM. THE ISOLATION SIGNAL RESULTED WHEN THE SHIFT BLOCKER REMOVED A FUSE WHILE APPLYING A BLOCKING PERMIT. AT THE TIME OF THE EVENT THE RWCU SYSTEM WAS BLOCKED, AND CONSEQUENTLY THERE WAS NO VALVE MOVEMENT OR PUMP TRIPS ASSOCIATED WITH THE EVENT. AT APPROXIMATELY 1630 HOURS, AFTER A CONSULTATION BETWEEN THE OPERATING CREW AND THE SHIFT BLOCKER AND A BRIEF REVIEW OF THE PERMIT, THE FUSE WAS REPLACED. THE ISOLATION SIGNAL WAS RESET 47 MINUTES FOLLOWING ITS ACTUATION. BOTH THE ACTUAL AND POTENTIAL CONSEQUENCES OF THE EVENT ARE CONSIDERED MINIMAL. THE CAUSE OF THE EVENT WAS AN INADEQUATE REVIEW OF A BLOCKING PERMIT WHICH WAS A COMBINATION OF ERRORS BY BOTH THE AUTHOR AND REVIEWER. THE PERMIT AND A PROCEDURAL INADEQUACY. THE APPROPRIATE PROCEDURE WAS USED AND MADE EFFECTIVE MAY 10, 1988. THE DETAILS OF THIS EVENT WERE DISCUSSED WITH THE PRIMARY AUTHORS OF BLOCKING PERMITS. THIS EVENT CONCERNS AN UNEXPECTED ENGINEERED SAFETY FEATURES ACTUATION, AND IS REPORTABLE UNDER 50.73(A)(2)(IV).

[187] PEACH BOTTOM 2 DOCKET 50-277 LER 88-011
 RPS SCRAM OCCURRED AS A RESULT OF GROUNDING A JUMPER WHICH CAUSED A FUSE TO BLOW WHILE PERFORMING A SURVEILLANCE TEST.
 EVENT DATE: 051288 REPORT DATE: 061388 NSSS: GE TYPE: BWR

(NSIC 20961) AT 0928 HOURS ON MAY 12, 1988, DURING THE PERFORMANCE OF SURVEILLANCE TEST, THE UNIT 2 REACTOR PROTECTION SYSTEM (RPS) UNEXPECTEDLY GENERATED A FULL SCRAM SIGNAL. SINCE THE UNIT WAS IN THE COLD SHUTDOWN CONDITION WITH ALL OF THE CONTROL RODS FULLY INSERTED, NO CONTROL ROD MOTION RESULTED. THE UNEXPECTED ACTUATION OF AN ENGINEERED SAFETY FEATURE (ESF) MAKES THIS EVENT REPORTABLE PURSUANT TO 10 CFR 50.73 (2)(A)(IV). THE SCRAM WAS CAUSED BY THE INADVERTENT GROUNDING OF A TEST JUMPER WHICH CAUSED A FUSE TO BLOW IN A REACTOR PROTECTION SYSTEM (RPS) LOGIC CIRCUIT. A PROCEDURE DEFICIENCY ALLOWED THE LOSS OF ONE FUSE TO RESULT IN A FULL SCRAM. THE CONSEQUENCES OF THIS EVENT ARE MINIMAL, AS NO CONTROL ROD MOTION OCCURRED, NO OTHER ESF ACTUATED AND NONE WERE IMPAIRED. THE FUSE WAS REPLACED AT 1358 HOURS. TO PREVENT RECURRENCE OF THE EVENT, A MOCK-UP OF A CONTROL PANEL WILL BE PROVIDED FOR TRAINING PURPOSES. APPROPRIATE SURVEILLANCE TESTS AND ROUTINE TESTS WILL BE REVISED TO REQUIRE

DRAINING OF THE SCRAM DISCHARGE VOLUME AS A PREREQUISITE TO PERFORMING THESE TESTS, AND A MODIFICATION IS BEING CONSIDERED TO INSTALL TEST CONNECTIONS AT DESIGNATED TEST POINTS.

[188] PEACH BOTTOM 2 DOCKET 50-277 LER 88-012
 DRYWELL RADIATION MONITORS INOPERABLE WITHOUT BEING REPORTED TO NRC PER TECH
 SPECS DUE TO ADMINISTRATIVE OVERSIGHT.
 EVENT DATE: 052488 REPORT DATE: 062388 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: PEACH BOTTOM 3 (BWR)

(NSIC 209612) ON MAY 24, 1988, IT WAS DISCOVERED THAT THE UNIT 2 AND UNIT 3 DRYWELL HIGH RANGE RADIATION MONITORS WERE OUT OF SERVICE WITHOUT BEING REPORTED TO THE NRC AS REQUIRED BY THE TECHNICAL SPECIFICATIONS (TS). TS 3.2.F REQUIRES AT LEAST TWO OF THE FOUR INSTRUMENT CHANNELS (ON EACH UNIT) TO BE OPERABLE. AN ALTERNATE METHOD OF MONITORING DRYWELL RADIATION, WEEKLY MANUAL SURVEYS, WAS IN PLACE IN ACCORDANCE WITH TS 3.2.F WHEN THE MONITORS WERE REMOVED FROM SERVICE. THE UNIT 2 MONITORS (RE-9103 A, B, C AND D) WERE REMOVED FROM SERVICE ON MAY 20, 1987. THE UNIT 3 RE-9103 A AND C MONITORS WERE REMOVED FROM SERVICE ON NOVEMBER 7, 1987 WITH THE CONTROL ROOM RECORDER FOR THE UNIT 3 RE-9103 B AND D CHANNELS TURNED OFF. THESE EVENTS WERE NOT REPORTED BECAUSE REMOVAL OF THE MONITORS FROM SERVICE WAS NOT PROPERLY DOCUMENTED AND BECAUSE OF INADEQUATE CONTROLS FOR TRACKING LIMITING CONDITIONS FOR OPERATION (LCOS). ON JUNE 16, 1988 THE RE-9103 B AND D CONTROL ROOM RECORDER WAS TURNED ON. THE REMAINING MONITORS ON BOTH UNITS WILL BE RETURNED TO SERVICE BY AUGUST 31, 1988 IF PLANT CONDITIONS PERMIT. PROCEDURAL GUIDANCE IS BEING DEVELOPED TO IMPROVE CONTROLS FOR TRACKING LCOS, AND THEREBY PREVENT A RECURRENCE OF THESE EVENTS.

[189] PEACH BOTTOM 3 DOCKET 50-278 LER 88-002 REV 01
 UPDATE ON PCIS GROUP II REACTOR WATER CLEANUP SYSTEM ISOLATION SIGNAL AS A RESULT
 OF A LOSS-OF-POWER CAUSED BY A TIE BREAKER MALFUNCTION.
 EVENT DATE: 050788 REPORT DATE: 060388 NSSS: GE TYPE: BWR
 VENDOR: ITE IMPERIAL CORPORATION

(NSIC 209513) ON MAY 7, 1988 AT 0904 HOURS, A PCIS GROUP II REACTOR WATER CLEANUP SYSTEM (RWCU) ISOLATION SIGNAL WAS GENERATED AS A RESULT OF A LOSS-OF-POWER TO TEMPERATURE SWITCH (TECH SPEC 3-12-99) WHICH MONITORS THE NON-REGENERATIVE HEAT EXCHANGER OUTLET TEMPERATURE. THE LOSS OF POWER OCCURRED WHEN A TIE BREAKER MALFUNCTION RESULTED IN TWO POWER SUPPLIES FEEDING THE SAME ELECTRICAL BUS. THIS ESTABLISHED THE NECESSARY LOGIC TO TRIP POWER TO THE TEMPERATURE SWITCH. THIS EVENT IS REPORTABLE BECAUSE OF THE ENGINEERED SAFETY FEATURE ACTUATION. NO VALVE MOVEMENT OCCURRED AS A RESULT OF THIS ISOLATION SIGNAL. THERE WERE NO ADVERSE CONSEQUENCES TO THIS EVENT BECAUSE THE RWCU SYSTEM WAS ISOLATED AND OUT-OF-SERVICE AT THE TIME OF THE EVENT. ALL NORMAL POWER SOURCES WERE REESTABLISHED BY 0947 HOURS AND THE ISOLATION SIGNAL WAS RESET AT APPROXIMATELY 000 HOURS. THE DURATION OF THE EVENT WAS APPROXIMATELY 56 MINUTES. THE TIE BREAKER WAS REMOVED FROM SERVICE, INSPECTED, AND RETURNED TO SERVICE. PREVENTIVE MAINTENANCE WILL BE PERFORMED ON THE THREE BREAKERS AND PROCEDURES WILL BE REVISED.

[190] PEACH BOTTOM 3 DOCKET 50-278 LER 88-003
 TWO PRIMARY CONTAINMENT ISOLATION SYSTEM ACTUATIONS DUE TO OVERVOLTAGE TRIPS OF
 THE RPS ALTERNATE FEED CAUSED BY VOLTAGE FLUCTUATIONS ON THE 13 KV BUS.
 EVENT DATE: 052088 REPORT DATE: 061688 NSSS: GE TYPE: BWR

(NSIC 209613) ON MAY 20, 1988 AND ON MAY 22, 1988, A UNIT 3 PRIMARY CONTAINMENT ISOLATION SYSTEM GROUP III INBOARD ISOLATION AND A HALF REACTOR SCRAM OCCURRED AS A RESULT OF AN OVERVOLTAGE CONDITION ON THE UNIT 3 STARTUP FEED, WHICH CAUSED THE TRIP OF THE REACTOR PROTECTION SYSTEM (RPS) ALTERNATE FEED BREAKERS. THE RPS

ALTERNATE FEED WAS IN SERVICE AT THE TIME OF BOTH EVENTS BECAUSE THE 'A' RPS MOTOR-GENERATOR (M-G) SET WAS BLOCKED OUT-OF-SERVICE. THERE WERE NO ADVERSE CONSEQUENCES AS A RESULT OF THIS EVENT. ALL EQUIPMENT OPERATED AS DESIGNED. THEREFORE, IN THE EVENT OF AN ACCIDENT, ANY RADIOACTIVE RELEASE WOULD HAVE BEEN PRECLUDED. PRELIMINARY RESULTS OF AN INVESTIGATION INDICATE THAT THE CAUSE OF THE EVENTS IS THE RPS, LOAD CENTER, AND EMERGENCY AUXILIARY TRANSFORMERS BEING LIGHTLY LOADED, THEREBY INCREASING THE RPS SENSITIVITY TO FLUCTUATIONS IN THE 13 KV VOLTAGES. THIS INVESTIGATION IS CONTINUING AND A REVISED REPORT WILL BE SUBMITTED TO FORWARD ANY ADDITIONAL FINDINGS. TO PREVENT A RECURRENCE OF THIS EVENT, THE NUCLEAR ENGINEERING DEPARTMENT HAS BEEN REQUESTED TO REVIEW THE TAP SETTINGS AND OPERATING VOLTAGES FOR THE STARTUP TRANSFORMERS, EMERGENCY TRANSFORMERS, LOAD CENTER TRANSFORMERS, AND 480/120V SAFEGUARD BUS TRANSFORMERS FOR PLANT OPERATING AND SHUTDOWN CONDITIONS.

[191] PERRY 1 DOCKET 50-440 LER 87-073 REV 01
 UPDATE ON SOLENOID AIR PILOT VALVES STICK DUE TO EXCESSIVE HEAT EXPOSURE
 RESULTING IN MAIN STEAM ISOLATION VALVE SLOW CLOSURE AND SUBSEQUENT MANUAL
 REACTOR SCRAM DURING SHUTDOWN.
 EVENT DATE: 102987 REPORT DATE: 060388 NSSS: GE TYPE: BWR
 VENDOR: AUTOMATIC SWITCH COMPANY (ASCO)

(NSIC 209516) ON OCTOBER 29, 1987 AT 1837, 2155 AND 2216 THREE MAIN STEAM ISOLATION VALVES (MSIV) FAILED TO FAST CLOSE IN THE TIME REQUIRED BY TECHNICAL SPECIFICATIONS 3.4.7 AND 3.6.4. SUBSEQUENTLY, THE THREE MSIVS WERE STROKED WITH SATISFACTORY CLOSURE TIMES. ON NOVEMBER 3 AT 1157 AND 1208 TWO OF THE SAME MSIVS FAILED TO CLOSE WITHIN THE REQUIRED TIME. BASED ON REPEAT FAILURES A PLANT SHUTDOWN WAS COMMENCED AT 1330. THE REACTOR WAS MANUALLY SCRAMMED AT 1819. THE CAUSE OF THE MSIVS DELAYED CLOSURES HAS BEEN ATTRIBUTED TO THE ASSOCIATED FAST CLOSURE DUAL SOLENOID AIR PILOT VALVES STICKING IN THE NORMAL ENERGIZED POSITION WHEN DEENERGIZED. THE DUAL SOLENOID VALVES WERE STICKING DUE TO DEGRADATION OF THE ELASTOMER DISC AND CORE ASSEMBLY SEALS CAUSED BY EXPOSURE TO EXCESSIVE HEAT FROM PREVIOUSLY EXISTING STEAM LEAKS. THE ELASTOMER DISCS AND SEALS FOR ALL MSIV DUAL SOLENOID PILOT VALVES HAVE BEEN REPLACED. OTHER EQUIPMENT HAS BEEN EVALUATED FOR ANY ADVERSE EFFECTS FROM KNOWN STEAM LEAKS. ADDITIONAL TEMPERATURE MONITORING EQUIPMENT HAS BEEN INSTALLED AND SPECIAL INSTRUCTIONS ESTABLISHED SPECIFYING ACTIONS TO BE TAKEN UPON EXCEEDING BASELINE TEMPERATURE VALUES. SUBSEQUENT PHYSICAL, CHEMICAL AND THERMAL ENDURANCE TESTING CONFIRMED THE FAILURE MECHANISM OF THE ELASTOMER.

[192] PERRY 1 DOCKET 50-440 LER 88-006 REV 01
 UPDATE ON LOSS OF REACTOR PROTECTION SYSTEM BUS DUE TO AN OVER VOLTAGE TRIP OF
 THE MOTOR-GENERATOR OUTPUT CIRCUIT BREAKER RESULTS IN A DIVISION II BALANCE OF
 PLANT ISOLATION.
 EVENT DATE: 011988 REPORT DATE: 071588 NSSS: GE TYPE: BWR

(NSIC 209923) ON JANUARY 19, 1988 AT 1510, THE B REACTOR PROTECTION SYSTEM (RPS) MOTOR-GENERATOR (MG) SET OUTPUT CIRCUIT BREAKER TRIPPED OPEN ON OVERVOLTAGE, RESULTING IN THE DEENERGIZATION OF RPS BUS B AND A NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NSSSS) DIVISION II BALANCE OF PLANT (BOP) ISOLATION. AFFECTED SYSTEMS AND COMPONENTS WERE RESTORED BY 1610. THE ROOT CAUSE OF THIS EVENT HAS BEEN ATTRIBUTED TO SMALL RANDOM DISTURBANCES IN THE RPS BUS VOLTAGE DUE TO NORMAL PLANT EVOLUTIONS COMBINED WITH A RESTRICTIVE OVERVOLTAGE RELAY TRIP SETPOINT. TO PREVENT RECURRENCE OF THIS EVENT, A SETPOINT CHANGE HAS BEEN IMPLEMENTED WHICH INCREASES THE OVERVOLTAGE RELAY TRIP SETPOINT IN BOTH BUSES FROM 129.2 VOLTS TO 140 VOLTS. A DETAILED CALIBRATION VERIFIED THAT THE VOLTAGE REGULATOR WAS OPTIMALLY CALIBRATED AND PROPERLY PERFORMING ITS FUNCTION AS DESIGNED. ADDITIONALLY, A DETAILED PROCEDURE FOR CALIBRATION OF THE VOLTAGE REGULATOR IN THE FUTURE HAS BEEN DEVELOPED. A CALIBRATION CHECK WILL BE PERFORMED PERIODICALLY TO IDENTIFY ANY DEGRADATION IN VOLTAGE REGULATOR PERFORMANCE.

[193] PERRY 1 DOCKET 50-440 LER 88-015
 PERSONNEL ERROR RESULTS IN DEENERGIZING AUXILIARY BUILDING VENTILATION FAN TRIP
 RELAY CAUSING LOSS OF VENTILATION AND REACTOR WATER CLEANUP CONTAINMENT ISOLATION.
 EVENT DATE: 050488 REPORT DATE: 060388 NSSS: GE TYPE: BWR

(NSIC 209543) ON 5/4/88 AT 1610, AN UNEXPECTED REACTOR WATER CLEANUP (RWCU) CONTAINMENT ISOLATION OCCURRED DUE TO PUMP ROOM HIGH DIFFERENTIAL TEMPERATURE. TECHNICIANS PERFORMING CALIBRATION OF THE LOSS OF POWER TRIP RELAY TIME DELAY FOR AUXILIARY BUILDING VENTILATION (AB HVAC) EXHAUST FAN A INADVERTENTLY DEENERGIZED THE EXHAUST FAN B TRIP RELAY. THIS RESULTED IN A LOSS OF COOLING TO THE RWCU PUMP ROOMS AND SUBSEQUENT RWCU ISOLATION. THE CAUSE OF THIS EVENT WAS THE TECHNICIAN REMOVING THE LEADS FOR THE AB HVAC EXHAUST FAN A TRIP RELAY DID NOT TAKE ADEQUATE PRECAUTIONS TO ENSURE THE TRIP RELAY FOR EXHAUST FAN B REMAINED ENERGIZED. CONTRIBUTING TO THE EVENT WAS THE ALARM FOR RWCU DIFFERENTIAL TEMPERATURES BEING CONTINUOUSLY ACTUATED DUE TO AN UNASSOCIATED PARAMETER ON THE SAME RECORDER EXCEEDING THE ALARM SETPOINT, THEREBY MASKING ANY SUBSEQUENT ALARMS. THERE WAS NO ACTIVE ALARM ASSOCIATED WITH THE FAN TRIP. THEREFORE, THE OPERATORS WERE NOT IMMEDIATELY ALERTED TO THE FAN TRIP. IN ORDER TO PREVENT RECURRENCE, A CAUTION HAS BEEN ADDED TO THE REPETITIVE TASK FOR CALIBRATION OF THE TIME DELAY FOR THE FAN A TRIP RELAY TO USE A JUMPER TO ENSURE FAN B TRIP RELAY REMAINS ENERGIZED. THE TECHNICIANS WILL BE TRAINED TO THIS EVENT. THE LEAK DETECTION RECORDER HAS BEEN MODIFIED SUCH THAT EACH INPUT WILL ACTUATE AN ALARM AT ITS RESPECTIVE SETPOINT.

[194] PERRY 1 DOCKET 50-440 LER 88-018
 FAILURE TO RECALIBRATE LEVEL INSTRUMENTS FOLLOWING DESIGN CHANGE RESULTS IN
 TECHNICAL SPECIFICATION VIOLATION.
 EVENT DATE: 050588 REPORT DATE: 060388 NSSS: GE TYPE: BWR

(NSIC 209545) ON 5/5/88, A DETAILED INVESTIGATION DETERMINED THAT ELEVATION CHANGES TO THE REACTOR VESSEL LEVEL INSTRUMENT CONDENSING CHAMBERS, PERFORMED IN 5/87, FAILED TO RESULT IN CORRECTIONS TO TEST INSTRUCTIONS OR INSTRUMENT RECALIBRATIONS. THIS RESULTED IN THE SETPOINT FOR THE CHANNEL D HIGH LEVEL SCRAM TO BE OUTSIDE THE ALLOWABLE VALUE AS DISCOVERED DURING THE SCHEDULED SURVEILLANCE (SVI) ON 1/15/88. A SIMILAR SITUATION WAS DISCOVERED WITH THE CHANNEL B SCRAM DISCHARGE VOLUME LEVEL TRANSMITTER DURING THE SCHEDULED CALIBRATION SVI, ON 2/3/88. THE ROD BLOCK SETPOINT WAS OUTSIDE THE ALLOWABLE VALUE. DETAILED INVESTIGATION FOLLOWING THESE EVENTS DISCOVERED THAT IN 8/86, A ONE INCH ERROR WAS IDENTIFIED IN THE ORIGINAL HEAD CORRECTION FACTOR. THE SVI WAS REVISED, HOWEVER THE INSTRUMENT WAS NOT RECALIBRATED AT THAT TIME. SINCE THESE DEFICIENCIES WERE NOT IDENTIFIED UNTIL THE NEXT SCHEDULED SURVEILLANCE, NO TECH SPEC ACTIONS WERE COMPLETED. THE CAUSE OF THESE EVENTS WAS PERSONNEL ERROR. CHANGES TO THE REFERENCE DATA CAUSED CHANGES TO THE INSTRUMENT CALIBRATION, YET IN NEITHER CASE WAS THE INSTRUMENT IDENTIFIED AS REQUIRING RECALIBRATION. REVIEW OF CALIBRATION DATA FOR OTHER INSTRUMENTS AFFECTED HAS SHOWN THEIR AS LEFT VALUES WERE WITHIN THE ALLOWABLE VALUES. ALL APPLICABLE SVI'S WILL BE REVISED TO CORRECT THE INSTRUMENT CALIBRATIONS.

[195] PERRY 1 DOCKET 50-440 LER 88-017
 BLOWN FUSE IN RPS DURING SURVEILLANCE CAUSES REACTOR SCRAM OF GROUP 3 CONTROL
 RODS RESULTING IN REACTOR VESSEL LOW LEVEL 3 AND FULL SCRAM.
 EVENT DATE: 050688 REPORT DATE: 060388 NSSS: GE TYPE: BWR

(NSIC 209544) ON 5/6/88 AT 1436, DURING THE PERFORMANCE OF A MONTHLY REACTOR PROTECTION SYSTEM (RPS) CHANNEL FUNCTIONAL TEST, AN UNEXPECTED SCRAM OF GROUP 3 CONTROL RODS (APPROXIMATELY ONE QUARTER OF TOTAL) CAUSED REACTOR VESSEL LEVEL TO DECREASE TO LOW LEVEL 3 (+177.7 INCHES ABOVE TOP OF ACTIVE FUEL) RESULTING IN A FULL REACTOR SCRAM. THE SURVEILLANCE TRIPS ONE (A) OF TWO RPS TRIP SYSTEMS CAUSING A HALF RPS TRIP. COINCIDENT WITH THE HALF RPS TRIP A BLOWN FUSE TO THE

RPS TRIP SYSTEM B GROUP 3B CONTROL RODS CAUSED A COMPLETE DEENERGIZATION OF ALL GROUP 3 CONTROL ROD SCRAM SOLENOIDS. THE ENSUING GROUP 3 CONTROL ROD SCRAM CAUSED A RAPID POWER DECREASE AND VOID COLLAPSE RESULTING IN A REACTOR VESSEL LOW LEVEL 3 AND FULL RPS SCRAM. OPERATORS RESPONDED IN ACCORDANCE WITH PLANT PROCEDURES AND ALL SYSTEMS OPERATED AS DESIGNED. THE CAUSE OF THE BLOWN FUSE IS NOT CONCLUSIVELY KNOWN. THE FUSE WAS REPLACED AND, WHILE MONITORING CURRENT AND VOLTAGE AT THE FUSE, PERTINENT STEPS OF THE MONTHLY RPS SURVEILLANCE WERE SATISFACTORILY REPERFORMED. NO ABNORMALITIES WERE IDENTIFIED. ADDITIONAL TEMPERATURE AND CURRENT MONITORING OF THIS CIRCUIT DETERMINED THAT THE WIRING CONFIGURATION IMMEDIATELY UPSTREAM OF THIS FUSE IS SUCH THAT TEMPERATURES ADJACENT TO THE FUSE ARE SLIGHTLY HIGHER THAN PANEL AMBIENT.

[196] PERRY 1 DOCKET 50-440 LER 88-019
FAILURE OF CHILLER LINKAGE AND FAN POWER SUPPLY CAUSES LOSS OF BOTH TRAINS OF CONTROL ROOM VENTILATION AND ENTRY INTO TECH SPEC 3.0.3.
EVENT DATE: 051588 REPORT DATE: 061088 NSSS: GE TYPE: BWR

(NSIC 209667) ON MAY 15, 1988 AT 1715 BOTH TRAINS OF THE CONTROL ROOM HEATING, VENTILATION AND AIR CONDITIONING (CRHVAC) SYSTEM WERE DECLARED INOPERABLE FOR THE EMERGENCY RECIRCULATION MODE DUE TO EQUIPMENT FAILURES PLACING THE PLANT INTO TECHNICAL SPECIFICATION (TS) 3.0.3. A PLANT SHUTDOWN WAS INITIATED AT APPROXIMATELY 1736, AND AN UNUSUAL EVENT WAS DECLARED AT 1750. TRAIN B OF THE CRHVAC SYSTEM WAS RETURNED TO SERVICE AND DECLARED OPERABLE AT 2005 AND TS 3.0.3 EXITED. THE UNUSUAL EVENT WAS TERMINATED AT 2204, AND THE PLANT RETURNED TO NORMAL OPERATIONS. THE CAUSES OF THE EQUIPMENT FAILURES WERE A MECHANICAL FAILURE OF THE COMPRESSOR GUIDE VANE LINKAGE CONNECTOR ON TRAIN B AND AN INTERMITTENT FAULT IN THE MOTOR STARTER CIRCUIT OF THE SUPPLY FAN FOR TRAIN A RESULTING IN A BLOWN FUSE. THE COMPRESSOR GUIDE VANE LINKAGE CONNECTOR, THE TRAIN A MOTOR STARTER AND ALL THREE MAINLINE FUSES WERE REPLACED AND HAVE SUBSEQUENTLY OPERATED SATISFACTORILY. SINCE THIS EVENT, NO FURTHER FAULTS HAVE OCCURRED DURING THE START OF THE TRAIN A SUPPLY FAN. NO ADDITIONAL CORRECTIVE ACTIONS ARE PLANNED AT THIS TIME.

[197] PILGRIM 1 DOCKET 50-293 LER 88-015
INADVERTENT ACTUATION OF PORTIONS OF THE PRIMARY CONTAINMENT, SECONDARY CONTAINMENT, AND STANDBY GAS TREATMENT SYSTEMS.
EVENT DATE: 050488 REPORT DATE: 060388 NSSS: GE TYPE: BWR

(NSIC 209512) ON MAY 4, 1988 AT 1100 HOURS, AN INADVERTENT ACTUATION OF PORTIONS OF THE PRIMARY CONTAINMENT ISOLATION CONTROL SYSTEM (PCIS) AND REACTOR BUILDING ISOLATION CONTROL SYSTEM (RBIS) OCCURRED. THE ACTUATION RESULTED IN THE FOLLOWING RESPONSES. THE APPROPRIATE PRIMARY CONTAINMENT SYSTEM (PCS) ISOLATION VALVES CLOSED AUTOMATICALLY (OR RECEIVED AN ISOLATION SIGNAL). THE TRAIN 'B' DAMPERS OF THE SECONDARY CONTAINMENT SYSTEM (SCS) CLOSED AUTOMATICALLY. THE 'B' TRAIN OF THE SCS/STANDBY GAS TREATMENT SYSTEM STARTED AUTOMATICALLY. THE ROOT CAUSE FOR THE ACTUATION WAS UTILITY TECHNICIAN PERSONNEL ERROR. THE TECHNICIAN MISTAKENLY REMOVED THE WRONG FUSE FROM ITS CIRCUIT DURING A PLANNED WORK ACTIVITY IN A PCIS/RBIS LOGIC PANEL. THE REMOVAL OF THE FUSE DE-ENERGIZED NORMALLY ENERGIZED LOGIC RELAYS THAT RESULTED IN THE ACTUATION. THE FUSE WAS REINSTALLED AND THE AFFECTED CIRCUITS WERE RESET. THE AFFECTED SYSTEMS WERE RETURNED TO NORMAL SERVICE ON MAY 4, 1988 AT APPROXIMATELY 1115 HOURS. ADDITIONAL MEASURES HAVE BEEN TAKEN, OTHER MEASURES ARE BEING PLANNED AND WILL BE TRACKED. THIS EVENT OCCURRED DURING AN EXTENDED OUTAGE WHILE IN COLD SHUTDOWN CONDITIONS.

[198] PILGRIM 1 DOCKET 50-293 LER 88-016
UNEXPECTED ACTUATION OF PORTIONS OF THE SECONDARY CONTAINMENT AND STANDBY GAS TREATMENT SYSTEMS DUE TO PERSONNEL ERROR.
EVENT DATE: 051788 REPORT DATE: 061588 NSSS: GE TYPE: BWR

(NSIC 209621) ON MAY 17, 1988 AT 1130 HOURS, AN UNEXPECTED ACTUATION OF THE INBOARD PORTION OF THE REACTOR BUILDING ISOLATION CONTROL SYSTEM (RBIS) OCCURRED. THE ACTUATION RESULTED IN THE AUTOMATIC CLOSING OF THE TRAIN 'A' VENTILATION DAMPERS OF THE SECONDARY CONTAINMENT SYSTEM (SCS) AND THE AUTOMATIC START OF THE 'A' TRAIN OF THE SCS/STANDBY GAS TREATMENT SYSTEM (SGTS). THE CAUSE FOR THE ACTUATION WAS THE REMOVAL OF A FUSE FROM A LOGIC CIRCUIT DURING A WORK ACTIVITY RELAY COIL REPLACEMENT. THE FUSE WAS RE-INSTALLED AND THE AFFECTED CIRCUITS AND SYSTEMS WERE RESTORED TO NORMAL SERVICE ON MAY 17, 1988 AT APPROXIMATELY 1142 HOURS. THE ACTUATION WAS UNEXPECTED BECAUSE THE FULL EFFECTS OF REMOVING THE FUSE WERE NOT FULLY IDENTIFIED AND RECOGNIZED PRIOR TO REMOVAL. THE ROOT CAUSE WAS UTILITY PERSONNEL (LICENSED HATCH ENGINEER AND ELECTRICAL MAINTENANCE SUPERVISOR AND ENGINEER) ERROR. A CRITIQUE WAS CONDUCTED WITH APPROPRIATE PERSONNEL INCLUDING THE RESPONSIBLE UTILITY PERSONNEL. THE WORK ACTIVITY (RELAY COIL REPLACEMENT) WAS COMPLETED WITH THE INBOARD AND OUTBOARD LOGIC CIRCUITS DE-ENERGIZED AS PLANNED. ADDITIONAL RELAY COILS WERE REPLACED THAT COMPLETED THE REPLACEMENT OF TYPE CR120A RELAYS (OR RELAY COILS) SELECTED FOR REPLACEMENT PRIOR TO RESTART.

[199] POINT BEACH 1 DOCKET 50-266 LER 88-005
 DELTA T SETPOINT TRIP MINIMUM DEGREE OF REDUNDANCY NOT IN CONFORMANCE WITH
 TECHNICAL SPECIFICATIONS.
 EVENT DATE: 051888 REPORT DATE: 061788 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: POINT BEACH 2 (PWR)

(NSIC 209606) ON MAY 18, 1988, IT WAS RECOGNIZED BY PLANT PERSONNEL THAT A POSSIBLE TECHNICAL SPECIFICATION VIOLATION EXISTED. OVERPOWER DELTA T AND OVERTEMPERATURE DELTA T REACTOR PROTECTION CHANNELS HAVE AN INPUT FROM THE POWER RANGE NUCLEAR INSTRUMENTATION (NIS). WHEN ONE CHANNEL OF POWER RANGE NUCLEAR INSTRUMENTATION IS PLACED IN THE TRIP CONDITION WHILE A TEST INPUT SIGNAL IS USED FOR CALIBRATION, THE OUTPUT OF THE POWER RANGE INSTRUMENT IS STILL SUPPLIED AS INPUT TO THE DELTA T INSTRUMENT CHANNEL. DURING PARTS OF THE CALIBRATION PROCESS OF A CHANNEL OF NIS, THE ASSOCIATED DELTA T CHANNEL TRIP SETPOINT CAN BE NONCONSERVATIVE WITH RESPECT TO THE TECHNICAL SPECIFICATIONS FOR OVERPOWER AND OVERTEMPERATURE DELTA T. THEREFORE, THE ASSOCIATED DELTA T CHANNEL SHOULD BE CONSIDERED OUT-OF-SERVICE DURING THE POWER RANGE CALIBRATION. AS A RESULT, THE MINIMUM DEGREE OF REDUNDANCY FOR OVERPOWER DELTA T AND OVERTEMPERATURE DELTA T WAS NOT MET DURING PREVIOUS TESTING. PROCEDURES CONTROLLING THE FREQUENT CALIBRATION OF NUCLEAR INSTRUMENTATION HAVE BEEN REVISED TO REQUIRE THE ASSOCIATED DELTA T CHANNELS TO BE PLACED IN THE TRIP CONDITION DURING THE CALIBRATION OF NIS. THIS WILL RESULT IN THE TECHNICAL SPECIFICATION REQUIRED MINIMUM DEGREE OF REDUNDANCY FOR OVERPOWER AND OVERTEMPERATURE DELTA T BEING MET.

[200] QUAD CITIES 2 DOCKET 50-265 LER 88-006 REV 01
 UPDATE ON UNIT TWO FLUED HEAD ANCHORS OUTSIDE SAFETY ANALYSIS DESIGN REQUIREMENTS
 DUE TO ANALYSIS DEFICIENCY.
 EVENT DATE: 040488 REPORT DATE: 052788 NSSS: GE TYPE: BWR

(NSIC 209793) ON APRIL 4, 1988, QUAD-CITIES UNIT TWO WAS IN THE RUN MODE AT 93 PERCENT THERMAL POWER. AT 1410 HOURS, THE STATION WAS NOTIFIED BY THE BWR ENGINEERING DEPARTMENT THAT ELEVEN FLUED HEAD ANCHORS DID NOT MEET THE DESIGN REQUIREMENTS OF THE FINAL SAFETY ANALYSIS REPORT (FSAR). NRC NOTIFICATION OF THIS CONDITION WAS COMPLETED AT 1423 HOURS TO SATISFY 10 CFR 50.72. A SUBSEQUENT INSPECTION FOUND THAT THERE WAS ALSO A PIN MISSING FROM ONE OF THE AFFECTED FLUED HEAD ANCHORS. THE MISSING PIN WAS EVALUATED AND THE FLUED HEAD ANCHOR WAS CONSIDERED OPERABLE. THE CAUSE FOR THIS CONDITION WAS DUE TO MISINTERPRETATION OF SCOPE IN THAT THESE STRUCTURES WERE NOT REASSESSED FOR DESIGN BASE REQUIREMENTS BASED ON IE BULLETIN 79-02 AND 79-14 PROGRAMS. THE CAUSE FOR THE MISSING PIN COULD NOT BE DETERMINED. MODIFICATION 04-02-88-017 HAS BEEN INITIATED TO REVISE THE STRUCTURES TO COMPLY WITH FSAR REQUIREMENTS. A PROGRAM

IS IN PLACE TO ANALYZE THE UNIT ONE STRUCTURES IN A SIMILAR MANNER. THIS REPORT IS PROVIDED TO COMPLY WITH THE REQUIREMENTS OF 10 CFR 50.73(A)(2)(II)(B).

[201] QUAD CITIES 2 DOCKET 50-265 LER 88-014
 DEVIATION FROM RADIOACTIVE WASTE SOLIDIFICATION PROCESS CONTROL PROGRAM.
 EVENT DATE: 042088 REPORT DATE: 062288 NSSS: GE TYPE: BWR

(NSIC 209605) ON APRIL 20, 1988, QUAD CITIES UNIT TWO WAS IN THE REFUEL MODE PREPARING FOR A CHEMICAL DECONTAMINATION OF THE RECIRCULATION SYSTEM PIPING TO REDUCE MAN-REM EXPOSURE DURING INSPECTIONS. LN TECHNOLOGIES WAS CONTRACTED TO DO THE DECON AND CHEM-NUCLEAR WAS CONTRACTED TO SOLIDIFY THE RESULTANT DECON WASTE. THE CHEM-NUCLEAR PROCESS CONTROL PROGRAM (PCP) REQUIRES A SAMPLE OF THE ACTUAL WASTE TO BE USED TO PERFORM A SAMPLE SOLIDIFICATION (LABORATORY SCALE) PRIOR TO FULL SCALE SOLIDIFICATION. HOWEVER, DUE TO ALARA CONCERNS, IT HAS BEEN THE PRACTICE AT QUAD STATION SINCE THE FIRST DECON IN 1983 TO SUPPLY THE SOLIDIFICATION CONTRACTOR WITH A "COLD" SAMPLE PREPARED FROM THE CHEMICALS AND BEAD RESIN USED FOR THE DECON AS A REPRESENTATIVE SAMPLE. THIS IS NOW CONSIDERED TO BE REPORTABLE PER 10CFR50.73(A)(2)(I)(B). THE CAUSE FOR THIS EVENT WAS MANAGEMENT DEFICIENCY, BECAUSE THERE WAS NO METHOD AVAILABLE TO ENSURE THE VENDOR'S PCP WAS FOLLOWED. A NEW PROCEDURE IS TO BE DEVELOPED WHICH WILL INCLUDE VERIFICATION THAT THE VENDOR'S PCP AND PROCEDURES ARE ADHERED TO. THIS SHOULD PREVENT RECURRENCE.

[202] QUAD CITIES 2 DOCKET 50-265 LER 88-008
 LINEAR INDICATIONS ON REACTOR WATER CLEANUP SYSTEM WELD DUE TO POSTULATED STRESS CORROSION CRACKING.
 EVENT DATE: 050488 REPORT DATE: 052488 NSSS: GE TYPE: BWR
 VENDOR: DRAVO CORP (PIPE FABRICATION DIV)

(NSIC 209522) ON APRIL 10, 1988, QUAD-CITIES UNIT TWO WAS SHUTDOWN FOR REFUELING. AT 1515 HOURS, ON MAY 4, 1988, ULTRASONIC EXAMINATION DETECTED A REACTOR WATER CLEANUP WELD AREA WITH A THROUGH WALL CRACK INDICATION 0.9 INCH LONG. THE NRC WAS NOTIFIED OF THIS CONDITION AT 1655 HOURS. THE CAUSE OF THIS OCCURRENCE IS POSTULATED TO BE INTERGRANULAR STRESS CORROSION CRACKING (IGSCC). CORRECTIVE ACTION FOR THIS SITUATION INCLUDES ADDITIONAL INSPECTIONS AND THE USE OF WELD OVERLAYS ON THE AFFECTED PIPING. THIS REPORT IS SUBMITTED IN ACCORDANCE WITH THE REQUIREMENTS OF 10CFR50.73(A)(2)(II).

[203] QUAD CITIES 2 DOCKET 50-265 LER 88-009
 UNIT TWO 125 VOLT BATTERY DISCHARGE TEST FAILURE DUE TO APPARENT HIGH RESISTANCE IN CABLE CONNECTIONS.
 EVENT DATE: 050788 REPORT DATE: 052688 NSSS: GE TYPE: BWR
 VENDOR: ESSEX WIRE CORP.

(NSIC 209523) ON MAY 7, 1988, QUAD-CITIES UNITS ONE AND TWO WERE IN THE SHUTDOWN MODES AT 0 PERCENT POWER. AT 1358 HOURS, THE UNIT TWO 125 VOLT BATTERY WAS SUBJECTED TO A PERFORMANCE DISCHARGE TEST. THE TEST WAS STOPPED WHEN THE TERMINAL VOLTAGE WENT BELOW 105 VOLTS (MINIMUM ACCEPTABLE TERMINAL VOLTAGE) AFTER AN ELAPSED TIME OF 34 MINUTES, 37 SECONDS. THE BATTERY CAPACITY WAS DETERMINED TO BE APPROXIMATELY 58 PERCENT. NRC NOTIFICATION OF THIS EVENT WAS COMPLETED AT 1710 HOURS TO COMPLY WITH 10 CFR 50.72. THE APPARENT CAUSE FOR THIS EVENT WAS ATTRIBUTED TO FIVE "HIGH RESISTANCE" CONNECTIONS THAT RESULTED IN POOR BATTERY PERFORMANCE. CORRECTIVE ACTIONS INCLUDE: CABLE REPLACEMENTS; PROCEDURE REVISIONS AND REVIEWS; AND INCREASED WEEKLY, MONTHLY, AND QUARTERLY TRENDING AND MONITORING TO ENSURE ADEQUATE BATTERY CAPACITY. THE MANUFACTURER IS REVIEWING THE TEST DATA TO MAKE RECOMMENDATIONS FOR FURTHER CORRECTIVE ACTIONS. THIS REPORT IS SUPPLIED IN ACCORDANCE WITH 10 CFR 50.73(A)(2)(II).

[204] QUAD CITIES 2 DOCKET 50-265 LER 88-011
 SCRAM OCCURS WHEN MODE SWITCH WAS MOVED CAUSED BY SWITCH POSITION UNCERTAINTY DUE
 TO DESIGN.
 EVENT DATE: 052288 REPORT DATE: 060988 NSSS: GE TYPE: BWR
 VENDOR: GENERAL ELECTRIC CO.

(NSIC 209602) ON MAY 22, 1988, QUAD CITIES UNIT TWO WAS IN THE REFUEL MODE AT 0 PERCENT THERMAL POWER. THE REACTOR FUEL WAS REMOVED AND THE VESSEL CAVITY WAS FLOODED. AT 0045 HOURS, THE REACTOR MODE SWITCH WAS MOVED FROM THE REFUEL MODE TO THE STARTUP/HOT STANDBY MODE TO PREPARE FOR CONTROL ROD DRIVE RELATCHING. IN MOVING THE MODE SWITCH, THE NUCLEAR STATION OPERATOR (NSO) WENT SLIGHTLY PAST THE TARGET POSITION. THIS CAUSED PART OF THE RUN LOGIC TO ENGAGE AND A FULL REACTOR SCRAM SIGNAL OCCURRED DUE TO CONDENSER LOW VACUUM. NRC NOTIFICATION OF THIS EVENT WAS COMPLETED AT 0255 HOURS TO COMPLY WITH 10CFR50.72. THE CAUSE OF THIS EVENT WAS A DESIGN DEFICIENCY WHICH CAUSED AN UNCERTAINTY OF THE REACTOR MODE SWITCH POSITION WHEN IT WAS MOVED FROM REFUEL TO STARTUP/HOT STANDBY. TO CORRECT THIS CONDITION, THE MODE SWITCH WILL BE REPLACED PER MODIFICATION M4-1(2)-86-26 WHEN THE NEW SWITCH IS AVAILABLE. THIS REPORT IS PROVIDED TO COMPLY WITH 10CFR50.73(A) 2 (IV).

[205] QUAD CITIES 2 DOCKET 50-265 LER 88-012
 EXISTING PIPE SUPPORTS DO NOT MEET DESIGN REQUIREMENTS DUE TO IMPROPER ANALYSIS DURING MODIFICATION.
 EVENT DATE: 052488 REPORT DATE: 062088 NSSS: GE TYPE: BWR

(NSIC 209603) ON MAY 24, 1988, UNIT TWO WAS IN THE SHUTDOWN MODE FOR A REFUELING AND MAINTENANCE OUTAGE. AT 1215 HOURS, THE STATION WAS NOTIFIED THAT SEVERAL SUPPORTS ON LINE 2-1265-2 A WERE OUTSIDE THE FINAL SAFETY ANALYSIS REPORT (FSAR) ALLOWABLES FOR THE EXISTING LOADING. THE ANALYSIS WAS PERFORMED FOR THE DESIGN OF MODIFICATION M-4-2-88-22, WHICH WILL INSTALL A 2-INCH FLANGE TO FACILITATE CHEMICAL DECONTAMINATION OF THE REACTOR WATER CLEANUP (RWCU) SYSTEM PIPING. NRC NOTIFICATION WAS COMPLETED AT 1346 HOURS TO COMPLY WITH 10CFR50.72. THE APPARENT CAUSE OF THIS CONDITION WAS IMPROPER DESIGN ANALYSIS DURING AN EARLIER MODIFICATION OF THE LINE. CORRECTIVE ACTION WAS MODIFICATION OF THE EXISTING SUPPORTS TO BRING LINE 2-1265-2"A WITHIN FSAR ALLOWABLES. UNIT ONE HAS BEEN DETERMINED TO BE WITHIN FSAR STRESS ALLOWABLES. THIS REPORT IS PROVIDED PER 10CFR50.73(A) (2)(II) (B).

[206] QUAD CITIES 2 DOCKET 50-265 LER 88-013
 IMPROPERLY INSTALLED SJAE SUCTION VALVE DUE TO INSUFFICIENT INSTRUCTION AND TESTING.
 EVENT DATE: 052688 REPORT DATE: 061788 NSSS: GE TYPE: BWR

(NSIC 209604) ON MAY 26, 1988, UNIT TWO WAS IN THE REFUEL MODE AT 0 PERCENT POWER. AT 1815 HOURS, IT WAS DISCOVERED THAT STEAM JET AIR EJECTOR (SJAE) SUCTION VALVE 2-5401B WAS INSTALLED INCORRECTLY. VALVE 2-5401B IS AN 18-INCH BUTTERFLY VALVE. THE DISC WAS INSTALLED 90 DEGREES OUT OF PROPER ORIENTATION. THIS VALVE HAD BEEN INSTALLED IN FEBRUARY 1984 PER MODIFICATION M-4-2-83-12. NRC NOTIFICATION PER 10CFR50.72 WAS COMPLETED AT 2040 HOURS BECAUSE TECHNICAL SPECIFICATION 3.8.C.1 REQUIRES THE MECHANICAL VACUUM PUMP TO BE CAPABLE OF BEING ISOLATED AND SECURED ON A HIGH RADIATION SIGNAL WHENEVER THE MAIN STEAM ISOLATION VALVES ARE OPEN. THE CAUSE FOR THIS EVENT IS INSUFFICIENT WORK INSTRUCTION DURING INSTALLATION IN 1984. CONTRIBUTING TO THIS IS INSUFFICIENT MODIFICATION TESTING AFTER INSTALLATION. THE CORRECTIVE ACTION HAS BEEN TO REPLACE THE VALVE WITH A PROPERLY ORIENTED VALVE AND TO VERIFY PROPER ORIENTATION. ALL SAFETY-RELATED BUTTERFLY VALVES ON BOTH UNITS HAVE BEEN OR WILL BE VERIFIED FOR PROPER ORIENTATION. THIS REPORT IS PROVIDED PER 10CFR50.73(A)(2)(I).

[207] QUAD CITIES 2 DOCKET 50-265 LER 88-015
 PARTIAL GROUP II ISOLATION FROM BLOWN FUSE DUE TO UNKNOWN REASON.
 EVENT DATE: 053088 REPORT DATE: 062288 NSSS: GE TYPE: BWR
 VENDOR: BUSSMANN MFG (DIV OF MCGRAW-EDISON)

(NSIC 209709) ON MAY 30, 1988, AT 0931 HOURS. A PARTIAL GROUP II ISOLATION SIGNAL WAS RECEIVED. UPON INVESTIGATION IT WAS DETERMINED THAT A FUSE HAD BLOWN. THE ROOT CAUSE OF THE BLOWN FUSE COULD NOT BE DETERMINED. THE REPLACEMENT FUSE REMAINED INTACT. THE CIRCUIT CURRENT WAS MEASURED AND FOUND TO BE WELL BELOW THE FUSE SIZE. THERE WERE NO OPERATIONAL OR MAINTENANCE ACTIVITIES OCCURRING AT THE TIME THE FUSE BLOWN. THE SAFETY SIGNIFICANCE OF THIS EVENT IS MINIMAL. THE BLOWN FUSE CAUSED THE SYSTEM TO ACTUATE IN A CONSERVATIVE MANNER CAUSING THE PARTIAL GROUP II ISOLATIONS. ALL SYSTEMS PERFORMED THEIR INTENDED FUNCTIONS AS DESIGNED.

[208] RANCHO SECO DOCKET 50-312 LER 88-005
 LETDOWN SYSTEM RELIEF VALVE LIFTS DUE TO STEAM/WATER HYDRAULIC TRANSIENT.
 EVENT DATE: 031588 REPORT DATE: 062188 NSSS: BW TYPE: PWR
 VENDOR: DRESSER INDUSTRIAL VALVE & INST DIV

(NSIC 209724) WITH THE PLANT SUBCRITICAL AND IN HOT SHUTDOWN, STEAM/WATER HYDRAULIC TRANSIENTS CAUSED RELIEF VALVES PSV-22021 (MARCH 15, 1988) AND PSV-22024 (MARCH 22, 1988) TO LIFT. EACH LIFT RESULTED IN A DISCHARGE OF WATER FROM THE LETDOWN SYSTEM TO THE REACTOR BUILDING SUMP. THE DIRECT CAUSE OF THE EVENTS WAS A PRESSURE SPIKE DUE TO ACCELERATION OF A SLUG OF WATER INTO THE RELIEF VALVE. THE ACCELERATION RESULTED FROM THE RAPID EXPANSION OF HIGH ENERGY WATER FLASHING TO STEAM IN A LOW PRESSURE AREA. THIS RAPID EXPANSION CAUSED TRAPPED WATER TO UNSEAT THE SUBJECT RELIEF VALVES. ON MARCH 15 (EVENT #1), THE WATER IN THE LINE BETWEEN SFV-22005 AND RELIEF VALVE PSV-22021 CAUSED PSV-22021 TO LIFT. ON MARCH 22 (EVENT #2), THE WATER IN THE LINE BETWEEN SFV-22025 AND RELIEF VALVE PSV-22024 CAUSED PSV-22024 TO LIFT. AFTER EVENT #1 THE DISTRICT PERFORMED A TECHNICAL ANALYSIS TO DETERMINE THE CAUSE. PROCEDURAL CONTROLS WERE IMPLEMENTED TO PREVENT RECURRENCE OF THE EVENT. AFTER EVENT #2 THE DISTRICT FORMED A TEAM UNDER THE DIRECTION OF SYSTEM ENGINEERING TO DETERMINE AND IMPLEMENT EFFECTIVE IMMEDIATE AND LONG TERM CORRECTIVE ACTIONS. THE DISTRICT SUBMITT THIS VOLUNTARY REPORT TO INFORM THE NRC AND THE INDUSTRY OF AN ADVERSE PHENOMENON IN THE LETDOWN SYSTEM AND THE DISTRICT'S CORRECTIVE ACTIONS.

[209] RANCHO SECO DOCKET 50-312 LER 88-008
 AUTOMATIC REACTOR TRIP DUE TO HIGH REACTOR COOLANT SYSTEM PRESSURE.
 EVENT DATE: 050488 REPORT DATE: 060188 NSSS: BW TYPE: PWR
 VENDOR: DRESSER INDUSTRIAL VALVE & INST DIV
 MCGRAW EDISON CO., POWER SYSTEMS DIV

(NSIC 209500) ON MAY 4, 1988, AT 09:25:35 HOURS DURING THE PERFORMANCE OF SPECIAL TEST PROCEDURE STP.660 "INTEGRATED CONTROL SYSTEM TUNING AT POWER," THE CONTROL ROOM OPERATORS INITIATED A MANUAL TURBINE TRIP FROM 28% POWER. TWENTY-TWO SECONDS LATER, THE REACTOR TRIPPED AUTOMATICALLY ON HIGH PRESSURE. AT 09:26:49 HOURS THE MAIN GENERATOR OUTPUT CIRCUIT BREAKERS (OCBS) OPENED. THE DELAY FOR THE OCBS TRIP WAS APPROXIMATELY 29 SECONDS BEYOND THE NORMAL 45-SECOND DURATION. AT 0928 HOURS THE CONTROL ROOM OPERATORS RECEIVED INITIAL INDICATIONS OF A LEAK WITHIN THE CONTAINMENT. BY 0934 HOURS CONTROL ROOM OPERATORS DETERMINED THAT THE "A" LETDOWN COOLER RELIEF VALVE (PSV-22021) HAD LIFTED AND NOT RESEATED. BY 0940 HOURS CONTROL ROOM OPERATORS HAD ISOLATED "A" LETDOWN COOLER AND TERMINATED THE LEAK. BASED ON AN EVALUATION OF THE RCS LEAKAGE RATE, THE SHIFT SUPERVISOR DECLARED AND TERMINATED AN UNUSUAL EVENT AT 0947 HOURS. THE SHIFT SUPERVISOR CLOSED OUT THE UNUSUAL EVENT BASED ON THE EARLIER TERMINATION OF THE LEAK. AN AUTOMATIC ACTUATION OF THE REACTOR PROTECTION SYSTEM RESULTED IN THE UNPLANNED REACTOR TRIP AND IS REPORTABLE UNDER THE REQUIREMENTS OF 10 CFR PART 50.73(A)(2)(IV).

[210] RIVERBEND 1 DOCKET 50-458 LER 88-011 REV 01
 UPDATE ON TECH SPEC VIOLATION DUE TO A FAILURE TO RECOGNIZE THE AS-FOUND
 CONDITION OF A CONTAINMENT ISOLATION VALVE AS INOPERABLE.
 EVENT DATE: 050388 REPORT DATE: 070889 NSSS: GE TYPE: BWR
 VENDOR: VELAN VALVE CORP.

(NSIC 209858) ON 5/3/88 AT APPROXIMATELY 2230, WITH THE UNIT IN OPERATIONAL
 CONDITION 1 (APPROXIMATELY 100 PERCENT POWER), CONTAINMENT ISOLATION VALVE
 LE51*JVP078 WAS DISCOVERED TO BE INOPERABLE. THE TORQUE ARM KEY HAD FALLEN O/T
 OF ITS KEYWAY AS DOCUMENTED ON A MAINTENANCE WORK ORDER REQUEST DATED 3/28/88.
 THE PERSONNEL THAT INITIALLY DISCOVERED THIS CONDITION WERE PERFORMING A VALVE
 LINE-UP VERIFICATION PROCEDURE AND DID NOT RECOGNIZE THIS CONDITION AS AFFECTING
 VALVE OPERABILITY. THIS CONDITION IS REPORTED PURSUANT TO 10CFR50.73 (A)(2)(I),
 AS A CONDITION PROHIBITED BY RIVER BEND STATION TECHNICAL SPECIFICATION 3.6.4
 BECAUSE THE VALVE WAS INOPERABLE FOR A TIME GREATER THAN ALLOWED BY TECHNICAL
 SPECIFICATIONS. THE AFFECTED PENETRATION (FOR THE REACTOR CORE ISOLATION COOLING
 TURBINE EXHAUST VACUUM BREAKER LINE) WAS DECLARED INOPERABLE ON 5/3/88, THE LINE
 WAS ISOLATED, AND VALVE LE51*MOVFP078 WAS REPAIRED AND RESTORED TO OPERABLE
 STATUS. ALL OPERATIONS PERSONNEL WILL BE INSTRUCTED ON THIS OCCURRENCE VIA
 MEMORANDUM. THIS EVENT WILL BE ADDRESSED IN A FUTURE OPERATOR REQUALIFICATION
 TRAINING MODULE.

[211] RIVERBEND 1 DOCKET 50-458 LER 88-012
 CONCRETE ROOF PLUGS FORMING PART OF SECONDARY CONTAINMENT BOUNDARY MISSING
 RETENTION HARDWARE.
 EVENT DATE: 051788 REPORT DATE: 061688 NSSS: GE TYPE: BWR

(NSIC 209668) AT APPROX. 1610 ON 5/17/88 WITH THE UNIT AT APPROX. 100 PERCENT
 POWER, A MAINTENANCE WORK ORDER REQUEST (MWOR) WAS IDENTIFIED (ORIGINALLY
 INITIATED ON 1/13/88) THAT IDENTIFIED THE CONDITION OF INADEQUATE INSTALLATION OF
 CONCRETE ROOF PLUGS ON THE ROOF OF THE AUXILIARY BUILDING DUE TO MISSING
 RETENTION HARDWARE. THE RETENTION HARDWARE IS REQUIRED BY DESIGN AGAINST
 UPLIFTING OF THE PLUGS DURING TORNADIC LOADINGS. THESE PLUGS FORM PART OF THE
 SECONDARY CONTAINMENT BOUNDARY AND ARE REQUIRED TO BE OPERABLE DURING OPERATIONAL
 CONDITIONS 1, 2, AND 3 BY RIVER BEND STATION TECHNICAL SPECIFICATION 3.6.5.1.
 THIS CONDITION IS BEING REPORTED PURSUANT TO 10CFR50.73(A)(2)(I) AS A CONDITION
 OF OPERATION PROHIBITED BY TECHNICAL SPECIFICATIONS. THE IMMEDIATE CONDITION WAS
 CORRECTED BY INSTALLING ADEQUATE RETENTION HARDWARE. OTHER CORRECTIVE ACTION
 INCLUDES A REVIEW OF A SAMPLE OF OTHER ROOF PLUGS ON THE AUXILIARY BUILDING FOR
 SIMILAR CONDITIONS AND INSTRUCTION ON THE OCCURRENCE VIA MEMORANDUM FOR ALL
 PERSONNEL IN THE MAINTENANCE AND OPERATIONS DEPARTMENTS. SECONDARY CONTAINMENT
 WAS NOT FUNCTIONALLY COMPROMISED BY THIS CONDITION DURING NORMAL OPERATION DURING
 THIS PERIOD. WITH A LOW PROBABILITY OF A TORNADIC EVENT OCCURRING AND NO SUCH
 EVENT OCCURRING DURING OPERATIONS, THE SAFE OPERATION AND HEALTH AND SAFETY OF
 THE PUBLIC WAS NOT SIGNIFICANTLY JEOPARDIZED.

[212] ROBINSON 2 DOCKET 50-261 LER 88-010
 AUTOMATIC REACTOR TRIP DUE TO TURBINE TRIP ON GOVERNOR VALVES CLOSURE.
 EVENT DATE: 050288 REPORT DATE: 052588 NSSS: WE TYPE: PWR
 VENDOR: WESTINGHOUSE ELECTRIC CORP.

(NSIC 209383) ON MONDAY, MAY 2, 1988, THE PLANT WAS PLACED ON LINE AT 0852 HOURS
 FOLLOWING A FORCED OUTAGE FOR REPAIR OF A RTD BYPASS VALVE PACKING GLAND LEAK.
 AT 1756 HOURS, WITH THE REACTOR AT 60% POWER THE LICENSED CONTROL OPERATOR
 ATTEMPTED TO ADJUST LOAD SWINGS ON THE TURBINE USING THE ELECTRO-HYDRAULIC (E-H)
 CONTROL PANEL. THE E-H CONTROLS SYSTEM MALFUNCTIONED CAUSING THE FOUR TURBINE
 GOVERNOR VALVES TO SHUT. AT 1758 HOURS, THE TURBINE TRIPPED FROM A MAIN
 GENERATOR LOCKOUT WHICH RESULTED IN A REACTOR TRIP FROM THE REACTOR/TURBINE TRIP
 LOGIC (I.E., TURBINE TRIP WITH REACTOR POWER GREATER THAN 10%). 11 SYSTEMS

RESPONDED NORMALLY AND THE REACTOR WAS BROUGHT TO HOT SHUTDOWN. THE E-H MALFUNCTION WAS CAUSED BY AN INTERMITTENT FAILURE OF A CLOCK CIRCUIT AND A LOOSE CONNECTION IN THE GOVERNOR VALVE POSITION LIMITER CIRCUITRY. THE DEFECTS IN THE E-H SYSTEM HAVE BEEN REPAIRED AND THE SYSTEM HAS BEEN FULLY TESTED BY THE MANUFACTURER'S TECHNICAL REPRESENTATIVE USING A SIMULATOR TO ENSURE THE REPAIRS WERE EFFECTIVE. THE LICENSEE NOTIFIED THE NRC EMERGENCY OPERATIONS CENTER VIA THE EMERGENCY NOTIFICATION SYSTEM PURSUANT TO 10CFR50.72(B)(2)(II) FOR A FOUR-HOUR NON-EMERGENCY EVENT. THIS REPORT IS SUBMITTED PURSUANT TO 10CFR50.73(A)(2)(IV).

[213] ROBINSON 2 DOCKET 50-261 LER 88-002 REV 01
 UPDATE ON POTENTIAL FOR UNANALYZED REACTOR OPERATION DUE TO TRIP SETPOINT
 CALCULATION INACCURACY.
 EVENT DATE: 050688 REPORT DATE: 060688 NSSS: WE TYPE: PWR
 VENDOR: EXXON NUCLEAR CO., INC.

(NSIC 209520) IT WAS DETERMINED JANUARY 1988 THAT A NONCONSERVATIVE OVER TEMPERATURE DELTA TEMPERATURE TRIP SETPOINT MAY EXIST IN THE PLANT TECHNICAL SPECIFICATIONS. THIS SETPOINT WAS QUESTIONED IN DECEMBER 1987 WHEN REVIEWING THE RESISTANCE TEMPERATURE DETECTION DELAY RESPONSE TIME OF THE PLANT FINAL SAFETY ANALYSIS REPORT (FSAR). THE LICENSEE CONSIDER THAT AN UNANALYZED CONDITION MAY EXIST AND DIRECTED THE SETPOINT BE REVISED. THE NRC WAS NOTIFIED OF THE POTENTIAL UNANALYZED CONDITION. IN FEBRUARY, THE NRC WAS NOTIFIED THE CONDITION WAS BOUND BY EXISTING ANALYSES. IN MAY, THE NUCLEAR FUEL VENDOR NOTIFIED AN INACCURATE RECALCULATION OF MINIMUM DEPARTURE FROM NUCLEATE BOILING THE LICENSEE CP RATIO WHICH MADE INVALID AN ORIGINAL CONCLUSION. THE INACCURACY WAS DUE TO A FAILURE THE VENDOR TO CORRECT " GIVEN VALUE. THE NRC WAS NOTIFIED-PURSUANT TO 10CFR50.72(B)(1)(II)(A). THE FUEL VENDOR WILL IMPLEMENT STEPS TO MINIMIZE THE LIKELIHOOD OF A RECURRENCE. THE REVISED SETPOINT WILL BE REFLECTED IN A CHANGE TO THE TECHNICAL SPECIFICATIONS. THE FSAR WILL BE REVISED. THE LICENSEE WILL CONTINUE TO RESEARCH HISTORICAL RECORDS TO DETERMINE WHETHER THE REACTOR HAS BEEN OPERATED IN AN UNANALYZED CONDITION. THIS LER IS SUBMITTED UNDER 10CFR50.73(A)(2)(II).

[214] ROBINSON 2 DOCKET 50-261 LER 88-011
 AUTOMATIC REACTOR TRIP DUE TO TURBINE TRIP FROM TURBINE OVERSPEED PROTECTION.
 EVENT DATE: 051288 REPORT DATE: 061188 NSSS: WE TYPE: PWR
 VENDOR: WESTINGHOUSE ELECTRIC CORP.

(NSIC 209521) ON MAY 12, 1988, AT 1129 HOURS, WITH THE REACTOR AT 60 PERCENT POWER, THE PLANT EXPERIENCED AN AUTOMATIC TURBINE TRIP/REACTOR TRIP WHILE SURVILLANCE TESTING OF THE TURBINE REDUNDANT OVERSPEED TRIP SYSTEM (TROTS) WAS IN PROGRESS. THE TURBINE TRIP WAS CAUSED BY A 2/3 TROTS LOGIC. MAINTENANCE HAD PLACED ONE TROTS CHANNEL IN TEST WHEN A SECOND CHANNEL SPURIOUSLY ACTUATED DUE TO DEGRADED INSULATION ON ITS SPEED PROBE. THE INSULATION HAS BEEN REPAIRED AND THE SPEED PROBE REPLACED. THE NRC WAS NOTIFIED OF THE TRIP PURSUANT TO 10CFR50.72(B)(2)(II). SUBSEQUENTLY, THE LICENSEE FOUND THAT THE PERIODIC TROTS FUNCTIONAL TEST AND CALIBRATION PROCEDURES REQUIRED BY TECHNICAL SPECIFICATION TABLE 4.1-1 ITEM 28 HAD OMITTED THE TROTS SOLENOID VALVES ON THE TURBINE TOP AND CONTROL VALVES. THE SOLENOID VALVES WERE FUNCTIONALLY TESTED ON MAY 14, 1988, AND WILL BE TESTED ON A MONTHLY BASIS. ELIMINATION OF THE TROTS IS UNDER EVALUATION. THE REACTOR WAS RETURNED TO POWER OPERATION AT 0144 HOURS, MAY 15, 1988. THIS LER IS SUBMITTED PURSUANT TO 10CFR50.73(A)(2)(IV).

[215] ROBINSON 2 DOCKET 50-261 LER 88-013
 SURVEILLANCE TEST EXCEEDED TECH SPEC TEST INTERVAL.
 EVENT DATE: 051688 REPORT DATE: 061588 NSSS: WE TYPE: PWR

(NSIC 209601) ON MAY 16, 1988, UNIT 2 WAS OPERATING AT 60 PERCENT POWER. THE LICENSEE QUALITY ASSURANCE PERSONNEL IDENTIFIED THAT A MONTHLY OPERATION SURVEILLANCE TEST HAD EXCEEDED THE PLANT TECH SPEC SECTION 4.0 SURVEILLANCE INTERVAL OF 31 DAYS PLUS 25% BY APPROXIMATELY 14.5 HOURS. A PORTION OF THE TEST REQUIRED A CONTAINMENT VESSEL (CV) ENTRY BE MADE. THE TEST WAS STARTED WEDNESDAY, JANUARY 6, ON THE 1900-0700 SHIFT AND WAS COMPLETED WITH THE EXCEPTION OF THE CV PORTION. IT WAS DECIDED THAT, BECAUSE OF PERSONNEL RADIATION EXPOSURE REDUCTION CONCERNS, THE CV PORTION WOULD BE COMPLETED ON THE FOLLOWING MONDAY WHEN THE NEXT CV ENTRY WAS SCHEDULED. THE SURVEILLANCE TEST TRACKING MECHANISM DID NOT ALERT LICENSEE OPERATIONS PERSONNEL THAT THE PLUS 25% ALLOWED BY THE PLANT TECH SPECS WOULD BE EXCEEDED BY THIS DELAY. THE LICENSEE OPERATIONS SECTION IS PRESENTLY REVISING THE OPERATIONS MANAGEMENT PROCEDURE TO STRENGTHEN SURVEILLANCE TEST SCHEDULING AND TRACKING TO PREVENT RECURRENCE. THIS LER IS SUBMITTED PURSUANT TO 10CFR50.73(A)(2)(I).

[216] SALEM 1 DOCKET 50-272 LER 88-011
 MISSED TECHNICAL SPECIFICATION SURVEILLANCE DUE TO PERSONNEL ERROR.
 EVENT DATE: 051788 REPORT DATE: 061488 NSSS: WE TYPE: PWR

(NSIC 209608) ON MAY 17, 1988 IT WAS DISCOVERED THAT THE MONTHLY TECH SPEC SURVEILLANCE 4.0.5 FOR APRIL HAD NOT BEEN PERFORMED FOR VALVE 12SW39 (1B DIESEL GENERATOR COOLING SERVICE WATER VENT VALVE). WHEN A VALVE SURVEILLANCE STROKE TIME IS GREATER THAN 25% OF THE LAST SURVEILLANCE STROKE TIME, THE SURVEILLANCE FREQUENCY IS REQUIRED TO BE INCREASED FROM QUARTERLY TO MONTHLY. THIS WAS THE CASE WITH VALVE 12SW39. THE MARCH 1988 SURVEILLANCE WAS GREATER THAN 25% FROM THE PRIOR SURVEILLANCE, ALTHOUGH STILL ACCEPTABLE, REQUIRING AN INCREASE OF THE SURVEILLANCE FREQUENCY. THE ROOT CAUSE OF THIS EVENT HAS BEEN ATTRIBUTED TO PERSONNEL ERROR. THE SURVEILLANCE CHECK-OFF-SHEETS HAD BEEN MISFILED. THE VALVE SURVEILLANCE WAS SUBSEQUENTLY COMPLETED. A COMPLETE REVIEW OF THE OPERATIONS DEPARTMENT "CURRENT COPY" SURVEILLANCE FILES WAS PERFORMED. NO OTHER MISFILED SURVEILLANCE WERE FOUND. ADDITIONAL CORRECTIVE ACTION INCLUDES A PROGRAMMATIC REVIEW TO DETERMINE PROGRAMMATIC IMPROVEMENTS WHICH WILL ENSURE NO RECURRENCE OF THIS TYPE OF MISSED SURVEILLANCE AND TRADITIONAL (PRIOR TO MMIS COMPUTERIZED TRACKING) MANUAL MECHANISMS FOR TRACKING OPERATIONS DEPARTMENT SURVEILLANCES WILL BE IMPLEMENTED UNTIL COMPLETION OF THE REVIEW WITH THE IMPLEMENTATION OF APPLICABLE RECOMMENDATIONS.

[217] SALEM 1 DOCKET 50-272 LER 88-010
 POTENTIAL LOSS OF D/G AREAS VENTILATION DUE TO SEISMIC CONCERN DUE TO INADEQUATE DESIGN REVIEW.
 EVENT DATE: 051988 REPORT DATE: 053188 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SALEM 2 (PWR)

(NSIC 209509) ON MAY 19, 1988 IT WAS IDENTIFIED THAT THE SALEM UNIT 1 AND UNIT 2 DIESEL GENERATOR (D/G) AREA CARDOX FIRE SUPPRESSION SYSTEM (EQ) PE RELAY MAY NOT BE CLASS 1E SEISMICALLY QUALIFIED. THE FAILURE OF THE PE RELAY COULD RESULT IN THE LOSS OF THE D/G AREA VENTILATION SYSTEM (VJ). THIS WAS DISCOVERED DURING THE PREPARATION OF A DESIGN CHANGE PACKAGE ASSOCIATED WITH THE D/G AREA CARDOX SYSTEM CONTROLS. THE ROOT CAUSE OF THIS EVENT HAS BEEN ATTRIBUTED TO INADEQUATE DESIGN. THE D/G AREA CARDOX SYSTEM HAS EXISTED FOR THE LIFE OF THE PLANT WITH MINIMAL CHANGE. THE SEISMIC QUALIFICATION OF THE CARDOX SYSTEM PE RELAY WAS NOT CONSIDERED WHEN IT WAS ORIGINALLY DESIGNED. PROCEDURAL MODIFICATIONS HAVE BEEN MADE TO PROVIDE OPERATIONS PERSONNEL WITH INSTRUCTIONS TO RESET THE RELAY AFTER A SEISMIC EVENT. THEY WILL BE TRAINED ON THE EXACT PHYSICAL LOCATION OF THE RELAY AND HOW TO RESET IT. UNTIL THE OPERATORS ARE TRAINED, SITE PROTECTION DEPARTMENT PERSONNEL ARE AVAILABLE TO RESET THE RELAY. SITE PROTECTION HAS AN EXISTING PROCEDURE WHICH ADDRESSES THIS RELAY. A DESIGN CHANGE WILL BE DEVELOPED TO ELIMINATE THE SEISMIC CONCERN ASSOCIATED WITH THE PE RELAY.

[218] SALEM 2 DOCKET 50-311 LER 88-007
 REACTOR TRIP DURING STARTUP DUE TO ELECTRO-HYDRAULIC CONTROL EQUIPMENT PROBLEMS.
 EVENT DATE: 042288 REPORT DATE: 052088 NSSS: WE TYPE: PWR

(NSIC 209459) ON APRIL 22, 1988 AT 1418 HOURS, A TURBINE TRIP OCCURRED AS A RESULT OF NO. 23 STEAM GENERATOR (S/G) HIGH-HIGH LEVEL (67%). FOLLOWING THE TURBINE TRIP, A REACTOR TRIP OCCURRED DUE TO THE PLANT BEING ABOVE 10% POWER (PERMISSIVE P-7). A REVIEW OF THE EVENT REVEALED THAT JUST PRIOR TO THE TURBINE TRIP REACTOR POWER INCREASED FROM APPROXIMATELY 12% TO 18%. THIS POWER INCREASE APPARENTLY CAUSED LEVEL IN NO. 23 S/G TO INCREASE (SWELL) RAPIDLY PEAKING AT APPROXIMATELY 67%. THE APPARENT CAUSE OF THIS EVENT HAS BEEN ATTRIBUTED TO ELECTRO-HYDRAULIC CONTROL (EHC) EQUIPMENT PROBLEMS. THE EHC RATE AMPLIFIER CARD WAS REPLACED AND THE EHC WAS SUCCESSFULLY TESTED. OPERATIONS MANAGEMENT HAS REVIEWED THIS EVENT. DISCUSSIONS WITH THE INDIVIDUALS INVOLVED HAVE BEEN COMPLETED. OPERATING DEPARTMENT PROCEDURES WILL BE REVIEWED TO ENSURE APPROPRIATE GUIDANCE IS PROVIDED FOR EHC OPERATION. ENGINEERING INVESTIGATIONS OF THE EHC CONTROL CONCERNS DURING PLANT STARTUP ARE CONTINUING. A LICENSE CHANGE REQUEST (NO. 87-09) HAS BEEN SUBMITTED TO THE NRC MODIFYING THE LOGIC FOR A REACTOR TRIP SUBSEQUENT TO A TURBINE TRIP. PRESENTLY, A TURBINE TRIP/REACTOR TRIP WILL OCCUR WHEN REACTOR POWER IS GREATER THAN OR EQUAL TO 10% (P-7). THE CHANGE WILL REQUIRE A TURBINE TRIP/REACTOR TRIP TO OCCUR WHEN REACTOR POWER IS GREATER THAN OR EQUAL TO 50% (P-9).

[219] SALEM 2 DOCKET 50-311 LER 88-008
 SURVEILLANCE OF FIRE PROTECTION SURVEILLANCE VALVE MISSED DUE TO PERSONNEL ERROR.
 EVENT DATE: 042688 REPORT DATE: 052588 NSSS: WE TYPE: PWR

(NSIC 209460) ON APRIL 26, 1988 IT WAS DISCOVERED THAT VALVE 2FP147 (FIRE PROTECTION CONTAINMENT ISOLATION VALVE) WAS NOT SURVEILLED ON FEBRUARY 10, 1988, AS REQUIRED BY TECH SPEC SURVEILLANCE 4.0.5. THIS SURVEILLANCE IS REQUIRED TO BE PERFORMED EVERY 92 DAYS. THE APPARENT CAUSE OF THIS EVENT HAS BEEN ATTRIBUTED TO PERSONNEL ERROR. THIS EVENT HAS BEEN REVIEWED BY OPERATIONS DEPARTMENT MANAGEMENT. APPROPRIATE CORRECTIVE DISCIPLINARY ACTION HAS BEEN TAKEN WITH THE INDIVIDUAL(S) INVOLVED. ADDITIONALLY, THIS EVENT WILL BE REVIEWED WITH OPERATIONS DEPARTMENT PERSONNEL. THE NEED TO MAINTAIN ATTENTION TO DETAIL WILL BE STRESSED. THE PROCEDURE HAS BEEN REVISED TO ADDRESS A REQUIREMENT TO SURVEILL THE 2FP147 VALVE AND THE 2FP148 CHECK VALVE AT THE SAME TIME THEREBY REQUIRING DELUGE ISOLATION ONLY ONCE.

[220] SALEM 2 DOCKET 50-311 LER 88-010
 LACK OF BACKUP OVERCURRENT PROTECTION FOR 37 ELECTRICAL CIRCUITS PENETRATING CONTAINMENT DUE TO INADEQUATE DESIGN REVIEW.
 EVENT DATE: 050988 REPORT DATE: 060888 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SALEM 1 (PWR)

(NSIC 209529) ON 5/9/88 AT 1500 HOURS, IT WAS IDENTIFIED THAT FOR 37 ELECTRICAL CIRCUITS PENETRATING CONTAINMENT, THE BACKUP OVERCURRENT PROTECTION DEVICE WOULD NOT OPERATE IN SUFFICIENT TIME TO PRECLUDE THERMAL DAMAGE TO THE PENETRATION ASSEMBLY IN THE EVENT OF A FAILURE OF THE PRIMARY DEVICE. SUBSEQUENTLY, TECH SPEC 3.8.3.1 WAS ENTERED. THIS WAS DISCOVERED AS PART OF THE SALEM STATION ELECTRICAL DISTRIBUTION SYSTEM DESIGN BASIS REVIEW. THE ROOT CAUSE OF THIS EVENT IS ATTRIBUTED TO INADEQUATE DESIGN REVIEW. CORRECTIVE ACTIONS INCLUDE PREPARATION OF A DETAILED CALCULATION FOR CONTAINMENT ELECTRICAL PENETRATION OVERCURRENT PROTECTION. A COMPLETE REVIEW OF THE BALANCE OF THE CIRCUITS PENETRATING CONTAINMENT BUT NOT LISTED IN THE TECHNICAL SPECIFICATIONS HAS BEEN INITIATED. THE SALEM UNIT 2 CIRCUITS WILL BE ANALYZED AND NECESSARY MODIFICATIONS WILL BE COMPLETED PRIOR TO RETURNING THE UNIT TO SERVICE FOLLOWING THE UPCOMING REFUELING OUTAGE. FIVE OF THE AFFECTED CIRCUITS, ESSENTIAL TO CONTINUED OPERATION OF THE UNIT, HAVE BEEN MODIFIED BY INSTALLATION OF AN ADDITIONAL OVERCURRENT PROTECTION

DEVICE IN SERIES WITH THE EXISTING PRIMARY OVERCURRENT PROTECTION DEVICE. ALTHOUGH NOT PART OF THE SALEM UNIT 1 DESIGN BASIS, PSE&G WILL CONDUCT A SIMILAR EVALUATION OF THE SALEM UNIT 1 CIRCUITS AND COMPLETE ANY REQUIRED MODIFICATION PRIOR TO RETURNING THE UNIT TO SERVICE.

[221] SALEM 2 DOCKET 50-311 LER 88-009
 REACTOR TRIP FROM 97% POWER DUE TO CONTROL ROD DROPPED.
 EVENT DATE: 051388 REPORT DATE: 053188 NSSS: WE TYPE: PWR

(NSIC 209499) ON MAY 13, 1988 AT 2349 HOURS, A REACTOR TRIP OCCURRED. THE FIRST OUT INDICATION WAS "POWER RANGE NEGATIVE FLUX TRIP." AT THE TIME OF THE TRIP, REACTOR POWER WAS BEING REDUCED TO BETWEEN 85% AND 90%, VIA ROD INSERTION, TO SUPPORT PERFORMANCE OF TECH SPEC SURVEILLANCE 4.3.4.2. INVESTIGATIONS REVEALED IT IS HIGHLY PROBABLE THAT CONTROL ROD NO. 1D3 HA) DROPPED RESULTING IN THE NEGATIVE RATE TRIP. TESTING TO DETERMINE WHY THE CONTROL ROD DROPPED WAS TRIP. TESTING TO DETERMINE WHY THE CONTROL ROD DROPPED WAS INCONCLUSIVE. THE 21SD POWER CABINET ALARM CIRCUITRY CARD WAS REPLACED. THE UNIT WAS RETURNED TO SERVICE ON MAY 15, 1988. NO FURTHER PROBLEMS OR CONCERNS ASSOCIATED WITH THE CONTROL RODS HAVE BEEN IDENTIFIED.

[222] SALEM 2 DOCKET 50-311 LER 88-011
 TECHNICAL SPECIFICATION SURVEILLANCE 4.7.10.1.C PERFORMED LATE DUE TO INADEQUATE COMMUNICATION.
 EVENT DATE: 052388 REPORT DATE: 061488 NSSS: WE TYPE: PWR

(NSIC 209623) ON MAY 23, 1988 IT WAS IDENTIFIED THAT TECHNICAL SPECIFICATION SURVEILLANCE 4.7.10.1.C WAS LATE. IT WAS REQUIRED TO BE PERFORMED NO LATER THAN MAY 22, 1988. THE SURVEILLANCE WAS SUCCESSFULLY COMPLETED ON MAY 23, 1988. THE ROOT CAUSE OF THIS EVENT HAS BEEN ATTRIBUTED TO INADEQUATE COMMUNICATIONS BETWEEN NUCLEAR FIRE AND SAFETY DEPARTMENT (NFSD) SUPERVISION AND NFSD MANAGEMENT AND/OR STATION MANAGEMENT. THE NFSD SUPERVISOR(S) INVOLVED IN THIS EVENT HAVE BEEN COUNSELED BY NFSD MANAGEMENT. NFSD MANAGEMENT HAS REVIEWED THIS EVENT WITH NFSD DEPARTMENTAL SUPERVISION STRESSING THE IMPORTANCE OF ADEQUATE COMMUNICATIONS WITHIN THE DEPARTMENT AND WITH OTHER DEPARTMENTS. ADDITIONAL SALEM STATION MANAGEMENT WILL ISSUE A LETTER TO STATION SUPERVISION ADDRESSING THIS EVENT BY JUNE 17, 1988. THE IMPORTANCE OF ADEQUATE COMMUNICATIONS WILL BE STRESSED.

[223] SAN ONOFRE 1 DOCKET 50-206 LER 88-008
 INADVERTENT OMISSION OF SAFETY INJECTION VENT VALVES FROM LOCAL LEAK RATE TESTING (LLRT) PROGRAM.
 EVENT DATE: 052488 REPORT DATE: 062388 NSSS: WE TYPE: PWR

(NSIC 209701) ON 5/24/88, WITH UNIT 1 IN MODE 5, IT WAS DETERMINED THAT, CONTRARY TO TECHNICAL SPECIFICATION 4.3.1.III, CONTAINMENT ISOLATION VALVE LEAKAGE RATE TESTS (TYPE C), THE CONTAINMENT ISOLATION VALVES ASSOCIATED WITH PENETRATION E15 (SV-702A, B, C, AND D), WHICH ARE USED TO VENT SAFETY INJECTION SYSTEM (SIS) LOOP B AND C INJECTION LINES, HAD BEEN OMITTED FROM THE TYPE C LOCAL LEAKAGE RATE TEST (LLRT) PROGRAM SINCE THE VALVES WERE INSTALLED IN 1974. THE INDIVIDUALS WHO INITIALLY EVALUATED UNIT 1 FOR COMPLIANCE WITH APPENDIX J (WHICH IS DESCRIBED IN SCE'S APRIL 1976 SUBMITTAL REGARDING THE SUBJECT) DID NOT ADEQUATELY REVIEW ALL DESIGN DISCLOSURE DOCUMENTS TO ENSURE THAT ALL PENETRATIONS WERE PROPERLY CONSIDERED FOR LEAK RATE TESTING. LEAKAGE TESTS HAVE RECENTLY BEEN PERFORMED ON SV-702A, B, C, AND D. THE MEASURED LEAKAGE WAS MINOR AND ITS CONTRIBUTION TO TOTAL CONTAINMENT LEAKAGE WAS MINIMAL. A DESIGN CHANGE WILL BE IMPLEMENTED DURING THE CYCLE 10 REFUELING OUTAGE TO PROVIDE LLRT TEST CONNECTIONS FOR PENETRATION E15, AND THE VALVES WILL BE ADDED TO THE LLRT PROGRAM. THE LLRT PROGRAM WILL BE REVIEWED TO ENSURE THAT ALL PENETRATIONS WHICH ARE SUBJECT TO TYPE C TESTING ARE INCLUDED. THE ROOT CAUSE EVALUATION OF THIS CONDITION IS

CONTINUING. WHEN THIS EVALUATION IS COMPLETE, THIS LER WILL BE REVISED TO ADDRESS THE FINDINGS AND THE RESULTING CORRECTIVE ACTIONS.

[224] SAN ONOPRE 1 DOCKET 50-206 LER 88-009
 POTENTIAL DIESEL GENERATOR LOADS IN EXCESS OF TECHNICAL SPECIFICATION REQUIREMENTS.
 EVENT DATE: 052688 REPORT DATE: 062788 NSSS: WE TYPE: PWR
 VENDOR: TRANSAMERICA DELAVAL

(NSIC 209702) ON MAY 26, 1988, AT 1500, WITH UNIT 1 IN MODE 5, IT WAS DETERMINED THAT THE MAXIMUM ELECTRICAL LOAD, WHICH COULD BE IMPOSED ON THE UNIT 1 EMERGENCY DIESEL GENERATORS (DG-1 AND DG-2), WAS IN EXCESS OF THE TECHNICAL SPECIFICATION 4.4 LIMIT OF 4,725 KILOWATTS (KW) FOR EACH DG. SUBSEQUENT EVALUATION DETERMINED THAT THE MAXIMUM LOADING ON DG-1 AND DG-2 WAS APPROXIMATELY 5,150 KW AND 5,020 KW, RESPECTIVELY. LOADS IN EXCESS OF 4,725 KW COULD OCCUR DURING THE EARLY STAGES OF POSTULATED EVENTS WHICH REQUIRE INJECTION OF BORATED WATER FROM THE REFUELING WATER STORAGE TANK (RWST) INTO THE REACTOR COOLANT SYSTEM. THE MAXIMUM TIME DURING WHICH ELECTRICAL LOADS ON D.S WOULD EXCEED 4,725 KW IS LESS THAN 30 MINUTES DURING A LOSS OF COOLANT ACCIDENT CONCURRENT WITH A LOSS OF OFF-SITE POWER. THESE POTENTIAL OVERLOAD CONDITIONS WERE DUE TO CALCULATION ERRORS AND AN INADEQUATE UNDERSTANDING OF LOADS ON THE DG'S AND THE BASES FOR THOSE LOADS. THE ROOT CAUSE IS STILL BEING INVESTIGATED AND WILL BE ADDRESSED IN A REVISION TO THIS LER. AS IMMEDIATE CORRECTIVE ACTION, MEMBERS OF THE RESPONSIBLE ORGANIZATION HAVE: (1) REVIEWED THIS EVENT AND (2) RECEIVED TRAINING IN PROPER METHODOLOGY AND APPLICATION OF DESIGN RELATED PROCEDURAL REQUIREMENTS. ADDITIONALLY, BASELINE CALCULATIONS HAVE BEEN DEVELOPED AND METHODS FOR MATCHING THE DG LOADS WITH TS LIMITATIONS ARE BEING EVALUATED.

[225] SAN ONOPRE 2 DOCKET 50-361 LER 88-009
 SPURIOUS TRAIN 'B' TOXIC GAS ISOLATION SYSTEM ACTUATION ON HIGH CHLORINE LEVEL.
 EVENT DATE: 042988 REPORT DATE: 052788 NSSS: CE TYPE: PWR
 OTHER UNITS INVOLVED: SAN ONOPRE 3 (PWR)
 VENDOR: WALLACE & TIEMAN, INC.

(NSIC 209422) AT 1220 ON 4/28/83, WITH UNIT 2 AND 3 IN MODE 1 AT 100% AND 97% REACTOR POWER, RESPECTIVELY, TRAIN 'B' OF THE TOXIC GAS ISOLATION SYSTEM (TGIS) INITIATED BOTH TRAINS OF THE CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM (CREACUS) ON A HIGH CHLORINE GAS SIGNAL. CREACUS OPERATED IN THE ISOLATION MODE AS DESIGNED FOLLOWING THE ACTUATION, UNTIL IT WAS DETERMINED THAT THE SIGNAL WAS SPURIOUS AND NO CHLORINE GAS WAS PRESENT. THERE IS NO SAFETY SIGNIFICANCE TO THIS EVENT SINCE ALL TGIS AND CREACUS COMPONENTS OPERATED AS DESIGNED. FAILURE OF THE CHLORINE GAS DETECTOR ASSEMBLY, WHICH CAUSED A HIGH CHLORINE GAS LEVEL SIGNAL TO BE GENERATED, IS BELIEVED TO BE THE CAUSE OF THE TGIS TRAIN 'B' ACTUATION. AN INVESTIGATION INTO THE FAILURE OF THE CHLORINE GAS DETECTOR BY SCE HAS BEEN UNABLE TO CONCLUSIVELY IDENTIFY WHAT CAUSED THE ASSEMBLY TO FAIL. THE ASSEMBLY WILL BE SENT TO AN OFFSITE LABORATORY TO UNDERGO FURTHER TESTING IN AN ATTEMPT TO DETERMINE THE FAILURE MECHANISM. A SUPPLEMENTAL LER WILL BE SUBMITTED UPON COMPLETION OF THIS INVESTIGATION. THE CHLORINE DETECTOR ASSEMBLY WAS REPLACED AND FOLLOWING SUCCESSFUL TESTING, TGIS TRAIN 'B' WAS RETURNED TO SERVICE.

[226] SAN ONOPRE 2 DOCKET 50-361 LER 88-010
 INOPERABILITY OF BOTH EMERGENCY CHILLED WATER SYSTEM TRAINS DUE TO LOW FREON LEVEL.
 EVENT DATE: 050688 REPORT DATE: 060688 NSSS: CE TYPE: PWR
 OTHER UNITS INVOLVED: SAN ONOPRE 3 (PWR)
 VENDOR: CARRIER AIR CONDITIONING CO.

(NSIC 209645) AT 0745 ON MAY 6, 1988, WITH UNIT 2 OPERATING AT 100% POWER AND

UNIT 3 IN COLD SHUTDOWN, TRAIN 'A' OF THE EMERGENCY CHILLED WATER SYSTEM (ECWS) WAS DECLARED INOPERABLE AS A RESULT OF A LOW FREON LEVEL IN EMERGENCY CHILLER ME336. SINCE THE TRAIN 'B' CONTROL ROOM ISOLATION SYSTEM (CRIS) MONITOR (2/3RT-7825) WAS INOPERABLE AT THE TIME, THE OPERATORS ELECTED TO MANUALLY START TRAIN 'B' CONTROL ROOM EMERGENCY AIR CLEANUP SYSTEM, WHICH AUTOMATICALLY STARTED EMERGENCY CHILLER ME335. AT 0800, ME335 TRIPPED ON LOW REFRIGERANT TEMPERATURE, DUE TO LOW FREON LEVEL, THEREBY RENDERING ECWS TRAIN 'B' INOPERABLE. SINCE TECH SPEC 3.7.10 FOR ECWS DOES NOT ADDRESS INOPERABILITY OF BOTH ECWS TRAINS, THIS CONSTITUTED ENTRY INTO TECH SPEC 3.0.3. AT 0859, A POWER REDUCTION COMMENCED. AT 1135, FOLLOWING THE ADDITION OF FREON AND SUCCESSFUL TESTING, ME336 WAS DECLARED OPERABLE AND TECH SPEC 3.0.3 WAS EXITED. THE POWER REDUCTION WAS TERMINATED AT THIS TIME. NO GUIDANCE HAD BEEN PROVIDED BY THE VENDOR OF THE EMERGENCY CHILLERS REGARDING AN ACCEPTABLE FREON RANGE, BECAUSE DESIGN REQUIREMENTS REGARDING ACCEPTABLE FREON LEVELS WERE NOT SPECIFIED, FREON LEVEL REQUIREMENTS WERE NOT ADEQUATELY ADDRESSED IN STATION PROCEDURES. AS CORRECTIVE ACTION, OPERATING GUIDELINES FOR MAINTAINING FREON LEVEL IN THE EMERGENCY CHILLERS HAVE BEEN DEVELOPED. APPROPRIATE PROCEDURES WILL BE REVISED TO INCORPORATE THESE GUIDELINES.

[227] SAN ONOPRE 2 DOCKET 50-361 LER 88-011
 FUEL HANDLING ISOLATION SYSTEM TRAIN 'A' ACTUATION DUE TO FAILURE OF RADIATION MONITOR 2RT-7822 POWER SUPPLY.
 EVENT DATE: 051288 REPORT DATE: 061388 NSSS: CE TYPE: PWR
 VENDOR: INTERNATIONAL RECTIFIER
 MOTOROLA
 NUCLEAR MEASUREMENTS CORP.

(NSIC 209646) ON MAY 12, 1988 AT 1100, WITH UNIT 2 AT 100% REACTOR POWER, THE TRAIN "A" FUEL HANDLING ISOLATION SYSTEM WAS ACTUATED BY RADIATION MONITOR GAS CHANNEL 2RI-7822B1. AFTER THE AIRBORNE ACTIVITY LEVELS IN THE FHB WERE DETERMINED TO BE NORMAL, THIS TRAIN "A" WAS SECURED. THE MONITOR WAS PLACED IN BYPASS AND THE FHB VENTILATION SYSTEM WAS RETURNED TO NORMAL. ALL THIS TRAIN "A" COMPONENTS FUNCTIONED AS DESIGNED. THE REDUNDANT THIS TRAIN "B" REMAINED OPERABLE THROUGHOUT THE EVENT. THE ACTUATION WAS DUE TO LOSS OF POWER IN THE RADIATION MONITOR MODULE RESULTING FROM A FAILURE OF A -15 VDC POWER SUPPLY (COMPONENTS AFFECTED INCLUDED A CAPACITOR, DIODES AND A VOLTAGE REGULATOR). A SPARE MODULE WILL BE MODIFIED TO CONFORM TO THE CURRENT DESIGN FOR THE REASONS DISCUSSED IN LER 88-004, DOCKET NO. 50-362; WHEN THIS MODIFICATION IS COMPLETED, THE SPARE MODULE WILL BE INSTALLED TO REPLACE THE FAILED MODULE. IN ADDITION, THE 2RI-7822B1 MODULE INTERFACING CIRCUITS/COMPONENTS HAVE BEEN TESTED AND DETERMINED TO BE OPERATING SATISFACTORILY. THE SCE ENGINEERING INVESTIGATION TO DETERMINE THE ROOT CAUSE OF THE POWER SUPPLY FAILURE IS CONTINUING. THE MODULE WITH THE FAILED COMPONENTS WILL BE SENT TO AN OFFSITE ELECTRICAL ENGINEERING LABORATORY FOR ANALYSIS.

[228] SAN ONOPRE 3 DOCKET 50-362 LER 87-011 REV 02
 UPDATE ON REACTOR TRIP ON LOW STEAM GENERATOR WATER LEVEL DUE TO INTERMITTENT LOSS OF POWER IN INSTRUMENT BUS.
 EVENT DATE: 062187 REPORT DATE: 060382 NSSS: CE TYPE: PWR
 VENDOR: FOXBORO CO., THE
 PACIFIC SCIENTIFIC COMPANY

(NSIC 209515) ON JUNE 21, 1987 AT 0258, WITH UNIT 3 IN MODE 1 AT 100% POWER, THE REACTOR AUTOMATICALLY TRIPPED ON LOW STEAM GENERATOR (SG) WATER LEVEL. THE LOW SG WATER LEVEL WAS CAUSED BY AN INTERMITTENT LOSS OF POWER IN ONE PHASE OF A 120 VAC NON-1E INSTRUMENT BUS WHICH RESULTED IN THE INABILITY TO CONTROL MAIN FEEDWATER AND THE CONSEQUENT REDUCTION IN SG WATER LEVEL. LEVEL CONTINUED TO DECREASE TO THE LOW LEVEL REACTOR TRIP AND EMERGENCY FEEDWATER ACTUATION SET POINT. FOLLOWING THE REACTOR TRIP, 120 VAC NON-1E POWER RETURNED AND MAIN FEEDWATER FLOW

RESUMED. THE WATER LEVEL IN SG E088 INCREASED FROM THE LOW LEVEL TRIP SET POINT TO ABOVE THE HIGH LEVEL ALARM SET POINT AS OPERATORS WERE IMPLEMENTING THEIR IMMEDIATE POST-TRIP ACTIONS IN ACCORDANCE WITH EMERGENCY OPERATING INSTRUCTIONS (EOIS). THIS RESULTED IN COOLING DOWN OF THE REACTOR COOLANT SYSTEM (RCS) TO BELOW THE SAFETY INJECTION ACTUATION SIGNAL (SIAS) SET POINT. THE 120 VAC POWER MALFUNCTION WAS DETERMINED TO BE DUE TO A LOOSE BOLT CONNECTING THE "B" PHASE OF INSTRUMENT BUS #1 TO THE MAIN BUS BARS OF THE NON-1E UNINTERRUPTABLE POWER SUPPLY (UPS) MAIN DISTRIBUTION SWITCHBOARD, WHICH RESULTED IN INTERMITTENT LOSS OF CIRCUIT CONTINUITY. THIS WAS EVIDENCED BY ARCING AND FITTING AT THE CONNECTION, AND CONFIRMED BY SUBSEQUENT DUPLICATION OF POWER INTERRUPTIONS WHEN THE ASSEMBLY WAS MANUALLY MOVED.

[229] SEQUOYAH 1 DOCKET 50-327 LER 87-050 REV 02
 UPDATE ON THE CONTAINMENT SPRAY PUMPS WILL NOT DELIVER THE DESIGN BASIS FLOW RATE DUE TO A DESIGN DEFICIENCY.
 EVENT DATE: 072387 REPORT DATE: 060288 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SEQUOYAH 2 (PWR)

(NSIC 209507) THIS LER IS BEING REVISED TO PROVIDE CORRECTIVE ACTIONS TO PREVENT RECURRENCE OF THE SUBJECT CONDITION AND TO PROVIDE THE CURRENT STATUS OF CORRECTIVE ACTIONS. ON JULY 23, 1987, WITH UNITS 1 AND 2 IN MODE 5 (0 PERCENT POWER, 4 PSIG, 133 DEGREES F AND 0 PERCENT POWER, ATMOSPHERIC PRESSURE, 134 DEGREES F, RESPECTIVELY), IT WAS DETERMINED THAT THE CONTAINMENT 'SPRAY SYSTEM (CSS) PUMPS COULD NOT DELIVER THE 4,750 GPM FLOW SPECIFIED IN THE SEQUOYAH NUCLEAR PLANT (SN) FINAL SAFETY ANALYSIS REPORT (FSAR) AND ACCIDENT ANALYSIS. DUE TO AN UNDERSIZED FLOW ORIFICE AND A PUMP DISCHARGE PRESSURE ACCEPTANCE CRITERIA WHICH WAS TOO LOW, THE PUMPS MAY ONLY DELIVER A FLOW RATE OF 4,400 GPM AT THE CSS HEADERS. THIS CONDITION WAS DETERMINED TO BE THE RESULT OF A DESIGN DEFICIENCY. DNE COULD NOT LOCATE THE ORIGINAL DESIGN CALCULATION, AND WHEN NEW CALCULATIONS WERE GENERATED, THE EXISTING DESIGN COULD NOT BE JUSTIFIED. TO CORRECT THIS DEFICIENCY, THE FLOW ORIFICE HAS BEEN BORED OUT SUCH THAT ESSENTIALLY, NO ORIFICE WILL REMAIN IN THE CSS LINE. ALSO, A TECHNICAL SPECIFICATION CHANGE HAS BEEN SUBMITTED TO INCREASE THE ACCEPTANCE CRITERIA FOR THE PUMPS' TOTAL DISCHARGE HEAD PRESSURE. EXISTING ANALYSIS INDICATES THAT IF A DESIGN BASIS ACCIDENT OCCURRED, WHICH REQUIRED THE USE OF THE CSS WITH THE REDUCED FLOW RATE, THE MAXIMUM CONTAINMENT PRESSURE WOULD NOT HAVE INCREASED ABOVE THE S/LN.

[230] SEQUOYAH 1 DOCKET 50-327 LER 87-072 REV 02
 UPDATE ON ENGINEERED SAFETY FEATURE EQUIPMENT ROOM COOLERS WERE INADEQUATE FOR HEAT LOADS DUE TO INADEQUATE DESIGN INPUTS INTO DESIGN CALCULATIONS.
 EVENT DATE: 111087 REPORT DATE: 061488 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SEQUOYAH 2 (PWR)
 VENDOR: PORTER, H. K. COMPANY, INC.

(NSIC 209582) THIS LER IS BEING REVISED TO PROVIDE ADDITIONAL INFORMATION RELATING TO THE CORRECTIVE ACTION TVA HAS TAKEN TO ENSURE THAT THE ENGINEERED SAFETY FEATURE (ESF) COOLERS HAVE SUFFICIENT CAPACITY TO REMOVE THE PREDICTED POSTACCIDENT HEAT LOAD AND MAINTAIN AREA/ROOM TEMPERATURES WITHIN THE ENVIRONMENT QUALIFICATION TEMPERATURE PROFILES OF THE PARTICULAR EQUIPMENT. ON 11/10/87, UNITS 1 AND 2 WERE IN MODE 5 (COLD SHUTDOWN) WHEN A POTENTIAL REPORTABLE OCCURRENCE WAS INITIATED WHICH CONCLUDED THAT SEVERAL OF THE ESF COOLERS HAD INSUFFICIENT AIR FLOW TO MAINTAIN AREA TEMPERATURES WITHIN THE ENVIRONMENTAL QUALIFICATION TEMPERATURE PROFILES. THIS DEFICIENCY WAS DISCOVERED THROUGH A CALCULATION REVIEW PROGRAM WHEN IT WAS FOUND THAT IMPROPER DESIGN INPUTS WERE USED IN THE CALCULATIONS, RESULTING IN INADEQUATE COOLER DESIGN PARAMETERS. THE ROOT CAUSE WAS ATTRIBUTED TO THE LACK OF AN ADEQUATE DESIGN CONTROL PROGRAM AT THE TIME THE CALCULATIONS WERE PERFORMED. RECURRENCE OF THE ROOT CAUSE IS PREVENTED THROUGH THE USE OF NUCLEAR ENGINEERING PROCEDURES WHICH WERE NOT

AVAILABLE AT THE TIME THE ORIGINAL CALCULATIONS WERE PERFORMED. CORRECTIVE ACTIONS, WHICH ARE FIELD COMPLETE FOR UNIT 2, INCLUDE INCREASED COOLER AIR FLOW RATES CLEANING OF THE COOLER COILS, AND CHANGES TO FAN MOTORS AND DUCT WORK CONFIGURATION.

[231] SEQUOYAH 1 DOCKET 50-327 LER 87-077 REV 01
 UPDATE ON INADEQUATE DESIGN OF THE CONTAINMENT ISOLATION SYSTEM FOR THE HYDROGEN ANALYZERS COULD RESULT IN BYPASS LEAKAGE FOLLOWING A LOSS OF COOLANT ACCIDENT.
 EVENT DATE: 120787 REPORT DATE: 060788 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SEQUOYAH 2 (PWR)

(NSIC 209552) THIS LER IS BEING REVISED TO DETAILED THE DIFFERENCES IN THE CORRECTIVE ACTION FOR UNITS 1 AND 2. ON 12/7/87, WITH UNITS 1 AND 2 IN MODE 5, A CONDITION WAS IDENTIFIED WHICH COULD HAVE RESULTED IN BYPASS LEAKAGE FOLLOWING A DESIGN BASIS LOCA. THE HYDROGEN ANALYZER SYSTEM (HAS) INSTALLED IN EACH UNIT OF THE SEQUOYAH NUCLEAR PLANT (SN) UTILIZES A SMALL AMOUNT OF CONTROL AIR TO ACT AS A REAGENT GAS. A SAMPLE FROM THE CONTAINMENT ATMOSPHERE IS MIXED WITH THE REAGENT GAS IN THE HYDROGEN ANALYZER MODULE (LOCATED IN THE ANNULUS INSIDE THE REACTOR BUILDING), ANALYZED FOR HYDROGEN CONTENT, AND RETURNED TO CONTAINMENT. DURING THE REVIEW OF AN HAS RELATED ECN, TVA DISCOVERED THAT THE CURRENT HAS DESIGN REPRESENTED A POTENTIAL PATHWAY FOR RADIONUCLIDES TO ESCAPE TO THE ENVIRONMENT. THE HAS ISOLATION VALVES LOCATED INSIDE CONTAINMENT ARE AIR OPERATED VALVES WHICH FAIL IN THE OPEN POSITION. IF A LOCA OCCURRED CONCURRENT WITH A SINGLE FAILURE OF ONE TRAIN OF CONTROL AIR, THE CONTAINMENT PRESSURE WOULD EVENTUALLY EXCEED THE PRESSURE IN THE CONTROL AIR LINE FEEDING REAGENT AIR TO THE HYDROGEN ANALYZER MODULE. RADIONUCLIDES FROM THE CONTAINMENT ATMOSPHERE COULD THEN BE FORCED BACK THROUGH THE CONTROL AIR LINE AND BE RELEASED TO AREAS OF THE AUXILIARY BUILDING NOT COVERED BY THE AUXILIARY BUILDING GAS TREATMENT SYSTEM (ABGTS).

[232] SEQUOYAH 1 DOCKET 50-327 LER 88-019 REV 01
 UPDATE ON REACTOR TRIP SIGNALS GENERATED FROM ELECTROMAGNETIC INTERFERENCE CAUSED BY WELDING MACHINE OPERATED ON HIGH FREQUENCY NEAR SOURCE RANGE NUCLEAR INSTRUMENT CABLING.
 EVENT DATE: 042488 REPORT DATE: 061688 NSSS: WE TYPE: PWR
 VENDOR: WESTINGHOUSE ELECTRIC CORP.

(NSIC 209629) THIS REPORT IS REVISED TO PROVIDE INFORMATION ON CORRECTIVE ACTION TO PREVENT RECURRENCE. ON APRIL 24, 1988, AT 2204 EDT, UNIT 1 WAS IN COLD SHUTDOWN WITH THE REACTOR TRIP BREAKERS OPEN, A REACTOR TRIP SIGNAL WAS GENERATED FROM A SOURCE RANGE (SR) NUCLEAR INSTRUMENT CHANNEL SPIKE. THE REACTOR OPERATOR (RO) ACKNOWLEDGED THE ALARM AND SUBSEQUENTLY CONTACTED MODIFICATIONS PERSONNEL THAT WERE KNOWN TO BE IN CONTAINMENT PERFORMING WELDING TASKS. THE RO HAD SUSPECTED A WELDING MACHINE BEING USED BY MODIFICATIONS PERSONNEL AS THE CAUSE OF THE SR SPIKE. THE WELDING MACHINE WAS OPERATED AT HIGH FREQUENCY AGAIN TO ASCERTAIN THAT IT WAS THE CAUSE OF THE SR SPIKE. UPON DOING SO, A SIMILAR SPIKE AND A REACTOR TRIP SIGNAL WERE GENERATED BY THE SR CHANNEL. ON MAY 2, 1988, AT 2108 EDT WITH UNIT 1 IN COLD SHUTDOWN WITH THE REACTOR TRIP BREAKERS OPEN, ANOTHER REACTOR TRIP SIGNAL WAS GENERATED FROM THE SR CHANNEL. THE RO ACKNOWLEDGED THE ALARM AND THEN CONTACTED MODIFICATIONS PERSONNEL IN THE CONTAINMENT AND IN THE AUXILIARY BUILDING (AB) THAT WERE KNOWN TO BE PERFORMING WELDING TASKS. TROUBLESHOOTING ENSUED ON TWO WELDING MACHINES IN CONTAINMENT AND ONE IN THE AB. ON MAY 4, 1988, THE WELDING MACHINE IN CONTAINMENT WAS IDENTIFIED AS THE SOURCE THAT CAUSED THE SR SPIKE.

[233] SEQUOYAH 1 DOCKET 50-327 LER 88-020
 AN UNANALYZED SINGLE FAILURE COULD CAUSE INADVERTENT ACTUATION OF THE COLD
 OVERPRESSURE PROTECTION SYSTEM DURING A POSTULATED MSLB RESULTING IN OPERATION
 OUTSIDE THE DESIGN BASIS.
 EVENT DATE: 051288 REPORT DATE: 060988 NSSS: VE TYPE: PWR
 OTHER UNITS INVOLVED: SEQUOYAH 2 (PWR)

(NSIC 209559) ON MAY 12, 1988, WITH UNIT 1 IN MODE 5 (COLD SHUTDOWN) AND UNIT 2
 IN MODE 3 (HOT STANDBY), IT WAS DETERMINED THAT THE COLD OVERPRESSURE PROTECTION
 SYSTEM (COPS) COULD ACTUATE DURING A POSTULATED MAIN STEAM LINE BREAK (MSLB)
 ACCIDENT. DURING AN MSLB, THE REACTOR COOLANT SYSTEM (RCS) TEMPERATURE IN THE
 AFFECTED LOOP COULD DECREASE BELOW 350 DEGREES F, THEREBY AUTOMATICALLY ARMING
 ONE TRAIN OF THE COPS. IF A COINCIDENT SINGLE FAILURE OF A SECOND WIDE-RANGE
 TEMPERATURE CHANNEL OCCURRED IN ANOTHER RCS LOOP, THE COPS COULD ACTUATE AND
 CAUSE ONE OR BOTH POWER OPERATED RELIEF VALVES (PORVS) ON THE PRESSURIZER TO
 OPEN. OPENING OF THE PRESSURIZER PORVS WOULD EXACERBATE THE DECREASING RCS
 PRESSURE TRANSIENT ASSOCIATED WITH THE MSLB AND INCREASE THE POTENTIAL FOR
 DEPARTURE FROM NUCLEATE BOILING (DNB) TO OCCUR IN THE CORE. THIS EVENT HAS NOT
 BEEN ANALYZED AS PART OF THE SEQUOYAH NUCLEAR PLANT'S DESIGN BASIS. THE EVENT
 WAS CAUSED BY AN INADEQUATE DESIGN OF COPS. THE AUTOMATIC ARMING FEATURE OF THIS
 SYSTEM WAS DESIGNED TO ENSURE COPS WOULD BE FUNCTIONAL ANY TIME THE RCS
 TEMPERATURE DECREASED BELOW 350 DEGREES F. HOWEVER, THIS DESIGN DID NOT CONSIDER
 THE POTENTIAL CONSEQUENCES OF AN INADVERTENT ACTUATION OF THE COPS AS A RESULT OF
 A CREDIBLE DESIGN BASIS EVENT.

[234] SEQUOYAH 1 DOCKET 50-327 LER 88-021
 IMPROPER VALVE ALIGNMENT CAUSED BY POOR COMMUNICATIONS RESULTS IN A LOSS OF
 REACTOR COOLANT WATER INVENTORY, RHR PUMP CAVITATION, AND LOSS OF RHR COOLING.
 EVENT DATE: 052388 REPORT DATE: 060988 NSSS: WE TYPE: PWR

(NSIC 209630) ON MAY 23, 1988, AT 1215 EDT, WHILE UNIT 1 WAS IN COLD SHUTDOWN
 WITH THE REACTOR COOLANT SYSTEM (RCS) PARTIALLY DRAINED TO SUPPORT MAINTENANCE, A
 LOSS OF THE OPERATING TRAIN OF THE RESIDUAL HEAT REMOVAL (RHR) SYSTEM OCCURRED.
 THE "B" TRAIN OF RHR WAS IN OPERATION WHEN IT WAS DECIDED TO PLACE THE "A" TRAIN
 RHR HEAT EXCHANGER IN SERVICE TO ENHANCE PLANT TEMPERATURE CONTROL. TO PLACE THE
 "A" TRAIN IN SERVICE, AN ASSISTANT UNIT OPERATOR (AUC) WAS DISPATCHED TO OPEN TWO
 VALVES. THE AUC, HOWEVER, MISUNDERSTOOD THE INSTRUCTION AND WROTE DOWN AN
 INCORRECT VALVE NUMBER. THE INCORRECT VALVE WAS A MANUAL VALVE (1-HCV-74-34)
 USED TO ALIGN THE DISCHARGE OF THE RHR PUMPS TO THE REFUELING WATER STORAGE TANK
 (RWST). UPON OPENING VALVE 1-HCV-74-34, THE AUC HEARD UNUSUAL FLOW NOISE AND
 SUBSEQUENTLY TELEPHONED THE CONTROL ROOM (CR) OPERATOR FOR FURTHER INSTRUCTIONS.
 THE ASSISTANT SHIFT OPERATION SUPERVISOR (ASOS) IN THE CR RECEIVED AN RHR MINI
 FLOW ALARM, AND NOTICED RHR PUMP AMPERAGE OSCILLATING, UNSTABLE FLOW INDICATION,
 AND THE INDICATED RCS WATER LEVEL WAS OFF-SCALE LOW. THE ASOS SUBSEQUENTLY
 STOPPED THE "B" TRAIN RHR PUMP AND ENTERED THE APPLICABLE ACTION STATEMENTS OF
 TECH SPECS FOR A LOSS OF RHR. THE RCS WAS THEN REFILLED ABOVE THE TOP OF THE RCS
 LOOPS BY GRAVITY FEED FROM THE RWST VIA THE RHR SYSTEM.

[235] SEQUOYAH 1 DOCKET 50-327 LER 88-022
 REACTOR TRIP SIGNALS GENERATED FROM ELECTROMAGNETIC INTERFERENCE CAUSED BY
 WELDING MACHINE OPERATED NEAR SOURCE RANGE NUCLEAR INSTRUMENT CABLING.
 EVENT DATE: 052488 REPORT DATE: 061688 NSSS: WE TYPE: PWR

(NSIC 209631) ON 5/24/88, AT 0802 EDT, UNIT 1 WAS IN COLD SHUTDOWN WITH REACTOR
 TRIP BREAKERS OPEN, ALL CONTROL RODS FULLY INSERTED, ROD CONTROL SYSTEM INCAPABLE
 OF ROD WITHDRAWAL, AND BOTH SOURCE RANGE CHANNEL (N-31 AND N-32) DETECTORS
 OPERABLE. A REACTOR TRIP SIGNAL WAS GENERATED FROM A SOURCE RANGE NUCLEAR
 INSTRUMENT CHANNEL SPIKE. THE REACTOR TRIP FIRST OUT ANNUNCIATOR ALARM FOR THE
 SOURCE RANGE CHANNEL (N-32) DETECTOR AND A HIGH FLUX AT SHUTDOWN ALARM IN THE

MAIN CONTROL ROOM WERE RECEIVED. THE NR-45 TRACE RECORDER INDICATED CHANNEL N-32 SPIKED FROM 1 COUNTS PER SECOND TO 6E5 CPS. THE REACTOR OPERATOR (RO) ACKNOWLEDGED THE ALARM AND INFORMED THE ASSISTANT SHIFT OPERATIONS SUPERVISOR (ASOS) OF THIS OCCURRENCE. THE ASOS SUSPECTED WELDING ACTIVITIES AS THE CAUSE OF THE SPIKE SINCE HE WAS FAMILIAR WITH THE SOURCE FLANGE HIGH FLUX TRIP SIGNAL THAT HAD OCCURRED ON TWO PREVIOUS OCCASIONS. DURING INVESTIGATION OF THE EVENT, THE WELDER INVOLVED WITH THE WELDING ACTIVITY STATED THAT HE WAS SETTING UP A WELDING MACHINE AT APPROX. 0800 EDT TO WELD AN ATTACHMENT ON A PIPE FOR A WELD JOINT FITUP. THE ROOT CAUSE OF THIS EVENT IS ATTRIBUTED TO THE NOISE SUSCEPTIBILITY OF THE EXISTING SR CHANNEL DESIGN. HARDWARE CHANGES TO THE SOURCE RANGE INSTRUMENTS WILL BE MADE WHEN THE PRESENT WESTINGHOUSE NUCLEAR INSTRUMENTATION SYSTEM IS UPGRADED TO MEET REG. REQUIREMENTS.

[236] SEQUOYAH 2 DOCKET 50-328 LER 88-011 REV #1
 UPDATE ON A SURVEILLANCE REQUIREMENT USED TO VERIFY BORON CONCENTRATION IN THE COLD LEG ACCUMULATORS WAS NOT PERFORMED WITHIN THE APPLICABLE TIMEFRAMES.
 EVENT DATE: 030688 REPORT DATE: 051088 NERS: WE TYPE: PWK

(NSIC 209361) THIS LER IS BEING REVISED TO UPDATE THE CAUSE AND CORRECTIVE ACTION SECTIONS. AT 2030 EST ON MARCH 6, 1988, WITH UNIT 1 IN MODE 5 AND UNIT 2 IN MODE 3, THE UNIT 2 COLD LEG ACCUMULATOR 3 WAS DECLARED INOPERABLE DUE TO THE FAILURE TO PERFORM SURVEILLANCE REQUIREMENT (SR) 4.3.1.1.1.B. THIS SR REQUIRES VERIFICATION OF THE BORON CONCENTRATION OF THE COLD LEG ACCUMULATOR WITHIN SIX HOURS AFTER EACH SOLUTION VOLUME INCREASE OF GREATER THAN OR EQUAL TO ONE PERCENT OF THE TANK'S VOLUME. REACTOR COOLANT SYSTEM (RCS) INVENTORY AT 1600 PSIG WAS LEAKING INTO COLD LEG ACCUMULATOR 3 AT 400 PSIG; THEREFORE, THE ACCUMULATOR HAD TO BE DRAINED PERIODICALLY. AFTER DRAINING THE ACCUMULATOR, THE ACCUMULATOR WAS REFILLING WITH RCS INVENTORY. THE OPERATIONS SHIFT CREWS DID NOT CONSIDER THAT THE INCREASE DUE TO THE RCS LEAK WAS A FILLING OPERATION. HENCE, THE RADIOCHEMISTRY LABORATORY WAS NOT NOTIFIED TO VERIFY THE BORON CONCENTRATION IN COLD LEG ACCUMULATOR 3. THE SR WAS NOT PERFORMED IN ACCORDANCE WITH TECH SPECS. THE COLD LEG ACCUMULATORS ARE DESIGNED TO ENSURE A SUFFICIENT VOLUME OF BORATED WATER WILL BE FORCED IN THE CORE IN THE EVENT OF A LARGE LINE BREAK. AT THE TIME OF THIS EVENT, THE RCS BORON CONCENTRATION WAS ABOVE 2000 PPM.

[237] SEQUOYAH 2 DOCKET 50-328 LER 88-020
 CHECK VALVES USED AS CONTAINMENT ISOLATION VALVES IN A RAW WATER SYSTEM DID NOT PASS LEAK RATE TEST DUE TO IMPROPER APPLICATION OF VALVE USAGE.
 EVENT DATE: 042288 REPORT DATE: 052488 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SEQUOYAH 1 (PWR)
 VENDOR: ATMWOOD & MORRILL CO., INC.

(NSIC 209469) THIS LER IS BEING REPORTED AS A VOLUNTARY REPORT TO INFORM NRC OF A PROBLEM WHICH HAS GENERIC RAMIFICATIONS TO THE REST OF THE INDUSTRY CONCERNING CHECK VALVES BEING USED AS CONTAINMENT ISOLATION VALVES IN RAW WATER SYSTEMS. ON APRIL 22, 1988, AT APPROXIMATELY 0700 EDT WITH UNITS 1 AND 2 IN MODE 5 (0 PERCENT POWER, 4 PSIG, 127 DEGREES F AND 0 PERCENT POWER, ATMOSPHERIC PRESSURE, 115 DEGREES F, RESPECTIVELY), THE ESSENTIAL RAW COOLING WATER (ERCW) CONTAINMENT ISOLATION VALVES (CIVS) 2-67-562A AND 2-67-562C DID NOT PASS THE SURVEILLANCE INSTRUCTION (SI)-158.1, "CONTAINMENT ISOLATION VALVE LEAK RATE TEST," TEST. THESE CIVS ARE CHECK VALVES ON THE INBOARD SIDE OF THE ERCW PIPING TO THE LOWER COMPARTMENT COOLERS GROUPS. THE LEAKAGE MEASURED FROM EACH OF THE VALVES WAS 507.9 STANDARD CUBIC FEET PER HOUR (SCFH). THE ALLOWABLE LEAKAGE FOR ALL THE TESTABLE PENETRATIONS IN ACCORDANCE WITH TECH SPEC 3.6.1.2 IS 135.1 SCFH. THE SUBJECT COMPONENTS WERE CLEANED, AND SI-158.1 WAS REPERFORMED WITH ACCEPTABLE RESULTS. THIS EVENT WAS CAUSED BY SEDIMENT COLLECTING ON THE SEATING SURFACE OF THE SUBJECT VALVES. THIS PREVENTED THE VALVES FROM BACKSEATING AND FORMING A TIGHT SEAL. AN ADDITIONAL ROOT CAUSE OF THE EVENT IS THAT SWING CHECK VALVES ARE NOT EFFECTIVE IN RAW WATER SYSTEMS WHEN LOW LEAKAGE RATES ARE REQUIRED.

[238] SEQUOYAH 2 DOCKET 50-328 LER 88-021
 INCOMPLETE TESTING OF UNIT 2 CONTAINMENT PENETRATION OVERCURRENT PROTECTIVE
 DEVICES BEFORE ENTRY INTO MODE 4 CAUSED BY AN INCORRECT INTERPRETATION OF THE
 TECH SPEC BASES.
 EVENT DATE: 050488 REPORT DATE: 052688 NSSS: WE TYPE: PWR
 VENDOR: GENERAL ELECTRIC CO.
 WESTINGHOUSE ELECTRIC CORP.

(NSIC 209470) ON 5/4/88 AT 1400 EDT WITH UNIT 2 IN COLD SHUTDOWN, IT WAS
 DISCOVERED DURING A QUALITY ASSURANCE REVIEW OF THE 1/9/88 PERFORMANCE OF
 SI-258.2, "TESTING OF MOLDED CASE AND LOWER VOLTAGE CONTAINMENT PENETRATION
 CIRCUIT BREAKERS," THAT ITS PERFORMANCE DID NOT COMPLETELY SATISFY SURVEILLANCE
 REQUIREMENTS 4.8.3.1.A.2. DURING THIS PERFORMANCE, THREE OF THE BREAKERS SELECTED
 FOR FUNCTIONAL TESTING WERE UNIT 1 CONTAINMENT PENETRATION CIRCUIT BREAKERS IN
 LIEU OF UNIT 2 BREAKERS. A COMPUTER SELECTED BREAKERS FOR TESTING BASED ON
 MANUFACTURER, TYPE, AND PREVIOUS FUNCTIONAL TEST DATE. THE COMPUTER PROGRAM DATA
 BASE WAS, HOWEVER, INCORRECT BECAUSE IT INCLUDED SOME UNIT 1 BREAKERS. THIS WAS
 CAUSED BY A FOOTNOTE THAT REFERENCES BREAKERS THAT ARE "COMMON TO BOTH UNIT 1 AND
 2" IN SI-258.2 AND SI-258.1. THIS FOOTNOTE IS NOT TRUE WITH REGARD TO MEETING JR
 4.8.3.1.A.2. THE FOOTNOTE WAS PLACED IN THE PROCEDURE BECAUSE THE BREAKERS WERE
 IDENTIFIED AS BREAKERS THAT COULD AFFECT THE OPERABILITY OF BOTH UNITS SINCE THEY
 WERE INSTALLED IN COMMON UNIT MOTOR CONTROL CENTER". THE COMPUTER PROGRAM WAS
 DEVELOPED WITH THE INSTRUCTIONS TO INCLUDE BREAKERS REFERENCED AS "COMMON TO BOTH
 UNITS" IN THE UNIT 1 AND 2 DATA BASE. AT THE TIME OF DISCOVERY, UNIT 2 WAS IN A
 MODE IN WHICH THE SUBJECT TECH SPEC DIDN'T APPLY. NO ACTIONS WERE REQUIRED.

[239] SEQUOYAH 2 DOCKET 50-326 LER 88-022 REV 01
 UPDATE ON 10 CFR 50.49 UNQUALIFIED BUTT SPLICE FOUND ON A STEAM GENERATOR LEVEL
 TRANSMITTER.
 EVENT DATE: 051988 REPORT DATE: 070788 NSSS: WE TYPE: PWR

(NSIC 209817) THIS REPORT IS BEING REVISED TO UPDATE THE COMPLETION DATE FOR
 TRAINING INSTRUMENT MAINTENANCE PERSONNEL ON HOW TO IDENTIFY A PROPER AND
 IMPROPER BUTT SPLICE. ON MAY 19, 1988, WITH UNIT 2 IN MODE 1 (71 PERCENT POWER),
 IT WAS DETERMINED THAT A 10 CFR 50.49 UNQUALIFIED PREINSULATED BUTT SPLICE
 EXISTED ON A STEAM GENERATOR NARROW-RANGE LEVEL TRANSMITTER. THIS TRANSMITTER IS
 REQUIRED IN MODES 1 AND 2 FOR ACTUATING REACTOR TRIP LOGIC AND IN MODES 1 THROUGH
 3 FOR ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) AND MUST BE
 ENVIRONMENTALLY QUALIFIED IN ACCORDANCE WITH 10 CFR 50.49. THE UNQUALIFIED BUTT
 SPLICE COULD HAVE CAUSED THE TRANSMITTER TO BE UNAVAILABLE FOR MITIGATION OF A
 POSTULATED FEEDWATER LINE BREAK (INCLUDING AUXILIARY FEEDWATER AND STEAM
 GENERATOR SLOWDOWN LINE BREAKS) WHILE IN MODES 1 THROUGH 3. HOWEVER OTHER
 REACTOR PROTECTION SYSTEMS WOULD HAVE BEEN AVAILABLE (I.E., (1) HIC, PRESSURIZER
 PRESSURE, (2) OVERTEMPERATURE DELTA-T, AND (3) SAFETY INJECTION) FOR MITIGATION
 OF THE FEEDWATER LINE BREAK ACCIDENT. A REVIEW OF PAST WORK DOCUMENTS INDICATED
 THAT THE BUTT SPLICE HAD BEEN PRESENT SINCE AN EARLY PERIOD IN THE PLANT LIFE
 WHEN THIS TYPE OF SPLICE WAS ACCEPTABLE. THE SPLICE HAD GONE UNDETECTED THROUGH
 THE RECENT EFFORT OF IDENTIFYING ALL 10 CFR 50.49 SPLICES, BECAUSE OF THE SPLICE
 BEING LOCATED IN THE UPPER NECK PORTION OF THE CONDULET OUT OF NORMAL VIEW.

[240] SEQUOYAH 2 DOCKET 50-328 LER 88-023 REV 01
 UPDATE ON REACTOR TRIP ON STEAM/FEEDWATER FLOW MISMATCH COINCIDENT WITH LOW STEAM
 GENERATOR LEVEL DUE TO PLUGGED SIGHT GLASS.
 EVENT DATE: 051988 REPORT DATE: 070788 NSSS: WE TYPE: PWR

(NSIC 209818) THIS LER IS BEING REVISED TO UPDATE THE CORRECTIVE ACTION SECTION
 OF THIS REPORT. ON MAY 19, 1988, WITH UNIT 2 AT 71.7 PERCENT REACTOR POWER, A
 REACTOR TRIP OCCURRED AT 1413 EDT. AT 1350 EDT, A SENIOR REACTOR OPERATOR (SRO)
 AND AN INSTRUMENT MECHANIC (IM) STARTED THE PROCESS OF MAKING ADJUSTMENTS TO THE

NO. 3 HEATER DRAIN TANK (HDT) LEVEL CONTROLLERS. THE SRO AND IM PROCEEDED TO TROUBLESHOOT THE PROBLEM IN AN ATTEMPT TO REDUCE THE LEVEL IN THE SUBJECT TANK. AFTER THREE OR FOUR MANIPULATIONS, THE SRO NOTED THE HDT PUMPS BEGAN TO CAVITATE, AND A SUBSEQUENT TRIP OF THE PUMPS OCCURRED. AT 1405 EDT, THE BALANCE OF PLANT (BOP) OPERATOR NOTED FLUCTUATIONS IN THE NO. 3 HDT DISCHARGE FLOW. AT 1408 EDT, BOTH NO. 3 HDT PUMPS TRIPPED. THE BOP STARTED A REDUCTION IN TURBINE LOAD. AT THIS TIME IT WAS NOTED THAT STEAM GENERATOR (S/G) NO. 1 LEVEL WAS DROPPING. THE OPERATOR TOOK MANUAL CONTROL OF THE FEEDWATER REGULATOR VALVE AND WENT TO FULL OPEN TO RECALIBRATE LEVEL. LEVEL DROPPED TO 21 PERCENT IN THE NO. 1 S/G BEFORE LEVEL TURNED AROUND AND STARTED TO ASCEND. THE "A" MAIN FEEDWATER PUMP BACKED OFF IN SPEED AS IT WAS IN THE AUTOMATIC CONTROL. HOWEVER, "B" MAIN FEEDWATER PUMP CONTINUED IN MANUAL CONTROL CAUSING FEEDWATER FLOWS TO BE HIGH. LEVEL CONTINUED TO INCREASE TO 60 PERCENT AT WHICH POINT THE REGULATOR VALVES AUTOMATICALLY CLOSED AS DESIGNED.

[241] SEQUOYAH 2 DOCKET 50-328 LER 88-024
 REACTOR TRIP RESULTING FROM LOW REACTOR COOLANT SYSTEM FLOW SIGNAL CAUSED BY A
 PROCEDURE NONCOMPLIANCE.
 EVENT DATE: 052388 REPORT DATE: 061788 NSSS: WE TYPE: PWR

(NSIC 209731) ON MAY 27, 1988, AT 0028 EDT WITH UNIT 2 AT 70 PERCENT POWER, A REACTOR TRIP OCCURRED FROM A LOW FLOW SIGNAL ON REACTOR COOLANT SYSTEM (RCS) LOOP 4 (2 OUT OF 3 CHANNELS TRIPPED ON ANY ONE RCS LOOP ABOVE 35 PERCENT POWER). AT THE TIME OF THE TRIP, SURVEILLANCE INSTRUCTION (SI)-246, "RECALIBRATION PROCEDURE FOR REACTOR COOLANT FLOW CHANNELS," WAS IN PROGRESS TO RECALIBRATE THE LOOP 4, CHANNEL II TRANSMITTER (2-PT-68-71B). THE REACTOR TRIP "SEQUENCE OF EVENTS RECORD" SHOWED THE TRIP BEING INITIATED FROM RCS LOOP 4, CHANNEL III BISTABLE 2-PS-68-71D. INVESTIGATION INTO THE CAUSE OF THE TRIP REVEALED THAT THE TRANSMITTER BEING CALIBRATED WAS ATTACHED TO A COMMON SENSE LINE WITH LOOP 4, CHANNEL III TRANSMITTER, 2-PT-68-71D. IT WAS DISCOVERED THAT THE INSTRUMENT MECHANICS (IMS) PERFORMING SI-246 HAD NOT COMPLIED WITH PROCEDURE WHEN VALVING OUT THE TRANSMITTER 2-PT-68-71B. SI-246 INSTRUCTS THE PERFORMER TO RELIEVE RCS SYSTEM PRESSURED BY JACKING OPEN THE TRANSMITTER HIGH SIDE TEST TEE. CONTRARY TO THIS INSTRUCTION THE IMS RELIEVED SYSTEM PRESSURE THROUGH THE DRAIN VALVE WHICH ROUTES TO A CLOSED DRAIN SYSTEM WHICH MADE IT IMPOSSIBLE TO DETERMINE THE AMOUNT OF FILL FLUID (RCS WATER) LOST WHEN THE DRAIN VALVE WAS OPEN.

[242] SEQUOYAH 2 DOCKET 50-338 LER 88-025
 FAILURE TO COMPLY WITH A TECH SPEC ACTION STATEMENT FOR DIESEL GENERATORS
 OPERABILITY VERIFICATION RESULTED IN AN INADVERTENT ENTRY INTO TECH SPEC 3.0.3.
 EVENT DATE: 060388 REPORT DATE: 061688 NSSS: WE TYPE: PWR

(NSIC 209634) AT APPROXIMATELY 2330 EDT ON JUNE 3, 1988, UNIT 2 WAS IN MODE 1 (100 PERCENT POWER) WHEN IT WAS DETERMINED THAT TECH SPEC 3.0.3 SHOULD HAVE BEEN ENTERED AT APPROXIMATELY 2028. TECH SPEC 3.0.3 WAS APPLICABLE BECAUSE ACTION STATEMENT (A) OF TECH SPEC LIMITING CONDITION FOR OPERATION (LCO) 3.8.1.1 WAS NOT SATISFIED WHEN DIESEL GENERATOR (D/G) 1A-A WAS TAKEN OUT OF SERVICE FOR TESTING. THIS ACTION STATEMENT REQUIRES THE REMAINING D/GS TO BE DEMONSTRATED OPERABLE (WITHIN ONE HOUR) ANYTIME ONE D/G HAS BEEN TAKEN OUT OF SERVICE (OR OTHERWISE DECLARED INOPERABLE) BY STARTING THE THREE REMAINING D/GS IN ACCORDANCE WITH SURVEILLANCE REQUIREMENT (SR) 4.8.1.1.2.A.4. SINCE THE SR WAS NOT SATISFIED, ALL FOUR D/GS WERE TECHNICALLY INOPERABLE FROM 2028 EDT UNTIL D/G 1A-A WAS RETURNED TO SERVICE AT 2240 EDT. AT THIS TIME, LCO 3.8.1.1 WAS EXITED AND TECH SPEC 3.0.3 WAS NO LONGER APPLICABLE. THE IMMEDIATE CAUSE OF THIS EVENT WAS ATTRIBUTED TO THE DELAYS THAT WERE EXPERIENCED DURING THE PERFORMANCE OF SI-307.1. THE ROOT CAUSE OF THIS EVENT WAS THE FAILURE OF OPERATIONS PERSONNEL TO ADEQUATELY CONSIDER AND IMPLEMENT THE ACTION REQUIREMENTS ASSOCIATED WITH LCO 3.8.1.1.

[243] SHEARON HARRIS 1 DOCKET 50-400 LER 88-009
 TECHNICAL SPECIFICATION VIOLATION WHILE TESTING THE SOLID STATE PROTECTION SYSTEM.
 EVENT DATE: 041988 REPORT DATE: 051988 NSSS: WE TYPE: PWR

(NSIC 209432) ON APRIL 19, 1988, AT 1310, THE PLANT WAS OPERATING IN MODE 1 AT 100% POWER. TRAIN "A" OF THE SOLID STATE PROTECTION SYSTEM (SSPS) WAS PLACED IN TEST FROM 1310 UNTIL 1426, PREVENTING AUTOMATIC ACTUATION OF THE "A" TRAIN ENGINEERED SAFEGUARDS COMPONENTS. AT THE SAME TIME, SOME "B" TRAIN COMPONENTS WERE INOPERABLE FOR TESTING OR PREVENTIVE MAINTENANCE. CONSEQUENTLY, TECHNICAL SPECIFICATION 3.0.3 APPLIED FOR 1 HOUR AND 16 MINUTES WHILE THE TRAIN "A" SSPS WAS IN TEST. THIS SITUATION WAS NOT RECOGNIZED BY OPERATIONS PERSONNEL, AND NEITHER THE TECHNICAL SPECIFICATIONS NOR PLANT PROCEDURES EXPLICITLY PROHIBITED THE CONFIGURATION. THE PROBLEM WAS DISCOVERED ON APRIL 22, 1988 DURING REVIEW OF EQUIPMENT INOPERABLE RECORDS (IIR). THIS EVENT WAS CAUSED BY AN ERROR MADE BY THE OPERATIONS PERSONNEL IN THE CLEARANCE CENTER AND THE MAIN CONTROL ROOM, COUPLED WITH A SITUATION WHICH WAS NOT ADEQUATELY COVERED BY TECHNICAL SPECIFICATIONS OR APPLICABLE OPERATIONS PROCEDURES. CORRECTIVE ACTIONS WILL INCLUDE ADDITIONAL OPERATOR TRAINING, AND REVISIONS TO PLANT PROCEDURES.

[244] SHEARON HARRIS 1 DOCKET 50-400 LER 88-010
 CONTAINMENT LEAK DETECTION RADIATION MONITOR WAS DECLARED INOPERABLE AND THE CONTAINMENT PURGE VALVES WERE NOT CLOSED AS REQUIRED DUE TO PERSONNEL ERROR.
 EVENT DATE: 042588 REPORT DATE: 052588 NSSS: WE TYPE: PWR

(NSIC 209433) THE PLANT WAS OPERATING AT 100 PERCENT POWER IN MODE 1, POWER OPERATION ON APRIL 25, 1988. AT 0100 HOURS CHEMISTRY PERSONNEL REQUESTED PERMISSION TO SAMPLE THE CONTAINMENT ATMOSPHERE, WHICH MEANT THE CONTAINMENT LEAK DETECTION RADIATION MONITOR WAS TO BE DECLARED INOPERABLE WHILE SAMPLING. TECHNICAL SPECIFICATIONS 3.3.3.1, TABLE 3.3-6, ACTION 27 REQUIRES THE CONTAINMENT PURGE VALVES TO BE CLOSED WHILE THE MONITOR IS INOPERABLE. THE MONITOR WAS DECLARED INOPERABLE AT 0355 HOURS, THE SAMPLE TAKEN, AND THE MONITOR DECLARED OPERABLE AT 0445 HOURS. HOWEVER, THE PURGE VALVES WERE NOT CLOSED DURING THIS TIME FRAME AS REQUIRED. THE CAUSE OF THE EVENT WAS PERSONNEL ERROR DUE TO FAILURE TO SECURE THE VALVES AS REQUIRED. NO SAFETY CONSEQUENCES RESULTED FROM THIS EVENT AS THE RADIOACTIVITY READINGS PRIOR TO AND FOLLOWING THE EVENT WERE WITHIN ACCEPTABLE LIMITS AND THE MONITOR REMAINED CAPABLE OF AUTOMATICALLY ISOLATING THE CONTAINMENT. CORRECTIVE ACTIONS INCLUDE REVISING SAMPLING PROCEDURE TO NOTIFY OPERATOR TO CLOSE PURGE VALVES PRIOR TO SAMPLING, THE PERSONNEL INVOLVED HAVE BEEN COUNSELED, AND ACTIVE LICENSED OPERATORS WILL BE BRIEFED ON THIS EVENT. THIS EVENT IS BEING REPORTED IN ACCORDANCE WITH 10CFR50.73(A)(1)(i)(2) AS A VIOLATION OF TECHNICAL SPECIFICATION.

[245] SHEARON HARRIS 1 DOCKET 50-400 LER 88-011
 UNANALYZED CONDITION PERTAINING TO INADVERTENT ACTUATION OF LOW TEMPERATURE OVERPRESSURE PROTECTION SYSTEM.
 EVENT DATE: 051188 REPORT DATE: 061088 NSSS: WE TYPE: PWR

(NSIC 209662) ON 5/11/88, THE PLANT WAS VERBALLY NOTIFIED BY WESTINGHOUSE ELECTRIC CORPORATION OF AN UNANALYZED CONDITION REGARDING THE INADVERTENT ACTUATION OF THE LOW TEMPERATURE OVERPRESSURE PROTECTION (LTOP) SYSTEM DURING EITHER A MAIN STEAMLINE BREAK ACCIDENT OR RECOVERY FROM A STEAM GENERATOR TUBE RUPTURE. DURING THESE ACCIDENT SCENARIOS, A TEMPERATURE OF THE REACTOR COOLANT SYSTEM (RCS) IN THE AFFECTED LOOP CAN DECREASE TO BELOW THE AUTOMATIC ARMING AND ACTUATION TEMPERATURE SETPOINTS OF LTOP, AND IF A SINGLE RANDOM FAILURE IS ASSUMED IN A SECOND TEMPERATURE SENSOR, AN ACTUATION SIGNAL IS GENERATED. TOPS WOULD OPEN TWO RCS POWER OPERATED RELIEF VALVES (PORV), AND THE RESULTING DEPRESSURIZATION MAY CHANGE THE ANALYZED CONSEQUENCES OF THE TWO ACCIDENT SCENARIOS. UPON RECEIVING THIS INFORMATION, THE CONTROL SWITCHES FOR THE TWO LTOPS PORVS WERE PLACED IN "SHUT" POSITION, WHICH INHIBITS ANY AUTOMATIC OPEN

SIGNAL, THUS REMOVING THE POTENTIAL SAFETY CONCERN. THE PORVS REMAINED OPERABLE FOR MODES 1 THROUGH 3 SINCE THEIR REQUIRED SAFETY FUNCTION IN THESE MODES IS TO PROVIDE A MANUAL RCS DEPRESSURIZATION CAPABILITY FOR SAFE SHUTDOWN. TWO DAYS LATER, ON MAY 13, LTOPS WAS ELECTRICALLY DISABLED BY DISCONNECTING THE PROCESS INSTRUMENTATION CABINET CARDS, AND THE PORV CONTROL SWITCHES WERE RETURNED TO "AUTO" POSITION.

[246] SHEARON HARRIS 1 DOCKET 50-400 LER 88-012
 BOTH EMERGENCY SERVICE WATER SYSTEMS INOPERABLE DUE TO ISOLATION VALVE FAILURES AND DESIGN DEFICIENCY.
 EVENT DATE: 051388 REPORT DATE: 061088 NSSS: WE TYPE: PWR
 VENDOR: TARGET ROCK CORP.

(NSIC 209540) ON MAY 12, 1988, DURING SURVEILLANCE TESTING OF THE "B" EMERGENCY SERVICE WATER (ESW) SYSTEM, THE NONSAFETY PORTION OF THE ESW SEAL WATER SUPPLY SYSTEM FAILED TO ISOLATE AS REQUIRED WHEN TWO SOLENOID VALVES FAILED TO CLOSE. THE "B" ESW TRAIN WAS DECLARED INOPERABLE. IN ORDER TO ISOLATE THE SYSTEM TO PERMIT WORK ON THE VALVES, IT WAS NECESSARY TO CLOSE THE "A" SEAL WATER BOOSTER PUMP SUCTION AND DISCHARGE VALVES. ON MAY 13, 1988, AT 0920, AN ATTEMPT WAS MADE TO CLOSE THESE VALVES AND NEITHER VALVE WOULD FULLY CLOSE, THUS RENDERING THE "A" ESW TRAIN INOPERABLE. PLANT OPERATORS HAD RECOGNIZED THE POTENTIAL FOR SUCH AN EVENT, AND TOOK PROMPT ACTION TO FULLY CLOSE BOTH VALVES AT 0930 WHICH RETURNED THE "A" ESW TRAIN TO OPERABLE STATUS. CONSEQUENTLY TECHNICAL SPECIFICATION 3.0.3 APPLIED FOR 10 MINUTES WHILE BOTH ESW TRAINS WERE DECLARED INOPERABLE. THE EXACT CAUSE OF THE FAILURE OF THE VALVES TO CLOSE IS NOT KNOWN, BUT IS SUSPECTED TO BE DUE TO ACCUMULATION OF DEBRIS FROM THE RAW LAKE WATER. BASED UPON THE PAST PERFORMANCE OF THESE VALVES, CORRECTIVE ACTIONS TO PRECLUDE FUTURE OCCURRENCE OF THIS EVENT INCLUDES CLOSING, AND LEAVING CLOSED, THE SOLENOID OPERATED SUCTION AND DISCHARGE VALVES FOR BOTH ESW SEAL WATER BOOSTER PUMPS, AND CLOSING THE MANUAL ISOLATION VALVES FOR THE ESW SEAL WATER SYSTEM.

[247] SHEARON HARRIS 1 DOCKET 50-400 LER 88-014
 SUBCOOLING MARGIN MONITOR USING UNVERIFIED COMPUTER INPUTS FOR CALCULATIONS DUE TO PROCEDURAL DEFICIENCY.
 EVENT DATE: 052088 REPORT DATE: 062088 NSSS: WE TYPE: PWR

(NSIC 209678) THE PLANT WAS OPERATING IN MODE 1, POWER OPERATION, AT 100 PERCENT REACTOR POWER ON MAY 20, 1988. AT 1615 HOURS, IT WAS DISCOVERED THAT THE TWO REACTOR COOLANT SYSTEM (RCS) WIDE-RANGE PRESSURE INPUTS FOR THE SUBCOOLING MARGIN MONITOR CALCULATIONS HAD BEEN CHANGED, AND THAT NO SURVEILLANCE TESTS FOR VERIFYING THE ACCURACY OF THE INPUT TO THE SUBCOOLING MARGIN MONITOR EXISTED. THE EVENT WAS DISCOVERED BY MAINTENANCE PROCEDURE WRITERS WHILE REVIEWING A PLANT CHANGE REQUEST (PCR) WHICH CHANGED THE INPUTS, BUT THE PCR INDICATED NO PROCEDURE CHANGES WERE REQUIRED. IT HAS BEEN DETERMINED THAT THIS CONDITION HAS EXISTED SINCE MAY 1987 AT WHICH TIME THE NEW CONFIGURATION WAS BEING TESTED BY A VENDOR AND WAS NOT RETURNED TO ORIGINAL STATUS UPON COMPLETION OF THE TESTING. DUE TO THIS MODIFICATION, NO SURVEILLANCE TESTING HAD VERIFIED THE ACCURACY OF THESE COMPUTER POINTS WHICH RESULTED IN THE SUBCOOLING MONITOR USING UNVERIFIED INPUTS. THE CAUSE OF THE EVENT WAS INADEQUATE PROCEDURE CONTROLS WHICH LED TO AN INADEQUATE REVIEW OF THE PCR FOR PROCEDURAL CHANGES AND PROCEDURAL DEFICIENCY IN THE LACK OF CONTROL OF THE MODIFICATION TO THE CONFIGURATION OF THE TEST INPUTS. AT 1700 HOURS ON MAY 20, 1988, THE SUBCOOLING MONITOR WAS DECLARED INOPERABLE AND ALTERNATE METHODS FOR MONITORING RCS SUBCOOLING WERE INITIATED AS REQUIRED BY TECH SPECS.

[248] SHOREHAM DOCKET 50-322 LER 86-011 REV 03
 UPDATE ON ULTIMATE HEAT SINK ACCUMULATION OF SEDIMENT.
 EVENT DATE: 031886 REPORT DATE: 062488 NSSS: GE TYPE: BWR

(NSIC 209574) THIS SPECIAL REPORT IS SUBMITTED PURSUANT TO TECH SPEC 6.9.2 TO COMPLY WITH TECH SPEC 3.7.1.4. THIS REVISION IS BEING SUBMITTED AS A SUPPLEMENT TO LER'S SUBMITTED 3/18/86, 7/25/86 AND 12/5/86 TO INCORPORATE UPDATED STATUS OF WORK TO BE PERFORMED ON THE SHOREHAM INTAKE CANAL. ON MARCH 13, 1986 ANNUAL SOUNDINGS OF THE INTAKE CANAL WERE TAKEN IN ACCORDANCE WITH LONG ISLAND LIGHTING COMPANY (LILCO) STATION PROCEDURE 84.122.01 "INTAKE CANAL - SEDIMENT DEPOSITION MONITORING" FOR COMPLIANCE WITH TECH SPEC 4.7.1.4.A.1. THE RESULTS OF THE SOUNDINGS WERE FINALIZED AND REPORTED TO THE WATCH ENGINEER ON MARCH 18, 1986 AND SHOWED THAT OF 24 TRANSECTS MEASURED, TWO WERE FOUND TO HAVE READINGS OF -10.3 AND -10.7 FEET MLW. THE PLANT WAS IN OPERATIONAL CONDITION 4 (COLD SHUTDOWN) AT THE TIME. THE DECREASE IN DEPTH AT THE TWO TRANSECTS WAS DUE TO NORMAL DEPOSITION. IN THE PREVIOUS REVISION TO THIS REPORT, THE NRC WAS INFORMED THAT LILCO COULD NOT PERFORM MAINTENANCE ON THE INTAKE CANAL BECAUSE NEW YORK STATE WOULD NOT PROVIDE THE NECESSARY APPROVAL OF THE ARMY CORPS OF ENGINEERS ISSUED DREDGING PERMIT. SINCE THEN, THROUGH AN APPEAL TO THE UNITED STATES DEPARTMENT OF COMMERCE, THE PERMIT WAS RECEIVED MAY 5, 1988. BUT NOW, DUE TO UNCERTAINTY OF FUTURE POWER OPERATION AS A RESULT OF THE LILCO/NEW YORK STATE NEGOTIATIONS INVOLVING THE FUTURE OF SHOREHAM, DREDGING HAS BEEN PUT ON "HOLD" UNTIL THE ISSUE IS SETTLED.

[249] SHOREHAM DOCKET 50-322 LER 88-007
 LOSS OF RPS BI'S "B" DUE TO PERSONNEL ERROR DURING A TAGGING OPERATION.
 EVENT DATE: 052888 REPORT DATE: 062488 NSSS: GE TYPE: BWR

(NSIC 209628) ON MAY 28, 1988 AT 0645, UNPLANNED ESP ACTUATIONS OCCURRED WHEN AN EQUIPMENT OPERATOR (EO) INADVERTENTLY OPENED THE WRONG BREAKER DURING A TAGGING OPERATION. THE PLANT WAS IN OPERATIONAL CONDITION 4 (COLD SHUTDOWN) WITH THE MODE SWITCH IN SHUTDOWN AND ALL RODS INSERTED IN THE CORE. THE EO, UTILIZING AN APPROVED SECP (STATION EQUIPMENT CLEARANCE PERMIT), WAS IN THE EMERGENCY SWITCHGEAR ROOM 102 TO OPEN A BREAKER THAT SUPPLIED POWER TO THE STANDBY LIQUID CONTROL HEAT TRACING. HOWEVER, WHEN IT WAS TIME TO OPEN THE BREAKER, HE INADVERTENTLY OPENED THE INCORRECT BREAKER WHICH WAS LOCATED BELOW THE CORRECT ONE. THIS CAUSED A LOSS OF POWER TO THE RPS "B" BUS RESULTING IN THE INITIATION OF SEVERAL ESFS. THE CONTROL ROOM NOTIFIED THE EO TO HALT THE TAGGING OPERATION. POWER WAS SUBSEQUENTLY RESTORED TO THE BUS AND ALL SYSTEMS WERE RETURNED TO NORMAL. PLANT MANAGEMENT WAS NOTIFIED OF THE EVENT AND THE NRC WAS NOTIFIED AT 0800 PER 10CFR50.72. THE INCIDENT WAS DISCUSSED WITH ALL OPERATORS AND THE EO INVOLVED WAS COUNSELED AS TO THE IMPORTANCE OF EXERCISING CARE WHEN DE-ENERGIZING CIRCUITS.

[250] SOUTH TEXAS 1 DOCKET 50-498 LER 87-002 REV 02
 UPDATE ON LOSS OF SAMPLE FLOW TO CONTAINMENT PURGE RADIATION MONITOR CAUSES
 CONTAINMENT VENTILATION ISOLATION.
 EVENT DATE: 082687 REPORT DATE: 061388 NSSS: WE TYPE: PWR

(NSIC 209587) ON AUGUST 26, 1987 AT 1710 HOURS DURING INITIAL CORE LOAD, A CONTAINMENT VENTILATION ISOLATION OCCURRED AS A RESULT OF LOSS OF SAMPLE FLOW TO A REACTOR CONTAINMENT BUILDING PURGE RADIATION MONITOR. THE SUPPLEMENTARY PURGE SYSTEM WHICH WAS IN OPERATION AT THE TIME WAS ISOLATED AS DESIGNED. SUBSEQUENT INVESTIGATION OF THE CAUSE OF THE LOSS OF SAMPLE FLOW WAS NOT CONCLUSIVE. REVIEW OF OPERATOR ACTIONS IN THE CONTROL ROOM, ALARM LOGS, AND ATTEMPTED REPRODUCTION OF THE EVENT BY SIMULATED VIBRATION OF THE PUMP CONTROL RELAY WHICH COULD HAVE CAUSED THE MONITOR TO LOSE SAMPLE FLOW REVEALED THAT THE MOST PROBABLE ROOT CAUSE WAS UNAUTHORIZED LOCAL OPERATION OF THE MONITOR'S SKID-MOUNTED CONTROLS, POWER OR VALVES; OR OPERATION FROM THE CONTROL ROOM PANEL. CORRECTIVE ACTIONS TO

PREVENT RECURRENCE INCLUDE CAUTION SIGNS AT THE CONTROL ROOM PANELS AND MONITOR SKIDS, ADDITION OF CONTROL ROOM RADIATION MONITOR CONTROL MODULE PROTECTIVE COVERS. TRAINING FOR PLANT PERSONNEL, DISABLING OF CONTROL ROOM PUSHBUTTONS WHICH TRIP THE SAMPLE PUMPS, AND MODIFICATION TO ESF ACTUATION LOGICS TO ELIMINATE ACTUATION ON RADIATION MONITOR FAILURE.

[251] SOUTH TEXAS 1 DOCKET 50-498 LER 88-021 REV 01
 UPDATE ON ESF ACTUATION DUE TO INVERTER FAILURE.
 EVENT DATE: 022488 REPORT DATE: 061588 NSSS: WE TYPE: PWR
 VENDOR: ELGAR, CORP.

(NSIC 209682) AT APPROXIMATELY 0624 HOURS ON FEBRUARY 25, 1988 WITH UNIT 1 IN MODE 3 PRIOR TO INITIAL CRITICALITY, A NUMBER OF CONTROL ROOM ANNUNCIATORS ALARMED ALONG WITH ESF ACTUATIONS OF CONTROL ROOM ENVELOPE HVAC, FUEL HANDLING BUILDING HVAC, AND CONTAINMENT VENTILATION. THE ACTUATIONS WERE TRACED TO THE FAILURE OF INVERTER IV-001. A FAILED DC TO DC CONVERTER ASSEMBLY FROM THE INVERTER WAS RETURNED TO THE VENDOR FOR FAILURE ANALYSIS. THE ANALYSIS IDENTIFIED THAT THE FAILURE WAS RANDOM AND WAS NOT THE RESULT OF DESIGN OR MANUFACTURING DEFECTS.

[252] SOUTH TEXAS 1 DOCKET 50-498 LER 88-025 REV 01
 UPDATE ON CONTROL ROOM VENTILATION RECIRCULATION ON ACTUATION DUE TO A RADIATION MONITOR ACTUATION.
 EVENT DATE: 032388 REPORT DATE: 062488 NSSS: WE TYPE: PWR

(NSIC 209771) ON MARCH 23, 1988 AT APPROXIMATELY 0353 HOURS, WITH UNIT 1 IN MODE 2, AN ENGINEERED SAFETY FEATURE (ESF) ACTUATION OF THE CONTROL ROOM VENTILATION SYSTEM TO THE RECIRCULATION MODE OCCURRED. SUBSEQUENT INVESTIGATION DETERMINED THAT THE MOST PROBABLE CAUSE OF THIS EVENT WAS AN INADVERTENT ACTUATION OF A CONTROL ROOM VENTILATION RADIATION MONITOR DURING MAINTENANCE ACTIVITIES. DIAGNOSTIC TESTS WERE RUN ON THE MONITOR AND ATTEMPTS WERE MADE TO DUPLICATE THE EVENT; HOWEVER, NO SPECIFIC CAUSE WAS FOUND.

[253] SOUTH TEXAS 1 DOCKET 50-498 LER 88-028
 LEAKAGE OF ALUMINUM-BRONZE ESSENTIAL COOLING WATER SYSTEM.
 EVENT DATE: 040188 REPORT DATE: 053188 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SOUTH TEXAS 2 (PWR)

(NSIC 209548) ON APRIL 1, 1988, WHILE THE PLANT WAS IN MODE 3, OPERATIONS PERSONNEL OBSERVED SLIGHT LEAKAGE OCCURRING AT A NUMBER OF LOCATIONS IN THE ALUMINUM-BRONZE ESSENTIAL COOLING WATER (ECW) SYSTEM. FURTHER INVESTIGATION REVEALED THAT SOME SMALL BORE (2 INCH AND UNDER) FITTINGS AND VALVES IN THE ECW SYSTEM HAVE UNDERGONE CREVICE CORROSION (DEALLOYING) EXTENSIVE ENOUGH TO HAVE RESULTED IN THROUGH WALL SEEPAGE. LEAKING COMPONENTS FOUND PRIOR TO THE BEGINNING OF A MAY 2, 1988 OUTAGE AND CERTAIN HIGHER STRESSED SMALL BORE FITTINGS AND VALVES WERE REPLACED PRIOR TO RESUMPTION OF OPERATION. A LONG TERM SOLUTION IS BEING DEVELOPED WHICH WILL RESULT IN MORE PERMANENT CORRECTIVE ACTIONS PRIOR TO STARTUP FROM THE FIRST REFUELING OUTAGE.

[254] SOUTH TEXAS 1 DOCKET 50-498 LER 88-029
 ENTRY INTO TECHNICAL SPECIFICATION 3.0.3 TO PERFORM SURVEILLANCE TESTING OF SG PORVS.
 EVENT DATE: 042488 REPORT DATE: 061388 NSSS: WE TYPE: PWR

(NSIC 209670) ON APRIL 24, 1988 WITH UNIT 1 IN MODE 1 AT 30% POWER, TECHNICAL SPECIFICATION 3.0.3 WAS ENTERED ON TWO OCCASIONS FOR A TOTAL OF SEVENTEEN MINUTES DURING TESTING OF STEAM GENERATOR POWER OPERATED RELIEF VALVES (PORV'S). THE ON

DUTY LICENSED SHIFT SUPERVISOR REVIEWED THE TECHNICAL SPECIFICATIONS AND BASES AND DETERMINED THAT HE WAS IN COMPLIANCE FOR THE CONDITIONS AT THAT TIME. THE SHIFT SUPERVISOR WAS NOT INFORMED OF THE NRC'S CONCERN REGARDING "VOLUNTARY ENTRY" INTO TECHNICAL SPECIFICATION 3.0.3. AS A RESULT OF THIS EVENT, PROCEDURES HAVE BEEN REVISED TO PROHIBIT "VOLUNTARY ENTRY" INTO TECHNICAL SPECIFICATION 3.0.3 PENDING NRC CLARIFICATION OF THIS ISSUE.

[255] SOUTH TEXAS 1 DOCKET 50-498 LER 88-027 REV 01
 UPDATE ON USE OF IMPROPER SEAL MATERIAL IN STEAM GENERATOR POWER OPERATED RELIEF VALVES.
 EVENT DATE: 042888 REPORT DATE: 071188 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SOUTH TEXAS 2 (PWR)
 VENDOR: CONTROL COMPONENTS
 PAUL-MUNROE HYDAULICS INC.

(NSIC 209926) ON APRIL 28, 1988, HOUSTON LIGHTING & POWER COMPANY (HL&P) NOTIFIED THE NRC THAT THE SEALS INSTALLED IN THE MAIN STEAM SYSTEM POWER OPERATED RELIEF VALVE (PORV) ACTUATORS WERE MADE OF A MATERIAL (BUNA-N) WHICH IS NOT COMPATIBLE WITH THE ACTUATOR HYDRAULIC FLUID (FYRQUEL). THIS RESULTED IN LEAKAGE AND EXCESSIVE HYDRAULIC PUMP OPERATION WHICH COULD LEAD TO PORV INOPERABILITY. AN ENHANCED SURVEILLANCE PROGRAM WAS ESTABLISHED AND THE WETTED SEALS WERE SUBSEQUENTLY REPLACED WITH SEALS MADE OF VITON OR EPR DURING AN OUTAGE WHICH BEGAN ON MAY 2, 1988. THE CAUSES OF THIS EVENT INCLUDE AN ISOLATED FAILURE OF THE SUBSUPPLIER, PARKER CYLINDER DIVISION, TO SUPPLY THE HYDRAULIC CYLINDER SEALS AS SPECIFIED BY PAUL-MUNROE ENERTECH (THE PORV ACTUATOR SUPPLIER) AND AN INADVERTENT SPECIFICATION BY PAUL-MUNROE OF A BUNA-N SEAL PART NUMBER FOR THE PUMP SEAL KITS. CORRECTIVE ACTIONS INCLUDE CORRECTION OF PUMP SHAFT SEAL DOCUMENTATION, A REVIEW OF THE STPEGS SPARE PARTS PROGRAM AND AN INVESTIGATION OF OTHER PAUL-MUNROE HYDRAULIC ACTUATORS FOR SIMILAR PROBLEMS. NO OTHER OCCURRENCES OF BUNA-N HAVE BEEN FOUND IN LOCATIONS WHICH COULD AFFECT THE OPERATION OF VALVE ACTUATORS. THIS CONDITION IS REPORTABLE PURSUANT TO 10CFR50.55(E) AND 10CFR21.

[256] SOUTH TEXAS 1 DOCKET 50-498 LER 88-030
 CONTROL ROOM VENTILATION ACTUATION DUE TO A HIGH HCL TRIP ON A TOXIC GAS MONITOR.
 EVENT DATE: 050688 REPORT DATE: 060388 NSSS: WE TYPE: PWR
 VENDOR: FOXBORO CO., THE

(NSIC 209561) AT APPROXIMATELY 1056 HOURS ON MAY 6, 1988, WITH THE PLANT IN MODE 5 (COLD SHUTDOWN), AN AUTOMATIC ACTUATION OF THE CONTROL ROOM VENTILATION TO RECIRCULATION MODE OCCURRED AS A RESULT OF A HIGH HYDROCHLORIC ACID (HCL) TRIP ON ONE OF TWO TOXIC GAS ANALYZERS. AUTOMATIC SAFETY FEATURES FUNCTIONED AS DESIGNED. AN INVESTIGATION INTO THE EVENT CONCLUDED THAT THIS WAS MOST LIKELY A VALID ACTUATION OF THE SYSTEM CAUSED BY A PUFF OF HYDROCARBON GAS OR HCL. THE PRECISE ORIGIN OF THE GAS COULD NOT BE DETERMINED. A MEMORANDUM WILL BE ISSUED TO PLANT PERSONNEL EMPHASIZING THE SENSITIVITY OF THE TOXIC GAS ANALYZERS AND THE NEED TO NOTIFY THE CONTROL ROOM OF ANY ACTIVITIES PRODUCING GASES OR FUSES IN OR NEAR THE POWER BLOCK. CONTROL ROOM PERSONNEL WILL BE DIRECTED TO MAKE A SITE-WIDE ANNOUNCEMENT OF TOXIC GAS ACTUATIONS AND REQUIRE ANYONE INVOLVED IN ACTIVITIES THAT MIGHT PRODUCE TOXIC GASES TO IMMEDIATELY CONTACT THE CONTROL ROOM.

[257] SOUTH TEXAS 1 DOCKET 50-498 LER 88-031
 CABLE ASSEMBLIES FOR NEUTRON FLUX MONITORING WHICH FAILED QUALIFICATION TESTING.
 EVENT DATE: 050988 REPORT DATE: 060888 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SOUTH TEXAS 2 (PWR)

(NSIC 209549) ON MAY 9, 1988 AT 2104 HOURS WITH UNIT 1 IN MODE 5, HOUSTON LIGHTING AND POWER ON MAY 9, 1988 AT 2104 HOURS WITH UNIT 1 IN MODE COMPANY (HL&P) NOTIFIED THE NRC THAT THE EXTENDED RANGE NEUTRON INSTRUMENTATION SYSTEM

IN-CONTAINMENT CABLE AND DETECTOR ASSEMBLIES MAY PROVIDE ERRONEOUS READINGS IN A HARSH, ACCIDENT ENVIRONMENT. THE CAUSE OF THIS CONDITION WAS SOLDER AND THREADED JOINT LEAKAGE WHICH WAS NOT DETECTED BY MANUFACTURER'S ACCEPTANCE TESTING. THE UNIT 1 DETECTORS AND CABLES WERE SUBSEQUENTLY REPLACED WITH RECERTIFIED COMPONENTS.

[258] SOUTH TEXAS 1 DOCKET 50-498 LER 88-032
 AUXILIARY FEEDWATER PUMP SHAFT SLEEVE FAILURE DUE TO STRESS CORROSION CRACKING
 HYDROGEN EMBRITTLEMENT.
 EVENT DATE: 051288 REPORT DATE: 061388 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SOUTH TEXAS 2 (PWR)
 VENDOR: BINGHAM PUMP CO.

(NSIC 209671) ON FEBRUARY 28, 1988, WITH UNIT 1 IN HOT STANDBY (MODE 3), AN AUXILIARY FEEDWATER (AF) PUMP FAILED ITS PERFORMANCE TEST. SUBSEQUENT INSPECTION OF THE PUMP INTERNALS REVEALED SIGNIFICANT DAMAGE, INCLUDING A SPLIT IN THE CENTER SHAFT SLEEVE (PART OF THE CENTER-STAGE BUSHING ASSEMBLY). THE PUMP WAS REPLACED WITH A SIMILAR PUMP FROM UNIT 2, WHICH IS CURRENTLY UNDER CONSTRUCTION. THE REPLACEMENT PUMP WAS TESTED AND DECLARED OPERABLE ON MARCH 7, 1988. ON MAY 5, 1988, AN INSPECTION OF A UNIT 2 AF PUMP RECEIVED SIMILAR DAMAGE. ON MAY 12, 1988, IT WAS DETERMINED THAT THE FAILURE MECHANISM COULD, IF LEFT UNCORRECTED, AFFECT REDUNDANT AF PUMPS, AND THE NRC WAS NOTIFIED. AN INVESTIGATION INTO THE CAUSE OF THE SLEEVE SPLITTING DETERMINED THE ROOT CAUSE TO BE STRESS CORROSION CRACKING/HYDROGEN EMBRITTLEMENT OF THE SLEEVE MATERIAL. THE PUMP SLEEVE MATERIAL WILL BE REPLACED WITH A SOFTER STAINLESS STEEL WHICH IS NOT SUSCEPTIBLE TO STRESS CORROSION CRACKING/HYDROGEN EMBRITTLEMENT. UNTIL THIS MODIFICATION CAN BE COMPLETED, THE UNIT 1 PUMPS WILL BE TESTED WEEKLY FOR OPERABILITY. THIS CONDITION IS REPORTABLE UNDER 10CFR50.73(A)(2)(V), 10CFR50.55(E) AND 10CFR21.

[259] SOUTH TEXAS 1 DOCKET 50-498 LER 88-033
 AIR BINDING OF CHARGING PUMP SUCTION LINE FROM THE REFUELING WATER STORAGE TANK
 DUE TO A DESIGN ERROR.
 EVENT DATE: 051388 REPORT DATE: 061388 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: SOUTH TEXAS 2 (PWR)

(NSIC 209683) ON APRIL 18, 1988, DURING TESTING OF UNIT 2 CENTRIFUGAL CHARGING PUMPS (CCPS), A LOSS OF SUCTION PRESSURE TO THE PUMPS OCCURRED ON "SWAP OVER" FROM THE VOLUME CONTROL TANK (VCT) TO THE REFUELING WATER STORAGE TANK (RWST). SUBSEQUENT INVESTIGATION DETERMINED THAT THE CAUSE OF THIS EVENT WAS A DESIGN ERROR IN THE PIPING CONFIGURATION FROM THE RWST TO THE CCP SUCTION WHICH RESULTED IN A HIGH POINT THAT RELEASES ENTRAINED AIR IN THE WATER AND FORMS A VAPOR POCKET WHEN THE RWST LEVEL IS BELOW ELEVATION 25'-6". THIS PIPING CONFIGURATION IS IDENTICAL TO UNIT 1. AN ENGINEERING EVALUATION DETERMINED THAT THE RWST LEVEL ALLOWED BY TECH SPECS IN MODE 5 WAS NOT SUFFICIENT TO PRECLUDE THIS OCCURRENCE. AT NO TIME HAS THE PLANT BEEN OPERATED WITH AN RWST LEVEL WHICH WOULD RESULT IN THIS OCCURRENCE WHEN THE RWST WAS REQUIRED AS A BORATION SOURCE. CORRECTIVE ACTIONS INCLUDE ADMINISTRATIVE CONTROLS TO MAINTAIN SUFFICIENT RWST LEVEL, EVALUATION OF REROUTING OF THE PIPING AND A REVIEW OF OTHER SAFETY-RELATED PIPING CONFIGURATIONS FOR SIMILAR OCCURRENCES. THIS REPORT IS ALSO SUBMITTED PURSUANT TO 10CFR50.55(E).

[260] SOUTH TEXAS 1 DOCKET 50-498 LER 88-034
 FAILURE TO TEST CONTAINMENT SPRAY PUMP SEQUENCER ACTUATION DUE TO INADEQUATE TEST
 PROCEDURE.
 EVENT DATE: 051788 REPORT DATE: 061688 NSSS: WE TYPE: PWR

(NSIC 209684) ON MAY 17, 1988 WITH UNIT 1 IN MODE 5, DURING REVIEW AND PREPARATION OF ENGINEERED SAFETY FEATURES (ESF) ACTUATION SURVEILLANCE TEST

PROCEDURES, A SYSTEMS ENGINEER DISCOVERED THAT THE PREOPERATIONAL TEST PROCEDURES DID NOT TEST ONE OF THE ESP SEQUENCER ACTUATIONS OF THE CONTAINMENT SPRAY PUMPS. FURTHER REVIEW IDENTIFIED THAT THE PREOPERATIONAL TESTS WERE INCLUDED AS PART OF THE SURVEILLANCE CREDIT PACKAGE TO SATISFY TECH SPEC REQUIREMENTS. THE CAUSE OF THIS EVENT WAS AN ISOLATED PREOPERATIONAL TEST PROCEDURE INADEQUACY DUE TO THE UNIQUENESS OF THE MULTIPLE PERMISSIVE SIGNALS PROVIDED FOR CONTAINMENT SPRAY PUMP ACTUATION. THE UNTESTED ACTUATION WAS SUBSEQUENTLY TESTED UNDER A TEMPORARY PROCEDURE AND DETERMINED TO BE SATISFACTORY. CORRECTIVE ACTIONS INCLUDE A REVIEW OF TECH SPEC SURVEILLANCE CREDIT PACKAGES, REVISION TO PROCEDURE PREPARATION PROCEDURES TO ENSURE ADEQUATE REVIEWS, A REVIEW OF UNIT 2 PREOPERATIONAL TEST PROCEDURES FOR TESTING OF BOTH CONTAINMENT SPRAY PUMP ACTUATIONS AND PREPARATION OF A PERMANENT PLANT PROCEDURE TO TEST THIS FEATURE.

[261] SOUTH TEXAS 1 DOCKET 50-498 LER 88-035
NONPERFORMANCE OF A REQUIRED SURVEILLANCE TEST FOR A COMPONENT COOLING WATER VALVE DUE TO AN INADEQUATE PROCEDURE.
EVENT DATE: 051898 REPORT DATE: 061788 NSSS: WE TYPE: PWR

(NSIC 209672) ON MAY 18, 1988, WHILE THE PLANT WAS IN MODE 5, THE SYSTEM ENGINEER FOUND THAT THE COMPONENT COOLING WATER (CCW) TRAIN 1B VALVE OPERABILITY TEST PERFORMED ON FEBRUARY 11, 1988, HAD NOT YET BEEN EVALUATED FOR CHANGE IN STROKE TIME PER ASME SECTION XI. THE EVALUATION WAS PERFORMED AND THE RESULTS INDICATED THAT ONE OF THE VALVES COVERED BY THE TEST REQUIRED AN INCREASED TESTING FREQUENCY. DUE TO THE LACK OF A TIMELY REVIEW, TWO REQUIRED SURVEILLANCES HAD BEEN MISSED. IMMEDIATE REVIEW OF THE LATEST VALVE OPERABILITY SURVEILLANCE FOR CCW TRAIN 1B, PERFORMED ON MAY 13, 1988, SHOWED THE VALVE OF CONCERN WITHIN ITS ALLOWABLE STROKE TIME. THE MISSED SURVEILLANCE TESTING WAS DUE TO A LACK OF TIMELY REVIEW OF THE SURVEILLANCE TEST PACKAGE, WHICH RESULTED FROM AN INADEQUATE TRACKING PROGRAM. SURVEILLANCE FREQUENCY FOR THE AFFECTED VALVE WAS INCREASED, AND A VERIFICATION OF REVIEW WAS PERFORMED FOR OTHER ASME SECTION XI SURVEILLANCE TEST PACKAGES. TO PREVENT RECURRENCE OF THE EVENT, THE SURVEILLANCE PROGRAM IS BEING REVISED TO PROVIDE AN IMPROVED SYSTEM TO TRACK SURVEILLANCE TEST PACKAGES THROUGH THE REVIEW CYCLE AND TO ALERT RESPONSIBLE PERSONNEL TO TEST PACKAGES NOT RECEIVING TIMELY ATTENTION. THE INDEPENDENT SAFETY ENGINEERING GROUP WILL ALSO PERFORM A REVIEW OF THIS AND SIMILAR EVENTS.

[262] SUMMER 1 DOCKET 50-395 LER 88-005
FAILURE TO ESTABLISH FIRE WATCH FOR RELAY ROOM DUE TO PERSONNEL ERROR.
EVENT DATE: 042688 REPORT DATE: 052688 NSSS: WE TYPE: PWR

(NSIC 209431) AT APPROXIMATELY 0715 HOURS ON APRIL 26, 1988, THE ONCOMING OPERATIONS' SHIFT SUPERVISOR IDENTIFIED THAT A CONTINUOUS FIRE WATCH WITH BACKUP FIRE SUPPRESSION EQUIPMENT HAD NOT BEEN ESTABLISHED FOR THE RELAY ROOM AS REQUIRED BY TECHNICAL SPECIFICATION 7.7.9.3.A. THE REQUIREMENTS OF THIS ACTION STATEMENT SHOULD HAVE BEEN IMPLEMENTED AT 0635 HOURS FOLLOWING ISOLATION OF THE CO2 SYSTEM, WHICH PROVIDES FIRE PROTECTION FOR THE RELAY ROOM EQUIPMENT. THE CAUSE OF THIS EVENT WAS AN INADEQUATE REVIEW OF PAPERWORK DUE TO PERSONNEL ERROR. THE CONSEQUENCES WERE MINIMAL SINCE THE DURATION OF THE NONCOMPLIANCE WAS APPROXIMATELY 50 MINUTES AND AN HOURLY FIRE WATCH PATROL ROUTINELY INSPECTED THE AREA. THE FOLLOWING CORRECTIVE ACTIONS WERE INITIATED AS A RESULT OF THIS EVENT:
1. EFFECTIVE MAY 13, 1988, SCHEDULING PERSONNEL DISCONTINUED ASSIGNING REMOVAL AND RESTORATION NUMBERS TO PAPERWORK. CONTROL ROOM PERSONNEL WILL PERFORM THIS FUNCTION IN THE FUTURE. 2. INVOLVED PERSONNEL ARE TO REVIEW THIS INCIDENT WITH EACH OPERATIONS SHIFT BY JULY 10, 1988. 3. OPERATIONS WILL ESTABLISH AN IMPROVED INTERFACE WITH THE ON-SHIFT FIRE PROTECTION OFFICER FOR THE REVIEW OF FIRE SERVICE RELATED PAPERWORK BY JUNE 15, 1988.

[263] SUMMER 1 DOCKET 50-395 LER 88-006
 SAFETY INJECTION/REACTOR TRIP WHEN "A" MAIN STEAM ISOLATION VALVE CLOSED DURING
 TESTING AND INADEQUATE REVIEW OF POST TRIP DATA.
 EVENT DATE: 051288 REPORT DATE: 060988 NSSS: WE TYPE: PWR

(NSIC 209539) AT 0446 HRS, 5/12/88, A SAFETY INJECTION (SI)/REACTOR TRIP OCCURRED WHEN "A" MAIN STEAM ISOLATION VALVE (MSIV) SHUT DURING TESTING. WHEN THE TEST SWITCH WAS RELEASED FOLLOWING THE TESTING OF "A" MSIV, THE VALVE WENT FULLY SHUT DECREASING THE STEAM FLOW FROM ITS ASSOCIATED STEAM GENERATOR. THIS DECREASE OF STEAM FLOW ON "A" STEAM HEADER CAUSED A CORRESPONDING INCREASE IN STEAM FLOW AND A DECREASE IN STEAM PRESSURE ON B AND C STEAM HEADERS. AS PART OF THE "REACTOR PROTECTION SYSTEM," THIS RAPID DECREASE IN STEAM PRESSURE ON TWO HEADERS CAUSED A SI/REACTOR TRIP. A NOTIFICATION OF AN UNUSUAL EVENT (NUE) WAS DECLARED AT 0510 HRS AS THE RESULT OF THE SI AND WAS DOWNGRADED TO NORMAL PLANT CONDITION AT 0515 HOURS. ON 5/16/88, DURING A REVIEW OF THE POST TRIP DATA BY THE INDEPENDENT SAFETY ENGINEERING GROUP (ISEG), IT WAS IDENTIFIED THAT SERVICE WATER FLOW TO THE REACTOR BUILDING COOLING UNITS (RBCU) DECREASED BELOW THE TECHNICAL SPECIFICATIONS LIMIT DURING THE EVENT. ON 5/17/88, A MANAGEMENT REVIEW BOARD MEETING, CHAIRED BY THE ACTING VICE PRESIDENT, NUCLEAR OPERATIONS, WAS CONVENED TO REVIEW THIS EVENT. AS A RESULT OF THIS MEETING, THE FOLLOWING ACTION IS TO BE TAKEN: ENGINEERING IS TO REVIEW THE DESIGN REQUIREMENTS OF THE MSIV CIRCUITRY, IDENTIFY WHAT IS COMMON IN BOTH THE NORMAL AND TEST CIRCUIT, AND WHAT CAN BE MONITORED DURING THE NEXT TEST.

[264] SURRY 1 DOCKET 50-280 LER 88-012
 INOPERABLE CONTAINMENT ISOLATION VALVE DUE TO PERSONNEL ERROR.
 EVENT DATE: 041888 REPORT DATE: 051788 NSSS: WE TYPE: PWR
 VENDOR: SCHUTTE AND KOERING COMPANY

(NSIC 209390) ON APRIL 18, 1988 AT 1145 HOURS, WITH UNIT 1 AT COLD SHUTDOWN, THE "AS FOUND" LEAKAGE TEST (PT 16.4) REVEALED THAT 1-RS-11 (E11S-BE-ISV) WAS HELD IN THE OPEN POSITION BY ITS COUNTER WEIGHT. AS IT COULD NOT BE DETERMINED WHEN THIS CONDITION ORIGINATED, IT IS BEING REPORTED AS CONTRARY TO TECHNICAL SPECIFICATION 1.0.H.5 WHICH REQUIRES THAT ALL AUTOMATIC CONTAINMENT ISOLATION VALVES ARE OPERABLE OR ARE LOCKED CLOSED UNDER ADMINISTRATIVE CONTROL. AN INSPECTION OF 1-RS-11 REVEALED THAT THE VALVE EXTERNAL COUNTERWEIGHT WAS LIFTED TO PAST 90 DEGREES FROM THE HORIZONTAL WHICH HELD THE CHECK VALVE OPEN. THE COUNTERWEIGHT WAS ABLE TO PASS THE VERTICAL POSITION BECAUSE THERE WAS MOVEMENT BETWEEN THE LEVER ARM AND HINGE PIN CONNECTION. THE OTHER THREE (3) VALVES OF SIMILAR DESIGN IN THE UNIT 1 CONTAINMENT WERE INSPECTED AND VERIFIED TO BE IN THE CLOSED POSITION. SIMILAR VALVES IN THE UNIT 2 CONTAINMENT WERE VISUALLY VERIFIED TO BE CLOSED AS REQUIRED. 1-RS-11 WAS DISASSEMBLED. NO INTERNAL DAMAGE WAS OBSERVED WHICH COULD HAVE CAUSED THE VALVE TO OPEN OR REMAIN OPEN. EIGHT (8) VALVES OF THIS DESIGN IN THE UNIT 1 AND 2 CONTAINMENTS WILL BE MODIFIED TO REDUCE THE COUNTERWEIGHT ARM ANGLE TO ZERO DEGREES FROM THE HORIZONTAL WITH THE VALVE CLOSED TO PREVENT THE VALVE FROM BEING CAPABLE OF REMAINING IN THE OPEN POSITION.

[265] SURRY 1 DOCKET 50-280 LER 88-016
 PRESSURIZER SAFETY VALVE SETPOINTS OUTSIDE OF ALLOWABLE LIMITS.
 EVENT DATE: 051088 REPORT DATE: 060888 NSSS: WE TYPE: PWR
 VENDOR: CROSBY VALVE & GAGE CO.

(NSIC 209615) ON MAY 10, 1988, WITH UNIT 1 IN REFUELING SHUTDOWN, THE UNIT 1 PRESSURIZER SAFETY VALVES WERE FOUND TO HAVE LIFT SETPOINTS OUTSIDE ALLOWABLE LIMITS DURING REFUELING SURVEILLANCE TESTING. THREE (3) SAFETY VALVE SETPOINTS WERE HIGHER THAN ALLOWABLE. THE SAFETY VALVE SETPOINTS WERE RESET TO WITHIN ALLOWABLE LIMITS AND THE SAFETIES WERE RE-INSTALLED IN THE SYSTEM. THIS REPORT IS SUBMITTED PURSUANT TO 10CFR50.73(A)(2)(I). AN ENGINEERING EVALUATION IS BEING CONDUCTED TO DETERMINE THE CAUSE OF THE SETPOINT DRIFT.

[266] SURRY 1 DOCKET 50-280 LER 88-013
EDG AUTO START DUE TO PERFORMANCE OF MULTIPLE PROCEDURES CONCURRENTLY.
EVENT DATE: 052388 REPORT DATE: 062188 NSSS: WE TYPE: PWR
OTHER UNITS INVOLVED: SURRY 2 (PWR)

(NSIC 209713) ON MAY 23, 1988, AT 1220 HOURS, WITH UNIT 1 IN A REFUELING OUTAGE AND UNIT 2 IN A MAINTENANCE OUTAGE, DURING POST MAINTENANCE TESTING OF THE NUMBER 3 EMERGENCY DIESEL GENERATOR (EDG) (EIIIS-DG), THE EDG AUTOMATICALLY STARTED. THE INADVERTENT AUTO START OF THE NUMBER 3 EDG WAS THE RESULT OF PERFORMING MULTIPLE PROCEDURES CONCURRENTLY WITHOUT ADEQUATE REVIEW FOR CONFLICTING REQUIREMENTS IN THE INDIVIDUAL PROCEDURES. TESTING WAS SUSPENDED AND THE DIESEL WAS SHUT DOWN TO INVESTIGATE THE CAUSE OF THE AUTO-START. IT WAS DETERMINED THAT THE AUTO-START WAS CAUSED BY THE FAST START RELAY (EIIIS-RLY) CLOSING AND LOCKING IN WHEN THE START SIGNAL WAS INJECTED INTO THE CIRCUIT WHILE THE SWITCH WAS IN THE EXERCISE POSITION. THIS CAUSED THE DIESEL TO START WHEN THE SWITCH WAS PLACED IN AUTO. THE TESTING OF THE CIRCUIT WAS THEN COMPLETED.

[267] SURRY 1 DOCKET 50-280 LER 88-015
EMERGENCY BUS TRANSFORMER COOLING FANS POWERED FROM NON-SAFETY RELATED POWER SUPPLY DUE TO DESIGN DEFICIENCY.
EVENT DATE: 052388 REPORT DATE: 062188 NSSS: WE TYPE: PWR
OTHER UNITS INVOLVED: SURRY 2 (PWR)
VENDOR: I.T.E IMPERIAL POWER EQUIPMENT CO.

(NSIC 209614) ON MAY 23, 1988, AT 1800 HOURS, WITH UNIT 1 IN REFUELING SHUTDOWN AND UNIT 2 IN COLD SHUTDOWN, TWO STATION DEVIATION REPORTS WERE RECEIVED (ONE FOR EACH UNIT) CONCERNING NON-SAFETY RELATED POWER SUPPLIES (EIIIS-JX) FOR THE COOLING FANS (EIIIS-FAN) OF BOTH TRAINS OF 4160 TO 680 VOLT EMERGENCY BUS TRANSFORMERS (EIIIS-XFMR). THE POWER SUPPLIES TO THESE FANS WOULD BE LOST IN THE EVENT OF A LOSS OF OFFSITE POWER. AN ENGINEERING REVIEW WAS INITIATED. WHEN THE RESULTS OF THE ENGINEERING REVIEW WERE RECEIVED AT 1030 HRS ON MAY 31, 1988, THE STATION NUCLEAR SAFETY AND OPERATING COMMITTEE DETERMINED THAT THE EVENT COULD POTENTIALLY PLACE THE PLANT IN AN UNANALYZED CONDITION. THEREFORE, THE EVENT WAS REPORTED PURSUANT TO 10CFR50.72(B)(2)(I) AT 1150 HOURS ON MAY 31, 1988. THE USE OF NON-SAFETY RELATED POWER SUPPLIES FOR THE COOLING FANS FOR THE EMERGENCY BUS TRANSFORMERS IS ATTRIBUTED TO AN ORIGINAL DESIGN DEFICIENCY. THE UNIT 2 POWER SOURCES HAVE BEEN RELOCATED TO DIESEL GENERATOR BACKED SUPPLIES. THE UNIT 1 POWER SOURCES WILL BE RELOCATED PRIOR TO UNIT STARTUP.

[268] SURRY 1 DOCKET 50-280 LER 88-018
PERSONNEL EXCEEDS OVEREXPOSURE LIMIT FOR QUARTER.
EVENT DATE: 052788 REPORT DATE: 062888 NSSS: WE TYPE: PWR

(NSIC 209714) ON MAY 27, 1988, WITH UNIT 1 IN REFUELING SHUTDOWN, IT WAS DETERMINED THAT A CONTRACT EMPLOYEE HAD RECEIVED AN EXPOSURE IN EXCESS OF 3.000 REM FOR THE CALENDAR QUARTER. THE INDIVIDUAL HAD BEEN INVOLVED IN THE CLEANING AND INSPECTION OF THE UNIT 1 REACTOR VESSEL O-RING SEATING SURFACE. THE AFFECTED WORKER RECEIVED A DOSE TO THE HEAD OF 2.527 REM. HIS QUARTERLY TOTAL PRIOR TO THE EVENT WAS 0.752 REM. HIS TOTAL QUARTERLY EXPOSURE OF 3.279 REM THUS EXCEEDED THE 3.000 REM QUARTERLY EXPOSURE LIMIT ALLOWED BY 10CFR20.101(B)1. ENHANCEMENTS TO THE RADIOLOGICAL PROTECTION FUNCTION, AS WELL AS WORK PLANNING, SCHEDULING, COMMUNICATIONS, AND EXECUTION WILL BE IDENTIFIED AND IMPLEMENTED. THIS REPORT IS MADE PURSUANT TO 10CFR20.405(A)(1)(I).

[269] SURRY 2 DOCKET 50-281 LER 88-011
CONTROL/RELAY ROOM CHILLER INOPERABLE DUE TO FOULED FILTER-DRYER ELEMENT.
EVENT DATE: 042388 REPORT DATE: 052088 NSSS: WE TYPE: PWR
OTHER UNITS INVOLVED: SURRY 1 (PWR)

VENDOR: MCQUAY-PERFEX INC.

(NSIC 209391) ON APRIL 23, 1988 AT 2316 HOURS, WITH UNIT 1 IN COLD SHUTDOWN AND UNIT 2 AT 100% POWER, IT WAS NECESSARY TO REMOVE FROM SERVICE ONE OF THE THREE CONTROL ROOM/RELAY ROOM CHILLERS, 1-VS-E-4A (EIS-CHU), TO PERFORM MINOR MAINTENANCE. THE REFRIGERANT FILTER-DRYER WAS BECOMING CLOGGED AND THE UNIT WAS SECURED TO PREVENT THE UNIT FROM TIPPING. THE "B" CHILLER UNIT (1-VS-E-4B) HAD PREVIOUSLY BEEN REMOVED FROM SERVICE FOR A MAJOR OVERHAUL, LEAVING ONLY ONE CHILLER (1-VS-E-4C) OPERATING. THIS IS CONTRARY TO TECHNICAL SPECIFICATION 3.14 WHICH REQUIRES ONE CONTROL ROOM/RELAY ROOM CHILLER TO BE OPERATING AND ANOTHER TO BE OPERABLE. THE REFRIGERANT FILTER-DRYER ELEMENTS OF 1-VS-E-4A WERE BECOMING FOULED WITH DEBRIS AND REQUIRED REPLACEMENT. CHILLER 1-VS-E-4A HAD RECENTLY BEEN REPLACED WITH A NEW UNIT. THIS TYPE OF DEBRIS IS NOT UNUSUAL WHEN A NEW CHILLER/UNIT IS PLACED IN SERVICE. CHILLER 1-VS-E-4A WAS SECURED, THE FILTER-DRYER ELEMENTS WERE REPLACED, AND THE CHILLER WAS RETURNED TO SERVICE AT 2334 HOURS ON APRIL 23, 1988. A MAJOR UPGRADE OF THE CHILLER UNITS HAS BEEN COMPLETED TO IMPROVE THE CAPACITY AND RELIABILITY OF THESE UNITS.

[270] SURRY 2 DOCKET 50-281 LER 88-008
INADEQUATE BORIC ACID FLOWPATHS DUE TO PERSONNEL ERROR AND INADEQUATE PROCEDURES.
EVENT DATE: 050589 REPORT DATE: 060688 NSSS: WE TYPE: PWR

(NSIC 209524) ON MAY 5, 1988 AT 1749 HOURS, WITH UNIT 2 AT 98% POWER, THE REACTOR OPERATOR DISCOVERED THAT NO BORIC ACID FLOWPATH EXISTED FROM THE BORIC ACID STORAGE TANKS (BASTS) (EIS-CB TK) TO THE CHARGING PUMPS (EIS-P). THIS IS IN VIOLATION OF TECHNICAL SPECIFICATION 3.2.B.4. THE LOSS OF THE FLOWPATH WAS DUE TO PERSONNEL ERROR AND PROCEDURAL INADEQUACY IN RESTORING ONE BORIC ACID TRANSFER PUMP TO SERVICE FOLLOWING MAINTENANCE. THE LOSS OF THE FLOWPATH LISTED FOR SEVEN (7) HOURS. A SECOND FLOWPATH FROM THE REFUELING WATER STORAGE TANK (RWST) TO THE CORE EXISTED DURING THIS EVENT. PROCEDURES WILL BE REVISED TO CLARIFY VALVE ALIGNMENT IN THE SYSTEM FOR THE VARIOUS POSSIBLE COMBINATIONS OF TANKS AND PUMPS.

[271] SURRY 2 DOCKET 50-281 LER 88-010
REACTOR TRIP DUE TO LOW LOW STEAM GENERATOR LEVEL DUE TO CLOSURE OF TURBINE GOVERNOR VALVES.
EVENT DATE: 051688 REPORT DATE: 061588 NSSS: WE TYPE: PWR
VENDOR: INGERSOLL-RAND CO.
 MAGNETICS DIV SPANG INDUSTRIES, INC.

(NSIC 209715) ON MAY 16, 1988 AT 0324 HOURS, WITH UNIT 2 AT 100% POWER, A REACTOR TRIP OCCURRED AS A RESULT OF STEAM GENERATOR (S/G) (EIS-HX) LOW LOW LEVEL. AT 49 SECONDS AFTER THE TRIP, SAFETY INJECTION EIS-BQ WAS MANUALLY INITIATED IN ACCORDANCE WITH EMERGENCY PROCEDURE 1.0 DUE TO PRESSURIZER EIS-PZR LEVEL DECREASING TO 13%. THE CAUSE OF THE REACTOR TRIP WAS RAPID CLOSURE OF THE TURBINE GOVERNOR VALVES (EIS-SCV) WHICH RESULTED IN SHRINK OF THE S/G LEVELS TO THE REACTOR TRIP SETPOINT. EXTENSIVE TESTING WAS CONDUCTED ON THE TURBINE CONTROL CIRCUITRY AND THE EHC SYSTEM. NO DEFICIENCIES WERE DETECTED. THE TURBINE IMPULSE PRESSURE TRANSMITTER EIS-PT WAS CALIBRATED. FURTHER MONITORING OF THE EHC SYSTEM WILL BE PERFORMED DURING THE UNIT STARTUP.

[272] SURRY 2 DOCKET 50-281 LER 88-012
INOPERABLE INDIVIDUAL ROD POSITION INDICATORS DUE TO INSTRUMENT DRIFT.
EVENT DATE: 051788 REPORT DATE: 061688 NSSS: WE TYPE: PWR
VENDOR: MAGNETICS DIV SPANG INDUSTRIES, INC.

(NSIC 209616) ON MAY 17, 1988, UNIT 2 WAS AT INTERMEDIATE SHUTDOWN AND PROCEEDING TO COLD SHUTDOWN AS REQUIRED BY TECHNICAL SPECIFICATIONS (T.S.) DUE TO REDUCED AUXILIARY FEEDWATER FLOW FOLLOWING A REACTOR TRIP ON MAY 16, 1988. AT 0557 HOURS

ON MAY 17, 1988, THE INDIVIDUAL ROD POSITION INDICATORS (IRPIS) (EIIS-ZI) FOR FOUR RODS IN SHUTDOWN BANK "B" DIFFERED FROM THE ROD GROUP DEMAND COUNTER BY GREATER THAN 12 STEPS. THIS IS CONTRARY TO T.S. 3.12. THE IRPIS WERE ADJUSTED AT 0631, BUT DURING THE CONTINUED COOLDOWN, SIX IRPIS FOR SHUTDOWN BANK 'A' DRIFTED OUT OF THE 12 STEP BAND AT 0850 HOURS. THE IRPIS WERE NOT ABLE TO BE CALIBRATED, AND THE UNIT WAS PLACED IN COLD SHUTDOWN AT 0519 HOURS ON MAY 18, 1988. INCORRECT ROD POSITION INDICATION DUE TO REACTOR COOLANT SYSTEM (RCS) (EIIS-AB) TEMPERATURE CHANGES IS KNOWN TO BE A GENERIC WESTINGHOUSE PWR CONCERN. A T.S. CHANGE IS BEING PREPARED WHICH WILL ACCOMMODATE THE EFFECTS OF RCS TEMPERATURE ON THE ROD POSITION INDICATORS. A SETPOINT CHANGE WAS MADE WHICH LOWERED THE P-250 PROCESS COMPUTER ROD DEVIATION ALARM TO ALERT THE OPERATOR WHEN THE RODS ARE 10 STEPS OUT OF ALIGNMENT TO PRECLUDE EXCEEDING THE T.S. LIMIT OF 12 STEPS. THE IRPIS WILL BE CALIBRATED PRIOR TO UNIT CRITICALITY.

[273] SURRY 2 DOCKET 50-281 LER 88-013
 REACTOR TRIP BREAKERS OPENED DUE TO INADEQUATE PROCEDURE.
 EVENT DATE: 052388 REPORT DATE: 061488 NSSS: WE TYPE: PWR

(NSIC 209716) ON MAY 23, 1988 AT 1244 HOURS, WITH UNIT 2 AT COLD SHUTDOWN, THE REACTOR TRIP BREAKERS (EIIS-BRK) AUTOMATICALLY OPENED IN RESPONSE TO A REACTOR TRIP SIGNAL GENERATED ON LOW STEAM GENERATOR (S/G) WATER LEVEL. PRIOR TO THIS EVENT, THE REACTOR TRIP BREAKERS HAD BEEN CLOSED TO FACILITATE TESTING OF THE TURBINE CONTROL SYSTEM. IN ORDER TO SATISFY AN INTERLOCK FOR CLOSING THE REACTOR TRIP BREAKERS AT COLD SHUTDOWN, SIGNALS FOR NORMAL STEAM GENERATOR LEVELS WERE SIMULATED FOR 2 OF 3 S/G LEVEL COMPARATOR MODULES FOR EACH S/G. A REACTOR TRIP OCCURRED WHEN THE SIMULATED SIGNALS WERE INADVERTENTLY DEENERGIZED DUE TO AN INADEQUATE PROCEDURE. THE INADEQUATE (DEVIATED) PROCEDURE FAILED TO IDENTIFY THE SOURCE OF POWER FOR THE SIMULATED S/G SIGNALS. PERSONNEL WILL BE REINSTRUCTED ON THE NEED FOR CLARITY WHEN DEVIATING FROM PROCEDURES.

[274] SURRY 2 DOCKET 50-281 LER 88-014
 LIFTING OF POWER OPERATED RELIEF VALVE DUE TO PROCEDURAL INADEQUACY.
 EVENT DATE: 052888 REPORT DATE: 062788 NSSS: WE TYPE: PWR

(NSIC 209717) ON MAY 28, 1988 AT 0228 HOURS, WITH UNIT 2 IN COLD SHUTDOWN, A REACTOR COOLANT SYSTEM (RCS) (EIIS-AB) POWER OPERATED RELIEF VALVE (PORV), PCV-2455C (EIIS-PCV) CYCLED OPEN AND THEN CLOSED. AT THE TIME OF THE EVENT, RCS VENTING AND FILLING WAS IN PROGRESS AND A REACTOR COOLANT PUMP (RCP) EIIS-P HAD JUST BEEN STARTED. THE PRESSURE TRANSIENT, CAUSED BY THE START OF THE RCP WITH A SOLID WATER PLANT CONDITION, CREATED A PRESSURE RISE AND LIFTED THE PORV WHICH WAS SET TO OPEN AT 375 PSIG. THE PORV IMMEDIATELY CLOSED AND THE RCS PRESSURE STABILIZED AT APPROXIMATELY 340 PSIG. THIS EVENT IS REPORTABLE PURSUANT TO TECHNICAL SPECIFICATION (T.S.) 3.1.G.3 AND 6.6.C. THE CAUSE OF THE EVENT WAS FAILURE TO REVISE THE RCS VENTING PROCEDURE WHEN THE PORV LIFT SETPOINTS WERE REDUCED. THE ADMINISTRATIVE PROCEDURE WHICH PROVIDES THE INSTRUCTIONS FOR PROCESSING SETPOINT CHANGE REQUESTS REQUIRES THAT DOCUMENTS AFFECTED BY THE SETPOINT CHANGE BE REVIEWED. HOWEVER, THERE WAS NO MECHANISM TO ENSURE THAT THESE DOCUMENTS WERE REVISED. THE OPERATING PROCEDURES FOR BOTH UNITS ARE BEING REVISED TO REDUCE THE REQUIRED RCS PRESSURE BAND FOR OPERATING A RCP WHEN VENTING THE RCS. THE ADMINISTRATIVE PROCEDURE WILL BE REVISED TO PROVIDE A MECHANISM TO ENSURE THAT DOCUMENTS AFFECTED BY THE SETPOINT CHANGE WILL BE REVISED IN A TIMELY MANNER.

[275] SUSQUEHANNA 1 DOCKET 50-387 LER 88-007
 EMERGENCY DIESEL GENERATOR 'E' UNPLANNED AUTOMATIC START.
 EVENT DATE: 042988 REPORT DATE: 052088 NSSS: GE TYPE: BWR
 OTHER UNITS INVOLVED: SUSQUEHANNA 2 (BWR)

(NSIC 209363) ON APRIL 29, 1988 AT 1535 HOURS, WITH UNIT 1 OPERATING AT 100% POWER AND UNIT 2 IN THE REFUELING CONDITION AT 0% POWER, AN UNPLANNED START OF THE 'E' DIESEL GENERATOR (WHICH WAS SUBSTITUTING FOR THE 'C' D/G) OCCURRED DURING THE PERFORMANCE OF A UNIT 2 18-MONTH SURVEILLANCE TEST. A HIGH IMPEDANCE TEST LAMP ASSEMBLY WAS TO BE INSTALLED ON TERMINAL POINTS AROUND THE COIL OF THE PRIMARY DIESEL EMERGENCY START RELAY TO MONITOR THE RELAY'S STATUS DURING THE TEST. DURING INSTALLATION OF THE TEST EQUIPMENT, AN ELECTRICAL ARC OCCURRED BETWEEN A TERMINAL POINT AND THE TEST EQUIPMENT. THE ARCING LEAD TO DE-ENERGIZATION OF THE PRIMARY EMERGENCY START RELAY AND AN AUTOMATIC DIESEL START. TO PREVENT RECURRENCE, CRITICAL JUNCTIONS WILL HEREAFTER BE OF A SWITCHED TYPE, SO THAT PROPER INSTALLATION CAN BE VERIFIED BEFORE CLOSING THE SWITCH. TEST EQUIPMENT INTEGRITY WILL BE CHECKED PRIOR TO INSTALLATION. IF TERMINAL POINTS ARE DIFFICULT TO ATTACH TEST EQUIPMENT TO, AN ATTEMPT WILL BE MADE TO IDENTIFY ALTERNATE POINTS WHICH ARE MORE CONVENIENT. THE STATION IS ALSO INVESTIGATING LONGER TERM ADDITIONAL CONTROLS, SUCH AS THE INSTALLATION OF PERMANENT TEST CONNECTIONS ON TERMINAL POINTS USED DURING TESTING AND THE USE OF DEDICATED WORK CREWS WHO WOULD BE ASSIGNED TO TEST PERSONNEL DURING PLANNED OUTAGE TESTING PERIODS.

[276] SUSQUEHANNA 1 DOCKET 50-387 LER 88-009
HIGH PRESSURE COOLANT INJECTION SYSTEM INVERTER TRIPS CAUSING SINGLE TRAIN SAFETY SYSTEM TO BECOME INOPERABLE.
EVENT DATE: 052088 REPORT DATE: 062088 NSSS: GE TYPE: BWR

(NSIC 209659) ON MAY 20, 1988, AT 0125 HOURS THE HIGH PRESSURE COOLANT INJECTION SYSTEM (HPCI) OUT-OF-SERVICE ANNUNCIATOR ALARMED AND THE HPCI INVERTER STATUS LIGHT ILLUMINATED IN THE CONTROL ROOM. OPERATIONS PERSONNEL INVESTIGATED AND FOUND THAT THE HPCI INVERTER HAD TRIPPED. THE INVERTER PROVIDES POWER TO COMPONENTS OF THE HPCI TURBINE SPEED CONTROL CIRCUITRY. WITHOUT THE INVERTER OPERATING THE HPCI SYSTEM IS INOPERABLE. AS SUCH, OPERATIONS PERSONNEL DECLARED LIMITING CONDITION FOR OPERATION (LCO) 3.5.1 ON THE EMERGENCY CORE COOLING SYSTEMS. PLANT PERSONNEL RESET THE INVERTER WHICH RESTORED HPCI SYSTEM OPERABILITY. OPERATIONS PERSONNEL CLEARED THE HPCI LCO AT 0100 HOURS. THE INVERTER HAD BEEN DE-ENERGIZED FOR APPROXIMATELY 25 MINUTES. DURING THIS TIME PERIOD, UNIT ONE WAS OPERATING AT APPROXIMATELY 100% CAPACITY. THE CAUSE OF THE TRIP IS ATTRIBUTED TO THE HIGH VOLTAGE TRIP SETPOINT OF THE INVERTER DRIFTING LOW. AT THE TIME, THE BATTERY CHARGER, SUPPLYING POWER TO THE INVERTER, WAS OPERATING IN EQUALIZE. THE INPUT VOLTAGE TO THE INVERTER WAS 144 VDC. THE INVERTER'S HIGH VOLTAGE SETPOINT IS NORMALLY 147 VDC. ELECTRICAL MAINTENANCE PERSONNEL LOWERED THE EQUALIZE VOLTAGE TO 142.8 VDC AND RETURNED THE CHARGER TO FLOAT. THESE ACTIONS LOWERED THE VOLTAGE INPUT TO INVERTER TO BETWEEN 130 AND 134 VDC, WHICH ALLOWED THE INVERTER TO RESET.

[277] SUSQUEHANNA 2 DOCKET 50-388 LER 88-010
DELAMINATING FOIL ON INSULATION IN PRIMARY CONTAINMENT.
EVENT DATE: 030588 REPORT DATE: 071588 NSSS: GE TYPE: BWR

(NSIC 209974) THIS LER PROVIDES INFORMATION CONCERNING A CONDITION INVOLVING TEMP-MAT FIBROUS INSULATION BLANKETS COVERED WITH ALUMINUM LAMINATED ALPHA MARITEX STYLE #2025/9480 HT FIBERGLASS CLOTH WHICH HAD BEEN USED EXTENSIVELY IN THE PRIMARY CONTAINMENT AT SUSQUEHANNA SES UNIT 2. THE ALUMINUM FOIL ON THE SURFACE OF THE ALPHA MARITEX CLOTH COVERING THE TEMP-MAT BLANKETS WAS FOUND TO HAVE DELAMINATED EXTENSIVELY THROUGHOUT THE DRYWELL. THIS CONDITION WAS DISCOVERED DURING A WALKDOWN ON MARCH 5, 1988 SHORTLY FOLLOWING COMMENCEMENT OF A REFUELING OUTAGE. PURSUANT TO 10CFR21, INITIAL TELEPHONE NOTIFICATION TO THE COMMISSION WAS PROVIDED ON MARCH 14, 1988 AND A PART 21 REPORT WAS SUBMITTED ON MARCH 21, 1988 PER PLA-3003. THIS CONDITION WAS LIMITED TO SSES UNIT 2. DURING A LOSS-OF-COOLANT ACCIDENT, LARGE QUANTITIES OF LOOSE ALUMINUM FOIL COULD HAVE BECOME DEBRIS DURING THE BLOWDOWN PHASE. ALSO, USE OF DRYWELL SPRAY FOLLOWING A

LOCA COULD HAVE RESULTED IN FURTHER DEBRIS GENERATION. INSULATION DEBRIS COULD BE TRANSPORTED TO THE WETWELL DURING A LOCA, AND COULD HAVE BLOCKED ECCS PUMP SUCTION STRAINERS, RESULTING IN INADEQUATE NPSH, CAUSING PUMP DAMAGE. BECHTEL CALCULATIONS FOR THE EFFECT OF INSULATION DEBRIS ON ECCS PUMP PERFORMANCE HAD NOT CONSIDERED DELAMINATION OF THE ALUMINUM FOIL AS A SOURCE OF DEBRIS.

[278] SUSQUEHANNA 2 DOCKET 50-388 LER 88-009
MSIV ISOLATION SIGNAL INITIATED WHEN PRINTED CIRCUIT CARD WAS REINSERTED.
EVENT DATE: 052488 REPORT DATE: 062288 NSSS: GE TYPE: BWR

(NSIC 209755) ON MAY 24, 1988 WITH UNIT 2 IN CONDITION 5 AT 0% POWER, AN ESF ACTUATION OCCURRED WHEN AN ISOLATION SIGNAL TO THE MSIV'S WAS INITIATED WHEN AN I&C TECHNICIAN PUSHED IN A PRINTED CIRCUIT CARD PART WAY TO AVOID INTERFERENCE WITH THE DOOR TO THE EHC CABINET. THIS EVENT WAS DETERMINED TO BE REPORTABLE PER 10CFR50.73(A)(2)(IV), IN THAT THE INADVERTENT MSIV ISOLATION SIGNAL CONSTITUTED AN UNPLANNED ESF ACTUATION. ADEQUATE PROTECTION AGAINST AN OUTSIDE RELEASE OF RADIOACTIVE MATERIAL WAS ENSURED DURING THE EVENT SINCE THE MSIV'S WERE ALREADY CLOSED IN THEIR SAFETY FUNCTION POSITION. THE EHC PRINTED CIRCUIT CARD HAD BEEN PULLED OUT TO FACILITATE TROUBLESHOOTING FOR AN EHC PROBLEM ON THE MAIN TURBINE. WHEN THE CARD WAS PARTIALLY REINSERTED, DESIGN CONDITIONS WERE MET TO INITIATE THE MSIV ISOLATION TRIP LOGIC. THE CAUSE OF THE EVENT IS AN I&C DEPARTMENT PROGRAM ERROR GOVERNING NORMAL WORK PRACTICES. IT HAS BEEN I&C WORK PRACTICE TO LEAVE CIRCUIT CARDS IN THE SHELF POSITION (PULLED, BUT STILL IN POSITION) FOR SITUATIONS WHEN IT HAS BEEN NECESSARY TO REMOVE THEM DURING WORK ACTIVITIES. IMMEDIATE CORRECTIVE ACTIONS INCLUDED PULLING OUT THE PRINTED CIRCUIT CARD AND RESETTING THE ISOLATION LOGIC AND ASSOCIATED ALARMS.

[279] THREE MILE ISLAND 2 DOCKET 50-320 LER 88-005
REMOVAL OF TRASH FROM A RADIOLOGICALLY CONTROLLED AREA WITHOUT PROPER SURVEY.
EVENT DATE: 042188 REPORT DATE: 052088 NSSS: BW TYPE: PWR

(NSIC 209461) THIS LER DESCRIBES TWO (2) EVENTS INVOLVING REMOVAL OF TRASH CONTAINING SOLID CONTAMINATED DEBRIS IN EXCESS OF ESTABLISHED LIMITS FROM A RADIOLOGICALLY CONTROLLED AREA (RCA) WITHOUT PROPER RELEASE SURVEYS. THE GPU NUCLEAR CORPORATION RADIATION PROTECTION PLAN, A TMI-2 LICENSING BASIS DOCUMENT PER THE TMI-2 TECHNICAL SPECIFICATIONS, ESTABLISHED LIMITS FOR UNRESTRICTED RELEASE OF 1000 DPM/100 CM² LOOSE SURFACE CONTAMINATION AND 5000 DPM/100 CM² TOTAL (FIXED PLUS REMOVABLE). THEREFORE, THESE EVENTS ARE REPORTABLE PURSUANT TO 10 CFR 20.405(A)(1)(V) SINCE THE CONTAMINATION LEVELS DISCOVERED AT THE TRASH COMPACTOR IN EACH CASE WERE IN EXCESS OF TEN (10) TIMES THE LIMIT SET FORTH IN THE PLAN. THE EARLIEST EVENT DATE OF THIS LER IS APRIL 21, 1988; THUS, THE DUE DATE OF THIS REPORT IS MAY 21, 1988 (I.E., 30 DAYS FROM DETERMINATION OF REPORTABILITY). IN BOTH EVENTS, A RADIOLOGICAL CONTROLS TECHNICIAN WAS PERFORMING A ROUTINE SURVEY AT THE TRASH COMPACTOR AND DISCOVERED ONE OR MORE BAGS OF TRASH CONTAMINATED TO VARIOUS LEVELS. THE BAG(S) WAS REMOVED TO A CONTROLLED AREA AND SURVEYED; THE CONTAMINATED MATERIAL WAS REMOVED AND IDENTIFIED. THE PRIMARY CAUSE FOR BOTH EVENTS IS A LACK OF AWARENESS OF SURVEY REQUIREMENTS FOR MATERIAL REMOVED FROM AN RCA AND/OR INATTENTION TO REQUIREMENTS POSTED AT ALL EXISTS.

[280] THREE MILE ISLAND 2 DOCKET 50-320 LER 88-008
REMOVAL OF TRASH FROM A RADIOLOGICALLY CONTROLLED AREA WITHOUT PROPER SURVEY.
EVENT DATE: 050488 REPORT DATE: 060388 NSSS: BW TYPE: PWR

(NSIC 209625) THIS LER DESCRIBES TWO (2) EVENTS INVOLVING REMOVAL OF TRASH CONTAINING SOLID CONTAMINATED DEBRIS IN EXCESS OF ESTABLISHED LIMITS. THE FIRST EVENT INVOLVED A HOUSEKEEPING ACTIVITY IN A RADIOLOGICALLY CLEAN AREA AND THE SECOND INVOLVED REMOVAL OF TRASH FROM A RADIOLOGICALLY CONTROLLED AREA (RCA)

WITHOUT PROPER RELEASE SURVEYS. THE G&U NUCLEAR CORPORATION RADIATION PROTECTION PLAN, A TMI-2 LICENSING BASIS DOCUMENT PER THE TMI-2 TECH SPECS, ESTABLISHES LIMITS FOR UNRESTRICTED RELEASE OF 1000 DPM/100 CM(2) LOOSE SURFACE CONTAMINATION AND 5000 DPM/100 CM(2) TOTAL (FIXED PLUS REMOVABLE). THEREFORE, THIS EVENT IS REPORTABLE PURSUANT TO 10 CFR 20.405(A)(1)(V) SINCE THE CONTAMINATION LEVELS DISCOVERED AT THE TRASH COMPACTOR WERE IN EXCESS OF TEN (10) TIMES THE LIMIT SET FORTH IN THE PLAN. THE EARLIEST EVENT DATE OF THIS LER IS MAY 4, 1988; THUS, THE DUE DATE OF THIS REPORT IS JUNE 3, 1988 (I.E., 30 DAYS FROM DETERMINATION OF REPORTABILITY). IN BOTH EVENTS, A RADIOLOGICAL CONTROLS TECHNICIAN WAS PERFORMING A ROUTINE SURVEY AT THE TRASH COMPACTOR AND DISCOVERED SEVERAL BAGS OF TRASH CONTAMINATED TO VARIOUS LEVELS IN EXCESS OF ALLOWABLE LIMITS. THE BAGS WERE REMOVED TO A CONTROLLED AREA AND SURVEYED; THE CONTAMINATED MATERIAL WAS REMOVED AND IDENTIFIED.

[281] THREE MILE ISLAND 2 DOCKET 50-320 LER 88-009
 PROCEDURAL NON-COMPLIANCE DURING OPERATION OF THE XY BRIDGE FLUSH WAND.
 EVENT DATE: 051388 REPORT DATE: 061088 NSSS: BW TYPE: PWR
 VENDOR: GOULDS PUMPS INC.

(NSIC 209626) AT APPROXIMATELY 0722 HOURS ON MAY 13, 1988, A FLUSH OF THE X-Y BRIDGE, WHICH POSITIONS THE PLASMA ARC TORCH, WAS BEING PERFORMED IN THE TMI-2 REACTOR VESSEL (RV) USING THE X-Y BRIDGE FLUSH WAND. THIS ACTIVITY WAS BEING DIRECTED BY A TASK SUPERVISOR STATIONED IN THE COMMAND CENTER, AND A LEAD ENGINEER, STATIONED IN THE REACTOR BUILDING (RB). THE TASK SUPERVISOR WAS DIRECTING THIS ACTIVITY PER OPERATION PROCEDURE 4210-OPS-3255.29. THIS PROCEDURE REQUIRES THAT THE FLUSH WAND BE CONNECTED TO THE WATER JET SUPPLY PUMP VAC-P1, WHICH IS SUBMERGED IN THE RV. HOWEVER, AT THE TIME OF THE EVENT VAC-P1 WAS INOPERABLE, THUS, THE TASK SUPERVISOR AND LEAD ENGINEER DECIDED TO PERFORM THE FLUSHING OPERATION USING THE BORATED WATER STORAGE TANK (BWST)/FUEL TRANSFER CANAL FILL (FCC) SYSTEM AS THE SOURCE OF FLUSH WATER. THE BWST/FCC SYSTEM IS NOT AUTHORIZED FOR THIS ACTIVITY; THUS, THIS EVENT IS REPORTABLE PER 10 CFR 50.73(A)(2)(II)(C). PUMP VAC-P1 WAS RETURNED TO SERVICE ON MAY 27, 1988. THIS EVENT IS BEING DISCUSSED WITH THE TASK SUPERVISOR, THE LEAD ENGINEER, AND OTHER PERSONNEL WHO MAY ENGAGE IN SIMILAR TYPE ACTIVITIES. THE REFERENCED OPERATING PROCEDURE IS BEING REVISED TO ALLOW USE OF AN ALTERNATIVE BORATED WATER SUPPLY FOR THIS ACTIVITY.

[282] TROJAN DOCKET 50-344 LER 88-019
 SURVEILLANCE REQUIRED BY TECH SPECS NOT PERFORMED FOLLOWING CONTAINMENT HYDROGEN VENT SYSTEM ADSORBER REPLACEMENT.
 EVENT DATE: 022388 REPORT DATE: 071588 NSSS: WE TYPE: PWR

(NSIC 209966) ON FEBRUARY 23, 1988, IT WAS DISCOVERED THAT THE CHARCOAL ADSORBER BANK FOR THE TRAIN "B" CONTAINMENT HYDROGEN VENT SYSTEM (CS-9B) HAD BEEN REPLACED ON FEBRUARY 12, 1988. THE IN-PLACE TESTING REQUIRED BY TROJAN TECH SPEC 4.6.4.3.F FOLLOWING ADSORBER REPLACEMENT WAS NOT PERFORMED ON CS-9B. THE CS-9B SYSTEM WAS THEREFORE TECHNICALLY INOPERABLE AFTER FEBRUARY 12, 1988, DUE TO FAILURE TO PERFORM THIS REQUIRED SURVEILLANCE. THIS CONDITION WAS NOT RECOGNIZED AT THE TIME, AND THE TRAIN "B" CONTAINMENT HYDROGEN VENT SYSTEM WAS CONSIDERED TO BE IN AN OPERABLE STATUS UNTIL DISCOVERY OF THIS SITUATION ON FEBRUARY 23, 1988. TRAIN "B" OF THE CONTAINMENT HYDROGEN VENT SYSTEM WAS PLACED IN AN INOPERABLE STATUS UPON DISCOVERY OF THIS EVENT. EVALUATION OF THIS VENT IS STILL IN PROGRESS. A SUPPLEMENTAL REPORT WILL BE SUBMITTED WHEN THIS EVALUATION HAS BEEN COMPLETED. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[283] TROJAN DOCKET 50-344 LER 88-003 REV 01
 UPDATE ON SINGLE FAILURE MECHANISM DISCOVERED WHICH COULD OVERPRESSURIZE
 CONTAINMENT ELECTRICAL PENETRATION SEALS.
 EVENT DATE: 032488 REPORT DATE: 062288 NSSS: WE TYPE: PWR

(NSJC 209741) DURING A CONTAINMENT PENETRATION RELIABILITY REVIEW ON MARCH 24, 1988, A SINGLE FAILURE MECHANISM WAS DISCOVERED THAT COULD RESULT IN OVERPRESSURIZATION OF CONTAINMENT ELECTRICAL PENETRATION SEALS. THE SEALS WERE OPERATED WITH A CONTINUOUS SUPPLY OF NITROGEN TO THE PENETRATION MODULE. THE NITROGEN SUPPLY SYSTEM TO CONTAINMENT ELECTRICAL PENETRATIONS IS NOT PROVIDED ADEQUATE OVERPRESSURE PROTECTION DOWNSTREAM OF THE PRESSURE REGULATORS. THEREFORE, FAILURE OF A REGULATOR COULD OVERPRESSURIZE THE SEALS AND CAUSE THEIR FAILURE. THE CAUSE OF THIS CONDITION HAS NOT BEEN DETERMINED. CORRECTIVE ACTION WAS TAKEN TO ISOLATE THE NITROGEN SUPPLY TO THE CONTAINMENT ELECTRICAL PENETRATIONS SINCE NITROGEN PRESSURE IS NOT NECESSARY FOR THE SEALS TO FULFILL THEIR DESIGN FUNCTION. NITROGEN PRESSURE IS BEING MANUALLY ADJUSTED FOR THE APPROPRIATE VALUE ONCE PER SHIFT. EVALUATION OF THIS EVENT IS STILL IN PROGRESS. COMPLETION OF THE EVALUATION IS CONTINGENT UPON RECEIPT OF ADDITIONAL DESIGN INFORMATION FROM THE MANUFACTURER OF THE ELECTRICAL PENETRATION ASSEMBLIES. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[284] TROJAN DOCKET 50-344 LER 88-004 REV U1
 UPDATE ON CONTAINMENT PENETRATIONS NOT VERIFIED CLOSED AS REQUIRED BY TECH SPECS.
 EVENT DATE: 032888 REPORT DATE: 071888 NSSS: WE TYPE: PWR

(NSIC 209965) DURING A ROUTINE INSPECTION ON MARCH 28, 1988, IT WAS DISCOVERED THAT THE PLANT WAS BEING OPERATED IN A CONDITION THAT DID NOT COMPLY WITH TROJAN TECH SPEC REQUIREMENTS. FOUR MANUAL DRAIN VALVES LOCATED ON THE MAIN FEEDWATER LINES WHICH ARE IDENTIFIED AS MANUAL CONTAINMENT ISOLATION VALVES IN TECH SPEC TABLE 3.6-1 WERE FOUND TO BE OPEN, WITH PRESSURE TRANSDUCERS CONNECTED TO THE DOWNSTREAM DRAIN LINES. THE FINAL SAFETY ANALYSIS REPORT ASSUMED POSITION FOR THESE VALVES IS LOCKED CLOSED. THE FEEDWATER LINE DRAIN VALVES WERE OPENED IN ACCORDANCE WITH A TEMPORARY MODIFICATION IMPLEMENTED ON AUGUST 7, 1987. THE TTS 4.6.1.1, "PRIMARY CONTAINMENT INTEGRITY", REQUIREMENT TO PERIODICALLY VERIFY THE CONTAINMENT PENETRATIONS ASSOCIATED WITH THESE VALVES ARE SHUT WAS NOT MET. THE APPARENT CAUSE OF THIS EVENT WAS INADEQUATE DEVELOPMENT AND REVIEW OF THE TEMPORARY MODIFICATION AND ITS SAFETY EVALUATION. IMMEDIATE CORRECTIVE ACTION WAS TO CLOSE THE MANUAL FEEDWATER LINE DRAIN VALVES. AN ACTION PLAN HAS BEEN DEVELOPED TO EVALUATE AND CORRECT CONCERNS REGARDING CONTAINMENT ISOLATION REQUIREMENTS, THE ADEQUACY OF SAFETY EVALUATIONS, AND THE CAUSES OF THIS EVENT. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[285] TROJAN DOCKET 50-344 LER 88-009
 HOURLY FIRE PATROLS FOR INOPERABLE FIRE DOOR MISSED.
 EVENT DATE: 042188 REPORT DATE: 051988 NSSS: WE TYPE: PWR

(NSIC 209471) ON APRIL 12, 1988, FIRE DOORS 52 AND 53 TO THE WEST AND EAST BATTERY ROOMS WERE BLOCKED OPEN TO SUPPORT BATTERY REPLACEMENT. THE COMPENSATORY MEASURES OF TROJAN TECH SPEC 3.7.9 WERE TAKEN. ON APRIL 21, IT WAS DISCOVERED THAT THE FIRE PATROL FOR DOOR 52 WAS NOT PROPERLY CONDUCTED FOR APPROX. 4 HOURS. THE PERSON ASSIGNED TO PERFORM HOURLY FIRE PATROLS OBSERVED NUMEROUS PERSONNEL WORKING IN THE AREA AND ASSUMED AN ACTUAL INSPECTION OF THE AREA INSIDE DOOR 52 WAS NOT NECESSARY. THE CAUSE OF THIS EVENT WAS PERSONNEL ERROR. EMPLOYMENT OF THE PERSON WHO FAILED TO PERFORM THE REQUIRED FIRE PATROLS HAS BEEN TERMINATED. IT IS EXPECTED THAT FIRE DOORS 52 AND 53 WILL BE RETURNED TO SERVICE BY JUNE 30, 1988. THIS REPORT INCLUDES THE INFORMATION REQUIRED BY THE SPECIAL REPORTING REQUIREMENTS OF TROJAN TECH SPEC 3.7.9 FOR INOPERABLE FIRE BARRIERS. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[286] TROJAN DOCKET 50-344 LER 88-012
 MOVEMENT OF LOADS OVER IRRADIATED FUEL IN SPENT FUEL POOL VIOLATED TECH SPEC
 LIMITS ON FUEL BUILDING CRANE TRAVEL.
 EVENT DATE: 042588 REPORT DATE: 052588 NSSS: WE TYPE: PWR

(NSIC 209472) ON APRIL 25, 1988, WHILE MOVING NEW FUEL ASSEMBLIES FROM THE NEW FUEL STORAGE RACKS TO THE SPENT FUEL POOL (SFP), NEW FUEL ASSEMBLIES WERE MOVED OVER SPENT FUEL ASSEMBLIES STORED IN THE SFP. THE NEW FUEL ASSEMBLIES WERE CARRIED ABOVE THE SURFACE OF THE WATER BY THE SFP BRIDGE CRANE IN THE FULLY RAISED POSITION. THIS ACTION VIOLATED TROJAN TECH SPEC LIMITATIONS ON FUEL BUILDING CRANE TRAVEL. SEVEN ASSEMBLIES WERE MOVED IN SUCH A MANNER. THE FUEL MOVEMENT WAS PERFORMED BY A REFUELING TEAM CONTRACTED TO PERFORM REFUELING OPERATIONS. THE CAUSE OF THIS EVENT WAS FAILURE OF THE REFUELING CREW TO COMPLY WITH PLANT PROCEDURES. IMMEDIATE CORRECTIVE ACTION UPON DISCOVERY WAS TO RETURN THE FUEL ASSEMBLY BEING MOVED TO AN APPROVED LOAD PATH. THE REFUELING CREW WAS GIVEN INSTRUCTION ON APPROVED LOAD PATHS FOR MOVEMENT OF NEW FUEL PRIOR TO RESUMPTION OF FUEL MOVEMENT. THE REFUELING CREW SUPERVISOR AND TROJAN MANAGEMENT MET WITH EACH CREW TO PRESENT ADDITIONAL TRAINING ON PROCEDURES AND THE IMPORTANCE OF PROCEDURAL COMPLIANCE. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[287] TROJAN DOCKET 50-344 LER 88-012
 FIRE DOOR MADE INOPERABLE DUE TO PERSONNEL ERROR.
 EVENT DATE: 043088 REPORT DATE: 053188 NSSS: WE TYPE: PWR

(NSIC 209473) ON APRIL 30, 1988, RIGGING EQUIPMENT WAS FOUND TO BE ROUTED THROUGH ROLLUP FIRE DOOR 430. THIS DOOR IS PROVIDED AS A FIRE BARRIER FOR THE AUXILIARY BUILDING AREA WHERE THE COMPONENT COOLING WATER (CCW) HEAT EXCHANGERS ARE LOCATED AND WAS OPEN AT THE TIME OF THE EVENT. IT IS EQUIPPED WITH FUSIBLE LINKS SUCH THAT IN THE EVENT OF A FIRE, THE FUSIBLE LINKS WILL MELT AND THE ROLLUP FIRE DOOR WOULD HAVE BEEN UNABLE TO COMPLETELY CLOSE IN THE EVENT OF A FIRE. THE CAUSE OF THIS EVENT WAS PERSONNEL ERROR. THE PERSON WHO ROUTED THE RIGGING GEAR DID NOT RECOGNIZE DOOR 430 AS A FIRE DOOR AND TREAT IT AS SUCH. THE IMMEDIATE CORRECTIVE ACTION WAS TO REMOVE THE RIGGING GEAR TO RESTORE THE BARRIER TO OPERABLE STATUS. THE DOOR HAS SINCE BEEN CLOSED AND WILL BE LEFT CLOSED AS ITS NORMAL POSITION. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY. THERE WAS NO EVENT WHICH REQUIRED THAT THESE DOORS BE OPERABLE.

[288] TROJAN DOCKET 50-344 LER 88-013
 COMPONENT COOLING WATER VALVE POSITIONS NOT VERIFIED AS REQUIRED BY TECH SPEC
 SURVEILLANCE REQUIREMENTS.
 EVENT DATE: 050588 REPORT DATE: 060388 NSSS: WE TYPE: PWR

(NSIC 209502) TROJAN TECH SPEC 3/4.7.3 - COMPONENT COOLING WATER SYSTEM MONTHLY SURVEILLANCE REQUIRES VERIFICATION THAT EACH VALVE SERVICING SAFETY-RELATED EQUIPMENT THAT IS NOT SECURED IN POSITION, IS IN ITS CORRECT POSITION. COMPONENT COOLING WATER (CCW) IS SUPPLIED TO TWELVE COOLING COILS ON EACH OF THE EIGHT CONTAINMENT AIR COOLERS (CACs). THE MANUAL OUTLET VALVES (96 TOTAL) IN THE CCW OUTLET PIPING FROM EACH COOLING COIL ARE NOT SECURED IN POSITION, AND A MONTHLY CHECK OF THEIR POSITION HAS NEVER BEEN INCLUDED IN PERIODIC PLANT TESTS PERFORMED TO COMPLY WITH SURVEILLANCE REQUIREMENTS. THE CAUSE OF THIS EVENT WAS PROCEDURAL INADEQUACY. THESE VALVES WILL BE ADDED TO THE LOCKED VALVE LIST AND SECURED IN THEIR REQUIRED POSITION PRIOR TO STARTUP FROM THE CURRENT REFUELING OUTAGE. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[289] TROJAN DOCKET 50-344 LER 88-014
 CONTAINMENT VENTILATION ISOLATION ON HIGH CONTAINMENT RADIOACTIVITY SIGNAL.
 EVENT DATE: 051788 REPORT DATE: 061688 NSSS: WE TYPE: PWR

(NSIC 209637) ON MAY 17, 1988, THE PLANT WAS IN MODE 6 (REFUELING) WITH WORK IN PROGRESS TO REMOVE THE "D" STEAM GENERATOR PRIMARY SIDE MANWAY COVERS. THE CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEMS WERE IN OPERATION. AT 1702 A CONTAINMENT VENTILATION ISOLATION WAS INITIATED BY A HIGH CONTAINMENT RADIOACTIVITY SIGNAL FROM THE CONTAINMENT LOW LEVEL NOBLE GAS MONITOR (PRM-1C). THE CONTAINMENT PURGE SYSTEM ISOLATION VALVES CLOSED AS REQUIRED. THE PRIMARY SIDE MANWAY COVERS HAD BEEN REMOVED FROM THE "D" STEAM GENERATOR AND VENTILATION OF THE "D" STEAM GENERATOR PRIMARY SIDE HAD BEEN INITIATED. THE INCREASE IN CONTAINMENT GASEOUS ACTIVITY WAS CAUSED BY GASES BEING EXHAUSTED FROM THE PRIMARY SIDE OF STEAM GENERATOR "D" AND INTO CONTAINMENT. THE METHOD FOR ESTABLISHING THE PRM-1C SETPOINT HAD PREVIOUSLY BEEN REVISED TO INCORPORATE A MORE REPRESENTATIVE DETERMINATION OF BACKGROUND ACTIVITY LEVEL WHEN A RELEASE IS PLANNED. IN THIS CASE, THE POTENTIAL FOR A RELEASE WAS NOT ANTICIPATED AND THE PRM-1C SETPOINT WAS NOT ADJUSTED APPROPRIATELY. PLANT PROCEDURES WILL BE REVISED TO INCORPORATE A CAUTIONARY STATEMENT TO WARN OF PROBABLE RELEASES WHILE OPENING STEAM GENERATOR PRIMARY MANWAYS. THIS EVENT HAS NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[290] TROJAN DOCKET 50-344 LER 88-015
 CONTAINMENT VENTILATION ISOLATION ON HIGH CONTAINMENT RADIOACTIVITY WHILE TESTING PRM-1C.
 EVENT DATE: 051988 REPORT DATE: 061788 NSSS: WE TYPE: PWR

(NSIC 209638) ON MAY 19, 1988, THE PLANT WAS IN MODE 6 (REFUELING) WITH THE CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEMS IN OPERATION. AT 0747 A CONTAINMENT VENTILATION ISOLATION WAS INITIATED BY A HIGH CONTAINMENT RADIOACTIVITY SIGNAL FROM PRM-1C (CONTAINMENT LOW LEVEL NOBLE GAS MONITOR) THE CONTAINMENT PURGE SYSTEM ISOLATION VALVES CLOSED AS REQUIRED. INVESTIGATION REVEALED THAT OPERATION OF PRM-1C WAS BEING TESTED USING ITS CHECK SOURCE. A PRM-1C ALARM CAN BE PREVENTED DURING SUCH TESTING BY DEPRESSING THE ALARM RESET BUTTON AND MAINTAINING IT IN A DEPRESSED CONDITION WHILE THE MONITOR IS INDICATING ABOVE ITS ALARM SETPOINT. IN THIS CASE, A PERSONNEL ERROR RESULTED IN THE ALARM RESET BUTTON BEING RELEASED WHILE THE MONITOR WAS INDICATING ABOVE THE ALARM POINT, THUS CAUSING A PRM-1C ALARM AND CONTAINMENT VENTILATION ISOLATION. THE TECHNICIAN WHO PERFORMED THE PRM-1C TESTING WAS COUNSELED REGARDING PROPER OPERATION OF THE RESET BUTTON DURING USE OF THE CHECK SOURCE. TRAINING OF ALL INSTRUMENT AND CONTROL TECHNICIANS ON THIS TOPIC WILL BE CONDUCTED BY AUGUST 18, 1988. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[291] TROJAN DOCKET 50-344 LER 88-016
 STEAM GENERATOR WATER LEVEL INSTRUMENT HIGH-HIGH TRIP OUTSIDE TECH SPEC ALLOWABLE VALUES.
 EVENT DATE: 052588 REPORT DATE: 062488 NSSS: WE TYPE: PWR

(NSIC 209742) ON MAY 25, 1988, DURING EVALUATION OF STEAM GENERATOR WATER LEVEL CALIBRATION DATA, DISCREPANCIES WERE FOUND BETWEEN DATA USED IN NARROW RANGE INSTRUMENT CALIBRATIONS AND DATA DOCUMENTED IN ENGINEERING CALCULATIONS. THE SPAN OF DIFFERENTIAL PRESSURES USED IN CALIBRATION IS OFFSET FROM THE CALCULATED CALIBRATION DATA BY APPROXIMATELY 1.5". THE EFFECT OF THIS OFFSET ON STEAM GENERATOR WATER LEVEL HIGH-HIGH TURBINE TRIP AND FEEDWATER ISOLATION WOULD BE NON-CONSERVATIVE. WHEN COMBINED WITH DRIFT IN THE WATER LEVEL INSTRUMENTS, THE OFFSET COULD HAVE CAUSED THE ACTUAL TRIP TO OCCUR AT A VALUE GREATER THAN THE ALLOWABLE VALUE OF TROJAN TECH SPEC. CAUSE OF THIS EVENT WAS INADEQUATE COMMUNICATIONS REGARDING INTENDED USE OF THE CALCULATION BETWEEN THE ENGINEERING GROUP PERFORMING THE CALCULATION AND THE WORK GROUP RESPONSIBLE FOR INSTRUMENT

CALIBRATIONS. A SETPOINT CHANGE HAS BEEN INITIATED FOR THE STEAM GENERATOR WATER LEVEL HIGH-HIGH TRIP TO COMPENSATE FOR THE CALIBRATION ERROR. THIS EVENT HAD NO EFFECT ON PUBLIC HEALTH AND SAFETY.

[292] TURKEY POINT 3 DOCKET 50-250 LER 88-007
THREE INTAKE COOLING WATER (ICW) PUMPS INOPERABLE UPON ICW PUMP A AND EMERGENCY DIESEL GENERATOR B BEING OUT OF SERVICE CONCURRENTLY.
EVENT DATE: 042788 REPORT DATE: 052788 NSSS: WE TYPE: PWR
VENDOR: BECHTEL CORP.

(NSIC 209519) ON APRIL 27, 1988, AT 0927 WITH UNIT 3 AT 100% POWER, THE 3A INTAKE COOLING WATER (ICW) PUMP WAS STOPPED AND DECLARED OUT OF SERVICE (OOS) DUE TO A DISCHARGE PRESSURE GAUGE PIPING FAILURE. THE 3A ICW PUMP RECEIVES ITS EMERGENCY POWER FROM THE A EMERGENCY DIESEL GENERATOR (EDG) AND THE 3B AND 3C ICW PUMPS RECEIVE THEIR EMERGENCY POWER FROM THE B EDG, WHICH WAS OOS FOR SCHEDULED PREVENTIVE MAINTENANCE. WHEN THE 3A ICW PUMP WAS DECLARED OOS, THE 3B AND 3C ICW PUMPS BECAME TECHNICALLY OOS IN ACCORDANCE WITH TECHNICAL SPECIFICATION (TS) 3.0.5, EVEN THOUGH THEY CONTINUED TO OPERATE. WITH MORE THAN ONE ICW PUMP OOS, THE UNIT ENTERED TS 3.0.1. AT 1045 ON APRIL 27, 1988, THE B EDG WAS RETURNED TO SERVICE THUS THE 3B AND 3C ICW PUMPS ALSO BECAME OPERABLE. THE UNIT THEN EXITED TS 3.0.1, AND ENTERED TS 3.4.5.B.2, WHICH PERMITS ONE ICW PUMP TO BE OOS FOR 24 HOURS. THE PRESSURE GAUGE PIPING WAS REPAIRED AND THE 3A ICW PUMP WAS RETURNED TO SERVICE AT 1209 ON APRIL 27, 1988. THE UNIT EXITED TS 3.4.5.B.2 AT THAT TIME. THE CAUSE OF THE FAILURE OF THE 3A ICW PUMPS DISCHARGE PRESSURE GAUGE PIPING WAS CORROSION OF THE COUPLING WHICH ATTACHES THE PRESSURE GAUGE PIPING TO THE ICW DISCHARGE PIPE DUE TO A LEAK AND THE USE OF A CARBON STEEL INSTEAD OF A STAINLESS STEEL COUPLING.

[293] TURKEY POINT 3 DOCKET 50-250 LER 88-008
DESIGN BASIS RECONSTITUTION EFFORT IDENTIFIES SYSTEM ALIGNMENT WHICH COULD HAVE RESULTED IN INSUFFICIENT NPSH FOR CERTAIN PUMPS DURING POST-LOCA RECIRCULATION.
EVENT DATE: 050888 REPORT DATE: 061388 NSSS: WE TYPE: PWR
OTHER UNITS INVOLVED: TURKEY POINT 4 (PWR)

(NSIC 209597) DURING TURKEY POINT'S ONGOING DESIGN BASIS RECONSTITUTION EFFORT, A FLOWPATH WHICH COULD RESULT IN INSUFFICIENT NET POSITIVE SUCTION HEAD (NPSH) TO CERTAIN PUMPS DURING POST LOSS-OF-COOLANT-ACCIDENT (LOCA) RECIRCULATION WAS IDENTIFIED. IN THE EVENT OF A SMALL BREAK LOCA, THE RESIDUAL HEAT REMOVAL (RHR) INJECTION LINES ARE ISOLATED AND THE RHR PUMPS DELIVER FLOW TO THE SAFETY INJECTION (SI) AND CONTAINMENT SPRAY (CS) SYSTEMS VIA VALVE 887. TO PREVENT EXCESSIVE FLOWRATES DURING REFUELING OPERATIONS, VALVE 887 IS THROTTLED 30% OPEN. A DOCUMENTATION REVIEW DETERMINED THAT DURING INITIAL PLANT STARTUP, THE VALVE WAS TESTED AND THROTTLED TO OBTAIN A FLOW OF 3750 GPM. SUBSEQUENT CALCULATIONS HAVE DETERMINED THAT WITH VALVE 887 OPEN TO INITIAL PLANT STARTUP POSITION, SUFFICIENT NPSH WOULD BE PROVIDED TO THE SI OR CS PUMPS. CORRELATION BETWEEN THE VALVE SETTING AS A RESULT OF THE PREOPERATIONAL TESTING AND THE 30% VALVE POSITION COULD NOT BE OBTAINED. EVEN THOUGH THERE IS NO FIRM EVIDENCE THAT A PROBLEM EXISTED WITH VALVE 887 SET AT THE 30% OPEN POSITION, TURKEY POINT TOOK THE PRUDENT STEP OF PLACING VALVE 887 IN THE FULLY OPEN POSITION. THIS CONCERN WAS IDENTIFIED ON MAY 13, 1988, WITH UNIT 3 AT 100% POWER AND UNIT 4 IN MODE 5. AN EVALUATION OF FULLY OPENING THE VALVE HAD BEEN PERFORMED TO ASSURE STABILITY.

[294] TURKEY POINT 3 DOCKET 50-250 LER 88-009
QUALITY ASSURANCE DISCOVERED MISSED TECH SPEC SURVEILLANCES FOR STATION BATTERY PILOT CELL ROTATION AND EDG FUEL OIL SAMPLING ANALYSIS.
EVENT DATE: 052788 REPORT DATE: 062488 NSSS: WE TYPE: PWR
OTHER UNITS INVOLVED: TURKEY POINT 4 (PWR)

(NSIC 209705) ON MAY 27, 1988, WHILE BOTH UNIT 3 AND UNIT 4 WERE AT 100% POWER, IT WAS DETERMINED THAT TWO (2) TECHNICAL SPECIFICATION (TS) SURVEILLANCE REQUIREMENTS HAD NOT BEEN PROPERLY IMPLEMENTED IN 1987. A ROUTINE AUDIT BY THE QUALITY ASSURANCE (QA) DEPARTMENT OF THE IMPLEMENTATION OF TS SECTION 4.8, EMERGENCY POWER SYSTEM PERIODIC TESTS, DISCOVERED THE MISSED TS REQUIREMENTS. TS 4.8.2.A REQUIRES THE STATION BATTERY PILOT CELL TO BE ROTATED ON A MONTHLY BASIS. THE PILOT CELL WAS NOT ROTATED DURING THE PERIOD APRIL 1 THROUGH MAY 19, 1987 WHICH EXCEEDED THE TS REQUIRED SURVEILLANCE INTERVAL. TS 4.8.1.B REQUIRES A QUARTERLY SAMPLE OF FUEL OIL FOR THE EMERGENCY DIESEL GENERATOR (EDG) BE VERIFIED TO MEET ACCEPTABLE LIMITS FOR VISCOSITY, WATER AND SEDIMENT. THE RESULTS RECEIVED TO MEET THIS TS IN SEPTEMBER, 1987 AND FEBRUARY, 1988 WERE WITHIN LIMITS BUT THEY WERE NOT RECEIVED WITHIN THE TS SURVEILLANCE TIME LIMIT. THE ROOT CAUSE OF THESE EVENTS WAS A COMBINATION OF PERSONNEL ERROR AND PROCEDURE INADEQUACY. A TRAINING BULLETIN WAS ISSUED TO PLANT DEPARTMENT HEADS TO REEMPHASIZE THE IMPORTANCE OF WORK CONTROLS AND FOLLOWING PROCEDURES. APPROPRIATE PROCEDURE CHANGES ARE ALSO BEING MADE TO PREVENT RECURRENCE.

{295} TURKEY POINT 3 DOCKET 50-250 LER 88-010
 CONTAINMENT VENTILATION AND CONTROL ROOM VENTILATION ISOLATE WHILE CONTAINMENT PARTICULATE RADIATION MONITOR SETPOINT WAS BEING CHECKED.
 EVENT DATE: 052888 REPORT DATE: 062788 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: TURKEY POINT 4 (PWR)
 VENDOR: NUCLEAR RESEARCH CORP.
 TRACER LAB

(NSIC 209706) ON MAY 28, 1988, WITH UNIT 3 AND UNIT 4 IN MODE 1 (POWER OPERATION) THE CONTAINMENT RADIOACTIVE PARTICULATE MONITOR (R-11) SETPOINT WAS BEING VERIFIED. THE USUAL METHOD OF VERIFYING THE SETPOINT IS BY PRESSING THE HIGH ALARM PUSHBUTTON, THEN READING THE SETPOINT FROM THE INSTRUMENT'S DIGITAL DISPLAY. AS THE HIGH ALARM PUSHBUTTON WAS BEING PRESSED, AN ALARM SIGNAL WAS GENERATED. THIS RESULTED IN ACTUATION OF THE CONTROL ROOM VENTILATION AND CONTAINMENT VENTILATION SYSTEM ISOLATION CIRCUITRY. THE SYSTEMS THAT WERE NOT ALREADY IN THEIR ACTUATED POSITION ACTUATED AS REQUIRED. R-11 WAS TAKEN OUT OF SERVICE AND THE PROBLEM INVESTIGATED. AFTER TROUBLESHOOTING COULD NOT FIND ANY PROBLEMS, OPERATIONS REQUESTED THAT R-11 BE PLACED BACK IN SERVICE TO ASSIST IN MONITORING CONTAINMENT ACTIVITY DURING PROBLEMS WITH THE NUMBER 1 SEAL LEAKOFF ON THE 3A REACTOR COOLANT PUMP. R-11 WAS TESTED IN ACCORDANCE WITH THE NORMAL SURVEILLANCE PROCEDURE ON MAY 30, 1988. DURING THIS TEST, CONTAINMENT AND CONTROL ROOM VENTILATION ISOLATION SIGNALS WERE GENERATED WHEN THE HIGH ALARM PUSHBUTTON WAS DEPRESSED. AGAIN THE SYSTEMS THAT WERE NOT ALREADY IN THEIR ACTUATED POSITION ACTUATED AS DESIGNED. THE DRAWER FOR R-11 WAS REPLACED. THE DRAWER HAS BEEN RETURNED TO THE MANUFACTURER FOR ROOT CAUSE ANALYSIS.

{296} TURKEY POINT 3 DOCKET 50-250 LER 88-011
 MISPOSITIONED DIESEL OIL TRANSFER VALVE DUE TO PERSONNEL ERROR RESULTS IN POTENTIAL LOSS OF LONG TERM FUEL SUPPLY TO EMERGENCY DIESEL GENERATOR.
 EVENT DATE: 052988 REPORT DATE: 063088 NSSS: WE TYPE: PWR
 OTHER UNITS INVOLVED: TURKEY POINT 4 (PWR)

(NSIC 209787) ON MAY 31, 1988, WHILE PERFORMING A TEST OF THE EMERGENCY DIESEL GENERATOR (EDG) FUEL OIL TRANSFER PUMPS, OPERATIONS PERSONNEL DISCOVERED THAT VALVE 70-003, DIESEL OIL STORAGE TANK ISOLATION VALVE, WAS LOCKED CLOSED INSTEAD OF LOCKED OPEN AS REQUIRED. WITH VALVE 70-003 CLOSED, THE FUEL OIL SUPPLY TO EACH EDG WAS LIMITED TO THE AMOUNT OF FUEL OIL CONTAINED IN EACH RESPECTIVE EDG DAY TANK AND SKID TANK. THIS AMOUNT IS SUFFICIENT FOR APPROXIMATELY 16 HOURS OF CONTINUOUS OPERATION OF EACH EDG. SUBSEQUENT INVESTIGATION DETERMINED THAT THE VALVE HAD BEEN CLOSED BY A CHEMISTRY TECHNICIAN ON MAY 29, 1988, WHILE OBTAINING A SAMPLE FROM THE DIESEL FUEL OIL STORAGE TANK. BY MANIPULATING VALVE 70-003, THE TECHNICIAN PERFORMED AN OPERATION NOT REQUIRED BY THE SAMPLING PROCEDURE.

THE CAUSE OF THE EVENT WAS PRIMARILY PERSONNEL ERROR AND POOR WORK CONTROLS FOR SAMPLING. AFTER DISCOVERY OF THE MISPOSITIONED VALVE, THE VALVE WAS RETURNED TO THE OPEN POSITION, VERIFIED OPEN, AND THE FUEL OIL SYSTEM SATISFACTORILY TESTED. FURTHER CORRECTIVE ACTIONS INCLUDE TRAINING FOR NUCLEAR CHEMISTRY PERSONNEL, ESTABLISHING A "SPARE COPY" FILE FOR CHEMISTRY SAMPLING PROCEDURES AND CHANGING OF VALVE LOCKS FOR VALVES CRITICAL TO PROCESS FLOW PATHS.

[297] VERMONT YANKEE DOCKET 50-271 LER 88-005 REV 01
 UPDATE ON POTENTIAL LOSS OF SGBT TRAIN DUE TO EXTENSION OF LOOP SEAL.
 EVENT DATE: 041788 REPORT DATE: 052788 NSSS: GE TYPE: BWR

(NSIC 209949) DURING 100% POWER OPERATION ON 04/17/88, AN OPERATOR IDENTIFIED THAT THE EXISTING TYGON TUBING HAD BEEN REPLACED WITH TUBING THAT HAD INCREASED THE VERTICAL HEIGHT OF THE DRAIN LOOP SEALS FOR BOTH STANDBY GAS TREATMENT (SGBT) TRAINS (E11S-BH). FOLLOWUP BY THE OPERATOR REVEALED THAT EXCESSIVE DRAIN LOOP SEAL WATER COLUMN HEIGHT COULD PREVENT THE SGBT MOISTURE SEPARATOR FROM DRAINING. THE FILLING OF THE SGBT TRAINS WOULD RESULT IN A REDUCTION OF IODINE ADSORPTION BY THE ACTIVATED CHARCOAL BEDS. THE TUBING WAS REPAIRED TO RETURN THE LOOP SEAL WATER COLUMN TO ITS ORIGINAL HEIGHT. IT WAS DETERMINED THAT BOTH TRAINS WOULD HAVE OPERATED NORMALLY AND FULFILLED THE SAFETY DESIGN BASIS FUNCTION AS STATED IN THE PSAR. HOWEVER, THE "B" TRAIN WOULD HAVE BEEN AFFECTED DURING FOST-LOCA LONG TERM CONTAINMENT CLEANUP. CONTAINMENT CLEANUP IS A DESIGN FEATURE OF SGBT BUT NOT A SAFETY DESIGN BASIS FUNCTION. THE ROOT CAUSE COULD NOT BE DETERMINED BUT A PROBABLE CAUSE HAS BEEN IDENTIFIED THAT LED TO THE EVENT. THE USE OF TYGON TUBING ON THE SGBT DRAIN LOOP SEAL WILL BE EVALUATED PER A MECHANICAL BYPASS REQUEST. A WALKDOWN WILL BE PERFORMED TO ASSURE THAT ANY OTHER TUBING BEING USED IN AN OPERATIONAL CONFIGURATION IS DOCUMENTED AND CONTROLLED. PLANT PERSONNEL WILL BE GIVEN SPECIFIC TRAINING ON THIS EVENT.

[298] VOGTLE 1 DOCKET 50-424 LER 87-005 REV 05
 UPDATE ON 120V AC VOLTAGE TRANSIENT CAUSES ESP ACTUATIONS.
 EVENT DATE: 040687 REPORT DATE: 040788 NSSS: WE TYPE: PWR
 VENDOR: CONSOLIDATED CONTROLS CORP.

(NSIC 208838) SINCE FEBRUARY 23, 1987, PLANT VOGTLE HAS EXPERIENCED SIX CONTROL ROOM VENTILATION ISOLATION SIGNALS FROM CONTROL ROOM OUTSIDE AIR DUCT RADIATION MONITOR 1RE-12116. THESE ACTUATIONS OCCURRED ON FEBRUARY 23 AND 27, 1987; MARCH 26 AND 30, 1987; AND APRIL 6 AND 22, 1987. ON MARCH 4, 1987, A CONTAINMENT ISOLATION ACTUATION (CIA) AND A CONTAINMENT VENTILATION ISOLATION ACTUATION (CVI) OCCURRED AS A RESULT OF SPURIOUS SIGNALS FROM HIGH RANGE RADIATION MONITOR 1RE-0006 AND LOW RANGE RADIATION MONITOR 1RE-0003. INVESTIGATION AND TESTING REVEALED THAT VOLTAGE TRANSIENTS ARE BEING INTRODUCED ON THE 120V AC VITAL POWER SUPPLY WHENEVER THE SAFETY FEATURES SEQUENCER SYSTEM (SFSS) IS RE-ENERGIZED AFTER BEING DE-ENERGIZED FOR MAINTENANCE, TESTING, ETC. THIS VOLTAGE TRANSIENT SOMETIMES CAUSES THE DATA PROCESSING MODULES (DPM'S) IN THE RADIATION MONITORS TO SENSE A LOSS OF POWER, THEREBY INITIATING A FALSE HIGH RADIATION SIGNAL AND CAUSING A CONTROL ROOM VENTILATION ISOLATION. FURTHER TESTING IS PLANNED TO DETERMINE THE EXTENT OF THE VOLTAGE TRANSIENT EFFECTS, AND TO IDENTIFY CORRECTIVE ACTION TO PREVENT RECURRENCE. THIS TESTING WILL BE PERFORMED WHEN THE UNIT IS RETURNED TO AN OPERATING MODE THAT ALLOWS INVERTED TESTING TO BE SAFELY ACCOMPLISHED.

[299] VOGTLE 1 DOCKET 50-424 LER 87-021 REV 01
 UPDATE ON CONTROL ROOM ISOLATION INITIATED BY RADIATION MONITOR LOSS OF POWER.
 EVENT DATE: 050187 REPORT DATE: 040788 NSSS: WE TYPE: PWR
 VENDOR: WESTINGHOUSE ELECTRIC CORP.

(NSIC 208839) AT 0152 CDT, ON MAY 1, 1987, WITH PLANT VOGTLE IN MODE 1 AT 22%

RATED THERMAL POWER (RTP), A CONTROL ROOM VENTILATION ISOLATION (CRI) SIGNAL WAS RECEIVED. A CONTROL ROOM ISOLATION WAS ALREADY IN EFFECT SINCE THE TOXIC GAS MONITOR HAD FAILED TWO DAYS EARLIER. THE EVENT INVESTIGATION REVEALED THAT A FALSE SIGNAL FROM THE CONTROL ROOM AIR INTAKE PROCESS RADIOGAS MONITOR 1RE-12116 INITIATED THE CRI. WHEN THE CRI OCCURRED, MONITORS 1RE-12116 AND 1RE-12117 WERE CHECKED. BOTH MONITORS INDICATED NORMAL (THERE WAS NO ALERT OR HIGH RADIATION ALARM INDICATED ON EITHER MONITOR) BUT A TROUBLE LIGHT WAS INDICATED FOR MONITOR 1RE-12116. ACTION WAS TAKEN TO ASSURE THAT AN ACTUAL RADIATION PROBLEM DID NOT EXIST. MONITOR 1RE-12116 WAS DECLARED INOPERABLE AND THE CONTROL ROOM VENTILATION REMAINED IN THE ISOLATION MODE. THE IMMEDIATE CAUSE OF THE CRI WAS A FALSE SIGNAL FROM MONITOR 1RE-12116. THE ROOT CAUSE OF THE FALSE SIGNAL HAS BEEN DETERMINED TO BE FAILURE OF THE DATA PROCESSING MODULE (DPM) FOR MONITOR 1RE-12116. CORRECTIVE ACTION INCLUDED REPLACING THE DPM. TESTING AND ANALYSIS OF THE FAILED DPM IS SCHEDULED TO BE PERFORMED BY THE VENDOR.

[300] VOGTLE 1 DOCKET 50-424 LER 88-005 REV 01
 UPDATE ON PERSONNEL ERROR LEADS TO EXCEEDING TECH SPEC TIME INTERVAL FOR AN
 ACTION REQUIREMENT.
 EVENT DATE: 020288 REPORT DATE: 042288 NSSS: WE TYPE: PWR

(NSIC 209185) ON 2/2/88 AT 1715 CST IT WAS DISCOVERED THAT A REQUIRED GRAB SAMPLE FOR THE CONTROL BUILDING SUMP EFFLUENT DISCHARGE HAD NOT BEEN PERFORMED. THE SAMPLE WAS REQUIRED TO BE TAKEN, AT LEAST ONCE PER 12 HRS, BY A TECHNICAL SPECIFICATION ACTION ITEM STATEMENT WHEN THE EFFLUENT MONITOR (RE-17646) WAS DECLARED INOPERABLE ON NOVEMBER 5, 1987. THE SAMPLES WERE BEING TAKEN ON A 12 HR BASIS UNTIL 2/2/88. THE SAMPLE WAS SCHEDULED FOR 1330 CST. AFTER IT WAS DISCOVERED THE SAMPLE HAD BEEN MISSED, A SAMPLE WAS TAKEN AT 1850 CST AND NO RADIOACTIVITY WAS FOUND. AS A RESULT OF THE MISSED SAMPLE ON FEBRUARY 2, 1988, A REVIEW WAS CONDUCTED TO ENSURE THAT PREVIOUS REQUIRED SAMPLES HAD BEEN TAKEN. THE REVIEW IDENTIFIED THERE WAS NO DOCUMENTED EVIDENCE FOR SIX ADDITIONAL CASES. FOUR (4) OF THE SAMPLES MISSED WERE THE CONTROL BUILDING SUMP ON NOVEMBER 17, 1987, DECEMBER 8, 1987, DECEMBER 10, 1987 AND JANUARY 8, 1988. THERE WERE ALSO TWO (2) DAILY SAMPLES THAT WERE MISSED. ON 12/08/87, A TURBINE BUILDING SUMP SAMPLE WAS MISSED AND ON JANUARY 26, 1988 A STEAM GENERATOR BLOWDOWN SAMPLE WAS MISSED. THESE EVENTS OCCURRED BECAUSE THE CHEMISTRY TECHNICIANS FAILED TO TAKE THE SAMPLES AND THE CHEMISTRY FOREMEN FAILED TO CHECK THE SAMPLING STATUS DURING HIS SHIFT.

[301] VOGTLE 1 DOCKET 50-424 LER 88-007
 PERSONNEL ERROR LEADS TO MISSED TECH SPEC SURVEILLANCE.
 EVENT DATE: 032288 REPORT DATE: 042188 NSSS: WE TYPE: PWR

(NSIC 209186) ON MARCH 22, 1988, AT 1031 CST, APPROXIMATELY 85 GALLONS WAS ADDED TO REACTOR COOLANT SYSTEM ACCUMULATOR TANK #2. TECHNICAL SPECIFICATIONS (TS) REQUIRE THAT EACH ACCUMULATOR BE DEMONSTRATED OPERABLE WITHIN 6 HOURS AFTER EACH SOLUTION VOLUME INCREASE OF GREATER THAN OR EQUAL TO 1 PERCENT OF TANK VOLUME (67 GALLONS) BY VERIFYING THE BORON CONCENTRATION OF THE ACCUMULATOR SOLUTION. ON MARCH 23, 1988, A REVIEW OF THE PREVIOUS DAY'S SURVEILLANCE SHEETS REVEALED THAT THE REQUIRED BORON SAMPLE HAD NOT BEEN TAKEN. AT 0630 CST, A SAMPLE WAS TAKEN AND WAS WITHIN THE TS LIMIT OF 1900-2100 PPM. THIS EVENT WAS CAUSED BY THE FAILURE OF CONTROL ROOM PERSONNEL TO FOLLOW PROCEDURE 13105-1, "SAFETY INJECTION SYSTEM", WHICH REQUIRES THAT CHEMISTRY PERSONNEL BE NOTIFIED WHEN A BORON CONCENTRATION SAMPLE IS REQUIRED AND ALSO REQUIRES THAT THE SAMPLE RESULTS BE LOGGED IN THE UNIT CONTROL LOG. NEITHER STEP WAS PERFORMED. THE CONTROL ROOM PERSONNEL INVOLVED HAVE BEEN COUNSELED REGARDING THE IMPORTANCE OF COMPLYING WITH PLANT PROCEDURES AND TS.

[302] VOGTLE 1 DOCKET 50-424 LER 88-008
 REACTOR TRIP CAUSED BY STATOR COOLING SYSTEM VALVE CONTROLLER FAILURE.
 EVENT DATE: 040788 REPORT DATE: 050688 NSSS: WE TYPE: PWR
 VENDOR: ELECTRO SWITCH CORP.
 FISCHER & PORTER CO.

(NSIC 209237) AT 0838 CDT ON APRIL 7, 1988, WITH UNIT 1 OPERATING AT 100 PERCENT RATED THERMAL POWER, A STATOR COOLANT SYSTEM ALARM WAS RECEIVED IN THE CONTROL ROOM. A PLANT EQUIPMENT OPERATOR (PEO) WAS DISPATCHED TO INVESTIGATE AND FOUND SYSTEM WATER TEMPERATURE TO BE INCREASING. CONTROL ROOM OPERATORS PROMPTLY BEGAN TO REDUCE THE TURBINE-GENERATOR/REACTOR LOAD WHILE THE PEO ATTEMPTED TO START THE SECOND STATOR COOLING WATER PUMP. THESE ACTIONS WERE UNABLE TO PREVENT THE TURBINE TRIPPING ON HIGH STATOR COOLANT WATER TEMPERATURE WHICH, IN TURN, CAUSED A REACTOR TRIP AT 0846 CDT. ALL CONTROL RODS INSERTED AND AUXILIARY FEEDWATER (AFW) SYSTEM ACTUATED WHEN THE STEAM GENERATORS (SG'S) REACHED THEIR LOW WATER LEVEL SETPOINTS. THE CAUSE OF THIS EVENT WAS A MANUFACTURING ERROR IN USING AN UNDERSIZED LINKAGE SHAFT ON A STATOR COOLING WATER VALVE (1TCV-6800) TEMPERATURE CONTROLLER. VIBRATION OF THE UNDERLYING EQUIPMENT SKID LED THE UNDERSIZED LINKAGE SHAFT TO STRIP THE MINIMALLY ENGAGED THREADS AND DROP OUT OF A NYLON THUMB NUT, GIVING A SIGNAL FOR VALVE 1TCV-6800 TO CLOSE. CORRECTIVE ACTION INCLUDED REPLACEMENT OF THE TEMPERATURE CONTROLLER.

[303] VOGTLE 1 DOCKET 50-424 LER 88-010
 RELAY FAILURE CAUSES A CONTAINMENT VENTILATION ISOLATION.
 EVENT DATE: 041088 REPORT DATE: 050688 NSSS: WE TYPE: PWR
 VENDOR: POTTER & BRUMFIELD

(NSIC 209238) AT 1116 HOURS CDT, ON APRIL 10, 1988, PLANT PERSONNEL WERE COMPLETING MAINTENANCE ON CHANNEL A OF RADIATION MONITOR 1RE-2565 WHEN A HIGH RADIATION SIGNAL WAS RECEIVED IN THE CONTROL ROOM FROM CHANNEL C OF 1RE-2565 DUE TO A RELAY MALFUNCTION. THE HIGH RADIATION SIGNAL INITIATED A CONTAINMENT VENTILATION ISOLATION (CVI) SIGNAL WHICH ACTUATED ASSOCIATED VALVES TO THEIR PROPER POSITIONS. CONTROL ROOM PERSONNEL VERIFIED THAT AN ACTUAL HIGH RADIATION CONDITION DID NOT EXIST, AND THE CVI SIGNAL WAS RESET AT 1230 CDT. A PROMPT INVESTIGATION SHOWED THAT OPERATION OF THE MODE KEYSWITCH WHILE RETURNING THE MONITOR TO SERVICE HAD RESULTED IN A HIGH RADIATION SIGNAL FROM CHANNEL C OF 1RE-2565. THE MONITOR WAS LEFT IN A BYPASS CONDITION PENDING FURTHER INVESTIGATION. THE CAUSE OF THIS EVENT WAS THE MALFUNCTION OF A RELAY ASSOCIATED WITH THE MODE KEYSWITCH. THE RELAY WAS REPLACED. A CONTRIBUTING CAUSE OF THIS EVENT WAS THE CONSERVATIVELY LOW VALUE FOR THE LOSS-OF-POWER DEFAULT SETPOINTS OF THE RADIATION MONITOR. THESE SETPOINTS WILL BE REVIEWED.

[304] VOGTLE 1 DOCKET 50-424 LER 88-012
 INADEQUATE ADMINISTRATIVE CONTROLS LEAD TO MISSED SURVEILLANCES.
 EVENT DATE: 041088 REPORT DATE: 051288 NSSS: WE TYPE: PWR

(NSIC 209341) ON APRIL 13, 1988, AT APPROXIMATELY 0700 CDT WITH THE PLANT OPERATING AT 100 PERCENT RATED THERMAL POWER, IT WAS DISCOVERED THAT SEVEN (7) TECHNICAL SPECIFICATION (TS) WEEKLY SURVEILLANCES WERE NOT PERFORMED WITHIN THE REQUIRED TIME INTERVAL. THE SURVEILLANCE TASKS, WHICH ARE TRACKED ON SURVEILLANCE TASK SHEET (STS) NO. 14225-102, WERE COMPLETED ON MARCH 28, 1988. ALTHOUGH ONE PORTION OF A PROCEDURE DID NOT MEET THE TS REQUIREMENTS, THE STS WAS MARKED AS UNACCEPTABLE. THIS RESULTED IN THE ISSUANCE OF A RETEST SHEET INSTEAD OF THE WEEKLY STS, CAUSING THE WEEKLY SURVEILLANCES DUE BY APRIL 9, 1988 (LATE DATE OF APRIL 10, 1988) TO BE MISSED. THIS EVENT WAS CAUSED BY INADEQUATE ADMINISTRATIVE CONTROLS FOR DOCUMENTING SURVEILLANCE RESULTS IN THE SURVEILLANCE TEST PROGRAM. A CONTRIBUTING CAUSE WAS LACK OF COMMUNICATION BETWEEN OPERATIONS PERSONNEL AND THE SURVEILLANCE TRACKING COORDINATOR (STC)'S. THE WEEKLY SURVEILLANCES WERE PERFORMED ON APRIL 13, 1988, WHEN IT WAS DISCOVERED THEY HAD

BEEN MISSED. ADMINISTRATIVE PROCEDURE 00404-C, "SURVEILLANCE TEST PROGRAM", WILL BE REVISED TO ADD MORE DETAILED INSTRUCTIONS FOR DOCUMENTING TASK COMPLETION RESULTS. TRAINING SESSIONS WILL BE CONDUCTED FOR THE STCS AND APPROPRIATE OPERATIONS PERSONNEL.

[305] VOGTLE 1 DOCKET 50-424 LER 88-011
 INADEQUATE CONTROL OF EFFLUENT MONITOR ALARM SETPOINTS LEADS TO TECH SPEC VIOLATION.
 EVENT DATE: 041188 REPORT DATE: 051188 NSSS: WE TYPE: PWR

(NSIC 209288) ON APRIL 11, 1988, THE ALERT ALARM AND THE HIGH ALARM SETPOINTS FOR THE TURBINE BUILDING DRAIN EFFLUENT MONITOR 1RE-0848 WERE FOUND TO BE SET TOO HIGH. THIS INOPERABLE CONDITION EXISTED SINCE THE MONITOR WAS RETURNED TO SERVICE ON MARCH 9, 1988 AND ALLOWED THE APPLICABLE TECHNICAL SPECIFICATION ACTION STATEMENT REQUIREMENTS TO BE EXCEEDED. HISTORICALLY, ON DECEMBER 7, 1987 THE ALARM SETPOINTS FOR 1RE-0848 WERE SET "ARTIFICIALLY" HIGH TO PREVENT SPURIOUS ALARMS WHILE THE MONITOR WAS OUT OF SERVICE (OOS). THESE TEMPORARY ALARM SETPOINTS WERE ENTERED INTO THE DIGITAL RADIATION MONITORING SYSTEM (DRMS) CRITICAL PARAMETERS BOOK AND SUBSEQUENTLY USED FOR SETPOINT VERIFICATION PER PLANT PROCEDURES WHEN 1RE-0848 WAS RETURNED TO SERVICE ON MARCH 9, 1988. THIS EVENT OCCURRED DUE TO INADEQUATE ADMINISTRATIVE CONTROLS OF THE ALARM SETPOINTS FOR THE EFFLUENT RADIATION MONITORS. CORRECTIVE ACTIONS INCLUDE ENTERING THE CORRECT SETPOINTS, CHECKING THE OTHER OPERABLE MONITORS FOR THE CORRECT SETPOINTS, AND PROVIDING ADEQUATE SETPOINT CONTROLS IN A STANDING ORDER UNTIL THE CONTROLLING PLANT PROCEDURE IS REVISED. THE PROCEDURE REVISION IS SCHEDULED TO BE COMPLETED BY MAY 15, 1988. THE CONTROLLING PLANT PROCEDURE IS REVISED. THE PROCEDURE REVISION IS SCHEDULED TO BE COMPLETED BY MAY 15, 1988.

[306] VOGTLE 1 DOCKET 50-424 LER 88-011
 MANUAL REACTOR TRIP DUE TO FAILURE OF MAIN FEED ISOLATION VALVE.
 EVENT DATE: 042488 REPORT DATE: 052488 NSSS: SS TYPE: PWR
 VENDOR: SPINNER UNIFLOW VALVES

(NSIC 209436) ON APRIL 24, 1988, AT 0922 CDT, A MANUALLY INITIATED REACTOR TRIP OCCURRED ON UNIT 1 WITH THE REACTOR PLANT AT APPROXIMATELY 100% OF RATED THERMAL POWER. THE LOOP 4 MAIN FEED ISOLATION VALVE (MFIV) FAILED CLOSED AND WOULD NOT RESPOND TO AN OPEN SIGNAL. DUE TO THE STEAM FLOW - FEEDWATER FLOW MISMATCH, THE NO. 4 STEAM GENERATOR (SG) WATER LEVEL WAS DECREASING. THE MANUAL TRIP WAS INITIATED IN ANTICIPATION OF RECEIVING A SG LOW LEVEL SETPOINT AUTOMATIC REACTOR TRIP. THE DIRECT CAUSE OF THE EVENT WAS THAT NO. 4 MFIV FAILED CLOSED. THE MOST PROBABLE ROOT CAUSE IS THAT AN INTERMITTENT FAILURE OF AN AIR SOLENOID VALVE COIL LED TO THE CLOSURE OF NO. 4 MFIV. CORRECTIVE ACTIONS INCLUDED REPLACING EACH COMPONENT, WHICH REASONABLY COULD HAVE CAUSED THE VALVE TO FAIL CLOSED.

[307] VOGTLE 1 DOCKET 50-424 LER 88-014
 MISSED SURVEILLANCE DUE TO PERSONNEL ERROR AND INADEQUATE COMMUNICATIONS.
 EVENT DATE: 042588 REPORT DATE: 052588 NSSS: WE TYPE: PWR

(NSIC 209437) ON APRIL 25, 1988, AT APPROXIMATELY 1048 CDT, IT WAS DISCOVERED THAT A TECH SPEC SURVEILLANCE TEST HAD NOT BEEN PERFORMED WITHIN THE REQUIRED TIME INTERVAL. IN ACCORDANCE WITH TECH SPEC 4.0.5, THE SURVEILLANCE FOR THE CONTAINMENT AIR RADIOACTIVITY MONITOR INLET VALVES, HV-12975 AND HV-12976, AND OUTLET VALVES, HV-12977 AND HV-12978 WAS REQUIRED TO BE PERFORMED IMMEDIATELY AND SATISFACTORY. ON MAY 13, 1988, AT APPROXIMATELY 1400 CDT, IT WAS REALIZED THAT THE PLANT SHOULD HAVE ENTERED TECH SPEC 3.0.3 ON APRIL 25, 1988, SINCE BOTH ISOLATION VALVES FOR THE TWO (2) PENETRATIONS WERE INOPERABLE AND A 1 HOUR REPORT WAS MADE TO THE NRC. THIS EVENT OCCURRED BECAUSE THE USS FAILED TO UTILIZE THE SCHEDULING DOCUMENT (I.E., OVERDUE REPORT). ALSO THE ON SHIFT OPERATIONS

SUPERVISOR (OSOS) WAS AWARE OF THE SURVEILLANCE AND WHEN IT WAS DUE, BUT FAILED TO INFORM THE USS. THE TECH SPEC 3.0.3 ENTRY WAS NOT PERFORMED BECAUSE THE USS AND THE OSOS FAILED TO PERFORM AN ADEQUATE TECHNICAL REVIEW OF THE SYSTEM CONDITION. CORRECTIVE ACTIONS INCLUDE COUNSELING OF THE USS AND THE OSOS CONCERNING THE USE OF THE SURVEILLANCE OVERDUE REPORT AND PERFORMING AN ADEQUATE TECHNICAL REVIEW.

[308] VOGTLE 1 DOCKET 50-424 LER 88-015
SURVEILLANCE FOR CONTAINMENT RAD LEVEL MONITORS MISSED DUE TO PERSONNEL ERROR.
EVENT DATE: 052488 REPORT DATE: 061788 NSSS: WE TYPE: PWR

(NSIC 209666) ON MAY 24, 1988 AT APPROXIMATELY 1400 CDT, IT WAS DISCOVERED THAT THE MONTHLY ANALOG CHANNEL OPERATIONAL TEST (ACOT) SURVEILLANCE FOR THE CONTAINMENT RADIATION LEVEL MONITORS, 1RE-0005 AND 1RE-0706, HAD NOT BEEN PERFORMED SINCE AUGUST 1987. AN INVESTIGATION REVEALED THIS TECHNICAL SPECIFICATION (TS) SURVEILLANCE (4.3.3.1) WAS LINKED TO ANOTHER TS SURVEILLANCE (4.3.2.1) WITH THE SAME REQUIREMENT. DUE TO A TS CHANGE IN AUGUST 1987, THE 4.3.2.1 SURVEILLANCE WAS DELETED WITHOUT REALIZING THAT 4.3.3.1 SURVEILLANCE WOULD NO LONGER BE ADDRESSED. THIS EVENT WAS CAUSED BY PERSONNEL ERROR WHEN AN INADEQUATE REVIEW OF THE TS CHANGES WAS PERFORMED TO DETERMINE THE NECESSARY CHANGES TO THE SURVEILLANCE DATA BASE. THE PROCEDURE DID NOT PROVIDE ADEQUATE DIRECTION FOR DATA BASE REVISIONS. CORRECTIVE ACTIONS INCLUDE REVIEW OF PREVIOUS TS REVISIONS TO DETERMINE IF OTHER SURVEILLANCE DATA BASE CHANGES WERE NEEDED. THE PROCEDURE WILL BE REVISED TO REQUIRE A TWO-PARTY REVIEW FOR DATA BASE CHANGES AND WILL NOT ALLOW "LINKING" BETWEEN THE TS SURVEILLANCE ITEMS.

[309] VOGTLE 1 DOCKET 50-424 LER 88-017
INADEQUATE PROCEDURE AND PROCEDURE VIOLATION LEADS TO MISSED SURVEILLANCE.
EVENT DATE: 060588 REPORT DATE: 062988 NSSS: WE TYPE: PWR

(NSIC 209765) ON JUNE 5, 1988 AT APPROXIMATELY 1520 CDT IT WAS DISCOVERED THAT A LIQUID RELEASE WAS BEING PERFORMED PRIOR TO COMPLETING A SOURCE CHECK OF THE RADIATION MONITOR 1RE-0018. THE SOURCE CHECK IS A TECHNICAL SPECIFICATION REQUIREMENT PRIOR TO A RELEASE. THE RADWASTE OPERATOR WAS NOTIFIED AND THE RELEASE WAS STOPPED AT APPROXIMATELY 1525 CDT. THIS EVENT WAS CAUSED BY AN INADEQUATE PROCEDURE. THE PROCEDURE WHICH ADMINISTRATIVELY CONTROLS THE RELEASE OF LIQUID RADIOACTIVE WASTE DID NOT REQUIRE THE SOURCE CHECK TO BE PERFORMED. TWO(2) SEPARATE PROCEDURE VIOLATIONS, ONE(1) BY A CHEMISTRY TECHNICIAN AND ANOTHER BY A RADWASTE OPERATOR, ALSO CONTRIBUTED TO THE EVENT. CORRECTIVE ACTIONS INCLUDE A REVISION TO THE PROCEDURE TO REQUIRE A SOURCE CHECK TO BE PERFORMED AND COUNSELLING OF THE INVOLVED PERSONNEL ON THE IMPORTANCE OF FOLLOWING THE PROCEDURES.

[310] WATERFORD 3 DOCKET 50-382 LER 88-003 REV 01
UPDATE ON SPURIOUS ESP CONTROL ROOM VENTILATION ACTUATIONS DUE TO EQUIPMENT MALFUNCTIONS.
EVENT DATE: 021988 REPORT DATE: 061688 NSSS: CE TYPE: PWR
VENDOR: GENERAL ATOMIC CO.
GENERAL ELECTRIC CO.

(NSIC 209654) AT 1032 HOURS ON FEBRUARY 19, 1988, AT 1026 HOURS ON FEBRUARY 20, 1988, AND AT 0724 HOURS ON MARCH 14, 1988, WATERFORD STEAM ELECTRIC STATION UNIT 3 WAS OPERATING AT 100% POWER WHEN CONTROL ROOM OUTSIDE AIR INTAKE (CROAI) RADIATION MONITOR 200.1S SPURIOUSLY ACTUATED THE ENGINEERED SAFEGUARD FEATURES (ESF) PORTION OF THE CONTROL ROOM VENTILATION SYSTEM. THE RADIATION ALARM CLEARED QUICKLY AND AIR SAMPLES OF THE AREA SHOWED NO DETECTABLE ACTIVITY. AT 1030 HOURS ON MARCH 1, 1988, WITH THE PLANT OPERATING AT 100% POWER, THE FEEDER BREAKER TO THE 3A312S MOTOR CONTROL CENTER WAS INADVERTENTLY TRIPPED, CAUSING AN

AUTOMATIC START OF THE 'A' CONTROL ROOM EMERGENCY FILTRATION UNIT. ALL OF THESE EVENTS ARE REPORTABLE AS ESP ACTUATIONS. THE ROOT CAUSE OF THESE EVENTS WAS EQUIPMENT MALFUNCTION. THE FIRST, SECOND, AND FOURTH EVENTS WERE CAUSED BY PERFORATION OF THE CROAI BETA SHIELD WHICH ALLOWED LIGHT TO ILLUMINATE THE DETECTOR PHOTOMULTIPLIER. THE SHIELD WAS REPLACED TWICE AND A DESIGN CHANGE IS UNDER CONSIDERATION. THE THIRD EVENT RESULTED FROM A TECHNICIAN'S LADDER WHICH BUMPED AND TRIPPED OPEN THE BREAKER. THE CAUSE OF THIS TRIP WAS DUE TO A BELOW-MINIMUM TOLERANCE GAP BETWEEN A TRIPPER BAR AND ITS ASSOCIATED TRIP PADDLE IN THE BREAKER.

[311] WATERFORD 3 DOCKET 50-382 LER 88-009
CONTAINMENT PURGE ISOLATION RADIATION MONITORS INOPERABLE DUE TO INADEQUATE PROCEDURES.
EVENT DATE: 042380 REPORT DATE: 052388 NSSS: CE TYPE: PWR

(NSIC 209428) AT 1045 HOURS ON APRIL 23, 1988, WATERFORD STEAM ELECTRIC STATION UNIT 3 WAS SHUTDOWN IN THE REFUELING MODE WHEN A HEALTH PHYSICS (HP) SUPERVISOR DISCOVERED THAT LESS THAN THE REQUIRED NUMBER OF CONTAINMENT PURGE ISOLATION (CPI) AREA RADIATION MONITORS (ARMS) HAD SETPOINTS PROPERLY SET PER TECHNICAL SPECIFICATION (TS) 3.3.3.1.A ON APRIL 19, 1988, AND FROM APRIL 21, 1988, TO APRIL 23, 1988. IF BOTH CPI ARMS BECOME INOPERABLE IN ONE OR BOTH TRAINS IN MODES ONE THROUGH FOUR OR DURING REFUELING, CPI VALVES MUST BE SHUT. SINCE CORE ALTERATIONS AND CONTAINMENT PURGE WERE CONDUCTED AT THESE TIMES, THE PLANT OPERATED IN A CONDITION PROHIBITED BY TS. THE ROOT CAUSE OF THIS EVENT WAS INADEQUATE PROCEDURES SINCE ADEQUATE GUIDANCE WAS NOT PROVIDED TO ENSURE PROPER SETPOINTS WERE ENTERED PRIOR TO CONDUCTING CORE ALTERATIONS OR RETURNING THE MONITORS TO SERVICE. APPLICABLE PROCEDURES ARE BEING REVISED. THE PLANT STACK MONITORS WERE OPERABLE AND CAPABLE OF AUTOMATICALLY TERMINATING CONTAINMENT PURGE THROUGHOUT THIS PERIOD. THERE WAS NO RADIATION RELEASE OUTSIDE OF NORMAL LIMITS DURING THE PERIOD AND THE TYPE OF CORE ALTERATIONS PERFORMED HAD A LOW POTENTIAL FOR CAUSING SUCH RELEASES. THERE WAS, THEREFORE, NO SAFETY SIGNIFICANCE TO THIS EVENT.

[312] WATERFORD 3 DOCKET 50-382 LER 88-017
SNUBBER SISR-1352 DISCOVERED DISCONNECTED.
EVENT DATE: 051788 REPORT DATE: 071188 NSSS: CE TYPE: PWR

(NSIC 209834) ON JUNE 21, 1988, WATERFORD STEAM ELECTRIC STATION UNIT 3 WAS OPERATING AT 100% POWER WHEN A PREVIOUS REPORTABILITY CONCLUSION WAS DETERMINED TO BE IN ERROR. ON MAY 17, 1988, A UTILITY ENGINEER DISCOVERED A MECHANICAL SNUBBER DISCONNECTED. THE SNUBBER (SISR-1352) IS CONNECTED TO VALVE SI-404A IN THE SHUTDOWN COOLING (SDC) SYSTEM. UNDER THE SNUBBER REDUCTION PROGRAM, CALCULATIONS HAVE BEEN PERFORMED TO REMOVE SEVERAL SNUBBERS FROM THE SDC SYSTEM, INCLUDING SISR-1352. THE WORK PACKAGE TO IMPLEMENT THIS PROGRAM IS SCHEDULED TO BE PERFORMED DURING THE NEXT REFUELING OUTAGE. ANOTHER EVALUATION HAS BEEN PERFORMED WHICH DEMONSTRATED THE OPERABILITY OF THE SDC SYSTEM WAS NOT AFFECTED WITH THIS SNUBBER DISCONNECTED. SINCE THERE WAS NO EFFECT ON ANY SYSTEMS, THIS EVENT WAS INITIALLY DETERMINED TO BE NOT REPORTABLE. HOWEVER, ON JUNE 21, IT WAS DETERMINED THAT SINCE THE SNUBBER HAD NOT YET BEEN DELETED FROM THE DESIGN, ITS REMOVAL BY ITSELF SHOULD BE REPORTED. THE SNUBBER WAS INSPECTED ON APRIL 8, 1988, HOWEVER A MECHANIC REMEMBERS A SNUBBER WAS NOT CONNECTED TO SI-404A ON APRIL 25. THE PLANT IS CONSIDERED TO HAVE BEEN IN A CONDITION PROHIBITED BY TECHNICAL SPECIFICATION 3.7.8 FROM APRIL 25 TO MAY 19, WHENEVER SDC TRAIN A WAS REQUIRED TO BE OPERABLE. SINCE THIS SNUBBER WILL BE REMOVED, AND ITS BEING DISCONNECTED DID NOT AFFECT THE OPERABILITY OF THE SDC TRAIN, THIS EVENT HAD NO SAFETY SIGNIFICANCE.

[313] WATERFORD 3 DOCKET 50- 4 LER 88-011
 PENETRATION FIRE SEAL IMPAIRED DUE TO ERROR IN INITIAL CONSTRUCTION.
 EVENT DATE: 052588 REPORT DATE: 062488 NSSS: CE TYPE: PWR

(NSIC 209655) AT 1700 HOURS ON MAY 25, 1988, WATERFORD STEAM ELECTRIC STATION UNIT 3 WAS IN HOT SHUTDOWN WHEN IT WAS DETERMINED THAT THE FIRE SEAL FOR PENETRATION VIA0179 DID NOT CONFORM WITH A STANDARD DESIGN AND WAS THEREFORE IMPAIRED. THE IRREGULAR SEAL WAS DISCOVERED ON DECEMBER 3, 1987 BY UTILITY ELECTRICIANS PERFORMING FIRE SEAL INSPECTIONS BUT WAS DETERMINED NOT TO BE AN IMPAIRMENT. SINCE IT WAS NOT AN IMPAIRMENT, THE JOB PLANNER DID NOT WALKDOWN THE FIRE SEAL UNTIL MAY 25, 1988. HE IMMEDIATELY NOTIFIED A FIRE PROTECTION ENGINEER WHO DETERMINED THE SEAL WAS IMPAIRED. A FIRE WATCH WAS PROMPTLY ESTABLISHED IN ACCORDANCE WITH TECHNICAL SPECIFICATION (TS) 3.7.11. THIS CONDITION HAS EXISTED SINCE INITIAL STARTUP, THEREFORE THE PLANT WAS IN A CONDITION PROHIBITED BY TS 3.7.11 BETWEEN DECEMBER 18, 1988 AND MAY 25, 1988. THE ROOT CAUSE OF THIS EVENT WAS AN INITIAL DESIGN AND CONSTRUCTION ERROR. THE SEAL SPECIFIED BY THE PENETRATION LIST WAS NOT PROPER FOR THE APPLICATION AND THE INSTALLATION DID NOT CORRELATE WITH A STANDARD DESIGN. A STATION MODIFICATION HAS BEEN INITIATED TO CORRECT THE SEAL. SINCE THE EXTERNAL PORTION OF THE SEAL IS EXPOSED TO THE OUTSIDE ATMOSPHERE AND THE INTERNAL PORTION IS IN AN AREA WITH FIRE DETECTION AND SUPPRESSION EQUIPMENT THE EFFECT ON THE FIRE PROTECTION PROGRAM IS MINIMAL.

[314] WATERFORD 3 DOCKET 50-382 LER 88-012
 STEAM GENERATOR BLOWDOWN SAMPLE MISSED DURING PLANT HEATUP DUE TO PERSONNEL ERROR.
 EVENT DATE: 052688 REPORT DATE: 062488 NSSS: CE TYPE: PWR
 VENDOR: NUCLEAR MEASUREMENTS CORP.

(NSIC 209656) AT 1415 HOURS ON MAY 26, 1988, WATERFORD STEAM ELECTRIC STATION UNIT 3 WAS IN HOT STANDBY WHEN A HEALTH PHYSICS SUPERVISOR DISCOVERED THAT STEAM GENERATOR (SG) BLOWDOWN SAMPLING HAD EXCEEDED THE REQUIRED PERIODICITY OF TECHNICAL SPECIFICATION (TS) 3.3.3. ACTION 28. THE SG BLOWDOWN RADIATION MONITOR (SGBM), REQUIRED IN MODES ONE THROUGH FOUR, WAS INOPERABLE WHEN THE BLOWDOWN SYSTEM WAS PLACED IN SERVICE AT 1620 HOURS ON MAY 25, 1988, DURING PLANT HEATUP. TS 3.3.3.1 ACTION 28 ALLOWS OPERATION TO CONTINUE FOR UP TO 30 DAYS PROVIDED EIGHT HOUR GRAB SAMPLES ARE TAKEN AND ANALYZED FOR GROSS ACTIVITY WITHIN 24 HOURS. SINCE THE FIRST GRAB SAMPLE WAS TAKEN AT 0720 HOURS ON MAY 26, 1988, THE PLANT OPERATED IN A CONDITION PROHIBITED BY TS FROM 0020 HOURS TO 0720 HOURS ON MAY 26, 1988. THE ROOT CAUSE OF THIS EVENT IS PERSONNEL ERROR. THE EQUIPMENT OUT-OF-SERVICE (EOS) CHECKLIST, COMPLETED FOR THE SGBM ON APRIL 6, 1988, DID NOT SPECIFY THE APPLICABLE LIMITING CONDITION FOR OPERATION (LCO) TIME LIMIT. THUS, WHEN THE EOS LOG WAS REVIEWED FOR ENTRY INTO MODE FOUR, THE NEED FOR SG BLOWDOWN SAMPLING WAS NOT RECOGNIZED. PROCEDURES ARE BEING REVISED TO VERIFY THE SGBM IS IN SERVICE OR REQUIRED SAMPLING HAS BEEN BEGUN WHEN PLACING SG BLOWDOWN IN SERVICE.

[315] WATERFORD 3 DOCKET 50-382 LER 88-013
 FIRE PROTECTION SPRINKLER FOUND ISOLATED AFTER RESTORATION FROM TESTING DUE TO PERSONNEL ERROR.
 EVENT DATE: 052888 REPORT DATE: 062488 NSSS: CE TYPE: PWR

(NSIC 209657) AT 1315 HOURS ON MAY 28, 1988, WATERFORD STEAM ELECTRIC STATION UNIT 3 WAS SHUTDOWN IN HOT STANDBY WHEN OPERATIONS PERSONNEL DISCOVERED ISOLATION VALVE FP 6031A FOR SPRINKLER FPM-1 CLOSED. FPM-1 PROTECTS REACTOR COOLANT PUMPS 1A AND 1B AND IS REQUIRED TO BE OPERABLE WHENEVER REACTOR COOLANT SYSTEM (RCS) LOOP 1 IS REQUIRED TO BE OPERABLE. FP 6031A WAS SHUT ON MAY 21, 1988, IN PREPARATION FOR THE INTEGRATED LEAK RATE TEST AND MISTAKENLY LEFT SHUT ON MAY 24, 1988, WHEN THE SYSTEM WAS RESTORED. RCS LOOP 1 WAS REQUIRED TO BE OPERABLE AT 0656 HOURS ON MAY 26. THUS, THE PLANT OPERATED IN A CONDITION PROHIBITED BY TECHNICAL SPECIFICATION (TS) 3.7.10.2 FROM MAY 26, 1988, TO MAY 28, 1988, WHEN

THE VALVE WAS REOPENED. THE ORIGINAL VALVE LINEUP SHEET USED TO RESTORE SYSTEMS INSIDE CONTAINMENT WAS CONTAMINATED AND DISPOSED OF WHEN THE OPERATORS EXITED CONTAINMENT. THIS VALVE WAS OVERLOOKED AND NOT SIGNED OFF ON THE ORIGINAL SHEET. WHEN THE REPLACEMENT SHEET WAS SIGNED OFF, OPERATORS MISTAKENLY THOUGHT THIS VALVE HAD BEEN VERIFIED IN THE PROPER POSITION. THUS, THE ROOT CAUSE OF THIS EVENT IS COGNITIVE PERSONNEL ERROR. PROCEDURES ARE BEING REVISED TO REQUIRE CONTAMINATED (BAGGED) VALVE LINEUP SHEETS BE PHOTOCOPIED OR VERIFIED UPON EXIT FROM THE RADIATION CONTROLLED AREA.

[316] WATERFORD 3 DOCKET 50-382 LER 88-014
 REACTOR VESSEL LEVEL MONITORING SYSTEM INOPERABLE DUE TO COGNITIVE PERSONNEL ERROR.
 EVENT DATE: 052888 REPORT DATE: 062488 NSSS: CE TYPE: PWR

(NSIC 209658) AT APPROXIMATELY 1400 HOURS ON MAY 28, 1988, WATERFORD STEAM ELECTRIC STATION UNIT 3 WAS IN HOT STANDBY WHEN BOTH CHANNELS OF THE REACTOR VESSEL LEVEL MONITORING SYSTEM (RVLMS) WERE DISCOVERED TO BE INOPERABLE. THE RVLMS IS REQUIRED TO BE OPERABLE IN MODE 3, WHICH THE PLANT ENTERED AT 1401 HOURS ON MAY 26, 1988. OPERATIONS PERSONNEL ACTED PROMPTLY UPON DISCOVERY AND RESTORED THE RVLMS TO SERVICE AT 1430 HOURS ON MAY 28, 1988. TECHNICAL SPECIFICATION (TS) 3.3.3.6 REQUIRES THE RVLMS TO BE RESTORED TO OPERABLE STATUS WITHIN 48 HOURS IF REPAIRS ARE FEASIBLE. SINCE REPAIRS WERE FEASIBLE AND THE RVLMS WAS NOT RESTORED TO OPERABLE STATUS WITHIN 48 HOURS THE PLANT IS CONSIDERED TO HAVE OPERATED IN A CONDITION PROHIBITED BY TS FOR 29 MINUTES. THE ROOT CAUSE OF THIS EVENT IS COGNITIVE PERSONNEL ERROR WITH A CONTRIBUTING CAUSE OF A POORLY HUMAN FACTORED SURVEILLANCE PROCEDURE. THE RVLMS WAS INOPERABLE BECAUSE THE HEATER POWER SUPPLY HAD BEEN DANGER TAGGED TO PREVENT DAMAGING THE HEATERS DURING REFUELING. IT IS LIKELY THAT IF THE RVLMS HAD BEEN USED DURING AN EMERGENCY THE CLOSE AGREEMENT BETWEEN HEATED AND UNHEATED THERMOCOUPLES WOULD HAVE BEEN NOTICED AND THE SYSTEM PROMPTLY RESTORED. TS 3.0.4 IS NOT APPLICABLE AND TS 3.3.3.6 ALLOWS PLANT OPERATION WITH AN ALTERNATE METHOD OF MONITORING REACTOR VESSEL INVENTORY.

[317] WOLF CREEK 1 DOCKET 50-482 LER 87-048 REV 01
 UPDATE ON IMPROPER MAINTENANCE ACTIONS CAUSE FATALITY AND RESULTS IN ENGINEERED SAFETY FEATURES ACTUATIONS AND LOSS OF RESIDUAL HEAT REMOVAL.
 EVENT DATE: 101487 REPORT DATE: 062488 NSSS: WE TYPE: PWR
 VENDOR: GENERAL ELECTRIC CO.

(NSIC 209584) ON OCTOBER 14, 1987, AT APPROXIMATELY 2037 CDT, AN UNUSUAL EVENT (UE) WAS DECLARED DUE TO A FIRE BEING REPORTED IN THE ENGINEERED SAFETY FEATURES (ESF) SWITCHGEAR ROOM. IT WAS DISCOVERED THAT A WORKER HAD COME IN CONTACT WITH AN ENERGIZED PART OF THE 'B' TRAIN SAFETY-RELATED 4160 VOLT ESF BUS. SUBSEQUENT OPERATOR ACTION (DEENERGIZING THE 'A' TRAIN 4160 VOLT ESF BUS TO DEENERGIZE THE CROSS-TIE TO THE 'B' TRAIN ESF BUS) RESULTED IN A LOSS OF THE RESIDUAL HEAT REMOVAL (RHR) SYSTEM FOR APPROXIMATELY 17 MINUTES AND AN AUTOMATIC ACTUATION OF 'A' DIESEL GENERATOR. THE UE WAS EXITED AT APPROXIMATELY 2111 CDT AFTER RHR WAS RESTORED. THE DIESEL START AND SHUTDOWN SEQUENCE ACTUATION ARE BEING REPORTED PER 10CFR 50.73(A)(2)(IV). THE LOSS OF RHR IS BEING REPORTED PER 10CFR 50.73(A)(2)(V) AND 10CFR 50.73(A)(2)(VII). THE FIRE AND THE FATALITY ARE BEING REPORTED PER 10CFR 50.73(A)(2)(X). THE DIESEL GENERATOR FAILURE IS BEING REPORTED TO SATISFY THE SPECIAL REPORT REQUIREMENTS OF REGULATORY GUIDE 1.108. DETAILED INVESTIGATION DETERMINED THAT THE ULTIMATE CAUSE OF THE ACCIDENT WAS THE FAILURE OF THE QUALIFIED ELECTRICIAN TO FOLLOW THE MAINTENANCE PROCEDURE GOVERNING THE WORK WHICH REQUIRED HIM TO CHECK THE STATIONARY DISCONNECTS FOR HIGH VOLTAGE POTENTIAL PRIOR TO DOING ANY WORK IN A POTENTIAL TRANSFORMER CABINET.

[318] WOLF CREEK 1 DOCKET 50-482 LER 88-004
 CHANNEL CHECK REQUIREMENT ON LOOSE-PART DETECTION SYSTEM BEING DELETED FROM
 SURVEILLANCE PROCEDURE.
 EVENT DATE: 041488 REPORT DATE: 051688 NSSS: WE TYPE: PWR

(NSIC 209480) ON APRIL 14, 1988, AT APPROXIMATELY 1130 CST, IT WAS DETERMINED, FOLLOWING AN INTERNAL SURVEILLANCE, THAT THE DAILY CHANNEL CHECK ON THE LOOSE-PART DETECTION SYSTEM HAD NOT BEEN ADEQUATELY PERFORMED BEGINNING ON MAY 2, 1985. THE SURVEILLANCE PROCEDURE STS CR-001, "SHIFT LOG FOR NODES 1 AND 2", DID NOT MEET THE EXPANDED CHANNEL CHECK REQUIREMENTS IDENTIFIED BY THE TECH SPEC BASIS WHICH REFERENCED REGULATORY GUIDE 1.133. THEREFORE, THE CHANNEL CHECK REQUIRED BY TECH SPEC 4.3.3.3.A WAS NOT FULLY MET FOR THE LOOSE-PART DETECTION SYSTEM. THE ROOT CAUSE OF THIS EVENT WAS DETERMINED TO BE TWO SEPARATE ERRORS. THE FIRST BY CONTRACTOR PROCEDURE WRITERS IN DELETING THE REQUIREMENT TO AUDIBLY MONITOR EACH CHANNEL FROM THE SURVEILLANCE PROCEDURE WHEN A REVISION WAS MADE. THE SECOND BY THE INDIVIDUALS INVOLVED IN THE PROCEDURE REVIEW PROCESS IN NOT IDENTIFYING THIS INADVERTENT DELETION. A DETAILED RECREATION OF THE CIRCUMSTANCES SURROUNDING THE REVISION TO THE SURVEILLANCE PROCEDURE COULD NOT BE MADE BECAUSE SOME OF THE PERSONNEL INVOLVED ARE NO LONGER EMPLOYED AT WOLF CREEK GENERATING STATION. THEREFORE, THE CAUSE OF THE REQUIREMENT BEING DELETED FROM THE SURVEILLANCE PROCEDURE COULD NOT BE DETERMINED. A TEMPORARY PROCEDURE CHANGE TO REQUIRE AN AUDIBLE CHECK OF EACH CHANNEL EACH SHIFT WAS INCORPORATED INTO THE SURVEILLANCE PROCEDURE ON APRIL 15, 1988.

[319] WOLF CREEK 1 DOCKET 50-482 LER 88-007
 TECHNICAL SPECIFICATIONS VIOLATION ON TWO INSTRUMENT SETPOINTS DUE TO FAULTY
 PROCEDURE.
 EVENT DATE: 051388 REPORT DATE: 061388 NSSS: WE TYPE: PWR

(NSIC 209681) AT 1230 CDT ON MAY 13, 1988, WHILE REVIEWING THE SURVEILLANCE TEST METHODOLOGY, THE UTILITY REACTOR ENGINEERING SUPERVISOR AND A UTILITY INSTRUMENT AND CONTROL (I&C) SUPERVISOR DETERMINED THAT THE PROCEDURES FOR SETTING THE TRIP POINT FOR OVERPOWER DIFFERENTIAL TEMPERATURE (OPDT) AND OVERTEMPERATURE DIFFERENTIAL TEMPERATURE (OTDT) INSTRUMENT LOOPS DID NOT COMPLY WITH TECH SPECS 2.2-1, ACTION STATEMENT "A", BY NOT REQUIRING THE TRIP POINTS TO BE RESET TO THE CONSERVATIVE SIDE OF THE REQUIRED SETPOINT. THIS WAS CAUSED BY A COGNITIVE PERSONNEL ERROR BY THE I&C PERSONNEL WHICH OCCURRED AT THE TIME OF PROCEDURE DEVELOPMENT. THIS PROCEDURE ERROR HAS EXISTED SINCE THE OPDT AND OTDT INSTRUMENTS WERE FIRST CALIBRATED ON MAY 18, 1985, PRIOR TO INITIAL CRITICALITY. THE ACTUAL SETPOINT WAS ALWAYS WITHIN THE ALLOWABLE VALUE SPECIFIED IN TECH SPECS TABLE 2.2-1. WHEN THE ERROR WAS DISCOVERED, IT WAS DETERMINED THAT TWO OPDT AND THREE OTDT INSTRUMENT LOOPS WERE AFFECTED. THE AFFECTED BISTABLE TRIP SETPOINTS WERE PROPERLY ADJUSTED BY 2056 CDT ON MAY 13, 1988. THE PROCEDURES THAT VERIFIED THE OTHER SETPOINTS OF TECH SPECS TABLE 2.2-1 WERE REVIEWED TO ENSURE THIS ERROR DID NOT EXIST IN OTHER SETPOINTS. THE SURVEILLANCE TEST PROCEDURES HAVE BEEN REVISED TO PREVENT FURTHER OCCURRENCES.

[320] WPPSS 2 DOCKET 50-397 LER 88-010
 NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM GROUP 1 ISOLATION (MAIN STEAMLINE) DUE TO LOW
 PRESSURE IN THE MAIN STEAMLINES WHILE THE REACTOR MODE SWITCH WAS IN "RUN" CAUSED
 BY PERSONNEL ERROR.
 EVENT DATE: 043088 REPORT DATE: 053188 NSSS: GE TYPE: BWR
 VENDOR: MASONHEILAN INTERNATIONAL, INC.

(NSIC 209504) APRIL 30, 1988, THE PLANT WAS AT LOW POWER (1%) IN PREPARATION FOR MANUALLY SCRAMMING THE REACTOR TO SHUT DOWN THE PLANT FOR THE START OF THE ANNUAL REFUELING AND MAINTENANCE OUTAGE. JUST PRIOR TO MANUALLY SCRAMMING THE REACTOR, THE REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM WAS INITIATED TO CONTROL REACTOR WATER LEVEL FOLLOWING THE SCRAM. THIS WAS A PLANNED STEP IN AN APPROVED

TEMPORARY PROCEDURE FOR SHUTTING DOWN THE REACTOR DUE TO THE FEEDWATER STARTUP FLOW CONTROL VALVE (RPW-FCV-10B) BEING STUCK PARTIALLY OPEN. AT 0800 HRS, A LICENSED CONTROL ROOM OPERATOR (CRO) MANUALLY SCRAMMED THE REACTOR. IMMEDIATELY FOLLOWING THE MANUAL SCRAM THE CRO TRIED TO RESET THE SCRAM LOGIC. THIS WAS DONE IN SUPPORT OF A REACTOR PROTECTION SYSTEM (RPS) LOGIC SYSTEM FUNCTIONAL TEST (LSFT). LESS THAN TWO MINUTES LATER, MAIN STEAMLINE PRESSURE DECREASED TO THE MAIN STEAMLINE LOW PRESSURE TRIP SETPOINT (83) PSIG) AND, WITH THE REACTOR MODE SWITCH STILL IN THE "RUN" POSITION, THE MAIN STEAMLINE ISOLATION VALVES (MSIVS) BEGAN TO CLOSE. THIS IS AN ENGINEERED SAFETY FEATURE ACTUATION. LICENSED REACTOR OPERATORS STABILIZED THE REACTOR, EQUALIZED THE PRESSURE AROUND THE MSIVS AND, AT 0834 HOURS, REOPENED THE VALVES. THE CAUSE OF THIS EVENT WAS LOW PRESSURE IN THE MAIN STEAMLINES WITH THE MODE SWITCH IN "RUN" POSITION.

[321] WPPSS 2 DOCKET 50-397 LER 88-011
 REACTOR PROTECTION SYSTEM LOW LEVEL ACTUATION DURING SHUTDOWN COOLING SYSTEM
 LINEUP CHANGE DUE TO PERSONNEL ERROR/INADEQUATE DESIGN.
 EVENT DATE: 050188 REPORT DATE: 053188 NISS: GE TYPE: BWR

(NSIC 209487) AT 1840 HOURS ON MAY 1, 1988, A REACTOR PROTECTION SYSTEM (RPS) ACTUATION OCCURRED AS A RESULT OF A REACTOR PRESSURE VESSEL (RPV) LOW WATER LEVEL OF -13 INCHES. DURING A ROUTINE SHIFT OF THE RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING (SDC) SYSTEM LINEUP, BOTH THE RHR SDC LOOP "B" SUCTION AND THE SUPPRESSION POOL SUCTION WERE INADVERTENTLY OPEN AT THE SAME TIME WHICH ESTABLISHED AN UNCONTROLLED DRAIN PATH FROM THE RPV TO THE SUPPRESSION POOL. THIS ALLOWED APPROXIMATELY 10,000 GALLONS OF WATER TO DRAIN FROM THE RPV UNTIL AUTOMATIC CLOSURE OF THE RHR SDC ISOLATION VALVES TERMINATED THE LOW RPV LEVEL EXCURSION AT -19 INCHES. PLANT OPERATORS TOOK PROMPT ACTION TO RESTORE RPV LEVEL TO GREATER THAN -13 INCHES AT 1847 HOURS USING THE CONTROL ROD DRIVE AND CONDENSATE SYSTEMS. THE CAUSES WERE DETERMINED TO BE PERSONNEL ERROR AND INSUFFICIENT DEPTH OF DESIGN IN THAT PREVIOUS PROCEDURE PRECAUTIONS AND ADMINISTRATIVE CONTROLS WERE BELIEVED ADEQUATE AND, CONSEQUENTLY, NO INTERLOCK WAS INSTALLED TO PREVENT THE TWO SUCTION VALVES FROM BEING OPEN AT THE SAME TIME IN THIS SEQUENCE. CORRECTIVE ACTIONS INCLUDE 1) COUNSELING THE INDIVIDUAL INVOLVED, AND 2) PROVIDING AN INTERLOCK TO PREVENT THE OPENING OF THE SUPPRESSION POOL SUCTION VALVE WITH THE ASSOCIATED RHR SDC SUCTION VALVE OPEN.

[322] WPPSS 2 DOCKET 50-397 LER 88-012
 POTENTIAL UNMONITORED EFFLUENT RELEASE PATH DUE TO DESIGN ERROR BY
 ARCHITECT/ENGINEER DUE TO UNKNOWN CAUSE.
 EVENT DATE: 053688 REPORT DATE: 060688 NISS: GE TYPE: BWR

(NFIC 209675) ON MAY 6, 1988 A PLANT DESIGN ENGINEER DETERMINED THAT UNDER CERTAIN EMERGENCY CONDITIONS AN UNMONITORED RADIOLOGICAL EFFLUENT RELEASE PATH FROM THE TURBINE BUILDING THROUGH DIESEL GENERATOR CORRIDOR (D104) TO THE ATMOSPHERE COULD EXIST. THE CAUSE OF THIS EVENT IS DESIGN ERROR. FAN DEA-FN-51, WHICH EXHAUSTS DIRECTLY TO THE ATMOSPHERE DURING BOTH NORMAL AND EMERGENCY OPERATION, WAS PART OF THE ORIGINAL PLANT DESIGN DONE BY BURNS & ROE INC. THE EFFLUENT PATH THROUGH DEA-FN-51 SHOULD HAVE BEEN EVALUATED FOR EFFLUENT MONITORING INSTRUMENTATION IN ACCORDANCE WITH REGULATORY GUIDE 1.97. WNP-2 COMMITTED TO MONITOR NOBLE GAS EFFLUENTS IN APPENDICES B AND C OF THE FINAL SAFETY ANALYSIS REPORT (FSAR). THE ROOT CAUSE OF THIS EVENT IS UNKNOWN. DURING NORMAL AND MOST EMERGENCY OPERATIONS THERE IS NO EFFECT SINCE DEA-FN-51 IS SUPPLIED CLEAN OUTSIDE AIR BY THE TURBINE BUILDING HVAC SYSTEM, OR DURING SOME EMERGENCIES BY THE DG AREA CABLE COOLING SYSTEM. HOWEVER, DURING SOME POSTULATED POST-ACCIDENT CONDITIONS IT IS POSSIBLE THAT DEA-FN-51 COULD PULL AIR FROM THE TURBINE BUILDING AND EXHAUST IT DIRECTLY TO THE ATMOSPHERE. THE MOST SEVERE ACCIDENT (RADIOLOGICALLY) IN THE TURBINE BUILDING IS A MAIN STEAMLINE BREAK WHICH COULD GENERATE A SOURCE TERM CONCENTRATION OF 3.312×10^{-4} UCI/CC.

[323] WPPSS 2 DOCKET 50-397 LER 88-016
 REACTOR PROTECTION SYSTEM ACTUATION CAUSED BY AN AVERAGE POWER RANGE MONITOR HIGH
 POWER (NOT REAL) TRIP DUE TO PLANT DESIGN.
 EVENT DATE: 051188 REPORT DATE: 061788 NSSS: GE TYPE: BWR

(NSIC 209660) AT 0835 HRS ON 5/18/88, A FULL REACTOR PROTECTION SYSTEM (RPS) ACTUATION OCCURRED. AT THE TIME OF THE EVENT THE PLANT WAS SHUT DOWN FOR ANNUAL REFUELING AND MAINTENANCE. THE CAUSE OF THIS EVENT IS THE ACCIDENTAL MOVEMENT OF A LOCAL POWER RANGE MONITOR LPRM CABLE BY PLANT MECHANICS WHILE REMOVING SUPPORT ("SHOOT-OUT") STEEL FROM THE CONTROL ROD DRIVE (CRD) UNDERVESSEL AREA. MOVEMENT OF THE HIGH CAPACITY LPRM CABLE CAUSED A SIGNAL NOISE SPIKE OF SUFFICIENT MAGNITUDE TO CAUSE A HIGH POWER TRIP OF AVERAGE POWER RANGE MONITOR (APRM) CHANNEL "B" WHICH IN TURN TRIPPED RPS CHANNEL "B". AT THE SAME TIME PLANT INSTRUMENT TECHNICIANS IN A PRE-PLANNED ACTION TRIPPED MAIN STEAMLINE, CHANNEL "A" A RADIATION INDICATING SWITCH WHICH TRIPPED RPS CHANNEL "A". TRIPPING BOTH RPS CHANNELS CAUSES AN RPS ACTUATION; HOWEVER, SINCE THE PLANT WAS SHUT DOWN TO ACTUAL CONTROL ROD MOVEMENT OCCURRED. THE "ROOT CAUSE" OF THIS EVENT IS PLANT DESIGN. ONE HUNDRED AND SEVENTY TWO LPRM CABLES DROP THROUGH THE "SHOOT-OUT" STEEL IN THE CONFINED CRD UNDERVESSEL AREA AND IT IS IMPOSSIBLE TO TOTALLY PREVENT ACCIDENTAL MOVEMENT OF THE CABLES WHILE WORKING IN THE AREA. WORKING CONDITIONS IN THE CRD UNDERVESSEL AREA ARE DIFFICULT DUE TO SAFETY REQUIREMENTS. RADIOLOGICAL PROTECTIVE CLOTHING AND EQUIPMENT ARE REQUIRED.

[324] WPPSS 2 DOCKET 50-397 LER 88-013
 NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM ISOLATIONS CAUSED BY EPA BREAKER UNDERVOLTAGE TRIPS DUE TO LIGHTNING STRIKES WHILE REACTOR PROTECTION SYSTEM ON ALTERNATE POWER.
 EVENT DATE: 051288 REPORT DATE: 061388 NSSS: GE TYPE: BWR

(NSIC 209676) DURING THE ANNUAL MAINTENANCE AND REFUELING OUTAGE, A LOSS OF POWER OCCURRED ON REACTOR PROTECTION SYSTEM (RPS) BUS "A", WHICH CAUSED AN RPS, DIVISION "A", HALF SCRAM AND MULTIPLE ENGINEERED SAFETY FEATURE ACTUATIONS ON THE FOLLOWING DATES: 5/12/88 AT 2030 HOURS, 5/13/88 AT 0030 HRS. AT THE TIME OF BOTH EVENTS, RPS "A" WAS BEING FED FROM NONCRITICAL 480 VOLT MOTOR CONTROL CENTER MCC-68 (POWERED BY 230KV STARTUP TRANSFORMER (TR-S) BECAUSE THE MOTOR-GENERATOR SET (RPS-MG-A) WAS SHUT DOWN FOR MAINTENANCE. THE LOSS OF RPS "A" POWER WAS CAUSED BY PHASE-TO-GROUND FAULTS DUE TO LIGHTNING STRIKES ON THE 230KV MIDWAY-PRIEST RAPIDS NO. 2 LINE IN GRANT COUNTY, WA. THE ELECTRICAL FAULTS CAUSED THE RPS ELECTRICAL PROTECTION ASSEMBLY BREAKERS TO TRIP ON UNDERVOLTAGE, CAUSING LOSS OF RPS "A" POWER. THE LOSS OF RPS "A" POWER CAUSES AN OUTBOARD NUCLEAR STEAM SUPPLY SHUTOFF SYS. (NSSSS) ISOLATION OF GROUPS 1 (MAIN STEAM LINE DRAINS ONLY), 2, 4 (TWO DRAIN VALVES ONLY) 5, 6 AND 7. NSSSS GROUP 7 ISOLATES THE REACTOR WATER CLEANUP SYSTEM. IN ADDITION, THE LOSS OF RPS "A" POWER CAUSES A NSSSS GROUP 3 (PRIMARY AND SECONDARY CONTAINMENT VENTILATION AND PURGE SYSTEMS) AND A PARTIAL GROUP 4 (MISCELLANEOUS BALANCE OF PLANT) ISOLATION AND STANDBY GAS TREATMENT SYSTEM AND CONTROL ROOM EMERGENCY FILTRATION SYS. ACTUATIONS.

[325] WPPSS 2 DOCKET 50-397 LER 88-014
 VOLUNTARY REPORT OF REACTOR WATER CLEANUP SYSTEM RESIN TANK SPILL DUE TO RWCU VALVES BEING OPEN DUE TO UNKNOWN CAUSE.
 EVENT DATE: 051288 REPORT DATE: 062888 NSSS: GE TYPE: BWR

(NSIC 209757) ON MAY 12, 1988 AT APPROXIMATELY 1700 HOURS, A PLANT RADWASTE CONTROL ROOM OPERATOR (RWO) DISCOVERED THAT A REACTOR WATER CLEANUP (RWCU) SYSTEM RESIN SPILL HAD OCCURRED DURING RECIRCULATION OF RWCU PHASE SEPARATOR TANK RWCU-TK-1048. THE TANK WAS BEING RECIRCULATED IN PREPARATION FOR TRANSFER OF RESIN TO A SHIPPING CONTAINER. RECIRCULATION OF THE TANK WAS STARTED AT 1445 HOURS. AND TANK LEVEL READING WAS NOTED BY THE RWO TO BE 50%. AT 1615 HOURS, WHILE TAKING LOG READINGS, THE RWO NOTED THAT TANK LEVEL WAS 34%. CONTRARY TO PROCEDURAL REQUIREMENTS, IMMEDIATE INVESTIGATION OF THE LEVEL CHANGE WAS NOT

PERFORMED BECAUSE THE RWO THOUGHT (ERRONEOUSLY) THE CHANGE WAS DUE TO A DEFECTIVE LEVEL GAUGE. THE RWO RECHECKED TANK LEVEL AGAIN AT 1645 HOURS AND NOTED IT WAS STILL DECREASING. THE RWO THEN PROCEEDED TO THE TANK LOCATION, DISCOVERED RESIN BEING DISCHARGED INTO FLOOR DRAIN PDR-SUMP-W2 AND NOTED THAT APPROXIMATELY TWO CUBIC FEET OF RESIN SLURRY HAD SPLASHED ONTO THE FLOOR AROUND THE DRAIN. AT 1715 HOURS, THE RWO SECURED THE RECIRCULATION PUMP (RWCU-P-28) AND CLOSED THE TANK SUCTION AND DISCHARGE VALVES. FURTHER INVESTIGATION REVEALED THAT RWCU SAMPLE LINE ISOLATION VALVES RWCU-V- 442/443 HAD BEEN OPEN WHICH CREATED A FLOW PATH WHICH RESULTED IN THE SPILL. THE CAUSE OF THE VALVES BEING OPEN IS INDETERMINATE.

[326] WPPSS 2 DOCKET 50-397 LER 88-015
 NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM ISOLATIONS CAUSED BY THE INADVERTENT DE-ENERGIZATION OF THE REACTOR PROTECTION SYSTEM BUS A POWER SUPPLY DUE TO PERSONNEL ERROR.
 EVENT DATE: 051588 REPORT DATE: 061488 NSSS: GE TYPE: 9WR

(NSIC 209661) 5/15, AT 1607 HOURS, WHILE IN PLANT MODE 5 (REFUELING) WITH THE REACTOR HEAD REMOVED, THE REACTOR CAVITY FLOODED, AND THE FUEL POOL GATES REMOVED, AN INADVERTENT DE-ENERGIZATION OF MC-7A CAUSED A LOSS OF POWER TO REACTOR PROTECTION SYSTEM (RPS) BUS A. THE LOSS OF POWER TO RPS BUS A CAUSED A HALF-SCRAM IN RPS DIVISION A AND MULTIPLE ENGINEERED SAFETY FEATURE ISOLATIONS AND ACTUATIONS. THE LOSS OF RPS BUS A CAUSES AN OUTBOARD NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NSSSS) ISOLATION OF GROUPS 1 (MAIN STEAM LINE DRAINS ONLY), 2, 5, 6 AND 7. NSSSS GROUP 5 ISOLATES RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING. IN ADDITION, THE LOSS OF RPS A POWER CAUSES SOME NSSSS GROUP 3 (PRIMARY AND SECONDARY CONTAINMENT VENTILATION AND PURGE SYSTEMS) AND GROUP 4 (MISCELLANEOUS BALANCE OF PLANT) ISOLATIONS AND ACTUATIONS INCLUDING STANDBY GAS TREATMENT (SGT) SYSTEM AND THE CONTROL ROOM EMERGENCY FILTRATION SYSTEM. THE CAUSE OF THE EVENT WAS THE INADVERTENT REMOVAL OF POWER TO THE TEMPORARY FEED TO MC-7A RESULTING IN A LOSS OF POWER TO RPS BUS A. THE ROOT CAUSE OF THE EVENT WAS DETERMINED TO BE INADEQUATE WORK PACKAGE RESEARCH AND PREPARATION. CONTRIBUTING FACTORS WHICH LED TO THE EVENT ARE MISLEADING PLANT DRAWINGS AND AN UNUSUAL LOAD CENTER CONFIGURATION. PLANT OPERATORS RESPONDED BY SWITCHING RPS BUS A TO ITS ALTERNATE POWER SUPPLY.

[327] WPPSS 2 DOCKET 50-397 LER 88-019
 CONTROL ROOM EMERGENCY FILTRATION SYSTEM ACTUATION DURING TESTING DUE TO INADEQUATE PROCEDURE DUE TO PERSONNEL ERROR.
 EVENT DATE: 052088 REPORT DATE: 062788 NSSS: GE TYPE: BWR

(NSIC 209758) ON MAY 27, 1988 IT WAS DETERMINED THAT A CONTROL ROOM EMERGENCY FILTRATION SYSTEM ACTUATION WHICH OCCURRED ON MAY 20, 1988 WAS REPORTABLE PER 10CFR50.73. THE INADVERTENT START OF CONTROL ROOM EMERGENCY FILTRATION SYSTEM FAN WMA-FN-54B WAS THE FAILURE OF PLANT INSTRUMENT AND CONTROL (I & C) TECHNICIANS TO RESET THE TRIP LOGIC (DUE TO AN INADEQUATE PROCEDURE) DURING THE PERFORMANCE OF A REACTOR BUILDING EXHAUST PLENUM RADIATION MONITOR (REA-RIS-609B AND D) RESPONSE TIME TEST. THE IMMEDIATE CAUSE OF THIS EVENT WAS THE FAILURE TO RESET THE BALANCE OF PLANT RELAY CABINET (RC-2), DIVISION II, TRIP CIRCUITRY DUE TO AN INADEQUATE PROCEDURE. THE ROOT CAUSE OF THE EVENT IS PERSONNEL ERROR DURING THE PROCEDURE REVISION AND REVIEW PROCESS. A PREVIOUSLY APPROVED PROCEDURE DEVIATION, WHICH ADDED STEPS TO RESET A SUBCHANNEL HALF-TRIP CONDITION PRIOR TO CONTINUING WITH THE PROCEDURE, WAS NOT INCORPORATED DURING THE TWO-YEAR PERIODIC REVIEW AND REVISION PROCESS FOR THE PROCEDURE. AFTER VERIFICATION THAT NO ACTUAL INITIATING CONDITION EXISTED, THE TRIP CONDITION WAS RESET AND THE SYSTEM WAS RETURNED TO NORMAL LINEUP. FURTHER CORRECTIVE ACTIONS INCLUDE 1) ADDING THE REQUIREMENT TO THE PROCEDURE THAT THE WMA TRIP CIRCUITRY BE RESET, AND 2) MODIFYING THE PERIODIC PROCEDURE REVISION FORM TO INCLUDE VERIFICATION THAT DEVIATIONS HAVE BEEN INCORPORATED.

[328] WPPSS 2 DOCKET 50-397 LER 88-018
 EMERGENCY DIESEL GENERATOR NUMBER TWO INOPERABLE DUE TO CONTROL POWER TRANSFER
 SWITCH IN MOD-POSITION DUE TO UNKNOWN CAUSE.
 EVENT DATE: 052288 REPORT DATE: 062188 NSSS: GE TYPE: BWR

(NSIC 209758) AT 1012 HRS ON 5/22/88, DURING A PANEL WALKDOWN, THE CONTROL ROOM OPERATOR (CRO) NOTED THAT THE GREEN STATUS INDICATING LIGHT FOR THE DIVISION TWO EMERGENCY DIESEL GENERATOR (DG2) START CIRCUIT WAS NOT ENERGIZED. INVESTIGATION REVEALED THAT THE DIESEL GENERATOR CONTROL POWER TRANSFER SWITCH (FRTS-7) LOCATED IN THE REMOTE SHUTDOWN ROOM WAS NOT IN ITS REQUIRED POSITION. THE SWITCH, A TWO POSITION GE SB-1 TRANSFER SWITCH, WAS FOUND IN A MID-POSITION BETWEEN THE TWO ACTIVE POSITIONS "NORMAL" AND "EMERGENCY". EVALUATION OF THE SWITCH DESIGN REVEALED THAT WITH THE SWITCH IN THE MID-POSITION, IT IS HIGHLY PROBABLE THAT DG2 WOULD NOT HAVE RESPONDED TO A START SIGNAL AND WAS INOPERABLE. AT THIS TIME THE DIVISION ONE EMERGENCY DIESEL GENERATOR (DGL) WAS OUT OF SERVICE FOR MODIFICATION AND CORE ALTERATIONS WERE IN PROGRESS. WITH BOTH DIVISION ONE AND DIVISION TWO DIESEL GENERATORS INOPERABLE, THE REQUIREMENTS SPECIFIED IN THE WNP-2 TECHNICAL SPECIFICATION 3.8.1.2 (ELECTRIC POWER SYSTEMS A.C. SOURCES - SHUTDOWN) WERE NOT COMPLIED WITH. THIS RESULTED IN THE PLANT BEING IN A CONDITION PROHIBITED BY TECHNICAL SPECIFICATIONS. (I.E., LESS THAN THE MINIMUM REQUIRED A.C. POWER SOURCES WHILE SHUTDOWN) DIESEL GENERATOR CONTROL POWER TRANSFER SWITCH FRTS-7 WAS IMMEDIATELY PLACED IN THE "NORMAL" POSITION RESTORING THE GREEN STATUS LIGHT INDICATION AND DG-2 OPERABILITY.

[329] WPPSS 2 DOCKET 50-397 LER 88-020
 TECHNICAL SPECIFICATION SURVEILLANCE FOR REACTOR PRESSURE VESSEL LEVEL SWITCH
 CHANNEL FUNCTION TEST AND CALIBRATION NOT PERFORMED WITHIN REQUIRED FREQUENCY.
 EVENT DATE: 052788 REPORT DATE: 062488 NSSS: GE TYPE: BWR

(NSIC 209760) ON MAY 27, 1988, DURING A REVIEW OF OUTSTANDING INSTRUMENT SURVEILLANCE PROCEDURES, THE PLANT INSTRUMENT AND CONTROLS MAINTENANCE SUPERVISOR DISCOVERED THAT THE MONTHLY SURVEILLANCE (CHANNEL FUNCTION TEST/CALIBRATION) REQUIRED BY TECHNICAL SPECIFICATIONS FOR REACTOR PRESSURE VESSEL LEVEL SWITCH 61A (MS-LS-61A) HAD NOT BEEN PERFORMED. THE SURVEILLANCE WAS ORIGINALLY DUE ON MAY 13, 1988, WITH A 125% LATE DUE DATE OF MAY 20, 1988. NOT PERFORMING THIS SURVEILLANCE RESULTED IN NONCOMPLIANCE WITH WNP-2 TECHNICAL SPECIFICATION 4.3.2.1 ISOLATION ACTUATION INSTRUMENTATION SURVEILLANCE REQUIREMENTS. THE SURVEILLANCE WAS IMMEDIATELY SCHEDULED FOR PERFORMANCE AND SUCCESSFULLY COMPLETED AT 1307 HOURS ON MAY 27, 1988. THE CAUSE OF THIS EVENT WAS COGNITIVE PERSONNEL ERROR ON THE PART OF THE PLANT INSTRUMENTATION AND CONTROL SUPERVISOR IN THAT HE DECIDED NOT TO PERFORM THIS PROCEDURE ON THE SCHEDULED DUE DATE. THIS EVENT POSED NO THREAT TO THE SAFETY OF PLANT PERSONNEL OR THE PUBLIC.

[330] WPPSS 2 DOCKET 50-397 LER 88-021
 NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM GROUP 6 ISOLATION DUE TO DE-ENERGIZATION OF
 THE TRIP LOGIC CIRCUIT DUE TO PERSONNEL ERROR.
 EVENT DATE: 053088 REPORT DATE: 062988 NSSS: GE TYPE: BWR

(NSIC 209836) ON MAY 30, 1988, AT 1410 HOURS, WHILE IN PLANT MODE 5 (REFUELING) WITH THE REACTOR HEAD REMOVED, THE REACTOR CAVITY FLOODED AND THE FUEL POOL GATES REMOVED, THE OUTBOARD NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM, (NS4) GROUP 6, AUTOMATICALLY ISOLATED. AT THE TIME OF THIS EVENT RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING LOOP A WAS IN OPERATION AND WAS ISOLATED AS A RESULT OF THIS EVENT. THE CAUSE OF THIS EVENT WAS THE DE-ENERGIZATION OF THE NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NS4) GROUP 6 TRIP LOGIC CIRCUIT CAUSED BY THE INADVERTENT REMOVAL OF THE CIRCUIT FUSE BY A LICENSED CONTROL ROOM OPERATOR (CRO). AN OUTBOARD NS4 GROUP 6 ACTUATION ISOLATES THE OUTBOARD RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING SUPPLY VALVE (RHR-V-8), OUTBOARD RHR SHUTDOWN COOLING RETURN VALVES (RHR-V-53A AND 53B), AND OUTBOARD RHR TO REACTOR HEAD SPRAY VALVE. IN

ADDITION, CLOSING RHR-V-8 WILL CAUSE BOTH RHR PUMP 2A AND 2B TO TRIP IF NO OTHER SUCTION PATH IS AVAILABLE. FOR THIS EVENT THE CLOSURE OF RHR-V-8 CAUSED RHR PUMP 2A TO TRIP. BOTH RHR-V-53B AND RHR-V-23 WERE CLOSED PRIOR TO THE EVENT. THE ROOT CAUSE OF THIS EVENT IS A SKILL BASED PERSONNEL ERROR. CONTRIBUTING FACTORS WHICH LED TO THIS EVENT ARE THE LACK OF A POSITIVE METHOD FOR FUSE IDENTIFICATION AND INCONSISTENTLY INSTALLED FUZE IDENTIFICATION CLIPS THROUGHOUT THE CONTROL ROOM PANELS.

[331] YANKEE ROWE DOCKET 50-029 LER 89-008
 REACTOR/TURBINE TRIP ON LOSS OF GENERATOR FIELD EXCITATION.
 EVENT DATE: 051788 REPORT DATE: 061688 NSSS: W TYPE: PWR
 VENDOR: GENERAL ELECTRIC CO.

(NSIC 209585) AT 2323 HOURS, 17 MAY 1988, IN MODE 1 AT FULL POWER OPERATION (100%), A LOSS OF GENERATOR FIELD EXCITATION RESULTED IN AUTOMATIC TURBINE GOVERNOR RESPONSE AND SUBSEQUENT RELAY ACTION WHICH TRIPPED BK-1 AND BK-2 (REACTOR TRIP BREAKERS). THE LOSS OF GENERATOR FIELD EXCITATION RESULTED FROM AUTOMATIC TRIPPING OF THE AC FEED TO THE STATIC EXCITER. THE HARRIMAN (E-126) TRANSMISSION LINE ALSO DEENERGIZED DURING THIS EVENT. LOSS OF BOTH GENERATOR EXCITATION AND ONE OF TWO TRANSMISSION LINES RESULTED IN A LOSS OF FLOW FROM THREE OF FOUR MAIN COOLANT PUMPS (MCPS). THE OPERATORS SECURED MCP #1 APPROXIMATELY TWO MINUTES AFTER PLANT TRIP AND ESTABLISHED NATURAL CIRCULATION. BY 2330 HOURS THE E-126 LINE HAD BEEN RE-ENERGIZED. BY 2345 HOURS THE ELECTRICAL BUSES HAD BEEN CROSS-TIED AND RESTART OF THE MCPS HAD COMMENCED. AT 0005 HOURS, MAY 18, 1988, ALL FOUR MCPS WERE OPERATING. ALL AUTOMATIC SAFETY SYSTEMS FUNCTIONED AS DESIGNED; THE PLANT EMERGENCY DIESEL GENERATORS NO. 2 AND 3 STARTED AS REQUIRED. THE ROOT CAUSE OF THIS EVENT WAS LOSS OF EXCITATION AND SUBSEQUENT TURBINE ACCELERATION WHICH INITIATED CLOSURE OF THE TURBINE CONTROL VALVES LEADING TO A PLANT TRIP. IT IS BELIEVED THAT A FAULT ON THE E-126 TRANSMISSION LINE PRECEDED THE LOSS OF EXCITATION.

[332] EION 1 DOCKET 50-295 LER 88-010
 INADVERTENT ACTUATION OF SAFEGUARDS EQUIPMENT DURING DIESEL GENERATOR TEST.
 EVENT DATE: 042788 REPORT DATE: 052788 NSSS: WE TYPE: PWR

(NSIC 209457) ON APRIL 27, 1988, WHILE PERFORMING TESTING OF THE 1B DIESEL GENERATOR, VALVES 1MOV-CS0006 (1C CONTAINMENT SPRAY (CS) PUMP DISCHARGE) AND 1MOV-CS0010 (1C CS PUMP SUCTION) RECEIVED AN INADVERTENT ACTUATION SIGNAL CAUSED BY A FAILURE TO RESET THE ACTUATION RELAYS AFTER THE INITIATING SIGNAL WAS REMOVED. THE RELAYS ARE NORMALLY RESET AUTOMATICALLY. THE AUTOMATIC RESET HAD BEEN DEFEATED BY A TEMPORARY PROCEDURE CHANGE. THE RELAYS WERE RESET USING THE MANUAL RESET BUTTON AND THE VALVES WERE CLOSED.

[333] EION 1 DOCKET 50-295 LER 88-011
 REACTOR TRIP DUE TO GENERATOR TRIP/OVER EXCITATION.
 EVENT DATE: 050788 REPORT DATE: 060688 NSSS: WE TYPE: PWR
 VENDOR: CHMITE

(NSIC 209558) ON 05/07/88 AT 1701 HOURS, WHILE ATTEMPTING TO SYNCHRONIZE THE GENERATOR, THE NUCLEAR STATION OPERATOR NOTICED ZERO VOLTAGE FOR THE GENERATOR EXCITATION. WHILE ATTEMPTING TO RAISE THE EXCITATION VOLTAGE, A GENERATOR TRIP WAS RECEIVED WHICH CAUSED A TURBINE TRIP. AT 1706 HOURS, THE RESULTING TRANSIENT CAUSED A REACTOR TRIP TO OCCUR DUE TO A LOW-LOW LEVEL IN STEAM GENERATOR 1B. SUBSEQUENT INVESTIGATION REVEALED THAT THE OPERATOR WAS "FOOLED" INTO SEEING ZERO EXCITATION DUE TO CORROSION ON PHASE B IN THE PRIMARY OF THE POTENTIAL TRANSFORMER CIRCUIT. SPECIFICALLY, THE CORROSION TOOK PLACE IN THE SERIES RESISTORS USED TO LIMIT FAULT CURRENT SHOULD THE POTENTIAL TRANSFORMER FAIL. THE SV (OVERVOLTAGE) RELAY, WHICH MONITORS PHASE A & C VOLTAGES, TRIPPED THE UNIT DUE

TO OVER EXCITATION. ALL SAFETY RELATED EQUIPMENT FUNCTIONED PER DESIGN.
SURVEILLANCE OF THE SERIES RESISTORS WILL BE ADDED TO THE PREVENTIVE MAINTENANCE
SCHEDULE TO PREVENT RECURRENCE OF THIS TYPE OF EVENT.

COMPONENT INDEX

This index is based on component and component-related keywords assigned by the NSIC staff when the summaries of the LERs are prepared for computer entry.

- ACCUMULATORS 4, 78, 130, 236, 301
 AIR 243, 263, 278, 322
 BATTERIES & CHARGERS 21, 159, 203, 294
 BEARING 258
 BLOWERS 14, 22, 146, 148, 190, 193,
 196, 243, 263, 268, 322
 BREAKER 13, 18, 21, 31, 45, 80, 104,
 126, 137, 141, 154, 165, 169, 189,
 192, 209, 220, 228, 238, 249, 302,
 310, 317, 324, 331
 BYPASS 46, 98, 116, 228
 CABLES AND CONNECTORS 4, 9, 13, 15, 18,
 21, 23, 34, 39, 62, 79, 83, 86, 96,
 99, 132, 136, 137, 145, 152, 155, 166,
 172, 187-190, 192, 193, 196, 203, 212,
 214, 228, 249, 251, 257, 267, 273,
 275, 298, 317, 323, 324, 326, 331
 COATING 42
 COMPONENTS 17, 22, 26, 58, 68, 73, 80,
 85, 93, 120, 135, 139, 144, 151, 165,
 178, 191, 195, 196, 205, 206, 208,
 210, 239, 264, 271, 295, 310
 COMPUTER, DIGITAL 31, 45, 55, 174, 179,
 180, 247, 298
 CONDENSEF 27, 42, 55, 204, 226, 278
 CONTAINMENT AIR LOCK 66, 87
 CONTAINMENT EQUIPMENT HATCH 211
 CONTAINMENT SUMP 183, 300
 CONTRACTOR PERSONNEL 13, 23, 28, 37,
 38, 40, 72, 75, 76, 82, 85, 100, 125,
 133, 135, 160, 168, 175, 177, 178,
 182, 183, 201, 204, 208, 213, 226,
 233, 245, 253, 255, 257, 258, 268,
 277, 286, 299, 302, 303, 318, 322
 CONTROL 1, 5, 31, 32, 34-36, 38, 45,
 46, 51, 53, 57, 123, 135, 151, 173,
 175, 177, 183, 208, 209, 212, 218,
 227, 228, 240, 253, 261, 270, 271,
 276, 283, 288, 302, 320, 331
 CONTROL PANEL/ROOM 1, 21, 45, 86, 184,
 310
 CONTROL ROD DRIVES 27, 78
 CONTROL RODS 2, 14, 27, 213, 221
 CONTROLLER 21
 COOLING 230, 263
 COOLING DEVICE 53, 127, 181, 196, 208,
 215, 226, 230, 267, 269, 333
 DOOR 64, 87, 90, 120, 154, 155, 285,
 287, 289, 310
 DRAINAGE 34, 241, 284
 DRIVE 26, 31, 35, 83, 85, 302
 ELECTRIC POWER 1, 13, 14, 18, 21, 31,
 45, 70, 80, 104, 126, 137, 141, 154,
 157, 165, 169, 189, 192, 209, 220,
 227, 228, 238, 249, 298, 302, 310,
 316, 317, 324, 331
 ELECTRONIC FUNCTION UNITS 1, 13, 14,
 23, 36, 38, 46, 70, 84, 128, 151, 153,
 157, 169, 197, 198, 212, 218, 221,
 ELECTRONIC FUNCTION UNITS 227, 245,
 251, 271, 278, 298, 299, 306, 316,
 319, 333
 ENGINES, INTERNAL COMBUSTION 21, 165,
 224, 242, 292
 EQUIPMENT 4, 34, 37, 42, 102, 149, 223,
 229, 253, 271, 279-281, 292
 FAILURE, COMPONENT 17, 22, 26, 58, 68,
 73, 80, 85, 93, 120, 135, 139, 144,
 151, 165, 178, 191, 195, 196, 205,
 206, 208, 210, 239, 264, 271, 295, 310
 FAILURE, EQUIPMENT 1-15, 18, 19, 21-24,
 26-28, 31-40, 42-53, 55-58, 60-62, 64-
 68, 70-73, 75, 76, 78-80, 82-88, 90,
 91, 96-104, 116, 118, 120, 122-138,
 141-146, 148-157, 159-181, 183-185,
 187-193, 195, 196, 200, 203-206, 208-
 224, 226-231, 233, 234, 236-238, 240-
 251, 253-261, 263-267, 269-271, 273-
 289, 292-294, 296-302, 306, 307, 310-
 313, 315-317, 319-326, 328, 331, 333
 FAILURE, INSTRUMENT 3, 4, 7, 9-14, 16,
 20, 23, 24, 27, 30, 31, 33, 34, 38-41,
 43-48, 51, 52, 54, 55, 57-59, 61, 63,
 67, 69-72, 75, 77-79, 81, 84, 87, 92-
 95, 98, 102, 104, 117, 119, 123, 124,
 127-130, 132, 135, 136, 138, 140, 141,
 145, 148, 151-153, 156, 158, 162, 169,
 173, 180-182, 185-190, 192-199, 204,
 207, 209, 212-214, 217, 218, 220, 227,
 228, 231-233, 235, 239-242, 244, 245,
 247, 250-252, 257, 263, 266, 271-273,
 276, 289-291, 295, 298-300, 302-306,
 308-311, 314, 316-318, 320, 323, 327-
 331
 FAILURE, PIPE 19, 24, 27-29, 42, 47,
 49, 51, 53, 58, 68, 76, 82, 83, 97,
 102, 118, 121, 124, 133, 134, 146,
 148, 154, 156, 169, 172, 174, 183,
 187, 194, 200, 201, 208, 210, 223,
 229, 231, 233, 245, 246, 263, 277,
 283, 293, 297, 302, 307, 309, 313,
 320, 322
 FAILURE, TUBING 37, 55, 125, 171, 245,
 263, 297
 FASTENER 6, 21, 83, 150, 165, 177, 189,
 200, 205, 211, 264, 292, 302
 FILTERS 65, 146, 269, 282, 297
 FIRE 92
 FIRE PROTECTION 167
 FLOW 1, 5, 31, 32, 35, 36, 46, 51, 53,
 57, 123, 151, 175, 183, 208, 209, 212,
 228, 240, 253, 261, 270, 288, 302,
 320, 331
 FLUX DISTRIBUTION 13, 54, 70, 95, 199,
 232, 235, 257, 304, 323
 FUEL ELEMENTS 53, 97, 180, 195, 213,
 218, 221, 233, 245
 FUEL HANDLING 28

COMPONENT INDEX

- FUEL HANDLING MACHINE 286
- FUSE 59, 87, 93, 94, 104, 117, 136, 141, 145, 151, 152, 186, 187, 192, 195-197, 207, 251, 330
- GAS 21, 25, 139, 147, 225, 256
- GENERATOR, DIESEL 21, 40, 104, 120, 135, 141, 165, 217, 224, 242, 266, 292, 296, 328
- GENERATOR, MOTOR 190, 324
- HEAT EXCHANGERS 27, 31, 32, 36-38, 42-46, 53, 55, 127, 131, 151, 164, 171, 173, 181, 196, 204, 208, 209, 215, 218, 226, 228, 230, 233, 240, 243, 245, 263, 267, 269, 271, 273, 278, 288, 289, 306, 322, 333
- HEATERS 10, 316
- HOSE 185, 281
- HYDRAULIC SYSTEM 254, 255, 306
- INDICATORS 1, 4, 13, 16, 20, 25, 31, 38, 39, 41, 43, 47, 52, 54, 55, 57, 59, 61, 63, 69-71, 77, 79, 84, 94, 95, 102, 117, 119, 124, 128, 132, 138-140, 147, 148, 158, 180, 182, 186, 188, 189, 194, 195, 199, 225-228, 231-233, 235, 240, 244, 245, 247, 250, 256, 257, 271, 272, 289, 290, 295, 298-300, 303-306, 308-311, 314, 316, 318, 323, 327, 333
- INSTRUMENT LINE 3, 4, 10, 47, 61, 99, 162, 241
- INSTRUMENT, ALARM 21, 45, 55, 92, 102, 147, 228, 305
- INSTRUMENT, AMPLIFIER 70
- INSTRUMENT, CONTROL 129, 332
- INSTRUMENT, CURRENT 220
- INSTRUMENT, FLOW 181, 228, 241
- INSTRUMENT, INTERLOCK 9, 51, 72, 87, 104, 169, 193, 217, 273, 331
- INSTRUMENT, LIQUID LEVEL 3, 4, 10, 44, 130, 239, 240, 291
- INSTRUMENT, POSITION 12, 24, 38, 41, 43, 46, 48, 58, 94, 123, 124, 151, 189, 240, 271, 272, 306
- INSTRUMENT, PROTECTIVE 14
- INSTRUMENT, SPEED 45, 98, 135, 212, 214, 228, 276
- INSTRUMENT, SWITCH 7, 12, 24, 27, 30, 33, 48, 58, 75, 78, 81, 123, 127, 129, 138, 151, 153, 156, 169, 185, 189, 204, 209, 214, 263, 266, 290, 302, 310, 317, 320, 323, 328, 329, 332
- INSTRUMENT, TESTING 153, 214, 263, 266
- INSTRUMENT, VOLTAGE 11, 16, 45, 169, 190, 227, 267, 276, 317, 333
- INSTRUMENTS, MISC. 38, 47, 78, 140, 148, 180, 208, 318
- INSULATION 23, 80, 96, 152, 166, 176, 196, 214, 277
- INVERTER 1, 13, 31, 45, 71, 168, 251, 276
- LICENSED OPERATOR 3, 4, 29, 30, 32-34, 36, 43-45, 49, 52, 55, 63, 64, 81, 95, 176, 180, 181, 188, 189, 198, 204, 209, 228, 236, 240, 242, 243, 245, 254, 262, 263, 266, 270, 273, 274, 301, 307, 316, 317, 320, 321, 325, 330, 333
- MOTORS 11, 21, 50, 80, 141, 165, 196, 230, 250
- NEUTRON 13, 54, 70, 95, 199, 232, 235, 257, 304, 323
- NONLICENSED OPERATOR 21, 22, 94, 118, 141, 181, 234, 249, 27, 297, 309
- NOZZLE 19, 185
- OPERATOR ACTION 3, 21, 45, 51, 53, 60, 76, 78, 83, 87, 117, 121, 128, 139, 142, 144, 145, 147, 156, 161, 166, 168, 172, 174, 184, 185, 194, 205, 206, 208, 211, 217, 223, 230, 236, 239, 250, 259, 264, 267, 271, 297, 310, 313, 321, 323, 328
- PENETRATION 28, 49, 58, 66, 76, 82, 83, 87, 97, 102, 121, 133, 172, 174, 200, 210, 211, 223, 307, 313
- PENETRATION, ELECTRICAL 88, 103, 142, 166, 167, 220, 283
- PENETRATION, PIPE 28, 49, 58, 76, 82, 83, 97, 102, 121, 133, 174, 200, 210, 223, 307, 313
- PIPES AND PIPE FITTINGS 19, 24, 27, 29, 42, 47, 51, 53, 68, 83, 118, 121, 124, 134, 146, 148, 154, 156, 169, 172, 178, 183, 187, 188, 194, 201, 208, 229, 231, 233, 245, 246, 256, 258, 263, 277, 283, 293, 297, 302, 309, 320, 322
- PNEUMATIC SYSTEM 27, 83, 133, 191, 216, 228, 302
- PRESSURE DROP 34
- PRESSURE RELIEF 143, 208, 209, 233, 245, 265, 277, 312
- PRESSURE VESSELS 27, 97, 98, 116, 118, 123, 124, 146, 134, 195, 320, 321
- PRESSURE, INTERNAL 34
- PRESSURIZER 43, 208, 228, 240, 271, 274
- PUMP, JET 47, 131, 281
- PUMPS 1, 7, 11, 21, 32, 33, 38, 42, 45, 47, 52, 53, 56, 57, 67, 73, 80, 96, 118, 123, 126, 127, 152, 154, 156, 162, 170, 178, 181, 228-230, 240, 243, 250, 255, 258-260, 271, 274, 277, 281, 292, 331, 333
- RADIATION MONITORS 16, 31, 47, 52, 55, 59, 63, 71, 77, 79, 94, 117, 119, 128, 158, 182, 188, 227, 244, 250, 289, 290, 295, 298-300, 303, 305, 308-311, 314, 323, 327
- REACTOR 27, 97, 98, 116, 118, 123, 124, 126, 134, 195, 320, 321
- RECORDERS 78, 173, 188
- RELAYS 9, 11, 14, 16, 72, 98, 104, 169, 193, 209, 217, 220, 242, 252, 276, 298, 331

COMPONENT INDEX

RESPONSE TIME 209, 242
 SAMPLING 134
 SEAL 28, 35, 48-50, 76, 82, 83, 88,
 100, 142, 163, 166, 167, 177, 188,
 191, 211, 255, 283, 313
 SENSORS, FLOW 20, 55, 57, 67, 69, 181,
 228, 241
 SENSORS, LEVEL 3, 4, 10, 33, 44, 61,
 78, 84, 130, 138, 173, 194, 239, 240,
 273, 291, 304, 316, 329
 SENSORS, PRESSURE 7, 40, 102, 156, 162,
 157, 228, 247
 SENSORS, TEMPERATURE 14, 39, 127, 132,
 186, 189, 199, 213, 233, 245, 304, 316
 SERVOMECHANISM 12, 23, 24, 26, 45, 48,
 50, 150, 161, 172, 192, 231, 302
 SHOCK ABSORBER 68, 122, 228, 312
 SMOKE 92
 SOLENOID 5, 7, 27, 34, 72, 121, 133,
 146, 191, 195, 214, 306
 SOLID STATE DEVICE 13, 36, 38, 46, 70,
 84, 128, 151, 169, 212, 218, 221, 227,
 245, 271, 278, 299, 333
 STEAM GENERATOR 31, 32, 36-38, 44, 45,
 151, 171, 173, 209, 218, 228, 233,
 240, 245, 263, 271, 273, 289, 306, 333
 STEEL, STAINLESS 83
 STORAGE CONTAINER 3, 33, 97, 240, 248,
 259, 294, 325
 STRUCTURE 183, 248
 SUPPORT STRUCTURE 60, 67, 83, 85, 122,
 125, 168, 184, 200, 205, 228, 312
 TEMPERATURE 173, 177, 196, 302
 TOXICITY 21, 25, 139, 147, 225, 256
 TRANSFORMERS 71, 96, 169, 190, 267,
 317, 333
 TUBING 37, 55, 125, 171, 226, 230, 245,
 263, 297
 TURBINE 31, 32, 34, 42, 45, 126, 209,
 212, 214, 218, 228, 278, 302, 331, 333
 VALVE OPERATORS 12, 23, 24, 26, 27, 32,
 38, 44, 45, 48, 50, 55, 83, 100, 116,
 127, 133, 150, 151, 160, 161, 172,
 173, 191, 192, 209, 216, 228, 231,
 233, 245, 254, 255, 274, 302, 306
 VALVE, CHECK 83, 101, 237, 264
 VALVES 1, 5, 7, 8, 12, 19, 23, 24, 26-
 28, 31, 32, 34-36, 38, 42, 44-48, 50,
 51, 53, 55, 57, 58, 61, 64, 75, 76,
 83, 87, 90, 91, 97, 98, 100, 101, 116,
 120, 121, 123, 124, 127, 129, 133,
 143, 144, 146, 149-151, 154-156, 160,
 161, 172-177, 181, 183, 185, 191, 192,
 206, 208-210, 212, 214, 216, 219, 222,
 223, 228, 231, 233, 234, 237, 240,
 241, 243-246, 252-255, 261, 263-265,
 270, 271, 274, 278, 283-285, 287-289,
 293, 296, 302, 306, 307, 310-312, 315,
 320, 321, 325, 331

SYSTEM INDEX

This index is based on system and system-related keywords assigned by the NSIC staff when the summaries of the LERs are prepared for computer entry.

ACTUATOR 1, 4, 16, 17, 21, 25, 27, 41, 44, 58, 61, 62, 69, 86, 93, 102, 129, 136-139, 144, 147, 153, 162, 169, 172, 192, 197, 198, 207, 225, 226, 233, 239, 240, 242, 245, 247, 256, 263, 291, 329, 330, 332

AIR 231

ANNUNCIATORS 45, 55, 102, 228, 305

AUXILIARY 1, 3, 7, 14, 32-36, 38, 42, 41-46, 70, 75, 51, 131, 132, 150-155, 173, 175, 177, 178, 181, 226, 228, 230, 231, 240, 241, 243, 255, 258, 263, 271, 285, 287, 302, 304, 306, 313

BLOWDOWN 42, 43, 46, 131, 300, 314

BLOWDOWN/TSF 300, 314

BUILDING 3, 14, 18, 21, 25, 27, 49, 71, 74, 75, 87, 91, 94, 96, 117, 119, 120, 127, 128, 131, 136, 139, 142, 147, 151, 153, 155, 158, 167, 175, 177, 181, 183-185, 190, 196, 207, 225-227, 230, 231, 243, 249, 251, 252, 255, 256, 262, 269, 285-287, 295, 298-300, 304, 310, 313, 322, 324-327

BUILDING/SSF 120, 185, 230, 262

BUILDING/TSF 74

BYPASS 45, 240, 271

CALIBRATION 2, 3, 5, 7, 8, 15, 16, 20, 30, 33, 34, 42, 47, 54-57, 61-63, 66, 67, 69, 76, 78, 79, 95, 97, 102, 119, 121, 122, 130, 131, 140, 152, 153, 157, 158, 161, 163, 170, 173, 174, 178, 179, 182, 187, 192, 193, 199, 206, 208-210, 214-216, 219, 222, 223, 228, 229, 236, 238, 241, 244, 247, 252, 254, 260, 261, 263, 266, 275, 282, 284, 288-291, 293, 294, 296, 300, 301, 304, 305, 307-309, 313, 316-319, 327, 329, 330

COMPONENT COOLING SYSTEM 12, 43, 60, 63, 96, 149, 186, 200, 230, 261, 288

COMPONENT COOLING SYSTEM/TSF 149, 230

COMPUTER, DIGITAL 31, 45, 55, 78, 174, 180, 247

CONDENSER 27, 204, 240, 278

CONDENSER COOLING SYSTEM 42, 97, 240, 248

CONDENSER COOLING SYSTEM/TSF 42

CONSTRUCTION 85, 184, 211, 313

CONTAINMENT 1, 4, 18, 26, 31, 39, 48, 49, 51, 53, 59, 61, 65, 66, 76, 77, 79, 83, 86, 87, 89, 92, 96, 99, 102, 121, 123, 128, 136, 137, 143-146, 148, 155, 156, 163, 164, 169, 172, 183, 198, 190, 191, 193, 197, 198, 202, 207-207, 211, 217, 222, 229-231, 233, 244, 241, 249-251, 263, 277, 281, 283, 288-290, 293, 295, 297, 298, 303, 307, 308, 311, 315, 324, 326, 327

CONTAINMENT ATMOSPHERE 190, 231, 282

CONTAINMENT ATMOSPHERE/SSF 282

CONTAINMENT ISOLATION 1, 8, 19, 23, 27, 28, 44, 45, 49, 50, 58, 66, 76, 82-84, 86, 87, 93, 97, 102, 118, 121, 123, 124, 128, 129, 133, 136, 144, 150, 162, 163, 172, 174, 191, 192, 197, 198, 200, 207, 210, 211, 219, 220, 223, 231, 237, 238, 263, 264, 283, 284, 289-291, 295, 298, 306, 307, 311, 329, 330

CONTAINMENT ISOLATION/SSF 192, 207, 330

CONTAINMENT ISOLATION/TSF 144

CONTAINMENT PURGE 207

CONTAINMENT SPRAY 1, 9, 19, 50, 156, 164, 229, 230, 260, 264, 293, 332

CONTAINMENT SPRAY/SSF 19, 293

CONTAINMENT SPRAY/TSF 164, 229, 230

CONTAINMENT VACUUM BREAKER 121

CONTAINMENT/SSF 89, 92, 102, 19J, 231, 315

CONTAINMENT/TSF 146, 148, 155, 164, 229, 231, 289

CONTAINMENT, PRESSURE SUPPRESSION 96

CONTROL 18, 21, 25, 71, 94, 96, 117, 127, 133, 142, 147, 153, 158, 167, 181, 184, 185, 190, 196, 207, 225, 226, 231, 243, 249, 251, 252, 256, 262, 269, 282, 295, 298-300, 310, 324, 326, 327

CONTROL ROD DRIVES 14, 27, 30, 36, 78, 81, 96, 123, 124, 179, 180, 187, 194, 195, 200, 204, 209, 221, 240, 271, 272, 320

CONTROL ROD DRIVES/SSF 124

CONTROL SYSTEM 7, 9, 14, 30, 32, 34, 36, 38, 40, 45, 46, 78, 81, 98, 104, 124, 135, 151, 152, 157, 173, 179-181, 204, 209, 212, 214, 218, 221, 228, 240, 266, 271, 272, 275, 278, 302, 306, 317, 320, 328, 331, 333

CONTROL SYSTEM/SSF 157

COOLANT PURIFICATION SYSTEM 3, 18, 29, 50, 51, 56, 57, 61, 68, 85, 80, 96, 99, 116, 133, 137, 143, 145, 180, 189, 193, 202, 205, 208, 209, 223, 230, 234, 240, 241, 249, 259, 270, 271, 301, 304, 324-326, 329

COOLANT PURIFICATION SYSTEM/SSF 56

COOLANT PURIFICATION SYSTEM/TSF 3, 57, 116, 230, 234, 259, 270, 304

COOLING 145, 181, 192, 216, 226

COOLING SYSTEM, SECONDARY 1, 7, 11, 26-28, 31-38, 42-47, 60, 69, 70, 75, 82, 83, 85, 97, 118, 122, 123, 126, 129, 131, 132, 144, 145, 150-154, 171, 173, 176, 178, 191, 200, 204, 209, 218, 228, 230, 233, 239-241, 243, 245, 254, 255, 258, 263, 271, 273, 278, 284, 289, 291, 292, 306, 320, 322-324, 326

SYSTEM INDEX

- COOLING SYSTEM, SECONDARY 329, 333
 COOLING SYSTEM, SECONDARY/SSF 7, 11,
 32, 33, 42, 152, 178, 230, 240, 243,
 258, 302
 COOLING SYSTEM, SECONDARY/TSP 34, 35,
 42, 45, 97, 118, 123, 126, 178, 209,
 228, 258, 271, 306, 333
 CORE 2, 13, 14, 27, 32, 53, 54, 70, 95,
 97, 132, 157, 180, 195, 199, 213, 218,
 221, 232, 233, 235, 243, 245, 257,
 304, 323
 CORE REFLOODING SYSTEM 4, 68, 130, 236
 CORE SPRAY 12, 17, 21, 62, 122, 138,
 156, 161, 200, 277
 CORE SPRAY/SSF 21
 CORE SPRAY/TSP 156, 277
 CORE/SSF 157, 243, 323
 CYLINDER GAS 44
 DEMINERALIZERS 55
 DEMINERALIZERS/TSP 55
 DRAINAGE 27, 297, 300, 305
 ELECTRIC POWER 10, 11, 13, 15, 16, 21,
 31, 45, 59, 72, 75, 80, 87, 96, 103,
 104, 126, 136, 141, 154, 159, 165,
 169, 189, 190, 196, 197, 203, 209,
 220, 238, 242, 249, 267, 273, 276,
 283, 292, 294, 298, 302, 310, 317,
 324, 326, 331, 333
 ELECTRIC POWER/SSF 96, 169
 ELECTRIC POWER/TSP 31, 267, 292, 317
 ELECTRIC POWER, VITAL 1, 13, 18, 21,
 31, 45, 71, 86, 93, 94, 117, 137, 145,
 155, 168, 186, 187, 190, 192, 195,
 207, 228, 249, 251, 276, 298, 310,
 324, 326, 330
 EMERGENCY COOLING SYSTEM 1, 34, 228,
 230
 EMERGENCY COOLING SYSTEM/TSP 230
 EMERGENCY PUMPS, ELECTRIC 1, 17, 21,
 31, 33, 40, 62, 72, 96, 104, 120, 132,
 135, 141, 153, 165, 169, 216, 217,
 224, 242, 263, 266, 275, 292, 294,
 296, 317, 328, 331
 EMERGENCY POWER, ELECTRIC/SSF 21, 40,
 104, 120, 135, 141, 165, 242, 266,
 292, 317, 328
 EMERGENCY POWER, ELECTRIC/TSP 40, 165,
 224, 242, 296, 328
 ENGINEERED SAFETY FEATURE 1, 4, 16, 17,
 21, 25, 27, 41, 44, 58, 61, 62, 69,
 86, 93, 102, 129, 136-139, 144, 147,
 153, 162, 169, 172, 192, 197, 198,
 207, 225, 226, 233, 239, 240, 242,
 245, 247, 256, 263, 291, 329, 330, 332
 ENGINEERED SAFETY FEATURE/SSF 21, 102,
 192, 207, 330
 ENGINES, INTERNAL COMBUSTION 22, 33,
 40, 104, 120, 135, 141, 216, 217, 266,
 275, 294, 296, 317, 324
 ENVIRONMENT 322
 EQUIPMENT 27, 297, 300
 FAILURE, ADMINISTRATIVE CONTROL 41, 43,
 48, 49,
 56, 62-64, 66, 69, 74, 79, 87, 86, 89-
 91, 103, 119-122, 130, 149, 154, 158,
 163, 164, 167, 170, 174, 180, 185,
 186, 188, 194, 198, 200, 201, 216,
 228, 238, 242, 247, 278, 279, 287,
 300, 304, 307, 309, 318, 319, 326,
 327, 332
 FAILURE, DESIGN ERROR 3, 21, 23, 38-40,
 45, 51, 53, 60, 76, 83, 85, 117, 121,
 125-127, 133, 139, 145, 147, 156, 159,
 161, 166, 168, 169, 172, 174, 178,
 204, 205, 208, 213, 217, 220, 223,
 224, 226, 229-231, 233, 237, 245, 253,
 259, 267, 271, 313, 321-323
 FAILURE, FABRICATION ERROR 13, 28, 72,
 76, 100, 135, 160, 163, 168, 177, 255,
 257, 258, 277, 299, 302, 303
 FAILURE, INSTALLATION ERROR 4, 39, 67,
 68, 88, 99, 142, 165, 166, 194, 206,
 239, 292
 FAILURE, MAINTENANCE ERROR 1, 3, 5, 9,
 10, 12, 17, 24-26, 37, 45, 48-50, 64,
 65, 75, 83, 86, 93, 94, 102-104, 126,
 127, 131, 134, 136, 137, 141, 144,
 150, 154, 155, 162, 168, 170, 175,
 176, 186, 197, 198, 209, 226, 232,
 235, 239, 240, 268, 278-280, 282, 287,
 294, 297, 310, 311, 317, 323, 326
 FAILURE, OPERATOR ERROR 3-5, 13, 16,
 22, 29-34, 36, 43-45, 55, 64, 75, 81,
 91, 97, 116, 118, 123, 146, 160, 167,
 175, 180, 181, 189, 204, 209, 228,
 234, 236, 240, 243, 245, 249, 262,
 263, 270, 273, 274, 281, 284-287, 309,
 314-317, 320, 321, 325, 330, 333
 FEEDWATER 1, 7, 11, 28, 31-36, 38, 42-
 46, 70, 75, 97, 118, 123, 126, 132,
 150-154, 173, 178, 200, 209, 228, 230,
 240, 241, 243, 258, 263, 271, 284,
 302, 306, 320, 333
 FIRE PROTECTION 5, 8, 64, 67, 88-92,
 103, 120, 142, 155, 160, 166, 167,
 175, 185, 217, 219, 222, 262, 285,
 287, 313, 315
 FIRE PROTECTION/SSF 5, 89, 92, 185,
 262, 315
 FUEL ELEMENTS 18, 49, 71, 74, 117, 128,
 136, 183, 190, 227, 251, 286
 FUEL, FOSSIL 33, 294, 296
 GENERATORS 21, 31, 34, 36, 38, 43, 55,
 98, 121, 173, 209, 212, 214, 218, 271,
 278, 291, 302, 331, 333
 HEATERS 10
 HPCI 21, 23, 26, 60, 80, 97, 123, 144,
 200, 263, 276
 HPCI/TSP 21, 23, 26, 60, 80, 144, 276
 HYDROGEN 190, 231, 282
 INSTRUMENT, ALARM 45, 55, 102, 228, 305
 INSTRUMENT, IN CORE 13, 18, 54, 70, 95,
 145, 199, 232, 235, 257, 304, 323,
 324, 326

SYSTEM INDEX

- INSTRUMENT, NON-NUCLEAR 3, 5, 7, 10,
 12, 20, 24, 27, 33, 37, 43, 47, 48,
 57, 67, 83, 87, 94, 99, 121, 123, 125,
 127, 130, 133, 146, 148, 156, 189,
 190, 193, 196, 209, 228, 240, 255,
 276, 302, 304, 306, 316
 INSTRUMENT, NON-NUCLEAR/TSP 37, 316
 LEAK DETECTION 96, 102, 144, 186, 188,
 189, 244, 250, 283, 289, 290, 298, 311
 LUBRICATION 40, 73, 127
 MAIN COOLING SYSTEM 11, 31, 32, 34, 36-
 39, 41, 43-46, 50, 51, 53, 68, 73, 96,
 100, 123, 130, 131, 134, 151, 154,
 156, 169, 171-173, 199, 201, 208, 209,
 213, 218, 228, 229, 231, 233, 234,
 236, 239-241, 245, 247, 254, 257, 267,
 265, 271, 273, 274, 277, 281, 289,
 291, 293, 297, 306, 315, 316, 318,
 319, 321, 331, 333
 MAIN COOLING SYSTEM/SSF 11, 233, 245,
 315, 331
 MAIN COOLING SYSTEM/TSP 34, 73, 131,
 208, 209, 228, 233, 234, 240, 245,
 271, 274, 281, 316
 MATERIAL & EQUIP. HANDLING SYSTEM 286
 MONITOR 89, 92, 185, 217
 MONITORING SYSTEM, RADIATION 16, 31,
 47, 52, 55, 59, 63, 71, 77, 79, 94,
 117, 119, 128, 136, 158, 172, 182,
 227, 252, 295, 298-300, 303, 305, 307-
 310, 314, 327
 OFF SITE 31, 96, 169, 209, 267, 292,
 317, 324, 331, 333
 ON SITE 11, 13, 16, 21, 31, 75, 103,
 104, 125, 136, 141, 154, 165, 169,
 189, 190, 196, 197, 220, 238, 242,
 249, 267, 273, 283, 298, 302, 310,
 317, 326
 PLANT 305
 PNEUMATIC SYSTEM 96, 118, 141, 145,
 146, 148, 190, 231
 PNEUMATIC SYSTEM/SSF 231
 POISON, SOLUBLE 1, 10, 51, 133, 237,
 259, 281, 304
 PRESSURE RELIEF 32, 38, 44, 100, 123,
 151, 173, 176, 254, 255
 PRESSURE VESSELS 6, 27, 61, 84, 97, 98,
 116, 118, 123, 124, 126, 134, 138,
 140, 162, 194, 195, 320, 321, 329
 PRESSURIZER 41, 43, 50, 68, 208, 228,
 233, 240, 245, 247, 265, 271, 274
 PROCESS MONITORING 1, 18, 36, 39, 84,
 86, 102, 124, 132, 137, 140, 145, 187,
 190, 192, 194, 195, 199, 209, 213,
 231, 241, 243, 249, 273, 318, 319,
 323, 324, 326
 RADIATION PROTECTION PERSONNEL 16, 52,
 183, 201, 268, 279, 311, 314
 RCIC 21, 85, 123, 144, 200, 210, 320
 RCIC/TSP 21, 123, 144, 320
 REACTOR CONTROL 14, 30, 78, 81, 179,
 180, 204, 221, 240, 271, 272, 320
 REACTOR POWER 14, 30, 78, 81, 179, 180,
 204, 221, 240, 271, 272, 320
 REACTOR PROTECTION SYSTEM 1, 18, 36,
 84, 86, 102, 124, 132, 137, 145, 187,
 190, 192, 194, 195, 199, 209, 213,
 241, 243, 249, 273, 319, 323, 324, 326
 REACTOR PROTECTION SYSTEM/SSF 102, 124,
 243, 323
 RHR-LPCI 18, 21, 30, 58, 60, 85, 93,
 144, 145, 156, 162, 200, 277, 321,
 324, 326, 330
 RHR-LPCI/SSF 21, 144, 330
 RHR-LPCI/TSP 30, 93, 156, 162, 277,
 321, 324
 RHR-LPSI 1, 50, 51, 53, 68, 170, 177,
 230, 234, 293, 312, 317
 RHR-LPSI/SSF 177, 293, 312
 RHR-LPSI/TSP 1, 53, 170, 177, 230, 234,
 317
 SAMPLING 43, 45, 131, 134, 145, 324,
 326
 SAMPLING/TSP 131
 SEAL 34
 SERVICE WATER SYSTEM 1, 9, 11, 21, 24,
 52, 53, 60, 101, 153, 154, 156, 164,
 216, 226, 230, 237, 243, 246, 249,
 253, 263, 292
 SERVICE WATER SYSTEM/SSF 11, 101, 243
 SERVICE WATER SYSTEM/TSP 52, 226, 237,
 246, 292
 SHUTDOWN SYSTEM, SECONDARY 200
 SOLID STATE DEVICE 9, 157, 181
 SPENT FUEL POOL 65, 183, 191, 230
 SPENT FUEL POOL/TSP 230
 STACK 16, 20
 STACK/TSP 16, 20
 STANDBY GAS TREATMENT 18, 48, 59, 61,
 77, 79, 86, 96, 123, 128, 136, 137,
 145, 146, 148, 155, 190, 197, 198,
 230, 249, 297, 324, 326
 STANDBY GAS TREATMENT/SSF 190, 297
 STANDBY GAS TREATMENT/TSP 48, 155, 230
 STEAM 34
 STEAM GENERATOR 31, 32, 36-38, 42-46,
 131, 151, 154, 171, 173, 176, 209,
 218, 228, 233, 239, 240, 245, 254,
 255, 263, 271, 273, 289, 291, 300,
 306, 314, 333
 STEAM GENERATOR/SSF 233, 254
 STEAM GENERATOR/TSP 37, 254
 STORAGE CONTAINER 73, 127, 296
 STRUCTURE 3, 5, 24, 25, 47, 52, 64, 67,
 68, 88, 90, 101, 103, 125, 154, 166,
 226, 246, 253, 292
 STRUCTURE/SSF 5, 101
 SUBSYSTEM FAULT 5, 7, 11, 19, 21, 22,
 32, 33, 40, 42, 43, 56, 89, 92, 96,
 101, 102, 104, 120, 124, 125, 141,
 144, 146, 152, 157, 165, 169, 177,
 178, 181, 185, 190, 192, 193, 196,
 207, 226, 230, 231, 233, 240, 242,
 243, 245, 254, 258, 262, 266, 269,

SYSTEM INDEX

SUBSYSTEM FAULT 278, 282, 292, 293,
 297, 302, 312, 315, 317, 323, 328,
 330, 331, 333
 TESTING 2, 3, 5, 7, 8, 15, 16, 20, 30,
 33, 34, 42, 47, 54-56, 61-63, 66, 67,
 69, 76, 78, 79, 95, 97, 102, 119, 121,
 122, 130, 131, 140, 152, 153, 157,
 158, 161, 163, 170, 173, 174, 176,
 178, 179, 182, 187, 192, 193, 199,
 206, 208-210, 214-216, 219, 222, 223,
 228, 229, 236, 238, 241, 242, 244,
 247, 252, 254, 260, 261, 263, 265,
 275, 282, 284, 288-291, 293, 294, 296,
 300, 301, 304, 305, 307-309, 313, 316-
 319, 327, 329, 332
 TORUS 321
 TORUS/TSP 321
 TOTAL SYSTEM FAULT 1, 3, 16, 20, 21,
 23, 26, 30, 31, 34, 35, 37, 40, 42,
 45, 48, 52, 53, 55, 57, 60, 73, 74,
 80, 93, 97, 116-118, 123, 126, 127,
 131, 144, 146, 149, 155, 156,
 162, 164, 165, 177, 178, 181,
 193, 196, 208, 217, 224, 226,
 228-231, 233, 234, 237, 240, 242, 245,
 246, 254, 258, 259, 263, 267, 270,
 271, 274, 276, 277, 281, 289, 292,
 296, 300, 304, 306, 314, 316, 317,
 320, 321, 324, 328, 333
 TURBINE 21, 27, 31, 34, 36, 38, 43, 45,
 55, 87, 98, 124, 173, 185, 209, 212,
 214, 218, 240, 271, 278, 291, 300,
 302, 322, 331, 333
 TURBINE/SSF 21, 43, 278, 331, 333
 TURBINE/TSP 55, 271
 VENTILATION SYSTEM 1, 14, 18, 21, 22,
 25, 31, 48, 59, 61, 65, 71, 74-77, 79,
 86, 94, 96, 117, 123, 127, 128, 131,
 136, 137, 139, 144-148, 153, 155, 181,
 190, 193, 196-198, 207, 215, 217, 225-
 227, 230, 243, 244, 249-252, 256, 263,
 267, 269, 288-290, 295, 297-299, 303,
 307, 310, 311, 322, 324, 326, 327, 333
 VENTILATION SYSTEM/SSF 22, 144, 146,
 181, 190, 196, 207, 226, 269, 297
 VENTILATION SYSTEM/TSP 46, 117, 127,
 131, 146, 155, 181, 193, 196, 217,
 226, 230, 263
 WASTE MANAGEMENT 119, 325
 WASTE TREATMENT, GAS 47, 182
 WASTE TREATMENT, LIQUID 63, 183, 309
 WASTE TREATMENT, SOLID 279, 280
 WATER 145, 181, 192, 226
 WATER/SSF 181, 226
 WATER/TSP 181, 226

KEYWORD INDEX

This index is based on the keywords assigned by the NSIC staff when the summaries of the LERs are prepared for computer entry.

- ACCUMULATORS 4, 78, 130, 236, 301
 ACTUATION 106, 110, 112
 ACTUATOR 1 4, 16, 17, 21, 25, 27, 41, 44, 58, 61, 62, 69, 86, 93, 102, 129, 136-139, 144, 147, 153, 162, 169, 172, 192, 197, 198, 207, 225, 233, 239, 242, 245, 247, 256, 291, 329, 330, 332
 ADMINISTRATIVE PERSONNEL ERROR - SEE FAILURE, ADMINISTRATIVE CONTROL
 AGE EFFECT - SEE EFFECT, AGE
 AGENCY, NRC 12, 21, 229, 298
 AIR 231, 243, 288, 322
 AIR/STEAM BINDING 3, 51, 123, 162, 259
 ANNUNCIATORS 25, 29, 52, 55, 70, 74, 87, 92, 94, 97, 98, 102, 104, 123, 128, 157, 171, 186, 189, 193, 228, 251, 263, 272, 276, 298, 302, 305
 AQUATIC ORGANISM 164
 ARKANSAS NUCLEAR 2 (PWR) 1-4
 ARNOLD (BWR) 5
 AUXILIARY 1, 3, 7, 14, 32-36, 38, 42, 44-46, 70, 75, 91, 131, 132, 150-155, 173, 175, 177, 171, 181, 246, 228, 230, 231, 240, 241, 243, 255, 258, 263, 271, 285, 287, 302, 304, 306, 313
 BATTERIES & CHARGERS 21, 159, 203, 294
 BEARING 258
 BEAVER VALLEY 1 (PWR) 6-9
 BEAVER VALLEY 2 (PWR) 10, 11
 BIG ROCK POINT (BWR) 12
 BLOWDOWN 42, 43, 46, 131, 300, 314
 BLOWDOWN/TSP 300, 314
 BLOWERS 14, 22, 146, 148, 190, 193, 196, 243, 288, 324
 BRAIDWOOD 2 (PWR) 13-15
 BREAKER 13, 18, 80, 104, 126, 137, 141, 154, 165, 169, 189, 192, 220, 238, 249, 310, 317, 324, 331
 BROWNS FERRY 1 (BWR) 16, 18
 BROWNS FERRY 2 (BWR) 16-20
 BROWNS FERRY 3 (BWR) 16-18, 20
 BRUNSWICK 1 (BWR) 21-26
 BRUNSWICK 2 (BWR) 21, 22, 25, 27-30
 BUILDING 3, 14, 18, 21, 25, 27, 49, 71, 74, 75, 87, 91, 94, 96, 117, 119, 120, 127, 128, 131, 136, 139, 142, 147, 151, 153, 155, 158, 167, 175, 177, 181, 183-185, 190, 196, 207, 225-227, 230, 231, 243, 249, 251, 252, 255, 256, 262, 269, 285-287, 295, 298-300, 304, 310, 313, 322, 324-327
 BUILDING/SSP 120, 185, 262
 BUILDING/TSP 74
 BWR REACTOR - SEE REACTOR, BWR
 BYPASS 45, 46, 98, 116, 271
 BYRON 1 (PWR) 31
 BYRON 2 (PWR) 31-33
 CABLES AND CONNECTORS 4, 9, 13, 15, 18, 21, 23, 34, 39, 62, 79, 83, 86, 96, 99, 109, 132, 136, 137, 145, 152, 155, 166, 172, 187-190, 192, 193, 196, 203, 212, 214, 228, 249, 251, 257, 267, 273, 275, 298, 317, 323, 324, 326, 331
 CALIBRATION 2, 3, 5, 7, 8, 11, 15, 16, 20, 30, 33, 38, 42, 47, 50, 54, 56, 61-63, 66, 67, 69, 75, 76, 78, 79, 84, 95, 97, 100, 102, 108, 119, 121, 122, 130, 131, 140, 152, 153, 156-158, 161, 163, 170, 173, 174, 176, 178, 179, 182, 187, 188, 190, 192-194, 199, 206, 208-210, 213-216, 219, 222, 223, 229, 236, 238, 241, 242, 244, 247, 252, 254, 260, 261, 265, 266, 272, 275, 276, 282, 284, 288-291, 293, 294, 296, 300, 301, 304-309, 311, 313, 316-319, 327, 329, 332
 CALLAWAY 1 (PWR) 34-36
 CALVERT CLIFFS 1 (PWR) 37
 CALVERT CLIFFS 2 (PWR) 38
 CATAWBA 1 (PWR) 39-41
 CATAWBA 2 (PWR) 39-46
 CIRCULATION, NATURAL 31
 CIRCULATOR 105, 106, 109
 CLADDING FAILURE - SEE FAILURE
 CLADDING
 CLINTON 1 (BWR) 47-49
 COATING 42
 COMPONENT COOLING SYSTEM 12, 43, 60, 63, 96, 149, 186, 200, 230, 261, 288
 COMPONENT COOLING SYSTEM/TSP 149
 COMPONENT FAILURE - SEE FAILURE, COMPONENT
 COMPONENTS 17, 22, 26, 58, 68, 73, 80, 85, 93, 120, 135, 139, 144, 151, 165, 178, 191, 195, 196, 205, 206, 210, 239, 264, 295, 310
 COMPUTER CONTROL 114
 COMPUTER PROGRAM 114
 COMPUTER, DIGITAL 45, 55, 78, 174, 179, 180, 247, 298
 CONCENTRATION 256, 270, 281
 CONDENSATION 27, 48, 55, 147, 151, 226, 239, 333
 CONDENSER 27, 42, 55, 204, 226, 240, 278
 CONDENSER COOLING SYSTEM 42, 97, 248
 CONDENSER COOLING SYSTEM/TSP 42
 CONNECTICUT YANKEE (PWR) 50-53
 CONSTRUCTION 85, 184, 211, 313
 CONTAINMENT 1, 4, 18, 28, 31, 39, 48, 49, 51, 53, 59, 61, 65, 66, 76, 77, 79, 83, 86, 87, 89, 92, 95, 99, 102, 121, 123, 128, 136, 137, 143-146, 148, 155, 156, 163, 164, 169, 172,

KEYWORD INDEX

- CONTAINMENT 183, 188, 190, 191, 193,
 197, 198, 202, 207-209, 211, 215,
 222, 229-231, 233, 244, 245, 249-251,
 263, 268, 277, 281, 283, 288-290,
 293, 295, 297, 298, 303, 307, 308,
 311, 315, 324, 326, 327
 CONTAINMENT AIR LOCK 66, 87
 CONTAINMENT ATMOSPHERE 190, 231, 282
 CONTAINMENT ATMOSPHERE/SSF 282
 CONTAINMENT EQUIPMENT HATCH 211
 CONTAINMENT ISOLATION 1, 8, 19, 23,
 27, 28, 44, 49, 50, 58, 66, 76, 82-
 84, 86, 87, 93, 97, 102, 118, 121,
 123, 124, 128, 129, 133, 136, 144,
 150, 162, 163, 172, 174, 191, 192,
 197, 198, 200, 207, 210, 211, 219,
 220, 223, 231, 237, 238, 263, 264,
 283, 284, 289-291, 295, 298, 306,
 307, 311, 325, 330
 CONTAINMENT ISOLATION/SSF 192, 207,
 330
 CONTAINMENT ISOLATION/TSF 144
 CONTAINMENT PURGE 207
 CONTAINMENT SPRAY 1, 9, 19, 50, 156,
 164, 229, 230, 260, 264, 293, 332
 CONTAINMENT SPRAY/SSF 19, 293
 CONTAINMENT SPRAY/TSF 164, 225
 CONTAINMENT SUMP 183, 300
 CONTAINMENT VACUUM BREAKER 121
 CONTAINMENT/SSF 89, 92, 102, 193, 231,
 315
 CONTAINMENT/TSF 146, 148, 155, 164,
 229, 231, 289
 CONTAINMENT, PRESSURE SUPPRESSION 96
 CONTAMINATION 27, 42, 46, 65, 72, 74,
 101, 131, 164, 183, 201, 203, 230,
 231, 237, 240, 246, 248, 263, 269,
 271, 277, 279, 280, 289, 297, 322,
 325
 CONTRACTOR PERSONNEL 13, 23, 28, 37,
 38, 40, 72, 75, 76, 82, 85, 100, 125,
 133, 135, 160, 168, 175, 177, 178,
 182, 183, 201, 204, 213, 226, 245,
 253, 255, 257, 258, 268, 277, 286,
 299, 302, 303, 318, 322
 CONTROL 1, 5, 18, 21, 25, 31, 32, 34-
 36, 38, 46, 51, 53, 57, 71, 94, 96,
 117, 127, 135, 139, 142, 147, 151,
 153, 158, 167, 173, 175, 177, 181,
 183-185, 190, 196, 207, 208, 212,
 218, 225-228, 231, 240, 243, 249,
 251-253, 256, 261, 262, 269-271, 276,
 282, 283, 288, 295, 298-300, 302,
 310, 320, 324, 326, 327, 331
 CONTROL PANEL/ROOM 1, 21, 86, 184, 310
 CONTROL ROD DRIVES 14, 30, 36, 78, 81,
 96, 123, 124, 179, 180, 187, 194,
 195, 200, 204, 209, 221, 240, 271,
 272, 320
 CONTROL ROD DRIVES/SSF 124
 CONTROL RODS 2, 14, 213, 221
 CONTROL SYSTEM 7, 9, 14, 30, 32, 34,
 CONTROL SYSTEM 36, 38, 40, 46, 78, 81,
 98, 104, 111, 124, 135, 151, 152,
 157, 173, 179-181, 204, 212, 214,
 218, 221, 266, 272, 275, 278, 302,
 306, 320, 328, 331, 333
 CONTROL SYSTEM/SSF 157
 CONTROLLER 11, 109
 COOK 1 (PWR) 54-56
 COOK 2 (PWR) 54-57
 COOLANT PURIFICATION SYSTEM 3, 18, 29,
 50, 51, 56, 57, 61, 68, 85, 86, 96,
 99, 116, 133, 137, 143, 145, 186,
 189, 193, 202, 205, 208, 223, 230,
 234, 240, 241, 249, 259, 270, 271,
 301, 304, 324-326, 329
 COOLANT PURIFICATION SYSTEM/SSF 56
 COOLANT PURIFICATION SYSTEM/TSF 3, 57,
 116, 234, 259, 270, 304
 COOLING 145, 181, 192, 216, 226, 230
 COOLING DEVICE 53, 127, 181, 196, 215,
 226, 230, 267, 269, 333
 COOLING SYSTEM, SECONDARY 1, 7, 11,
 26-28, 31-38, 42-47, 60, 69, 70, 75,
 82, 83, 85, 97, 106, 118, 122, 123,
 126, 129, 131, 132, 144, 145, 150-
 154, 171, 173, 176, 178, 191, 200,
 204, 209, 218, 228, 230, 233, 239-
 241, 243, 245, 254, 255, 258, 263,
 271, 273, 278, 284, 289, 291, 302,
 306, 320, 322-324, 326, 329, 333
 COOLING SYSTEM, SECONDARY/SSF 7, 11,
 32, 33, 42, 152, 178, 240, 243, 258,
 302
 COOLING SYSTEM, SECONDARY/TSF 34, 35,
 42, 45, 97, 118, 123, 126, 178, 209,
 228, 258, 271, 306, 333
 COOPER (BWR) 58-62
 CORE 2, 13, 14, 32, 53, 54, 70, 95,
 132, 157, 180, 195, 199, 213, 218,
 221, 232, 235, 243, 245, 257, 304,
 323
 CORE REFLOODING SYSTEM 4, 68, 130, 236
 CORE SPRAY 12, 17, 62, 122, 138, 156,
 161, 200, 277
 CORE SPRAY/TSF 156, 277
 CORE/SSF 157, 243, 323
 CORROSION 19, 21, 24, 171, 177, 178,
 202, 253, 257, 292, 333
 CRACK 6, 21-23, 48, 49, 73, 80, 83,
 85, 96, 105, 120, 127, 138, 139, 148,
 150, 152, 177, 178, 196, 205, 258,
 271, 283, 310
 CRUD 27, 42, 46, 72, 101, 164, 203,
 230, 237, 240, 246, 248, 263, 269,
 271, 277, 297
 CRYSTAL RIVER 3 (PWR) 63
 CYLINDER GAS 44
 DAMAGE 105, 107
 DAVIS-BESSE 1 (PWR) 64, 65
 DEFORMATION 26, 28, 73, 76, 171, 185,
 151, 214, 237, 255
 DEMINERALIZERS 55

KEYWORD INDEX

- DEMINERALIZERS/TSP 55
 DESIGN ERROR - SEE FAILURE, DESIGN ERROR
 DESTRUCTIVE WIND 211, 248
 DIABLO CANYON 1 (PWR) 66-74, 76
 DIABLO CANYON 2 (PWR) 67, 68, 73, 75, 76
 DIESEL GENERATOR - SEE GENERATOR, DIESEL
 DISTRIBUTION 111
 DOOR 64, 87, 90, 120, 154, 155, 285, 287, 289, 310
 DOSE MEASUREMENT, INTERNAL 99, 183, 268, 325
 DRAINAGE 27, 241, 284, 297, 300, 305
 DRESDEN 2 (BWR) 77-83, 87
 DRESDEN 3 (BWR) 77, 78, 82, 84-87
 DRIFT 38, 84, 100, 176, 194, 242, 272, 276
 DRIVE 26, 31, 35, 83, 85, 302
 EARTHQUAKE 68, 125, 144, 168, 184, 217
 EFFCT, AGE 28, 59, 72, 76, 94, 128, 132, 171, 178, 188, 196, 206, 208, 214
 EFFECT, PH 256
 ELECTRIC POWER 1, 10, 11, 13-16, 18, 31, 59, 70, 72, 75, 80, 87, 96, 103, 104, 111, 126, 136, 137, 141, 154, 157, 159, 165, 169, 189, 190, 192, 196, 197, 203, 220, 227, 238, 242, 249, 267, 273, 276, 283, 292, 294, 298, 310, 316, 317, 324, 326, 331
 ELECTRIC POWER/SSP 96, 169
 ELECTRIC POWER/TSP 31, 267, 292, 317
 ELECTRIC POWER, VITAL 1, 13, 18, 45, 71, 86, 93, 94, 117, 137, 145, 155, 168, 186, 187, 190, 192, 195, 207, 249, 251, 276, 298, 310, 320, 326, 330
 ELECTRICAL FAILURE 1, 7, 10, 13, 14, 18, 21, 23, 27, 31, 34, 39, 43, 45, 59, 70-72, 75, 80, 86, 87, 93, 94, 96, 104, 117, 120, 132, 135-137, 141, 145, 151, 152, 157, 159, 165, 168, 169, 172, 187, 189, 190, 192, 195, 196, 203, 207, 212, 214, 217, 220, 224, 227, 228, 239, 242, 249, 251, 257, 267, 273, 275, 276, 292, 296, 298, 306, 310, 316, 317, 324, 326, 328, 331, 333
 ELECTRONIC FUNCTION UNITS 1, 13, 14, 23, 36, 38, 46, 70, 84, 128, 151, 153, 157, 169, 197, 198, 212, 218, 221, 227, 245, 251, 271, 278, 298, 299, 306, 316, 319, 333
 EMERGENCY COOLING SYSTEM 1, 34, 230
 EMERGENCY POWER, ELECTRIC 1, 17, 21, 31, 33, 40, 62, 72, 96, 104, 120, 132, 135, 141, 153, 165, 169, 216, 217, 224, 242, 263, 266, 275, 292, 294, 296, 317, 328, 331
 EMERGENCY POWER, ELECTRIC/SSP 40, 104, EMERGENCY POWER, ELECTRIC/SSP 120, 135, 141, 165, 242, 266, 292, 317, 328
 EMERGENCY POWER, ELECTRIC/TSP 40, 165, 224, 242, 296, 328
 ENGINEERED SAFETY FEATURE 1, 4, 16, 17, 21, 25, 27, 41, 44, 58, 61, 62, 69, 86, 93, 102, 129, 136-139, 144, 147, 153, 162, 165, 172, 192, 197, 198, 207, 225, 233, 239, 242, 245, 247, 256, 291, 329, 330, 332
 ENGINEERED SAFETY FEATURE/SSP 21, 102, 192, 207, 330
 ENGINES, INTERNAL COMBUSTION 22, 33, 40, 104, 120, 135, 141, 165, 216, 217, 224, 242, 266, 275, 292, 294, 296, 329
 EQUIPMNT 4, 27, 30, 37, 42, 102, 107, 109, 223, 229, 253, 271, 279-281, 292, 297, 300
 EQUIPMENT FAILURE - SEE FAILURE, EQUIPMENT
 EROSION 171
 EXPOSURE - SEE PERSONNEL EXPOSURE, RADIATION
 FABRICATION ERROR - SEE FAILURE, FABRICATION ERROR
 FAILURE 1-337
 FAILURE, ADMINISTRATIVE CONTROL 2-5, 7, 8, 12, 16, 22, 24, 26, 30, 32-34, 39, 41, 43, 45, 48-50, 52, 54-56, 61-64, 66, 68, 69, 74, 76, 78, 79, 82, 83, 86, 89-91, 97, 102, 103, 108, 116, 118-123, 126, 127, 130, 149, 150, 153-155, 158-161, 163, 164, 166-168, 170, 173, 174, 176, 178-183, 185-188, 192, 194, 198-201, 206, 208, 209, 214-216, 222, 223, 226, 228, 229, 234, 236, 238, 239, 242, 243, 247, 260, 261, 266, 268, 270, 273, 274, 278, 279, 282, 284, 287-289, 291, 294, 300, 304, 305, 307-309, 311, 313-316, 318, 319, 326, 327, 332
 FAILURE, CLADDING 42
 FAILURE, COMPONENT 17, 22, 26, 58, 68, 73, 80, 85, 93, 109, 113, 120, 135, 139, 144, 151, 165, 178, 191, 195, 196, 205, 206, 210, 239, 264, 295, 310
 FAILURE, DESIGN ERROR 3, 23, 38-40, 51, 53, 60, 76, 83, 85, 117, 121, 125-127, 133, 139, 145, 147, 156, 159, 161, 166, 168, 169, 172, 174, 178, 204, 205, 208, 213, 217, 220, 223, 224, 229, 237, 253, 259, 267, 313, 321-323
 FAILURE, EQUIPMENT 1-15, 18, 19, 21-24, 26-28, 31-40, 42-53, 55-58, 60-62, 64-68, 70-73, 75, 76, 78-80, 82-88, 90, 91, 96-104, 116, 118, 120, 122-138, 141-146, 148-157, 159-181, 183-185, 187-193, 195, 196, 200, 203-

KEYWORD INDEX

- FAILURE, EQUIPMENT** 206, 208-224, 226-231, 233, 234, 236-238, 240-251, 253-261, 263-267, 269-271, 273-289, 292-294, 296-302, 306, 307, 310-313, 315-317, 319-326, 328, 331, 333
FAILURE, FABRICATION ERROR 13, 28, 72, 76, 100, 107, 111, 135, 160, 163, 168, 177, 255, 257, 258, 277, 299, 302, 303
FAILURE, INSTALLATION ERROR 4, 39, 67, 68, 88, 99, 109, 142, 165, 166, 194, 206, 239, 292
FAILURE, INSTRUMENT 3, 4, 7, 9-14, 16, 20, 22, 24, 27, 30, 33, 38-41, 43-48, 51, 52, 54, 55, 57-59, 61, 63, 67, 69-72, 75, 77-79, 81, 84, 87, 92-95, 98, 102, 104, 115, 117, 119, 124, 127-130, 132, 135, 136, 138, 140, 141, 145, 148, 151-153, 156, 158, 162, 169, 173, 180-182, 185-190, 192-199, 204, 207, 209, 212-214, 217, 218, 220, 227, 228, 231-233, 235, 239-242, 244, 245, 247, 250-252, 257, 266, 272, 273, 276, 289-291, 295, 298-300, 302-306, 308-311, 314, 316-318, 320, 323, 327-333
FAILURE, MAINTENANCE ERROR 3, 5, 9, 10, 12, 17, 24-26, 37, 40, 48-50, 64, 65, 75, 83, 85, 86, 88, 93, 94, 102-104, 109, 113, 126, 127, 131, 134, 136, 137, 141, 144, 150, 154, 155, 162, 168, 170, 175, 176, 178, 186, 197, 198, 232, 235, 239, 268, 278-280, 282, 287, 294, 297, 310, 311, 323, 326
FAILURE, OPERATOR ERROR 3-5, 13, 16, 22, 29, 30, 32, 33, 36, 43, 44, 64, 75, 81, 91, 97, 106, 116, 118, 123, 146, 160, 167, 175, 180, 181, 189, 204, 234, 236, 243, 249, 262, 270, 273, 274, 281, 284-287, 309, 314-317, 320, 321, 325, 330
FAILURE, PIPE 19, 24, 28, 29, 42, 47, 49, 51, 53, 58, 68, 76, 82, 83, 97, 102, 118, 121, 124, 133, 134, 146, 148, 154, 156, 169, 172, 174, 183, 187, 194, 200, 201, 208, 210, 223, 229, 231, 233, 246, 263, 277, 283, 293, 297, 307, 309, 313, 320, 322
FAILURE, TUBING 37, 125, 171, 297
FARLEY 1 (PWR) 88-90
FARLEY 2 (PWR) 91, 92
FASTENER 6, 21, 83, 105, 150, 165, 177, 189, 200, 205, 211, 264, 292, 302
FATIGUE 6, 22, 35, 73, 127, 171
FEEDWATER 1, 7, 11, 28, 31-36, 38, 42-46, 70, 75, 97, 109, 118, 123, 126, 132, 150-154, 173, 178, 200, 209, 228, 230, 240, 241, 243, 258, 263, 271, 284, 302, 306, 320, 333
FERMI 2 (BWR) 93-99
FILTERS 65, 146, 269, 282, 297
FIRE 92, 107, 142, 166, 317
FIRE PROTECTION 5, 8, 64, 67, 88-92, 103, 120, 142, 155, 160, 166, 167, 175, 185, 217, 219, 222, 262, 285, 287, 313, 315
FIRE PROTECTION/SSF 5, 89, 92, 185, 262, 315
FITEPATRICK (BWR) 100, 101
FLAW 4, 184, 257
FLOOD 27, 48, 55, 147, 151, 226, 239, 333
FLOW 1, 3, 5, 7, 10, 11, 14, 19, 21-23, 26, 31-36, 38, 42, 43, 45-48, 51-53, 55-57, 60, 73, 75, 80, 83, 93, 96, 97, 101, 118, 123, 126, 134, 144, 146, 148, 149, 151, 152, 156, 162, 170, 175, 183, 190, 193, 196, 208, 209, 212, 217, 228-230, 234, 237, 240, 243, 246, 248, 250, 253, 255, 258, 259, 261, 263, 267, 269-271, 276, 277, 281, 282, 288, 292, 293, 302, 306, 309, 312, 315, 317, 320-322, 324, 331, 333
FLOW BLOCKAGE 1, 3, 5, 7, 10, 11, 14, 19, 21-23, 26, 32, 33, 35, 38, 42, 45, 47, 48, 52, 53, 55-57, 60, 73, 75, 80, 83, 93, 96, 101, 118, 123, 126, 134, 144, 146, 148, 149, 152, 156, 162, 170, 175, 183, 190, 193, 196, 209, 217, 228-230, 234, 237, 240, 243, 246, 248, 250, 255, 258, 259, 263, 267, 269, 271, 276, 277, 281, 282, 288, 292, 293, 302, 306, 309, 312, 315, 317, 321, 322, 324, 331, 333
FLUX DISTRIBUTION 13, 54, 70, 95, 97, 180, 195, 199, 218, 221, 232, 235, 257, 304, 323
FT. CALHOUN 1 (PWR) 102-104
FT. ST. VRAIN (HTGR) 105-115
FUEL ELEMENTS 18, 49, 53, 71, 74, 117, 128, 136, 180, 183, 190, 195, 213, 218, 221, 227, 245, 251, 286
FUEL HANDLING 28
FUEL HANDLING MACHINE 286
FUEL, FOSSIL 33, 294, 296
FUSE 59, 87, 93, 94, 104, 117, 136, 141, 145, 151, 152, 186, 187, 192, 195-197, 207, 251, 330
GAS 25, 139, 147, 225, 256
GENERATOR, DIESEL 40, 104, 120, 135, 141, 165, 217, 224, 242, 266, 292, 296, 328
GENERATOR, MOTOR 190, 324
GENERATORS 34, 36, 38, 43, 55, 98, 124, 173, 212, 214, 218, 278, 291, 302, 331, 333
GRAND GULF 1 (BWR) 116
HATCH 1 (BWR) 72, 117-121
HATCH 2 (BWR) 117, 120-124
HEAT EXCHANGERS 27, 31, 32, 36-38, 42-

KEYWORD INDEX

- HEAT EXCHANGERS 46, 53, 55, 127, 131, 151, 164, 171, 173, 181, 196, 204, 215, 218, 226, 230, 233, 243, 263, 267, 269, 271, 273, 278, 288, 219, 306, 322, 333
- HEAT GENERATION, INTERNAL 108
- HEATERS 10, 316
- HELIUM 105, 106
- HIGH 2, 19, 27, 31, 34, 42-44, 78, 97, 98, 127, 146, 148, 155, 161, 162, 164, 183, 185, 187, 191, 208, 209, 218, 226, 228, 229, 231, 233, 256, 263, 274, 278, 283, 297, 320-322
- HIGH RADIATION 201, 289
- HIGH TEMPERATURE 10, 13, 14, 23, 53, 55, 75, 101, 115, 120, 127, 145, 164, 177, 181, 191, 193, 195, 196, 217, 220, 226, 229, 230, 267, 269, 302
- HOPE CREEK 1 (BWR) 125-127
- HOSE 185, 281
- HPCI 23, 26, 60, 80, 97, 123, 144, 200, 263, 276
- HPCI/TSP 23, 26, 60, 80, 144, 276
- HTGR REACTOR - SEE REACTOR, HTGR
- HUMAN FACTORS 3, 4, 34, 52, 78, 136, 152, 162, 187, 189, 193, 197, 228, 240, 264, 275, 287, 293, 297, 323, 325, 330, 333
- HUMBOLDT BAY (BWR) 128
- HUMIDITY, RELATIVE 297
- HYDRAULIC EFFECT 22, 29, 51, 57, 61, 116, 124, 162, 173, 208, 234, 240
- HYDRAULIC SYSTEM 107, 254, 255, 306
- HYDROGEN 190, 231, 282
- IMPACT SHOCK 310, 328
- INCIDENT, HUMAN ERROR 1, 3, 9, 10, 13, 15-17, 20, 21, 23, 26, 28, 30-34, 36-41, 43, 45, 47-53, 55, 56, 60, 62-67, 69, 72, 74-76, 79, 81-83, 85-91, 95, 99, 100, 102, 103, 117, 119-122, 125-127, 130, 131, 133, 135, 137, 139-142, 144, 145, 147, 149, 152, 154, 156, 158-161, 163-170, 172, 174-178, 180-188, 193, 194, 197, 198, 200, 201, 214, 205, 208-211, 213, 216, 217, 219, 220, 223, 224, 226, 228-233, 235-238, 241-245, 247, 249, 250, 252-255, 257-259, 262, 263, 266-268, 270, 271, 277-282, 285-287, 290, 292, 294, 296, 297, 299-304, 307, 308, 310, 312-323, 325-330, 332
- INDIAN POINT 3 (PWR) 129, 130
- INDICATORS 1, 4, 13, 16, 20, 25, 38, 39, 41, 43, 47, 52, 54, 57, 59, 61, 63, 69-71, 77, 79, 84, 94, 95, 102, 117, 119, 124, 128, 132, 138-140, 147, 148, 158, 180, 182, 186, 188, 189, 194, 195, 199, 225-227, 231-233, 235, 240, 244, 245, 247, 250, 256, 257, 272, 289, 290, 295, 298-300, 303-306, 308-311, 314, 316, 318, 323, 327, 333
- INDUSTRY, NUCLEAR 40, 213, 255, 257
- INSPECTION 4-7, 11, 13, 14, 17, 19, 21-23, 26, 28, 33, 37, 40, 42, 45, 46, 48, 50, 51, 57, 58, 61, 62, 64, 67, 68, 72, 73, 75, 76, 78, 79, 83-85, 88, 91, 97, 100-104, 121, 124, 125, 130, 132, 133, 135, 142, 144, 152, 153, 155, 157, 158, 160, 161, 163, 165, 169, 171, 173, 176-178, 181, 185, 188, 191, 193-195, 199, 200, 202, 203, 208-211, 214, 225, 228, 237, 240-243, 246, 248, 252-255, 258, 259, 263-268, 273, 275, 279, 280, 288-290, 292, 295, 296, 308, 311, 312, 315, 323, 327, 330, 333
- INSTALLATION ERROR - SEE FAILURE, INSTALLATION ERROR
- INSTRUMENT FAILURE - SEE FAILURE, INSTRUMENT
- INSTRUMENT LINE 3, 4, 10, 47, 61, 99, 162, 241
- INSTRUMENT, ABNORMAL INDICATION 1, 3, 4, 7, 10, 17, 13, 16, 17, 20, 21, 24, 25, 27, 31, 33, 34, 36-40, 43-48, 52, 55, 57-59, 61, 67, 70, 71, 77-79, 84, 86, 87, 92-94, 98, 102, 117, 119, 123, 124, 127-129, 132, 135, 136, 138, 139, 144, 147, 148, 151, 157, 162, 169, 173, 174, 180, 181, 186-189, 192, 193, 195-199, 207, 209, 212, 214, 218, 221, 225-228, 232, 233, 235, 239-245, 247, 250, 257, 263, 266, 271, 273, 275, 276, 278, 290, 295, 298-300, 302, 303, 306, 308, 310, 311, 314, 316, 323, 327, 330, 333
- INSTRUMENT, ALARM 25, 29, 45, 52, 55, 70, 74, 75, 87, 92, 94, 97, 98, 102, 104, 123, 128, 147, 157, 171, 186, 189, 193, 228, 251, 263, 272, 276, 298, 302, 305
- INSTRUMENT, AMPLIFIER 70
- INSTRUMENT, CONTROL 129, 332
- INSTRUMENT, CURRENT 220
- INSTRUMENT, FLOW 181, 241
- INSTRUMENT, IN CORE 13, 18, 54, 70, 95, 145, 199, 232, 235, 257, 304, 323, 324, 326
- INSTRUMENT, INTERLOCK 9, 51, 72, 87, 104, 169, 183, 217, 252, 273, 331
- INSTRUMENT, LIQUID LEVEL 3, 4, 10, 44, 130, 239, 291
- INSTRUMENT, NON-NUCLEAR 3, 5, 7, 10, 12, 20, 24, 27, 33, 37, 43, 47, 58, 57, 67, 83, 87, 94, 99, 121, 123, 125, 127, 130, 133, 146, 148, 156, 189, 190, 193, 196, 255, 276, 302, 304, 306, 316
- INSTRUMENT, NON-NUCLEAR/TSP 37, 316
- INSTRUMENT, POSITION 12, 24, 38, 41, 43, 46, 48, 58, 94, 124, 151, 189, 272, 306

KEYWORD INDEX

- INSTRUMENT, PROTECTIVE 14
 INSTRUMENT, SPEED 98, 135, 212, 214, 276
 INSTRUMENT, SWITCH 7, 12, 24, 27, 30, 32, 48, 59, 75, 78, 81, 123, 127, 129, 138, 151, 153, 156, 169, 185, 189, 204, 214, 266, 290, 310, 317, 320, 323, 328, 329, 332
 INSTRUMENT, TEMPERATURE 115
 INSTRUMENT, TESTING 153, 214, 266
 INSTRUMENT, VOLTAGE 11, 16, 45, 169, 190, 227, 267, 276, 317, 333
 INSTRUMENT, WIDE RANGE 110, 112
 INSTRUMENTS, MISC. 38, 47, 78, 140, 148, 180, 318
 INSULATION 23, 80, 96, 152, 166, 176, 196, 214, 277
 INVERTER 1, 13, 71, 168, 251, 276
 KEWAUNEE (PWR) 131-133
 LA SALLE 1 (BWR) 134-139
 LA SALLE 2 (BWR) 135-137, 139-141
 LEAK 3, 4, 19, 24, 27, 28, 31, 37, 39, 47, 51-53, 68, 76, 83, 97, 99, 121, 125, 131, 143, 151, 156, 163, 169, 171, 172, 177, 191, 202, 208, 226, 229, 231, 233, 236, 237, 240, 245, 246, 253, 255, 257, 263, 277, 281, 292, 293, 297, 322, 325, 333
 LEAK DETECTION 96, 102, 144, 186, 188, 189, 244, 250, 283, 289, 290, 298, 311
 LICENSED OPERATOR 3, 4, 29, 30, 32-34, 36, 43, 44, 49, 52, 55, 63, 64, 81, 95, 97, 106, 116, 123, 154, 176, 180, 181, 188, 189, 198, 204, 236, 242, 243, 259, 262, 263, 266, 270, 273, 274, 301, 307, 316, 317, 320, 321, 325, 330
 LIGHTNING 324
 LIMERICK 1 (BWR) 142-148
 LIMERICK 2 (BWR) 142
 LOW 1, 3-5, 7, 10, 11, 14, 19, 21-23, 26, 27, 32-36, 38, 42, 43, 45-48, 52, 53, 55-57, 60, 73, 75, 80, 83, 93, 96, 97, 101, 116, 118, 123, 124, 126, 127, 130, 134, 144, 146, 148, 149, 151, 152, 154, 156, 162, 170, 173, 175, 178, 183, 190, 193, 195, 196, 204, 208, 209, 217, 226, 228-231, 233, 234, 237, 240, 241, 243, 245, 246, 248, 250, 255, 258, 259, 263, 267, 269-271, 273, 276, 277, 281, 282, 288, 292, 293, 296, 302, 306, 309, 312, 315-317, 320-322, 324, 325, 331, 333
 LUBRICATION 40, 50, 73, 75, 83, 127
 MAIN COOLING SYSTEM 11, 31, 32, 34, 36-39, 41, 43-46, 50, 51, 53, 68, 73, 96, 100, 106, 123, 130, 131, 134, 151, 154, 156, 169, 171-173, 199, 201, 208, 209, 213, 218, 228, 229, 231, 233, 234, 236, 239-241, 245, MAIN COOLING SYSTEM 247, 254, 257, 265, 271, 273, 274, 277, 281, 289, 291, 293, 297, 306, 315, 316, 318, 319, 321, 331
 MAIN COOLING SYSTEM/SSP 11, 233, 245, 315, 331
 MAIN COOLING SYSTEM/TSP 34, 73, 131, 208, 209, 228, 233, 234, 240, 245, 274, 281, 316
 MAINE YANKEE (PWR) 149
 MAINTENANCE AND REPAIR 1, 3, 9, 10, 23-28, 31, 32, 34, 40, 42, 44, 45, 55, 65, 70, 71, 75, 80, 83, 84, 89, 90, 93, 103, 127, 128, 135, 136, 138, 141, 146, 151, 152, 154, 155, 162, 165, 168, 175, 178, 187, 189, 191, 195-198, 214, 227, 228, 232, 235, 239-241, 251, 258, 262-264, 269, 271, 285, 292, 299, 300, 302, 310, 314, 317, 326
 MAINTENANCE ERROR - SEE FAILURE, MAINTENANCE ERROR
 MATERIAL & EQUIP. HANDLING SYSTEM 286
 MCGUIRE 1 (PWR) 150-153
 MCGUIRE 2 (PWR) 150, 154, 155
 MILLSTONE 1 (BWR) 156
 MILLSTONE 3 (PWR) 157, 158
 MONITOR 89, 92, 135, 217
 MONITORING SYSTEM, RADIATION 16, 47, 52, 55, 59, 63, 71, 77, 79, 94, 117, 119, 128, 136, 158, 172, 182, 227, 252, 295, 298-300, 303, 305, 307-310, 314, 327
 MOTORS 11, 21, 50, 80, 141, 165, 196, 230, 250
 NEUTROW 13, 54, 70, 95, 199, 232, 235, 257, 304, 323
 NINE MILE POINT 1 (BWR) 159-161
 NINE MILE POINT 2 (BWR) 162, 163
 NOISE 110, 112, 232, 235, 323
 NONLICENSED OPERATOR 20, 22, 31, 94, 118, 141, 181, 234, 249, 270, 297, 309
 NORTH ANNA 1 (PWR) 164
 NORTH ANNA 2 (PWR) 164, 165
 NOZZLE 19, 185
 OCONEE 1 (PWR) 165, 167
 OCONEE 2 (PWR) 166-169
 OCONEE 3 (PWR) 166, 167, 170, 171
 OFF SITE 31, 96, 111, 131, 169, 171, 177, 209, 263, 267, 292, 317, 324, 331
 OIL 107
 ON SITE 11, 13, 16, 27, 31, 48, 55, 75, 103, 104, 126, 136, 141, 147, 151, 154, 165, 169, 189, 193, 196, 197, 220, 226, 238, 239, 242, 249, 267, 273, 280, 283, 298, 302, 310, 317, 325, 326, 333
 OPERATION 4, 5, 8-11, 15, 22-27, 32, 34-36, 38-41, 45, 46, 49, 54-56, 66, 67, 69, 71-73, 75-80, 83-85, 87, 90-

KEYWORD INDEX

- OPERATION 92, 98-104, 118, 120-127, 131-133, 135-137, 139-154, 156, 158, 163-167, 169-172, 174-176, 178, 179, 181, 191, 193-196, 199, 200, 209-222, 224-228, 239-247, 254, 255, 262, 263, 269-271, 275, 276, 282-284, 292-299, 301-306, 308-310, 318-320, 331, 333
- OPERATOR ACTION 3, 13, 25, 29, 34, 42, 44, 45, 51, 53, 60, 76, 78, 83, 87, 93, 94, 97, 104, 117, 121, 126, 127, 134, 139, 142, 144-147, 156, 157, 161, 166, 168, 172-175, 184, 185, 194, 204-206, 208, 209, 211, 217, 223, 230, 236, 239, 240, 245, 250, 254, 259, 264, 267, 274, 297, 298, 310, 313, 317, 320, 321, 323, 328
- OPERATOR ERROR - SEE FAILURE, OPERATOR ERROR; LICENSED OPERATOR; NONLICENSED OPERATOR
- ORIFICE 107
- OXIDATION 19, 21, 24, 171, 177, 178, 202, 253, 257, 292, 333
- OYSTER CREEK (BWR) 173
- PALISADES (PWR) 173-175
- PALO VERDE 1 (PWR) 176-181
- PALO VERDE 2 (PWR) 176-178, 182, 183
- PALO VERDE 3 (PWR) 177, 178
- PEACH BOTTOM 2 (BWR) 184-188
- PEACH BOTTOM 3 (BWR) 184, 185, 188-190
- PENETRATION 28, 49, 58, 66, 76, 82, 83, 87, 97, 102, 121, 133, 172, 174, 200, 210, 211, 223, 307, 313
- PENETRATION, ELECTRICAL 88, 103, 142, 156, 167, 220, 283
- PENETRATION, PIPE 28, 49, 58, 76, 82, 97, 102, 121, 133, 174, 200, 210, 223, 307, 313
- PERRY 1 (BWR) 191-196
- PERSONNEL EXPOSURE, RADIATION 99, 183, 268, 325
- PH EFFECT - SEE EFFECT, PH
- PILGRIM 1 (BWR) 197, 198
- PIPE FAILURE - SEE FAILURE, PIPE; PIPES AND PIPE FITTINGS
- PIPES AND PIPE FITTINGS 19, 24, 29, 42, 47, 51, 53, 68, 83, 118, 121, 124, 134, 146, 148, 154, 156, 169, 172, 178, 183, 187, 188, 194, 201, 208, 229, 231, 233, 245, 246, 256, 258, 263, 277, 283, 293, 297, 309, 320, 322
- PLANT 305
- PNEUMATIC SYSTEM 83, 96, 118, 133, 141, 145, 146, 148, 190, 191, 216, 231, 302
- PNEUMATIC SYSTEM/SSF 231
- POINT BEACH 1 (PWR) 199
- POINT BEACH 2 (PWR) 199
- POISON, SOLUBLE 1, 10, 51, 133, 234, 259, 270, 281, 304
- PRESSURE DROP 3, 42, 51, 154, 156, 234, 293
- PRESSURE PULSE 22, 29, 61, 116, 124, 162, 208
- PRESSURE RELIEF 32, 58, 44, 100, 107, 123, 143, 151, 173, 176, 208, 209, 245, 254, 255, 265, 274, 312
- PRESSURE VESSELS 6, 61, 84, 97, 98, 116, 118, 123, 124, 126, 134, 138, 140, 162, 194, 195, 320, 321, 329
- PRESSURE, EXTERNAL 7, 27, 34, 42, 44, 98, 116, 118, 127, 146, 148, 154, 155, 164, 178, 183, 185, 195, 204, 208, 209, 229, 231, 233, 241, 245, 274, 278, 283, 320
- PRESSURE, INTERNAL 7, 27, 34, 42, 44, 98, 116, 118, 127, 146, 148, 154, 155, 164, 178, 183, 185, 195, 204, 208, 209, 229, 231, 233, 241, 245, 274, 278, 283, 320
- PRESSURIZER 41, 53, 50, 68, 245, 247, 265, 274
- PROCEDURES AND MANUALS 1-5, 7-10, 12, 13, 15-17, 19-24, 26, 28, 30-34, 36-56, 58, 60-69, 72-76, 78, 79, 81-83, 85-91, 93, 95, 97, 99-103, 116-123, 125-127, 130, 131, 133, 135-137, 139-142, 144, 145, 147, 149, 170, 152-156, 158-170, 172-189, 191-194, 196-201, 204-206, 208-211, 213-217, 219-224, 226, 228-247, 249, 250, 252-255, 257-264, 266-268, 270, 271, 273-294, 296-305, 307-323, 325-330, 332, 333
- PROCESS MONITORING 1, 18, 36, 39, 84, 85, 102, 124, 132, 137, 140, 145, 187, 190, 192, 194, 195, 199, 213, 231, 241, 243, 249, 273, 318, 319, 323, 324, 326
- PROPERTY, CHEMICAL 42, 134, 280, 297
- PROPERTY, MECHANICAL 208
- PUMP, JET 47, 131, 281
- PUMPS 3, 7, 11, 21, 32, 33, 38, 42, 47, 51-53, 56, 57, 67, 73, 80, 96, 113, 118, 123, 126, 127, 152, 154, 156, 162, 170, 178, 181, 239, 230, 234, 240, 243, 250, 255, 258-260, 271, 274, 277, 281, 292, 293, 331
- PWR REACTOR - SEE REACTOR, PWR
- QUAD CITIES 2 (BWR) 200-207
- RADIATION MONITORS 16, 47, 52, 59, 63, 71, 77, 79, 94, 117, 119, 128, 158, 182, 188, 227, 244, 250, 289, 290, 295, 298-300, 303, 305, 308-311, 314, 323, 327
- RADIATION PROTECTION PERSONNEL 16, 52, 183, 201, 268, 279, 311, 314
- RADIATION SAFETY AND CONTROL 183, 268, 279
- RADIOACTIVITY RELEASE 65, 74, 99, 131, 171, 177, 183, 191, 201, 202, 208, 209, 231, 263, 268, 279, 280, 289, 322, 325
- RANCHO SECO (PWR) 208, 209
- RATE 229, 233

KEYWORD INDEX

RCIC 85, 123, 144, 200, 210, 320
 RCIC/TSP 123, 144, 320
 REACTOR 97, 98, 116, 118, 123, 124, 126, 134, 195, 320, 321
 REACTOR CONTROL 14, 30, 78, 81, 179, 180, 204, 221, 272, 320
 REACTOR POWER 14, 30, 78, 81, 108, 179, 180, 204, 221, 272, 320
 REACTOR PROTECTION SYSTEM 1, 18, 36, 84, 86, 102, 110, 112, 115, 124, 132, 137, 145, 187, 190, 192, 194, 195, 199, 213, 241, 243, 249, 273, 319, 323, 324, 326
 REACTOR PROTECTION SYSTEM/SSP 102, 124, 243, 323
 REACTOR SHUTDOWN 1, 11, 13, 14, 27, 31, 32, 34-36, 38, 39, 45, 46, 48, 61, 70, 75, 81, 96-98, 109, 111, 118, 123, 124, 126, 132, 151, 157, 163, 171, 180, 187, 191, 195, 204, 209, 212, 214, 218, 221, 228, 232, 235, 240, 241, 254, 263, 271, 273, 302, 306, 320, 321, 323, 331, 333
 REACTOR STARTUP 14, 29-31, 33, 48, 96, 97, 119, 157, 180, 252
 REACTOR, BWR 5, 12, 16-30, 47-49, 58-62, 77-87, 93-101, 116-128, 134-148, 156, 159-163, 172, 184-198, 200-207, 210, 211, 248, 249, 275-278, 297, 320-330
 REACTOR, HTGR 105-115
 REACTOR, PWR 1-4, 6-11, 13-15, 31-46, 50-57, 63-76, 88-92, 102-104, 129-133, 149-155, 157, 158, 164-171, 173-183, 199, 208, 209, 212-247, 250-274, 279-296, 298-319, 331-333
 RECORDERS 78, 173, 188
 REFUELING 6, 12, 21, 22, 28, 37, 39, 50, 52, 54, 58-63, 65, 68, 72, 73, 78, 82, 86-89, 121, 134-139, 159, 161, 168, 177, 182, 185, 190, 199, 201, 202, 204-207, 250, 265-268, 275, 277, 278, 285-290, 311, 317, 322, 324-330, 332
 RELAYS 9, 11, 14, 16, 72, 98, 104, 109, 112, 169, 193, 217, 220, 242, 252, 276, 296, 331
 RESPONSE TIME 2, 8, 15, 16, 20, 52, 54-56, 63, 66, 67, 69, 75, 78, 95, 103, 121, 122, 140, 154, 161, 163, 170, 174, 176, 179, 182, 183, 191, 209, 214-216, 219, 222, 223, 236, 238, 242, 247, 254, 260, 261, 279, 282, 284, 288, 294, 300, 301, 304, 307-309, 314, 317, 318, 329
 REVIEW 3, 5, 8, 13, 15-17, 19-24, 26, 28, 30, 32, 33, 37, 39, 41, 43-56, 58, 60, 62-64, 66-69, 72-76, 78, 79, 82, 83, 85, 86, 88, 90, 91, 93, 95, 99-102, 117, 119-122, 125-127, 130, 131, 133, 135, 135-142, 144, 145, 147, 145, 150, 153-156, 158-161, 163-166, 170, 172-182, 184-186, 188, 191, 192, 194, 196, 198-201, 204-206, 208-217, 213-217, 219-224, 226, 228-231, 233, 236-239, 241-247, 250, 253, 258-262, 264, 266, 267, 270, 271, 276-279, 281-285, 287, 288, 291-294, 296, 297, 300-305, 307-309, 311, 312, 314, 316-319, 321-323, 326-329, 332
 RHR-LPCI 18, 21, 30, 58, 60, 85, 93, 144, 145, 156, 162, 200, 277, 321, 324, 326, 330
 RHR-LPCI/SSP 21, 144, 330
 RHR-LPCI/TSP 30, 93, 156, 162, 277, 321, 324
 RHR-LPSI 1, 50, 51, 53, 68, 170, 177, 230, 234, 293, 312, 317
 RHR-LPSI/SSP 177, 293, 312
 RHR-LPSI/TSP 1, 53, 170, 177, 234, 317
 RIVERBEND 1 (BWR) 210, 211
 RUBINSON 2 (PWR) 212-215
 SALEM 1 (PWR) 216, 217, 220
 SALEM 2 (PWR) 217-222
 SAMPLING 43, 45, 131, 134, 145, 324, 326
 SAMPLING/TSP 131
 SAN ONOPRE 1 (PWR) 223, 224
 SAN ONOPRE 2 (PWR) 225-227
 SAN ONOPRE 3 (PWR) 225, 226, 228
 SCRAM, REAL 11, 14, 27, 32, 34-36, 38, 45, 46, 75, 96-98, 113, 115, 118, 123, 126, 151, 171, 180, 187, 195, 209, 212, 214, 218, 221, 228, 240, 263, 271, 273, 302, 306, 320, 321, 331, 333
 SCRAM, SPURIOUS 1, 13, 31, 61, 70, 81, 110, 112, 124, 132, 157, 187, 195, 204, 232, 235, 241, 323
 SEAL 28, 34, 35, 48-50, 76, 82, 83, 88, 100, 113, 142, 163, 166, 167, 177, 188, 191, 211, 255, 283, 313
 SEISMIC DESIGN 68, 125, 144, 168, 184, 217
 SENSORS, FLOW 20, 57, 67, 69, 181, 241
 SENSORS, LEVEL 3, 4, 10, 33, 44, 61, 78, 84, 115, 130, 138, 173, 194, 239, 240, 273, 291, 304, 316, 329
 SENSORS, PRESSURE 7, 40, 102, 156, 162, 195, 247
 SENSORS, TEMPERATURE 14, 39, 127, 132, 186, 189, 194, 213, 233, 242, 304, 316
 SEQUOYAH 1 (PWR) 229-235, 237
 SEQUOYAH 2 (PWR) 229-231, 233, 236-242
 SERVICE WATER 113
 SERVICE WATER SYSTEM 1, 9, 11, 24, 52, 53, 60, 101, 153, 154, 156, 164, 216, 226, 237, 243, 246, 249, 253, 292
 SERVICE WATER SYSTEM/SSP 11, 101, 243
 SERVICE WATER SYSTEM/TSP 52, 237, 246, 292
 SERVOMECHANISM 12, 23, 24, 26, 48, 50, 150, 161, 172, 192, 231

KEYWORD INDEX

- SHEARON HARRIS 1 (PWR) 243-247
 SHOCK ABSORBER 68, 122, 312
 SHOREHAM (BWR) 248, 249
 SHUTDOWN SYSTEM, SECONDARY 114, 200
 SMOKE 92, 142, 166, 317
 SOLENOID 5, 7, 27, 34, 72, 121, 133,
 146, 191, 195, 214, 306
 SOLID STATE DEVICE 9, 13, 36, 38, 46,
 70, 84, 128, 151, 157, 169, 181, 212,
 218, 221, 227, 245, 271, 278, 299,
 333
 SOUTH TEXAS 1 (PWR) 250-261
 SOUTH TEXAS 2 (PWR) 253, 255, 257-259
 SPENT FUEL COOL 65, 183, 191, 230
 STACK 16, 20
 STACK/TSP 16, 20
 STANDBY GAS TREATMENT 18, 48, 59, 61,
 77, 79, 86, 96, 123, 128, 136, 137,
 145, 146, 148, 155, 190, 197, 198,
 230, 249, 257, 324, 326
 STANDBY GAS TREATMENT/SSP 190, 207
 STANDBY GAS TREATMENT/TSP 48, 155
 STEAM GENERATOR 31, 32, 36-38, 42-46,
 131, 151, 154, 171, 173, 176, 218,
 233, 239, 245, 254, 255, 271, 273,
 289, 291, 300, 306, 314
 STEAM GENERATOR/SSP 233, 254
 STEAM GENERATOR/TSP 37, 254
 STEEL, STAINLESS 83
 STORAGE CONTAINER 3, 33, 73, 97, 127,
 248, 259, 294, 296, 325
 STRESS CORROSION 105
 STRUCTURE 3, 5, 24, 25, 47, 52, 64,
 67, 68, 88, 90, 101, 103, 125, 154,
 166, 183, 226, 246, 248, 253, 292
 STRUCTURE/SSP 5, 101
 SUBSYSTEM FAULT 5, 7, 11, 19, 21, 22,
 32, 33, 40, 42, 43, 56, 89, 92, 96,
 101, 102, 104, 120, 124, 135, 141,
 144, 146, 152, 157, 165, 169, 177,
 178, 181, 185, 190, 192, 193, 196,
 207, 226, 230, 231, 233, 240, 242,
 243, 245, 254, 258, 262, 266, 269,
 278, 282, 292, 293, 297, 302, 312,
 315, 317, 323, 328, 330, 331, 333
 SUMNER 1 (PWR) 262, 263
 SUPPORT STRUCTURE 60, 68, 83, 85, 122,
 125, 168, 184, 200, 205, 312
 SURRY 1 (PWR) 264-269
 SURRY 2 (PWR) 266, 267, 269-274
 SURVEILLANCE PROGRAM 108, 114
 SUSQUEHANNA 1 (BWR) 275, 276
 SUSQUEHANNA 2 (BWR) 275, 277, 278
 SYSTEM CAPACITY 3, 4, 19, 27, 31-33,
 36, 38, 43, 45, 46, 78, 97, 118, 121,
 124, 126, 127, 130, 134, 151, 173,
 183, 187, 195, 209, 218, 226, 228,
 234, 240, 248, 259, 271, 273, 296,
 306, 320, 321, 325, 333
 SYSTEMS INTERACTION 106
 TECHNICAL SPECIFICATIONS 108
 TEMPERATURE 10, 34, 97, 127, 173, 177,
 196, 226, 228, 233, 245,
 271, 302, 316
 TEST INTERVAL 8, 15, 16, 20, 52, 54-
 56, 63, 66, 67, 69, 78, 95, 114, 121,
 122, 140, 163, 170, 174, 176, 179,
 182, 183, 214-216, 219, 222, 223,
 236, 238, 242, 247, 254, 260, 261,
 282, 284, 288, 294, 300, 301, 304,
 307-309, 314, 317, 318, 329
 TEST, SYSTEM OPERABILITY 4-7, 11, 13,
 14, 17, 19, 21-23, 26, 28, 33, 37,
 40, 42, 45, 46, 48, 50, 51, 57, 58,
 61, 62, 64, 67, 68, 72, 73, 75, 76,
 78, 79, 83-85, 88, 91, 97, 100-104,
 121, 124, 125, 130, 132, 133, 135,
 142, 144, 152, 153, 155, 157, 158,
 160, 161, 163, 165, 169, 171, 173,
 176-178, 181, 185, 188, 191, 193-195,
 199, 200, 202, 203, 208-211, 214,
 225, 228, 237, 240-243, 246, 248,
 252-255, 258, 259, 263-268, 273, 275,
 279, 280, 288-290, 292, 295, 296,
 308, 311, 312, 315, 323, 327, 332,
 333
 TESTING 2, 3, 5, 7, 8, 13, 15-17, 19-
 24, 26, 28, 30, 32, 33, 37, 39, 41,
 43-56, 58, 60-64, 66-69, 72-76, 78,
 79, 82, 83, 85, 86, 88, 90, 91, 93,
 95, 97, 99-102, 117, 119-122, 125-
 127, 130, 131, 133, 135, 139-142,
 144, 145, 147, 149, 150, 152-161,
 163-170, 172-182, 184-188, 191-194,
 196, 198-201, 204-206, 208-211, 213-
 217, 219-224, 226, 228-231, 233, 236-
 239, 241-247, 250, 252-254, 258-262,
 264, 266, 267, 270, 271, 275-279,
 281-285, 287-294, 296, 297, 300-305,
 307-309, 311-314, 316-319, 321-323,
 326-329, 332
 THERMAL TRANSIENT 228, 233
 THREE MILE ISLAND 2 (PWR) 279-281
 TORUS 321
 TORUS/TSP 321
 TOTAL SYSTEM FAULT 1, 3, 16, 20, 21,
 23, 26, 30, 31, 34, 35, 37, 40, 42,
 45, 48, 52, 53, 55, 57, 60, 73, 74,
 80, 93, 97, 116-118, 123, 126, 127,
 131, 144, 146, 148, 149, 155, 156,
 162, 164, 165, 170, 177, 178, 181,
 193, 196, 208, 209, 217, 224, 226,
 228-231, 233, 234, 237, 240, 242,
 245, 246, 254, 258, 259, 263, 267,
 270, 271, 274, 276, 277, 281, 289,
 292, 296, 300, 104, 306, 314, 316,
 317, 320, 321, 324, 328, 333
 TOXICITY 25, 139, 147, 225, 256
 TRANSFORMERS 71, 96, 169, 190, 267,
 317, 333
 TRANSIENT 27, 124, 190, 204, 273, 278,
 289
 TROJAN (PWR) 282-291
 TUBING 37, 55, 125, 171, 226, 230,

KEYWORD INDEX

TUBING 263, 297
 TUBING FAILURE - SEE FAILURE, TUBING
 TURBINE 27, 31, 32, 34, 36, 38, 42,
 43, 55, 87, 98, 111, 124, 126, 173,
 185, 212, 214, 218, 271, 278, 291,
 300, 302, 322, 331, 333
 TURBINE/SSF 43, 278, 331, 333
 TURBINE/TSP 55, 271
 TURKEY POINT 3 (PWR) 292-296
 TURKEY POINT 4 (PWR) 293-296
 ULIMATE 3, 7, 8, 10, 11, 13, 21-23, 27,
 28, 31, 34, 39, 50, 55, 58, 63, 64,
 70, 71, 75, 84, 85, 96, 98, 102, 107,
 116, 121, 142, 143, 149, 151, 157,
 152-164, 168, 180, 182, 184, 185,
 189, 191, 192, 200, 210, 213, 228-
 237, 236, 239, 240, 248, 250-252,
 255, 283, 284, 297-300, 310, 317
 VALVE OPERATORS 12, 23, 24, 26, 32,
 38, 44, 48, 50, 55, 83, 100, 116,
 127, 133, 150, 151, 160, 161, 172,
 173, 191, 192, 209, 216, 231, 233,
 245, 254, 255, 274, 302, 306
 VALVE, CHECK 33, 101, 237, 264
 VALVES 1, 5, 7, 8, 12, 19, 23, 24, 26-
 28, 31, 32, 34-36, 38, 44-48, 50, 51,
 53, 55, 57, 58, 61, 64, 75, 76, 83,
 87, 90, 91, 97, 98, 100, 101, 107,
 109, 116, 120, 121, 123, 124, 127,
 129, 133, 143, 144, 146, 149-151,
 154-156, 160, 161, 172-177, 181, 183,
 185, 191, 192, 206, 208-210, 212,
 214, 216, 219, 222, 223, 228, 231,
 233, 234, 237, 240, 241, 243-246,
 253-255, 261, 264, 265, 270, 271,
 274, 278, 281-285, 287-289, 293, 296,
 302, 306, 310, 310-312, 315, 320,
 321, 325, 327
 VENTILATION SYSTEM 1, 14, 18, 21, 22,
 25, 31, 48, 59, 61, 65, 71, 74-77,
 79, 86, 94, 96, 117, 123, 127, 128,
 131, 136, 137, 139, 144-148, 153,
 155, 181, 190, 193, 196-198, 207,
 215, 217, 225-227, 230, 243, 244,
 249-252, 256, 263, 267, 269, 288-290,
 295, 297-299, 303, 307, 310, 311,
 322, 324, 326, 327
 VENTILATION SYSTEM/SSF 22, 144, 146,
 181, 190, 196, 207, 269, 297
 VENTILATION SYSTEM/TSP 48, 117, 127,
 131, 146, 155, 181, 193, 196, 217,
 226, 230, 263
 VERMONT YANKEE (BWR) 297
 VIBRATION 17, 22, 29, 35, 49, 61, 73,
 83, 105, 116, 124, 148, 162, 208, 302
 VOGTLE 1 (PWR) 298-309
 WASTE MANAGEMENT 119, 325
 WASTE TREATMENT, GAS 47, 182
 WASTE TREATMENT, LIQUID 63, 183, 309
 WASTE TREATMENT, SOLID 279, 280
 WATER 145, 181, 192, 226
 WATER/SSF 181, 226
 WATER/TSP 181, 226
 WATERFORD 3 (PWR) 310-316
 WEAR 28, 59, 72, 76, 94, 128, 132,
 171, 178, 188, 196, 206, 208, 214
 WELDS 4, 184, 257
 WOLF CREEK 1 (PWR) 317-319
 WPPSS 2 (BWR) 320-330
 YANKEE ROWE (PWR) 331
 ZION 1 (PWR) 332, 333

VENDOR CODE INDEX

AGASTAT RELAY CO. 93, 144
 ANCHOR/DARLING VALVE CO. 26, 28
 ASCO VALVES 27, 133, 146
 ATWOOD & MORRILL CO., INC. 129, 237
 AUTOMATIC SWITCH COMPANY (ASCO) 191
 BABCOCK & WILCOX COMPANY 171
 BECHTEL CORP. 292
 BINGHAM PUMP CO. 152, 178, 258
 BUSHMAN EQUIPMENT CO. 145
 BUSSMANN MPG (DIV OF MCGRAW-EDISON) 207
 CALCON 40
 CARDOX CORP. 5
 CARRIER AIR CONDITIONING CO. 226
 COMBUSTION ENGINEERING, INC. 2
 CONSOLIDATED CONTROLS CORP. 298
 CONTROL COMPONENTS 151, 255
 COPES-VULCAN, INC. 35
 CRANE VALVE CO. 83
 CROSBY VALVE & GAGE CO. 265
 DELAVAL ENGINES & COMPRESSION DIV. 40
 DRAYO CORP (PIPE FABRICATION DIV) 202
 DRESSER INDUSTRIAL VALVE & INST DIV
 208, 209
 DRESSER INDUSTRIES, INC. 176
 EBERLINE INSTRUMENT CORP. 47, 55
 ELECTRO SWITCH CORP. 302
 ELGAR, CORP. 251
 ESSEX WIRE COFF. 203
 EXIDE POWER SYSTEMS 168
 EXXON NUCLEAR CO., INC. 213
 FISCHER & PORTER CO. 302
 FISHER CONTROLS CO. 76
 FOXBORO CO., THE 132, 228, 256
 GENERAL ATOMIC CO. 310
 GENERAL ELECTRIC CO. 13, 17, 18, 21,
 27, 71, 77, 79, 80, 94, 117, 124, 159,
 204, 238, 310, 317, 331
 GENERAL ELECTRIC CORP. (NUCLEAR EN 27
 GOULDS PUMPS INC. 281
 I.T.E IMPERIAL POWER EQUIPMENT CO. 267
 INDIKON 38
 INGERSOLL-RAND CO. 271
 INTERNATIONAL RECTIFIER 227
 ITE IMPERIAL CORPORATION 189
 ITT GENERAL CONTROLS 48
 JOY MANUFACTURING CO. 22
 LABOUR CO. 12
 LIMITORQUE CORP. 23, 24, 50, 123, 161
 LONERGAN, J.E., CO. 143
 MAGNETICS DIV SPANG INDUSTRIES, IN 271
 MAGNETICS DIV SPANG INDUSTRIES, INC 272
 MAGNETROL, INC. 33
 MASONERILAN INTERNATIONAL, INC. 8, 320
 MCGRAW EDISON CO., POWER SYSTEMS D 209
 MCQUAY-PERFEX INC. 269
 MICRO SWITCH 129
 MOORE PRODUCTS COMPANY 46
 MOORE, I. B. COMPANY 28
 MOTOROLA 227
 NAMCO CONTROLS 151
 NUCLEAR MEASUREMENTS CORP. 227, 314
 NUCLEAR RESEARCH CORP. 295
 OHMITE 333
 PACIFIC SCIENTIFIC COMPANY 68, 228
 PACIFIC VALVES, INC. 151
 PAUL-MUNROE HYDAULICS INC. 255
 PORTER PEERLESS MOTORS 26
 PORTER, H. K. COMPANY, INC. 75, 230
 POSI-SEAL 177
 POTTER & BRUMFIELD 303
 RELIANCE ELECTRIC COMPANY 50
 ROCHESTER INSTRUMENT SYSTEMS, INC. 38
 ROSEMOUNT, INC. 10, 84
 ROTORK INC. 150
 SCHUTTE AND KOERING COMPANY 264
 SKINNER UNIFLOW VALVES 306
 SPRAGUE ELEC CO 70
 STATIC-O-RING 138
 T RGET ROCK CORP. 100, 121, 246
 TEXAS BOLT COMPANY 177
 TRACER LAB 295
 TRANSAMERICA DELAVAL 224
 VELAN VALVE CORP. 101, 210
 WALLACE & TIEMAN, INC. 25, 225
 WESTINGHOUSE ELEC CORP.-NUCLEAR ENE 6,
 11, 157
 WESTINGHOUSE ELECTRIC CORP. 14, 46, 51,
 70-72, 151, 212, 214, 232, 238, 299

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<p>This monthly report contains Licensee Event Report (LER) operational information that was processed into the LER data file of the Nuclear Safety Information Center (NSIC) during the one month period identified on the cover of the document. The LERs, from which this information is derived, are submitted to the Nuclear Regulatory Commission (NRC) by nuclear power plant licensees in accordance with federal regulations. Procedures for LER reporting for revisions to those events occurring prior to 1984 are described in NRC Regulatory Guide 1.16 and NUREG-1061, <u>Instructions for Preparation of Data Entry Sheets for Licensee Event Reports</u>. For those events occurring on and after January 1, 1984, LERs are being submitted in accordance with the revised rule contained in Title 10 Part 50.73 of the Code of Federal Regulations (10 CFR 50.73 - Licensee Event Report System) which was published in the Federal Register (Vol. 48, No. 144) on July 26, 1983. NUREG-1022, <u>Licensee Event Report System - Description of Systems and Guidelines for Reporting</u>, provides supporting guidance and information on the revised LER rule. The LER summaries in this report are arranged alphabetically by facility name and then chronologically by event date for each facility. Component, system, keyword, and component vendor indexes follow the summaries. Vendors are those identified by the utility when the LER form is initiated; the keywords for the component, system, and general keyword indexes are assigned by the computer using correlation tables from the Sequence Coding and Search System.</p>					
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