
DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
335 1985 011 0 8601080685 198168 11/29/85

DOCKET:335 ST. LUCIE 1 TYPE:PWR
REGION: 2 NSSS:CE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: FLORIDA POWER & LIGHT COMPANY
SYMBOL: FPL

COMMENTS

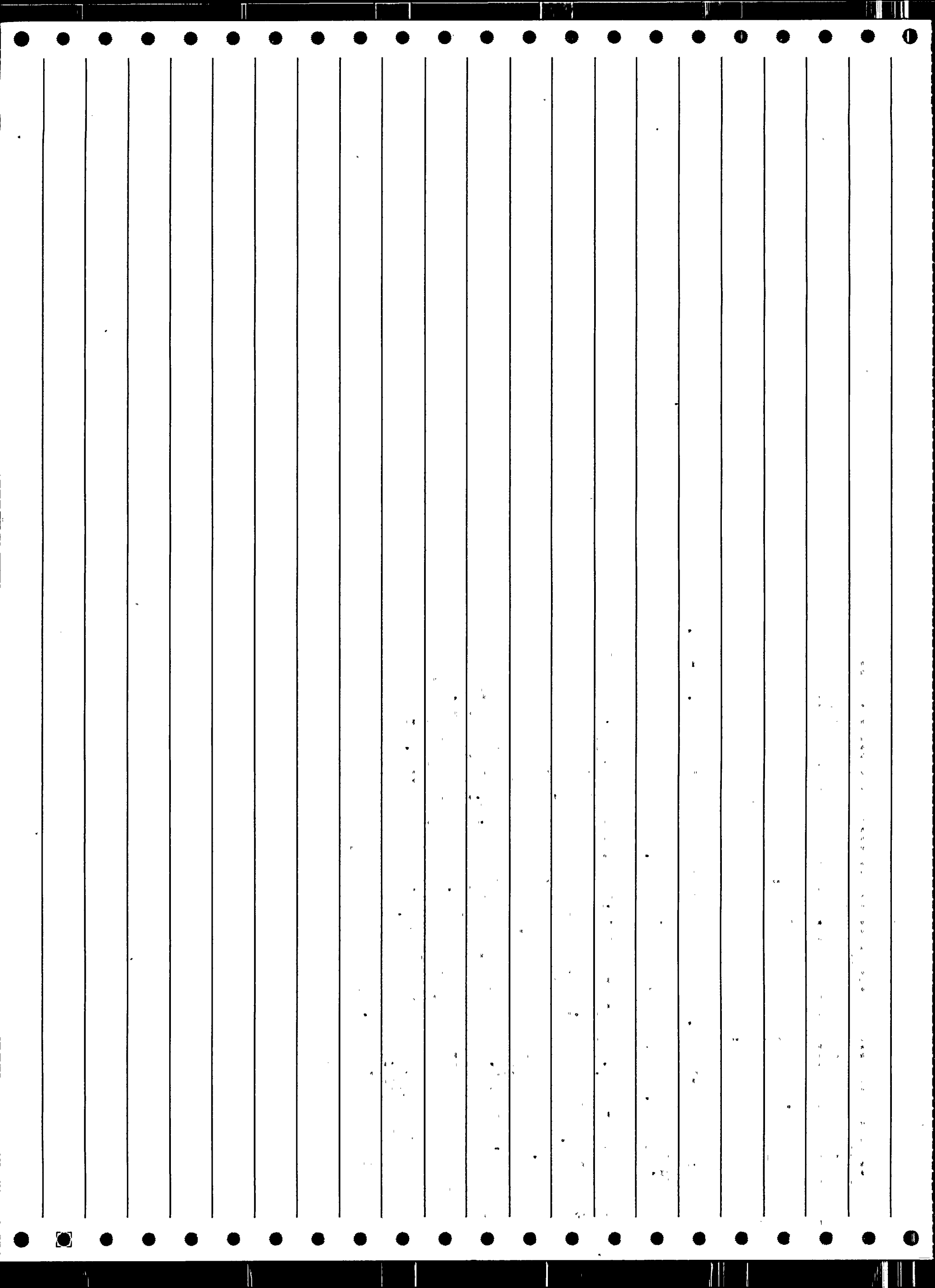
STEP 4: COMP MSC-SPRING. STEP 5: COMP MEI-FUSE HOLDER; PART NO. KP-351.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON 11-29-85 AT 13:16 ST. LUCIE 1 HAD AN UNEXPECTED ACTUATION OF THE 'A' TRAIN OF THE ESFAS DUE TO POOR ELECTRICAL CONTACT IN A FUSE HOLDER. THE UNIT WAS SHUT DOWN FOR NORMAL REFUELING. THE ONLY EQUIPMENT AFFECTED WERE CCW TO REACTOR COOLANT PUMPS 1A1 AND 1A2 WERE ISOLATED AND THE CONTAINMENT BLDG PURGE WAS SECURED. THIS ESFAS ACTUATION WAS CAUSED BY A PARTIAL LOSS OF POWER TO THE 'A' TRAIN ACTUATION CABINET. EACH ACTUATION TRAIN IS NORMALLY POWERED FROM 2 AUCTIONEERED POWER SOURCES (INSTRUMENT BUSES A AND C FOR THE 'A' TRAIN). AS A PLANNED EVOLUTION FOR PLANT MODIFICATION, THE 1A2 480V LOAD CENTER WAS DE-ENERGIZED AT 13:09. THIS WAS THE POWER SUPPLY TO THE C INSTRUMENT BUS. THE C INVERTER WAS NOT AVAILABLE BECAUSE IT WAS BEING REPLACED. SEVEN MINS LATER AT 13:16 A FUSE TO A 24V UNREGULATED LOGIC POWER SUPPLY FROM THE A SIDE FAULTED BECAUSE OF POOR ELECTRICAL CONTACT. THIS RESULTED IN THE LOSS OF POWER FROM BOTH SOURCES AND GAVE THE 'A' TRAIN ACTUATION. THE REASON THAT THE ELECTRICAL CONTACT FOR THE 'A' SIDE POWER SUPPLY FUSE DEGRADED WAS THAT THE SPRING IN THE FUSE CAP WAS RELAXED, AND THUS NOT PROVIDING PROPER TENSION. THESE FUSE HOLDERS WERE FOR SMALL GLASS FUSES WITH A PUSH AND TURN 1/4 TURN TYPE CAP.



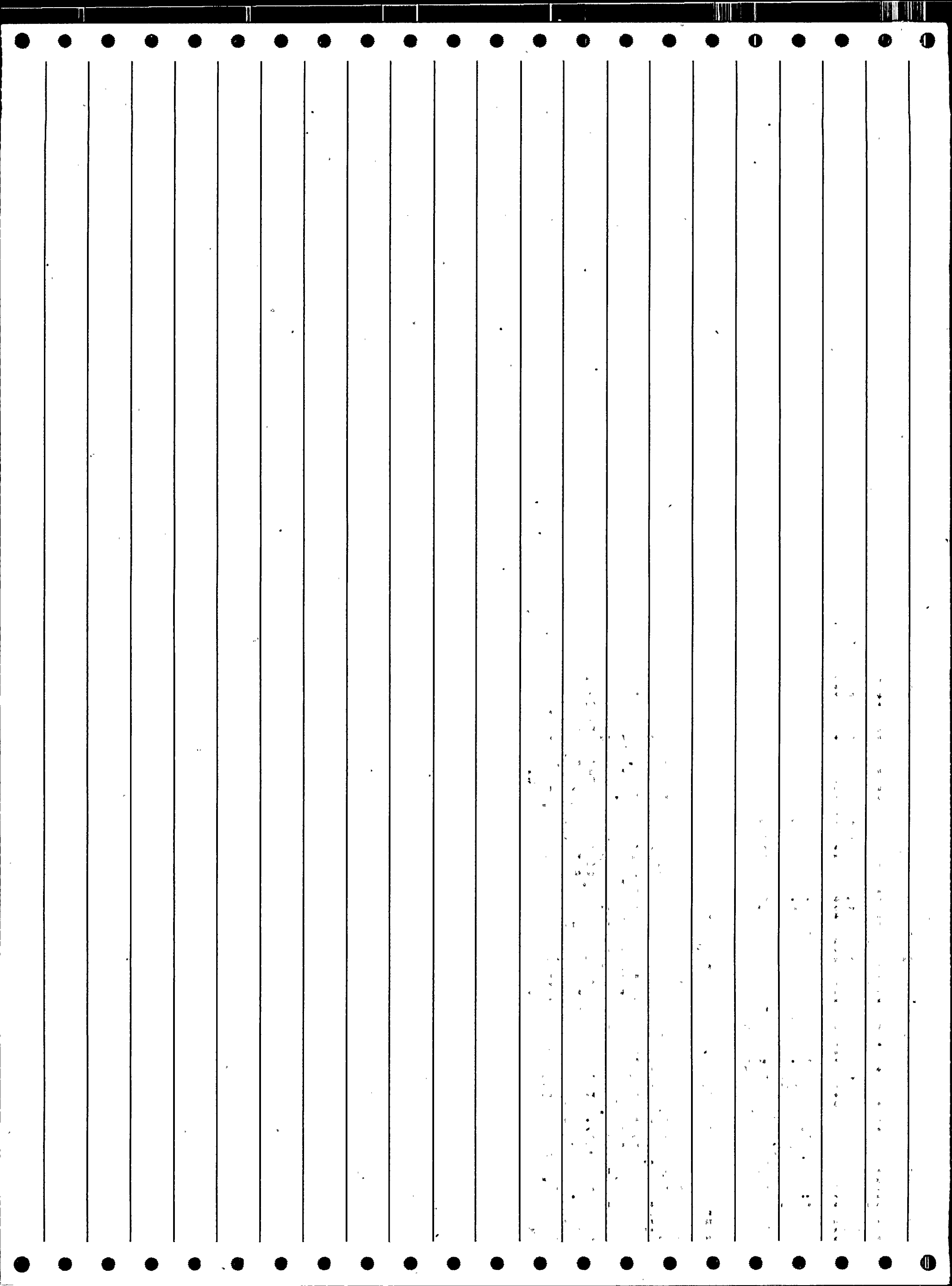
DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
335 1982 071 0 8302140109 181038 12/30/82

DOCKET: 335 . ST. LUCIE 1 TYPE: PWR
REGION: 2 NSSS: CE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: FLORIDA POWER & LIGHT COMPANY
SYMBOL: FPL

COMMENTS
FIFTH INVERTER FAILURE, FOURTEENTH IODINE SPIKE

ABSTRACT
WHILE TRIP CIRCUIT BREAKER #7 WAS ELECTRICALLY ISOLATED FOR MAINTENANCE, ONE OF THE FOUR 120 VAC INSTRUMENT POWER BUSES WAS LOST WHEN THE OUTPUT BREAKER OF THE 1A STATIC INVERTER OPENED. FOUR TCBS OPENED CAUSING AN OPEN CIRCUIT IN THE RPS TRIP LOGIC. THE TURBINE AND REACTOR TRIPPED. DUE TO THE TRANSIENT A DEQ I-131 SPIKE OCCURRED (SEE ATTACHED). THIS IS THE 5TH INVERTER FAILURE AND THE 14TH IODINE SPIKE. UPON INVESTIGATION INTO THE CAUSE OF THE TRIP, IT WAS DETERMINED THAT THE FREQUENCY OSCILLATOR FOR THE 1A INVERTER HAD DRIFTED. THE OSCILLATOR CIRCUIT BOARD WAS REPLACED. THE OUTPUT BREAKER WAS RECLOSED AND THE LINE UP RETURNED TO NORMAL.

Enclosure 4 (237-406 of
406 total)



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
335 1987 010 0 8705210283 204483 04/14/87

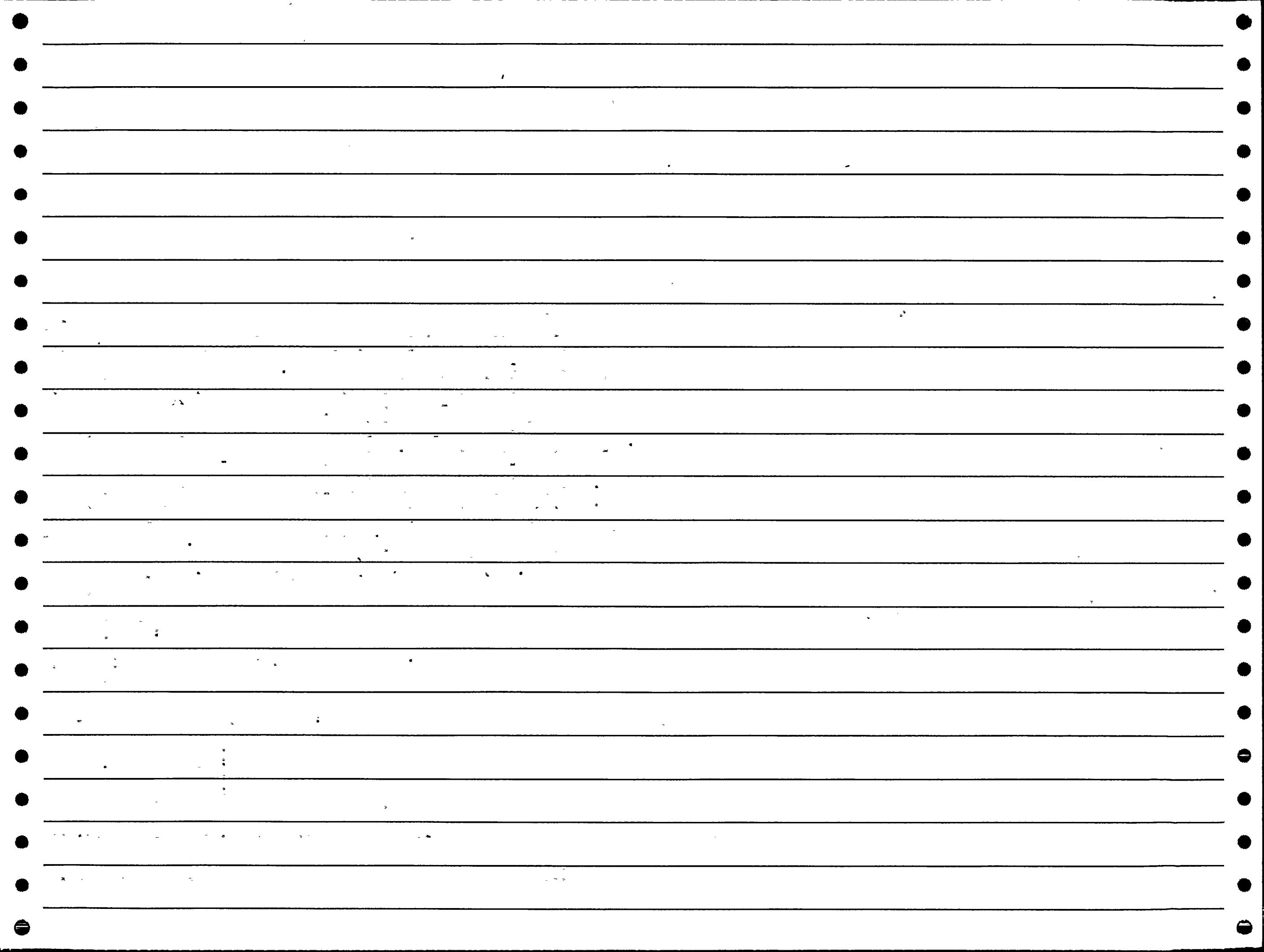
DOCKET:335 ST. LUCIE 1 TYPE:PWR
REGION: 2 NSSS:CE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: FLORIDA POWER & LIGHT COMPANY
SYMBOL: FPL

WATCH-LIST CODES FOR THIS LER ARE:
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 335/82-071

ABSTRACT
POWER LEVEL - 000%. ON APRIL 14, 1987, AT 1204 HOURS, ST. LUCIE UNIT 1 WAS TRIPPED FROM MODE 2 (POWER \leq 5%, AVERAGE COOLANT TEMPERATURE \geq 325 DEGREES F.) DUE TO THE LOSS OF TWO INSTRUMENT INVERTERS AND THE SUBSEQUENT LOSS OF THE 1MD AND 1MB 120 VOLT AC BUSESSES (EIIS:EF). THE LOSS OF THE AC BUSESSES RESULTED IN THE ACTUATION OF THE DEENERGIZE TO ACTUATE FUNCTIONS OF THE REACTOR PROTECTIVE SYSTEM (RPS) (EIIS:JC) AND ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (ESFAS) (EIIS:JE). THE ROOT CAUSE OF THE EVENT WAS A COGNITIVE PERSONNEL ERROR ON THE PART OF A UTILITY NON-LICENSED OPERATOR IN FOLLOWING A PLANT APPROVED PROCEDURE FOR THE NORMAL OPERATION OF THE 120 VOLT AC CLASS 1E SYSTEM. IMMEDIATE CORRECTIVE ACTIONS INCLUDED THE RESETTING OF ALL TRIP SIGNALS AND THE RESTORATION OF ALL AFFECTED EQUIPMENT TO THE NORMAL OPERATING STATUS, AND THE COUNSELING OF THE NON-LICENSED OPERATOR BY HIS SUPERVISOR ON THE NEED FOR GREATER ATTENTION TO DETAIL WHILE PERFORMING HIS JOB FUNCTIONS. LONGTERM CORRECTIVE ACTIONS INCLUDE THE REVISION OF THE PROCEDURE TO INCLUDE A CAUTION STATEMENT IN THE SECTION DISCUSSING THE REMOVAL OF INSTRUMENT INVERTERS FROM SERVICE, AND A REVIEW OF THIS EVENT BY THE PLANT TRAINING DEPARTMENT TO DETERMINE THE APPROPRIATE TRAINING REQUIREMENTS AND METHODS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
335 1987 017 0 8801260221 207963 12/21/87

DOCKET:335 ST. LUCIE 1 TYPE:PWR
REGION: 2 NSSS:CE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: FLORIDA POWER & LIGHT COMPANY
SYMBOL: FPL

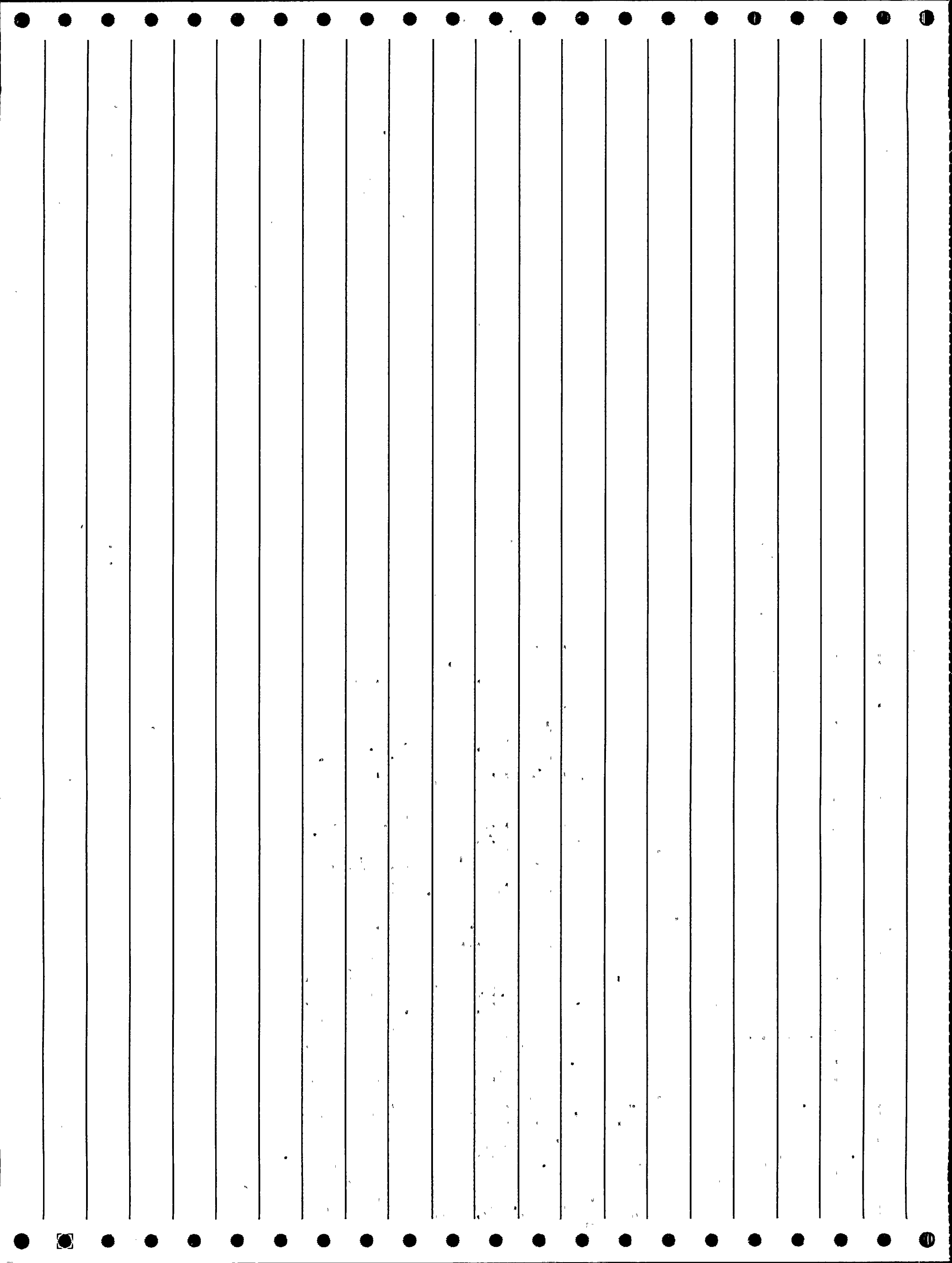
WATCH-LIST CODES FOR THIS LER ARE:
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 335/82-071 2 335/87-010

ABSTRACT

POWER LEVEL - 100%. ON 12/21/87, WHILE OPERATING IN MODE 1 AT 100% POWER, ST. LUCIE UNIT #1 TRIPPED DUE TO THE LOSS OF THE 1MD 120 VOLT AC BUS. WITH THE REACTOR PROTECTIVE SYSTEM (RPS) HI START-UP RATE B CHANNEL BISTABLE IN TRIP, THE RPS LOGIC FOR HI START-UP RATE WAS 1 OF 3. THE LOSS OF THE 1D INSTRUMENT INVERTER CAUSED THE SUBSEQUENT LOSS OF THE 1MD 120 VOLT AC BUS, WHICH RESULTED IN THE ACTUATION OF THE DEENERGIZE TO ACTUATE FUNCTION OF THE RPS D CHANNEL TRIP BISTABLES THUS SATISFYING THE RPS TRIP LOGIC. THE ROOT CAUSE OF THE EVENT WAS A COGNITIVE PERSONNEL ERROR BY A UTILITY NON-LICENSED OPERATOR NOT ADEQUATELY FOLLOWING A PLANT APPROVED PROCEDURE FOR OPERATION OF THE 120 VOLT INSTRUMENT AC CLASS 1E SYSTEM. THE NON-LICENSED OPERATOR WAS COUNSELED BY HIS SUPERVISOR ON THE IMPORTANCE OF ADEQUATELY FOLLOWING APPROVED PROCEDURES AND THE NEED FOR GREATER ATTENTION TO DETAIL WHILE PERFORMING CRITICAL JOB RESPONSIBILITIES. A PROCEDURE FOR INFREQUENT OPERATIONS OR MANIPULATIONS IS BEING DRAFTED. THIS IS TO ASSURE A DETAILED REVIEW AND BRIEFING BY THE SHIFT SUPERVISOR WITH APPROPRIATE PERSONNEL FOR SAFE AND SATISFACTORY PERFORMANCE. THE PLANT TRAINING DEPARTMENT WILL EVALUATE THIS ITEM TO DETERMINE APPROPRIATE TRAINING METHODS AND REQUIREMENTS. A HUMAN PERFORMANCE EVALUATION IS BEING CONDUCTED TO IDENTIFY ANY AREAS THAT MAY BE OF CONCERN.



FORM 241.

LER SCSS DATA

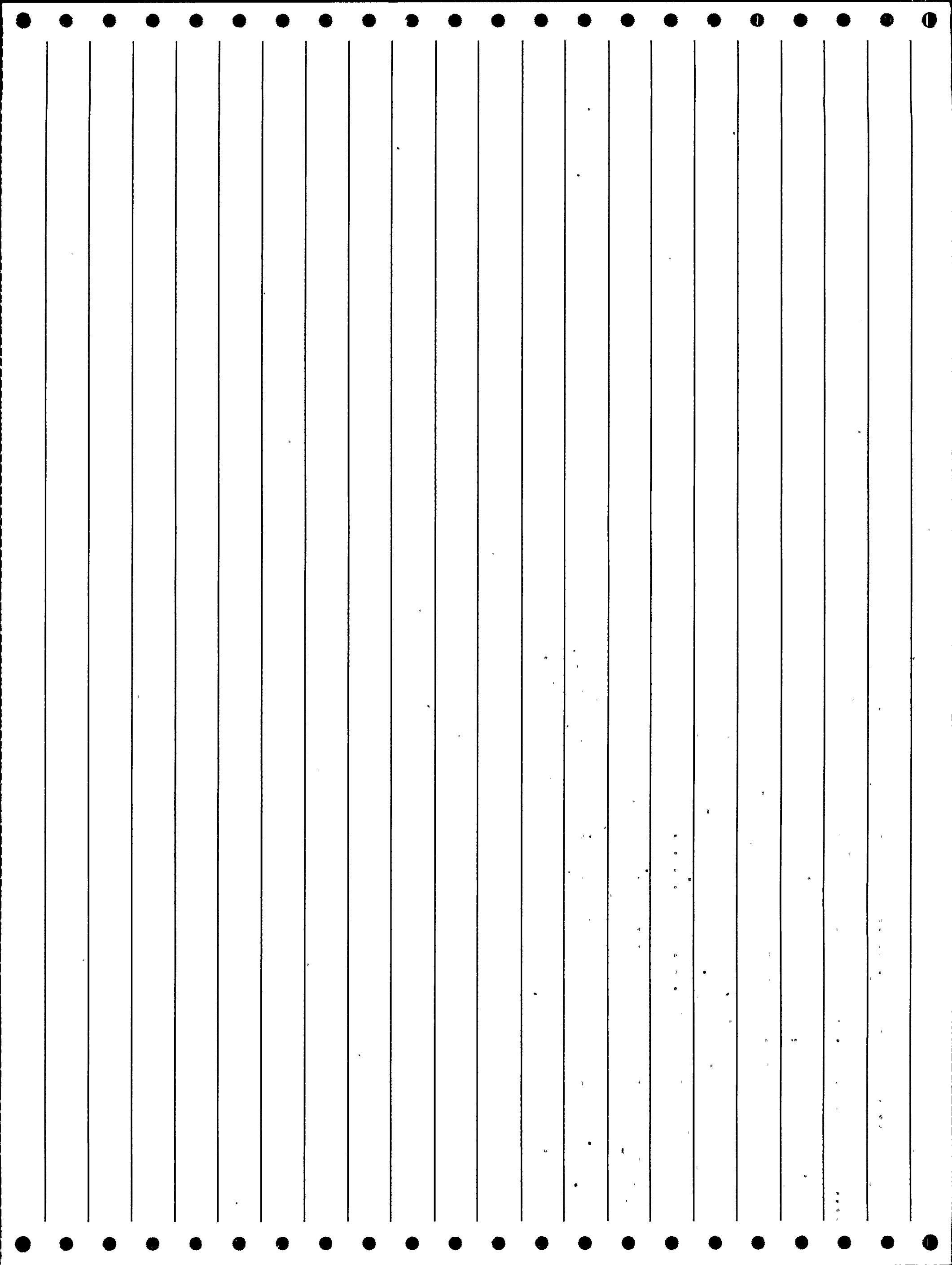
08-30-91

DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
336 1982 024 0 8207200148 175402 06/06/82

DOCKET:336 MILLSTONE 2 TYPE:PWR
REGION: 1 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: NORTHEAST NUCLEAR ENERGY CO.
SYMBOL: NNE

ABSTRACT

120 VOLT AC (VIAC-1) WAS LOST. THE LOSS OF VIAC-1 CAUSED THE POWER FUSES TO BLOW IN FACILITY I ESAS CABINET. THE PLANT OPERATED IN ACCORDANCE WITH TECH SPEC 3.8.2.1 AND 3.3.2.1. VIAC-1 WAS DEENERGIZED FOR APPROXIMATELY 4 HOURS. THE FACILITY I ESAS CABINET WAS DEENERGIZED FOR APPROXIMATELY 6 1/2 HOURS. SIMILAR OCCURRENCES: NONE. THE INVERTER IS A SOLID STATE CONTROLS INC.; MODEL SV 12150/TS-150 NB. A ROOF LEAK RESULTING FROM ABNORMALLY HEAVY RAINS ALLOWED WATER TO ENTER THE TOP OF THE INVERTER, SHORTING THE CIRCUITRY. THE ALTERNATE 120 VOLT AC SOURCE WAS UNAVAILABLE AT THE TIME. THE INVERTER WAS INSPECTED AND WETTED COMPONENTS CORRECTED. THE FACILITY I ESAS CABINET FUSES WERE REPLACED WHEN VIAC-1 WAS RESTORED. A WATER SHIELD HAS BEEN INSTALLED FOR INVERTERS 5 AND 6.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
336 1986 014 0 8612040483 202026 10/29/86

DOCKET:336 MILLSTONE 2 TYPE:PWR
REGION: 1 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: NORTHEAST NUCLEAR ENERGY CO.
SYMBOL: NNE

COMMENTS

STEP 1 - 3: MODEL # APM 22B-G25, BETA SCINTILLATION PROBE NMC-SC-2B. STEP 6:
CAUSE AX - OUT FOR TESTING. STEP 8: COMP XS - STATIC SWITCH.

REPORTABILITY CODES FOR THIS LER ARE:

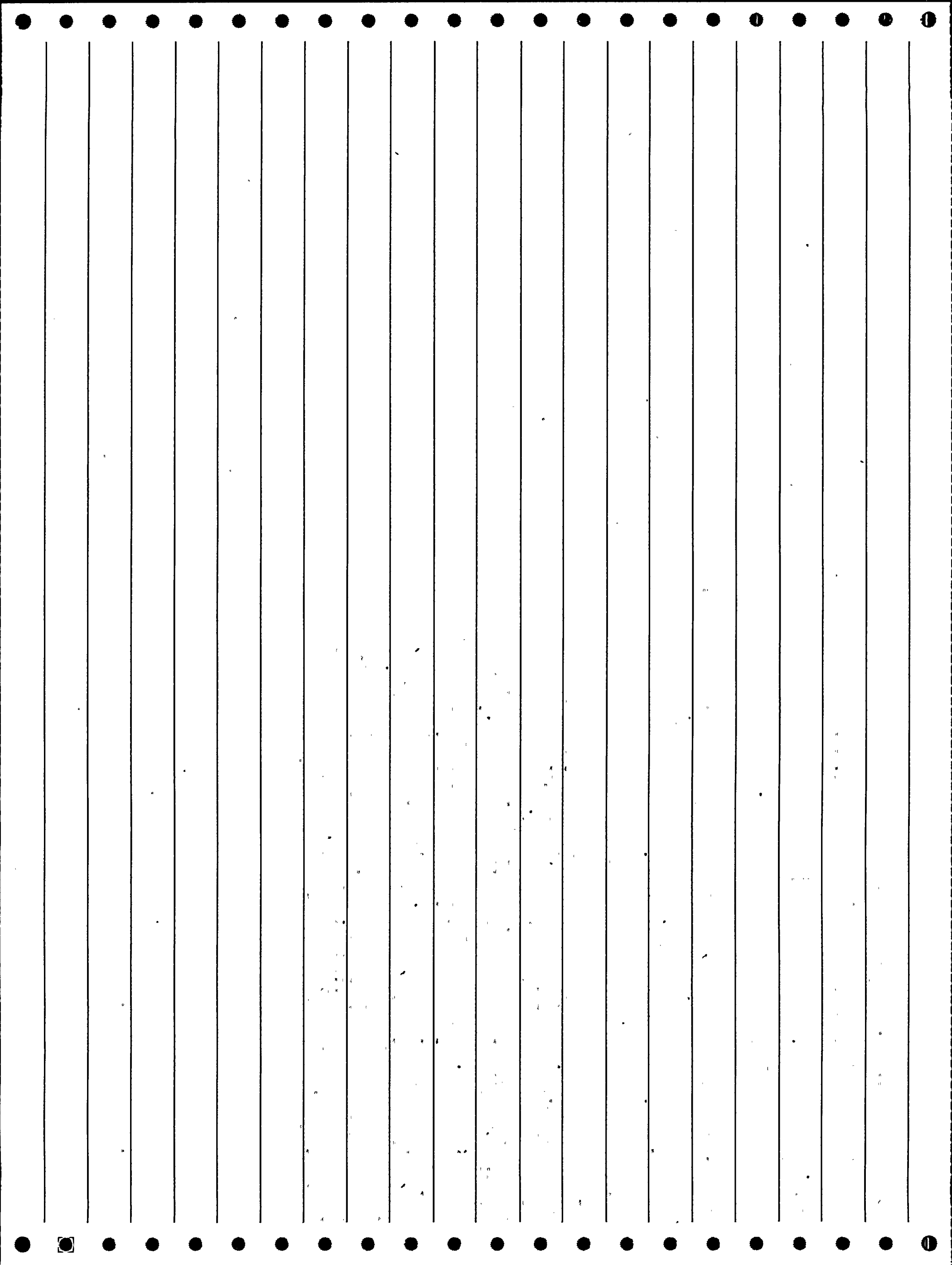
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 336/85-002 2 336/85-007 3 336/86-009

ABSTRACT

POWER LEVEL - 000%. THIS LER ADDRESSES TWO (2) UNRELATED EVENTS CONCERNING ENGINEERED SAFETY FEATURES (ESF) SYSTEM ACTUATION, RESULTING IN A CONTAINMENT PURGE VALVE ISOLATION. AT 0234 HOURS ON OCTOBER 29, 1986 WITH THE UNIT IN MODE 6, AN AUTOMATIC ACTUATION OF THE ESF SYSTEM OCCURRED RESULTING IN A CONTAINMENT PURGE ISOLATION SIGNAL. ALL EQUIPMENT AND PERSONNEL FUNCTIONED AS EXPECTED. THIS AUTOMATIC ACTUATION WAS ATTRIBUTED TO A NOISE SPIKE IN RADIATION MONITOR (RM) 8123A. THE RAD MONITOR WAS ABLE TO BE RESET IMMEDIATELY AND NO OTHER RAD MONITORS SHOWED ANY CHANGE DURING THIS EVENT. THE ESF SIGNALS WERE RESET AND CONTAINMENT PURGING WAS REINITIATED. NO FURTHER CORRECTIVE ACTION IS REQUIRED. AT 1430 HOURS ON OCTOBER 29, 1986, WITH THE UNIT IN MODE 6, AN AUTOMATIC ACTUATION OF THE ESF SYSTEM OCCURRED RESULTING IN A CONTAINMENT PURGE ISOLATION SIGNAL. THIS ACTUATION WAS DUE TO PERSONNEL ERROR WHICH CAUSED A LOSS OF POWER TO THE FACILITY ONE ESF ACTUATION CABINET. LOSS OF POWER CAUSED THE CONTAINMENT PURGE VALVES TO ISOLATE. ALL EQUIPMENT FUNCTIONED AS REQUIRED AND NO OTHER ESF ACTUATIONS OCCURRED. POWER WAS RESTORED TO THE ESF CABINET. THE ESF SIGNALS WERE RESET AND CONTAINMENT PURGE REINITIATED. NO FURTHER CORRECTIVE ACTION IS REQUIRED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
336 1988 002 0 8803010346 208330 01/19/83

DOCKET:336 MILLSTONE 2 TYPE:PWR
REGION: 1 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: NORTHEAST NUCLEAR ENERGY CO.
SYMBOL: NNE

COMMENTS

STEP 5 : ID NO. 3186GH772T200AMA5, SUPPLIED BY SOLID STATE CONTROLS. SE/E

WATCH-LIST CODES FOR THIS LER ARE:

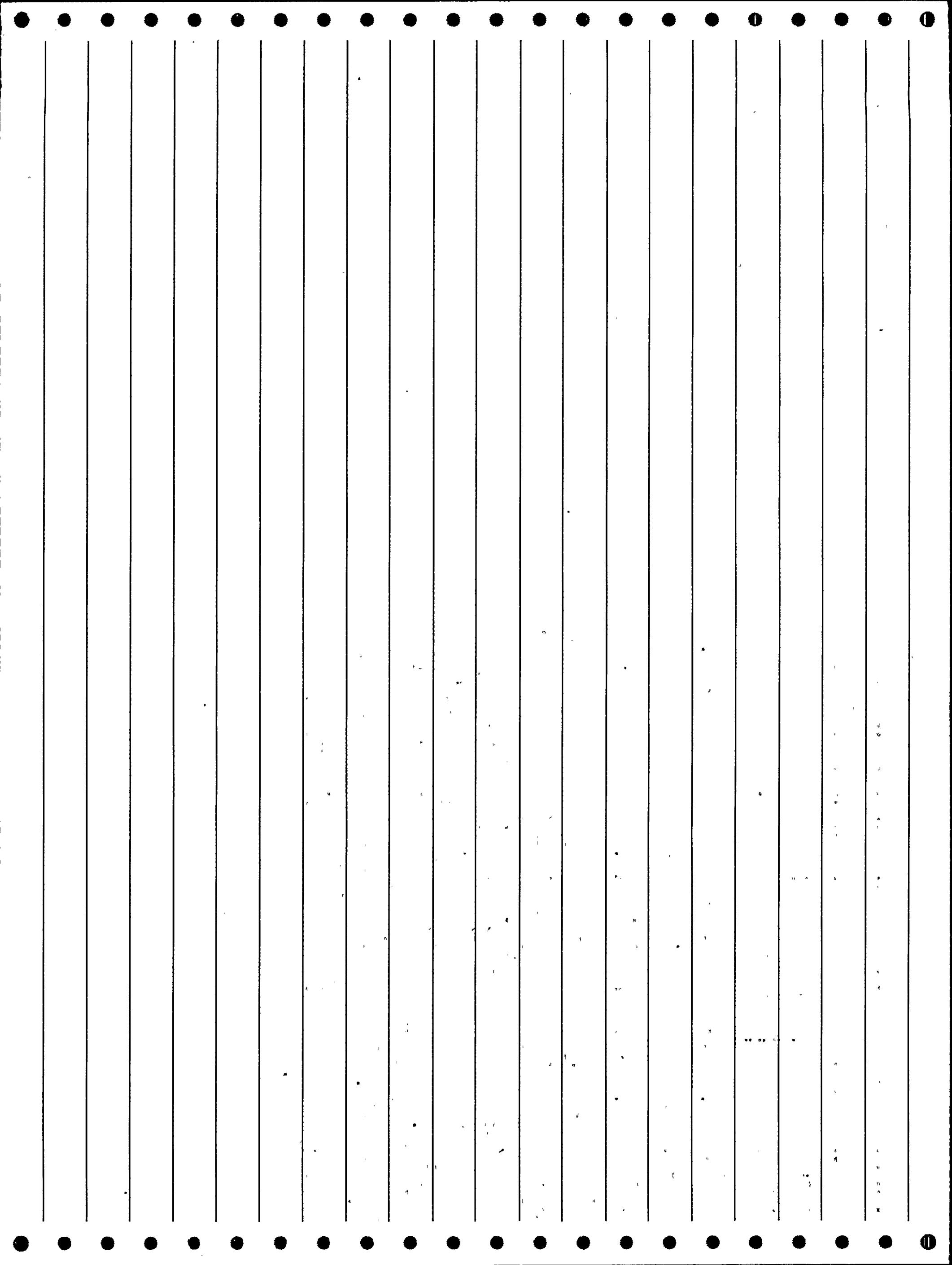
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. WITH THE PLANT IN MODE 6 AND THE REACTOR COOLANT SYSTEM AT APPROXIMATELY 80 DEGREES FAHRENHEIT, A LOSS OF NORMAL POWER (LNP) OCCURRED ON THE FACILITY 2 VITAL 4160 VOLT ELECTRICAL BUS (24D). THE LNP FOLLOWED A SENSED UNDERVOLTAGE CONDITION THAT CAUSED AN ACTUATION OF THE ENGINEERED SAFETY FEATURES (ESF) SYSTEM. AS EXPECTED, ACTUATION OF THE UNDERVOLTAGE ESF AUTOMATICALLY DEENERGIZED THE IN SERVICE VITAL 4160 VOLT BUS, STRIPPED OFF ALL LOADS, STARTED THE 13U EMERGENCY DIESEL GENERATOR, AND SEQUENCED LOADS BACK ON THE VITAL 4160 VOLT BUS TO BE POWERED FROM THE 13U EMERGENCY DIESEL. THE EVENT OCCURRED WHILE ONE OF FOUR VITAL 120 VOLT AC PANELS, VA-30, SUPPLYING POWER FOR THE ESF INPUTS, WAS OUT OF SERVICE FOR MAINTENANCE. THE EVENT WAS CAUSED WHEN THE LOSS OF A SECOND VITAL 120 VOLT AC PANEL VA-10 SATISFIED THE 2 OUT OF 4 CRITERION FOR ACTUATION OF THE ESF SYSTEM ON UNDERVOLTAGE. VA-10 LOST POWER WHEN ITS SUPPLY INVERTER, INV-1, SHUTDOWN DUE TO A SUDDEN FAILURE OF ONE OF ITS DC INPUT CAPACITORS. THE CAUSE OF THE CAPACITOR FAILURE IS NOT KNOWN, BUT IS BELIEVED TO BE A RANDOM FAILURE. IMMEDIATE CORRECTIVE ACTION WAS TAKEN TO RESTORE NORMAL POWER TO VITAL BUS 24D. ADDITIONAL CORRECTIVE ACTION INVOLVED TESTING ALL REPLACEMENT CAPACITORS FOR INVERTERS, REPLACING THE FAILED CAPACITOR IN INV-1 AND RETURNING INV-1 TO NORMAL SERVICE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
336 1991 002 0 9102220260 221064 01/18/91

DOCKET:336 MILLSTONE 2 TYPE:PWR
REGION: 1 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: NORTHEAST NUCLEAR ENERGY CO.
SYMBOL: NNE

WATCH-LIST CODES FOR THIS LER ARE:

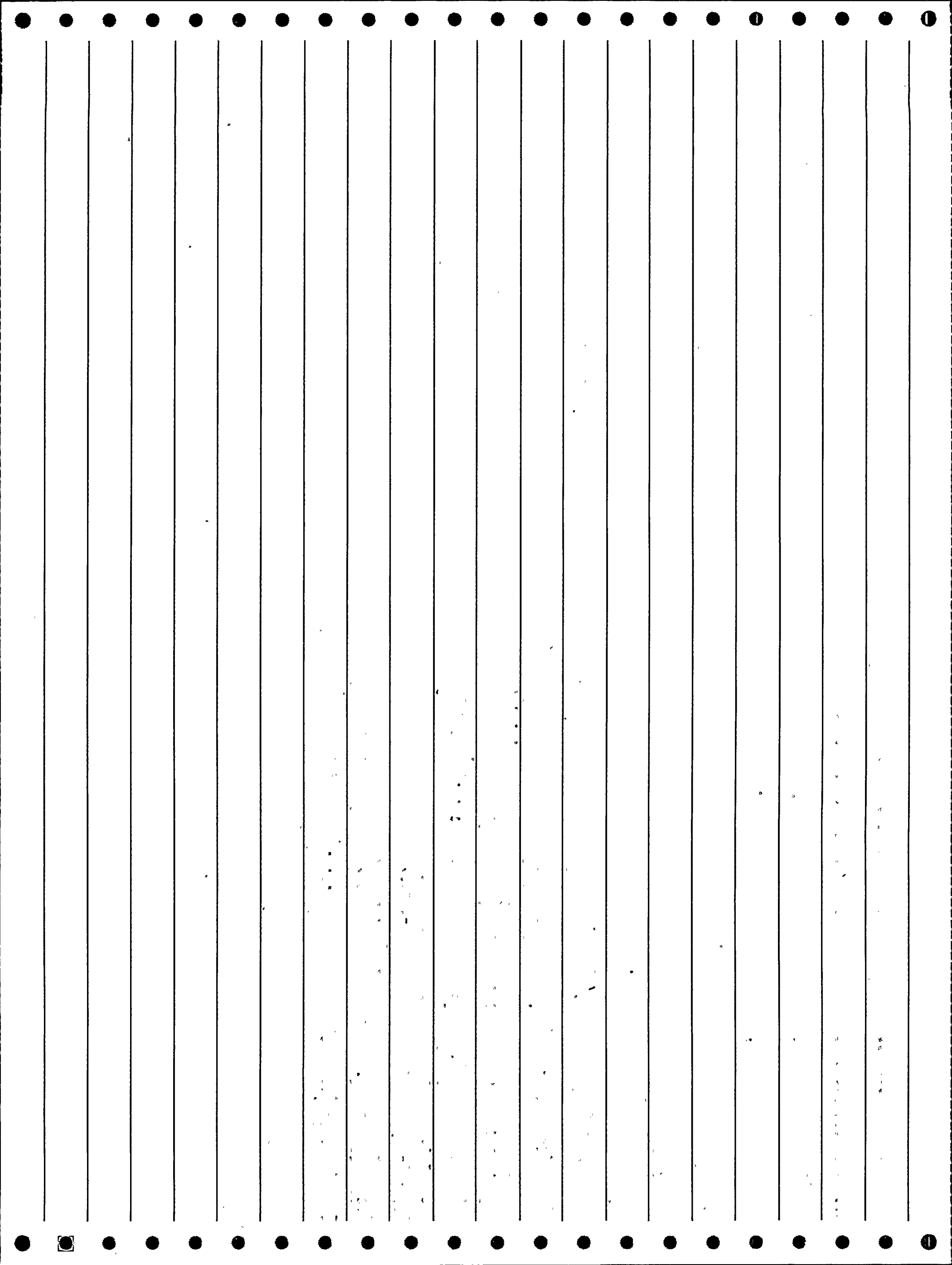
40 PROCEDURAL DEFICIENCY
913 UPDATE NEEDED

REPORTABILITY CODES FOR THIS LER ARE:

10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.

ABSTRACT

POWER LEVEL - 100%. ON 1/18/91 AT 1330 HOURS WITH THE PLANT AT 100% POWER AND NORMAL OPERATION, THE PLANT WAS NOTIFIED OF THE RESULTS OF AN ENGINEERING EVALUATION THAT HAD DETERMINED THAT OPERATION OF THE FOUR VITAL 120 VOLT ALTERNATING CURRENT (AC) BUSES ON THEIR ALTERNATE SOURCES IS UNSATISFACTORY. THE REQUIREMENTS FOR THE FOUR VITAL AC BUSES ARE DESCRIBED IN TECHNICAL SPECIFICATION SECTION 3.8.2.1. THIS IS BEING REPORTED AS AN OPERATION OR CONDITION PROHIBITED BY THE PLANT'S TECHNICAL SPECIFICATION AT THIS TIME BECAUSE OF A REVISED INTERPRETATION OF TECHNICAL SPECIFICATION REQUIREMENTS. PREVIOUS INTERPRETATION OF THE REQUIREMENTS OF SECTION 3.8.2.1 WAS THAT IT REQUIRED THE VITAL 120 VOLT BUSES BE ENERGIZED TO BE CONSIDERED OPERABLE. FOLLOWING THE REVIEW OF THE ENGINEERING EVALUATION, THE DETERMINATION WAS MADE THAT SINCE THE ALTERNATE SOURCES OF POWER FOR THE VITAL 120 VOLT AC BUSES ARE NON-VITAL, THEN OPERATION OF THE UNIT WITH THESE BUSES POWERED FROM ALTERNATE SOURCES FOR A PERIOD OF TIME LONGER THAN ALLOWED BY THE ACTION STATEMENT (8 HOURS) WOULD MAKE THE BUSES INOPERABLE. TO AVOID A RECURRENCE, SPECIFIC WRITTEN INSTRUCTIONS HAVE BEEN ISSUED TO INFORM THE PLANT OPERATING STAFF OF THE REVISED INTERPRETATION OF SECTION 3.8.2.1, AND OF THE REQUIREMENTS TO ENTER THE ACTION STATEMENT IF ANY OF THE FOUR VITAL 120 VOLT AC BUSES ARE POWERED FROM THEIR ALTERNATE SOURCES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
338 1980 047 0 8006090361 158645 05/23/80

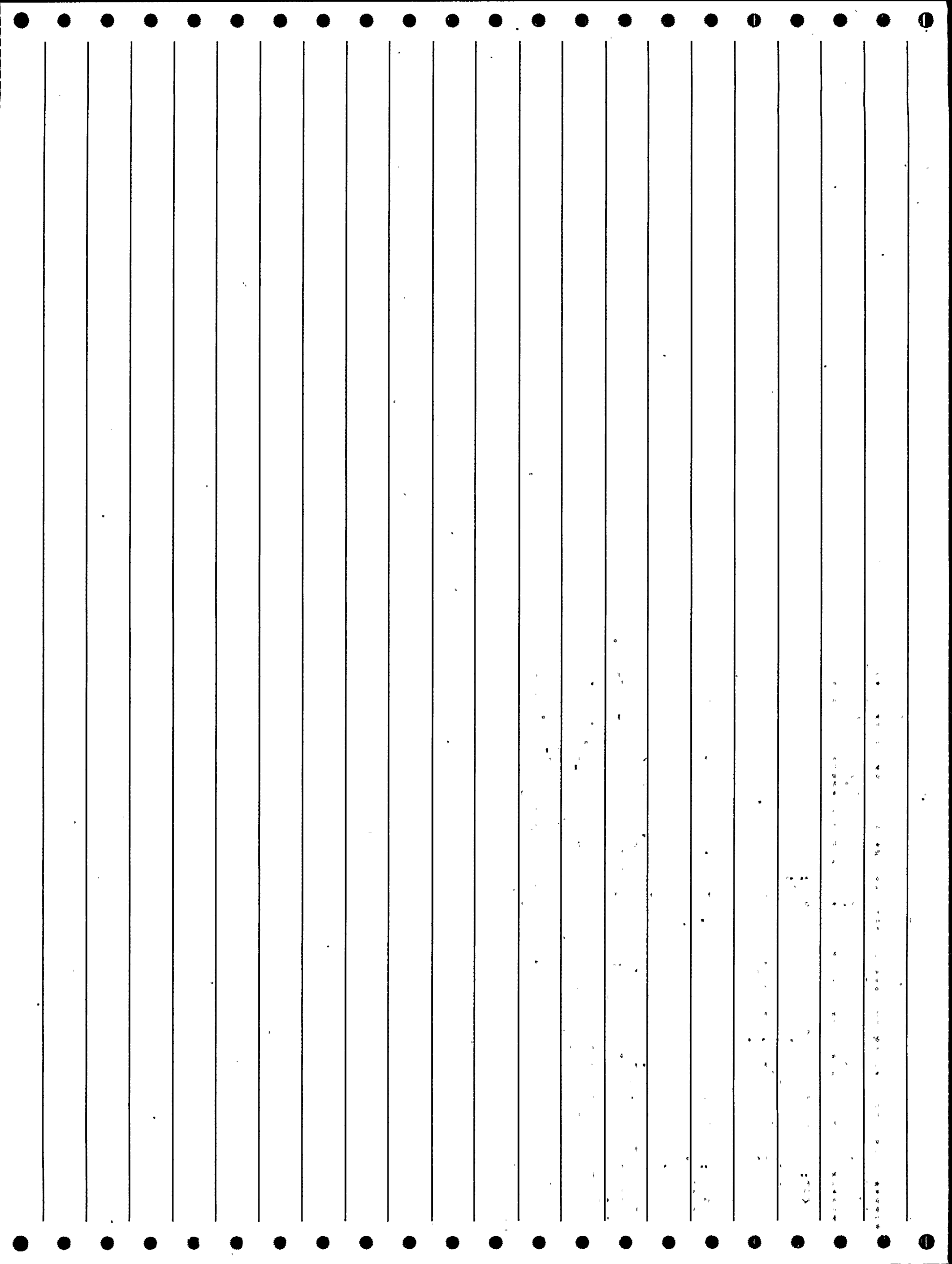
DOCKET:338 NORTH ANNA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

COMMENTS

STEP 2: CAUSE XX - NORMAL OPERATION. STEP 7: CAUSE XX - REQUIRED FOR TESTING.

ABSTRACT

POWER LEVEL - 000%. CAUSE - LOSS OF VITAL BUS. AT 0146, WITH THE UNIT AT HOT STANDBY, ACTUATION OF THE EMERGENCY CORE COOLING SYSTEM WAS INITIATED ON HIGH STEAM LINE FLOW SIGNAL COINCIDENT WITH LO-LO T-AVE. THIS WAS AN INADVERTENT ACTUATION (EQUIPMENT PERFORMED THE INTENDED INJECTION FUNCTION) AND THE REACTOR WAS ALREADY SHUTDOWN. THE HIGH STEAM FLOW SIGNAL RESULTED FROM A LOSS OF VITAL BUS 1-III. THE LO-LO T-AVE SIGNAL RESULTED FROM THE TRIPPING OF ALL THREE REACTOR COOLANT PUMPS WHICH WAS REQUIRED DUE TO THE LOSS OF VITAL BUS 1-III. CORRECTIVE ACTION WAS FOR THE CONTROL ROOM OPERATORS TO PERFORM THE APPLICABLE EMERGENCY PROCEDURE AND RETURN THE PLANT TO STABLE CONDITIONS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
338 1980 078 1 8010140436 163519 09/08/80

DOCKET:338 NORTH ANNA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

COMMENTS

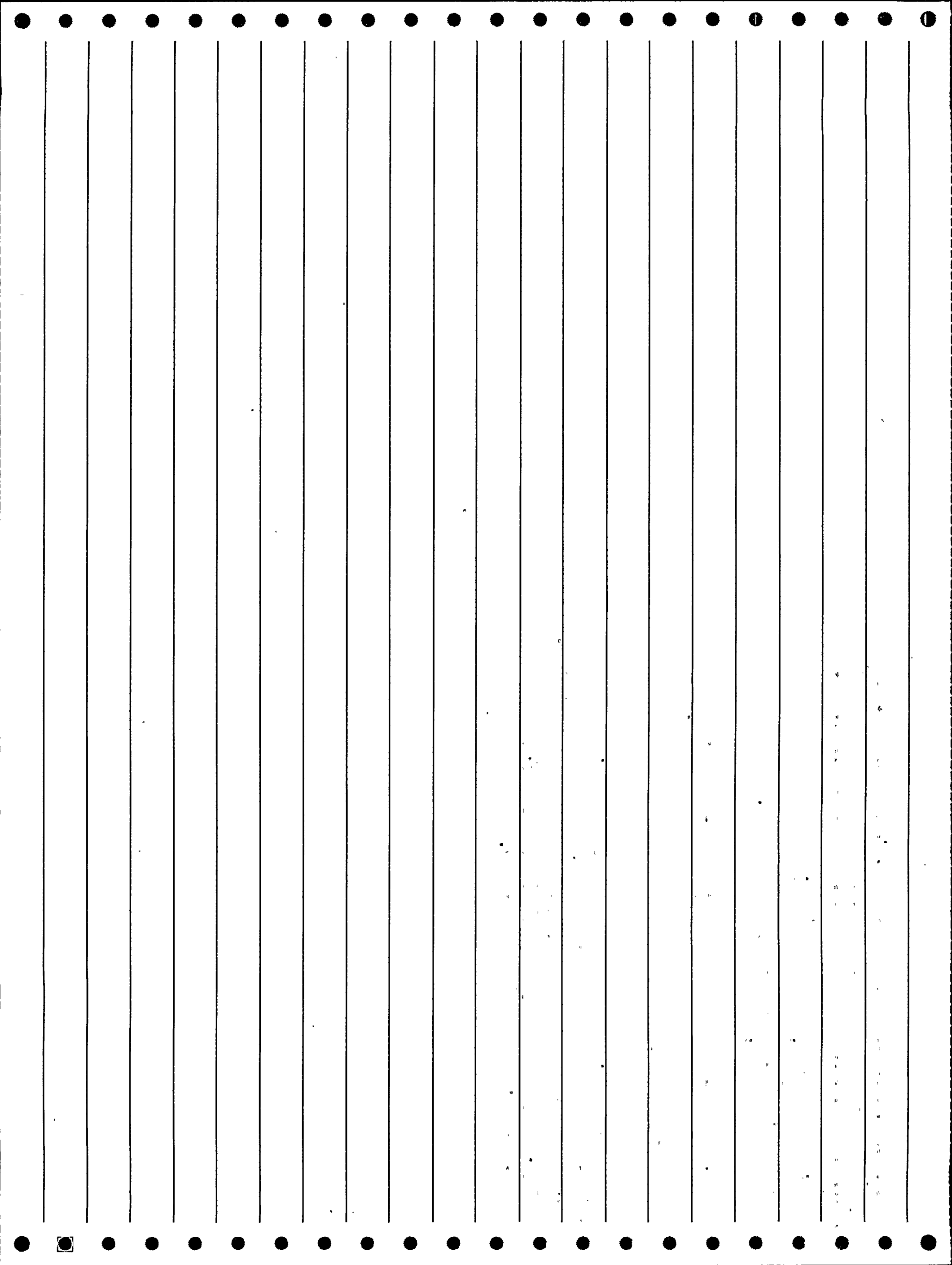
STEP 7: ISYS SW - UNKNOWN STRUCTURES; COMP MEI - FLOW ORIFICE. REFERENCE
LER 338/80-080 DESCRIBES EVENTS RELATED TO INVERTER FAILURE.

REFERENCE LERS:

1 338/80-080 2 338/80-087

ABSTRACT

POWER LEVEL - 000%. CAUSE - INCORRECT GOVERNOR SETTING. THE GOVERNOR
VALVE FOR THE STEAM DRIVEN AUXILIARY FEEDWATER PUMP WAS FOUND TO BE IN
THE TRIPPED CONDITION RENDERING THE PUMP INOPERABLE. THE GOVERNOR
VALVE APPARENTLY TRIPPED DUE TO PUMP OVERSPEED FOLLOWING A UNIT TRIP.
THE CAUSE OF THE OVERSPEED WAS APPARENTLY AN INCORRECT GOVERNOR
SETTING. THE GOVERNOR VALVE WAS RESET, THE GOVERNOR VALVE SETTING
ADJUSTED TO ITS PROPER SETTING AND THE PERIODIC TEST ON THE AUXILIARY
FEEDWATER PUMP WAS COMPLETELY SATISFACTORILY.



FORM 247

LER SCSS DATA

08-30-91

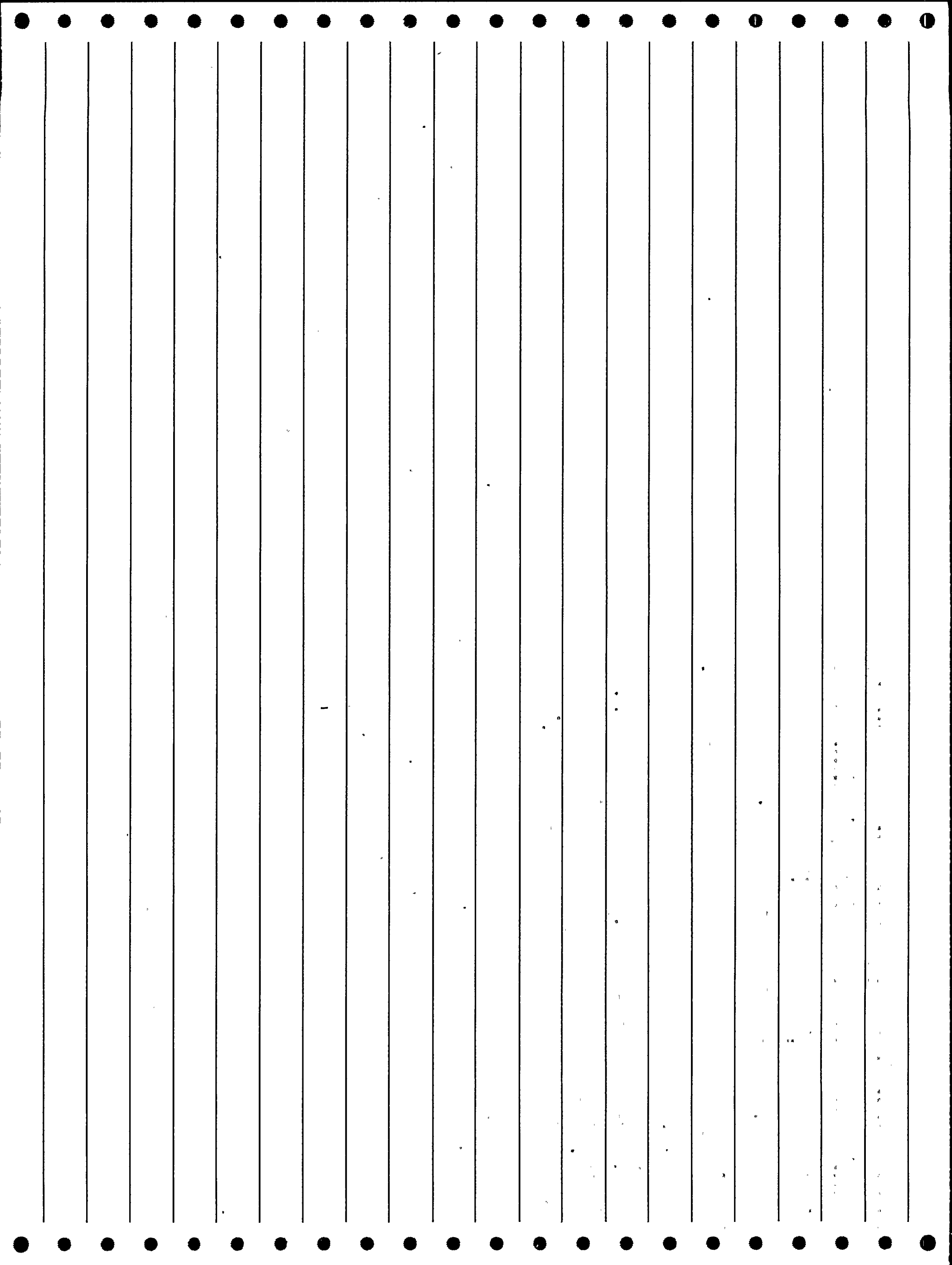
DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
338 1980 080 1 8010140423 163521 09/08/80

DOCKET:338 NORTH ANNA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

COMMENTS
REFERENCE LER 338/80-078 DESCRIBES EVENTS SUBSEQUENT TO THE SCRAM.

REFERENCE LERS:
1 338/80-078

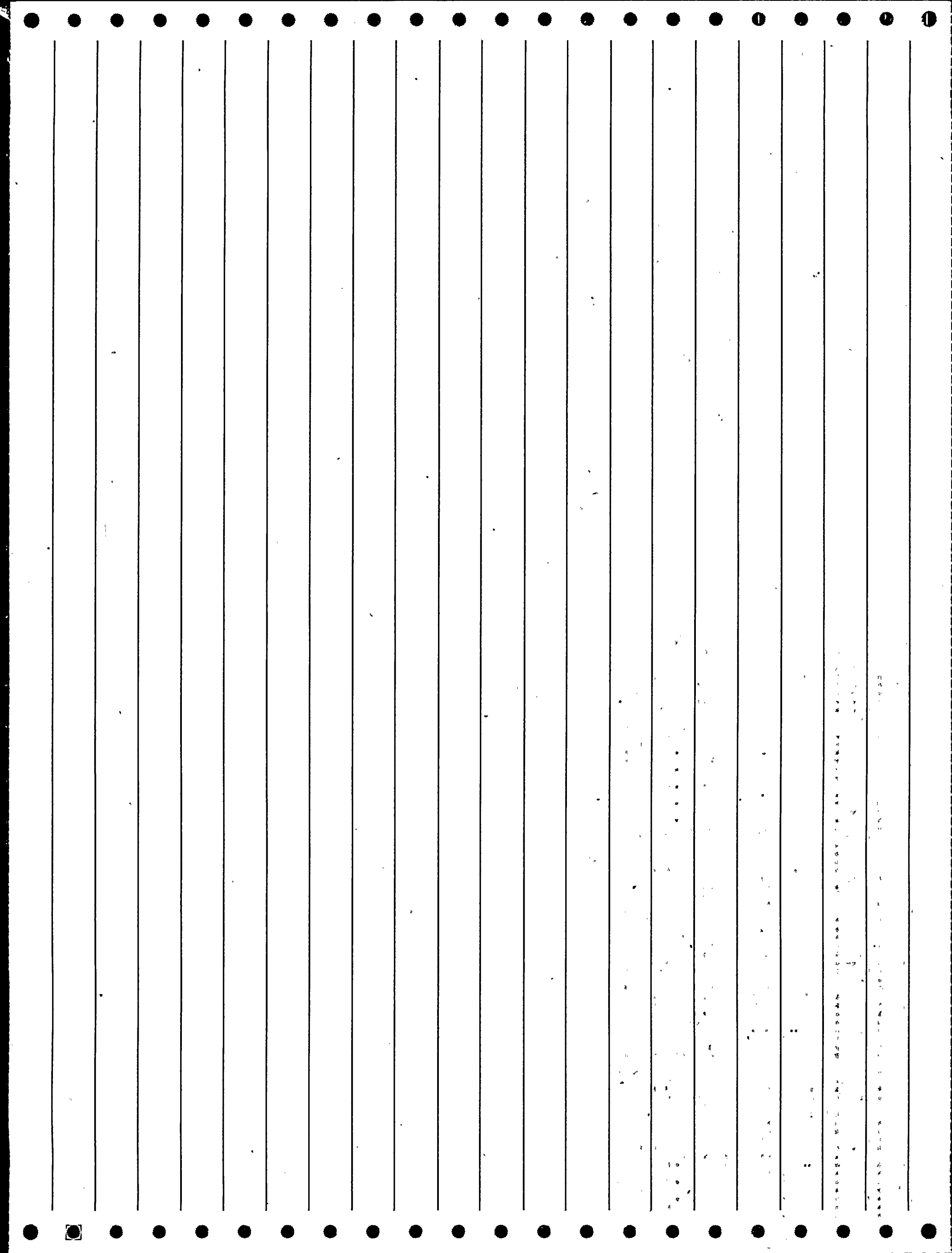
ABSTRACT
POWER LEVEL - 100%. CAUSE - UNKNOWN. POWER TO THE 120 VOLT A.C. VITAL
BUS 1-IV WAS LOST CONTRARY TO TECH SPEC. THE SUPPLY BREAKER FOR THE
INVERTER WHICH SUPPLIES POWER TO VITAL BUS IV WAS FOUND IN THE OPEN
POSITION. HOW THE BREAKER BECAME OPEN COULD NOT BE DETERMINED. POWER
TO THE VITAL BUS WAS RESTORED VIA THE INSTALLED TRANSFORMER. POWER
SUPPLY TO THE VITAL BUS WAS LATER SWITCHED TO THE INVERTER.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
338 1982 078 1 8301200330 180732 11/25/82

DOCKET:338 NORTH ANNA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

ABSTRACT
120V AC VITAL BUS 1-IV LOST VOLTAGE DUE TO THE FAILURE OF ITS NORMAL
POWER SUPPLY INVERTER 1-VB-I-04. THIS EVENT IS CONTRARY TO TECH SPEC
3.8.2.1 AND REPORTABLE PURSUANT TO TECH SPEC 6.9.1.9.8. POWER SUPPLY
TO VITAL BUS 1-IV WAS MANUALLY SWITCHED TO THE VOLTAGE REGULATING
TRANSFORMER. THE INVERTER WAS EXAMINED AND FOUND TO HAVE A FAILED
OSCILLATOR BOARD, TRANSFORMER AND FUSE. THESE COMPONENTS WERE
SUBSEQUENTLY REPLACED AND THE INVERTER TESTED SATISFACTORILY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
338 1983 003 0 8302170200 181833 01/22/83

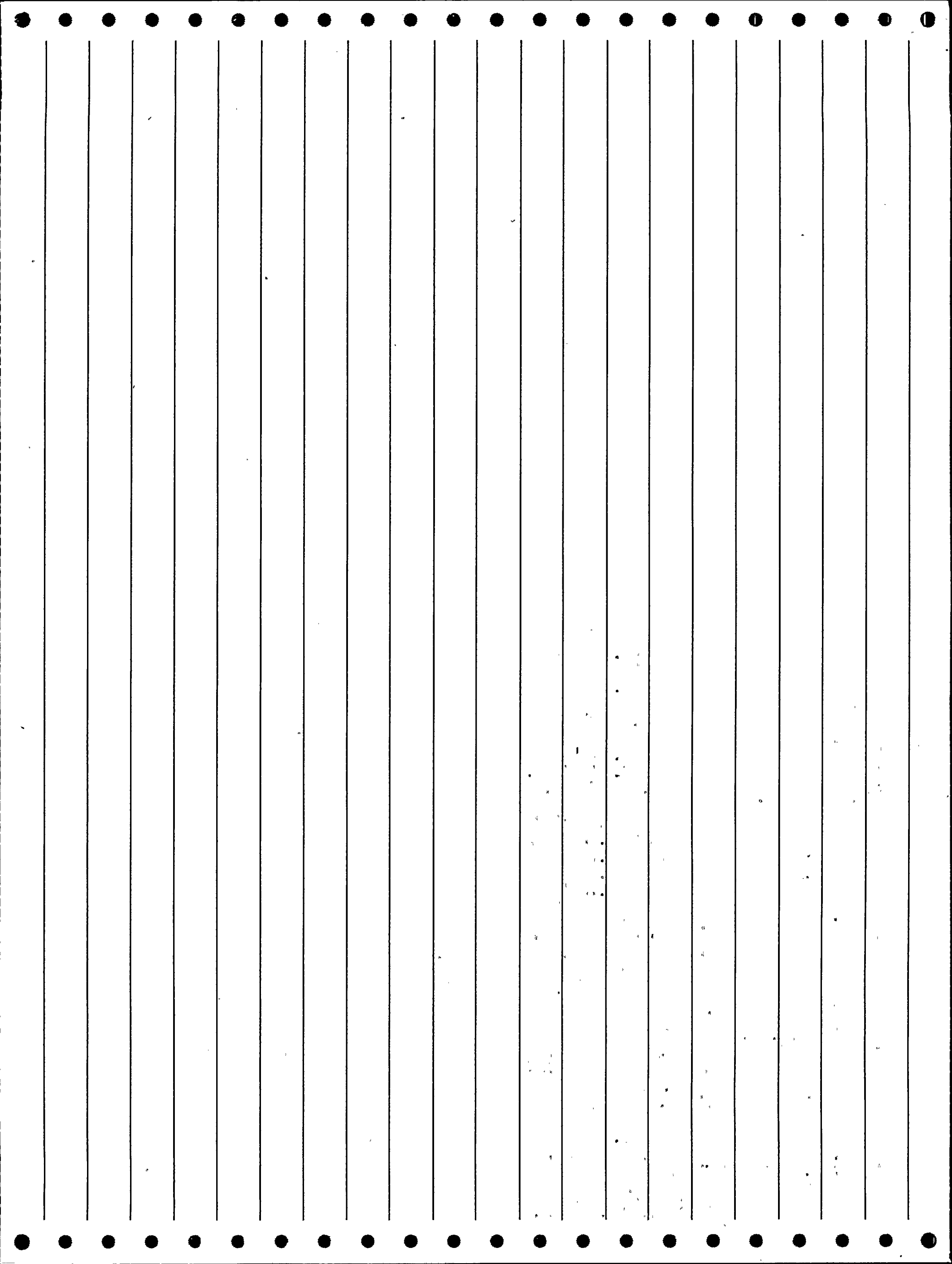
DOCKET:338 NORTH ANNA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

COMMENTS

STEP 5: COMP RLX - AUXILIARY RELAY.

ABSTRACT

ON JANUARY 22, 1983, WITH UNIT 1 IN MODE 5, RESIDUAL HEAT REMOVAL (RHR) FLOW WAS LOST FOR APPROXIMATELY FOUR MINUTES. THE REACTOR COOLANT SYSTEM TEMPERATURE DID NOT EXCEED THAT PERMITTED BY THE ACTION STATEMENT. THIS EVENT IS CONTRARY TO TECH SPECS 3.4.1.3 AND 3.7.9.2 AND REPORTABLE PURSUANT TO TECH SPEC 6.9.1.9.8. THIS EVENT WAS INITIATED WHEN THE 15KVA INVERTER TO AC VITAL BUS 1-III FAILED THEREBY DE-ENERGIZING AN AUXILIARY RELAY FOR PRESSURE CHANNEL P-1403 (USED FOR LOGIC TO CLOSE RHR SUCTION VALVE). THE DE-ENERGIZING OF THE RELAY CAUSED THE RHR SUCTION VALVE TO CLOSE. VITAL BUS 1-III WAS RESTORED, THE RHR SUCTION VALVE REOPENED AND RHR FLOW RESTORED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
338 1984 019 1 8502050420 197272 11/14/84

DOCKET:338 NORTH ANNA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

COMMENTS

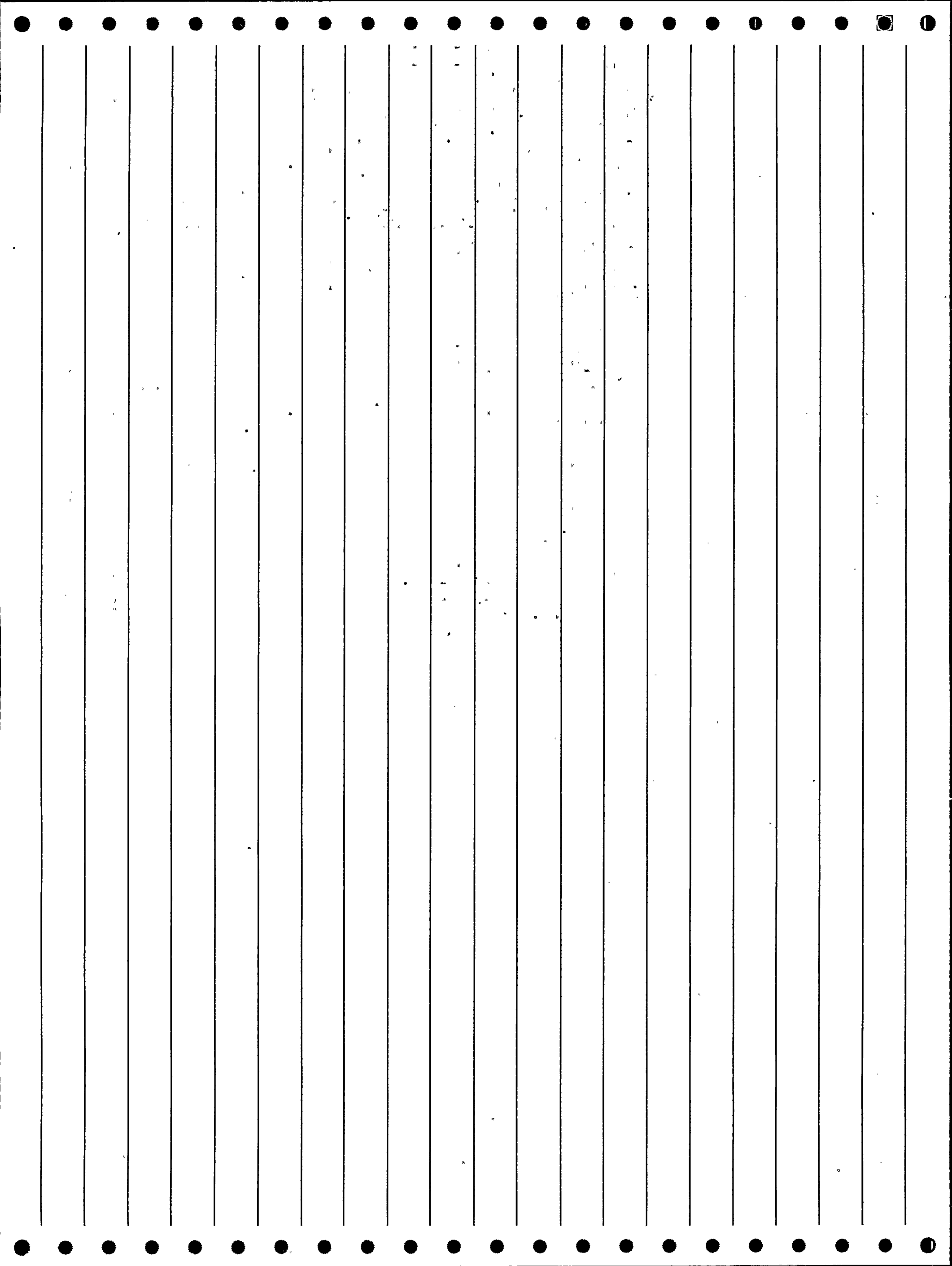
STEP 5: COMP RLX - RCP BREAKER POSITION RELAY.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. ON 11-14-84 AT 0640 UNIT 1 TRIPPED DUE TO A VITAL BUS INVERTER FAILURE. THE INVERTER WAS SUPPLYING POWER TO THE 125V AC VITAL BUS 1-III. THE INVERTER FAILURE CAUSED THIS BUS AND ITS ASSOCIATED EQUIPMENT TO BECOME DEENERGIZED. LOSS OF POWER TO THE RELAY WHICH SENSES 'C' RCP BREAKER POSITION CAUSED THE REACTOR TRIP ON LOSS OF RCS FLOW COINCIDENT WITH REACTOR POWER GREATER THAN 30%. THE 'C' RCP NEVER STOPPED RUNNING DURING THIS EVENT. THE INVERTER HAD DAMAGED SCR'S AND A BLOWN FUSE WHICH PREVENTED IT FROM BEING REENERGIZED. THE MOST SIGNIFICANT EQUIPMENT RESPONSE INVOLVED 'B' SG. 'B' MAIN FEED VALVE (FCV-1488) AND 'B' FEED BYPASS VALVE (FCV-1489) BOTH FAILED CLOSED. 'B' WIDE RANGE SG LEVEL INDICATION (LI-1487) FAILED LOW. THE AUX FEEDWATER PUMP (1-FW-P-38) WHICH SUPPLIES 'B' SG FAILED TO AUTO START AND WAS MANUALLY STARTED BY THE CONTROL ROOM OPERATOR. THESE ACTIONS CAUSED 'B' SG LEVEL TO DROP BELOW THE NARROW RANGE INDICATION WHILE NO WIDE RANGE LEVEL INDICATION WAS AVAILABLE. LOSS OF VITAL BUS 1-III ALSO DEENERGIZED ALL 4 WATER BOXES' VACUUM BREAKERS WHICH CAUSED ALL CIRCULATING WATER PUMPS TO TRIP. THIS VITAL BUS ALSO SUPPLIES POWER TO MANY CONTAINMENT ISOLATION TRIP VALVES INCLUDING COMPONENT COOLING TO THE RCP'S. OTHER SIGNIFICANT EQUIPMENT THAT WAS POWERED FROM THE 1-III VITAL BUS WAS ONE POWER RANGE DETECTOR (N43), 26 INCORE THERMOCOUPLES, SSPS CHANNEL III INPUTS, AND SSPS TRAIN 'B' OUTPUT RELAYS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
338 1986 009 0 8606250041 199801 05/31/86

DOCKET:338 NORTH ANNA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

COMMENTS

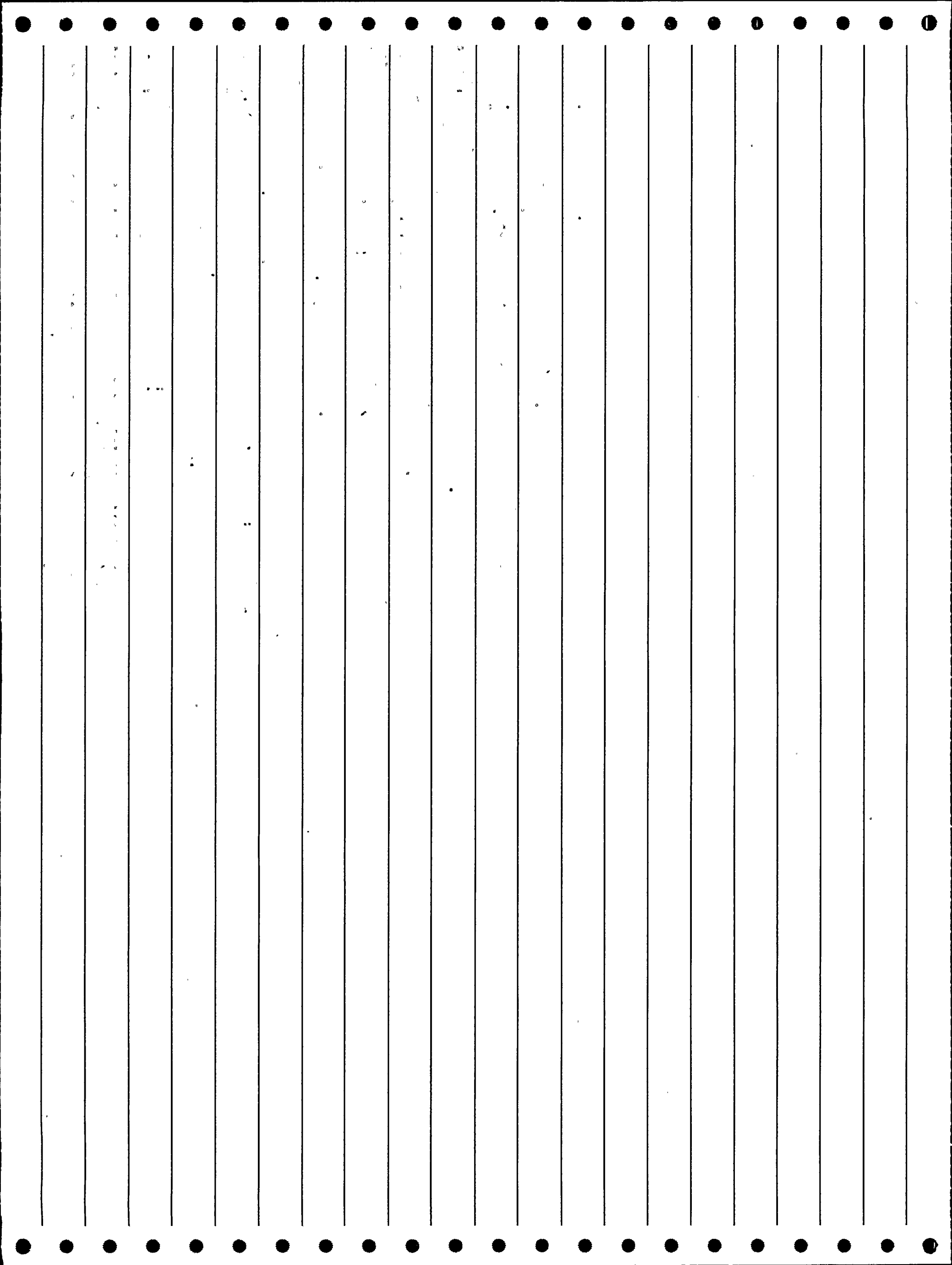
STEP 1: EFF IX-VOLTAGE AND CURRENT FLUCTUATIONS. STEP 10: CAUSE LX-
UNDERCOMPENSATION. STEP 4: COMP RLX-RELAY WHICH SENSES BREAKER POSITION
(FOR RCS PUMP).

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. AT 2131 HOURS ON MAY 31, 1986, UNIT 1 TRIPPED FROM
100% POWER (MODE 1) AS A RESULT OF A LOSS OF POWER TO THE 120 VAC
VITAL BUS (VB) 1-1. VITAL BUS 1-1 POWERS THE RELAY WHICH SENSES THE
BREAKER POSITION OF 'A' REACTOR COOLANT PUMP (RCP). WHEN THIS RELAY
WAS DE-ENERGIZED, A REACTOR TRIP SIGNAL WAS GENERATED AS A RESULT OF
THE REACTOR PROTECTION SYSTEM SENSING THE 'A' RCP BREAKER OPEN
COINCIDENT WITH REACTOR POWER GREATER THAN 30% (P-8). REACTOR COOLANT
PUMP 'A' DID NOT ACTUALLY TRIP DURING THIS EVENT. TWO PARALLEL
480/120 VAC TRANSFORMERS WERE BEING USED AS AN ALTERNATE POWER SUPPLY
TO VB 1-1 DUE TO VOLTAGE AND CURRENT FLUCTUATIONS ON THE BATTERY
CHARGER. VITAL BUS 1-1 WAS DE-ENERGIZED WHEN ONE OF THE 480/120 VAC
TRANSFORMERS FAILED. POWER WAS RESTORED TO VB 1-1 BY TRANSFERRING
BACK TO THE NORMAL POWER SUPPLY (INVERTER). THE REACTOR WAS RETURNED
TO CRITICALITY AT 0743 HOURS ON JUNE 1, 1986 AND PLACED ON LINE AT
0432 HOURS ON JUNE 2, 1986. THIS EVENT IS REPORTABLE PURSUANT
10CFR50.73(A)(2)(IV).



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
338 1987 007 2 8803310163 208592 04/22/87

DOCKET:338 NORTH ANNA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

COMMENTS

STEPS 2,6,8,12,16: EVENTS (WHICH OCCURRED ON 6/6/84, 8/16/84, 9/5/84 AND
12/2/85) INCORRECTLY DETERMINED NON-REPORTABLE. STEP 22: COMP RLX -
AUXILIARY RELAY.

WATCH-LIST CODES FOR THIS LER ARE:

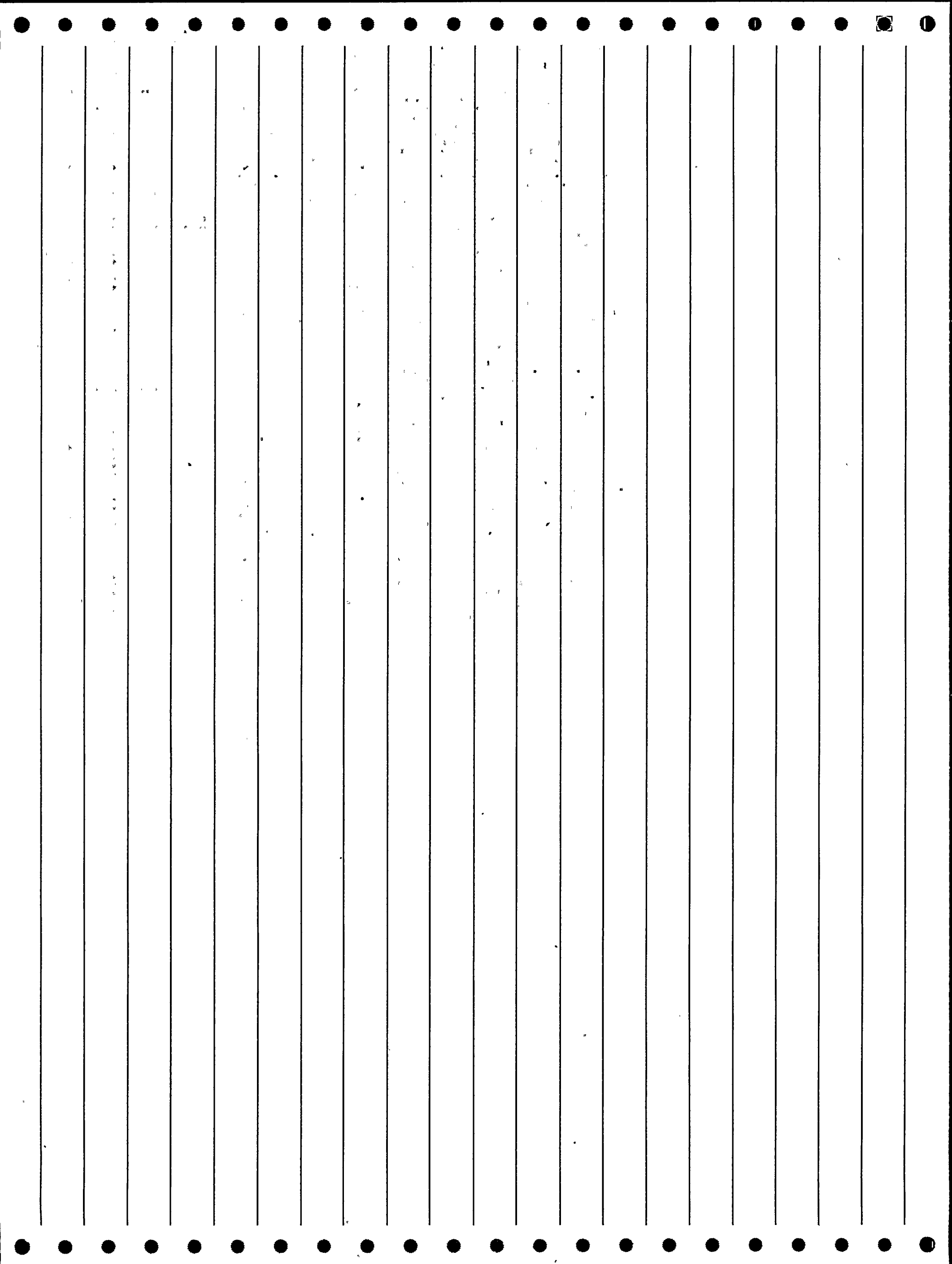
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

15 10 CFR 50.73(a)(2)(vii): Single failure criteria.

ABSTRACT

POWER LEVEL - 000%. AT 1530 HOURS ON APRIL 22, 1987, WITH UNIT 1 IN
MODE 5, THE RESIDUAL HEAT REMOVAL (RHR) SUCTION LINE WAS ISOLATED WHEN
MOV-1701 CLOSED DUE TO A LOSS OF POWER TO THE 120 VAC VITAL BUS (VB)
1-III. MOV-1701 BEING CLOSED RESULTED A TEMPORARY LOSS OF THE RHR
SYSTEM. THEREFORE, THIS EVENT IS REPORTABLE PURSUANT TO
10CFR50.73(A)(2)(VII)(8). AT 1515 HOURS ON APRIL 22, 1987, DURING THE
PERFORMANCE OF A PERIODIC TEST, THE 1-III INVERTER FAILED, RESULTING
IN A LOSS OF POWER TO VB 1-III. VITAL BUS 1-III SUPPLIES POWER TO AN
AUXILIARY RELAY FOR PRESSURE CHANNEL P-1403 WHICH PROVIDES THE LOGIC
TO CLOSE MOV-1701 ON HIGH RCS PRESSURE. WHEN THIS AUXILIARY RELAY WAS
DE-ENERGIZED AN AUTO CLOSURE SIGNAL WAS SENT TO MOV-1701, THEREBY
CLOSING MOV-1701. POWER WAS QUICKLY RESTORED TO VB 1-III, MOV-1701
WAS REOPENED AND RHR FLOW WAS RESTORED. THE CAUSE OF THE INVERTER
FAILURE WAS DETERMINED TO BE A BLOWN FUSE. TO PREVENT RECURRENCE OF
THIS TYPE EVENT, NORTH ANNA IS ACTIVELY PURSUING A TECHNICAL
SPECIFICATION CHANGE TO ELIMINATE THIS RHR INTERLOCK.

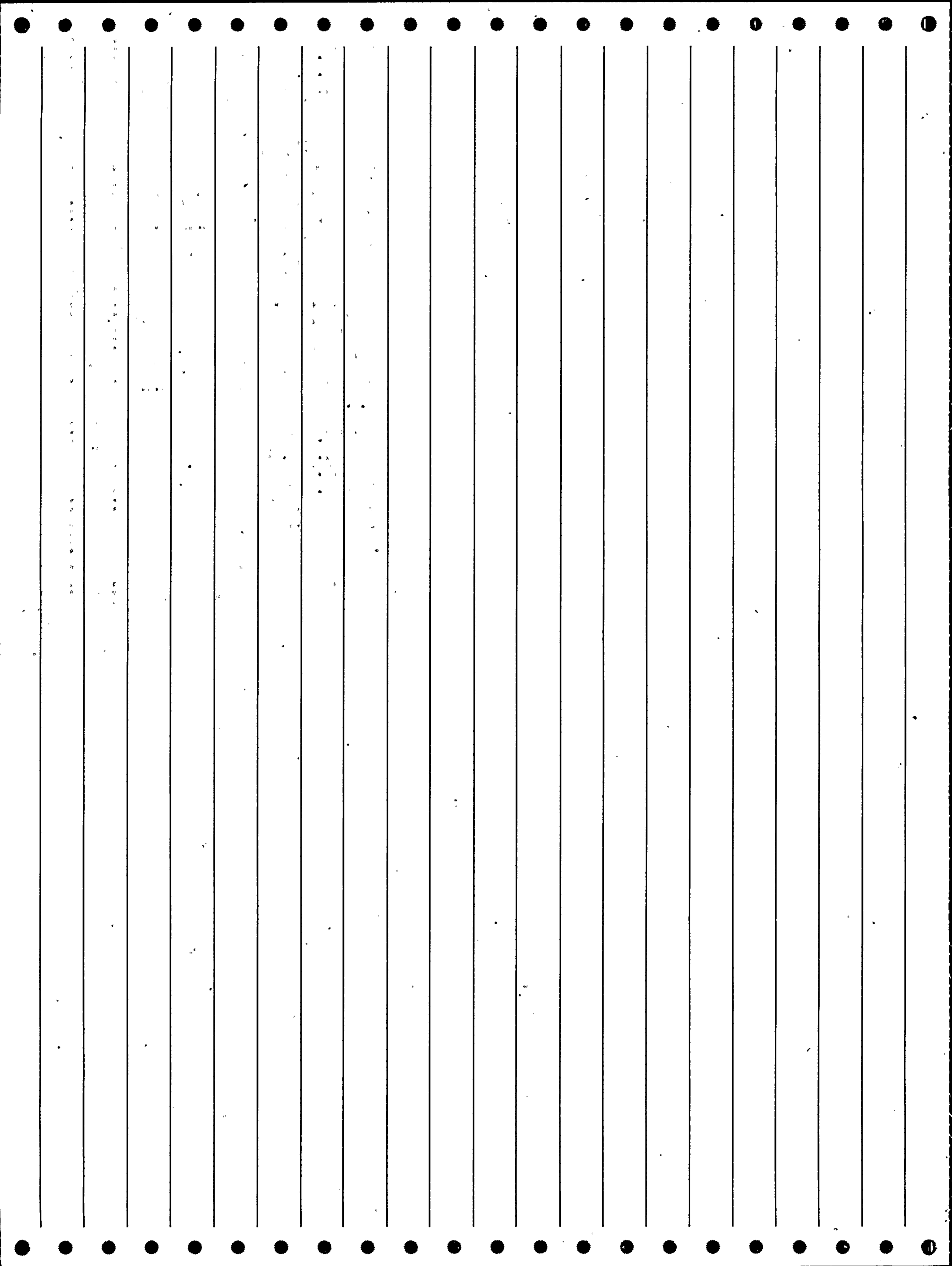


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
339 1983 059 0 8308260001 185334 07/17/83

DOCKET:339 NORTH ANNA 2 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

ABSTRACT

ON JULY 17, 1983, WITH UNIT 2 AT 100 PERCENT POWER, THE INVERTER FEEDING VITAL BUS 2-I FAILED CAUSING TEMPORARY LOSS OF THE VITAL BUS AND A REACTOR AND TURBINE TRIP. THE BUS WAS RESTORED FROM THE ALTERNATE SOURCE WITHIN TWO MINUTES AND THE PLANT WAS STABILIZED IN MODE-3. THIS EVENT IS WITHIN THE ACTION STATEMENT OF TECH SPEC 3.8.2.1 AND REPORTABLE PURSUANT TO TECH SPEC 6.9.1.9.8. THE VITAL BUS INVERTER FAILED DUE TO SPIKES INDUCED BY FAULTY SILICONE CONTROLLED RECTIFIERS CAUSING THE INPUT FUSES TO BLOW. THE FAULTY RECTIFIERS WERE REPLACED AND NEW FUSES WERE INSTALLED. THE INVERTER WILL BE RETURNED TO SERVICE AFTER ITS RELIABILITY HAS BEEN VERIFIED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
339 1985 006 0 8505170283 194588 04/26/85

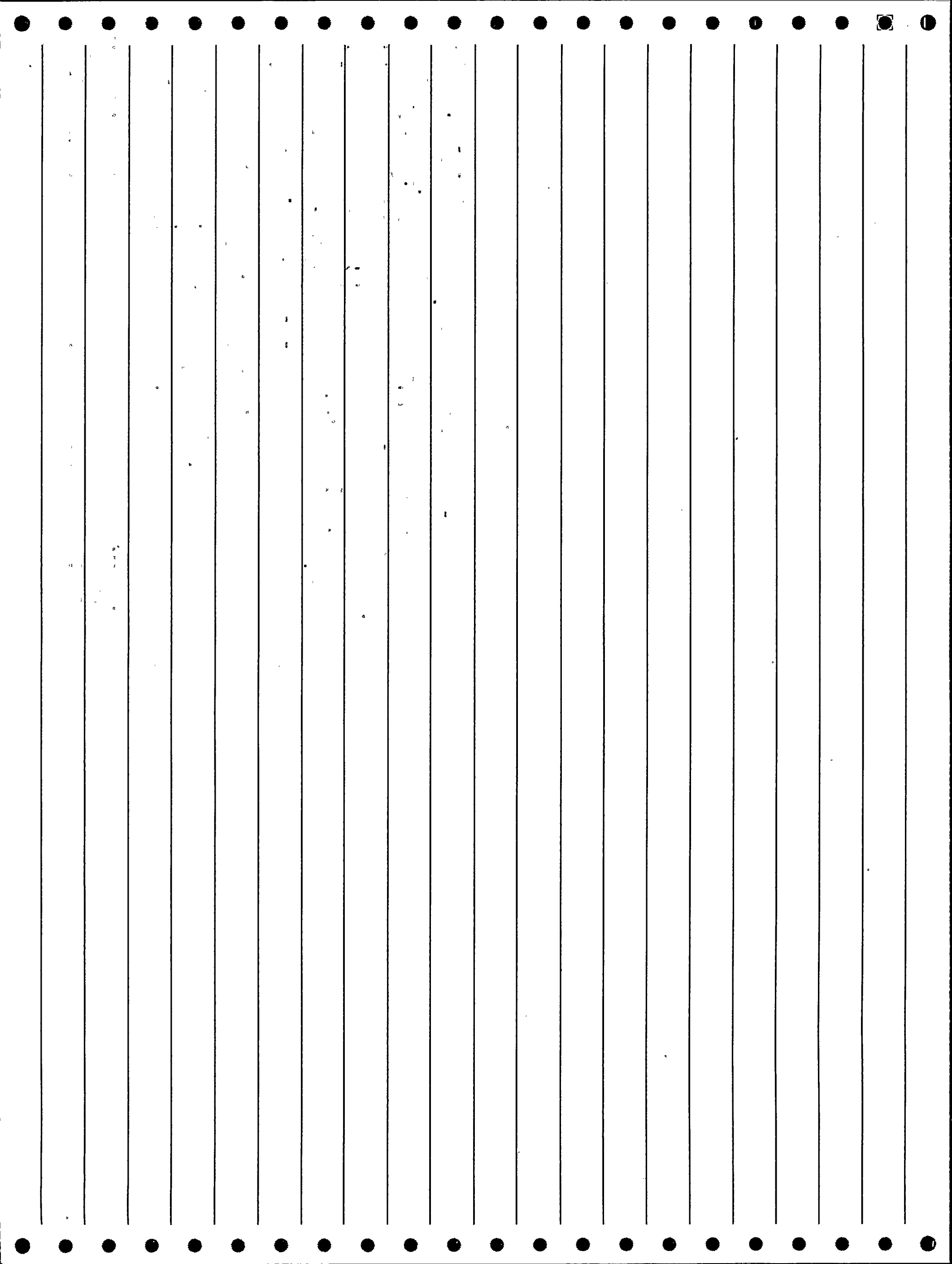
DOCKET:339 NORTH ANNA 2 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: VIRGINIA ELECTRIC POWER CO.
SYMBOL: VEP

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. AT 0915 ON 4-26-85 UNIT 2 TRIPPED FROM 100% POWER WHEN THE 120V AC VITAL BUS 2-I WAS INADVERTENTLY DE-ENERGIZED. THE 120V AC VITAL BUS 2-I SUPPLIES POWER TO THE RELAY WHICH SENSES THE BREAKER POSITION OF REACTOR COOLANT PUMP 'A'. WHEN THE 2-I 120V AC VITAL BUS WAS DE-ENERGIZED, THIS RELAY WAS DE-ENERGIZED WHICH CAUSED THE RPS TO SENSE THAT THE 'A' REACTOR COOLANT PUMP BREAKER WAS OPEN. A REACTOR TRIP SIGNAL WAS GENERATED AS A RESULT OF THE RPS SENSING THE 'A' REACTOR COOLANT PUMP BREAKER OPEN COINCIDENT WITH REACTOR POWER GREATER THAN 30%. REACTOR COOLANT PUMP 'A' DID NOT ACTUALLY TRIP DURING THIS EVENT. POWER WAS RESTORED TO THE 120V AC VITAL BUS 2-I WITHIN SECS BY OPERATOR ACTION. ALL PLANT PARAMETERS RESPONDED AS EXPECTED. THE UNIT WAS RETURNED TO CRITICALITY ON 4-27-85 AND REACHED 100% POWER 4-30-85.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
341 1989 003 0 8902150146 213027 01/10/89

DOCKET:341 FERM1 2 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: DETROIT EDISON CO.
SYMBOL: DEC

COMMENTS

STEP 3: EFF IX - FLASH OVER, TYPE U, CAT. NO. 7B550BB G4. STEPS 7-11: COMP
HPXY - X=CONTROL AIR COMPRESSOR START.

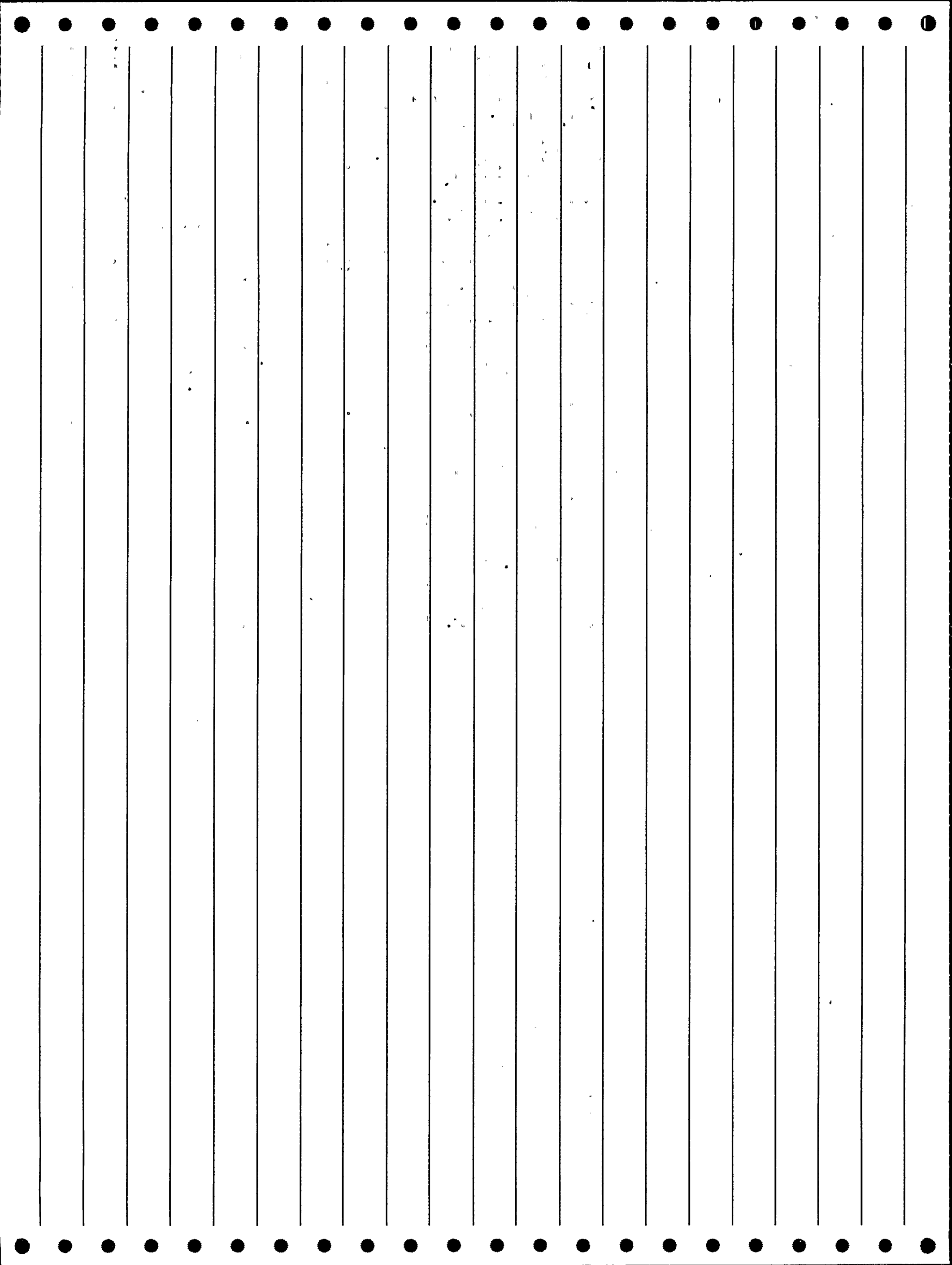
WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 341/85-002 2 341/85-007 3 341/88-019

ABSTRACT

POWER LEVEL - 000%. ON JANUARY 10, 1989 AT 0825 HOURS WITH THE PLANT
IN COLD SHUTDOWN, A LOSS OF DIVISION I OFFSITE POWER WAS EXPERIENCED.
AS A RESULT OF THIS, POWER WAS LOST TO REACTOR PROTECTION SYSTEM "A".
ALL ENGINEERED SAFETY FEATURE ACTUATIONS/ISOLATIONS OCCURRED AS
EXPECTED. WITHIN TWENTY MINUTES, POWER WAS RESTORED TO REACTOR
PROTECTION SYSTEM "A" AND SHUTDOWN COOLING WAS RE-ESTABLISHED.
INVESTIGATION DETERMINED THAT THIS EVENT WAS CAUSED BY A GROUND FAULT
ON THE Z-PHASE OF THE SYSTEM SERVICE TRANSFORMER #1. ANALYSIS OF THE
BUSHING ON THIS PHASE SHOWED THAT IT HAD EXPERIENCED MOISTURE
INTRUSION. THIS MOST PROBABLY OCCURRED DUE TO A FAILURE OF THE REPAIR
MADE TO THE BUSHING IN MAY OF 1988 (SEE LICENSEE EVENT REPORT
88-019). THE BUSHING WAS REPLACED AND THE TRANSFORMER WAS INSPECTED,
TESTED AND RETURNED TO SERVICE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
341 1989 029 0 8911280504 215957 10/23/89

DOCKET:341 FERM1 2 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: DETROIT EDISON CO.
SYMBOL: DEC

COMMENTS

STEP 1: CAUSE AX - TESTING. STEPS 9-13: COMP HLX - HVAC/ ISOLATION/ START
OF CONTROL AIR COMPRESSOR.

WATCH-LIST CODES FOR THIS LER ARE:

38 POOR ERGONOMICS OR HUMAN ENVIRONMENT

REPORTABILITY CODES FOR THIS LER ARE:

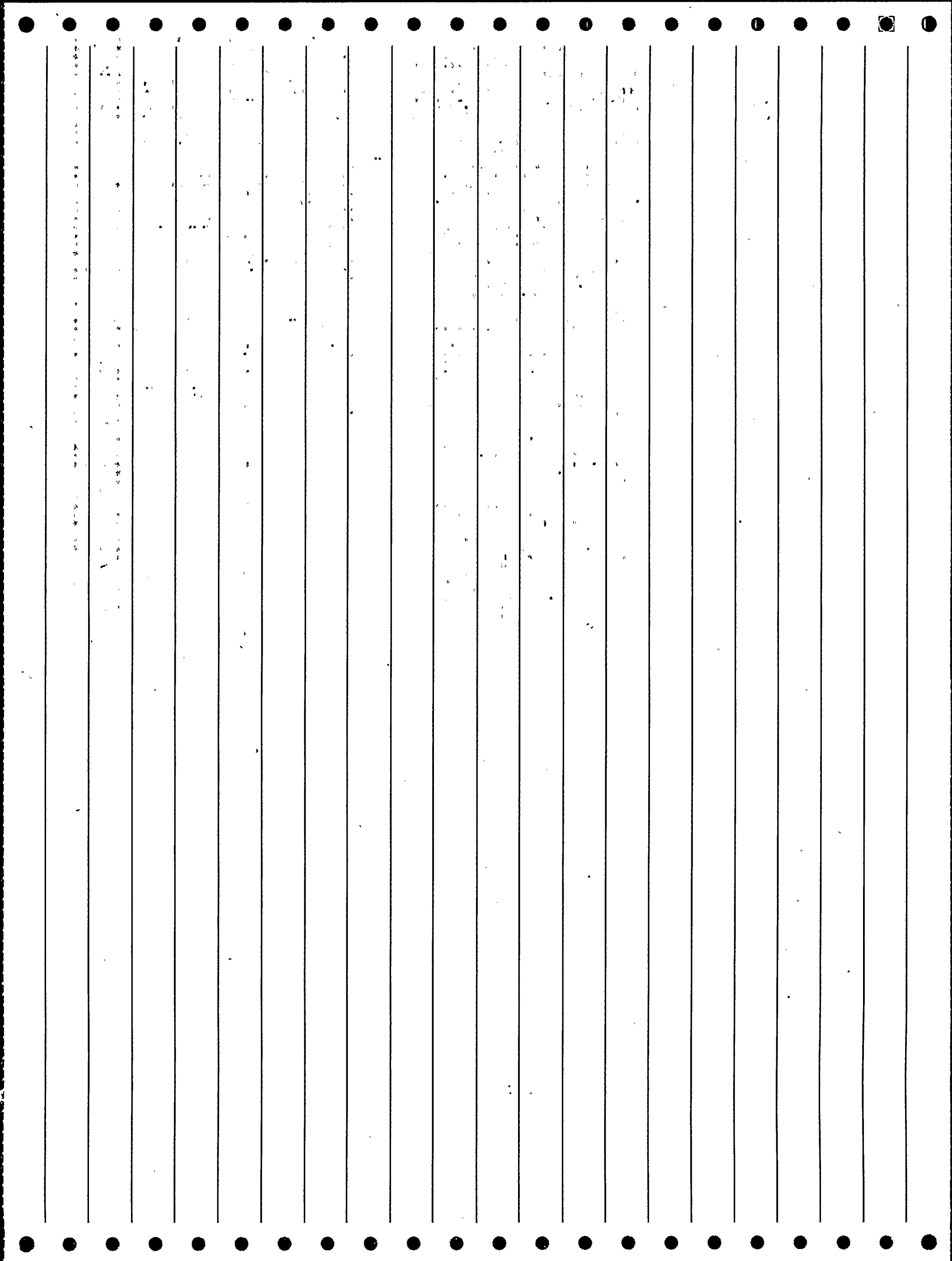
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 341/88-025

ABSTRACT

POWER LEVEL - 000%. ON OCTOBER 23, 1989, AT 1020 HOURS, A HALF SCRAM
SIGNAL WAS RECEIVED WHEN POWER WAS LOST ON REACTOR PROTECTION SYSTEM
BUS "B". SEVERAL ENGINEERED SAFETY FEATURES WERE ACTUATED. ALL OF
THE EXPECTED ACTUATIONS/ISOLATIONS WERE RECEIVED. SHUTDOWN COOLING
WAS NOT EXPECTED TO ISOLATE AT THE TIME OF THE EVENT SINCE THE
AFFECTED SHUTDOWN COOLING SUCTION VALVE IN THE SYSTEM WAS DE-ENERGIZED
OPEN FOR SURVEILLANCE TESTING. THE VALVE DID CLOSE WHEN POWER WAS
RESTORED TO IT. THE LOSS OF RPS BUS "B" WAS ATTRIBUTED TO THE LOCATION
OF A BREAKER OPERATING SWITCH IN A HIGH TRAFFIC AREA IN THE PLANT. A
SECURITY INVESTIGATION WAS CONDUCTED TO DETERMINE IF ANY PERSONNEL
COULD HAVE BUMPED THE SWITCH. THIS LICENSEE EVENT REPORT WILL BE
GIVEN TO OPERATIONS PERSONNEL AS REQUIRED READING. A POTENTIAL DESIGN
CHANGE WILL BE EVALUATED TO DETERMINE IF BREAKER COVERS SHOULD BE
INSTALLED AT PANELS WHEN THE BREAKER OPERATING SWITCHES ARE LOCATED IN
HIGH TRAFFIC AREAS.

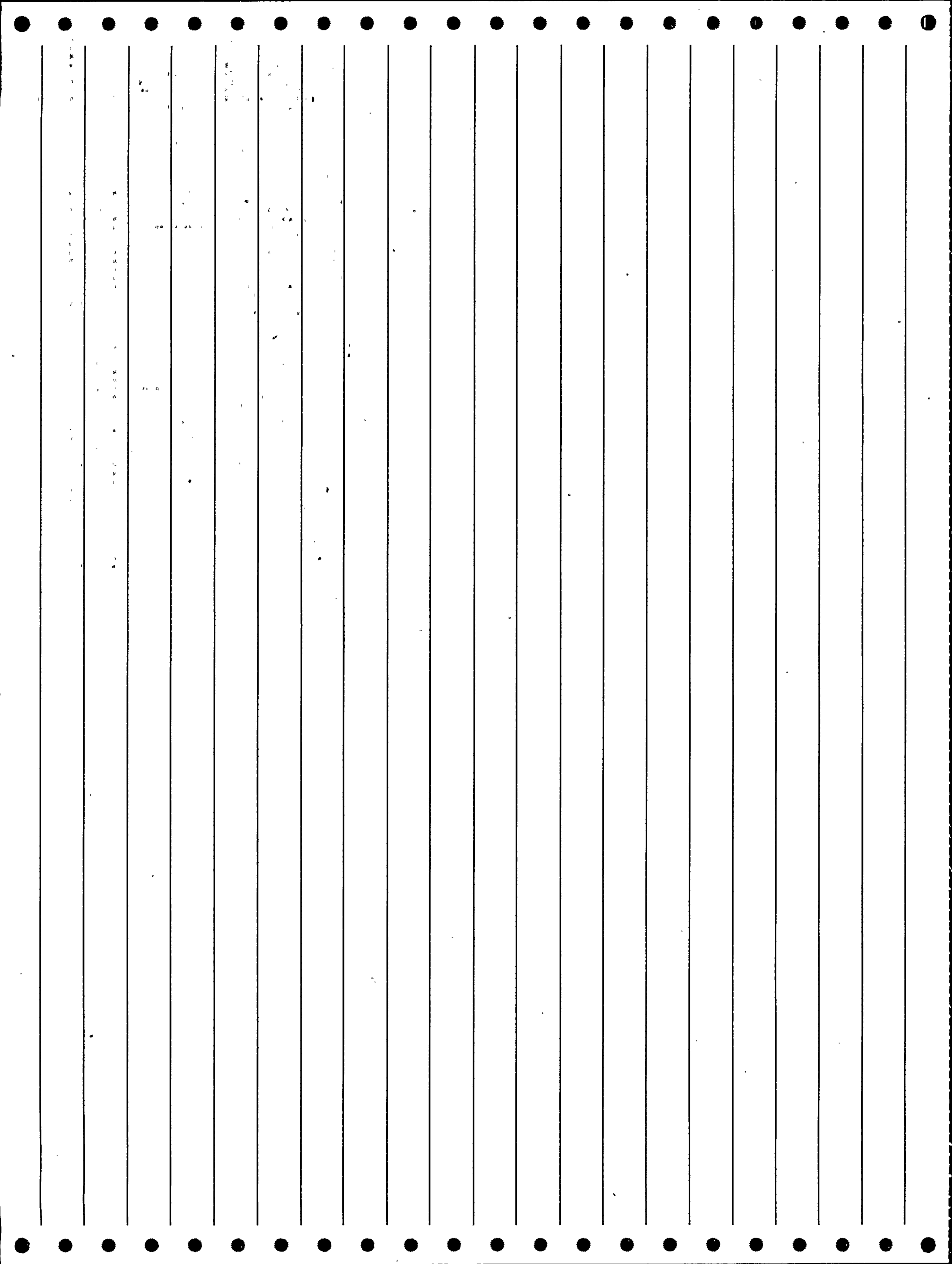


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
344 1980 025 0 8012230455 162436 11/12/80

DOCKET:344 TROJAN TYPE:PWR
REGION: 5 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PORTLAND GENERAL ELECTRIC CO.
SYMBOL: PGC

ABSTRACT

POWER LEVEL - 100%. CAUSE - LICENSED OPERATOR USED WRONG ELECTRICAL
LINEUP. IT WAS DISCOVERED THAT THREE VITAL PREFERRED 120V AC
INSTRUMENT BUSES, Y11, Y13 AND Y24, WERE POWERED FROM THE SAME
EMERGENCY POWER SOURCE TRAIN. THE CAUSE WAS THE FAILURE TO ADEQUATELY
DETERMINE THE ACCEPTABILITY OF THE ALTERNATE ELECTRICAL SUPPLY LINEUP
PRIOR TO REMOVING ONE OF TWO VITAL BUS SUPPLIES FROM SERVICE. NORMAL
POWER SUPPLY WAS REESTABLISHED AND PROCEDURES TO CONTROL
SAFETY-RELATED EQUIPMENT OUTAGES WILL BE IMPROVED.

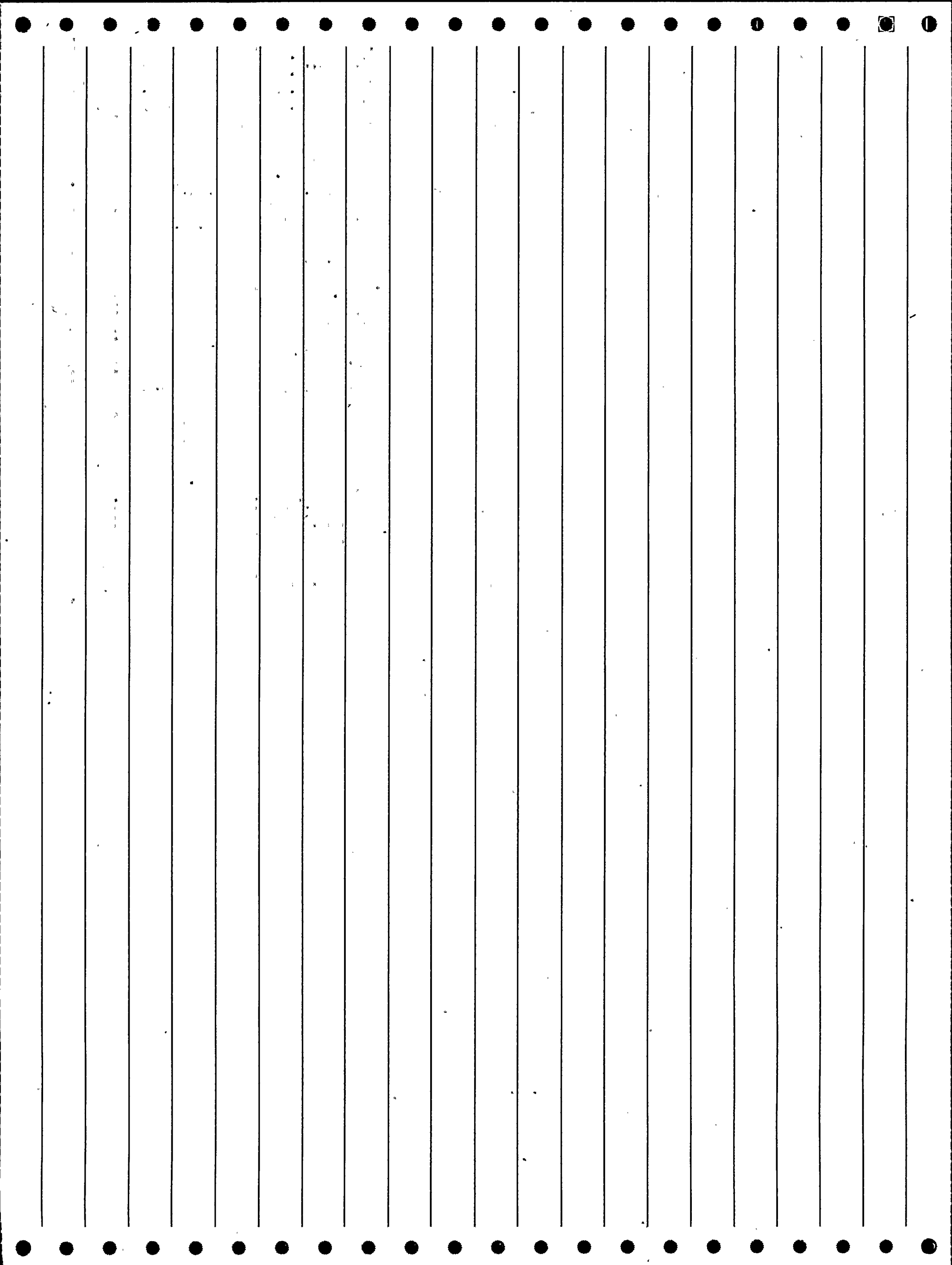


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
344 1981 025 0 8111130722 171937 10/04/81

DOCKET:344 TROJAN TYPE:PHR
REGION: 5 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PORTLAND GENERAL ELECTRIC CO.
SYMBOL: PGC

ABSTRACT

POWER TO THE PREFERRED INSTRUMENT BUS Y11 WAS LOST FOR ONE MINUTE DUE TO THE FAILURE OF AN OUTPUT CURRENT SENSING RELAY ON ITS ASSOCIATED STATIC INVERTER. THIS BUS IS REQUIRED TO BE OPERABLE BY TECH SPEC 3.8.2.1. THE APPARENT CAUSE OF THIS EVENT IS ATTRIBUTED TO NORMAL RELAY END-OF-LIFE. THE FAILED RELAY (GUARDIAN ELECTRIC, CS1-220 OUTPUT CURRENT SENSING RELAY) WAS REPLACED AS WERE CORRESPONDING RELAYS IN TWO OTHER INVERTERS. THE 4TH INVERTER RELAY WILL BE REPLACED AS SOON AS PARTS BECOME AVAILABLE, AND A PREVENTATIVE MAINTENANCE PROGRAM IS BEING ESTABLISHED FOR PERIODIC REPLACEMENT OF THESE CURRENT SENSING RELAYS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
344 1982 001 1 8203100571 172511 01/18/82

DOCKET:344 TROJAN TYPE:PWR
REGION: 5 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PORTLAND GENERAL ELECTRIC CO.
SYMBOL: PGC

COMMENTS

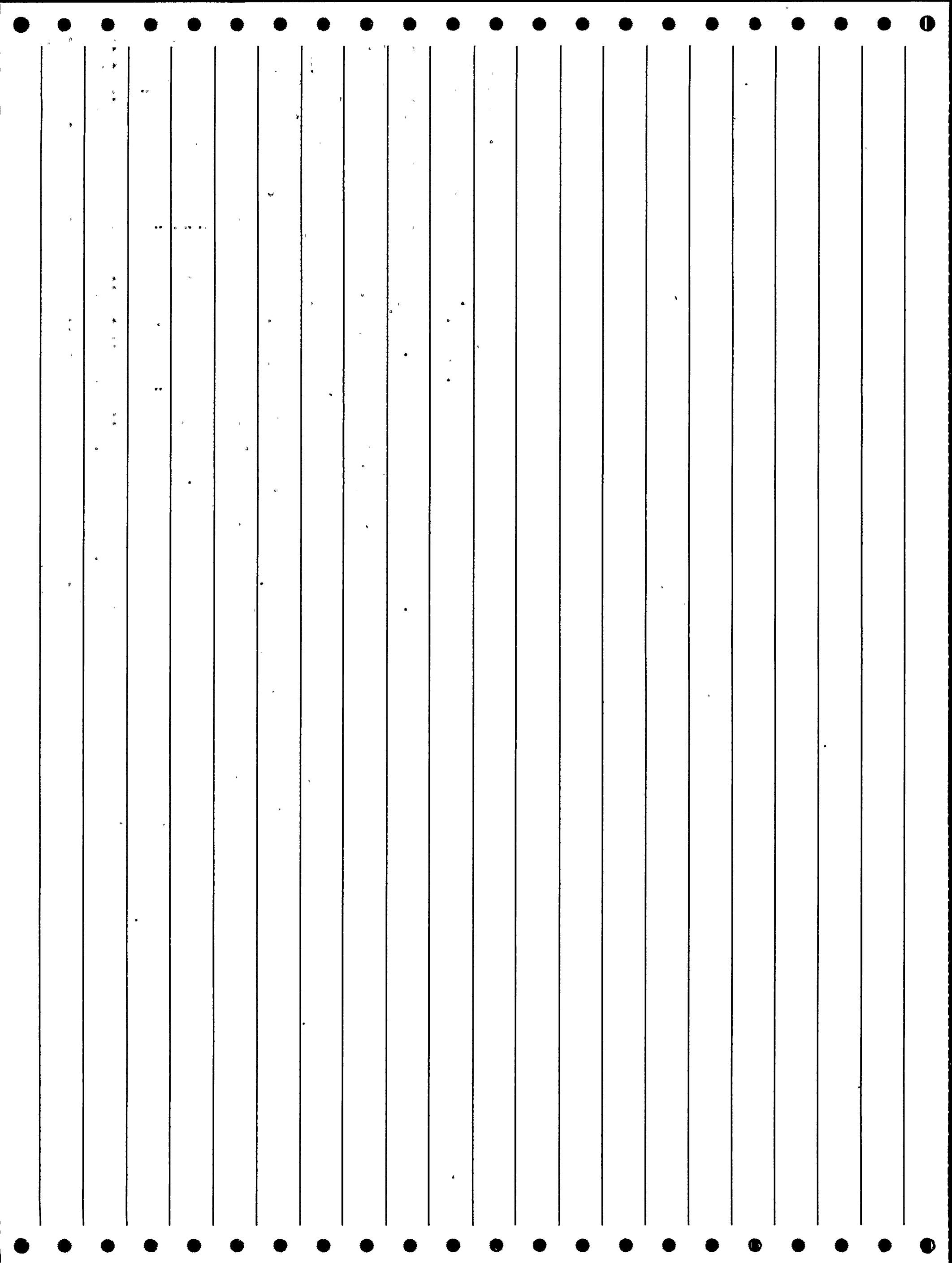
EVENT HAPPENED MANY TIMES DURING 2 MONTH PERIOD. DG WAS INOPERABLE AND WAS NOT KNOWN. WATCH 975 - POTENTIAL DIESEL GENERATOR INOPERABILITY. STEP 2: CAUSE XX - TO SUPPLY BUS FROM ALTERNATE POWER SOURCE.

WATCH-LIST CODES FOR THIS LER ARE:

975 POSSIBLE SIGNIFICANT EVENT

ABSTRACT

IT WAS DISCOVERED THAT THE NO. 2 EDG IS EFFECTIVELY INOPERABLE WHEN 120 VAC PREFERRED INSTRUMENT BUSES Y22 OR Y24 ARE POWERED FROM NONPREFERRED INSTRUMENT BUS Y02. FROM 12-1-81 TO 1-4-82 POWER TO Y24 WAS SUPPLIED BY Y02 RENDERING THE NO. 2 EDG INOPERABLE FOR 34 DAYS. THIS OCCURRENCE RESULTED FROM INCOMPLETE INFORMATION BEING FORWARDED TO THE OPERATIONS DEPARTMENT CONCERNING WHICH PREFERRED INSTRUMENT BUSES AFFECT OPERATION OF THE NO. 2 EDG. THE CORRECT INFORMATION HAS BEEN TRANSMITTED TO OPERATIONS. INVESTIGATION HAS BEGUN ON A DESIGN CHANGE WHICH WOULD IMPROVE EDG AVAILABILITY AND INSTRUMENT INVERTER RELIABILITY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1980 056 0 8008120568 200535 07/09/80

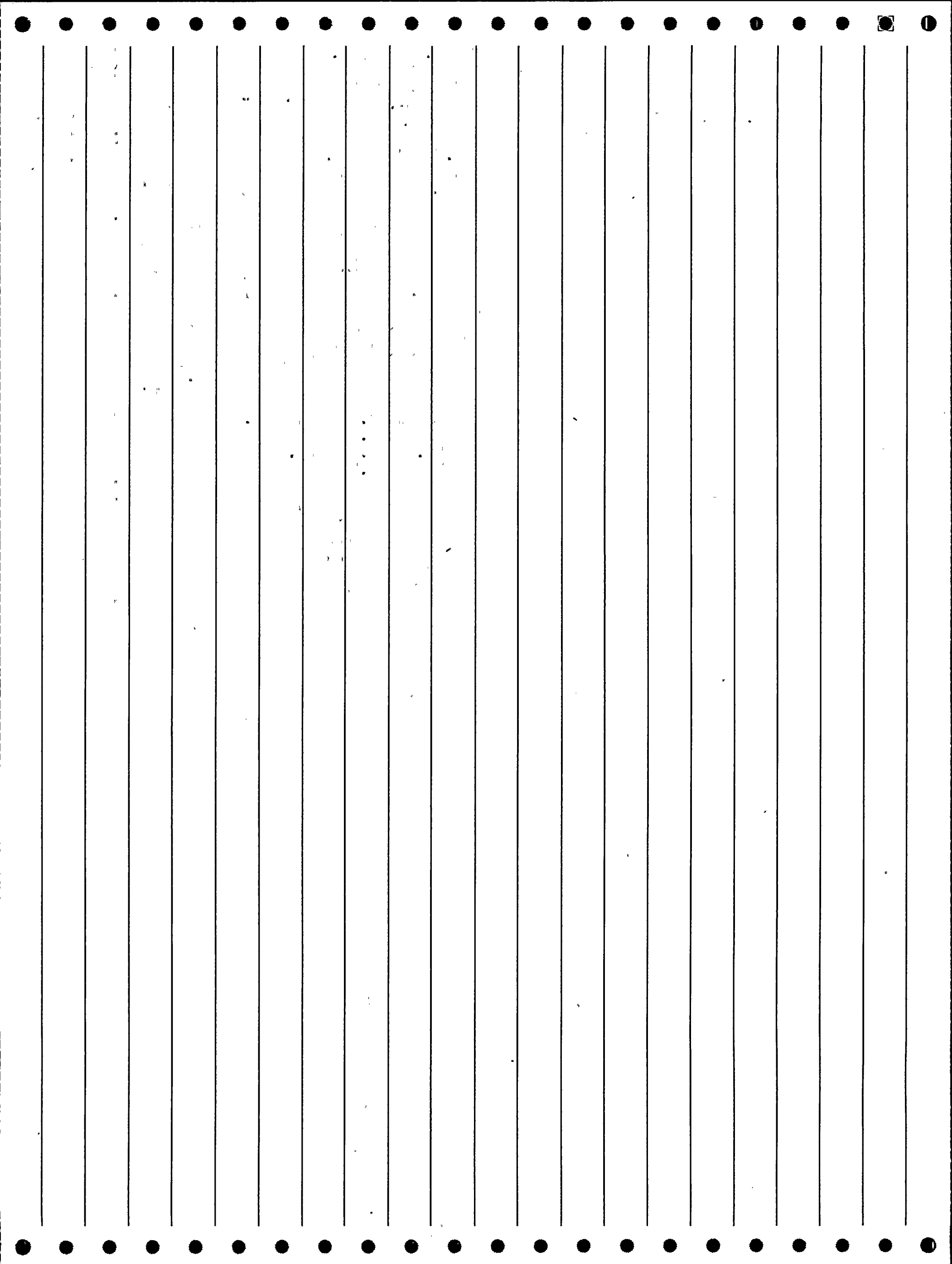
DOCKET:346 DAVIS-BESSE 1 TYPE:PHR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

COMMENTS

STEP 2: COMP CON - TEMPORARY ALLIGATOR CLIPS.

ABSTRACT

ON 7-9-80 AT 2325 HOURS WHILE PERFORMING ST 5030.09 IN REACTOR PROTECTION SYSTEM (RPS) CHANNEL 3, AN INSULATED ALLIGATOR CLIP SLIPPED OFF THE TERMINAL STUD CAUSING A SHORT CIRCUIT BETWEEN TERMINALS 3 AND 4. THIS RESULTED IN A LOSS OF Y3 WHICH CAUSED A LOSS OF SAFETY FEATURES ACTUATION SYSTEM (SFAS) CHANNEL 3 CONTAINMENT RADIATION, PLACING THE UNIT IN VIOLATION OF TECH SPEC 3.3.2.1. Y3 WAS SWITCH TO AN ALTERNATE POWER SUPPLY AND SFAS CHANNEL 3 WAS OPERABLE WITHIN MINUTES. RPS AND SFAS CHANNELS 1, 2, AND 4 WERE CONTINUOUSLY AVAILABLE. THE CAUSE WAS A PERSONNEL ERROR IN THAT THE TECHNICIAN USED THE WRONG TYPE OF INSULATED ALLIGATOR CLIPS. UNDER MWO 80-2821, F101 WAS REPLACED. AT 0145 HOURS ON 7-10-80, Y3 WAS POWERED FROM ITS NORMAL SOURCE. A MEMO WAS WRITTEN BY THE LEAD I&C ENGINEER, CAUTIONING THE TECHNICIANS ON THE IMPORTANCE OF USING THE CORRECT STYLE INSULATED ALLIGATOR CLIPS.



FORM 261

LER SCSS DATA

08-30-91

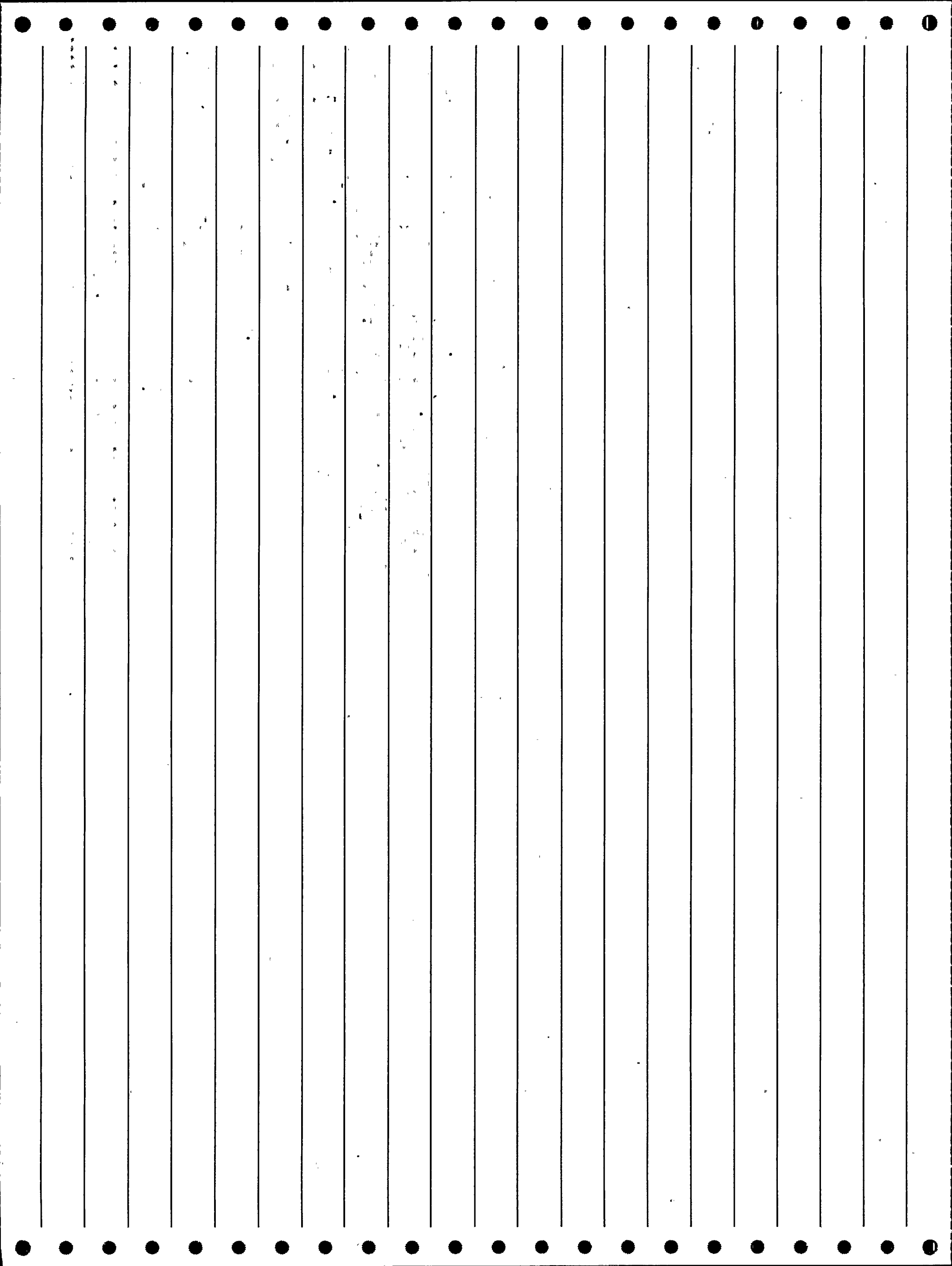
DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1980 064 1 8012120512 160365 08/22/80

DOCKET:346 DAVIS-8ESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

COMMENTS:
SUBSEQUENT EVENT OCCURRED 08/23/80.

REFERENCE LERS:
1 346/79-009 2 346/80-056

ABSTRACT
POWER LEVEL - 000%. CAUSE - FUSE FAILURES. ON 8/22/80 AT 1446 HOURS
AND ON 8/23/80 AT 0922 HOURS, THE STATION EXPERIENCED A LOSS OF
ESSENTIAL INSTRUMENT AC PANEL Y2. THE RESULT WAS THE DE-ENERGIZATION
OF SAFETY FEATURES ACTUATION SYSTEM (SFAS) CHANNEL 2, REACTOR
PROTECTION SYSTEM (RPS) CHANNEL 2 AND STEAM AND FEEDWATER RUPTURE
CONTROL SYSTEM (SFRCS) CHANNEL 2 WHICH CAUSED THE CONTAINMENT
RADIATION STRING FOR SFAS CHANNEL 2 TO FAIL. THE CAUSE WAS THE FAILURE
OF THE YV-2 INVERTER OUTPUT FUSE, HOWEVER, THE EXACT CAUSE OF THE
FUSE FAILURE HAS NOT BEEN DETERMINED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1980 081 0 8012150118 161859 11/12/80

DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

COMMENTS

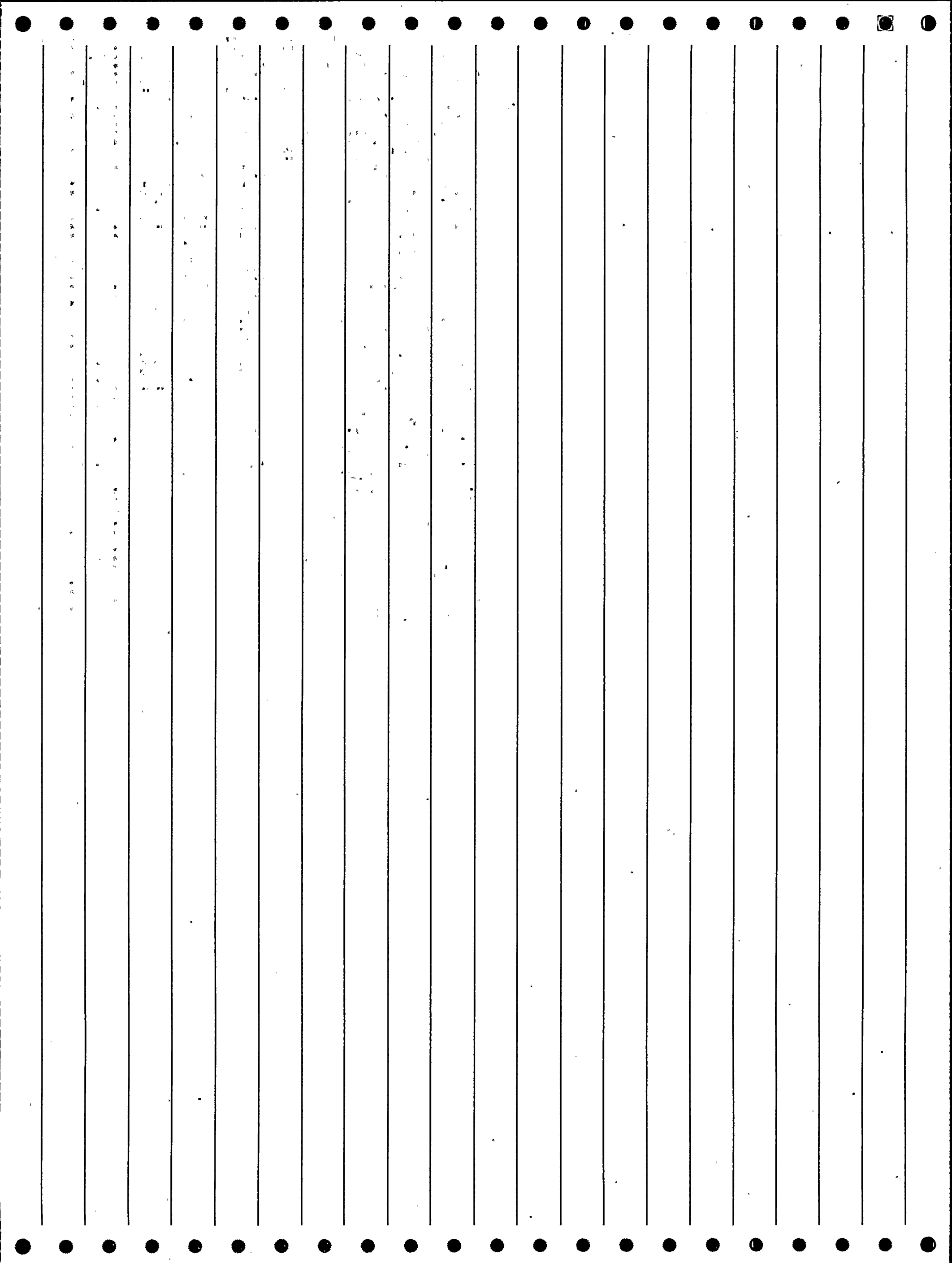
STEP 2: PSYS ZX - TESTING CONNECTION TO STEAM/FEEDWATER RUPTURE CONTROL
SYSTEM; COMP MEI - OSCILLOSCOPE FOR WAVEFORM TEST.

REFERENCE LERS:

1 346/80-056

ABSTRACT

POWER LEVEL - 039%. CAUSE - MAINTENANCE ERROR. AT 1403 HOURS, THE
UNIT EXPERIENCED A LOSS OF ESSENTIAL BUS Y2. THIS BUS POWERS RPS
CHANNEL 2 WHICH WAS THE SOURCE OF RCS FLOW TO THE INTEGRATED CONTROL
SYSTEM. THE LOSS OF FLOW INDICATION STARTED A SERIES OF EVENTS WHICH
RESULTED IN A REACTOR TRIP ON HIGH RCS PRESSURE. THE CAUSE WAS THE USE
OF A GROUNDED OSCILLOSCOPE BY I&C PERSONNEL TO RECORD INPUT VOLTAGE
WAVEFORMS AT THE STEAM AND FEEDWATER RUPTURE CONTROL SYSTEM CH. 2
CABINET. THE GROUND FED BACK TO THE YV2 INVERTER INPUT FUSE WHICH TOOK
OUT THE Y2 BUS WHICH CAUSED THE LOSS OF RPS CH. 2. THE FUSE WAS
REPLACED AND ESSENTIAL 120 VAC POWER RESTORED TO Y2 AT 1530 HOURS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1980 086 0 8101060680 162419 12/03/80

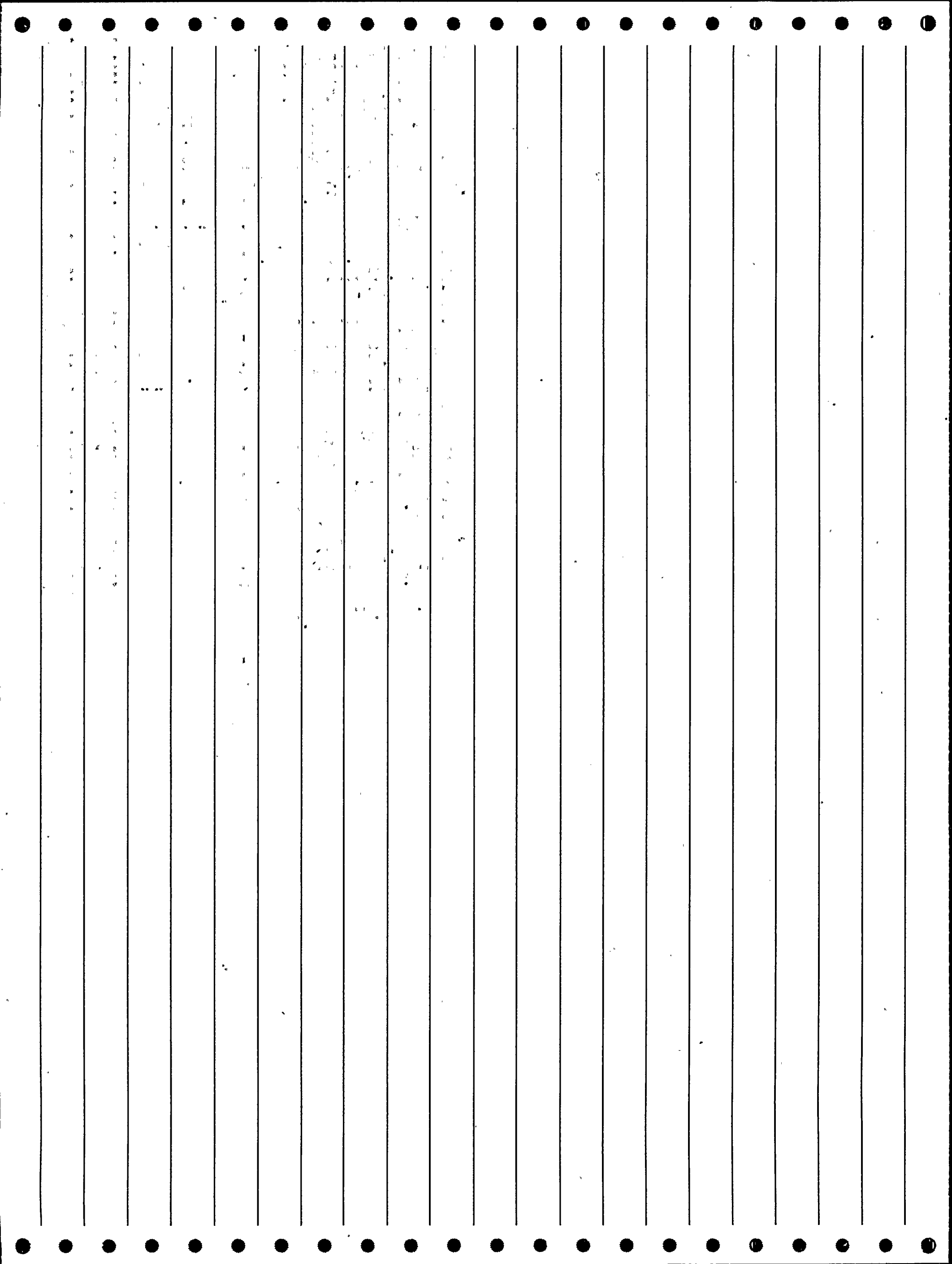
DOCKET:346 DAVIS-BESSE 1 TYPE:PHR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

COMMENTS

REFERENCE LERS: NP-32-79-09, NP-33-79-13, NP-33-80-70. STEP 3: COMP CON -
TEMPORARY ALLIGATOR CLIPS.

ABSTRACT

POWER LEVEL - 000%. CAUSE - SHORT CIRCUIT DURING AN RPS CHANNEL TEST.
DURING TESTING IN REACTOR PROTECTION SYSTEM (RPS) CHANNEL 3, AN
ALLIGATOR CLIP SLIPPED OFF THE TERMINAL STUD CAUSING A SHORT CIRCUIT
BETWEEN TERMINALS 3 AND 4. A LOSS OF POWER TO THE Y3 ESSENTIAL POWER
BUS FOLLOWED WHICH IN TURN DE-ENERGIZED SEVERAL INSTRUMENTS INCLUDING
RPS CHANNEL 3 AND SAFETY FEATURES ACTUATION SYSTEM (SFAS) CHANNEL 3.
THE CAUSE IS A DESIGN ERROR. THE SHORT CIRCUIT WAS THE RESULT OF
UTILIZING ALLIGATOR CLIPS ON OVERSIZED TERMINALS STUDS. ST 5030.12 WAS
MODIFIED TO DELETE THE REQUIREMENT TO MEASURE TRIP BREAKER VOLTAGE.
MAINTENANCE WORK ORDER 80-3918 REPLACED THE YV3 INVERTER INPUT FUSE
F101 AND THE RPS TRIP CIRCUIT FUSE. F2 WHICH BLEW AS A CONSEQUENCE OF
THE SHORT CIRCUIT.

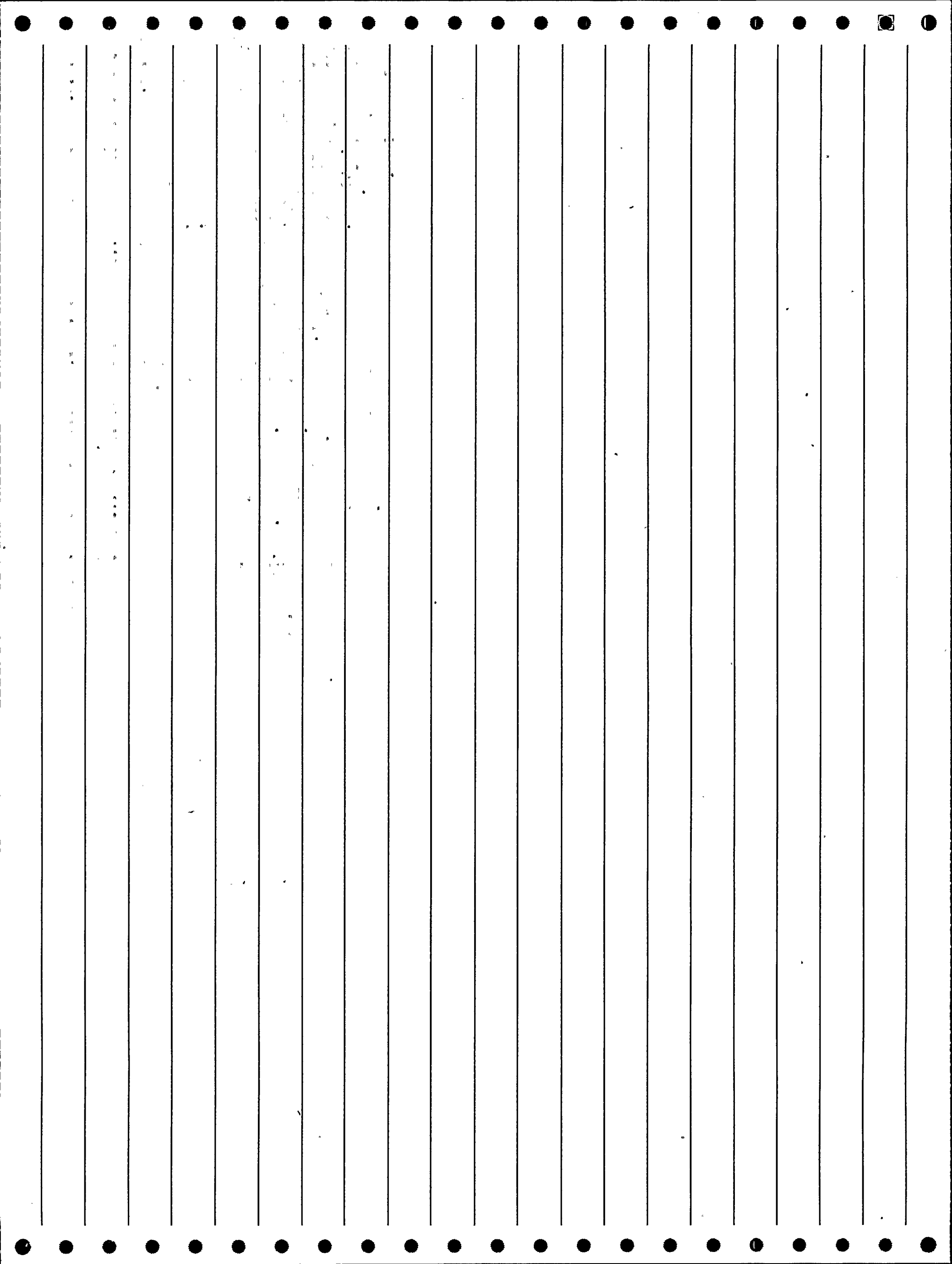


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1981 003 0 8102100068 164166 01/06/81

DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

ABSTRACT

A CONTROL ROOM OPERATOR INTENDING TO MATCH A SWITCH FLAG POSITION WITH THE BREAKER INDICATION LIGHT, INADVERTENTLY TRIPPED BREAKER HX028 WHICH DE-ENERGIZED VITAL BUS 8, ONE OF TWO 13.8 KV BUSES. THIS REDUCED THE ELECTRICAL DISTRIBUTION TO LESS THAN THAT REQUIRED BY T.S. THE CAUSE WAS PERSONNEL ERROR BY THE OPERATOR. IN ATTEMPTING TO MATCH THE SWITCH FLAG COLOR WITH THE BREAKER INDICATION, HE ACCIDENTALLY TURNED THE SWITCH THE WRONG DIRECTIN EVEN THOUGH HE WAS AWARE OF ITS FUNCTION. RESTORATION OF THE BREAKERS WAS ATTAINED WITHIN 15 MINUTES. OPERATIONS PERSONNEL ARE BEING MADE AWARE OF THE OCCURRENCE TO EMPHASIZE THE NEED FOR ATTENTIVENESS WHILE OPERATING CONTROL DEVICES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1981 066 0 8111200803 170123 10/18/81

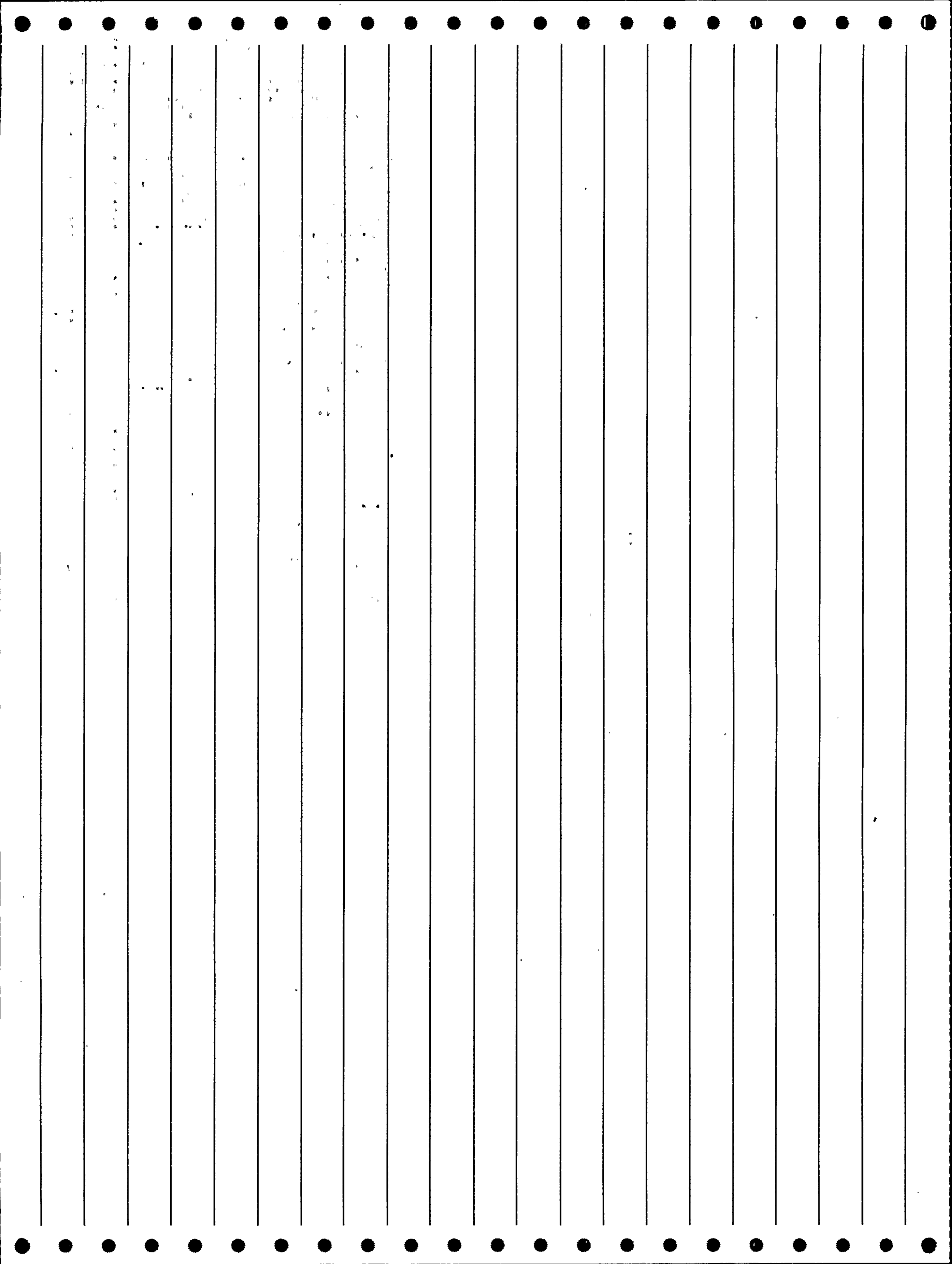
DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

COMMENTS

STEPS 1. AND 2: EFFECT IX - DESTROYED.

ABSTRACT

ESSENTIAL 120 VAC INVERTER YV3 FAILED, DEENERGIZING ESSENTIAL BUS Y3 AND TRIPPED CHANNEL 3 IN BOTH THE REACTOR PROTECTION SYSTEM (RPS) AND THE SAFETY FEATURES ACTUATION SYSTEM (SFAS). THE CAUSE WAS A COMPONENT FAILURE ASSOCIATED WITH THE INTERTER LOGIC POWER SUPPLY. INSPECTION REVEALED A DESTROYED RESISTOR AND ZENER DIODE ON THE +/- 15 VDC LOGIC POWER SUPPLY. THE POWER SUPPLY WAS REPAIRED. TESTING REVEALED THAT THE SYNCHRONIZER MODULE WAS ALSO DAMAGED. THE MODULE WAS REPLACED AND Y3 WAS RETURNED TO INVERTER YV3.

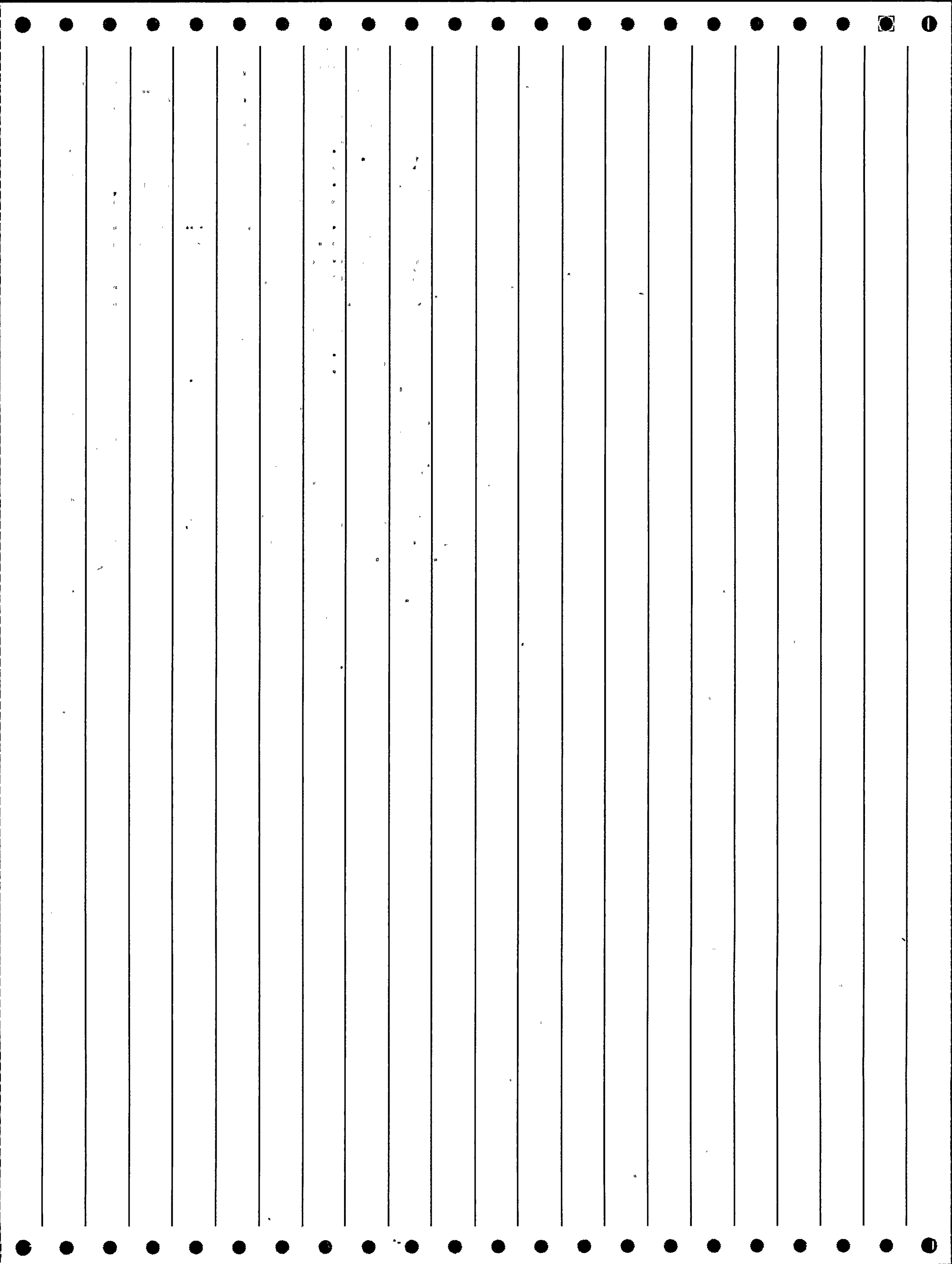


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1982 020 2 8305130195 183451 04/09/82

DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

ABSTRACT

(NP-33-82-24) ON APRIL 9, 1982 AT 1015 HOURS, THE STATION EXPERIENCED A LOSS OF 120 VAC DISTRIBUTION PANEL Y2 WHILE IN MODE 6. SINCE Y4 HAD ALREADY BEEN DE-ENERGIZED FOR ROUTINE MAINTENANCE, SFAS ACTUATION CHANNEL 2 ACTUATED WHEN POWER WAS LOST TO SFAS CHANNEL 2 AND RPS CHANNEL 2 DE-ENERGIZED CAUSING A LOSS OF ONE CHANNEL OF SOURCE RANGE NUCLEAR INSTRUMENTATION. THE STATION ENTERED THE ACTION STATEMENT OF TECH SPECS 3.8.2.2, 3.3.2.1, AND 3.9.2. THE AFFECTED SAFETY SYSTEMS WENT TO THEIR FAIL SAFE STATUS. THE LOSS OF Y2 WAS DUE TO A BLOWN Y2 INVERTER FUSE. THE FUSE BLEW WHEN A SHORT TO GROUND OCCURRED DURING MAINTENANCE ON THE CONTROL ROOM EMERGENCY VENTILATION SYSTEM. THE CONTROL POWER SUPPLIED FROM Y2 TO CONTROL POWER PANEL C6709 WAS OVERLOOKED WHEN THE SYSTEM WAS TAGGED OUT BY CONTRACTOR PERSONNEL. UNDER MWOS 82-1547 AND 82-1595, THE FUSES WERE REPLACED. THE RESPONSIBLE PERSON WAS COUNSELED BY THE MAINTENANCE ENGINEER.

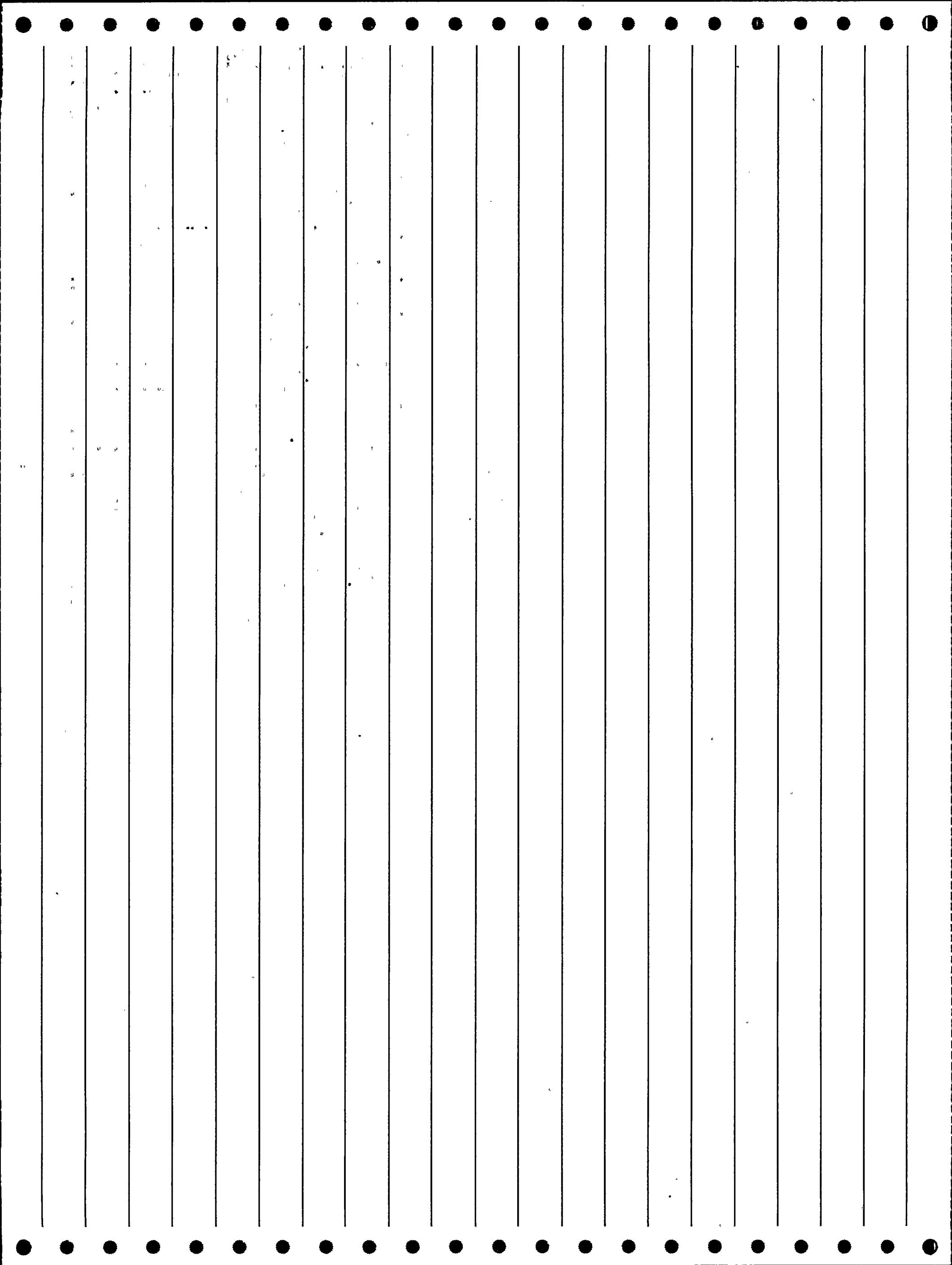


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1982 029 0 8207190259 175395 06/08/82

DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

ABSTRACT

THE ESSENTIAL INVERTER YV2 FAILED WHICH DEENERGIZED 120VAC ESSENTIAL BUS Y2 AND SUBSEQUENTLY SOURCE RANGE DETECTOR NI-1. SINCE NI-2 HAD ALREADY BEEN DEENERGIZED FOR DETECTOR REPLACEMENT, THE STATION WAS LEFT WITHOUT AN OPERABLE SOURCE RANGE DETECTOR. THE STATION ENTERED THE ACTION STATEMENT OF TECH SPEC 3.3.1. THE SHUTDOWN MARGIN WAS CALCULATED AND FOUND TO STILL BE WITHIN ACCEPTABLE LIMITS. THE CAUSE OF THE OCCURRENCE WAS A COMPONENT FAILURE WITHIN THE REGULATED RECTIFIER YRF2 WHICH NORMALLY SUPPLIES DC POWER TO INVERTER YV2. Y2 WAS ENERGIZED FROM ITS ALTERNATE SOURCE AND NI1 WAS RETURNED TO OPERABILITY BY 1500 HOURS. WORK REVEALED THAT THE VOLTAGE CONTROL MODULE YRF2 HAD FAILED IN SUCH A WAY THAT THE RECTIFIER COULD ONLY CARRY THE LOADED INVERTER WITH THE AID OF THE ALTERNATE DC SUPPLY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1983 007 0 8303140540 183183 01/31/83

DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

COMMENTS

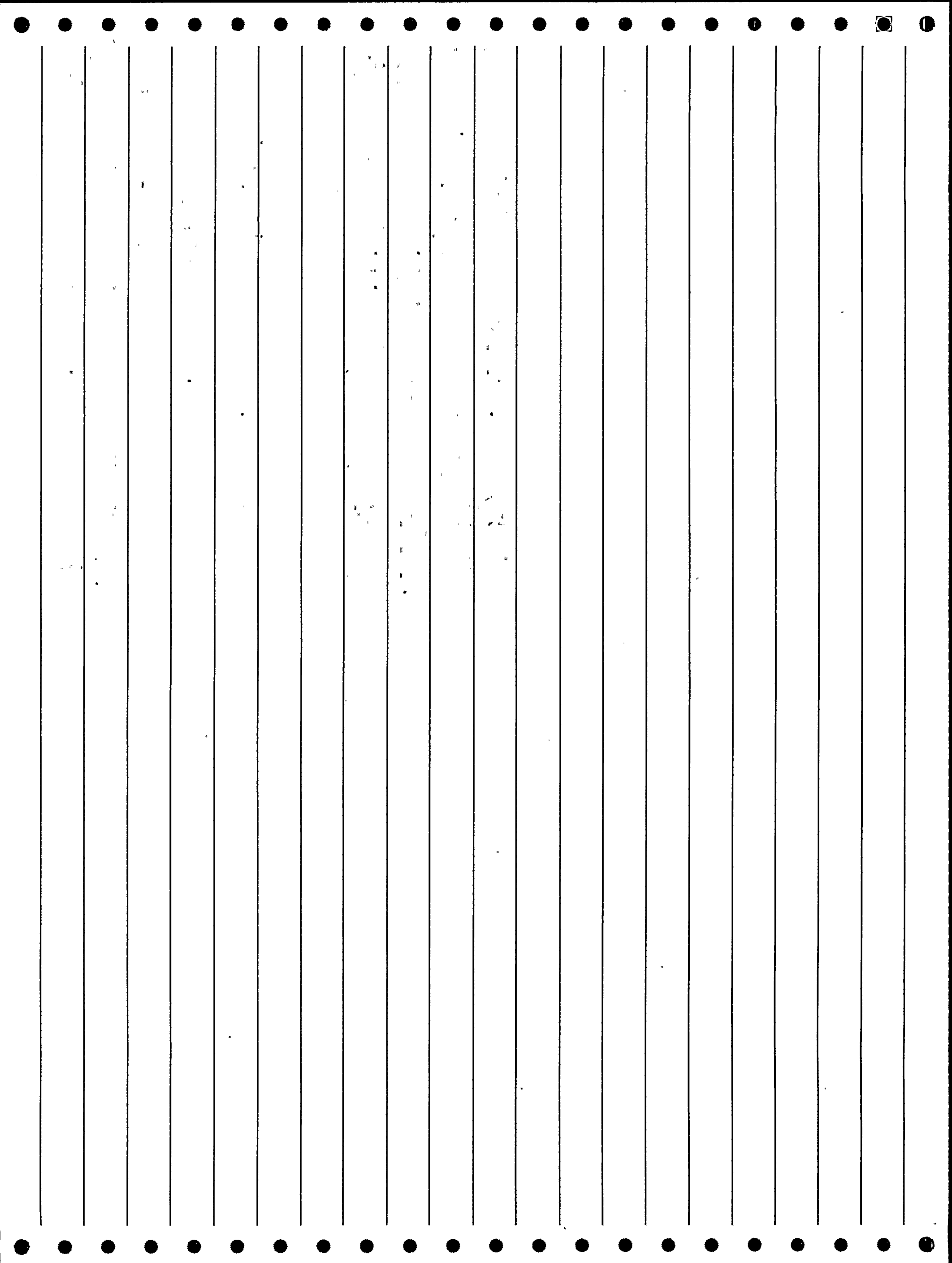
STEP 7: COMP XI - CHLORINE DETECTOR; STEP 9: CAUSE SX - PROPER SITUATION
DIAGNOSTICS. STEPS 1-3: ISYS ZY - IU IW IJ IZ ID

REFERENCE LERS:

1 346/80-064

ABSTRACT

(NP-33-83-14) ON 1/31/83 AT 0938 HOURS, THE STATION EXPERIENCED A LOSS
OF 120V AC ESSENTIAL BUS Y1. THIS PLACED THE UNIT IN THE ACTION
STATEMENT OF TECH SPEC 3.8.2.1. AT 1200 HOURS ON 1/31/83 AFTER
RETURNING THE Y1 BUS TO SERVICE AT 1134 HOURS, CONTROL ROOM OPERATORS
NOTICED THE LOSS OF PRESSURIZER LEVEL INDICATION FROM LT-RC-14-3.
THIS INVOKED TECH SPEC 3.3.3.6. REDUNDANT INSTRUMENTATION WAS
CONTINUOUSLY AVAILABLE. THE CAUSE OF THE LOSS OF Y1 WAS THE FAILURE
OF THE YV1 INVERTER INPUT FUSE, HOWEVER, THE ROOT CAUSE OF THE FAILURE
IS UNKNOWN. UNDER MAINTENANCE WORK ORDER 83-1027, THE FUSE WAS
REPLACED. THE CAUSE OF THE LOSS OF PRESSURIZER LEVEL INDICATION WAS
THE FAILURE OF THE AMPLIFIER FOR LT-RC-14-3. ON 2/11/83, A NEW
AMPLIFIER WAS INSTALLED UNDER MAINTENANCE WORK ORDER 83-1700.

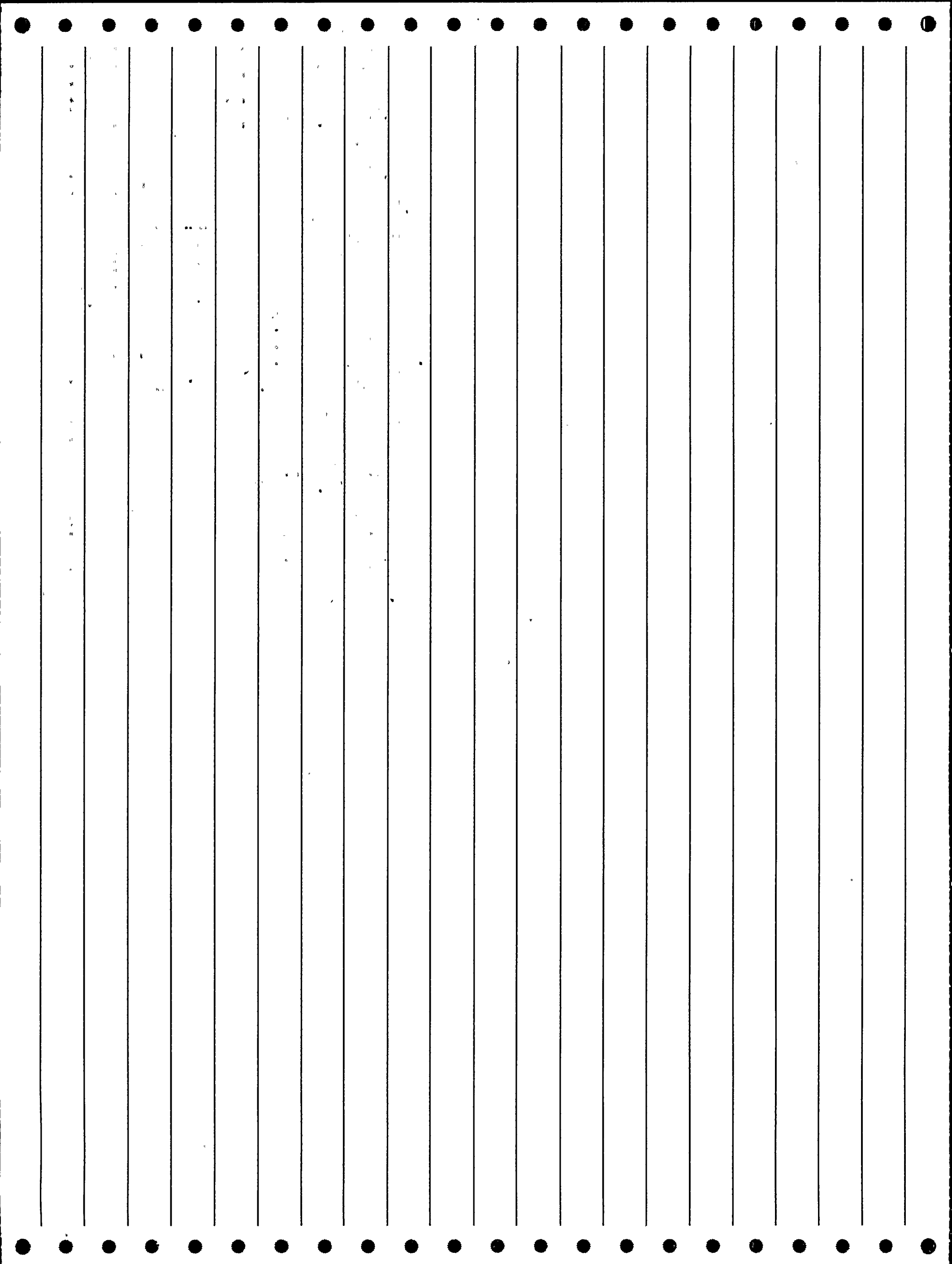


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1983 023 0 8306170414 183481 05/10/83

DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

ABSTRACT

(NP-33-83-32) ON 5/10/83 AT 1026 HOURS, 120 VAC ESSENTIAL BUS Y4 WAS LOST DUE TO A BLOWN FUSE IN INVERTER YV4. THIS PLACED THE UNIT IN THE ACTION STATEMENT OF TECH SPEC 3.8.2.1. AS A RESULT OF THE LOSS OF Y4, THE FOLLOWING TECH SPEC INSTRUMENTATION WAS DE-ENERGIZED: REACTOR PROTECTION SYSTEM CHANNEL 4 AND SAFETY FEATURES ACTUATION SYSTEM CHANNEL 4. ALL SAFETY SYSTEMS PERFORMED AS DESIGNED. WHILE PERFORMING MODIFICATION WORK IN THE LOW VOLTAGE SWITCHGEAR ROOM 2, A SPRAY CAN BEING USED TIPPED OVER, SPRAYING WATER ONTO THE PROTECTIVE PLASTIC ON THE SCAFFOLDING. AS A RESULT, WATER WORKED ITS WAY THROUGH THE PLASTIC INTO THE REGULATED RECTIFIER YRF4 AND CAUSED THE INVERTER YV4 INPUT FUSE TO BLOW. Y4 WAS RESTORED AT 1336 HOURS ON 5/10/83. A MEMO WAS ISSUED OUTLINING PRECAUTIONS TO BE TAKEN WHILE ERECTING SCAFFOLDING OVER ELECTRICAL EQUIPMENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1984 010 0 8408010313 190806 06/24/84

DOCKET:346. DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

REPORTABILITY CODES FOR THIS LER ARE:

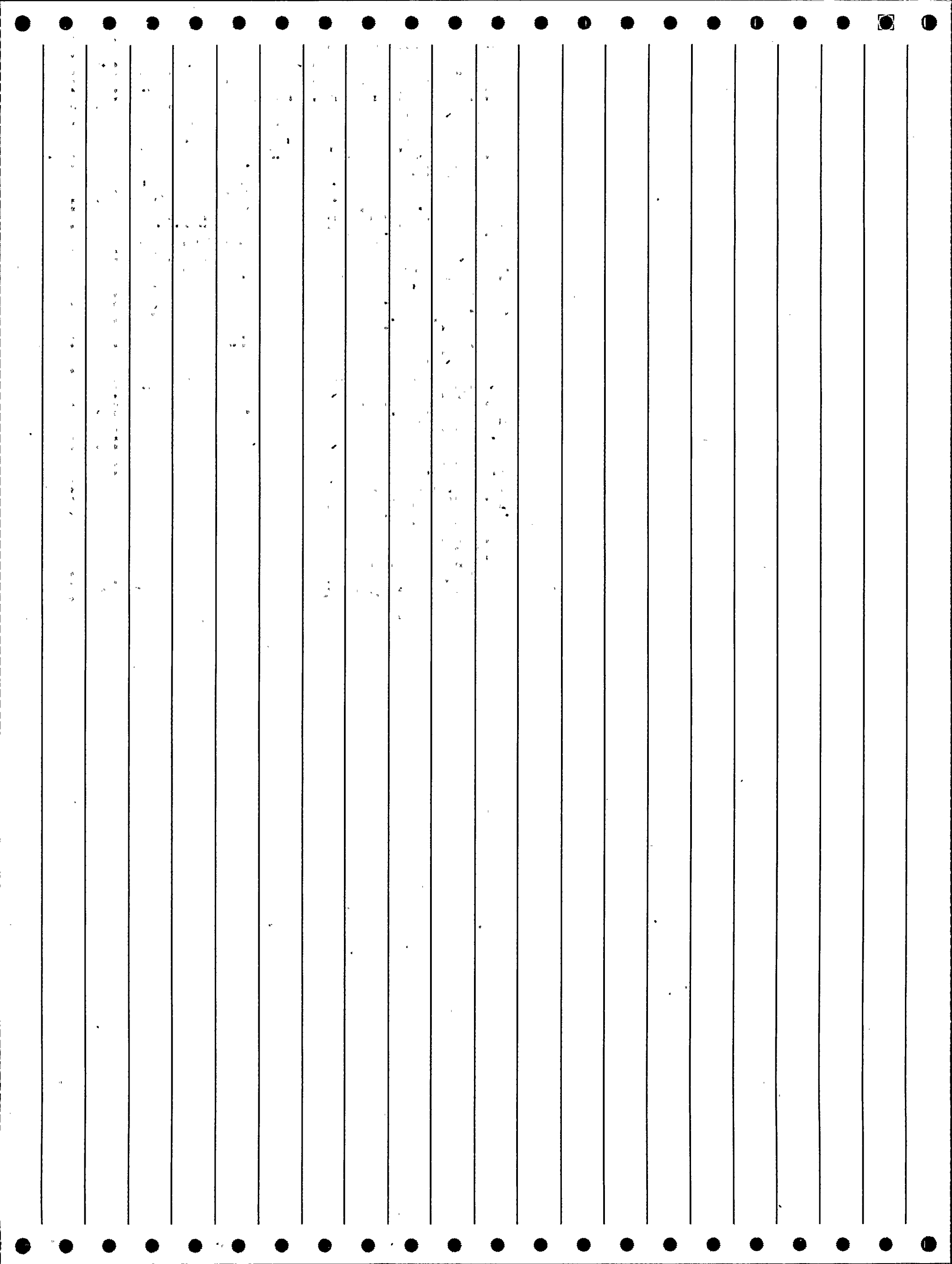
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 346/84-061

ABSTRACT

POWER LEVEL - 094%. AT 0420 HRS ON JUN 24, 1984, WITH THE UNIT AT 94% OF FULL POWER, 840 MWE, DAVIS-BESSE UNIT 1 EXPERIENCED A LOSS OF POWER TO Y4, THE CHANNEL 4 ESSENTIAL 120V AC BUS. THIS DEENERGIZED CHANNEL 4 OF THE REACTOR PROTECTION SYSTEM AND OPENED ITS ASSOCIATED CONTROL ROD DRIVE BREAKER SET 'A' AND 'C.' THE FAILURE WAS IN THE YV4 INVERTER. IT WAS REPAIRED, AND Y4 BUS WAS DECLARED OPERABLE AT 1057 HRS ON JUN 24, 1984. AFTER THE REQUIRED SURVEILLANCE TEST WAS DONE ON REACTOR PROTECTION SYSTEM CHANNEL 4, THE INSTRUMENT AND CONTROL MECHANIC, WHO HAD BEEN DOING THE TEST, INTENDING TO CLOSE THE OPEN CONTROL ROD DRIVE BREAKER, WHICH HE THOUGHT WAS BREAKER 'D,' PROCEEDED TO CONTROL ROD DRIVE BREAKER 'D' AND ACCIDENTALLY OPENED IT, CAUSING A REACTOR SHUTDOWN AT 1354 HRS ON JUN 24, 1984. PLANT POST TRIP RESPONSE WAS AS EXPECTED WITH NO SAFETY LIMITS EXCEEDED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1986 008 1 8606180003 199804 01/08/86

DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

COMMENTS

STEP 1: CAUSE AX - FOR MODIFICATION. STEP 9: COMP RLX - FOR SEAL-IN CIRCUITRY.

WATCH-LIST CODES FOR THIS LER ARE:

941. REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

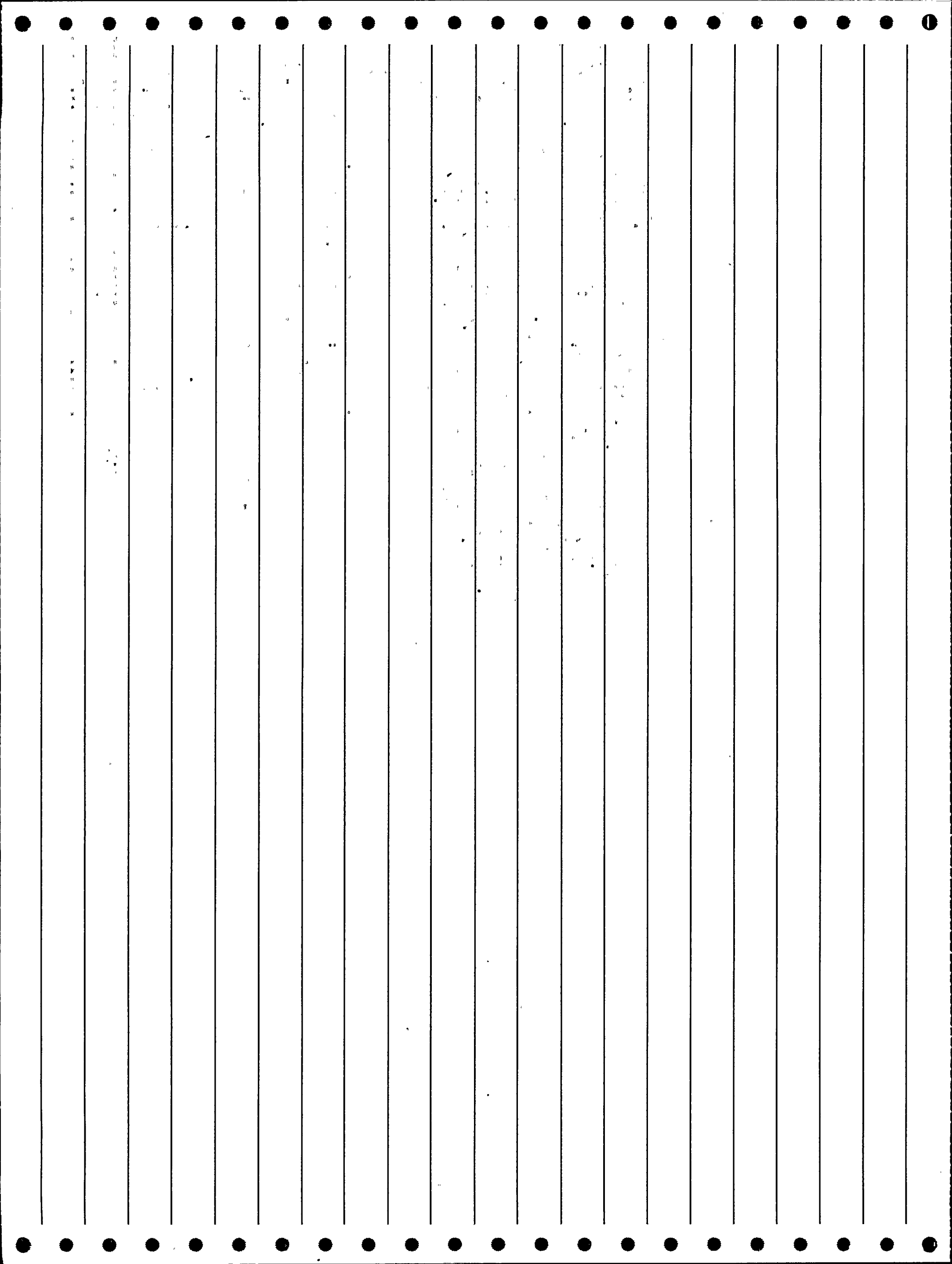
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 346/85-002

ABSTRACT

POWER LEVEL - 000%. ON JANUARY 8, 1986 AT 1055 HOURS, WHILE IN MODE 5 (COLD SHUTDOWN), THE STATION EXPERIENCED A FULL SAFETY FEATURES ACTUATION SYSTEM (SFAS) ACTUATION. PRIOR TO THE ACTUATION, SFAS CHANNEL 1 HAD BEEN DE-ENERGIZED TO PERMIT A CABINET MODIFICATION. AT THE TIME OF THE ACTUATION TESTING WAS BEING CONDUCTED IN INVERTER YV3 WHICH SUPPLIES AC POWER TO SFAS CHANNEL 3. ALTHOUGH THE TESTING SHOULD NOT HAVE INTERRUPTED YV3 POWER, AN ERROR IN PERFORMING A STEP IN MAINTENANCE PROCEDURE MP 1410.71 OPENED THE WRONG SWITCH WHICH RESULTED IN THE LOSS OF 120 VAC VITAL BUS Y3 WHICH DE-ENERGIZED SFAS CHANNEL 3. WITH BOTH CHANNELS 1 AND 3 DE-ENERGIZED, A FULL SFAS ACTUATION OCCURRED PER DESIGN. BY 1110 HOURS THE SAME DAY, THE SFAS CHANNELS WERE RESET AND ACTUATED EQUIPMENT RETURNED TO NORMAL. AT 1210 HOURS, NOTIFICATION WAS MADE UNDER 10CFR50.72 TO THE NRC VIA THE EMERGENCY NOTIFICATION SYSTEM (RED PHONE). THIS REPORT IS BEING SUBMITTED PER 10CFR50.73 AS THE AUTOMATIC ACTUATION OF AN ENGINEERED SAFETY FEATURE (ESF).



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
346 1990 006 0 9005080090 218131 04/03/90

DOCKET:346 DAVIS-BESSE 1 TYPE:PWR
REGION: 3 NSSS:BW
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: TOLEDO EDISON CO.
SYMBOL: TEC

COMMENTS

STEP 2: COMP XS - BREAKER SWITCH.

WATCH-LIST CODES FOR THIS LER ARE:

31 ACCIDENTAL ACTION
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

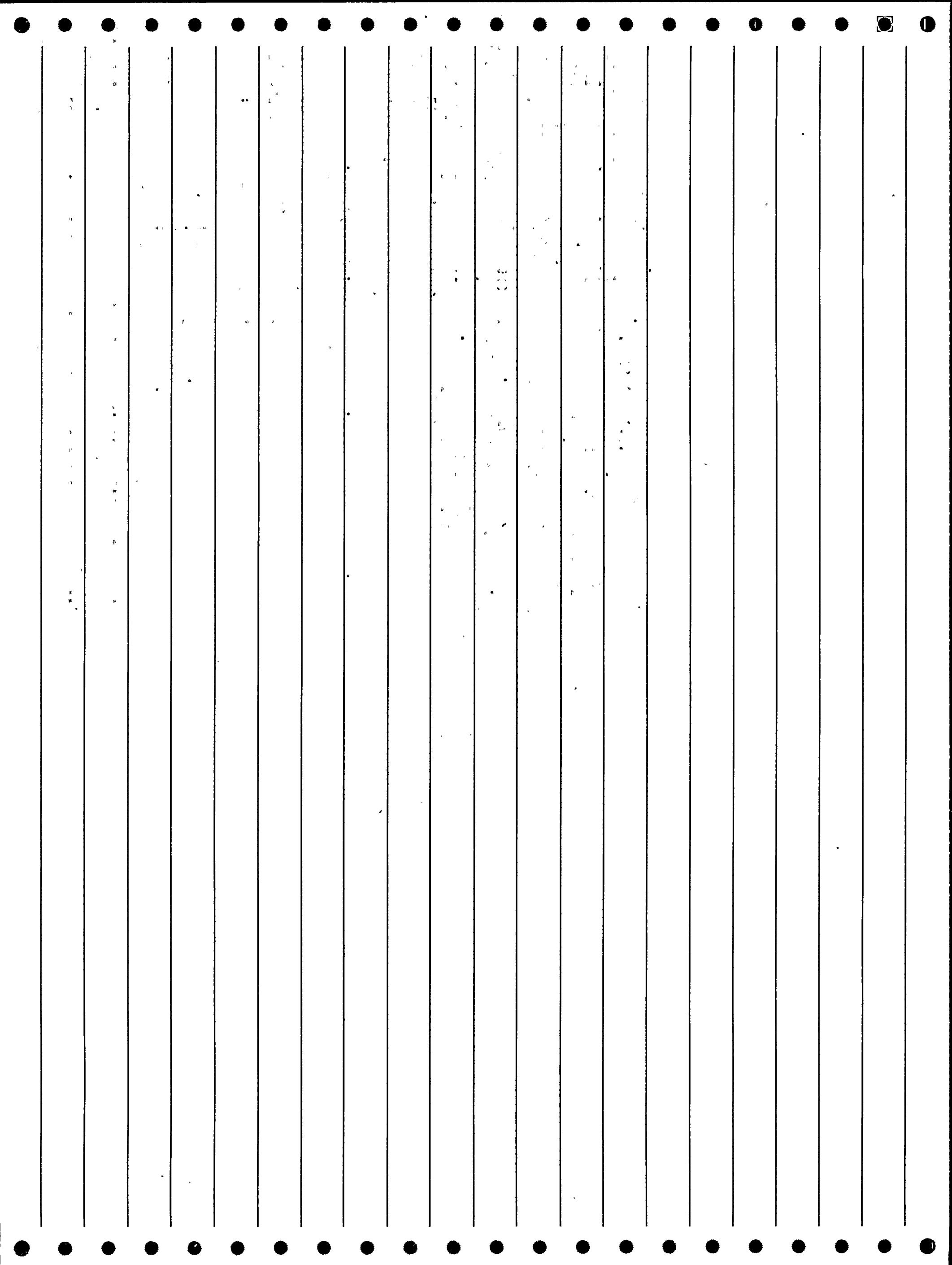
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 346/88-012 2 346/89-017

ABSTRACT

POWER LEVEL - 000%. ON 4/3/90, AT 0905 HOURS, WITH THE REACTOR DEFUELED, THE STATION EXPERIENCED A SAFETY FEATURES ACTUATION SYSTEM (SFAS) LEVEL 1 THROUGH 5 ACTUATION. IT WAS INITIATED BY AN ACCIDENTAL BUMPING OF A BREAKER SWITCH. WHEN THE SWITCH OPENED, IT DE-ENERGIZED A BUS AND RESULTED IN THE LOSS OF POWER TO SFAS CHANNELS 1 AND 3. THIS CAUSED A FULL SFAS LOGIC ACTUATION. BEING DEFUELED, MOST ENGINEERED SAFETY FEATURE SYSTEMS HAD BEEN DISABLED TO PREVENT INADVERTENT ACTUATION. AS A RESULT OF THE AUTOMATIC OPENING OF ONE OF THE ISOLATION VALVES, THE BOUNDARY OF AN ONGOING HYDROTEST CHANGED, AND AN OPEN DRAIN LINE WAS EXPOSED TO 500 PSIG. THE CLOTHING OF ONE WORKER WAS CONTAMINATED. OPERATIONS MANAGEMENT HELD MEETINGS WITH ALL CRAFT PERSONNEL TO DISCUSS THE IMPORTANCE OF BEING CAREFUL AROUND PLANT EQUIPMENT AND THE CONSEQUENCES OF THIS EVENT. THE NRC WAS NOTIFIED VIA THE ENS UNDER 10CFR50.72(B)(2)(II). THIS IS BEING REPORTED AS AN LER UNDER 10CFR50.73(A)(2)(IV) AS AN AUTOMATIC ACTUATION OF ESF EQUIPMENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
348 1987 004 0 8702260585 202834 01/22/87

DOCKET:348 FARLEY 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: BESS
FACILITY OPERATOR: ALABAMA POWER CO.
SYMBOL: APC

COMMENTS

STEP 1: CAUSE AX - CALIBRATION AND FUNCTIONAL TESTING OPERATIONS. STEP 7:
MODEL - 5 KVA, 60 HZ.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:

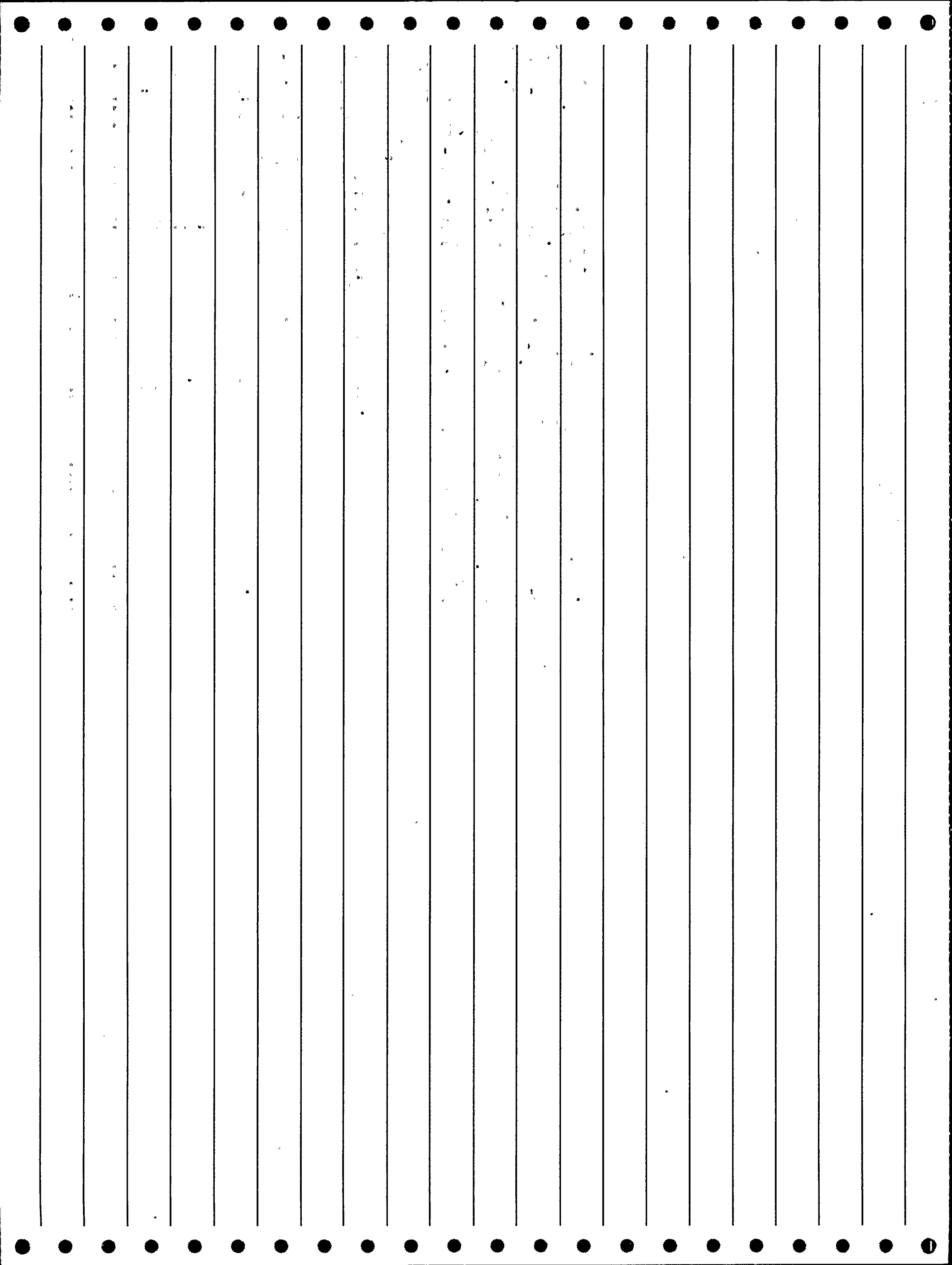
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 364/85-012

ABSTRACT

POWER LEVEL - 100%. AT 1218 ON 1-22-87, WITH THE UNIT OPERATING AT 100% POWER, A REACTOR TRIP OCCURRED DUE TO HIGH FLUX RATES INDICATED BY POWER RANGE NUCLEAR INSTRUMENTATION CHANNELS N-41 AND N-42. THE HIGH FLUX RATE ON N-42 WAS DUE TO TESTING WHICH WAS IN PROGRESS AT THE TIME. THE HIGH FLUX RATE ON N-41 WAS CAUSED BY THE FAILURE OF THE 1A INVERTER WHICH SUPPLIES POWER TO N-41. TESTING OF N-42 WAS COMPLETED AND N-42 WAS RETURNED TO SERVICE. THE BACKUP POWER SUPPLY FOR N-41 WAS PLACED INTO SERVICE. THE UNIT RETURNED TO POWER OPERATION ON 1-23-87. SUBSEQUENTLY, THE 1A INVERTER WAS TESTED AND FOUR BLOWN FUSES WERE REPLACED. NO CAUSE FOR THE BLOWN FUSES COULD BE FOUND. THE INVERTER WAS RETURNED TO SERVICE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
352 1986 029 0 8607160047 199995 06/09/86

DOCKET:352 LIMERICK 1 TYPE:BWR
REGION: 1. NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PHILADELPHIA ELECTRIC CO.
SYMBOL: PEC

REPORTABILITY CODES FOR THIS LER ARE:

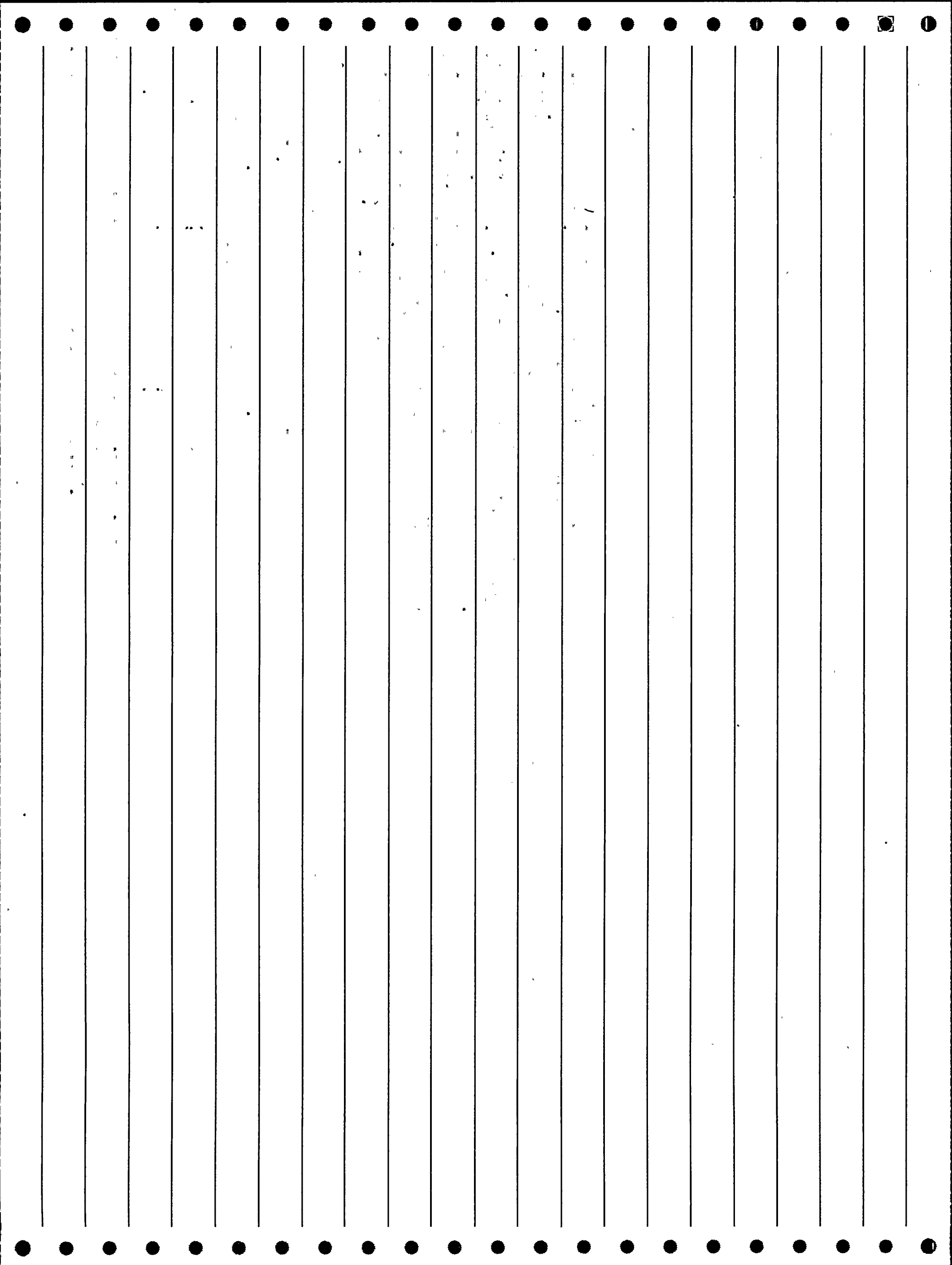
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 352/85-074	2 352/85-088	3 352/85-099	4 352/84-007
5 352/84-024	6 352/84-030	7 352/86-003	8 352/84-039
9 352/84-040	10 352/85-007		

ABSTRACT

POWER LEVEL - 000%. ON 6-9-86, AT 0856 HOURS WITH THE UNIT IN OPERATIONAL MODE 4, AN UNEXPECTED ACTUATION OF AN ENGINEERED SAFETY FEATURE SYSTEM OCCURRED. WHEN TRANSFERRING THE POWER SUPPLY VIA THE STATIC INVERTER TRANSFER SWITCH, THE POWER FLOW WAS INTERRUPTED AND THE RPS/UPS STATIC INVERTER DE-ENERGIZED. THE NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NSSSS) LOGIC DE-ENERGIZED AND PRODUCED ISOLATION SIGNALS WHICH AFFECTED VARIOUS PLANT EQUIPMENT INCLUDING THE CONTAINMENT INSTRUMENT GAS SYSTEM AND DRYWELL CHILLED WATER SYSTEM. THIS EVENT WAS CAUSED BY AN INCOMPLETE CONNECTION BETWEEN A LOGIC CARD AND ITS MATING CONNECTOR. THE CARD DESIGN DOES NOT ALLOW FOR EASE OF DETERMINING PROPER CONNECTION. THE LACK OF PROPER CONNECTION RESULTED IN DE-ENERGIZATION OF THE STATIC INVERTER. THE LOGIC CARD WAS REMOVED AND CAREFULLY REINSTALLED TO ASSURE ALIGNMENT OF THE CONTACTS. POWER WAS RESTORED THROUGH AN ALTERNATE SOURCE AND THE ISOLATIONS WERE RESET. PROCEDURE REVISIONS ARE FORTHCOMING TO PROVIDE A STEP WHICH WILL TEST THE INTEGRITY OF THE LOGIC CARD PIN CONNECTIONS PRIOR TO THE TRANSFER OF POWER.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
353 1989 015 0 9001300417 216608 12/23/89

DOCKET:353 LIMERICK 2 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PHILADELPHIA ELECTRIC CO.
SYMBOL: PEC

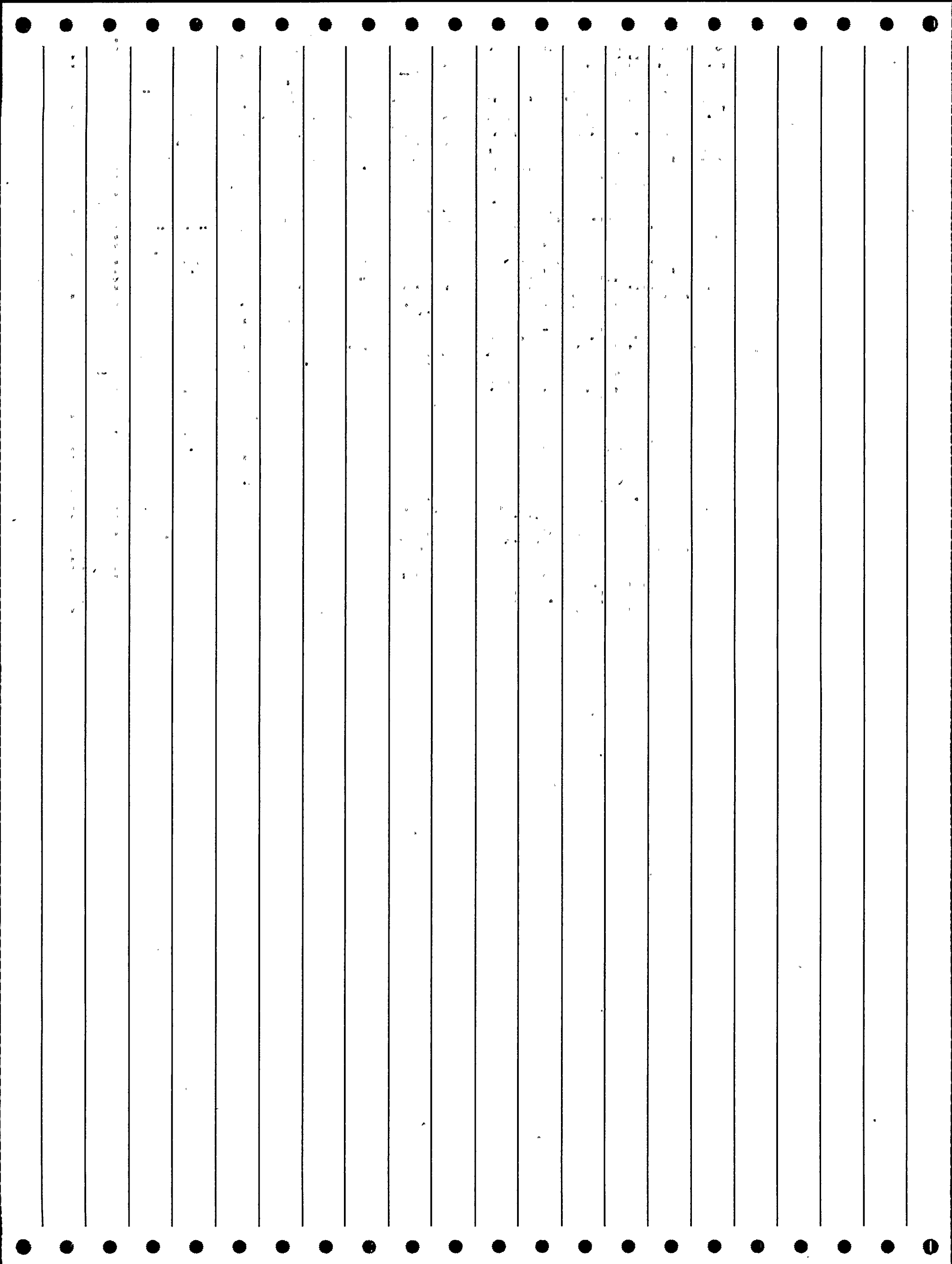
COMMENTS
STEPS 1-21: EVENT OCCURRED ON 12-23-89. STEPS 22-39: EVENT OCCURRED ON
12-24-89.

WATCH-LIST CODES FOR THIS LER ARE:
941 REPORT ASSOCIATED WITH 10 CFR 50.72
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 352/84-030 2 352/84-040 3 352/85-007 4 352/85-008
5 352/85-011 6 352/85-024 7 352/85-026 8 352/85-048
9 352/85-074 10 352/87-021 11 352/87-027 12 352/87-029
13 352/87-038 14 352/89-055

ABSTRACT
POWER LEVEL, - 000%. ON DECEMBER 23, 1989, DURING STARTUP FROM AN
OUTAGE AND ON DECEMBER 24, 1989 DURING LOW POWER OPERATION, A PROBLEM
WITH THE STATIC INVERTER CAUSED A LOSS OF POWER TO THE '2B' REACTOR
PROTECTION SYSTEM (RPS)/UNINTERRUPTABLE POWER SUPPLY STATIC INVERTER
CAUSED A LOSS OF POWER TO THE '2B' RPS DISTRIBUTION PANEL, 2BY160. AS
A RESULT, VARIOUS AUTOMATIC PRIMARY CONTAINMENT REACTOR VESSEL
ISOLATION CONTROL SYSTEM ISOLATIONS, ENGINEERED SAFETY FEATURE (ESF)
ACTUATIONS, OCCURRED. IN ADDITION, REACTOR ENCLOSURE AND REFUEL FLOOR
VENTILATION SYSTEMS ISOLATED AND THE REACTOR ENCLOSURE-RECIRCULATION
SYSTEM AND THE STANDBY GAS TREATMENT SYSTEM STARTED, ALSO ESF
ACTUATIONS. BOTH REACTOR RECIRCULATION PUMPS TRIPPED. ALL SYSTEMS
RESPONDED AS DESIGNED. ALL ISOLATIONS WERE RESET AND SYSTEMS WERE
RETURNED TO SERVICE PROMPTLY AND THERE WAS NO ADVERSE IMPACT ON PLANT
OPERATIONS. THE CAUSE OF THE LOSS OF POWER FROM THE INVERTER WAS
TRACED TO A PROBLEM IN THE GATE DRIVE BOOST CARD ON THE STATIC
INVERTER. THE FAILED CARD WAS REPLACED ON DECEMBER 26, 1989.
RELIABILITY OF THE STATIC INVERTERS IS BEING EVALUATED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
353 1990 019 1 9012280194 220597 11/01/90

DOCKET:353 LIMERICK 2 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PHILADELPHIA ELECTRIC CO.
SYMBOL: PEC

WATCH-LIST CODES FOR THIS LER ARE:

941 REPORT ASSOCIATED WITH 10 CFR 50.72
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

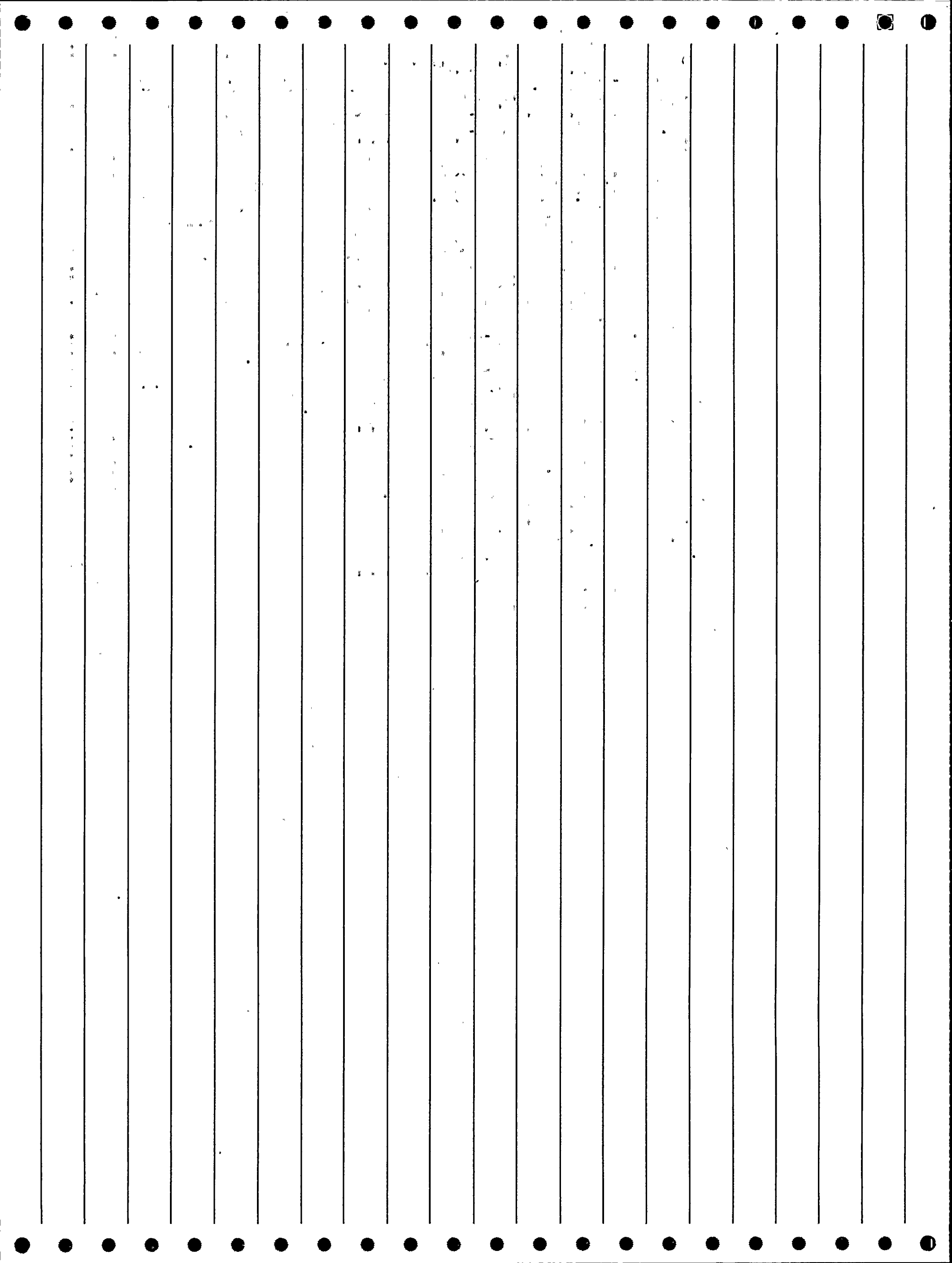
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 352/84-030	2 352/84-040	3 352/85-007	4 352/85-008
5 352/85-011	6 352/85-024	7 352/85-026	8 352/85-048
9 352/85-074	10 352/87-021	11 352/87-027	12 352/87-029
13 352/87-038	14 352/89-055	15 353/90-005	16 353/90-007

ABSTRACT

POWER LEVEL - 100%. ON NOVEMBER 1, 1990, AT 0602 HOURS, VARIOUS ACTUATIONS OF THE PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION CONTROL SYSTEM (PCRIVICS), AN ENGINEERED SAFETY FEATURE (ESF), AND A CHANNEL 'B' REACTOR PROTECTION SYSTEM (RPS) HALF-SCRAM OCCURRED, DUE TO THE UNEXPECTED TRIPPING OF THE '2B2' RPS STATIC INVERTER OR ALTERNATE POWER SUPPLY OUTPUT CIRCUIT BREAKER, RESULTING IN A LOSS OF POWER TO THE RPS/UNINTERRUPTIBLE POWER SUPPLY (UPS) POWER DISTRIBUTION PANEL. THE CONSEQUENCES OF THIS EVENT WERE MINIMAL AND THERE WAS NO RELEASE OF RADIOACTIVE MATERIAL TO THE ENVIRONMENT. ALL SYSTEMS RESPONDED AS DESIGNED DURING THE LOSS OF POWER TO THE RPS/UPS POWER DISTRIBUTION PANEL. THE ISOLATIONS WERE BYPASSED OR RESET AND THE SYSTEMS WERE RESTORED EXPEDITIOUSLY BY OPERATORS IN ACCORDANCE WITH PLANT PROCEDURES. THE CAUSE OF THIS EVENT WAS A DAMAGED CONNECTOR IN THE '2B2' RPS STATIC INVERTER CIRCUITRY COUPLED WITH TROUBLESHOOTING BEING PERFORMED BY PLANT OPERATORS. ALL STATIC INVERTERS WERE INSPECTED FOR DAMAGED CONNECTORS AND NO OTHER PROBLEMS WERE IDENTIFIED. PREVENTIVE AND CORRECTIVE MAINTENANCE WORK WAS COMPLETED ON THE TECHNICAL SUPPORT CENTER (TSC) AND RPS STATIC INVERTERS, AND THE ALTERNATE POWER SUPPLY WAS RESTORED ON NOVEMBER 21, 1990.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
354 1987 013 0 8703100207 203394 02/05/87

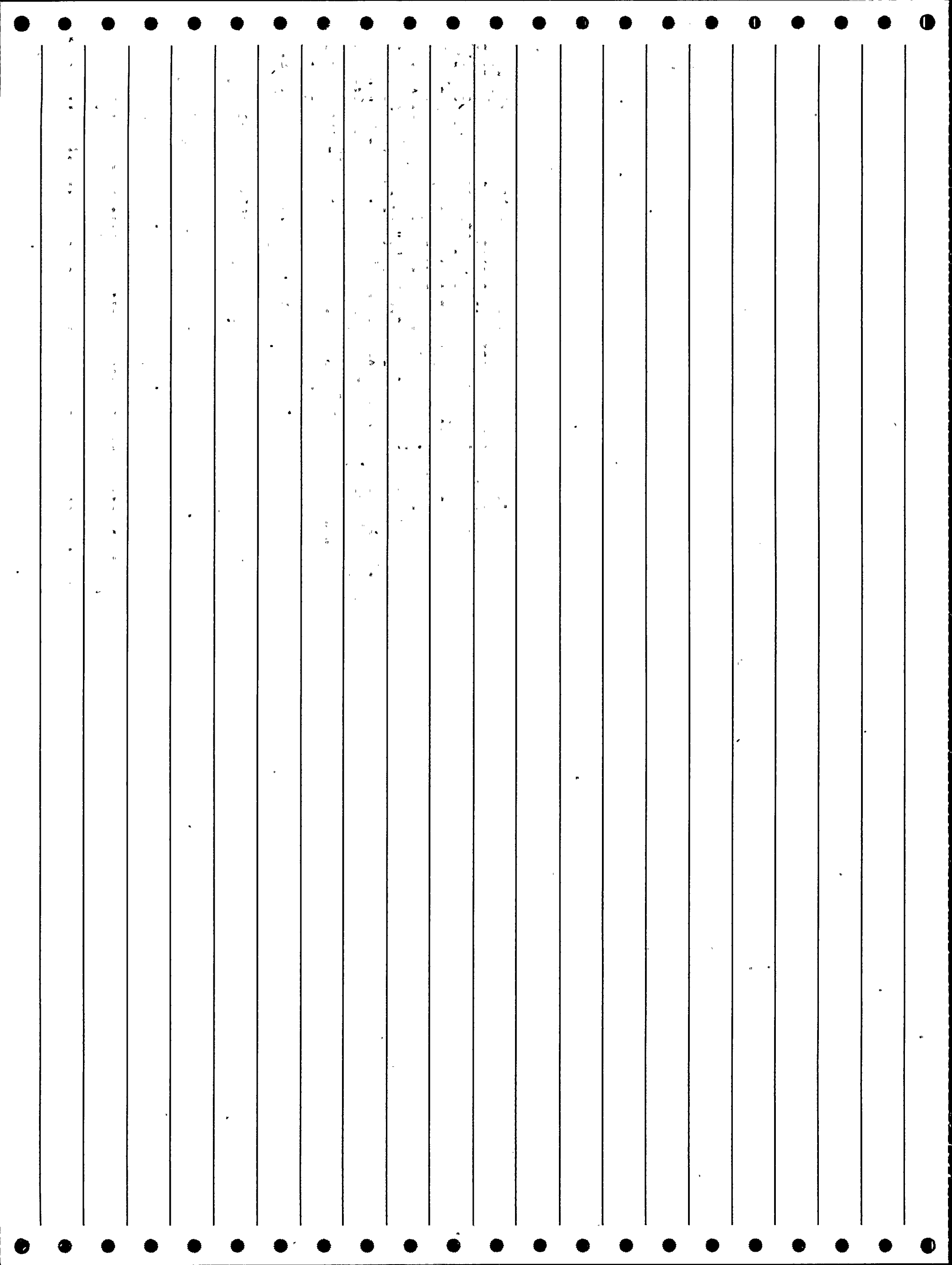
DOCKET:354 HOPE CREEK 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PUBLIC SERVICE ELECTRIC & GAS CO.
SYMBOL: PEG

WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. REACTOR PROTECTION SYSTEM (RPS) BUS "B" NORMAL POWER WAS LOST WHEN THE MOTOR CONTROL CENTER (MCC) SUPPLYING POWER TO THE RPS MOTOR GENERATOR (MG) SET WAS DE-ENERGIZED. THE LOSS OF RPS BUS "B" INITIATED AN ENGINEERED SAFETY FEATURE ACTUATION (REACTOR WATER CLEANUP ISOLATION) AS WELL AS OTHER TRIP AND TROUBLE INDICATIONS. RPS BUS "B" WAS RETURNED TO SERVICE AND ALL COMPONENTS AND SYSTEMS WERE RESTORED TO A NORMAL CONDITION. SUBSEQUENT INVESTIGATION REVEALED THAT THE MCC WAS DE-ENERGIZED AS THE RESULT OF SIMULTANEOUS BREAKER TRIPS AT THE MCC AND UNIT SUBSTATION SUPPLYING THE MCC, CAUSED BY PLUGGING IN A DEFECTIVE PIECE OF EQUIPMENT ON A LOWER TIERED DISTRIBUTION PANEL. CORRECTIVE ACTIONS CONSISTED OF TESTING BREAKER TRIP SETPOINTS AND STRESSING THE NEED TO VERIFY PORTABLE ELECTRICAL EQUIPMENT IS IN GOOD WORKING ORDER.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
354 1987 034 0 8709040487 206294 07/30/87

DOCKET:354 HOPE CREEK 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PUBLIC SERVICE ELECTRIC & GAS CO.
SYMBOL: PEG

COMMENTS

STEP 1: EFF WX - UNKNOWN. STEP 2: COMP XI - "BLOWN MAIN FUSE" INDICATING LAMP.

WATCH-LIST CODES FOR THIS LER ARE:

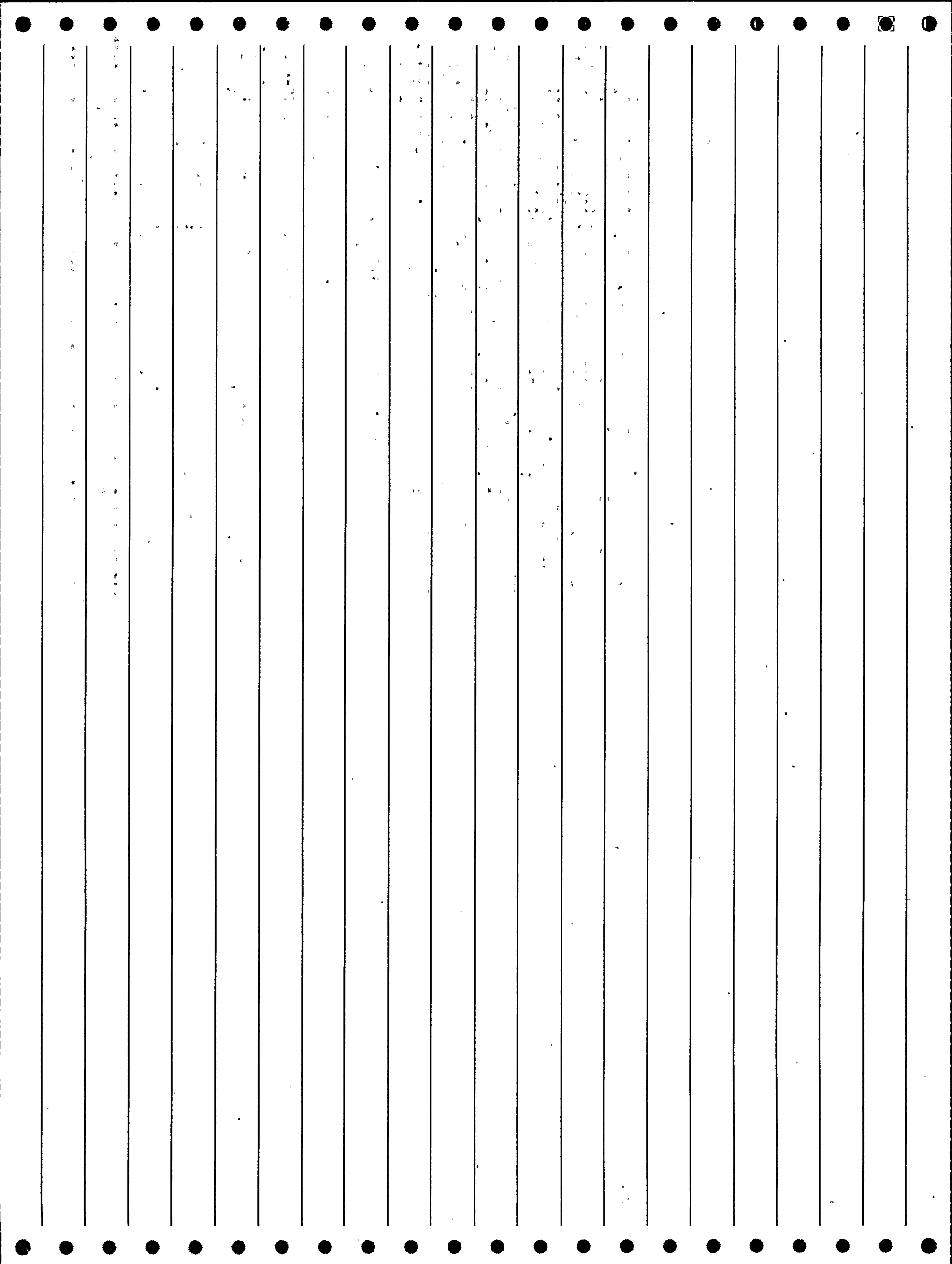
35 HUMAN ERROR
36 INADEQUATE TRAINING
40 PROCEDURAL DEFICIENCY.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. A REACTOR SCRAM OCCURRED WHEN A 120 VAC UNINTERRUPTABLE POWER SUPPLY (UPS) INVERTER WHICH POWERS THE FEEDWATER CONTROL CABINET BECAME DE-ENERGIZED DURING THE COURSE OF ROUTINE MAINTENANCE. THE RESULTANT LOSS OF FEEDWATER CONTROL CAUSED THE REACTOR TO SCRAM ON LOW LEVEL AT +12.5" DECREASING. SUBSEQUENT INVESTIGATION DETERMINED THAT THE INVERTER BECAME DE-ENERGIZED WHEN IT WAS BEING RETURNED TO A NORMAL CONFIGURATION. A SWITCHING ERROR CAUSED THE INVERTER MAIN POWER SUPPLY FUSE TO BLOW. SEVERAL FACTORS CONTRIBUTED TO A LACK OF AWARENESS ON THE PART OF THE OPERATOR INVOLVED THAT THE INVERTER MAIN FUSE HAD BLOWN. IN AN ATTEMPT TO CORRECT THE SWITCHING ERROR, THE BACKUP INFEED SOURCE TO THE INVERTER WAS ALSO DE-ENERGIZED. THESE ACTIONS COMBINED TO REMOVE THE ENTIRE INVERTER FROM SERVICE. CORRECTIVE ACTIONS INCLUDED VERIFYING FAULT INDICATING LAMPS ON ALL INVERTERS WERE INSTALLED, REVISING THE INVERTER OPERATING PROCEDURE, COUNSELLING THE OPERATOR INVOLVED, AND ENHANCING OPERATOR TRAINING ON INVERTER OPERATIONS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
354 1988 034 0 8901100190 212732 12/04/88

DOCKET:354 HOPE CREEK 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PUBLIC SERVICE ELECTRIC & GAS CO.
SYMBOL: PEG

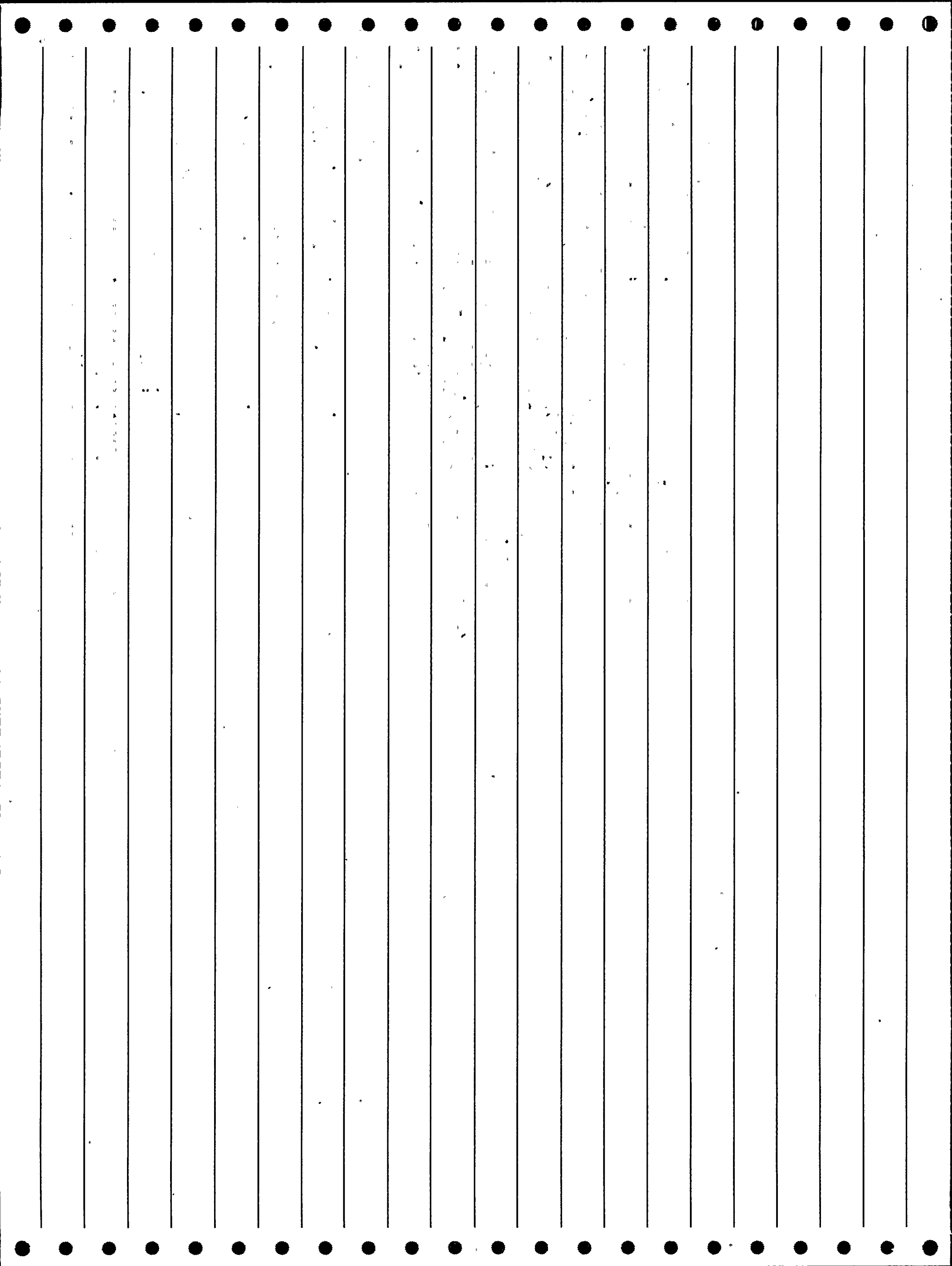
COMMENTS
STEPS 10,16: CAUSE IX - VOLTAGE TRANSIENTS.

WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 354/87-045

ABSTRACT
POWER LEVEL - 100%. ON 12/4/88 AT 1537, HOPE CREEK EXPERIENCED AN UNEXPECTED POWER REDUCTION AND ESF ACTUATION (REACTOR WATER CLEANUP SYSTEM ISOLATION) WHEN A LOGIC SYSTEM OPTICAL ISOLATOR CABINET INTERNAL POWER SUPPLY BECAME DE-ENERGIZED. AT THE ONSET OF THE EVENT, THE "B" REACTOR RECIRCULATION PUMP TRIPPED, AND THE RWCU INBOARD ISOLATION VALVE ISOLATED TRIPPING BOTH RWCU PUMPS; THESE RESPONSES WERE ACCOMPANIED BY VARIOUS INVALID ALARMS AND INDICATIONS. IMMEDIATE CONTROL ROOM RESPONSES INCLUDED STUFFING RODS IN ACCORDANCE WITH REACTOR ENGINEERING PROCEDURES TO COMPENSATE FOR REDUCED CORE FLOW/POWER LEVEL, ASSESSING PLANT STABILITY, VERIFYING ALARM/INDICATION STATUS, AND ESTABLISHING SINGLE RECIRCULATION LOOP OPERATIONS. AFTER OPERATIONS DEPARTMENT ASSURED THAT CONDITIONS WERE STABLE, I&C DEPARTMENT COMMENCED TROUBLESHOOTING TO DETERMINE THE CAUSE OF THE OPTICAL ISOLATOR CABINET POWER FAILURE. INITIAL TROUBLESHOOTING EFFORTS WERE FOCUSED ON A POTENTIALLY BAD POWER SUPPLY MONITOR CARD IN THE CABINET; SUBSEQUENT INVESTIGATION DETERMINED THAT THE CAUSE OF THE POWER FAILURE WAS LOOSE TERMINATIONS ON THE CABINET INTERNAL 24VDC POWER SUPPLY. IMMEDIATE CORRECTIVE ACTIONS CONSISTED OF REPLACING THE SUSPECT POWER SUPPLY MONITOR CARD IN THE CABINET, TIGHTENING LOOSE TERMINATIONS AT THE POWER SUPPLY, AND RE-ENERGIZING THE CABINET.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
354 1989 009 .0 8905300068 213912 04/14/89

DOCKET:354 HOPE CREEK 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PUBLIC SERVICE ELECTRIC & GAS CO.
SYMBOL: PEG

WATCH-LIST CODES FOR THIS LER ARE:

40 PROCEDURAL DEFICIENCY
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

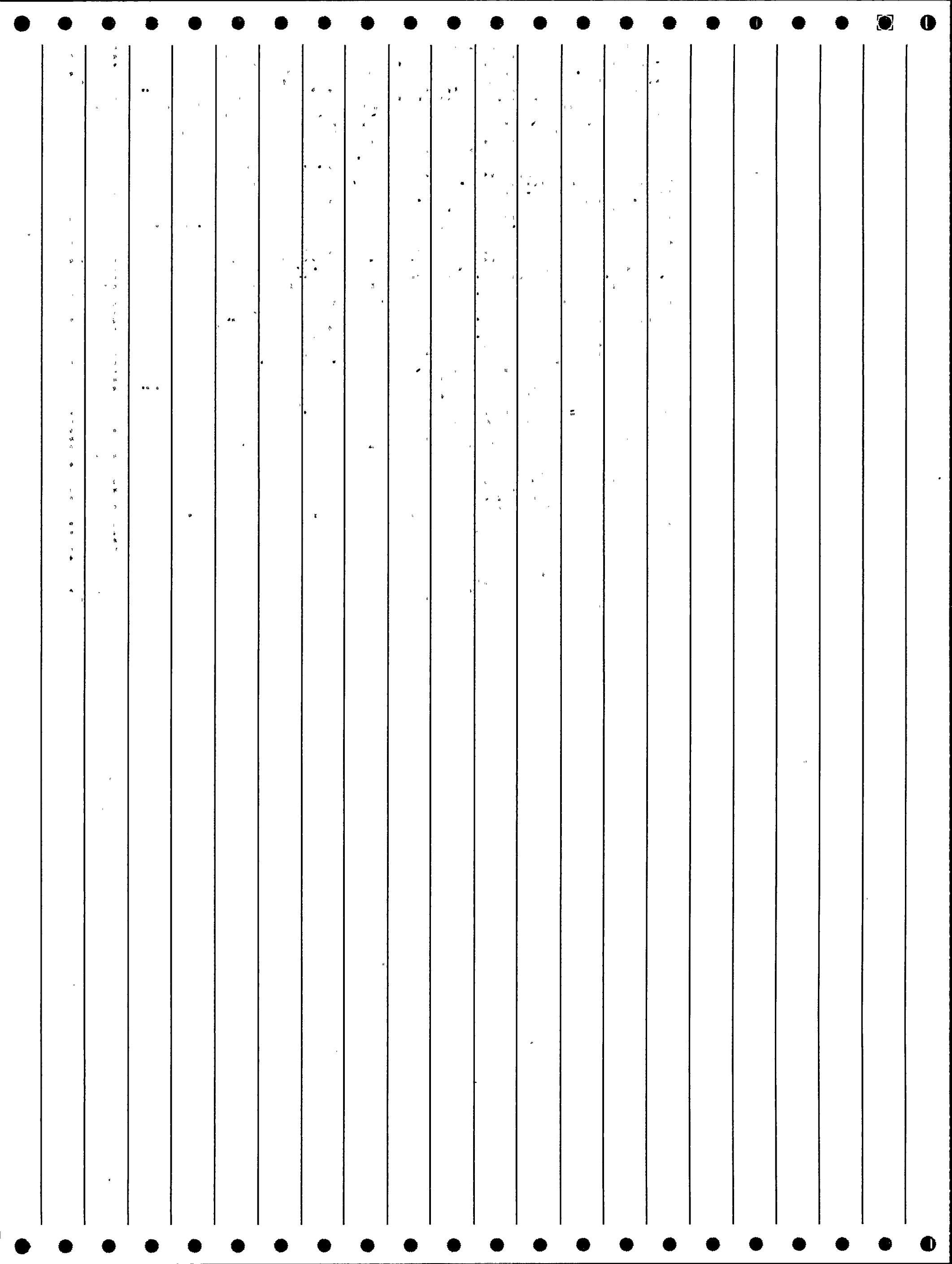
13 10 CFR 50.73(a)(2)(iv): ESF actuations.
14 10 CFR 50.73(a)(2)(v): Event that could have prevented
fulfillment of a safety function.

REFERENCE LERS:

1 354/87-034 2 354/87-036 3 354/88-019

ABSTRACT

POWER LEVEL - 100%. ON 4/14/89 AT 0806, AN OVERVOLTAGE CONDITION AFFECTING BOTH CLASS 1E CHANNEL "C" 125VDC BATTERY CHARGERS RESULTED IN A LOSS OF CHANNEL "C" ECCS INSTRUMENTATION WHEN THE ASSOCIATED INVERTER TRIPPED. AT 0840, DURING RESTORATION OF POWER TO THE CHANNEL "C" ECCS INSTRUMENTATION (T.S. 3.0.3 EXITED AT THIS TIME), A VOLTAGE SPIKE RESULTED IN INITIATION OF AN INVALID CHANNEL "C" ECCS LOSS OF COOLANT ACCIDENT (LOCA) LEVEL 1 SIGNAL. ALL CHANNEL "C" ECCS ACTUATIONS AND ISOLATIONS OCCURRED AS DESIGNED. DURING THIS TRANSIENT, THE "C" REACTOR FEEDPUMP TURBINE TRIPPED, AND WHEN VESSEL LEVEL DECREASED TO +30 INCHES AS A RESULT OF THIS TRIP, A REACTOR RECIRCULATION RUNBACK OCCURRED. REACTOR POWER STABILIZED AT ABOUT 74%. AFTER VERIFYING NONE OF THE CHANNEL "C" SYSTEM RESPONSES WERE NECESSARY, ALL SYSTEMS WERE RETURNED TO A NORMAL CONFIGURATION AND REACTOR POWER WAS INCREASED. INVESTIGATION SUBSEQUENT TO THE EVENT DETERMINED THAT MULTIPLE FACTORS COMBINED TO CAUSE THE OVERALL TRANSIENT RESPONSE. WHILE THE EVENT WAS INITIATED BY A PERSONNEL ERROR RESULTING IN A HIGH VOLTAGE CONDITION AFFECTING BOTH CLASS 1E CHANNEL "C" 125VDC BATTERY CHARGERS, OTHER PERSONNEL ERRORS AND PROCEDURAL INADEQUACIES SIGNIFICANTLY CONTRIBUTED TO THE EVENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
354 1990 004 0 9005230216 218221 04/18/90

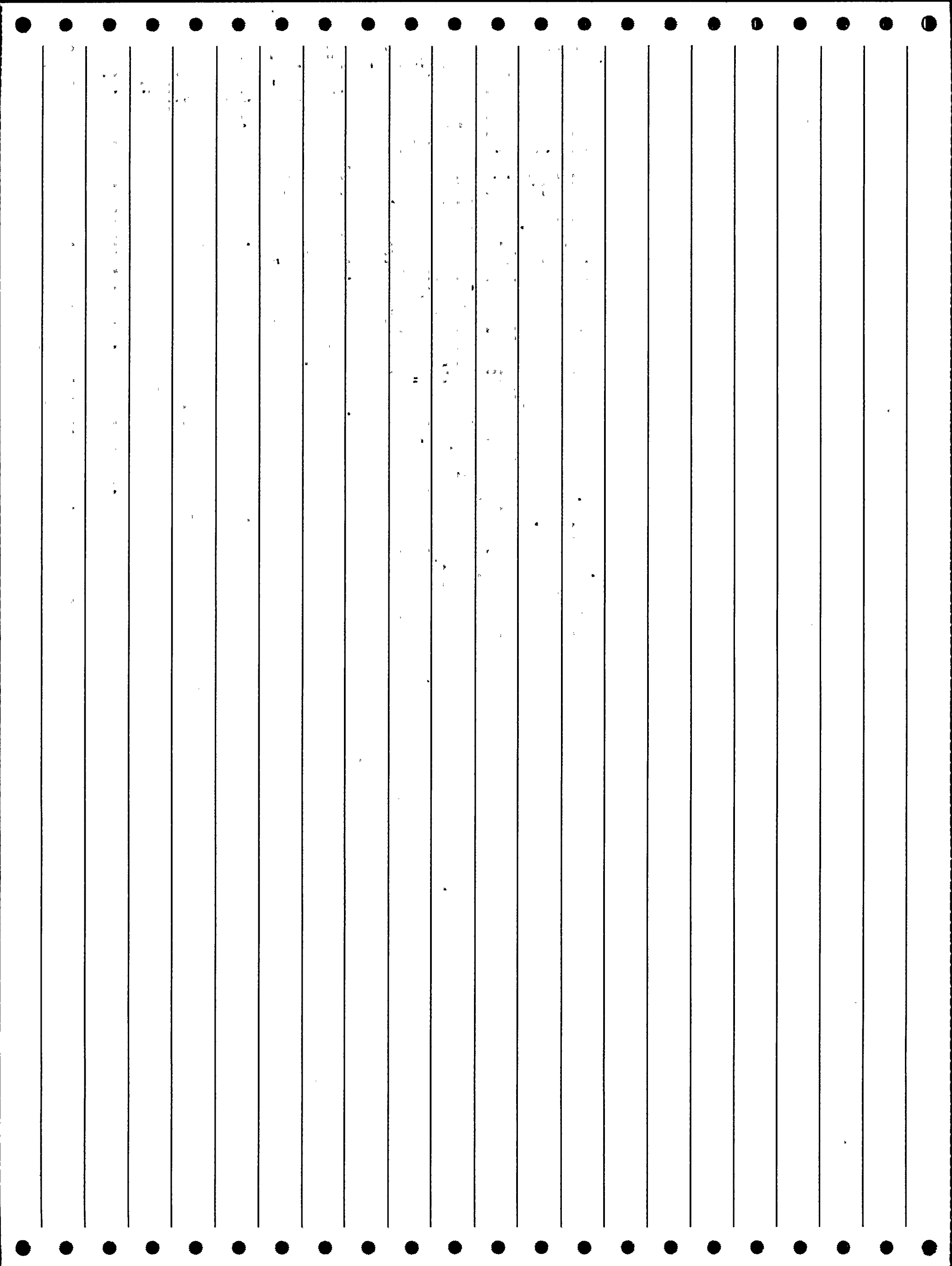
DOCKET:354 HOPE CREEK 1 TYPE:BWR
REGION: 1. NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PUBLIC SERVICE ELECTRIC & GAS CO.
SYMBOL: PEG

COMMENTS
STEP 1: TYPE 480VAC AKR.

WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT
POWER LEVEL - 100%. ON 4/18/90 AT 0740, CONTROL ROOM PERSONNEL
RECEIVED INDICATION OF A CHANNEL "B" REACTOR PROTECTION SYSTEM (RPS)
HALF SCRAM AND VARIOUS CHANNEL "B" AND "D" NUCLEAR STEAM SUPPLY
SHUTOFF SYSTEM (NS4) ISOLATIONS. INVESTIGATION DETERMINED THAT THE
MOTOR GENERATOR SET (MG SET) FOR THE "B" CHANNEL RPS BUS HAD TRIPPED
DUE TO DE-ENERGIZATION OF ITS ASSOCIATED MOTOR CONTROL CENTER (MCC).
WHEN THE MCC FEEDER BREAKER TRIPPED ON A SPURIOUS GROUND FAULT.
EXTENSIVE TROUBLESHOOTING BY MAINTENANCE DEPARTMENT AND SYSTEMS
ENGINEERING COULD NOT PINPOINT A DEFINITIVE CAUSE FOR THE GROUND FAULT
IN THE FEEDER BREAKER. AS CORRECTIVE ACTIONS, THE FEEDER BREAKER
AND ITS ASSOCIATED SOLID STATE TRIP DEVICE WERE REPLACED.
ADDITIONALLY, SYSTEMS ENGINEERING WILL CONTINUE TO TRACK SIMILAR
FAILURES UNDER THE STATION PERFORMANCE MONITORING PROGRAM AND TAKE
FURTHER ACTION IF A TREND OF SIMILAR FAILURES EMERGES. ITORING PROGRAM
AND TAKE FURTHER ACTION IF A TREND OF SIMILAR FAILURES EMERGES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
354 1990 029 1 9104010348 221437 11/26/90

DOCKET:354 HOPE CREEK 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PUBLIC SERVICE ELECTRIC & GAS CO.
SYMBOL: PEG

COMMENTS

STEP 1: CAUSE AX - TESTING.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE
34 DESIGN ERROR OR INADEQUACY
942 UNUSUAL EVENT

REPORTABILITY CODES FOR THIS LER ARE:

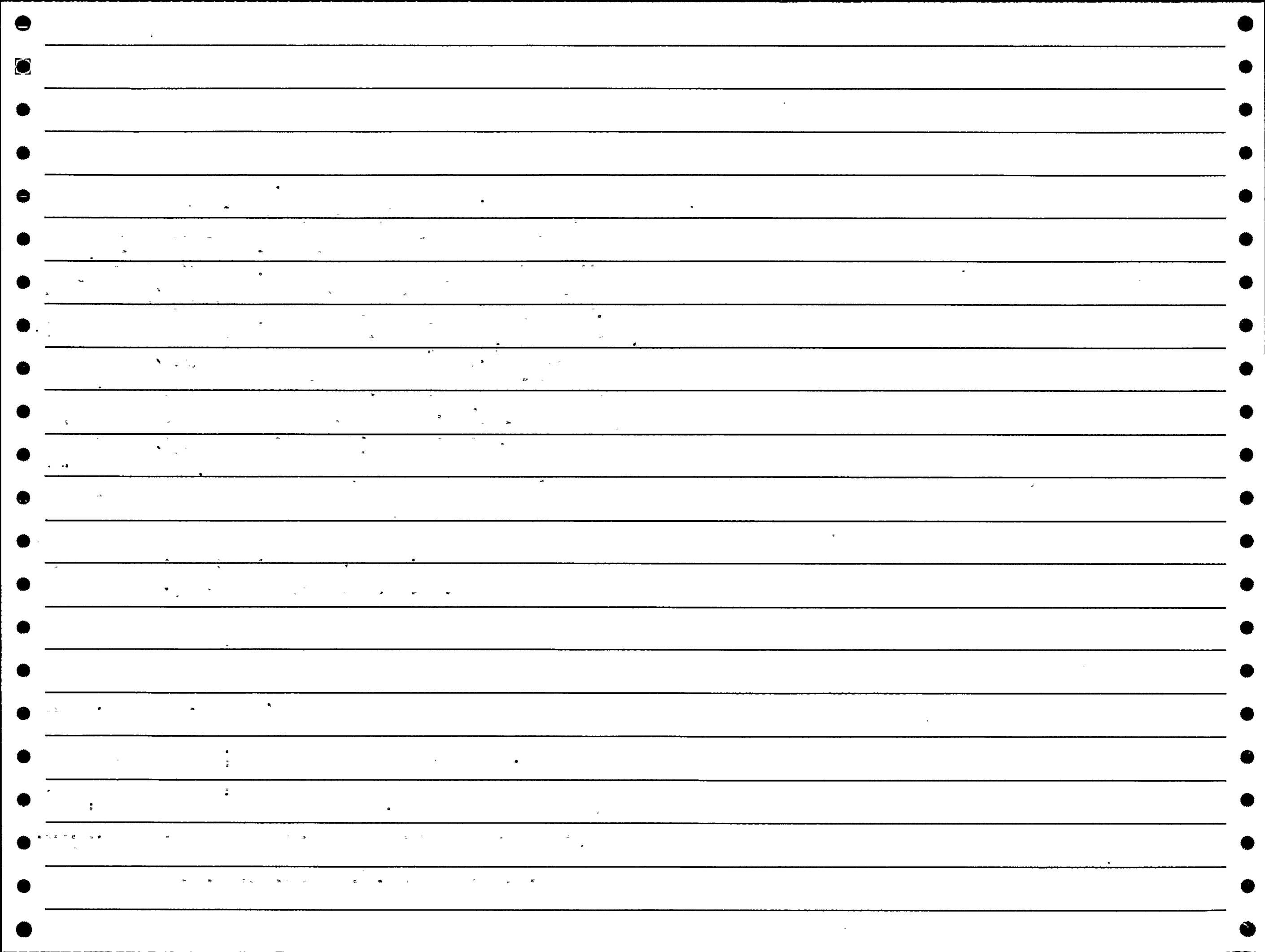
10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 354/87-036 2 354/88-019 3 354/89-009

ABSTRACT

POWER LEVEL - 100%. ON 11/26/90 AT 1119, WHILE ENERGIZING THE CHANNEL "A" 125VDC BATTERY CHARGER DURING THE PERFORMANCE OF AN 18 MONTH CAPACITY TEST, THE CHARGER OUTPUT VOLTAGE SPIKED HIGH AND INITIATED AN ELECTRICAL SYSTEM RESPONSE THAT RESULTED IN ACTUATION OF THE CHANNEL "A" EMERGENCY CORE COOLING SYSTEM (ECCS) LOGIC. ACTUATION OF THE ECCS LOGIC CAUSED THE FOLLOWING ECCS RESPONSES: INITIATION OF THE CORE SPRAY (CS) SYSTEM, LOW PRESSURE COOLANT INJECTION (LPCI) MODE OF THE RESIDUAL HEAT REMOVAL (RHR) SYSTEM, HIGH PRESSURE COOLANT INJECTION (HPCI) SYSTEM, "A" EMERGENCY DIESEL GENERATOR (EDG), AND LOSS OF COOLANT ACCIDENT (LOCA) LOAD SHEDDING OF THE "A" VITAL ELECTRICAL BUS. DURING THE COURSE OF THE ABOVE ECCS ACTUATIONS, HPCI INJECTED TO THE REACTOR VESSEL FOR APPROXIMATELY 4 SECONDS PRIOR TO BEING SECURED. AN UNUSUAL EVENT (UE) WAS DECLARED AT 1143 DUE TO THE ECCS INJECTION TO THE VESSEL, AND WAS IMMEDIATELY TERMINATED DUE TO THE SHORT DURATION OF THE INJECTION. ALL AFFECTED SYSTEMS WERE RETURNED TO A NORMAL STANDBY STATUS, AND THE PLANT RETURNED TO A NORMAL OPERATING CONFIGURATION. SUBSEQUENT INVESTIGATION DETERMINED THAT MULTIPLE CAUSES CONTRIBUTED TO THIS EVENT, INCLUDING FAILURE OF A BATTERY CHARGER CONTROL LOGIC CARD, AND A LESS THAN OPTIMUM DESIGN OF THE ECCS ACTUATION INSTRUMENTATION POWER DISTRIBUTION SCHEME.
N POWER DISTRIBUTION SCHEME.



FORM 283

LER SCSS DATA

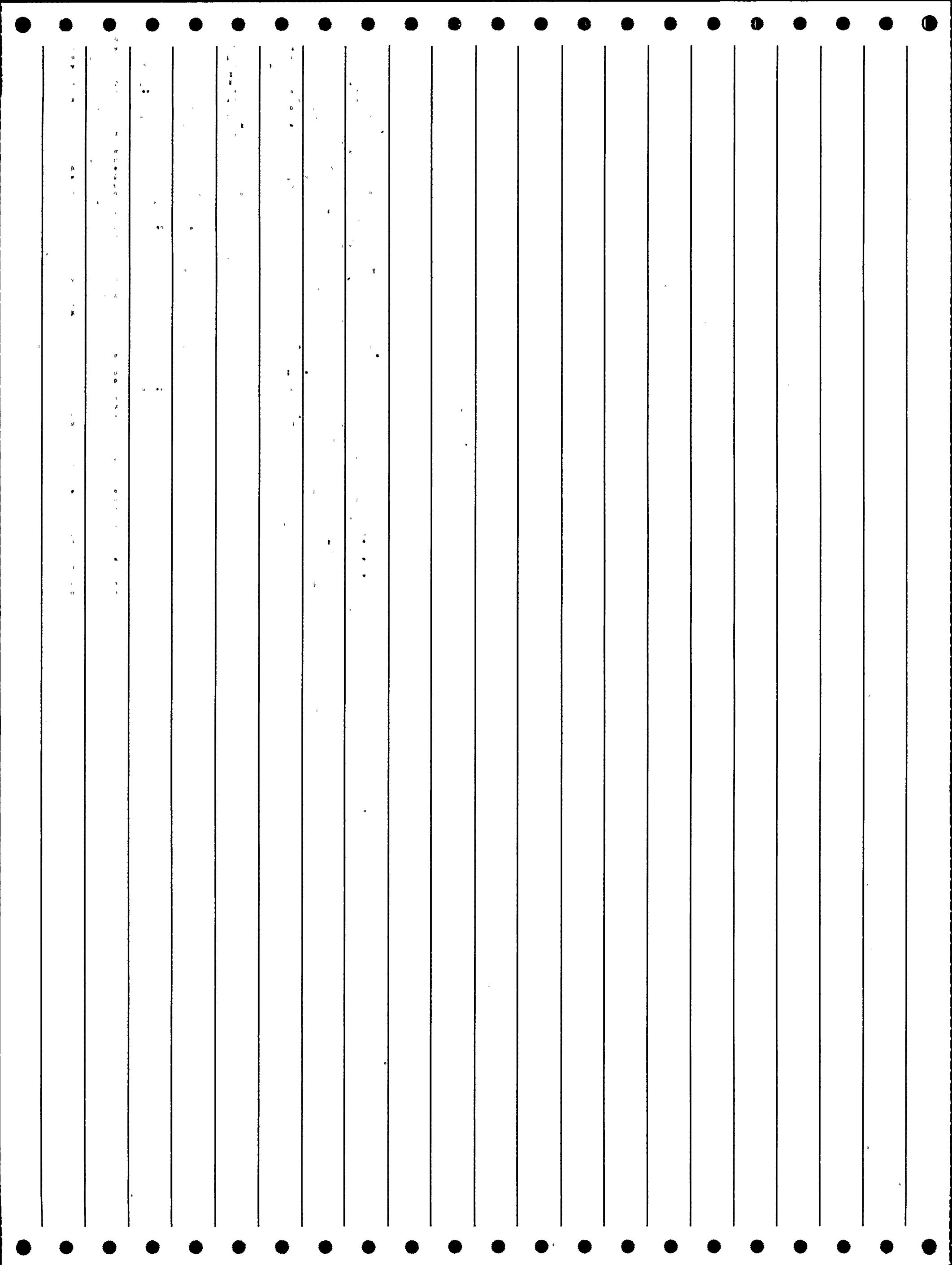
08-30-91

DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
361 1982 016 0 8206090035 173922 05/16/82

DOCKET:361 SAN ONOFRE 2 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SOUTHERN CALIFORNIA EDISON CO.
SYMBOL: SCE

WATCH-LIST CODES FOR THIS LER ARE:
913 UPDATE NEEDED

ABSTRACT
LCO 3.8.3.1 REQUIRES EACH OF THE 4 120-VAC VITAL BUSES TO THE
ENERGIZED FROM ITS ASSOCIATED INVERTER. ACTION STATEMENT (B) PERMITS
ONE OF THESE BUSES TO BE ENERGIZED FROM ITS ALTERNATE SOURCE FOR UP
TO 24 HOURS BEFORE COOL-DOWN WOULD BE REQUIRED. TWO INVERTERS WERE
SIMULTANEOUSLY DE-ENERGIZED, PLACING THE UNIT IN A LESS CONSERVATIVE
OPERATING MODE THAN THE LEAST CONSERVATIVE ASPECT OF THE L.C.O. CAUSE
WILL BE PROVIDED IN FOLLOW-UP REPORT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
361 1984 056 0 8411120153 192061 10/02/84

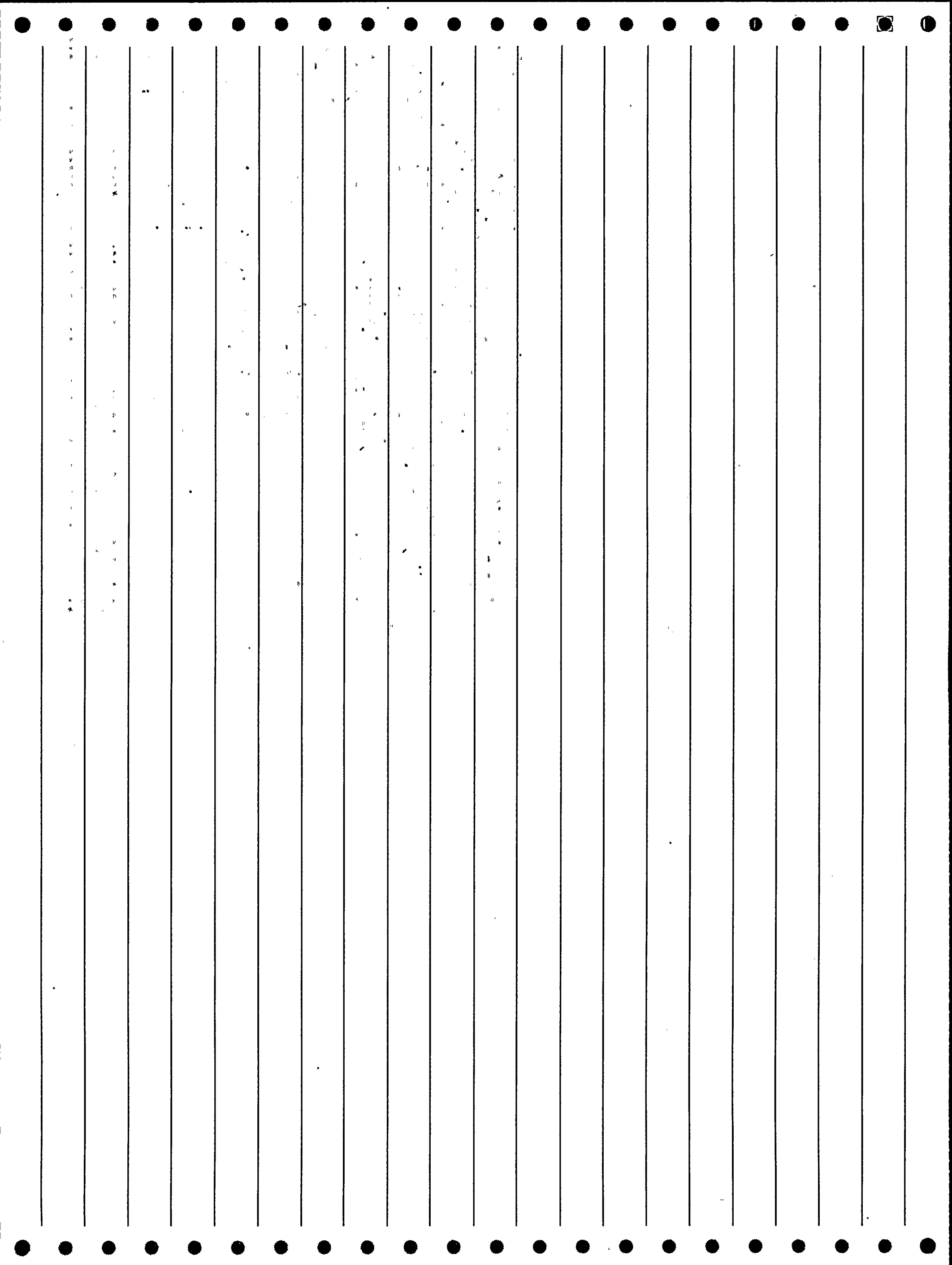
DOCKET:361. SAN ONOFRE 2 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SOUTHERN CALIFORNIA EDISON CO.
SYMBOL: SCE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. AT 1812 ON 10-2-84, WITH UNITS 2 AND 3 IN MODE 1 AT 100% POWER, THE FAILURE OF VITAL INVERTER 2Y002 RESULTED IN THE DE-ENERGIZATION OF THE UNIT 2 CHANNEL B 120V AC VITAL BUS. THE UNIT 2 FUEL HANDLING ISOLATION SYSTEM AND CONTAINMENT PURGE ISOLATION SYSTEM, AND THE UNITS 2 AND 3 COMMON TOXIC GAS ISOLATION SYSTEM ACTUATED DUE TO THE LOSS OF POWER. ADDITIONALLY, ALL PLANT PROTECTION SYSTEM CHANNEL B FUNCTIONS TRIPPED. HOWEVER, SINCE THE PPS REQUIRES 2 OF 4 CHANNELS FOR A COMPLETE ACTUATION, A REACTOR TRIP DID NOT OCCUR. CHANNEL B PPS TRIPS WERE PLACED IN BYPASS AT 1830. AT 1838, CHANNEL B 120V AC VITAL BUS WAS REENERGIZED FROM ITS ALTERNATE SOURCE. CHANNEL B PPS TRIPS WERE RESET AT 1856. THE FHS, CPIS, AND TGIS WERE RESET AT 1925. INVESTIGATION DETERMINED THAT THE CHANNEL B INVERTER FAILED DUE TO A DIODE SHORT IN A POWER SUPPLY. THE POWER SUPPLY WAS REPLACED AND TESTED. CHANNEL B 120V AC VITAL BUS WAS RESTORED TO ITS NORMAL POWER SOURCE THROUGH THE VITAL INVERTER AT 0440 ON 10-3-84. THE POWER SUPPLY FAILURE IS CONSIDERED AN ISOLATED INCIDENT, AND NO FURTHER CORRECTIVE ACTION IS PLANNED.



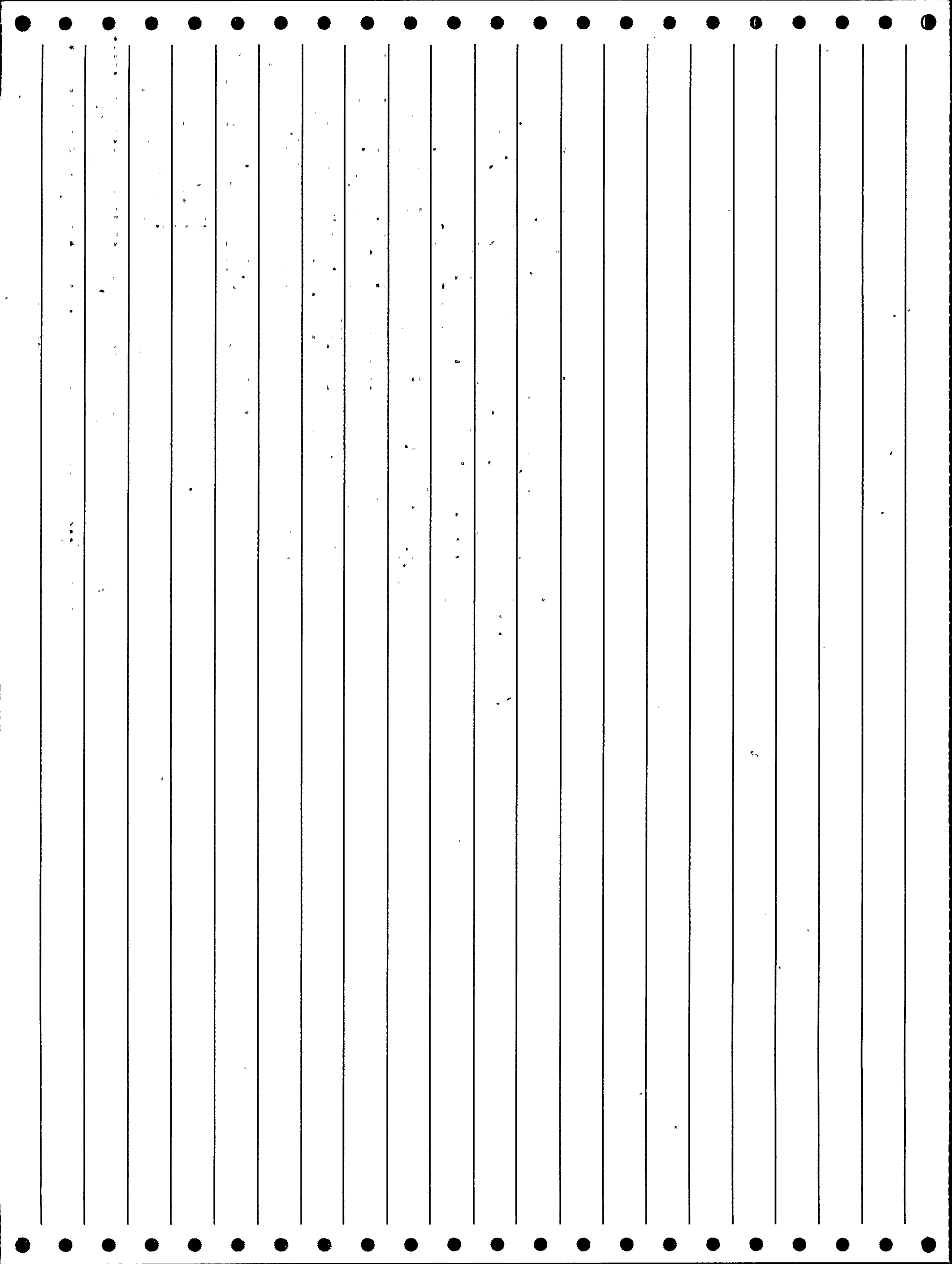
DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
361 1984 080 0 8501280621 192706 12/19/84

DOCKET:361 SAN ONOFRE 2 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SOUTHERN CALIFORNIA EDISON CO.
SYMBOL: SCE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON 12-19-84 AT 0745 WITH UNIT 2 DEFUELED, A FUNCTIONAL TEST WAS BEING PERFORMED ON DC BATTERY CHARGER 28001 WHICH WAS SUPPLYING THE LOAD WHILE THE DC BATTERY WAS REMOVED FROM SERVICE FOR A ROUTINE SURVEILLANCE. AS PART OF THE TEST, A HIGH VOLTAGE SHUTDOWN OF THE CHARGER WAS INITIATED CAUSING THE REMOVAL OF POWER FROM THE BUS. THE TEST AND BATTERY SURVEILLANCE WAS AUTHORIZED AS PART OF AN ELECTRICAL OUTAGE. DOCUMENTATION USED TO PLAN THE OUTAGE DID NOT CLEARLY INDICATE THAT THE CHARGER WOULD BE REMOVED FROM SERVICE AND THAT A LOSS OF AC POWER WOULD OCCUR. AS A RESULT, THE CHARGER TEST WAS ALLOWED TO PROCEED CONCURRENTLY WITH THE BATTERY SURVEILLANCE. WHEN POWER WAS REMOVED FROM THE ASSOCIATED AC INSTRUMENT BUS, BOTH THE CONTAINMENT PURGE ISOLATION SYSTEM AND THE FUEL HANDLING ISOLATION SYSTEM TRAIN 'A' ACTUATED. TRAIN 'A' CPIS AND FHS COMPONENTS HAD PREVIOUSLY BEEN REMOVED FROM SERVICE AS PART OF A PLANNED OUTAGE, HOWEVER, THE EMERGENCY CHILLER ME-336 UNIT AND PUMP WERE ACTUATED. AT 1330 POWER WAS RESTORED TO THE AC BUS AND TRAIN 'A' WAS RESET. IN ORDER TO FACILITATE PROPER PLANNING, CORRECTIVE ACTION WILL BE TAKEN TO INCLUDE A PRECAUTION IN THE TEST DOCUMENTATION INDICATING THAT THE CHARGER WILL BE SHUTDOWN DURING THE TEST AND THE BATTERY SHOULD BE CONNECTED TO THE LOAD.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
361 1986 015 0 8607250177 200019 06/19/86

DOCKET:361 SAN ONOFRE 2 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SOUTHERN CALIFORNIA EDISON CO.
SYMBOL: SCE

COMMENTS

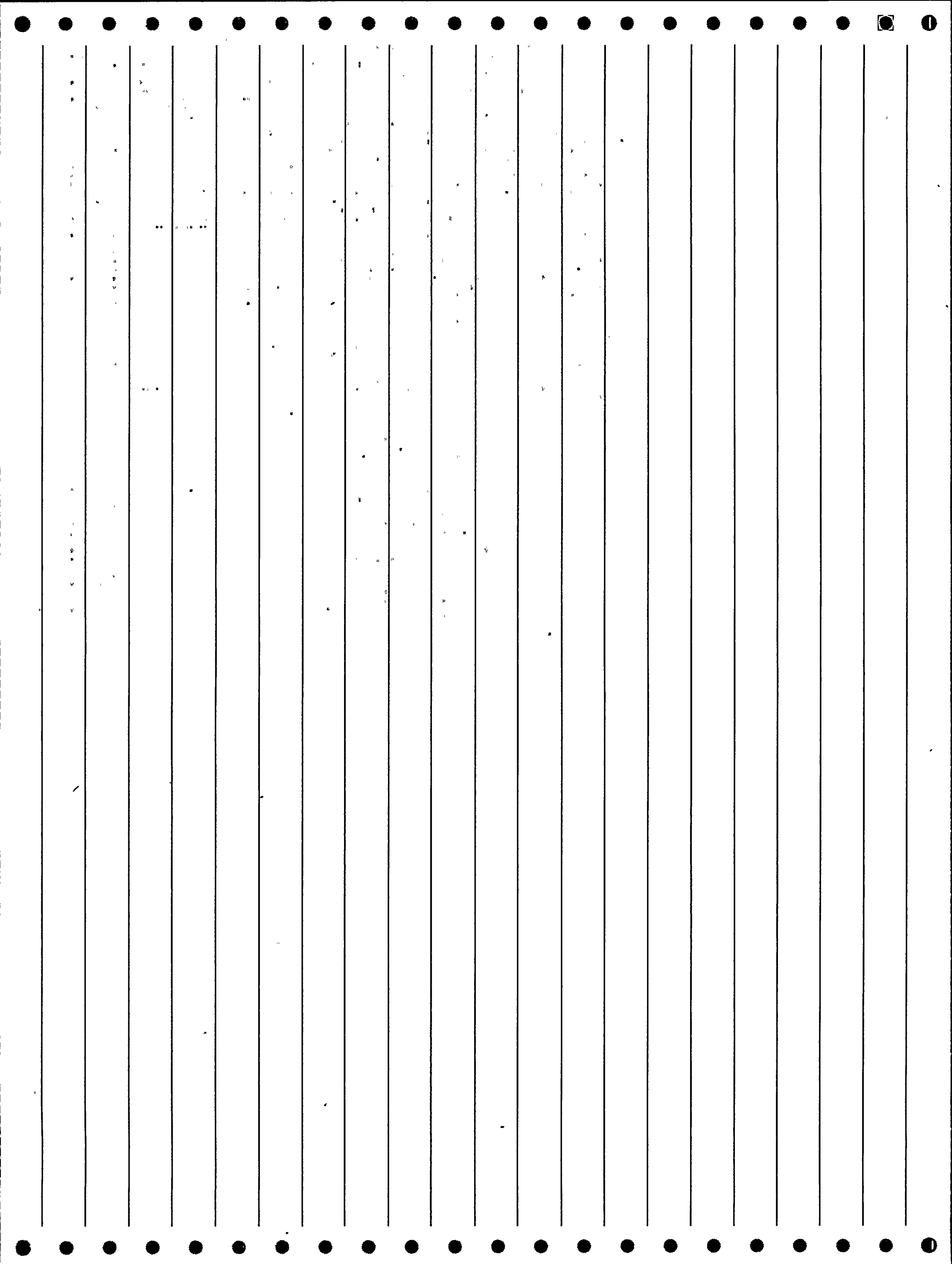
STEP 7: CAUSE AX - FOR TESTING.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 083%. ON JUNE 19, 1986, AT 1355 WITH UNIT 2 IN MODE 1 AT 83% POWER, THE REACTOR TRIPPED WHEN 120 VAC VITAL BUS 3 WAS DE-ENERGIZED DUE TO THE FAILURE OF INVERTER Y003. DE-ENERGIZATION OF VITAL BUS 3 ALSO DE-ENERGIZED CONTROL ELEMENT ASSEMBLY CALCULATOR (CEAC) NO. 2 WHILE CEAC NO. 1 WAS OUT OF SERVICE FOR TESTING. WITH BOTH CEACS INOPERABLE, COMPENSATORY PENALTY FACTORS RESULTED IN CORE PROTECTION CALCULATOR DEPARTURE FROM NUCLEATE BOILING RATIO AND LOCAL POWER DENSITY REACTOR TRIPS. THE FEEDWATER CONTROL SYSTEM (FWCS) FAILED TO SUFFICIENTLY REDUCE FEEDWATER FLOW AFTER THE TRIP RESULTING IN EXCESS FEEDWATER ADDITION TO THE STEAM GENERATORS (SG). OPERATORS APPROPRIATELY TRIPPED FEEDWATER PUMPS TO SUCCESSFULLY AVOID OVERCOOLING OF THE REACTOR COOLANT SYSTEM (RCS) AND ASSOCIATED RCS PRESSURE DECREASE. THE FWCS RESPONSE OCCURRED DUE TO AN EXCESSIVE MANUAL BIAS IN THE MAIN FEED PUMP TURBINE SPEED CONTROLLERS. PROCEDURES ARE BEING CHANGED AND OPERATORS HAVE BEEN INFORMED OF THE IMPACT OF EXCESSIVE BIAS SETTINGS ON POST REACTOR TRIP FWCS OPERATION. THE 2Y003 INVERTER FAILURE WAS CAUSED BY A SHORTED CAPACITOR WHICH WAS AN ISOLATED OCCURRENCE. THE CAPACITOR WAS REPLACED AND THE INVERTER WAS RETURNED TO SERVICE. THERE WERE NO SAFETY CONSEQUENCES ASSOCIATED WITH THIS EVENT SINCE ALL SAFETY-RELATED SYSTEMS OPERATED AS DESIGNED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
361 1986 029 3 8909120059 215156 12/10/86

DOCKET:361. SAN ONOFRE 2 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SOUTHERN CALIFORNIA EDISON CO.
SYMBOL: SCE

COMMENTS

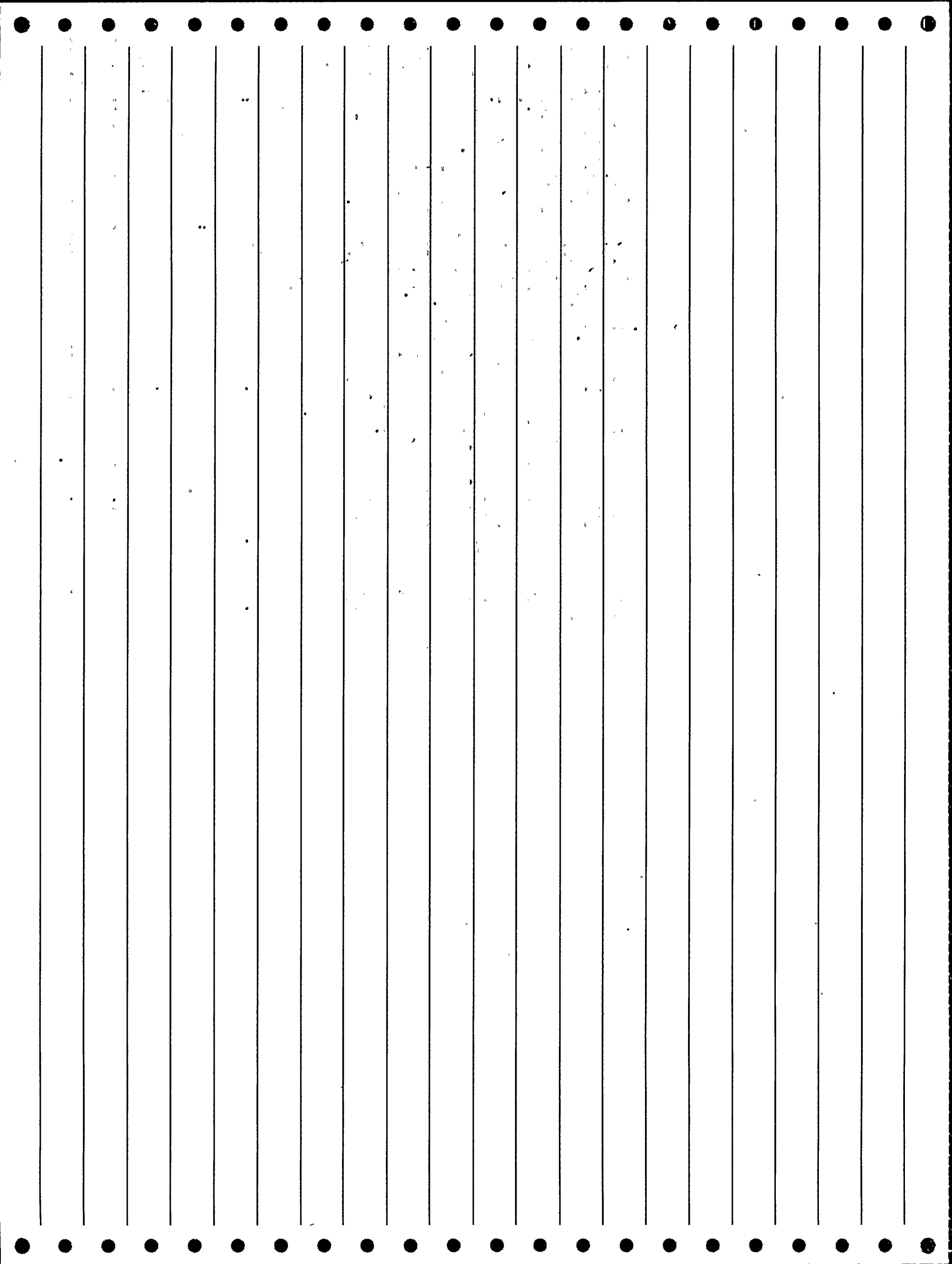
STEP 2: COMP XS - STATIC TRANSFER SWITCH. STEP 8: MODEL NO. 14071B. STEP
15: GAMMA-METRICS NO. 87.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. ON 12/10/86 AT 1037, WITH UNIT 2 AT 93% POWER, THE
TURBINE TRIPPED DURING A POWER INTERRUPTION TO THE TURBINE GOVERNOR
CONTROL SYSTEM (TGCS), CAUSING A REACTOR TRIP. THE STEAM BYPASS
CONTROL SYSTEM (SBCS) DID NOT INITIALLY ACTUATE AND A MAIN STEAM
SAFETY VALVE BRIEFLY ACTUATED. THE TRIP RECOVERY PROCEEDED NORMALLY,
ALTHOUGH START-UP CHANNEL 'B' FAILED, AND PLANT PROTECTION SYSTEM
(PPS) CHANNEL 'A' DID NOT TRIP. ALL OTHER REQUIRED SAFETY RELATED
EQUIPMENT FUNCTIONED AS DESIGNED, AND THERE WERE NO SAFETY
CONSEQUENCES. THE NON-1E 120 VAC LOAD WAS BEING TRANSFERRED FROM THE
NON-1E UNINTERRUPTIBLE POWER SUPPLY (UPS) INVERTER TO THE ALTERNATE
SOURCE. A PROCEDURAL STEP TO DEFEAT THE AUTOMATIC RETRANSFER CIRCUIT
WAS NOT PERFORMED, CAUSING THE LOAD TO TRANSFER BACK TO THE PRIMARY
SOURCE. WHEN THE UPS INVERTER WAS DISCONNECTED UNDER LOAD, THE
AUTOMATIC TRANSFER TO THE ALTERNATE SOURCE DID NOT OCCUR IN TIME TO
PREVENT THE TRIP. THE UPS IS EQUIPPED WITH AN AUTOMATIC TRANSFER
SWITCH WHICH AUTOMATICALLY TRANSFERS THE LOAD TO THE ALTERNATE SOURCE
ON LOSS OF INVERTER OUTPUT VOLTAGE. THE TRANSFER SWITCH WAS FOUND TO
OPERATE CORRECTLY; HOWEVER, THE ENSUING TRANSIENT IS BELIEVED TO HAVE
CAUSED THE TRIP. THE EVENT RESULTED FROM THE FAILURE TO FOLLOW THE
PROCEDURE; ADDITIONALLY, THE JOB DID NOT RECEIVE THE CORRECT LEVEL OF
ATTENTION BY OPERATIONS PERSONNEL.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
362 1987 008 0 8706110149 204822 02/19/87

DOCKET:362 SAN ONOFRE 3 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SOUTHERN CALIFORNIA EDISON CO.
SYMBOL: SCE

WATCH-LIST CODES FOR THIS LER ARE:

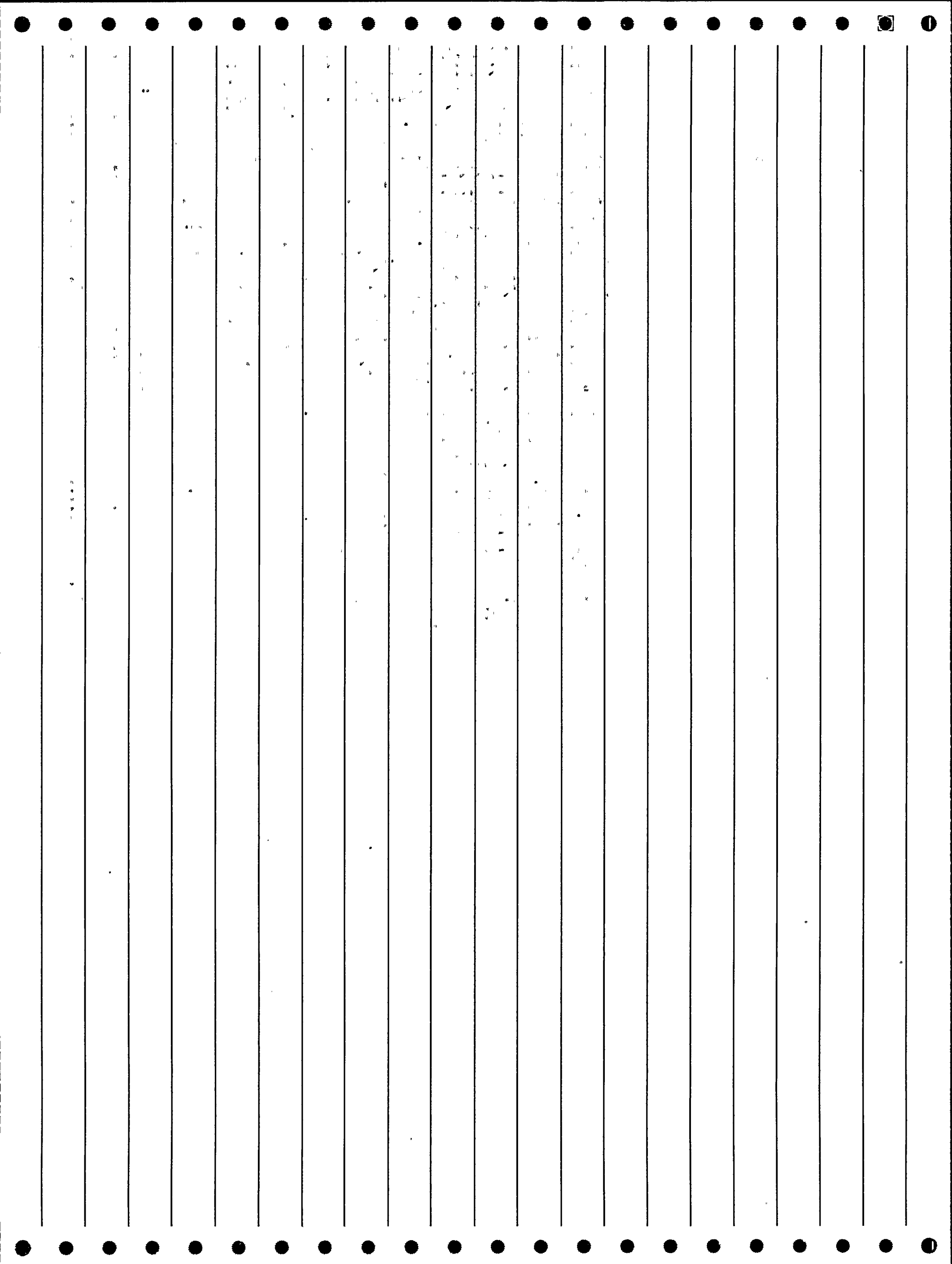
941. REPORT ASSOCIATED WITH 10 CFR 50.72
30 HUMAN ACTION

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. A REVIEW OF OPERATING RECORDS HAS IDENTIFIED THE FOLLOWING ESF ACTUATIONS: ON 2/19/87, WITH UNIT 3 IN MODE 5 FOR THE SCHEDULED REFUELING OUTAGE, THE 18 MONTH TECHNICAL SPECIFICATION SURVEILLANCE OF THE 4KV AC ALTERNATE POWER SUPPLY CIRCUITS WAS CONDUCTED. THE BACKUP POWER SUPPLY INVERTER HAD BEEN REMOVED FROM SERVICE FOR MAINTENANCE. AS VARIOUS STEPS OF THE TEST PROCEDURE CAUSED INTERRUPTION OF POWER, THE FOLLOWING ACTUATIONS OCCURRED AS DESIGNED: AT 0152, TRAIN 'B' FUEL HANDLING ISOLATION SYSTEM (FHIS) (EIIS SYSTEM CODE VG), CONTAINMENT PURGE ISOLATION SYSTEM (CPIS) (EIIS SYSTEM CODE VA), TOXIC GAS ISOLATION SYSTEM (TGIS) (EIIS SYSTEM CODE VI), AND CONTROL ROOM ISOLATION SYSTEM (CRIS) (EIIS SYSTEM CODE VI); AT 1759, TRAIN 'B' CPIS, TGIS, CRIS, AND, AT 1858, TRAIN 'A' TGIS. THE MONITORS IN WHICH THE ACTUATIONS OCCURRED ARE CURRENTLY DESIGNED TO ACTUATE UPON DEENERGIZATION OF THEIR POWER SUPPLIES. THE TESTING SEQUENCE NOTED HEREIN IS PERFORMED IN ACCORDANCE WITH EQUIPMENT DESIGN AND THE MOMENTARY DEENERGIZATION OF THE POWER SUPPLIES UPON TRANSFERRING BUSES RESULTS IN ACTUATION OF THE MONITORS. ACCORDINGLY SUCH ACTUATIONS ARE CONSIDERED "EXPECTED" AS THEY OCCUR WHEN THE POWER TRANSFER ACTIVITY TAKES PLACE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
362 1991 001 0 9104220351 221467 03/15/91

DOCKET:362 SAN ONOFRE 3 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SOUTHERN CALIFORNIA EDISON CO.
SYMBOL: SCE

COMMENTS

STEP 2: PART NO. CDE KBXK1056PI OR SCI 020138.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

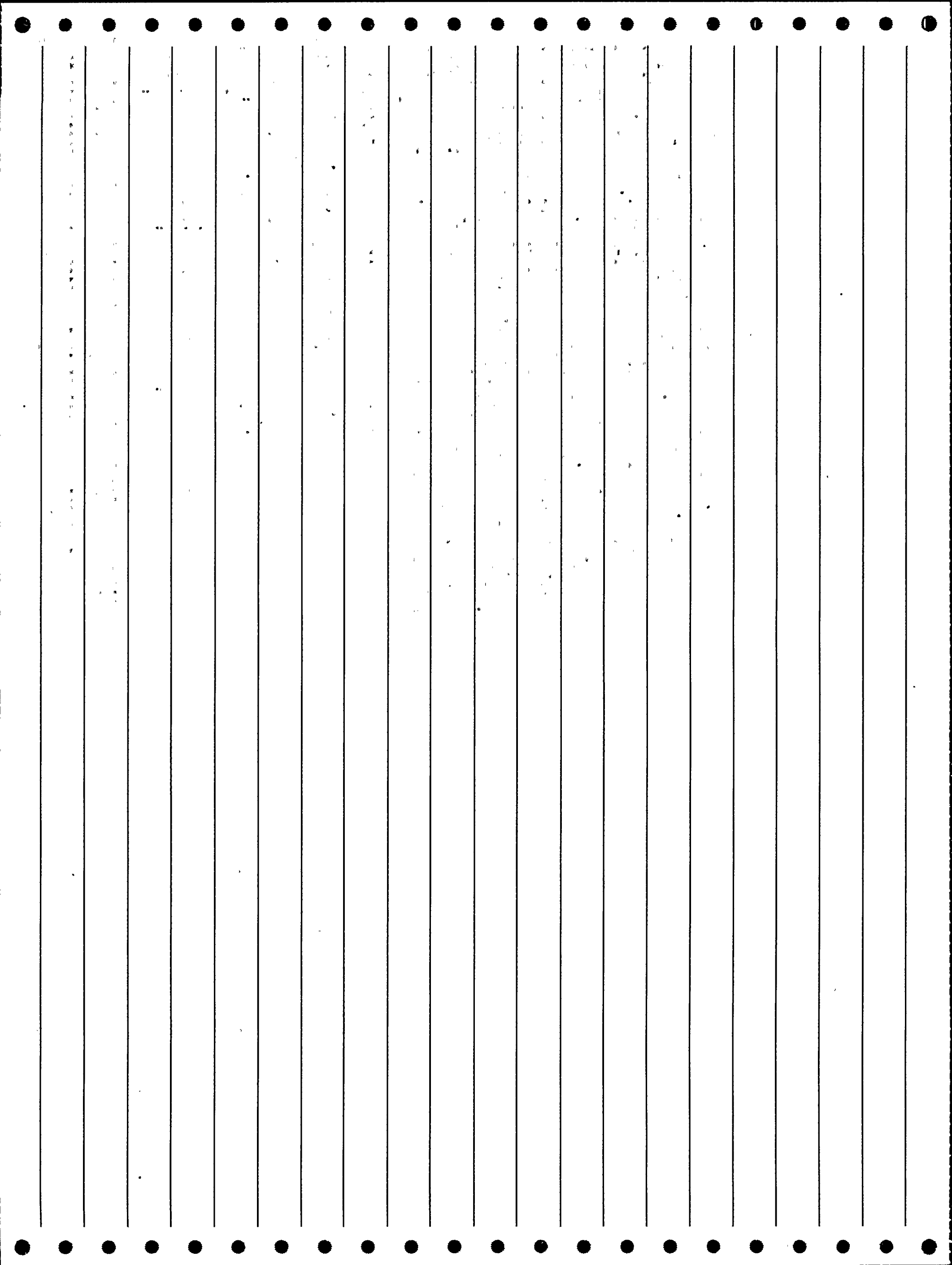
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 361/86-029 2 361/90-016 3 362/89-001.

ABSTRACT

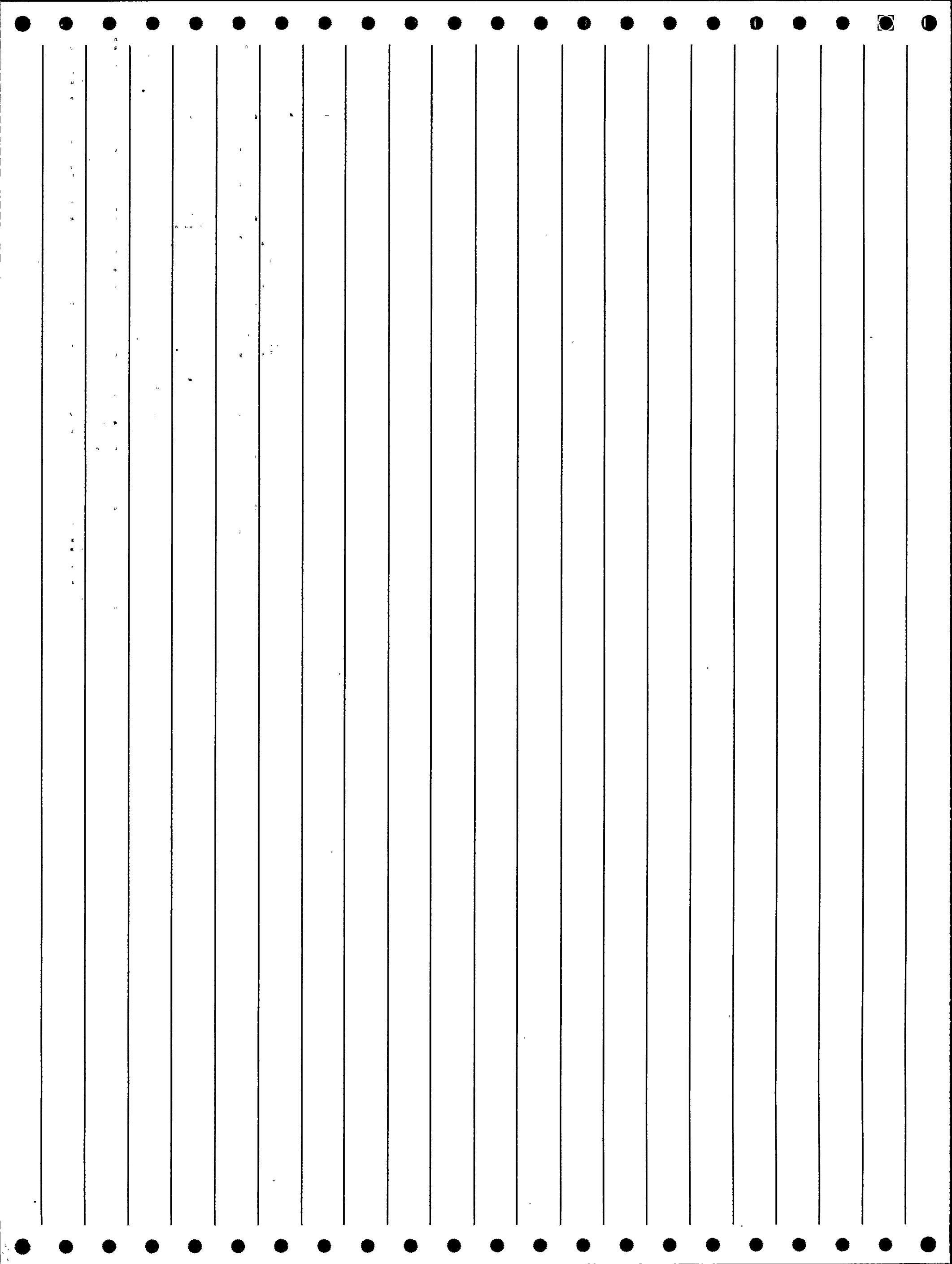
POWER LEVEL - 100%. AT 0938 ON MARCH 15, 1991, UNIT 3 AUTOMATICALLY TRIPPED FROM 100% POWER ON A REACTOR PROTECTION SYSTEM LOSS OF LOAD (LOL) SIGNAL. THE LOL SIGNAL WAS CAUSED BY A TURBINE TRIP, WHICH OCCURRED AS THE RESULT OF A MOMENTARY INTERRUPTION IN POWER FROM THE NON-1E UNINTERRUPTIBLE POWER SYSTEM (UPS), DE-ENERGIZING BUS 3Q069. EMERGENCY FEEDWATER ACTUATION SYSTEM (EFAS) 1 AND EFAS 2 ACTUATIONS PROPERLY OCCURRED. ONE NON-1E 4.16 KV (3A03) BUS DID NOT AUTOMATICALLY TRANSFER FROM ITS NORMAL POWER SOURCE TO ITS ALTERNATE POWER SOURCE RESULTING IN THE LOSS OF THE ALTERNATE POWER SUPPLY (3B012) TO THE NON-1E BUS 3Q069. ONE MAIN STEAM SAFETY VALVE LIFTED FOR A SHORT TIME AND PROPERLY RESEATED. AT 1000, WHEN 3A03 WAS MANUALLY REENERGIZED, POWER WAS RESTORED TO 3Q069. APPROPRIATE ACTIONS WERE TAKEN IN ACCORDANCE WITH PROCEDURES TO COMPENSATE FOR THE OPERATION OF CONTROL SYSTEMS WHICH WERE AFFECTED BY THE LOSS OF POWER TO THE NON-1E UPS. POST-TRIP PLANT RECOVERY OTHERWISE PROCEEDED NORMALLY. AN OUTPUT CAPACITOR IN THE CONSTANT VOLTAGE TRANSFORMER (CVT) SECTION OF THE NON-1E UPS INVERTER FAILED CAUSING THE MOMENTARY INTERRUPTION IN POWER FROM THE NON-1E UPS. ALL CAPACITORS IN THE UNITS 2 AND 3 NON-1E UPS WERE REPLACED WITH AN UPGRADED MODEL. THE UNIT 3 INSTRUMENT BUSES POWERED BY THE NON-1E UPS WERE MODIFIED SUCH THAT POWER WILL BE MAINTAINED TO CRITICAL COMPONENT SYSTEMS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
364 1981 004 0 8104200314 165203 03/14/81

DOCKET:364 FARLEY 2 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: BESS
FACILITY OPERATOR: ALABAMA POWER CO.
SYMBOL: APC

ABSTRACT
AUDIBLE COUNT RATE IN THE CONTAINMENT WAS LOST AS A RESULT OF A BLOWN
FUSE IN THE 2D INVERTER. THE 120 VOLT VITAL INSTRUMENT PANEL 2D WAS
TRANSFERRED TO AN ALTERNATE SUPPLY AND THE BLOWN INVERTER FUSE WAS
REPLACED.

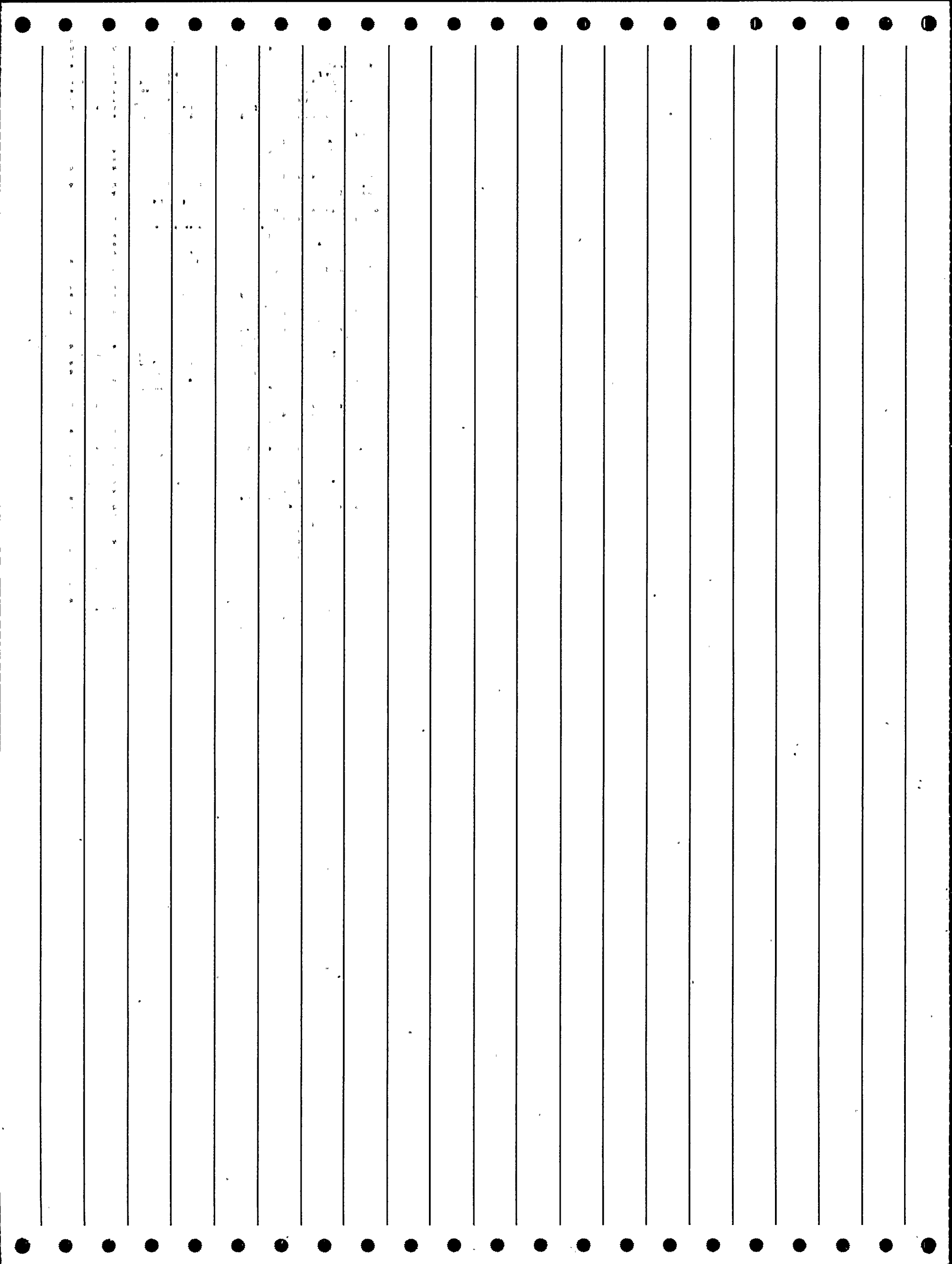


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
364 1981 040 0 8110290367 170003 09/23/81

DOCKET:364 FARLEY 2 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: BESS
FACILITY OPERATOR: ALABAMA POWER CO.
SYMBOL: APC

ABSTRACT

THE PLANT STACK EFFLUENT MONITOR (R29B) WAS DECLARED INOPERABLE DUE TO A DATA TRANSMIT ERROR. THE 120 VAC VITAL BUS 2A WAS DEENERGIZED WHEN INVERTER 2A TRIPPED. THE CAUSE FOR THE TRANSMIT ERROR ON R29B WAS BEING INVESTIGATED AT THE TIME THE 2A INVERTER TRIPPED. AS A RESULT OF LOSS OF POWER TO THE CONSOLES THE CAUSE FOR THE TRANSMIT ERROR COULD NOT BE DETERMINED. THE INVERTER TRIPPED DUE TO A TRANSIENT VOLTAGE SPIKE AND WAS RESET AND RETURNED TO SERVICE. BECAUSE OF THE LOSS OF POWER TO THE R29B CONSOLES, THE UNIT REQUIRED COMPLETE REPROGRAMMING FOLLOWING RESTORATION OF POWER R29B WAS SUBSEQUENTLY RETURNED TO SERVICE.

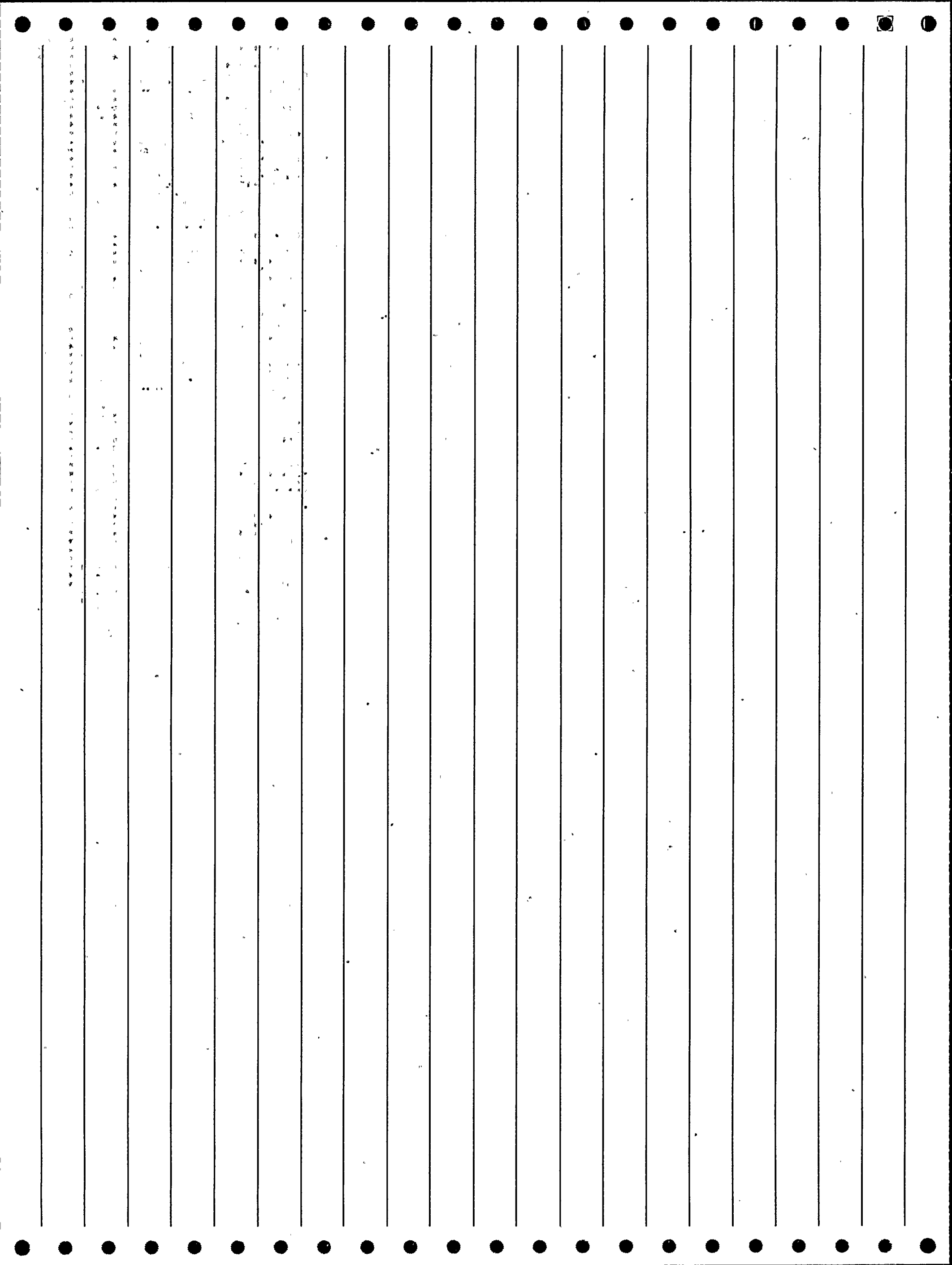


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
364 1982 011 0 8204160449 173252 03/16/82

DOCKET:364 FARLEY 2 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: BESS
FACILITY OPERATOR: ALABAMA POWER CO.
SYMBOL: APC

ABSTRACT

THE 120V AC VITAL BUS B WAS DEENERGIZED WHEN INVERTER 2B TRIPPED.
TECH SPEC 3.8.2.1, IN PART, REQUIRES THE B BUS AND INVERTER 2B TO BE
OPERABLE AND ENERGIZED. THIS EVENT OCCURRED WHEN INVERTER 2B FAILED
DUE TO A BLOWN FUSE IN THE VOLTAGE REGULATOR CIRCUIT. FOLLOWING
REPLACEMENT OF THE FUSE, BUS B WAS RETURNED TO SERVICE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
364 1985 012 0 8509040418 195327 08/02/85

DOCKET:364 FARLEY.2 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: BESS
FACILITY OPERATOR: ALABAMA POWER CO.
SYMBOL: APC

COMMENTS

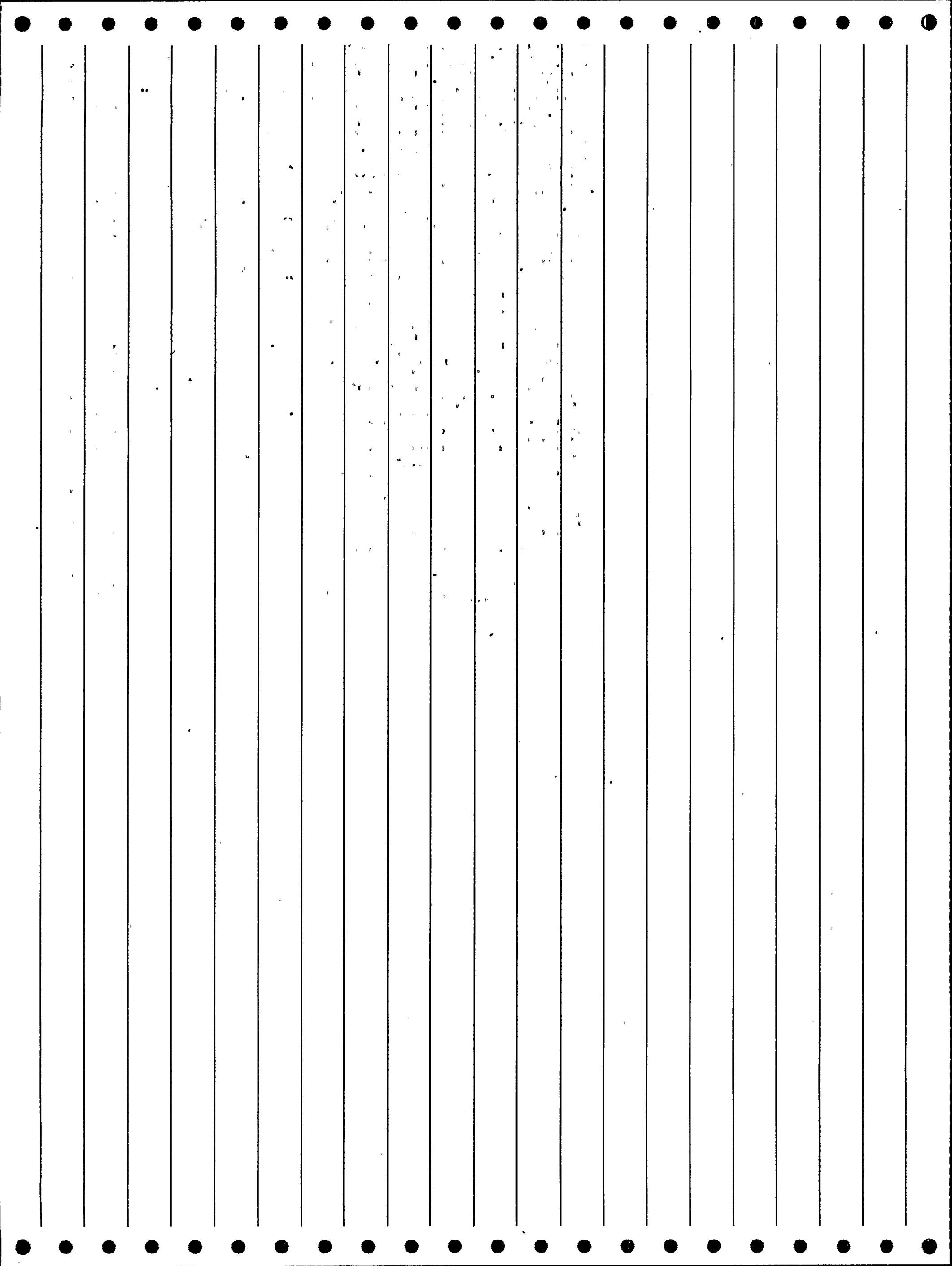
STEP 4: COMP XFMR - FERRO - RESONANT TRANSFORMER.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 098%. AT 0216 ON 8-2-85, WITH THE UNIT OPERATING AT 98% POWER, A REACTOR TRIP OCCURRED DUE TO OVER-TEMPERATURE-DELTA-T (OT-DELTA-T). CHANNEL THREE OF OT-DELTA-T HAD BEEN IN TEST FOR MAINTENANCE WITH THE BISTABLE TRIPPED. AT 0216 THE 2B INVERTER, WHICH SUPPLIES POWER TO PROTECTION CHANNEL TWO, FAILED CAUSING THE CHANNEL TWO OT-DELTA-T BISTABLE TO TRIP. THIS PROVIDED THE REQUIRED TWO-OUT-OF-THREE COINCIDENCE ON OT-DELTA-T AND INITIATED THE REACTOR TRIP. THE SOLATRON BACK-UP POWER SUPPLY WAS PLACED IN SERVICE. AN INVESTIGATION DETERMINED THAT A FERRO-RESONANT TRANSFORMER IN THE 2B INVERTER HAD FAILED CAUSING THE OUTPUT VOLTAGE TO BE APPROXIMATELY 60 VOLTS INSTEAD OF THE NOMINAL 120 VOLTS. THE 2B INVERTER WAS REPAIRED AND SUBSEQUENTLY PLACED BACK INTO SERVICE. FOLLOWING THE REACTOR TRIP, THE OPERATORS IMPLEMENTED FNP-2-EEP-0 (REACTOR TRIP OR SAFETY INJECTION) AND FNP-2-ESP-0.1 (REACTOR TRIP RESPONSE), ENSURING THAT THE UNIT WAS SAFELY IN MODE 3. ALL SAFETY SYSTEMS FUNCTIONED AS DESIGNED. FOLLOWING REQUIRED REPAIRS, THE UNIT RETURNED TO POWER OPERATION ON 8-5-85. THIS REACTOR TRIP IS ATTRIBUTED TO THE FAILURE OF THE 2B INVERTER WHILE ONE CHANNEL OF OT-DELTA-T WAS ALREADY IN THE TRIPPED CONDITION.

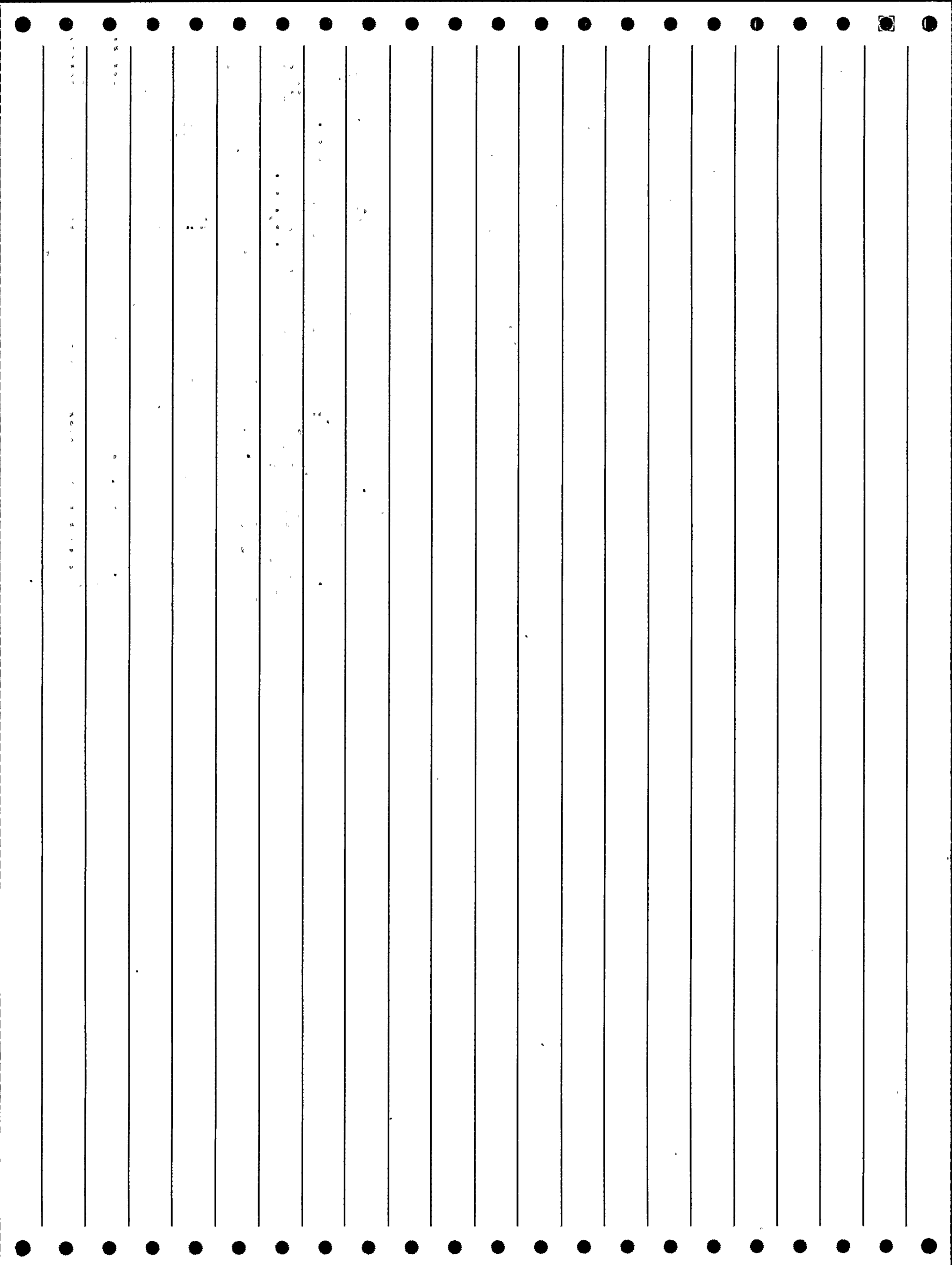


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
366 1982 114 0 8211170382 178916 10/11/82

DOCKET:366 HATCH 2 TYPE:BWR
REGION: 2 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: GEORGIA POWER CO.
SYMBOL: GPC

ABSTRACT

AN INVERTER TROUBLE 2R44-S003 ALARM WAS RECEIVED. INVESTIGATION DISCLOSED THE INVERTER TO BE TRIPPED. THIS EVENT IS CONTRARY TO TECH SPECS SECTION 3.8.2.1.E. MOTOR CONTROL CENTER S018B WAS SWITCHED TO ITS ALTERNATE POWER SUPPLY. THE UNIT WAS PLACED IN AN 8-HOUR LIMITING CONDITION FOR OPERATION (LCO) AS PER ACTION ITEM A. OF TECH SPECS SECTION 3.8.2.1. THE CAUSE OF THIS EVENT WAS COMPONENT FAILURE. INVESTIGATION DISCLOSED A FAILED BEARING ON THE NUMBER 4 INVERTER LEG FAN. THE INVERTER LEG (FAN INCLUDED) WAS REPLACED, FUNCTIONALLY TESTED SATISFACTORILY AND RETURNED TO NORMAL SERVICE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
366 1987 009 1 8801250292 207902 08/03/87

DOCKET:366 HATCH 2 TYPE:BWR
REGION: 2 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: GEORGIA POWER CO.
SYMBOL: GPC

COMMENTS

OTHER REPORTABILITY: TECH SPEC 3.5.1. STEPS 15,16: MODEL CAT CJ2-G3-U.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

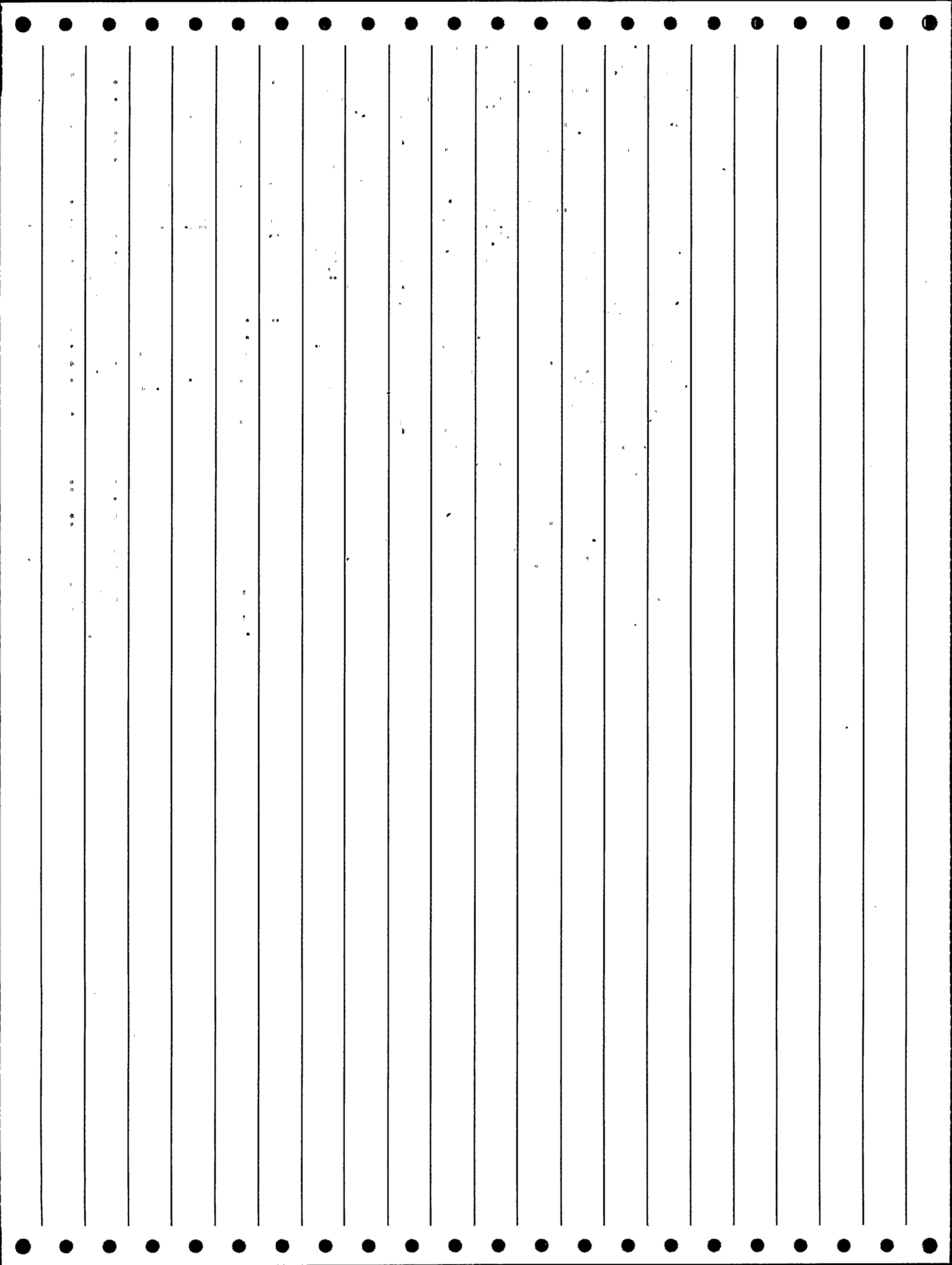
21 OTHER: Voluntary report, special report, Part 21 report,
etc.

REFERENCE LERS:

1 321/85-010 2 321/87-011 3 366/87-006

ABSTRACT

POWER LEVEL - 090%. ON 8/3/87 AT APPROXIMATELY 1152 CDT, UNIT 2 WAS IN THE RUN MODE AT AN APPROXIMATE POWER LEVEL OF 2193 MWT (APPROXIMATELY 90 PERCENT OF RATED THERMAL POWER). AT THAT TIME, VITAL AC (EIIS CODE EE) POWER WAS LOST. THIS RESULTED IN A DECREASE IN THE REACTOR FEEDWATER PUMPS FLOW AND A DECREASE IN REACTOR WATER LEVEL. THE REACTOR WATER LEVEL DECREASED TO THE REACTOR PROTECTION SYSTEM (RPS EIIS CODE JC) ACTUATION SETPOINT AND A REACTOR SCRAM OCCURRED. THE ROOT CAUSE OF THIS EVENT IS ELECTRICAL EQUIPMENT FAILURE. SPECIFICALLY, CIRCUIT BREAKER C3-4 WOULD OPEN UNDER UNDULY LOW FORCE CONDITIONS. IT WAS CONCLUDED AFTER FIELD TESTING AND CONSULTATION WITH THE MANUFACTURER THAT THE TRIPPING MECHANISM WAS WEAK. CORRECTIVE ACTIONS FOR THIS EVENT INCLUDED: 1) INSTALLING JUMPERS AND REMOVING EQUIPMENT FROM SERVICE, 2) DESIGNING AND INSTALLING BARRIER BOXES, 3) VERIFYING TRIP INSTRUMENTATION AND LEVEL TRANSMITTERS IN CALIBRATION, 4) VENTING INSTRUMENT LINES AND TRANSMITTERS, 5) PERFORMING EVALUATIONS OF AIR ENTRAINMENT AND SPIKING IN INSTRUMENT LINES, 6) INITIATING PROCEDURE REVISIONS, AND 7) VERIFYING CERTAIN OTHER SYSTEMS DO NOT HAVE LOW SUCTION TRIPS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
368 1984 019 0 8408300496 191218 07/20/84

DOCKET:368 ARKANSAS NUCLEAR 2 TYPE:PWR
REGION: 4 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARKANSAS POWER AND LIGHT CO.
SYMBOL: APL

COMMENTS

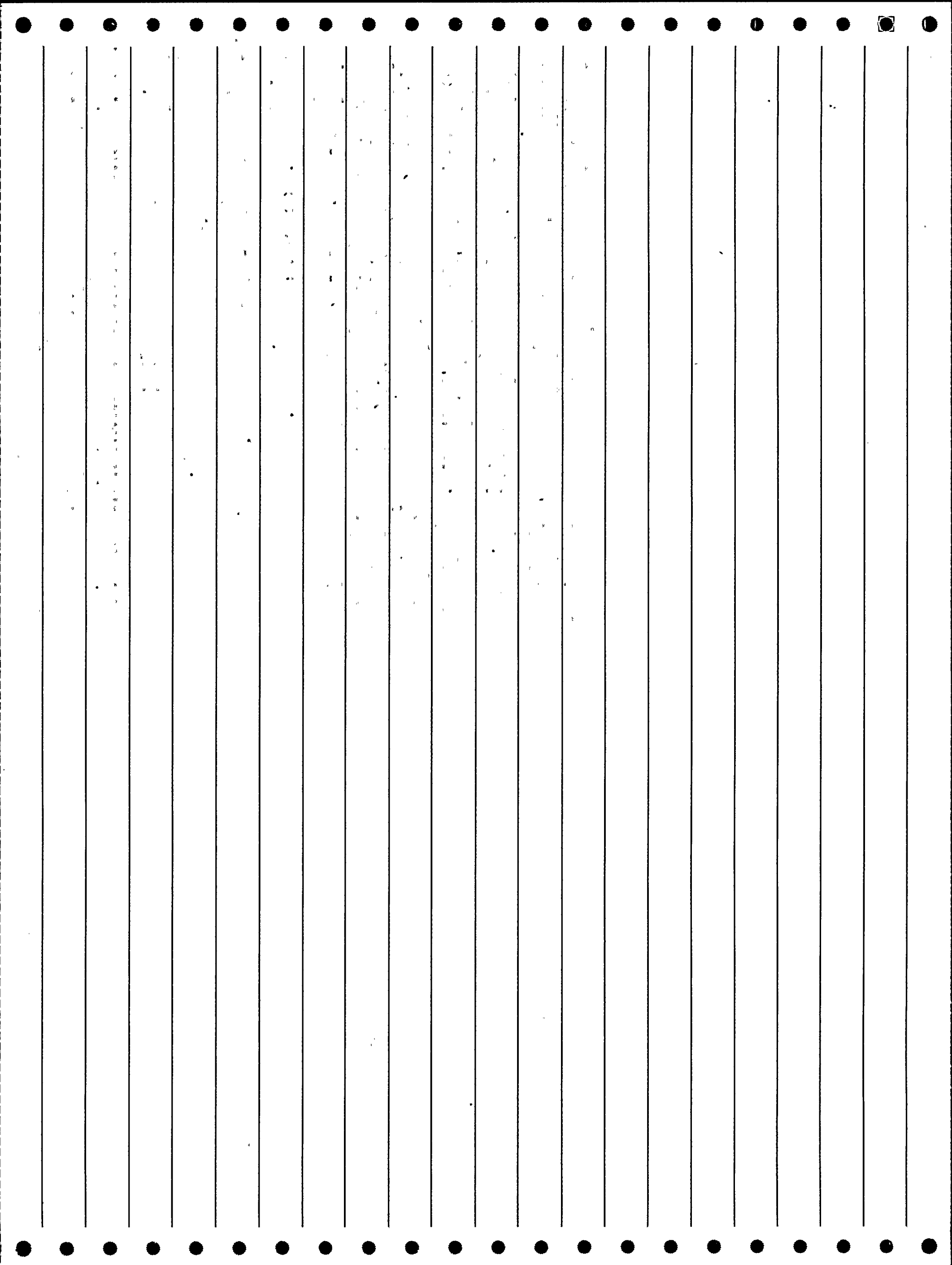
STEPS 6 AND 7: CAUSE IX - ELECTRICAL TRANSIENT.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. ON 7-20-84, AT 0118 HRS A MANUAL REACTOR TRIP WAS INITIATED FROM 100% FULL POWER FOLLOWING A SPURIOUS HALF-LEG TRIP (1 OF 2 PATHS) CAUSED BY SWITCHING OF INVERTER 2Y11 SUPPLYING POWER TO CORE PROTECTION CALCULATOR (CPC) CHANNEL A, CONTROL ELEMENT ASSEMBLY CALCULATOR (CEAC) #1, ENGINEERED SAFETY FEATURES AND PLANT PROTECTION SYSTEM CABINETS, AND THE AB TRIP MATRICES FOR HALF OF THE CONTROL ELEMENT DRIVE MECHANISM BREAKERS. AT 0100 HRS AN OPERATOR, DISPATCHED TO RESET AN INVERTER ALARM, INADVERTENTLY PRESSED THE 'ALTERNATE SOURCE TO LOAD' BUTTON INSTEAD OF THE 'RESET' BUTTON. REALIZING HIS MISTAKE, HE PRESSED THE 'INVERTER TO LOAD' BUTTON TO RETURN THE INVERTER TO THE NORMAL CONFIGURATION. WHEN THE INVERTER WAS SWITCHED BACK TO NORMAL, AN ELECTRICAL TRANSIENT APPARENTLY OCCURRED. THIS RESULTED IN TRIPPING OF 4 CEDM BREAKERS AND ALL PPS CHANNEL A TRIP PARAMETERS. BASED ON THE DEGRADED PLANT INDICATIONS AND THE BELIEF THAT AN AUTOMATIC TRIP WAS IMMINENT, A CONTROL ROOM OPERATOR TRIPPED THE REACTOR MANUALLY. REACTOR TRIP RECOVERY PROCEEDED WITH NO UNUSUAL DIFFICULTIES, AND NO SIGNIFICANT POST-TRIP ANOMALIES WERE NOTED. INVERTER 2Y11 WAS SUBSEQUENTLY INSPECTED AND OPERATED WITH NO INVERTER OUTPUT DEGRADATION DURING TESTING.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
368 1988 007 0 8806140564 209648 04/23/88

DOCKET:368 ARKANSAS NUCLEAR 2 TYPE:PWR
REGION: 4 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARKANSAS POWER AND LIGHT CO.
SYMBOL: APL

COMMENTS

STEPS 7,8: EFF WX - ONE OR MORE ACTUATION SIGNALS OF UNKNOWN TYPE. STEPS
8,9,10,11,12,13,14,15,16: COMP ABNX - ALL ESF ACTUATION SIGNALS. SMP/C/5.

WATCH-LIST CODES FOR THIS LER ARE:

35 HUMAN ERROR

941. REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

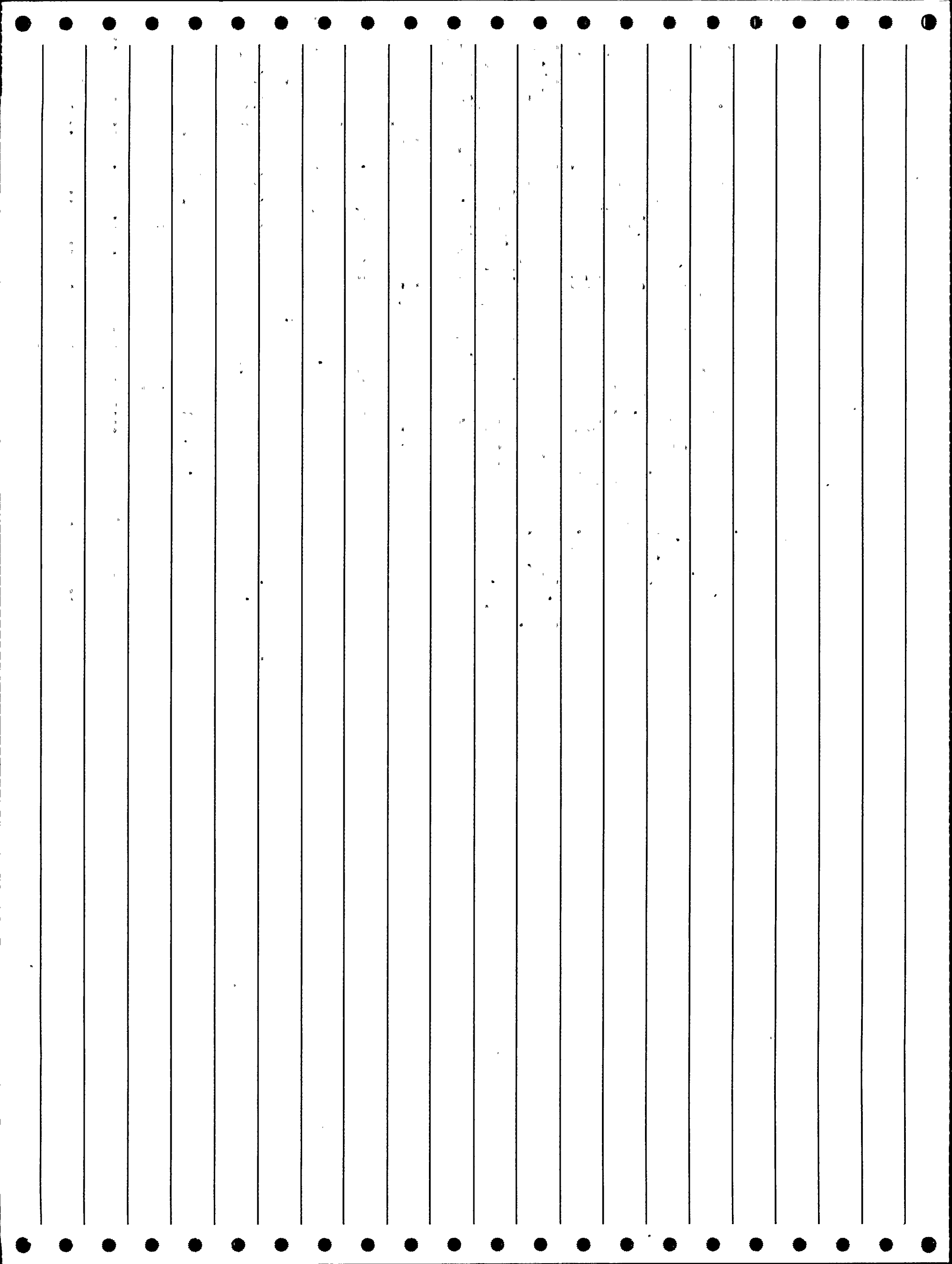
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 368/80-024 2 368/83-015 3 368/84-003 4 368/85-009
5 368/85-014 6 368/88-003

ABSTRACT

POWER LEVEL - 000%. 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.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
369 1982 052 0 8207230625 174673 06/13/82

DOCKET:369 MCGUIRE 1, TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: DUKE
FACILITY OPERATOR: DUKE POWER CO.
SYMBOL: DPC

COMMENTS

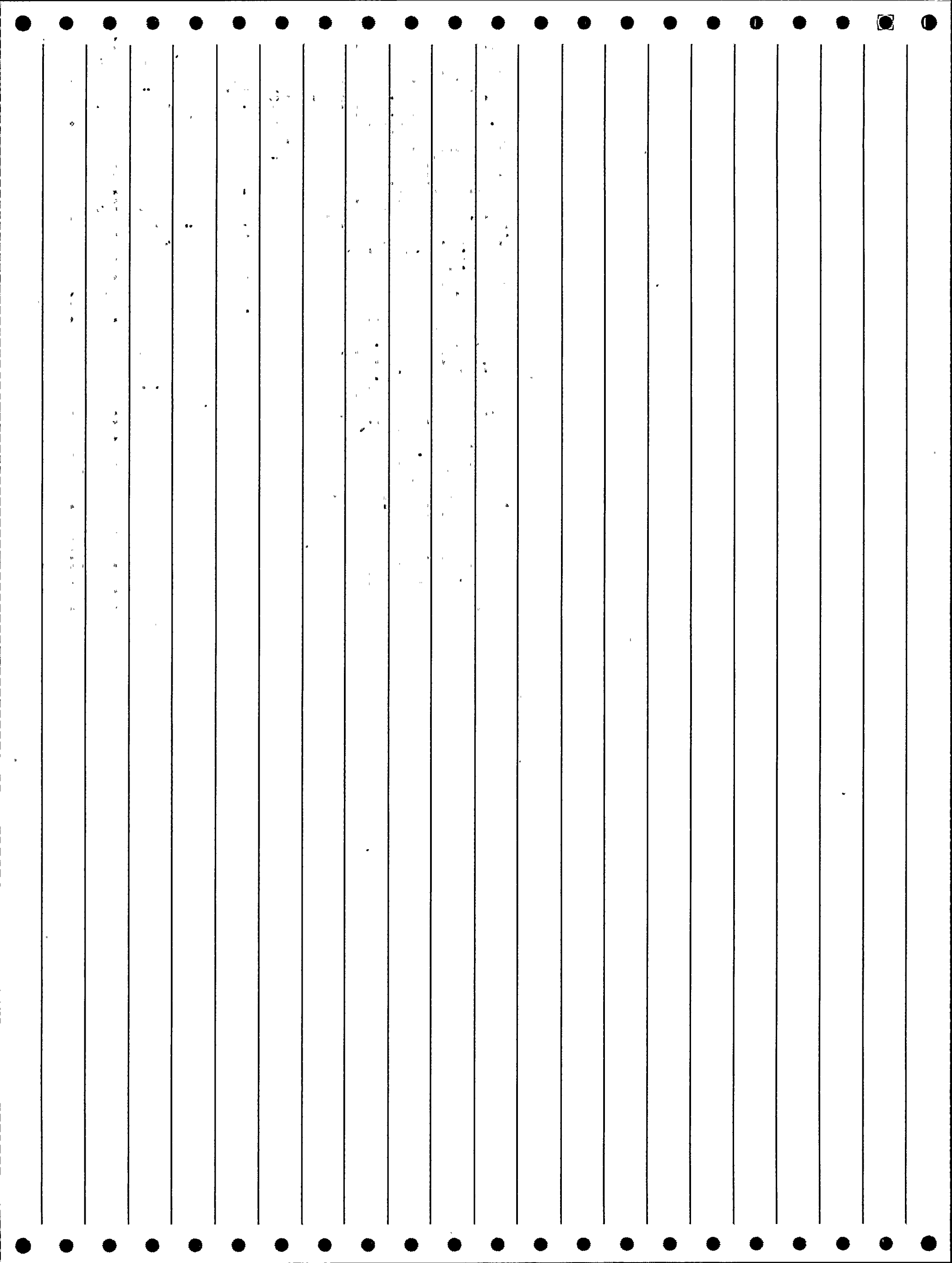
STEP 13: ISYS SW - UNKNOWN AREA.

REFERENCE LERS:

1 369/82-049

ABSTRACT

A MOMENTARY LOSS OF POWER WAS EXPERIENCED ON THE VITAL INSTRUMENTATION AND CONTROL POWER SYSTEM, BUS EKVA, CAUSING A FAILURE OF CHANNEL 1 OF THE REACTOR PROTECTION AND INSTRUMENT SYSTEMS, INVERTER EVIA WAS DECLARED INOPERABLE PER TECH SPEC 3.8.2.1 WHICH IS REPORTABLE PER TECH SPEC 6.9.1.13(B). THE CHANNEL 1 FAILURE CONCURRENT WITH AN ALREADY TRIPPED CHANNEL III RESULTED IN A 2 OUT OF 3 COINCIDENCE LOW LOOP FLOW REACTOR AND TURBINE TRIP, AND OVERPRESSURIZATION. THE FAILURE OF CHANNEL 1 IS ATTRIBUTED TO COMPONENT MALFUNCTION OF A 120 VAC VITAL INSTRUMENTATION AND CONTROL POWER SYSTEM 15 KVA STATIC INVERTER (SOLIDSTATE CONTROL, INC.). THE SCR SHORTING CIRCUIT BOARD WAS REPLACED AS A PRECAUTIONARY MEASURE, AND THE CVT CAPACITORS VISUALLY INSPECTED. THE INVERTER WAS PLACED IN SERVICE AFTER OBSERVING PROPER OPERATION, AND THE REACTOR RETURNED TO POWER OPERATION.



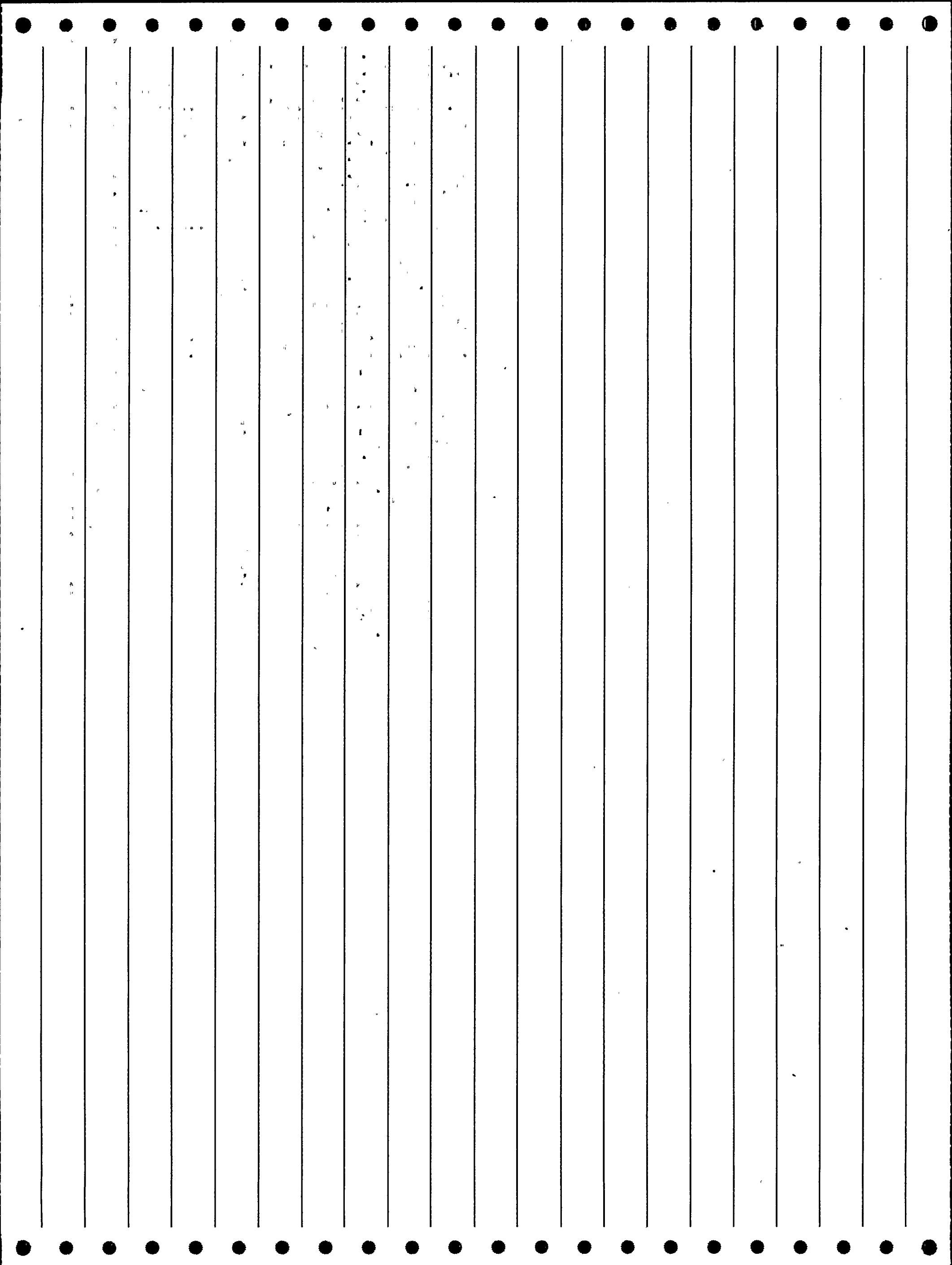
DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
369 1982 053 0 8207230221 174671 06/24/82

DOCKET:369 MCGUIRE 1 TYPE:PHR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: DUKE
FACILITY OPERATOR: DUKE POWER CO.
SYMBOL: DPC

REFERENCE LERS:
1. 369/82-052 2 369/81-072 3 369/81-129 4 369/81-185

ABSTRACT

DURING PLANT COOLDOWN AND MODE DEESCALATION, STATIC INVERTER EVIA MALFUNCTIONED CAUSING A RESIDUAL HEAT REMOVAL SYSTEM (ND) ISOLATION VALVE TO CLOSE. OPERATORS RESTORED ND FLOW, BUT NOT BEFORE THE LOSS OF FLOW EFFECTED A TRANSITION FROM MODE 5 TO MODE 4. THIS VIOLATES TECH SPEC 3.8.2.1 AND 3.4.1.4 WHICH ARE REPORTABLE PER TECH SPEC 6.9.1.13(B) AND SIMILAR TO PREVIOUS RO-369/82-52. THIS IS ATTRIBUTED TO COMPONENT FAILURE OF THE SOLIDSTATE CONTROLS, INC. STATIC INVERTER. THREE CAPACITORS IN THE OUTPUT CVT CAPACITOR BANK FAILED AND HAD DEFORMED CASINGS. THE FAILED CAPACITORS WERE REPLACED, AND THE INVERTER RETURNED TO SERVICE. THE INVERTER CORRECTIVE MAINTENANCE PROCEDURE WILL BE MODIFIED TO REFLECT THE POSSIBILITY OF CVT CAPACITOR FAILURE. THE CONTROLLING PROCEDURE FOR UNIT SHUTDOWN WAS MODIFIED TO PRECLUDE INADVERTENT LOSS OF ND FLOW.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
370 1984 034 0 8502010483 192823 12/21/84

DOCKET:370 MCGUIRE 2 TYPE:PHR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: DUKE
FACILITY OPERATOR: DUKE POWER CO.
SYMBOL: DPC

COMMENTS

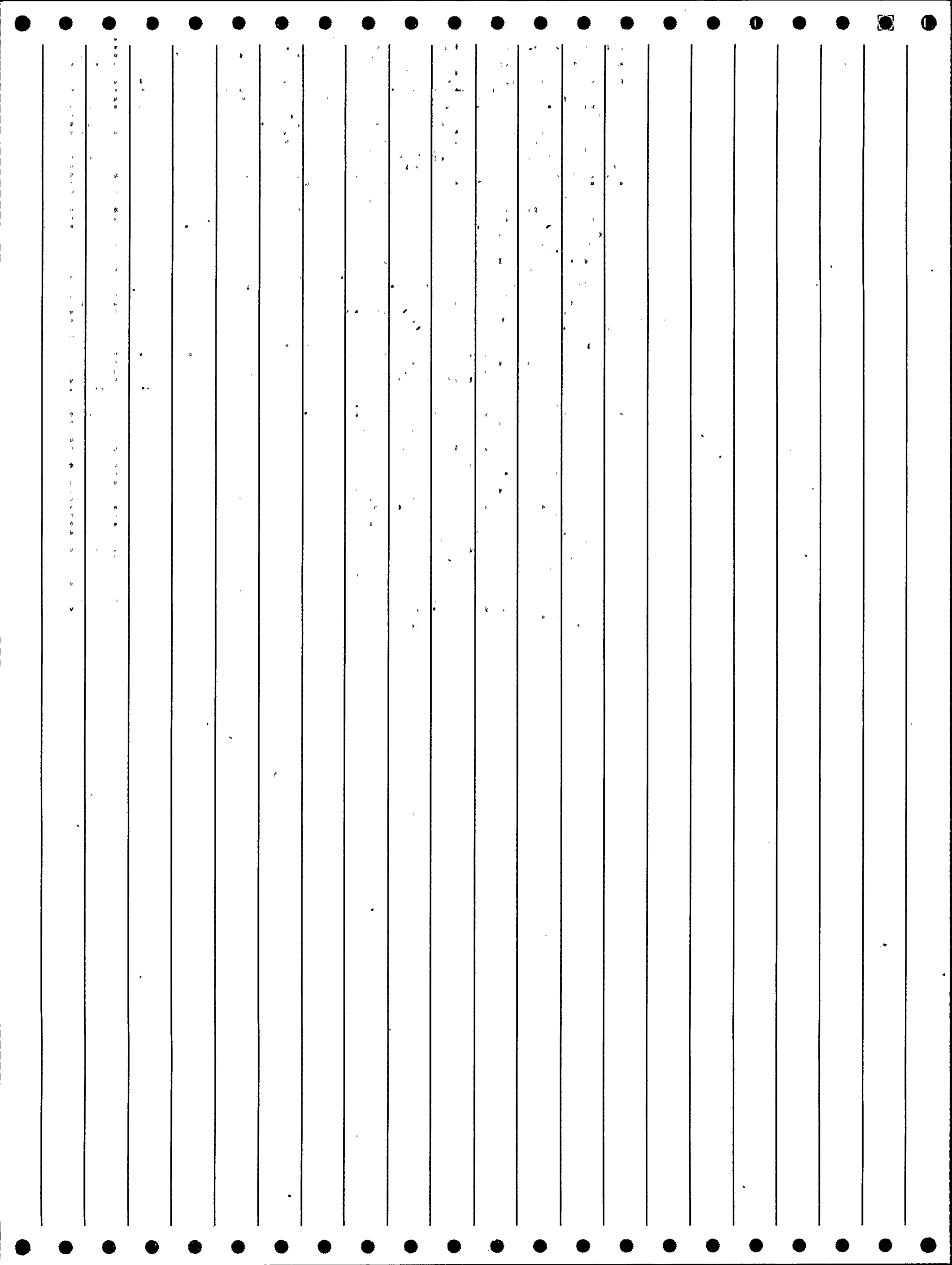
STEP 1: MAINTENANCE PERSONNEL MISTOOK UNIT 2 EQUIPMENT FOR UNIT 1 EQUIPMENT.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. ON 12-21-85, UNIT 2 TRIPPED FROM 100% POWER WHEN PREVENTIVE MAINTENANCE ON UNIT 1 125V AC VITAL I&C POWER RESULTED IN A UNIT 2 INVERTER BEING ERRONEOUSLY REMOVED FROM SERVICE, INSTEAD OF THE ADJACENT UNIT 1 INVERTER. THE RESULTING LOSS OF POWER TO THE ANALOG CONTROLLERS FOR SG LEVEL, FEEDWATER FLOW, AND STEAM FLOW RESULTED IN A FEEDWATER TRANSIENT, WHICH WAS CORRECTED BY SWITCHING TO MANUAL CONTROL AND TRANSFERRING THE CONTROLLERS TO ANOTHER CHANNEL. HOWEVER, THE TRANSFER TO ANOTHER CHANNEL WAS DONE INCOMPLETELY, IN THAT 1 OF 13 CONTROLLER SWITCHES WAS NOT MOVED TO THE ALTERNATE CHANNEL. WHEN CONTROL WAS RETURNED TO THE AUTOMATIC MODE, THE CONTRIBUTION OF THIS INOPERABLE INPUT TO AUTOMATIC CONTROL CAUSED THE LEVEL IN SG C TO FALL TO THE LOW-LOW TRIP SETPOINT. THE CAUSE OF THE EVENT WAS PERSONNEL ERROR BECAUSE AN OPERATOR AND AN INDEPENDENT VERIFIER FAILED TO IDENTIFY PROPERLY THE EQUIPMENT TO BE REMOVED FROM SERVICE. IN ADDITION, THE TRANSFER OF THE SG PROGRAM TO AN ALTERNATE CHANNEL WAS PERFORMED INCORRECTLY. CORRECTIVE ACTION WILL INCLUDE A RE-EMPHASIS WITH OPERATORS ON THE IMPORTANCE OF FOLLOWING PROCEDURES, AND VERIFICATION. ALSO, THE SG LOW-LOW LEVEL TRIP SETPOINT WILL BE LOWERED TO ALLOW OPERATORS MORE TIME TO DIAGNOSE AND COMPENSATE FOR SG LEVEL TRANSIENTS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
370 1987 016 1 8712220087 207557 09/06/87

DOCKET:370 MCGUIRE 2 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: DUKE
FACILITY OPERATOR: DUKE POWER CO.
SYMBOL: DPC

COMMENTS

STEP 10: MODEL #1MA459833-G1-LY. STEP 49: COMP XC - AUTO START CONTROLLER.

WATCH-LIST CODES FOR THIS LER ARE:

19 VIBRATION
10 ENVIRONMENTAL CONDITIONS

REPORTABILITY CODES FOR THIS LER ARE:

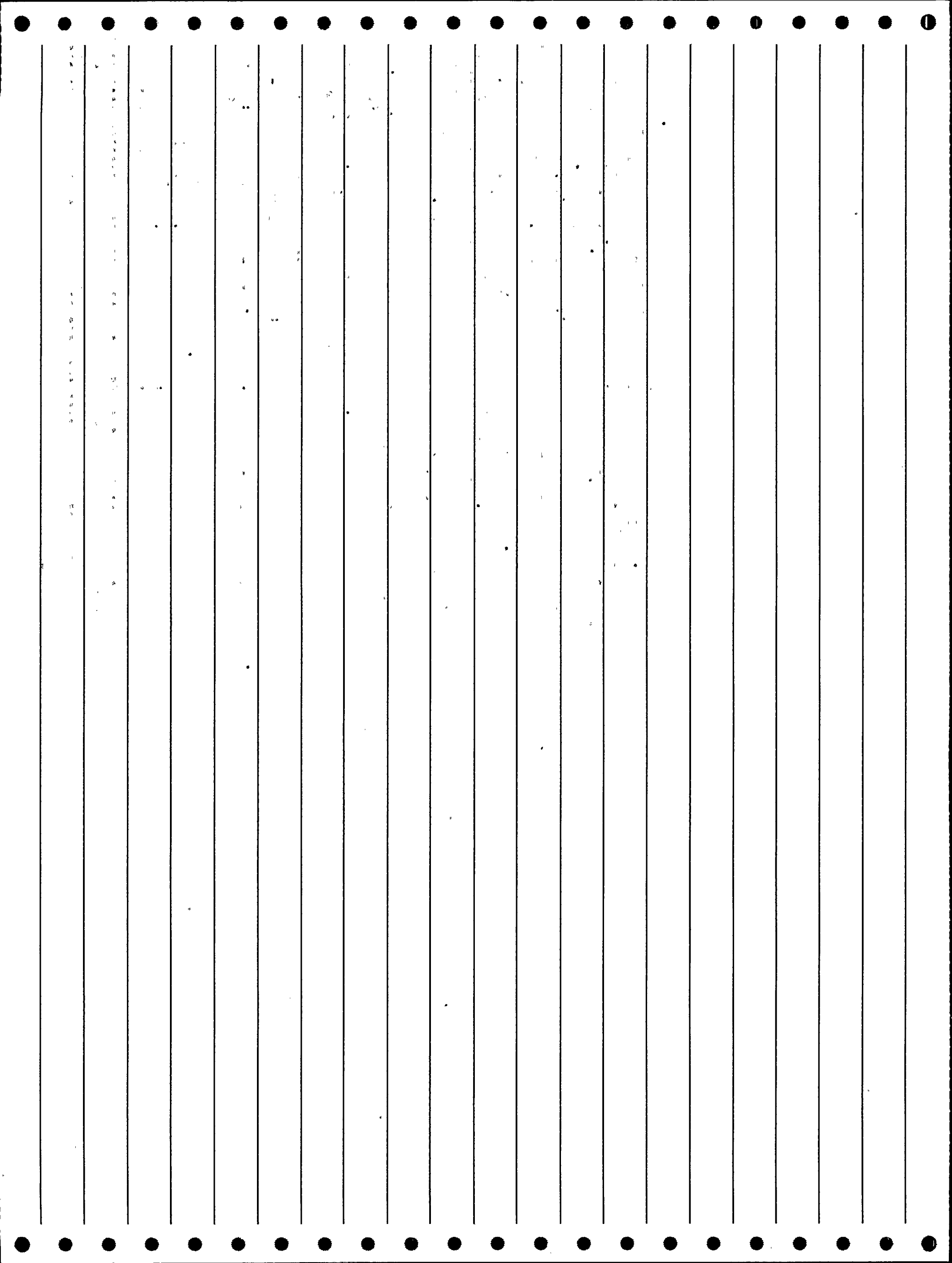
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 369/84-024 2 370/85-026 3 370/86-016 4 370/86-021

ABSTRACT

POWER LEVEL - 100%. AT 100% POWER ON SEPTEMBER 6, 1987 AT 1035, A UNIT 2 REACTOR/TURBINE TRIP OCCURRED DUE TO HIGH PRESSURIZER PRESSURE WHEN MAIN TURBINE GOVERNOR AND INTERCEPT VALVES CLOSED AS DIRECTED BY THE DIGITAL ELECTRO-HYDRAULIC (DEH) TURBINE CONTROL SYSTEM. THE GOVERNOR AND INTERCEPT VALVE CLOSE SIGNAL WAS GENERATED BY LOSS OF POWER TO A DEH TURBINE CONTROL SYSTEM RELAY WHEN POWER WAS LOST TO KXB. POWER WAS LOST ON AUXILIARY POWER PANELBOARD KXB DUE TO AN OVERCURRENT FAULT BREAKER TRIP CAUSED BY A GROUNDED MOTOR LEAD CONNECTOR (INSULATING TAPE HAD WORN ALLOWING CONNECTING LUG TO GROUND TO MOTOR FRAME) ON INSTRUMENT AIR (VI) COMPRESSOR A. OPERATIONS IMPLEMENTED THE REACTOR TRIP PROCEDURE. POWER WAS RESTORED TO AUXILIARY POWER PANELBOARD KXB FROM STATIC INVERTER KXB. UNIT 2 RETURNED TO MODE 1, POWER OPERATION, ON SEPTEMBER 7, AT 2110. THE CONNECTING LUG WAS REINSULATED IN THE CONNECTION BOX AND THE COMPRESSOR WAS RETURNED TO SERVICE. VI COMPRESSOR MOTORS B&C WILL BE INSPECTED FOR SIMILAR CONDITION. SIMILAR MOTORS IN OTHER APPLICATIONS WILL BE INSPECTED AND RETAPED AS NECESSARY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
373 1987 031 0 8710130258 206660 09/05/87

DOCKET:373 LA SALLE 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

COMMENTS

STEP 1: MODEL # G.E. CR120AD110AC.

WATCH-LIST CODES FOR THIS LER ARE:

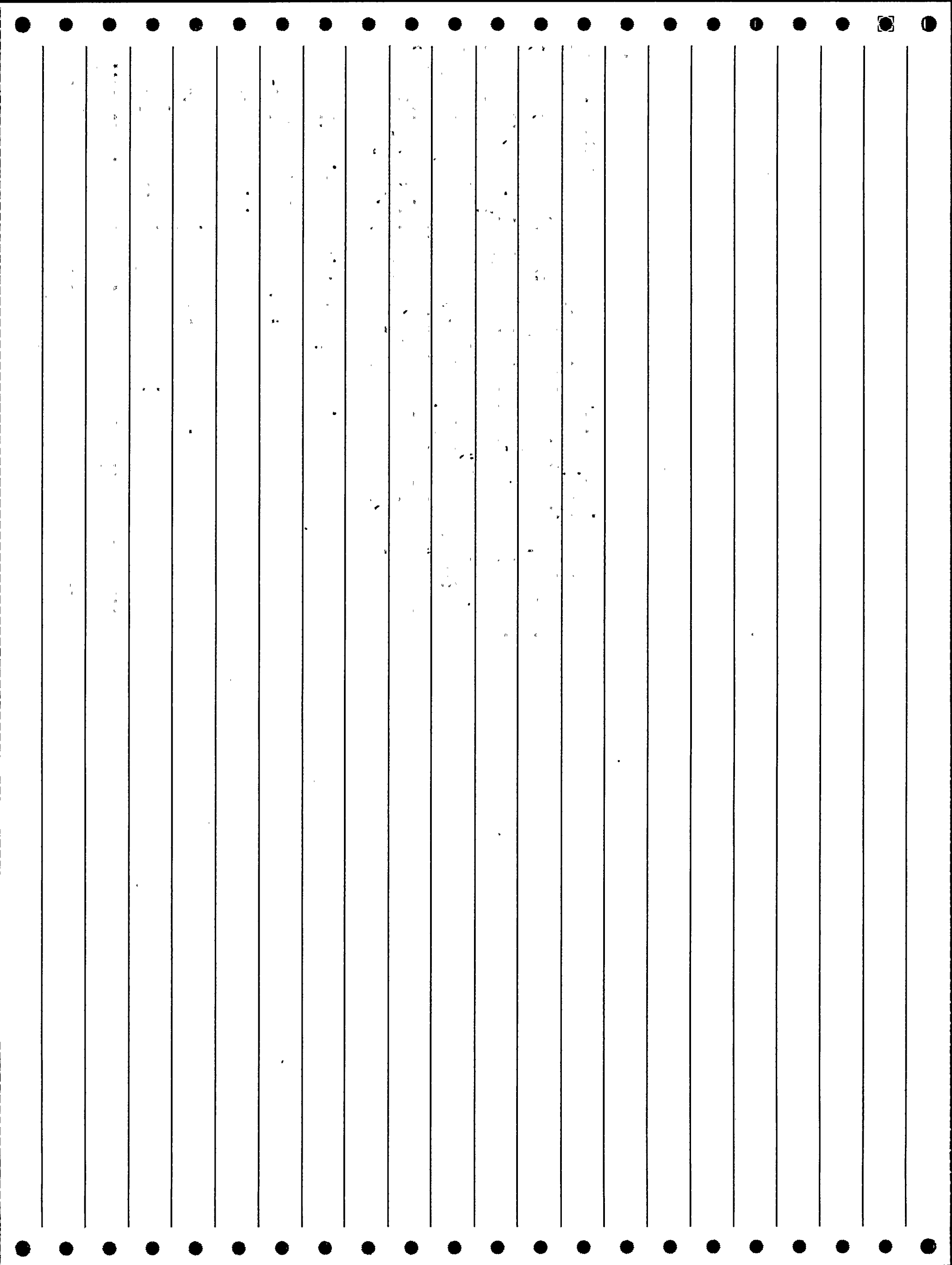
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. AT 0900 HOURS ON SEPTEMBER 5, 1987, WITH UNIT 1 IN OPERATIONAL CONDITION 4 (COLD SHUTDOWN) AND UNIT 2 IN OPERATIONAL CONDITION 1 (RUN) AT 100% POWER, THE "B" REACTOR PROTECTION SYSTEM (RPS) MOTOR GENERATOR (MG) SET TRIPPED DUE TO A CONTROL RELAY FAULT, WHICH IN TURN, DEENERGIZED THE "B" RPS BUS. LOSS OF THE "B" RPS BUS CAUSED A HALF SCRAM AND PRIMARY CONTAINMENT ISOLATION SYSTEM (PCIS) GROUPS II AND VII ISOLATIONS (INBOARD) ON UNIT 1, AND A PCIS GROUP IV ISOLATION ON UNIT 2. POWER WAS RESTORED TO THE "B" RPS BUS THROUGH THE ALTERNATE FEED AND ALL ISOLATIONS WERE RESET BY 0920 HOURS ON SEPTEMBER 5, 1987. THE CAUSE OF THE CONTROL RELAY FAILURE IS UNKNOWN. AN INVESTIGATION OF THE CONTROL CIRCUITRY REVEALED NO CONDITIONS (GROUNDS, SHORTS) WHICH COULD HAVE CONTRIBUTED TO THE RELAY'S FAILURE. THE SAFETY CONSEQUENCES OF THIS EVENT WERE MINIMAL. ALL ISOLATIONS AND ACTUATIONS OCCURRED AS DESIGNED FOR THIS EVENT. THIS EVENT IS REPORTABLE PURSUANT TO THE REQUIREMENTS OF 10CFR50.73(A)(2)(IV) DUE TO THE AUTOMATIC ACTUATION OF AN ENGINEERED SAFETY FEATURE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
373 1989 025 1 9005070366 217992 11/01/89

DOCKET:373 LA SALLE 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

COMMENTS

STEP 2: CORRECTIVE ACTION X - WARNING SIGNS POSTED.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

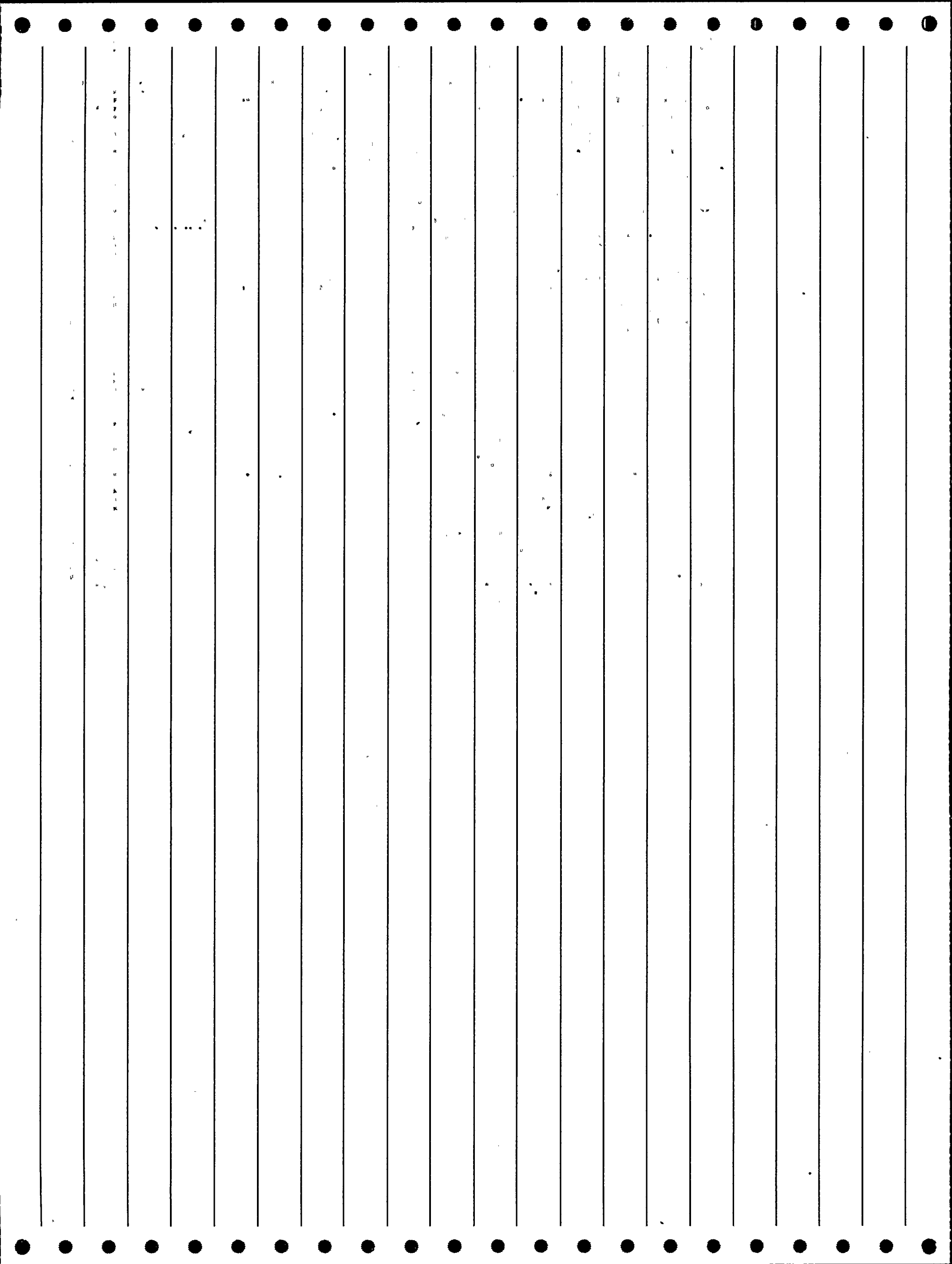
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 374/87-012

ABSTRACT

POWER LEVEL - 000%. AT 1706 HOURS ON 11/1/89, WITH UNIT 1 DEFUELED AND UNIT 2 IN OPERATIONAL CONDITION 1 (RUN) AT 100% POWER, THE SYSTEM AUXILIARY TRANSFORMER FEED TO BUS 142Y WAS TRIPPED OPEN WHEN AN EQUIPMENT OPERATOR CLOSED THE DOOR CONTAINING THE BUS 142Y UNDERVOLTAGE RELAYS, AND DEGRADED VOLTAGE RELAYS. THE DOOR WAS MISALIGNED CAUSING DIFFICULTY IN CLOSING THE DOOR. LOSS OF BUS 142Y CAUSED REACTOR BUILDING VENTILATION (VR) ISOLATIONS ON BOTH UNIT 1 AND UNIT 2. UNIT 2'S STANDBY GAS TREATMENT (SGBT) AUTO STARTED. UNIT 1 SGBT DID NOT AUTO START BECAUSE ITS POWER SUPPLY WAS LOST (142Y). SGBT WIDE RANGE GAS MONITOR (WRGM) POWER WAS ALSO LOST, SO CHEMISTRY SERVICE DEPARTMENT WAS NOTIFIED TO PULL SAMPLES (IODINE AND PARTICULATE). THIS EVENT DID NOT INITIATE A FAST TRANSFER TO BUS 142X, VIA THE CROSS-TIE BREAKER (NOT A SAFETY FUNCTION), NOR DID THE DIESEL GENERATOR (DG) 1A AUTOMATICALLY START. (DG 1A WAS OUT-OF-SERVICE FOR MAINTENANCE.) AT 1745 HOURS ON 11/1/89, THE BUS WAS ENERGIZED AND BUS 142Y WAS RETURNED TO SERVICE. THE AUTO TRANSFER CIRCUIT WILL BE TESTED. THE RELAYS MOUNTED ON BUS 142Y CUBICAL DOOR 2 WILL ALSO BE TESTED TO SEE IF A TRIP SIGNAL CAN BE REPRODUCED BY JARRING THE CUBICAL DOOR AND THE CUBICAL DOOR WILL BE REPAIRED. THIS EVENT IS REPORTABLE PURSUANT TO THE REQUIREMENTS OF 10CFR50.73(A)(2)(IV) DUE TO THE ACTUATION OF AN ENGINEERED SAFETY FEATURE SYSTEM.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
373 1991 003 0 9104230164 221954 03/19/91

DOCKET:373 LA SALLE 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

WATCH-LIST CODES FOR THIS LER ARE:

40 PROCEDURAL DEFICIENCY
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:

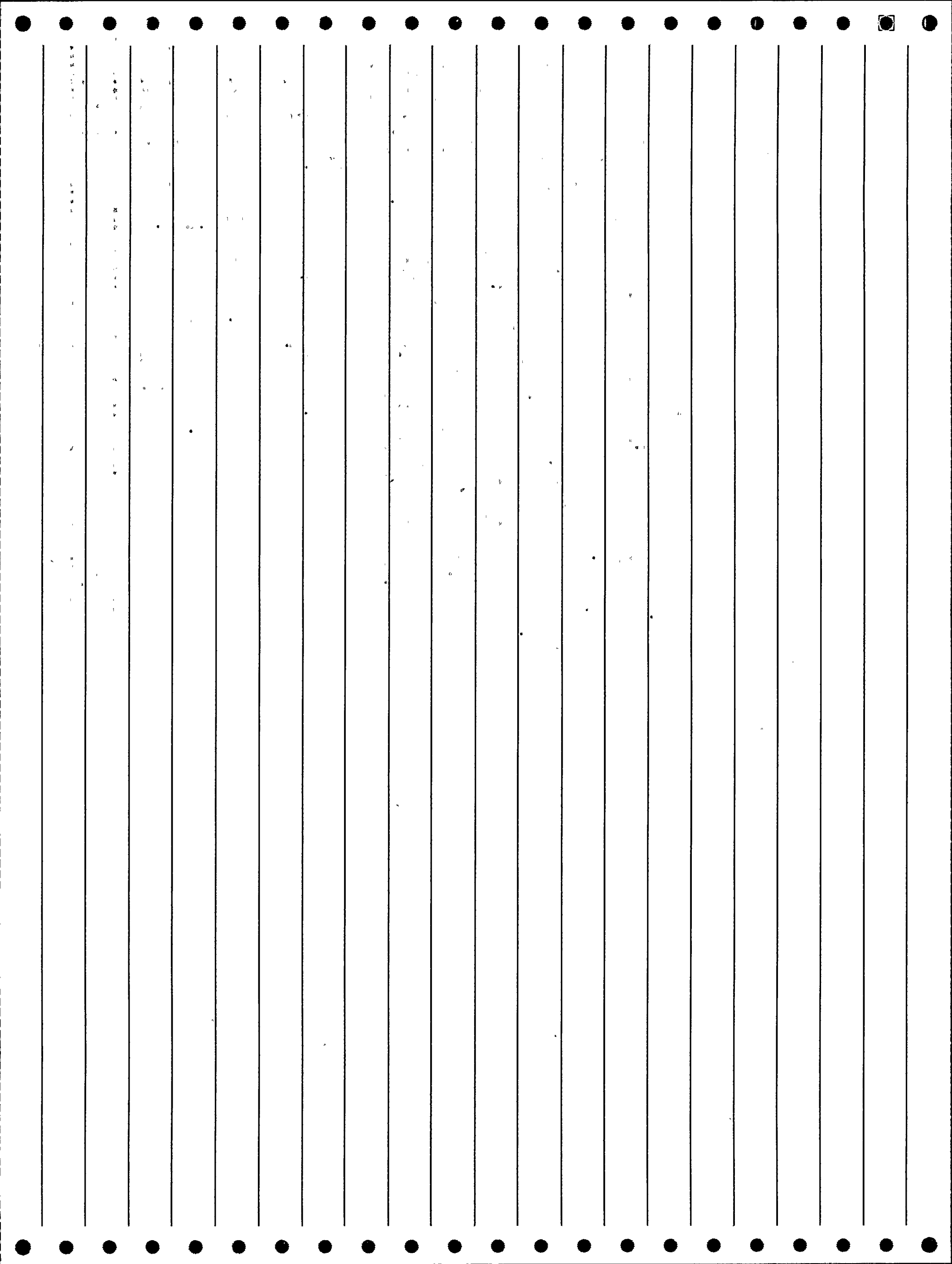
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 373/86-013

ABSTRACT

POWER LEVEL - 000%. ON MARCH 19, 1991 AT 1323 HOURS, WITH UNIT 1. DEFUELED, OPERATIONAL ANALYSIS DEPARTMENT (OAD) PERSONNEL WERE PERFORMING 1B DIESEL GENERATOR (DG) PROTECTIVE RELAY CALIBRATIONS IN ACCORDANCE WITH AN APPROVED STATION PROCEDURE WHEN THE NORMAL FEEDBREAKER TO ENGINEERED SAFETY FEATURE (ESF) BUS 143 TRIPPED. THE 1B DG, WHICH PROVIDES EMERGENCY POWER TO ESF BUS 143, WAS OUT OF SERVICE AT THE TIME OF THIS EVENT AND DID NOT START; CONSEQUENTLY ESF BUS 143 REMAINED DEENERGIZED. REVIEW OF THE BREAKER TRIPPING SCHEME INDICATED THAT THE RELAY THAT OAD PERSONNEL HAD JUST TESTED (1B DG OVERCURRENT WITH VOLTAGE RESTRAINT RELAY K35A) WOULD TRIP THE BREAKER. THE CAUSES OF THIS EVENT WERE AN INADEQUATE PROCEDURE, AND PERSONNEL ERROR IN IDENTIFYING ALL TRIPS TO BE DEFEATED. ALTHOUGH THE PROCEDURE USED IDENTIFIES THE NEED FOR DISABLING TRIPS, THE PROCEDURE DOES NOT GIVE ANY SPECIFIC DIRECTION ON WHICH TRIPS ARE REQUIRED TO BE DISABLED. THE SAFETY CONSEQUENCES OF THIS EVENT WERE MINIMAL. UNIT 1 WAS IN COLD SHUTDOWN AND DEFUELED DURING THIS EVENT. THE HIGH PRESSURE CORE SPRAY (HPCS) SYSTEM WAS ALREADY INOPERABLE DUE TO SCHEDULED MAINTENANCE AT THE TIME OF THIS EVENT. NO EMERGENCY CORE COOLING SYSTEMS (ECCS) ARE REQUIRED OPERABLE WITH THE UNIT DEFUELED. ONCE THE CAUSE FOR THE TRIP WAS DETERMINED, ESF BUS 143 WAS REENERGIZED AT 1352 HOURS ON MARCH 19, 1991.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
374 1986 008 0 8606120533 199783 05/09/86

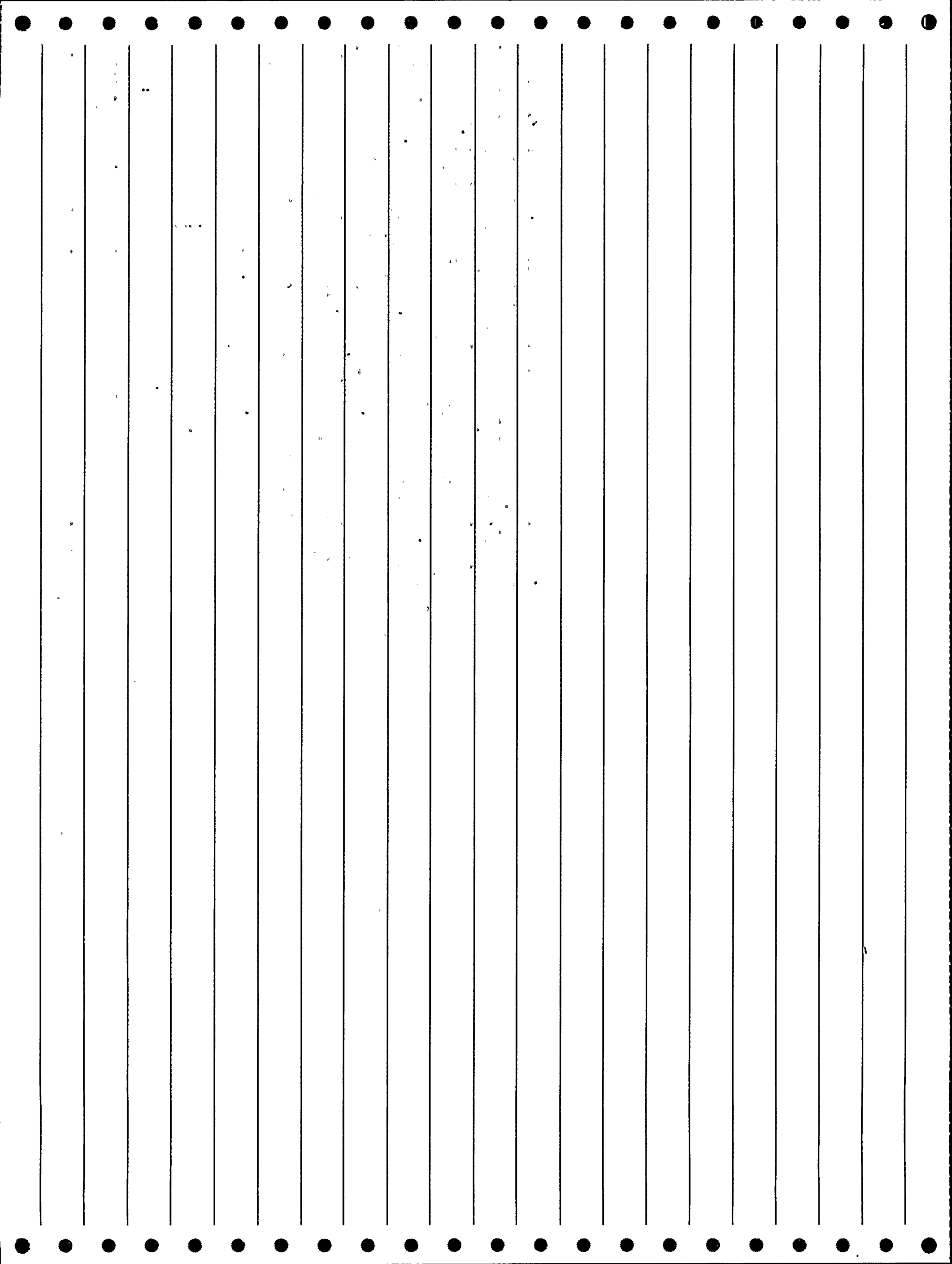
DOCKET:374 LA SALLE 2 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 086%. ON MAY 9, 1986 AT 0910 HOURS, WITH LASALLE UNIT 2 AT 86% POWER, A REACTOR SCRAM OCCURRED WHEN A STATIONMAN ACCIDENTALLY BUMPED OPEN A BREAKER WHILE SWEEPING THE FLOOR. THE BREAKER WAS A PRIMARY TRANSFORMER DISCONNECT FEEDING THE 120/208V DISTRIBUTION PANEL AT MOTOR CONTROL CENTER (MCC) 235X-3. THE DISTRIBUTION PANEL FEEDS THE FEEDWATER LEVEL CONTROL PANEL 2H13-P612. WITH A LOSS OF AC POWER TO THIS PANEL, THE 2B TURBINE DRIVEN REACTOR FEED PUMP LOCKED OUT AT 41% DEMAND AND THE 2A TURBINE DRIVEN REACTOR FEED PUMP COASTED DOWN TO ZERO OUTPUT. WITH 41% FLOW FROM ONLY ONE FEED PUMP, THE REACTOR WATER LEVEL DROPPED RAPIDLY AND A FULL AUTO SCRAM OCCURRED. THE MOTOR DRIVEN REACTOR FEED PUMP WAS MANUALLY STARTED DURING THE EVENT, BUT DUE TO THE LOSS OF CONTROL POWER THE FEEDWATER REGULATING VALVE WAS LOCKED OUT. THE CAUSE OF THE SCRAM WAS A LOSS OF FEEDWATER DUE TO LOSS OF POWER TO THE FEEDWATER LEVEL CONTROL PANEL. AN INVESTIGATION MEETING AND TRAINING TAILGATE MEETING WERE HELD ON MAY 9, 1986 WITH THE STATIONMAN INVOLVED AND WITH ALL OTHER STATIONMEN. THE SESSIONS STRESSED THE IMPORTANCE OF CAUTION WHEN WORKING AROUND ANY PLANT EQUIPMENT, ESPECIALLY DISTRIBUTION CENTERS AND INSTRUMENT RACKS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
382 1988 033 0 8901110062 212794 12/08/88

DOCKET:382 WATERFORD 3 TYPE:PWR
REGION: 4 NSSS:CE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: LOUISIANA POWER & LIGHT CO.
SYMBOL: LPL

COMMENTS

WATCH 932 - INFORMATION NOTICE 85-77. STEP 28: EFF WX - TRIP ON CALCULATED DNBR.

WATCH-LIST CODES FOR THIS LER ARE:

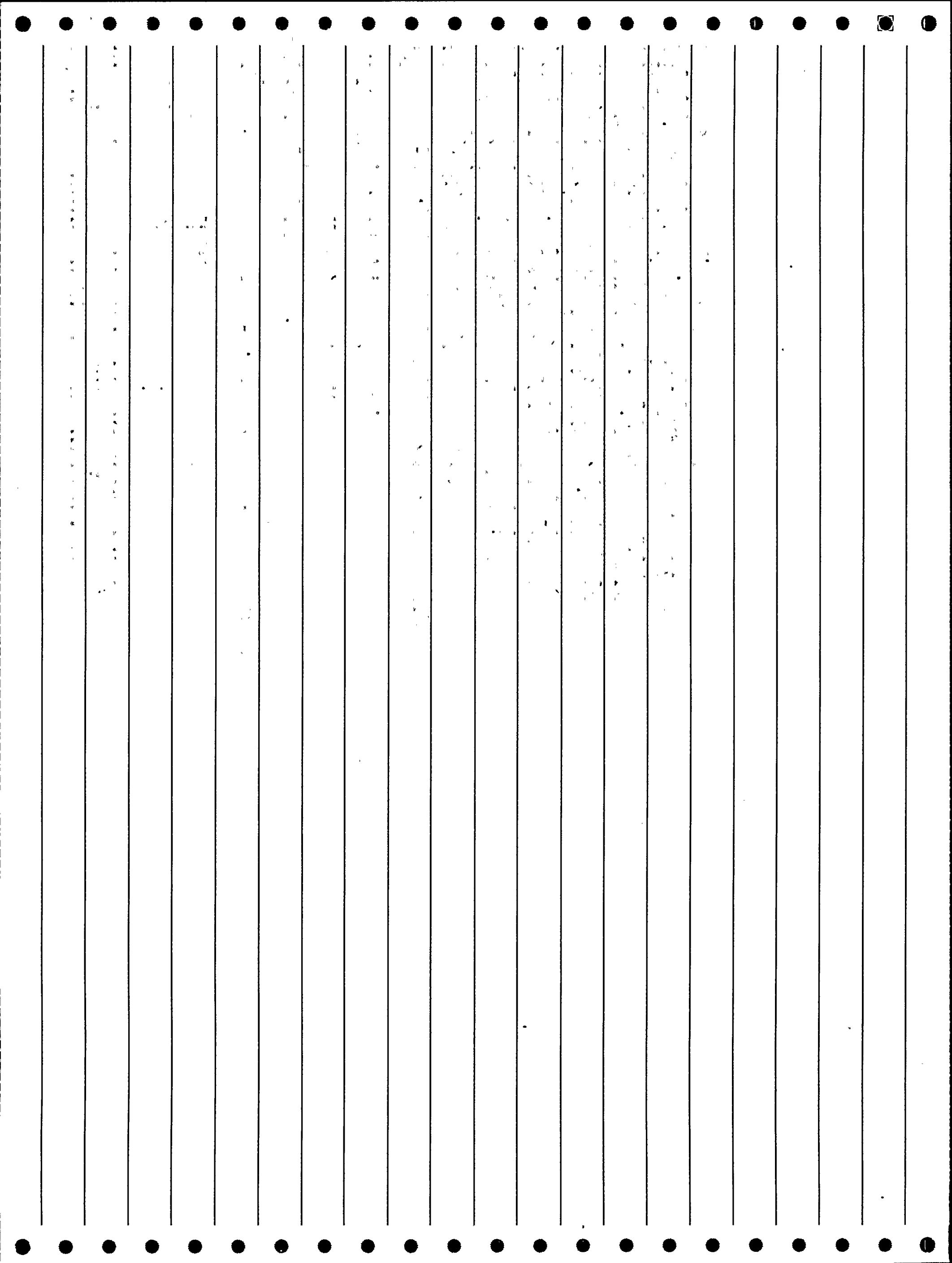
31 ACCIDENTAL ACTION
35 HUMAN ERROR
932 RESULT OF IE BULLETINS, ORDERS, ETC.(IEB 81-7)

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. AT 1311 HOURS ON DECEMBER 8, 1988, WATERFORD STEAM ELECTRIC STATION UNIT 3 WAS OPERATING AT 100% POWER WHEN A TRANSIENT INDUCED BY THE CYCLING OF POWER DISTRIBUTION PANEL (PDP) 3014AB BREAKERS CAUSED THE REACTOR TO TRIP ON LOW DEPARTURE FROM NUCLEATE BOILING RATIO (DNBR). THE PDP COVER SLIPPED WHILE BEING REMOVED FOR MAINTENANCE, CAUSING ONE-HALF OF THE PDP BREAKERS TO OPEN. THE MAINTENANCE PERSONNEL CLOSED THE BREAKERS CAUSING PRESSURIZER PRESSURE INSTRUMENT CONTROL LOOPS TO REENERGIZE; THIS APPEARED TO THE STEAM BYPASS CONTROL SYSTEM AND REACTOR POWER CUTBACK SYSTEM (RPCS) AS A LARGE LOAD REJECTION. STEAM BYPASS CONTROL VALVES QUICK-OPENED AND THE RPCS ACTUATED. DUE TO THE LOSS OF POWER TO MAIN TURBINE (MT) CONTROL CIRCUITS, THE MT WAS NOT SETBACK BY THE RPCS. WITH THE RESULTING STEAM DEMAND GREATER THAN REACTOR POWER, REACTOR COOLANT SYSTEM (RCS) PRESSURE DECREASED AND THE CORE PROTECTION CALCULATORS TRIPPED THE REACTOR ON ANTICIPATED LOW DNBR. THE ROOT CAUSE OF THIS EVENT IS INADEQUATE ADMINISTRATIVE CONTROL OF WORK PERFORMED ON OR AROUND EQUIPMENT THAT COULD CAUSE A PLANT TRIP OR SAFETY SYSTEM ACTUATION. A DIRECTIVE IS BEING DEVELOPED TO AID IN THE PLANNING AND APPROVAL OF HIGH RISK TASKS. SINCE SAFETY SYSTEMS FUNCTIONED TO PROTECT THE PLANT, THERE WAS NO DANGER TO THE HEALTH OR SAFETY OF THE PUBLIC OR PLANT PERSONNEL.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
382 1991 007 0 9106120214 222384 05/10/91

DOCKET:382 WATERFORD 3 TYPE:PWR
REGION: 4 NSSS:CE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: LOUISIANA POWER & LIGHT CO.
SYMBOL: LPL

WATCH-LIST CODES FOR THIS LER ARE:

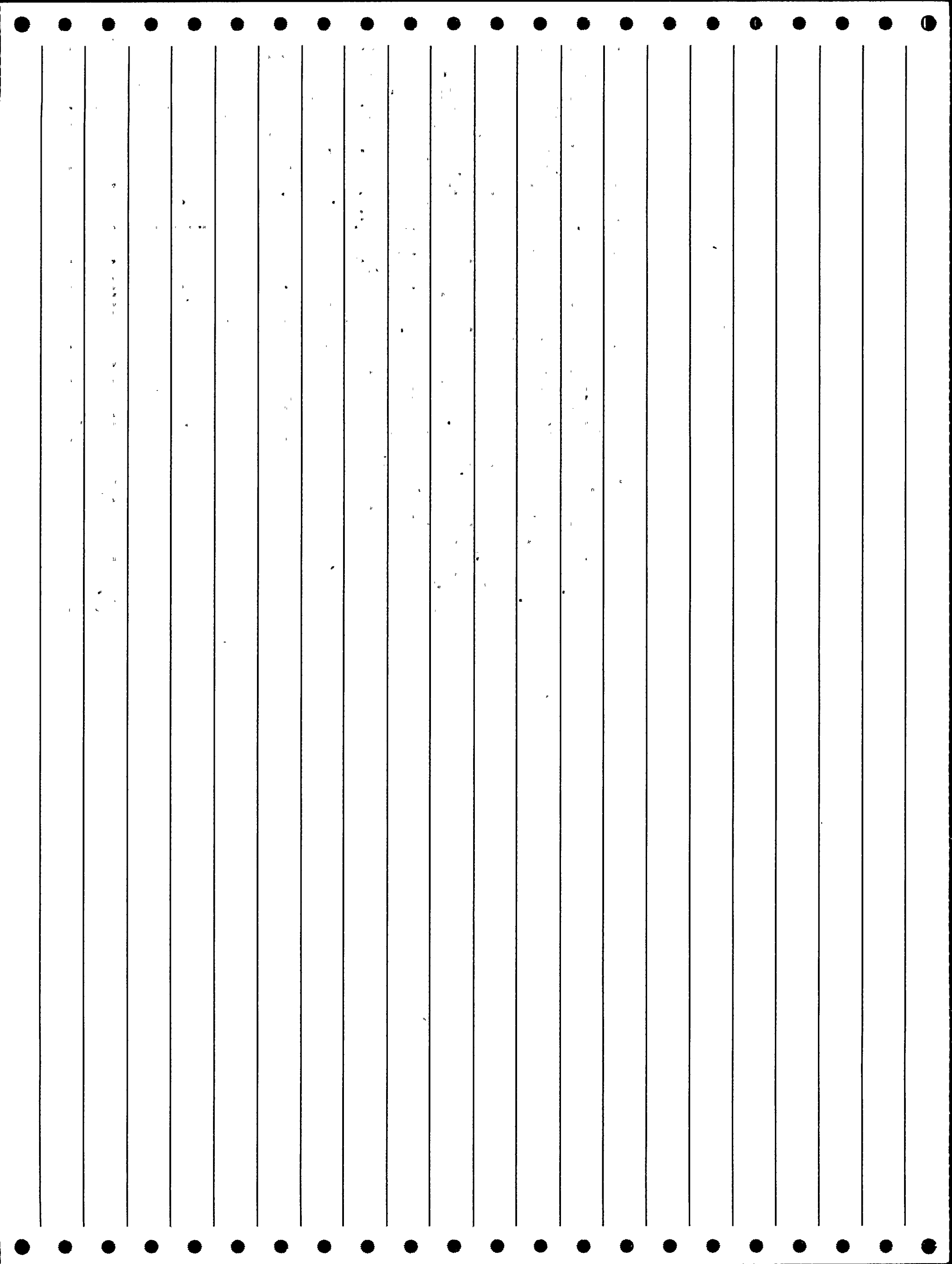
34 DESIGN ERROR OR INADEQUACY

REPORTABILITY CODES FOR THIS LER ARE:

15 10 CFR 50.73(a)(2)(vii): Single failure criteria.

ABSTRACT

POWER LEVEL - 000%. ON 5/10/91, UNIT 3 WAS SHUTDOWN IN MODE 5, WHEN A REVIEW OF CALCULATION EC-E89-007, RELAY SETTINGS AND COORDINATION CURVES FOR 6.9 KV, 4.16 KV AND 480 V. BUSSES, REVEALED THAT THE ELECTRONIC CURRENT SENSOR (ECS) CURRENT TRANSFORMER (CT) RATING INSTALLED ON MOTOR CONTROL CENTER BUS (MCC) 3A8311-S WAS 300 AMPS VICE THE REQUIRED 600 AMPS. MCC 3A8311-S SUPPLIES POWER TO EQUIPMENT NECESSARY TO RUN THE "AB" ESSENTIAL SERVICES CHILLER. THE POTENTIAL FOR MCC 3A8311-S TO EXCEED 300 AMPS EXISTED IN THE EVENT OF A LOSS OF OFF-SITE POWER WITH THE MAIN TURBINE TRIPPED. THE SUBSEQUENT AUTOMATIC RESTORATION OF ELECTRICAL LOADS COULD HAVE RESULTED IN THE MCC 3A8311-S BREAKER OPENING DUE TO AN OVERCURRENT CONDITION. THIS EVENT IS REPORTABLE AS A CONDITION WHICH COULD HAVE CAUSED ONE TRAIN TO BECOME INOPERABLE FOR SYSTEMS DESIGNED TO REMOVE RESIDUAL HEAT OR SHUTDOWN THE REACTOR AND MAINTAIN IT IN A SAFE SHUTDOWN CONDITION. THE ROOT CAUSE OF THIS EVENT WAS A FAILURE OF THE ARCHITECT ENGINEER TO PROPERLY VERIFY CT AMPERAGE RATINGS, IN ACCORDANCE WITH DESIGN CALCULATIONS, WHEN THE CTS WERE ORDERED FOR INITIAL INSTALLATION. CORRECTIVE ACTION INCLUDED INSTALLING THE PROPER RATED CT AND VERIFYING SAFETY RELATED BUSES FOR CORRECT CT RATING. SINCE ANOTHER TRAIN WOULD HAVE BEEN AVAILABLE DURING THIS TIME, THIS EVENT WOULD NOT HAVE THREATENED THE HEALTH AND SAFETY OF THE PUBLIC.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
387 1984 029 0 8408090421 191267 07/03/84

DOCKET:387 SUSQUEHANNA 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PENNSYLVANIA POWER & LIGHT CO.
SYMBOL: PPL

COMMENTS

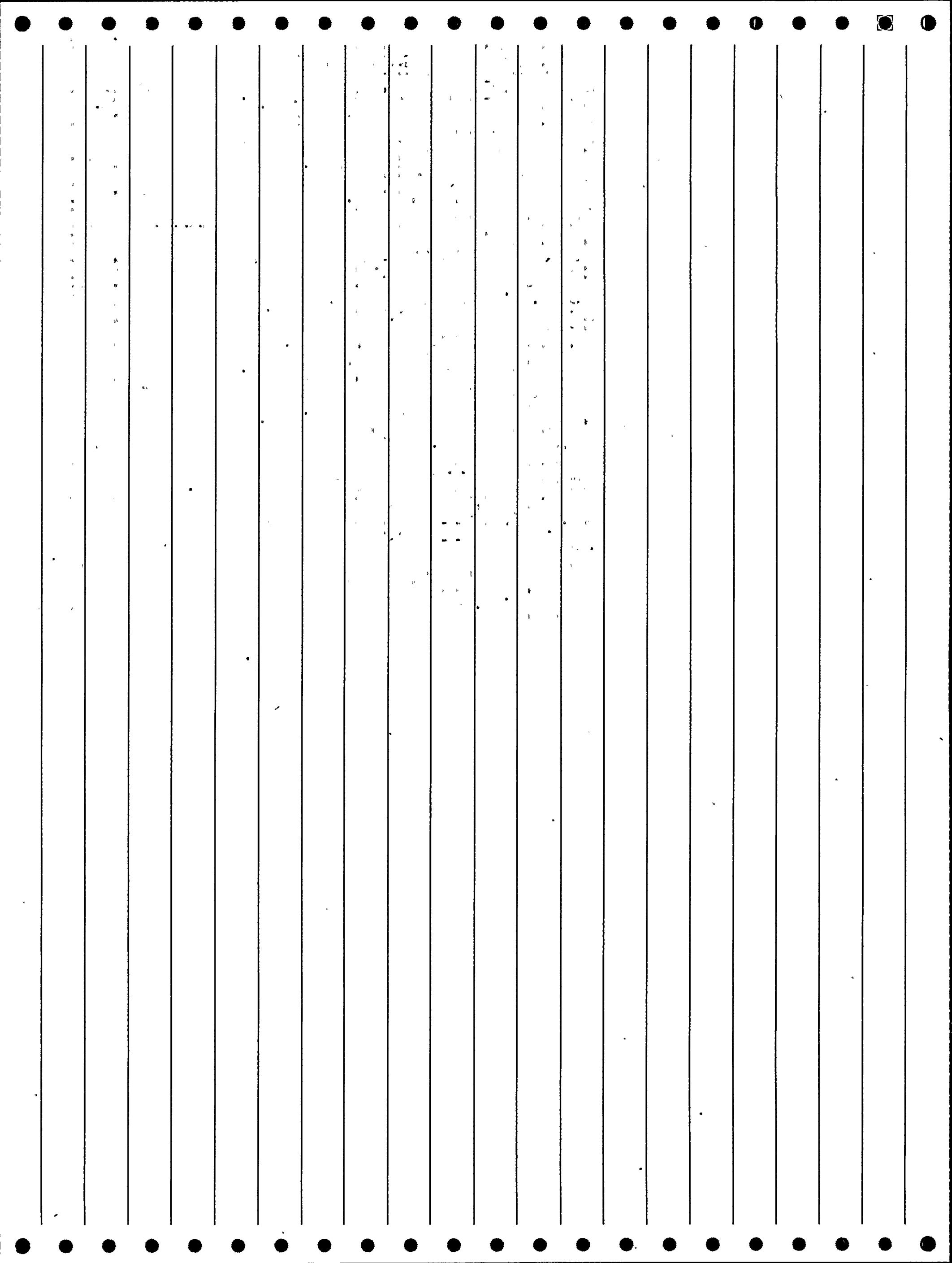
STEP 7: IX = VOLTAGE TRANSIENT; STEP 9: ISYS HS = COMMON REFUELING FLOOR.
STEP 12: EFFECT HX = CONSTANT SPEED AND FLOW.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. AS A RESULT OF A LIGHTNING STRIKE ON A 230KV TRANSMISSION LINE, THE UNIT 1 START-UP TRANSFORMER T-10 ISOLATED 1 OF 2 SOURCES OF OFFSITE POWER. THE LOSS OF THE T-10 TRANSFORMER CAUSED A TRIP TO THE UNIT 1 AND 2 'A' RPS. REACTOR BLDG ZONE I, II, AND III HVAC SYSTEMS TRIPPED AND STANDBY GAS TREATMENT SYSTEM INITIATED DUE TO THE LOSS OF RPS. THE EFFECT ON FEEDWATER AND REACTOR RECIRCULATION CONTROLS CAUSED A REACTOR VESSEL LEVEL INCREASE. MANUAL FEEDWATER CONTROL WAS TAKEN TO DECREASE REACTOR VESSEL LEVEL. THE 'A' REACTOR FEEDWATER TURBINE TRIPPED 3 SECS AFTER BEING RESET. THE 'C' REACTOR FEEDWATER TURBINE FLOW DECREASED DUE TO THE STEAM SUPPLY ISOLATING. THE 'B' REACTOR FEEDWATER PUMP DID NOT PROVIDE SUFFICIENT FLOW TO MAINTAIN REACTOR VESSEL LEVEL. THE REACTOR SCRAMMED ON LOW LEVEL. REACTOR VESSEL LEVEL DECREASED AND INITIATED THE HPCI AND RCIC SYSTEMS, AND CLOSED THE MSIV'S. REACTOR VESSEL LEVEL INCREASED TO THE TRIP POINT FOR HPCI, RCIC, AND REACTOR FEEDWATER TURBINES. ALL SAFETY SYSTEMS WHICH WERE REQUIRED OPERATED SATISFACTORY. THIS EVENT IS REPORTABLE PER 10CFR50.73(A)(2)(IV) SINCE AN UNPLANNED ENGINEERED SAFETY FEATURE (ESF) ACTUATION OCCURRED AND THE RPS TRIPPED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
387 1986 028 0 8609050092 200912 08/01/86

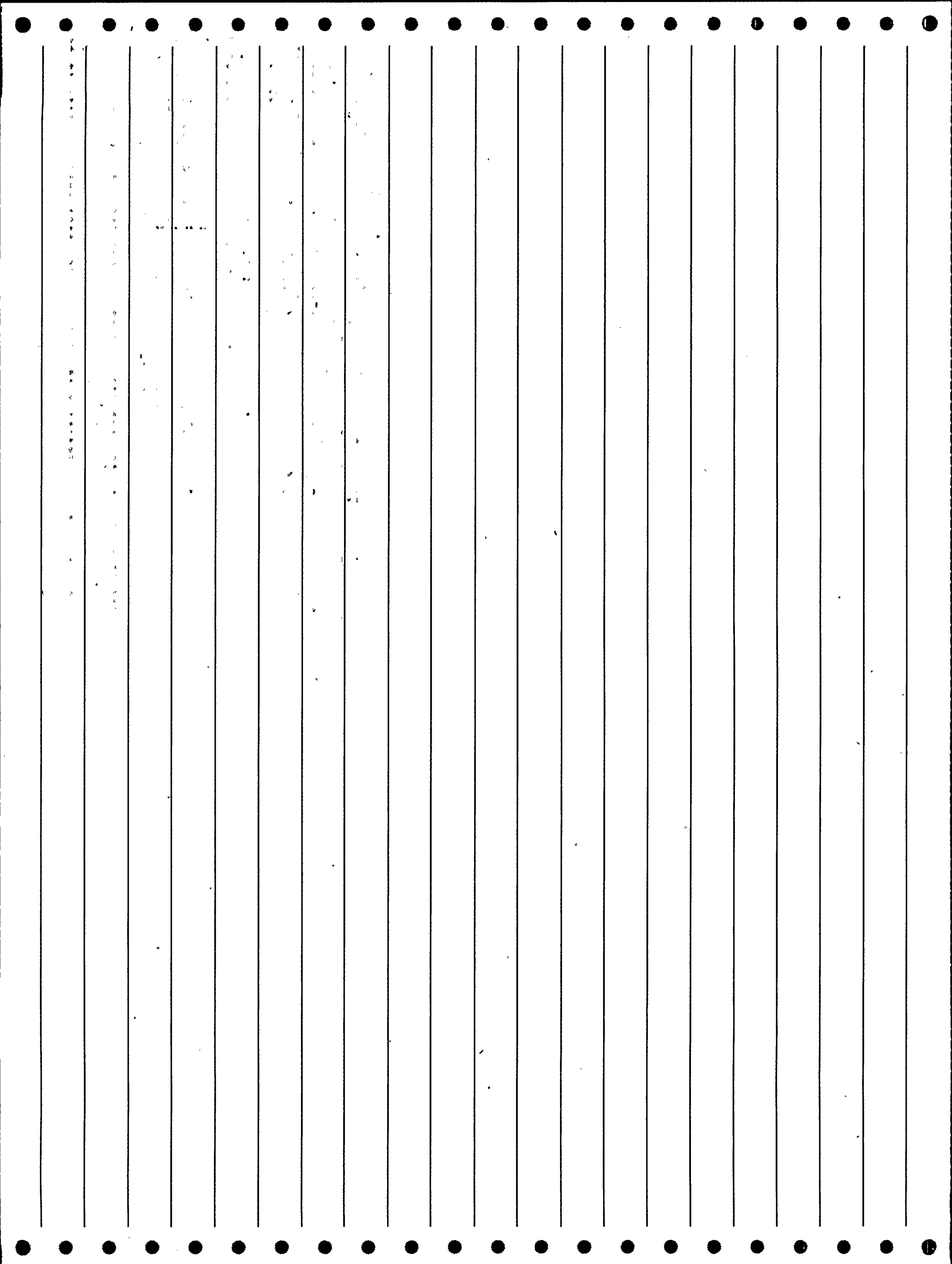
DOCKET:387 SUSQUEHANNA 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PENNSYLVANIA POWER & LIGHT CO.
SYMBOL: PPL

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. ON AUGUST 1, 1986 AND AUGUST 6, 1986 LIGHTNING STRIKES TO THE MONTOUR MOUNTAIN 230 KV TRANSMISSION LINE CAUSED THE UNIT 1 STARTUP BUS TRANSFER (T-10) BREAKER FEEDING STARTUP BUS 10 TO OPEN. ON BOTH OCCASIONS BUS 10 LOADS TRANSFERRED TO BUS 20 AS DESIGNED. VARIOUS TRIPS AND ISOLATIONS WERE INCURRED. THE TWO UNITS WERE STABILIZED AFTER EACH EVENT AND THE AFFECTED SYSTEMS WERE RESTORED AS APPLICABLE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
387 1986 029 1 8612300216 202351 08/16/86

DOCKET:387 SUSQUEHANNA 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PENNSYLVANIA POWER & LIGHT CO.
SYMBOL: PPL

COMMENTS

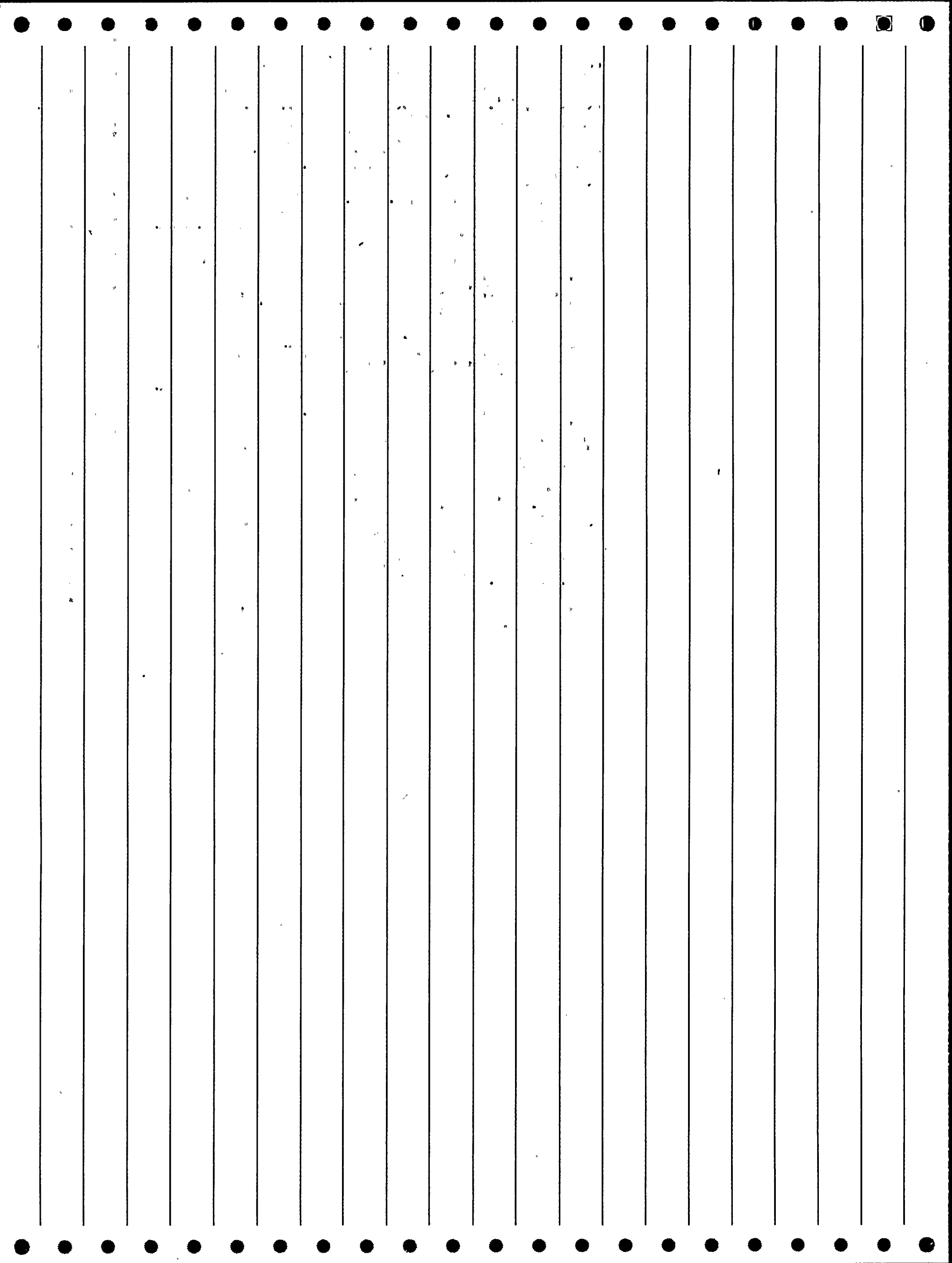
STEP 10: COMPONENT MSC- MOTOR-GENERATOR BRUSHES. STEP 11: CAUSE AX- TO
PERFORM MAINTENANCE ON BRUSHES.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 070%. ON AUGUST 16, 1986, WHILE UNIT 1 OPERATED BETWEEN
50% AND 70% RATED POWER, TWO INITIATIONS OF THE "B" STANDBY GAS
TREATMENT (SBGT) AND CONTROL ROOM EMERGENCY OUTSIDE AIR SUPPLY SYSTEMS
(CREOASS) OCCURRED. THIS WAS A RESULT OF THE "B" REACTOR PROTECTION
SYSTEM (RPS) EPA BREAKERS TRIPPING. WHEN THE BREAKERS TRIPPED, THEY
INTERRUPTED POWER TO THE "B" RPS BUS. THIS IN TURN CAUSED AN
AUTOMATIC ISOLATION OF ZONES I AND III, WHICH CAUSED SBGT AND CREOASS
TO START. ALSO, LOSS OF THE "B" RPS BUS TRIGGERED CERTAIN PRIMARY
CONTAINMENT ISOLATIONS. THE FIRST INITIATION OCCURRED AT 0735 HOURS
WHEN THE EPA BREAKER ASSOCIATED WITH THE PREFERRED RPS POWER SOURCE
TRIPPED. THE CAUSE OF THE TRIP WAS A DEFECTIVE EPA LOGIC BOARD.
AFTER TECHNICIANS REPLACED THE BOARD THE BREAKER FUNCTIONED PROPERLY.
THE SECOND INITIATION OCCURRED AT 1305 HOURS WHEN AN EPA BREAKER
ASSOCIATED WITH THE ALTERNATE RPS POWER SOURCE TRIPPED. THE TRIP
RESULTED WHEN THE "A" RECIRCULATION PUMP WAS STARTED. THE START
CAUSED VOLTAGE TO DROP BELOW THE BREAKER'S LOW VOLTAGE SETPOINT.
ADJUSTMENTS HAVE BEEN MADE TO THE SYSTEM THAT BOOST THE STEADY STATE
VOLTAGE, THEREBY, PROVIDING GREATER MARGIN TO THE UNDERVOLTAGE
SETPOINT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
387 1987 015 0 8705280421 204591 04/21/87

DOCKET:387 SUSQUEHANNA 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PENNSYLVANIA POWER & LIGHT CO.
SYMBOL: PPL

COMMENTS

STEPS 51,52: DI X-10. STEPS 53,54: DI X-11.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

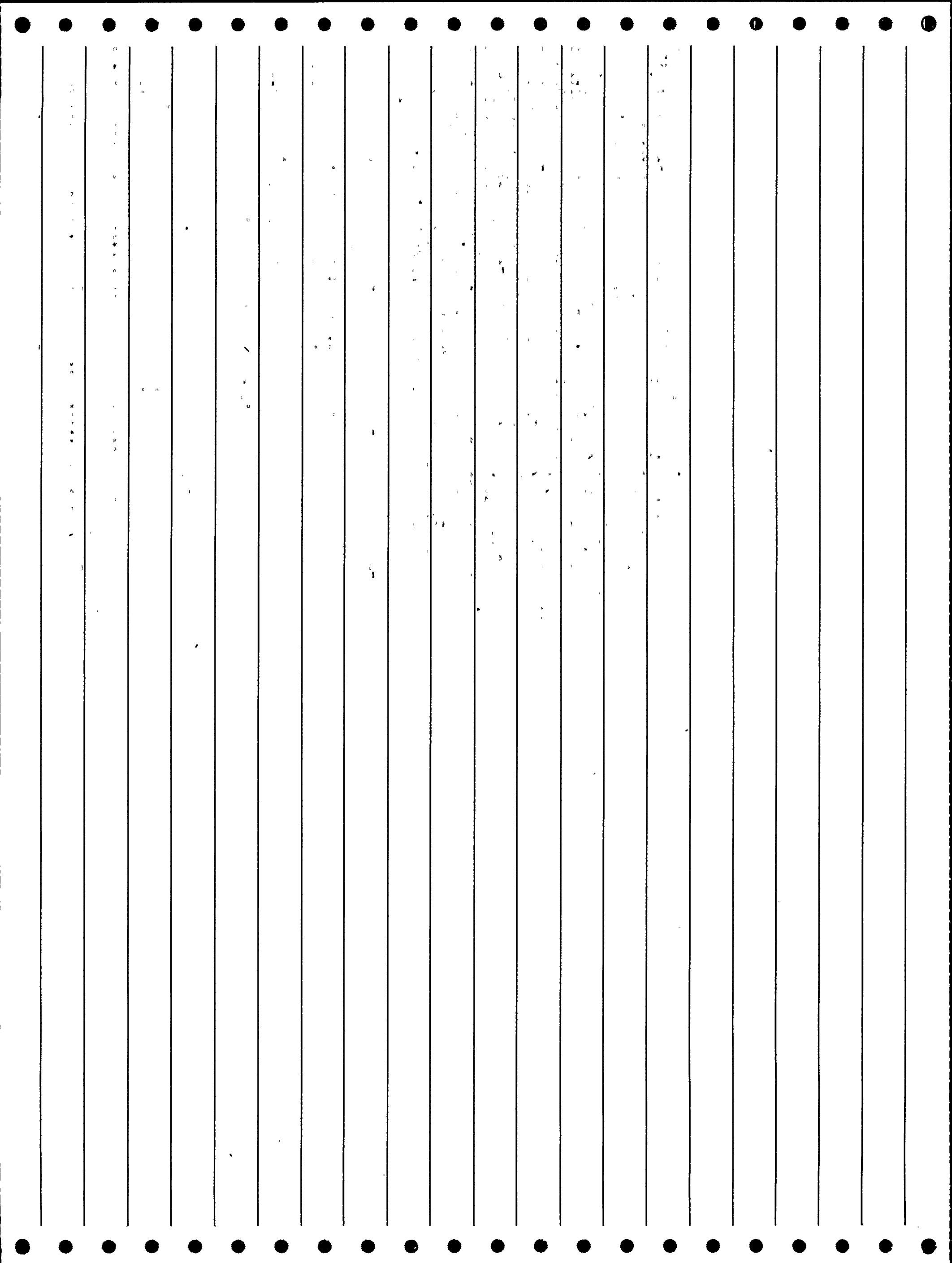
13 10 CFR 50.73(a)(2)(iv): ESF, actuations.

REFERENCE LERS:

1 387/84-014 2 387/85-020 3 387/86-022 4 387/87-007

ABSTRACT

POWER LEVEL - 100%. ON 4/21/87 AT 1634 WITH UNIT 1 OPERATING AT 100% POWER, AND UNIT 2 IN CONDITION 4 AT 0% POWER, MULTIPLE PLANT DISTURBANCES OCCURRED WHEN A LIGHTNING ARRESTOR FAILED AT A CONSTRUCTION SUBSTATION. THE FAILURE RESULTED IN A PHASE TO GROUND FAULT ON THE 230 KV SUPPLY LINE TO UNIT 2 STARTUP TRANSFORMER T-20. POWER INTERRUPTIONS CAUSED BY REALIGNMENT OF THE ELECTRICAL DISTRIBUTION SYSTEM WHEN T-20 WAS LOST RESULTED IN NUMEROUS TRIPS OR AUTO STARTS OF EQUIPMENT/SYSTEMS IN BOTH UNITS INCLUDING ENGINEERED SAFETY FEATURE ACTUATIONS OF REACTOR WATER CLEANUP, STANDBY GAS TREATMENT, CONTROL ROOM EMERGENCY OUTSIDE AIR SUPPLY, ZONE III HEATING VENTILATION AND AIR CONDITIONING ISOLATION AND ISOLATION OF UNIT 2 CONTAINMENT ISOLATION SAMPLE VALVES. THE ELECTRICAL DISTRIBUTION SYSTEM WAS RETURNED TO A NORMAL OPERATING LINEUP, PLANT SYSTEMS WERE RESTORED AND NO SAFETY CONSEQUENCES OR COMPROMISE TO PUBLIC SAFETY OCCURRED. THE FAILED LIGHTNING ARRESTOR WAS REPLACED. SINCE A PREVIOUSLY FAILED LIGHTNING ARRESTOR HAD TO BE REPLACED A MONTH EARLIER AS CORRECTIVE ACTION FOR A SIMILAR EVENT, IT WAS DECIDED TO ALSO REPLACE THE THIRD AND FINAL LIGHTNING ARRESTOR AT THE CONSTRUCTION SUBSTATION AS A PRECAUTIONARY MEASURE.



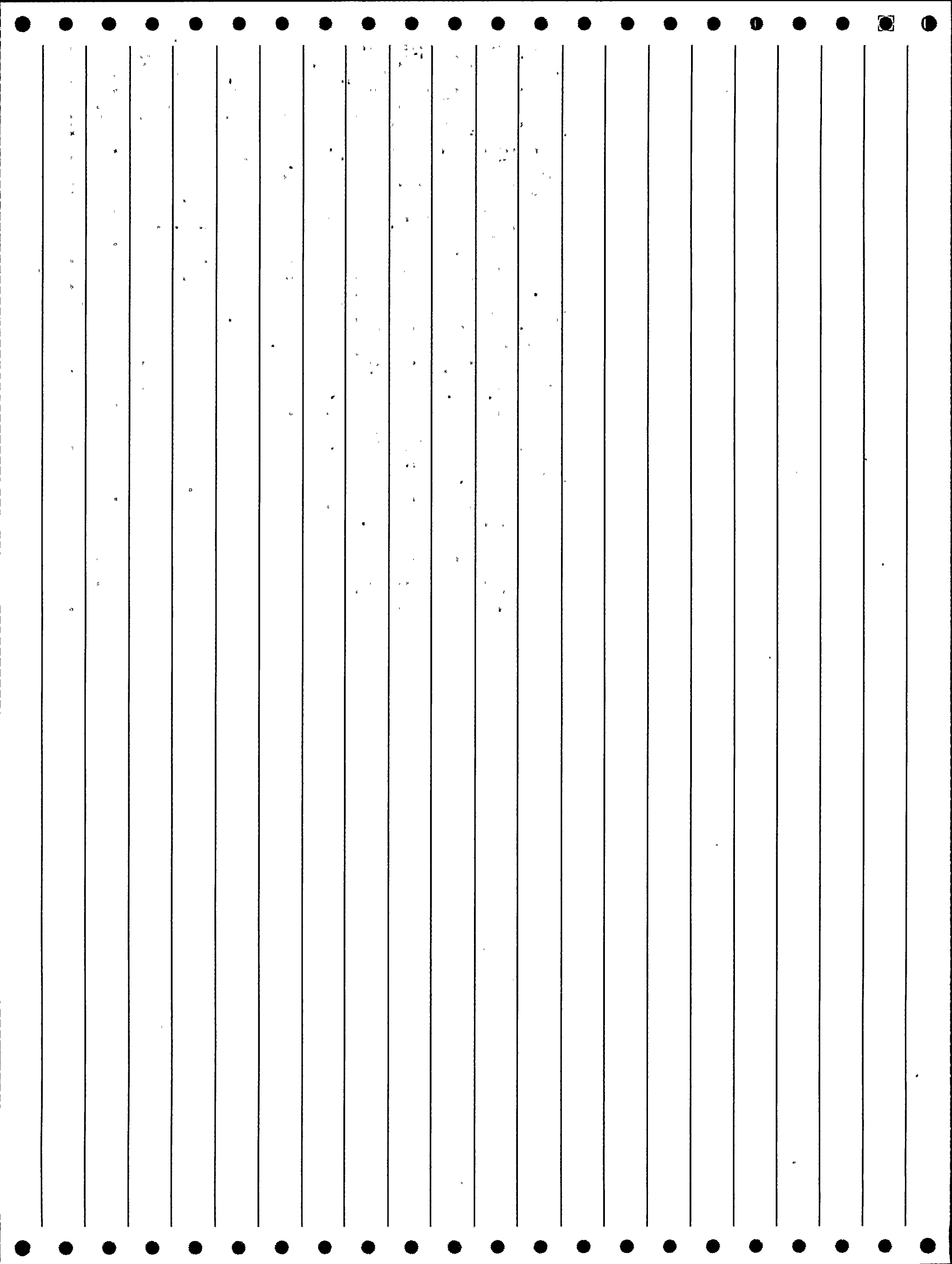
DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
387 1987 029 0 8712080236 207272 11/01/87

DOCKET:387 SUSQUEHANNA 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PENNSYLVANIA POWER & LIGHT CO.
SYMBOL: PPL

WATCH-LIST CODES FOR THIS LER ARE:
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT
POWER LEVEL:- 000%. AT 1620 ON NOVEMBER 1, 1987, UNIT 1 EXPERIENCED AN UNPLANNED ENGINEERED SAFEGUARD FEATURE ACTUATION DUE TO A MOMENTARY LOSS OF POWER TO THE REACTOR PROTECTION SYSTEM (RPS) BUS. UNIT 1 WAS IN REFUELING WITH THE "A" RESIDUAL HEAT REMOVAL PUMP OPERATING IN THE SHUTDOWN COOLING MODE. THE "B" RPS SYSTEM WAS ALIGNED TO ITS ALTERNATE POWER SUPPLY, A 480 VAC BREAKER ON DOUBLE ENDED LOAD CENTER (LC) 18250/18260. THE EVENT WAS INITIATED BY A UTILITY NONLICENSED OPERATOR WHO WAS RESTORING THE DOUBLE ENDED LOAD CENTER (LC) 18250/18260 TO A NORMAL OPERATING LINE-UP. THESE ACTIONS CAUSED A MOMENTARY LOSS OF POWER TO THE LOADS FED FROM 18260, ONE OF THE LOADS BEING THE "B" RPS SYSTEM. THIS MOMENTARY LOSS WAS LONG ENOUGH TO CAUSE THE OUTBOARD ISOLATION VALVE (F008), A PRIMARY CONTAINMENT ISOLATION VALVE ON THE SHUTDOWN COOLING SUCTION OF THE RHR PUMPS, TO CLOSE, THUS TRIPPING THE RHR PUMP. THE VALVE WAS REOPENED AND SHUTDOWN COOLING WAS RESTORED. SYSTEM OPERATING PROCEDURES AND OPERATING PERSONNEL TRAINING CONCERNING REALIGNMENTS OF 480 VAC LOAD CENTERS WILL BE REVIEWED AND REVISED AS APPROPRIATE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
387 1988 014 0 8808150203 210121 07/16/88

DOCKET:387 SUSQUEHANNA 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PENNSYLVANIA POWER & LIGHT CO.
SYMBOL: PPL

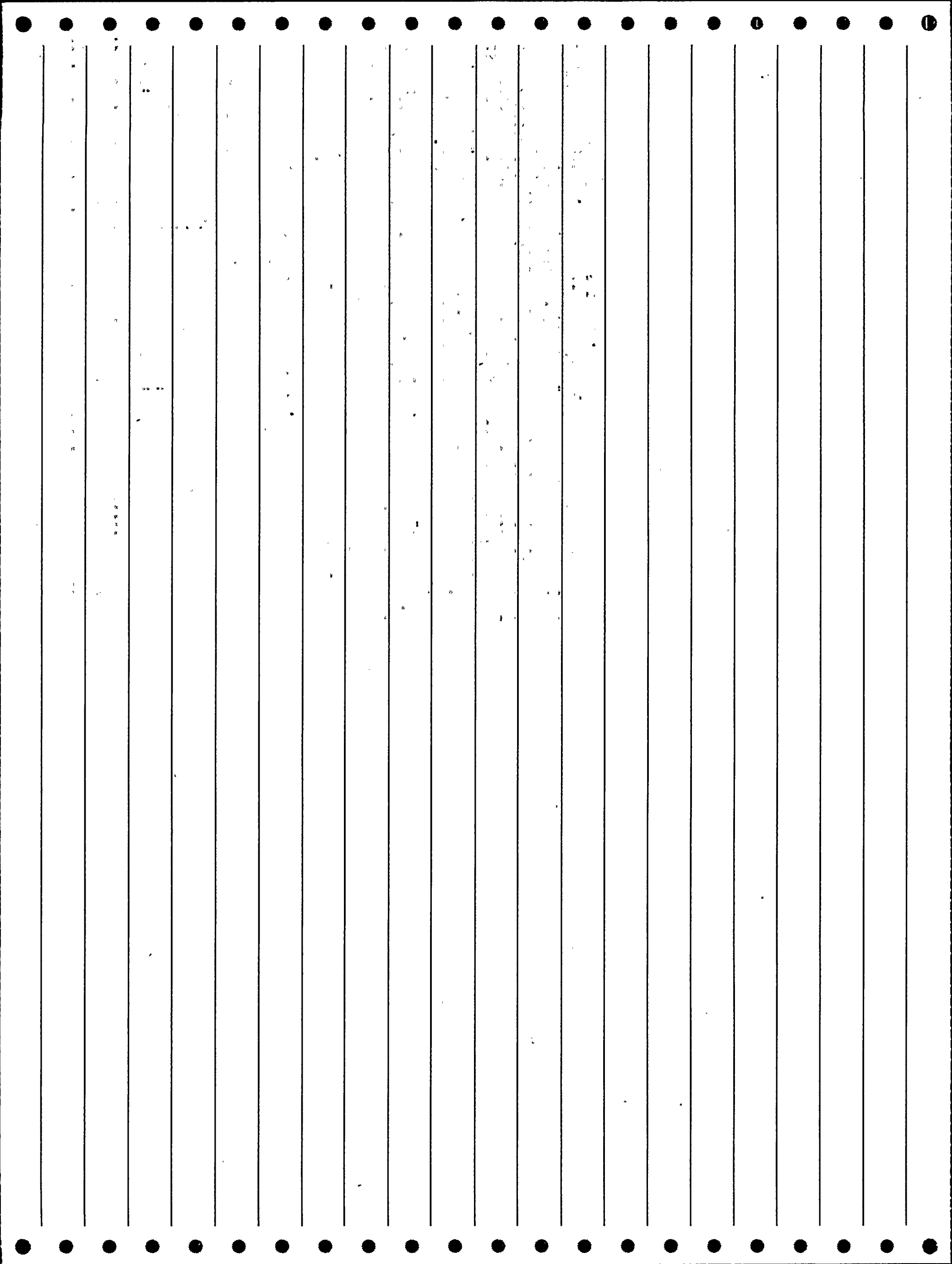
WATCH-LIST CODES FOR THIS LER ARE:
11 ACTS OF NATURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 387/83-092 2 387/84-028 3 387/84-029 4 387/85-035
5 387/86-028 6 387/87-020 7 388/88-012 8 388/88-013

ABSTRACT

POWER LEVEL - 100%. ON JULY 16, 1988 AT 1845 HOURS, WITH BOTH UNIT 1 AND UNIT 2 OPERATING AT 100% POWER, A LIGHTNING STRIKE ON THE 230 KV OFFSITE TRANSMISSION SYSTEM CAUSED STARTUP TRANSFORMER T-10 TO DE-ENERGIZE. LOADS NORMALLY POWERED FROM STARTUP TRANSFORMER T-10 THROUGH STARTUP BUS 10 TRANSFERRED TO STARTUP BUS 20 AS DESIGNED. DURING THIS TRANSFER, THE MOMENTARY POWER LOSS TO THE UNIT 1 AND UNIT 2 "A" AND "C" EMERGENCY SAFEGUARDS SYSTEM BUSES CAUSED A DIVISION I ISOLATION OF THE ZONE I AND III HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS, REACTOR WATER CLEANUP SYSTEM ISOLATIONS ON BOTH UNITS, LOSS OF THE "A" CHANNEL OF THE UNIT 1 REACTOR PROTECTION SYSTEM AND AN AUTOMATIC START OF THE STANDBY GAS TREATMENT AND CONTROL ROOM EMERGENCY OUTSIDE AIR SUPPLY SYSTEMS. VARIOUS RADIATION MONITORS, CHILLERS AND OTHER PLANT EQUIPMENT ALSO TRIPPED OR ISOLATED DUE TO THE POWER INTERRUPTION. THE UNITS WERE STABILIZED AND THE AFFECTED SYSTEMS WERE RESTORED AS APPLICABLE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
387 1990 024 0 9012120282 220480 11/07/90

DOCKET:387 SUSQUEHANNA 1 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PENNSYLVANIA POWER & LIGHT CO.
SYMBOL: PPL

COMMENTS

STEP 1: EFF IX - LOADS TRANSFERRED TO STARTUP BUS 20.

WATCH-LIST CODES FOR THIS LER ARE:

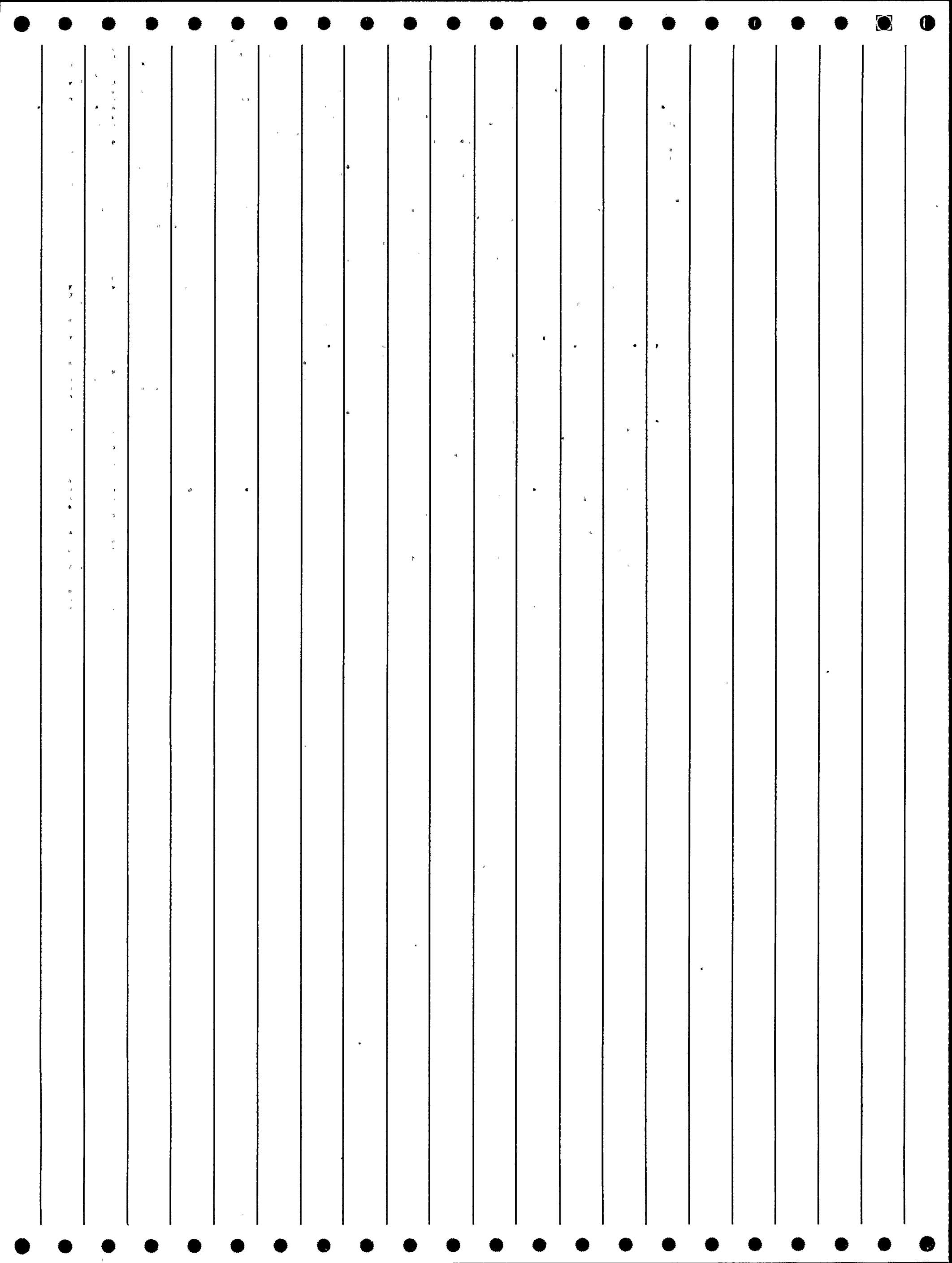
20 EQUIPMENT FAILURE
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON 11/7/90, AT 1741 HOURS WITH LIMIT 1 IN
CONDITION 4, COLD SHUTDOWN, AND UNIT 2 IN CONDITION 1 AT 100% POWER
THE FEEDER BREAKER TO 13.8 KV STARTUP BUS 10 OPENED CAUSING THE BUS TO
DE-ENERGIZE. THE UNIT 1 AND UNIT 2 "A" AND "C" EMERGENCY SAFEGUARD
SYSTEM (ESS) BUSES NORMALLY POWERED FROM BUS 10 TRANSFERRED TO BUS 20
AS DESIGNED. DURING THE TRANSFER THE MOMENTARY POWER LOSS TO THE ESS
BUSES RESULTED IN A LOSS OF THE UNIT 1 "A" REACTOR PROTECTION SYSTEM
(RPS) BUS. AS A RESULT OF THE LOSS OF RPS "A" BUS, A ZONE I AND III
ISOLATION OF THE HVAC SYSTEMS OCCURRED WHICH CAUSED AN AUTOMATIC
INITIATION OF THE "A" TRAIN OF THE STANDBY GAS TREATMENT SYSTEM AND
THE CONTROL ROOM EMERGENCY OUTSIDE AIR SUPPLY SYSTEM. IN ADDITION,
THE LOSS OF RPS RESULTED IN A HALF-SCRAM AND THE CLOSURE OF VARIOUS
UNIT 1 AND UNIT 2 CONTAINMENT ISOLATION VALVES. VARIOUS UNIT 1 AND
UNIT 2 RADIATION MONITORS, CHILLERS, AND OTHER PLANT EQUIPMENT ALSO
TRIPPED OR ISOLATED AS A RESULT OF THE POWER INTERRUPTION. THE FEEDER
BREAKER TO BUS 10 WAS RACKED OUT AND RACKED BACK IN. POWER WAS THEN
RESTORED TO BUS 10. THE UNITS WERE STABILIZED AND THE AFFECTED
SYSTEMS WERE RESTORED AS APPLICABLE. AN ADDITIONAL INVESTIGATION INTO
THE EVENT DID NOT IDENTIFY A DEFINITIVE CAUSE(S) FOR THE BREAKER
OPENING. THE ENGINEERED SAFETY FEATURE (ESF) SYSTEMS PERFORMED THEIR
INTENDED FUNCTIONS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
388 1989 003 0 8904040282 213452 02/27/89

DOCKET:388 SUSQUEHANNA 2 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: PENNSYLVANIA POWER & LIGHT CO.
SYMBOL: PPL

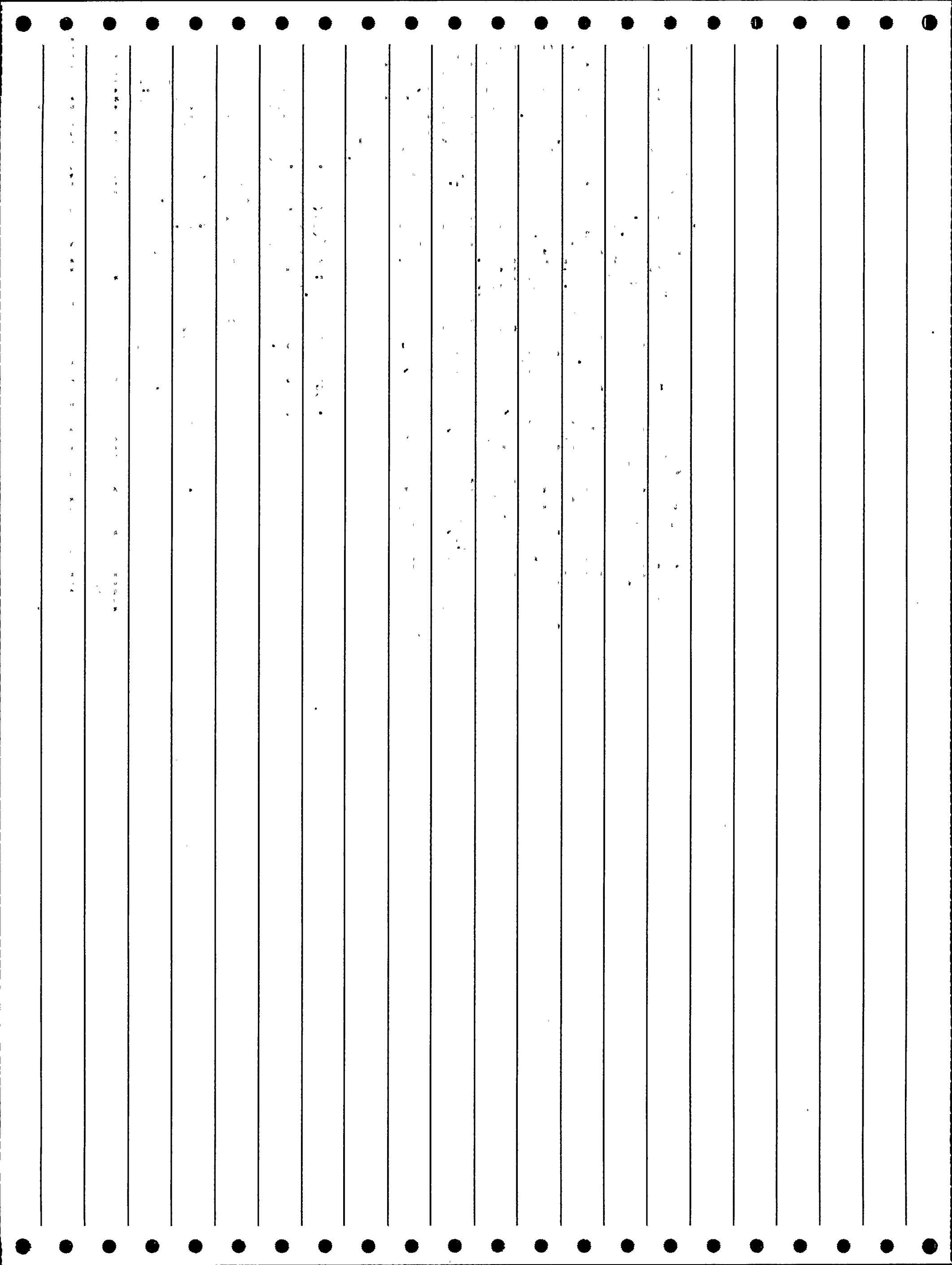
WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 388/84-036

ABSTRACT

POWER LEVEL - 100%. AT 0612 ON 2-27-89, UNIT 2, OPERATING AT 100% POWER, EXPERIENCED UNPLANNED ENGINEERED SAFETY FEATURE ACTUATIONS AS A RESULT OF THE LOSS OF NORMAL POWER TO THE "B" REACTOR PROTECTION SYSTEM (RPS) BUS. THIS INTERRUPTION OF POWER, PER DESIGN, CAUSED THE STANDBY GAS TREATMENT SYSTEM AND CONTROL ROOM EMERGENCY OUTSIDE AIR SUPPLY SYSTEM TO INITIATE. ALL OTHER EQUIPMENT FUNCTIONED PER DESIGN WITH THE EXCEPTION OF THE REACTOR RECIRC PUMP "A" CHILLED WATER RETURN INBOARD PRIMARY CONTAINMENT ISOLATION VALVE, HV-28792B2, WHICH FAILED TO CLOSE. INSTEAD OF EXERCISING THE OPTION OF CONTINUED OPERATION AT A REDUCED POWER LEVEL WITH THE ASSOCIATED OUTBOARD CHILLED WATER ISOLATION VALVE CLOSED, THE DECISION WAS MADE TO SHUT THE UNIT DOWN AND REPAIR THE INBOARD VALVE. A CONTROLLED SHUTDOWN WAS INITIATED AT 1410 AND COMPLETED AT 2126 ON 2/27/89. THE CAUSE OF THE POWER INTERRUPTION TO THE "B" RPS BUS WAS AN INTERNAL SHORT CIRCUIT TO GROUND IN THE "B" RPS MOTOR/GENERATOR SET MOTOR WHICH CAUSED ITS FEEDER BREAKER TO TRIP. THE MOTOR WAS REPLACED AND NORMAL POWER TO THE BUS WAS RESTORED. INABILITY OF THE AIR OPERATED CHILLED WATER ISOLATION VALVE TO CLOSE HAS BEEN ATTRIBUTED TO A FAILURE OF ITS OPERATING AIR SOLENOID CONTROL VALVE, SV-28792B2. THE SOLENOID VALVE WAS REPLACED AND THE CHILLED WATER ISOLATION VALVE, HV-2792B2, WAS TESTED SATISFACTORILY.

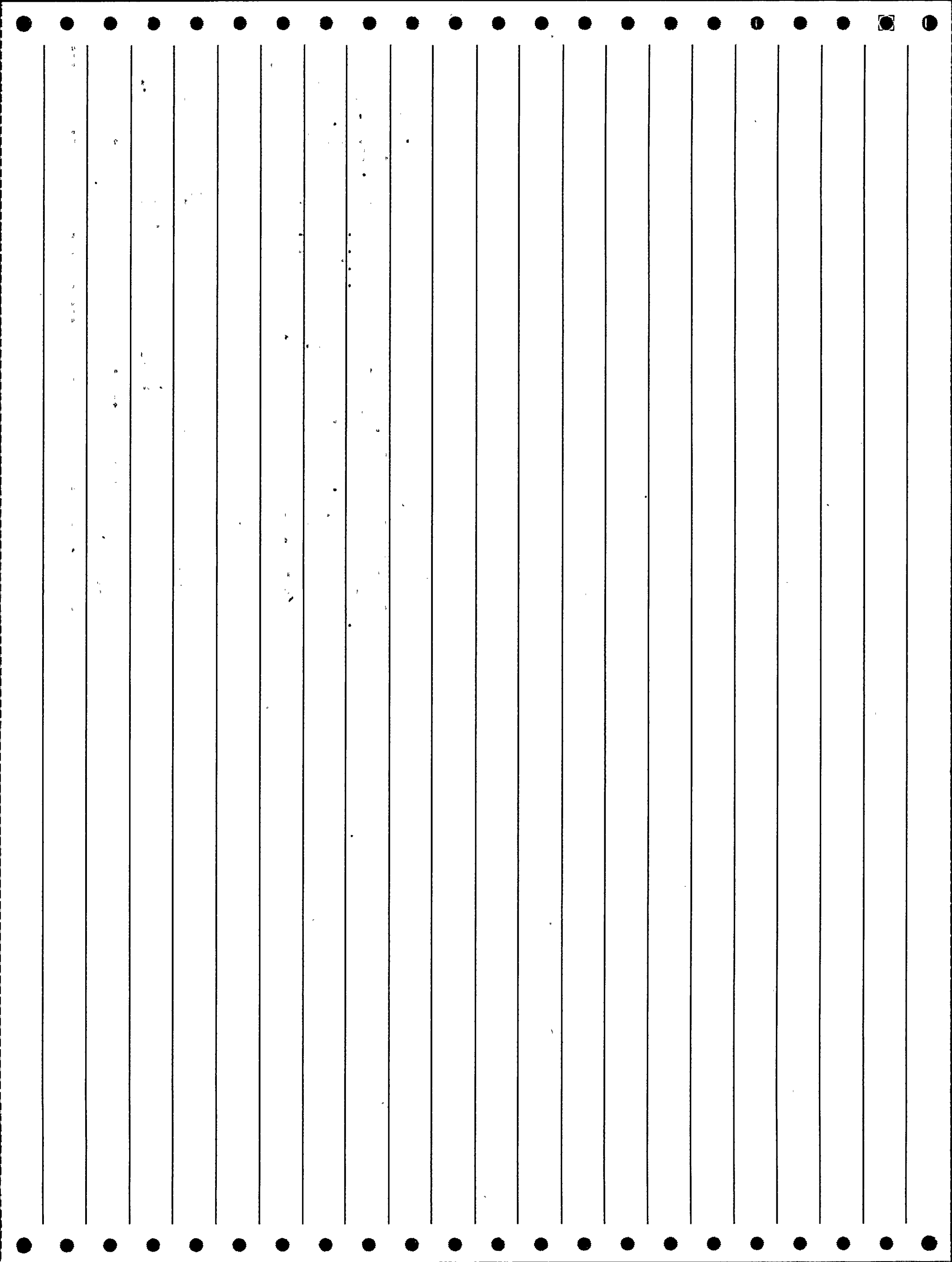


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
389 1983 010 0 8306200094 183293 05/11/83

DOCKET:389 ST. LUCIE 2 TYPE:PWR
REGION: 2 NSSS:CE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: FLORIDA POWER & LIGHT COMPANY
SYMBOL: FPL

REFERENCE LERS:
1 331/81-004

ABSTRACT
DURING NORMAL OPERATION IN PREPARATION FOR INITIAL PLANT START-UP,
POWER WAS LOST TO THE 'B' SIDE VITAL AND NON-VITAL BUSES. THE
EMERGENCY DIESEL GENERATOR STARTED AS REQUIRED AND REENERGIZED THE
VITAL BUS. THIS CONDIITON LASTED FOR ABOUT 1.5 HOURS. THIS REQUIRES
ACTION PER TECH SPEC 3.8.1.1. THIS IS THE SECOND EVENT OF THIS TYPE.
(SEE 335-81-04). THE CAUSE OF THE LOSS OF POWER WAS AN INCORRECT
BREAKER OPENED AT THE DISTRIBUTION SWITCHYARD. PERSONNEL INVOLVED
HAVE BEEN INSTRUCTED ON IMPORTANCE OF PROPER SWITCHING AT DISTRIBUTION
SWITCHYARDS.

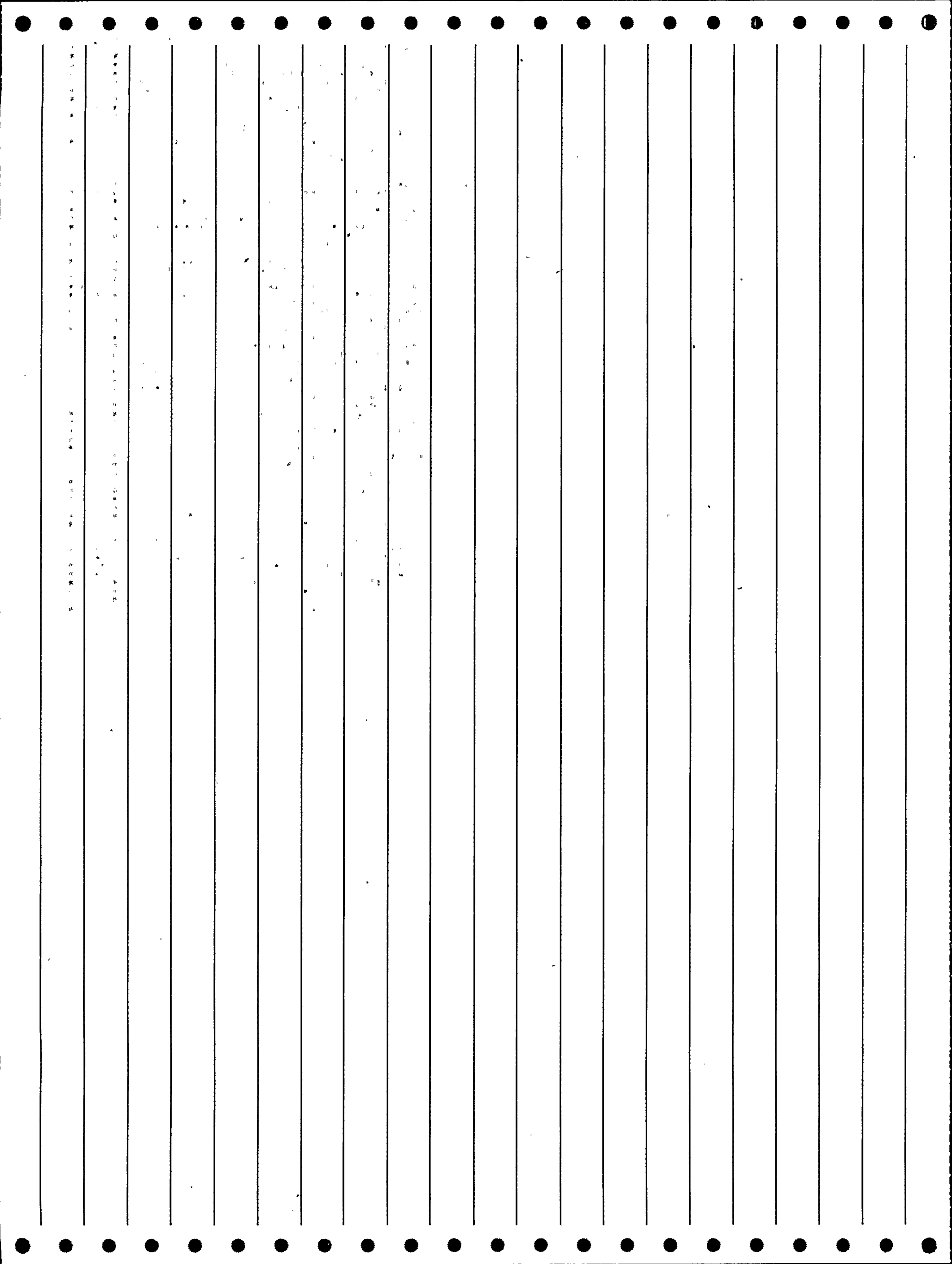


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
395 1983 136 1 8407030169 190586 11/12/83

DOCKET:395 SUMMER 1. TYPE:PHR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: SOUTH CAROLINA ELECTRIC & GAS CO.
SYMBOL:- SCC

ABSTRACT

DURING A PLANNED SHUTDOWN, ENGINEERED SAFETY FEATURES (ESF) 120V AC VITAL INSTRUMENTATION PANEL APN-5901 WAS TRANSFERRED TO ALTERNATE POWER TO ACCOMMODATE MODIFICATIONS TO ITS NORMAL POWER SOURCE. WITH TRAIN 'A' RESIDUAL HEAT REMOVAL SYSTEM IN SERVICE, ITS SUCTION VALVE, XVG-8701A, CLOSED. THE VALVE WAS REOPENED WITHIN APPROX. 5 MINS. NO ADVERSE CONSEQUENCES RESULTED DUE TO PLANT CONDITIONS AND THE SHORT DURATION OF THE EVENT. THE PLANT REMAINED IN COMPLIANCE WITH TECH SPECS DURING THE EVENT. A DEAD BUS TRANSFER FROM NORMAL TO ALTERNATE POWER SOURCE CREATED A POWER TRANSIENT IN THE ASSOCIATED ESF INSTRUMENTATION BUS. ERRONEOUS SIGNALS WERE GENERATED AS A RESULT OF THE TRANSIENT. CONDITIONS WERE RETURNED TO NORMAL AFTER THE TRANSFER WAS COMPLETED. A POWER DISTRIBUTION LIST IS TO BE GENERATED TO INFORM OPERATORS OF PLANT INSTRUMENTATION POWER SOURCES.

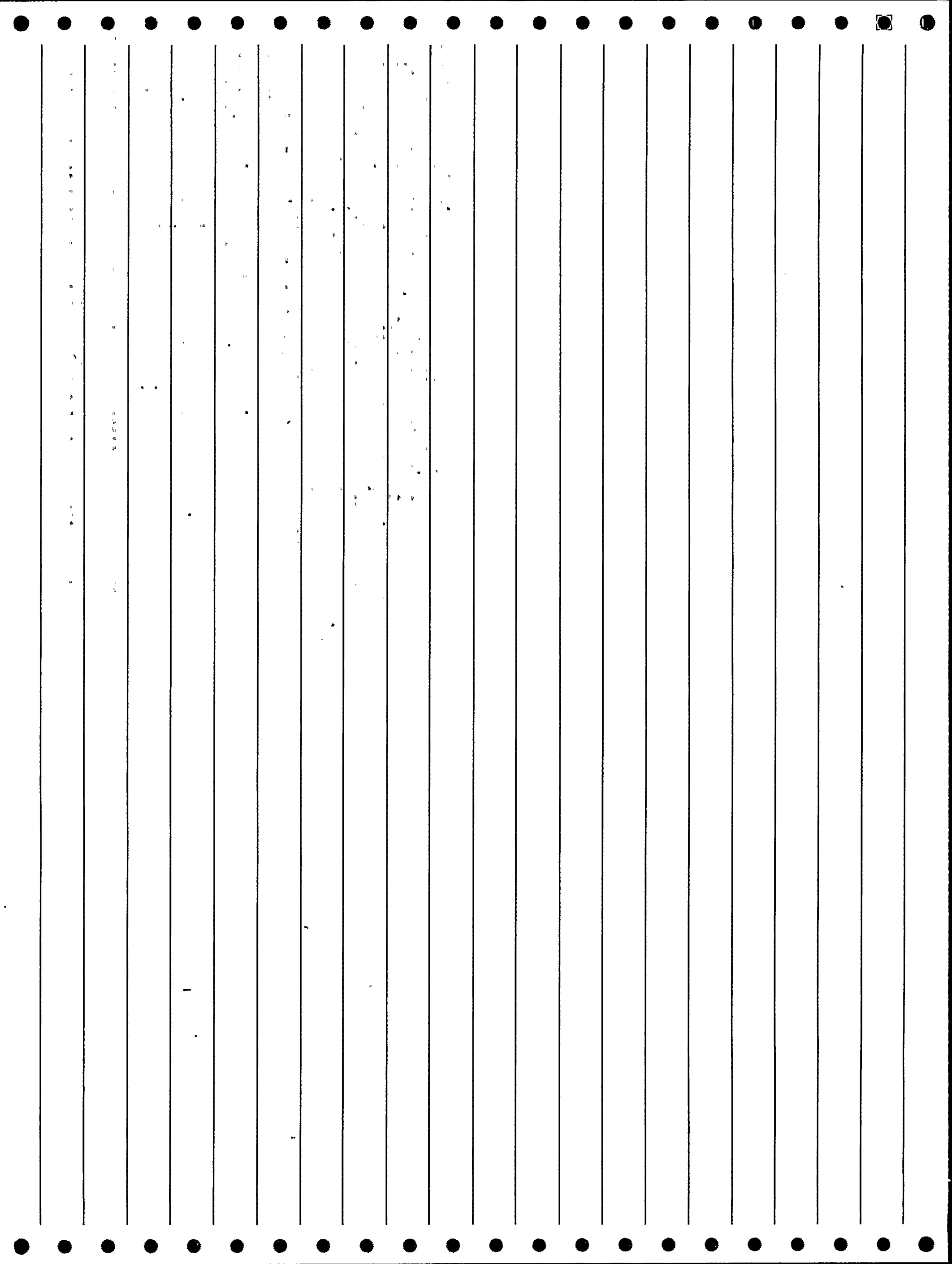


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
395 1984 051 0 8501280200 192753 12/19/84

DOCKET:395 SUMMER 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: SOUTH CAROLINA ELECTRIC & GAS CO.
SYMBOL: SCC

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT
POWER LEVEL - 000%. ON 12-19-84, AT 1736 HRS, AN ACTUATION OF THE RPS OCCURRED ON HIGH NEUTRON FLUX. THE PLANT WAS IN MODE 3 WITH CONTROL RODS INSERTED AND THE SHUTDOWN BANKS WITHDRAWN WHEN THE FALSE TRIP SIGNAL WAS RECEIVED. PLANT RESPONSE TO THE TRANSIENT WAS AS EXPECTED. THE CAUSE OF THE FALSE HIGH NEUTRON FLUX SIGNAL WAS THE DEENERGIZATION OF NUCLEAR INSTRUMENTATION SOURCE AND INTERMEDIATE RANGE CHANNELS. A TRANSFORMER FAILURE IN 120V AC VITAL INVERTER XIT-5902 RESULTED IN THE LOSS OF ITS ASSOCIATED 120V AC INSTRUMENT BUS WHICH POWERED THE NI CHANNELS. THE 120V AC INSTRUMENT BUS WAS RESTORED AT 1750 HRS FROM BACKUP INVERTER XIT-5907. THE LICENSEE IS PRESENTLY REPAIRING XIT-5902 AND INVESTIGATING THE CAUSE OF THE TRANSFORMER FAILURE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
395 1987 015 0 8707150475 205259 06/16/87

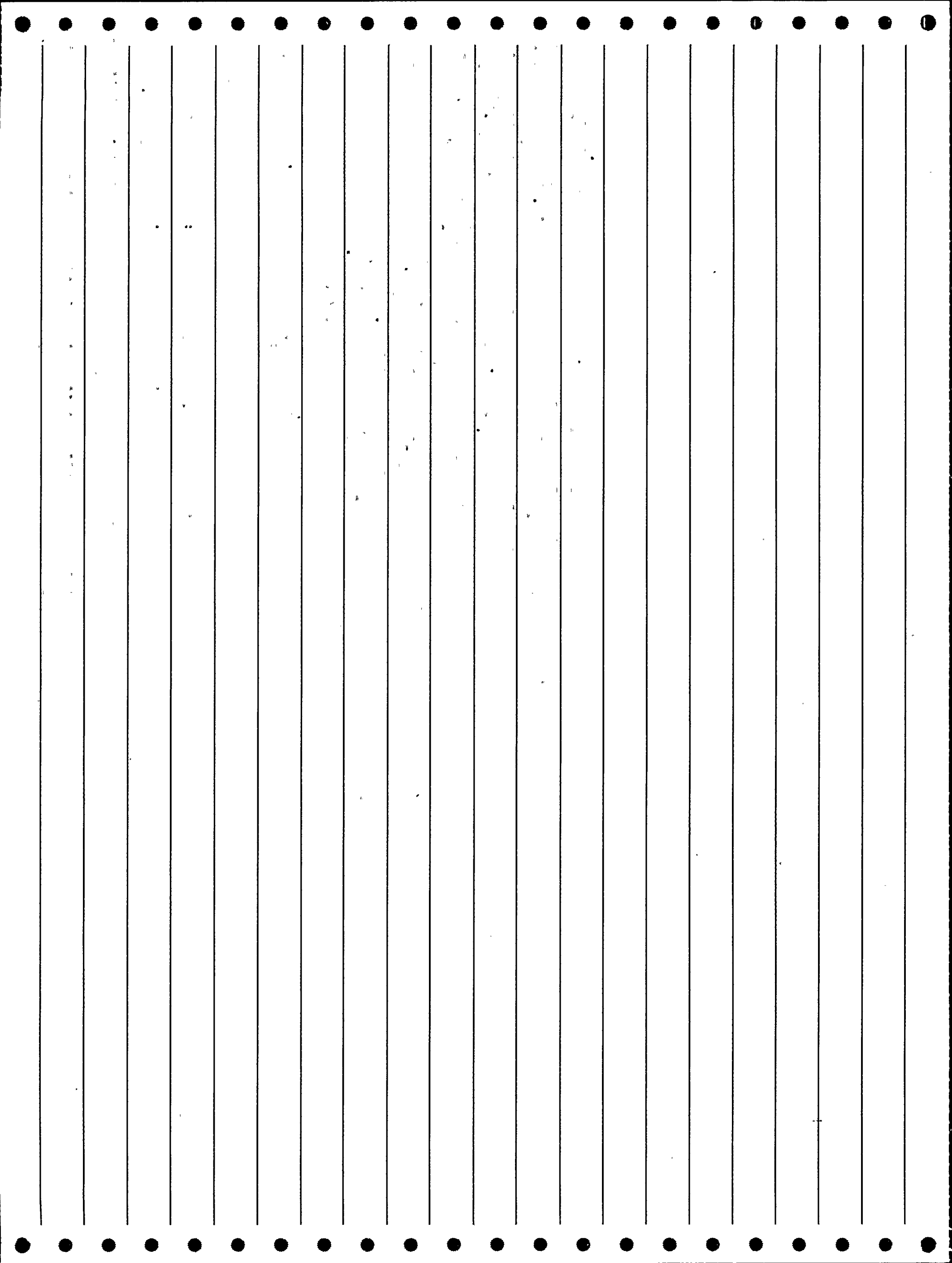
DOCKET:395 SUMMER 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: SOUTH CAROLINA ELECTRIC & GAS CO.
SYMBOL: SCC

WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL -100%. ON JUNE 16, 1987, AT 2003 HOURS A REACTOR TRIP OCCURRED FROM 100% POWER. THE FAILURE OF A CAPACITOR IN INVERTER XIT 5904 CAUSED AN OUTPUT FUSE TO BLOW WHICH RESULTED IN THE LOSS OF POWER RANGE NUCLEAR INSTRUMENT (NI) 44. THE LOSS OF NI- 44 CAUSED THE STEAM GENERATOR (SG) PROGRAM LEVEL CONTROL SIGNAL TO DECREASE FROM FULL LOAD TO NO LOAD (38%). THE FEEDWATER REGULATING VALVES (FWRVS) REDUCED FLOW TO DECREASE ACTUAL LEVEL TO MEET THE PROGRAMMED LEVEL. WHEN THE OPERATOR PLACED THE FWRV CONTROLS TO MANUAL AND DEMANDED AN OPEN SIGNAL, THE ADDITION OF COOLER FEEDWATER (IN CONJUNCTION WITH THE ALREADY DECREASED LEVEL) CAUSED "B" STEAM GENERATOR LEVEL TO SHRINK BELOW THE LOW-LOW LEVEL REACTOR TRIP SETPOINT. THE PLANT RESPONDED TO THE REACTOR TRIP WITH NO ABNORMALITIES. MOTOR DRIVEN EMERGENCY FEEDWATER PUMP "A" AND THE TURBINE DRIVEN EMERGENCY FEEDWATER PUMP STARTED TO SUPPLY FEEDWATER TO THE SGS IN RESPONSE TO THE SG LOW-LOW LEVEL REACTOR TRIP. DUE TO A PREVIOUS STEAM GENERATOR TUBE LEAK, THE STEAM RELEASED FROM THE MAIN STEAM POWER OPERATED RELIEF VALVES AND THE TURBINE DRIVEN EMERGENCY FEEDWATER PUMP EXHAUST TO ATMOSPHERE WAS CONSERVATIVELY CALCULATED TO BE A SMALL FRACTION OF THE ALLOWABLE RELEASE LIMIT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
395 1990 006 0 9005220062 218223 04/12/90

DOCKET:395 SUMMER 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: SOUTH CAROLINA ELECTRIC & GAS CO.
SYMBOL: SCC

COMMENTS

STEP 10: CAUSE IX - REVERSED POLARITY. STEP 15: CAUSE IX - LOSS OF FIELD EXCITATION.

WATCH-LIST CODES FOR THIS LER ARE:

35 HUMAN ERROR
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:

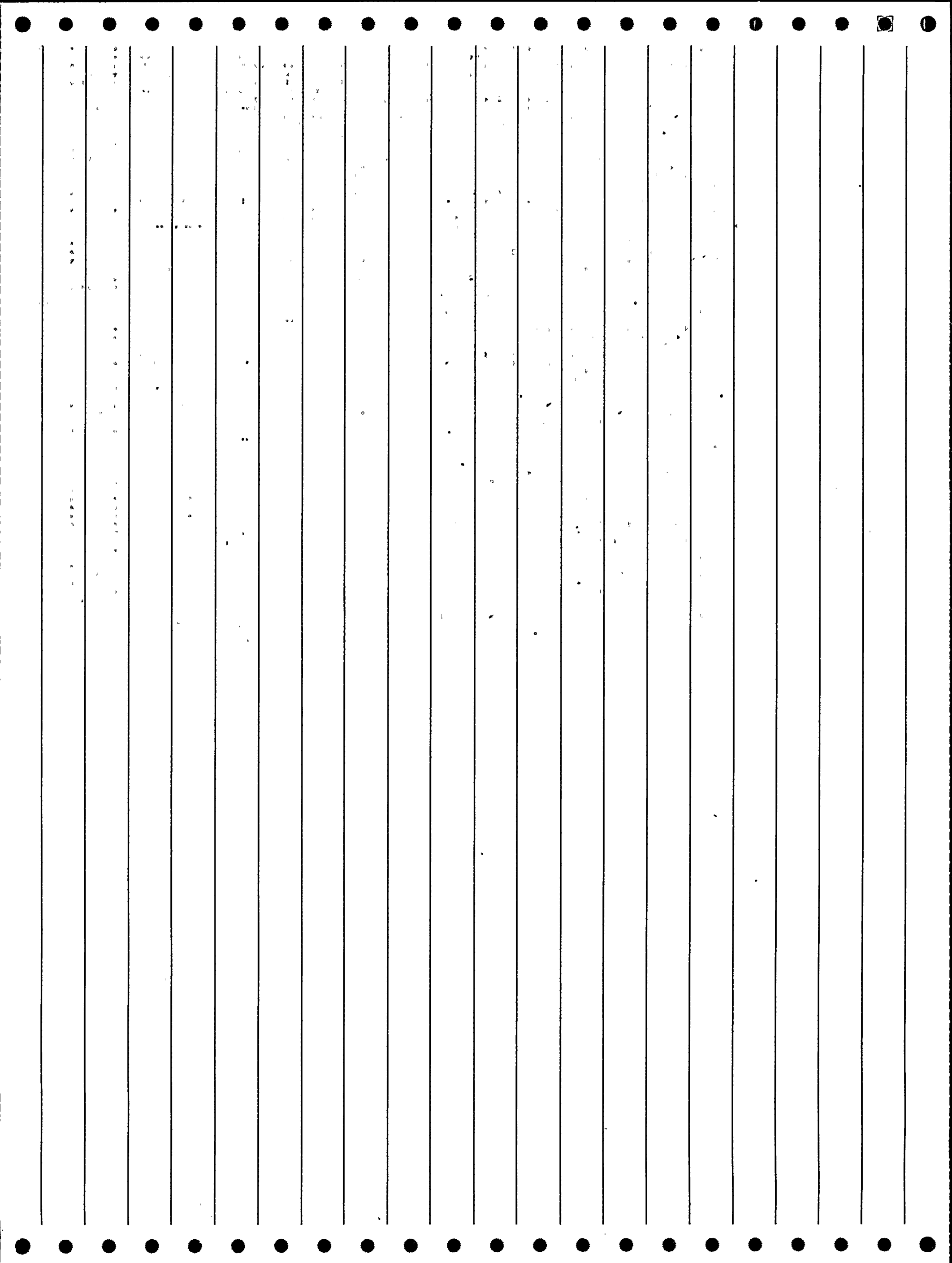
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 395/89-007

ABSTRACT

POWER LEVEL - 000%. ON APRIL 12, 1990, AN UNPLANNED ENGINEERED SAFETY FEATURES (ESF) ACTUATION OCCURRED AT THE VIRGIL C. SUMMER NUCLEAR STATION (VCSNS) WHEN THE "B" TRAIN EMERGENCY DIESEL GENERATOR (EDG) AUTOMATICALLY STARTED WHILE THE PLANT WAS IN MODE 6. AT 0630 HOURS, THE "B" TRAIN BATTERY FEEDER BREAKER WAS CLOSED IN TO PROVIDE AN INITIAL CHARGE TO A NEW "B" TRAIN BATTERY. DUE TO PERSONNEL ERRORS, THE BATTERY WAS INCORRECTLY CONNECTED WITH THE BATTERY LEADS REVERSED. WHEN THE BATTERY FEEDER BREAKER WAS CLOSED, THE REVERSED POLARITY OF THE BATTERY LED TO THE LOSS OF THE "B" TRAIN BATTERY CHARGER AND THE SWING BATTERY CHARGER, LEAVING THE POLARITY TO THE BUS REVERSED. THE CHARGERS HAD BEEN ALIGNED IN PARALLEL TO PROVIDE A BACKUP DC POWER SOURCE WHILE THE BATTERY WAS DISCONNECTED. THE ENSUING TRANSIENT CAUSED THE BUS 1DB INCOMING BREAKER TO TRIP, RESULTING IN THE LOSS OF OFFSITE POWER TO THE "B" TRAIN. THE "B" EDG STARTED ON THE LOSS OF BUS 1DB, BUT THE FIELD FLASH CIRCUITRY WOULD NOT ACTUATE ON A NEGATIVE DC VOLTAGE. WITHOUT THE FIELD EXCITATION, THE GENERATOR VOLTAGE DID NOT RISE, AND THE EDG DID NOT LOAD. THE SHIFT SUPERVISOR, RECOGNIZING A TRANSIENT ON THE DC BUS, REQUESTED OPERATIONS PERSONNEL TO REOPEN THE BATTERY FEEDER BREAKER AND TO SECURE THE EDG. AT THIS POINT, BOTH AC AND DC POWER TO THE "B" TRAIN WAS LOST. CORE ALTERATIONS WERE IMMEDIATELY SUSPENDED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1984 015 0 8403280007 189746 03/07/84

DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

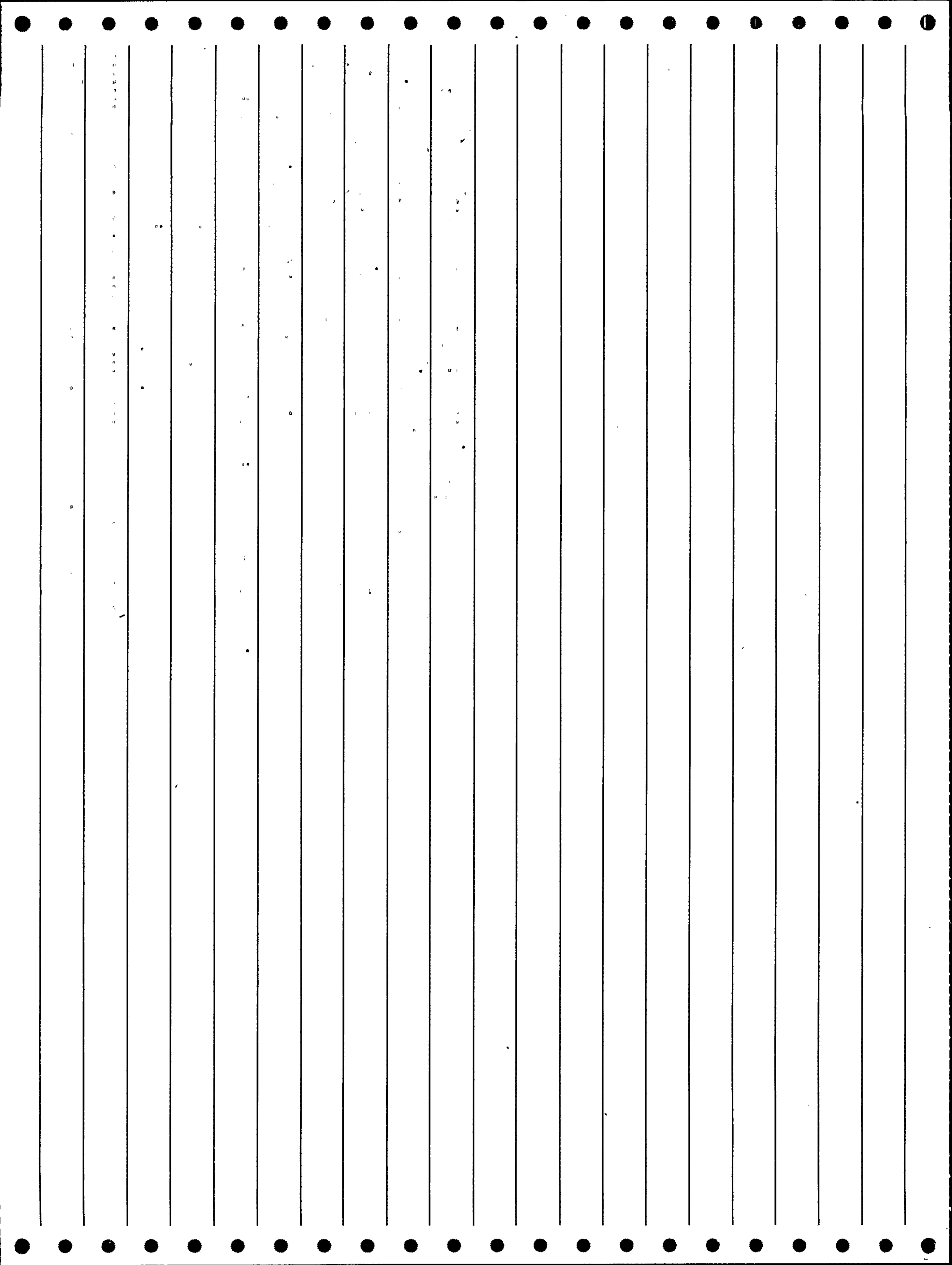
STEP 7: COMPONENT CODE XS - STATIC SWITCH. STEP 9: COMP RLX - FAZ RELAY.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. WHILE ATTEMPTING TO ISOLATE A GROUND ON THE DIVISION 1 DC BUS, THE OPERATOR SECURED THE SOURCE OF DC POWER TO THE DIVISION 1 INVERTER. THE OPERATOR HAD FIRST TRANSFERRED THE UPS LOAD TO THE ALTERNATE AC SOURCE. THE LOSS OF DC TO THE INVERTER RESULTED IN TRIPPING OF THE DC INPUT CIRCUIT BREAKER AND CLEARING OF THE DC INPUT FUSE. THE OPERATOR FAILED TO NOTE THAT THE INVERTER HAD TRIPPED AND PUSHED THE FORWARD TRANSFER PUSHBUTTON. THE INVERTER STATIC SWITCH TRANSFERRED TO THE INVERTER SOURCE WHICH RESULTED IN LOSS OF POWER TO THE DIVISION 1 INSTRUMENT POWER SUPPLY. THE FAZ RELAY CABINET RELAYS DEENERGIZED, RESULTING IN INADVERTENT ISOLATION.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1984 016 0 8404110022 189415 03/17/84

DOCKET:397- WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

STEP 1: CAUSE CODE AX - TO PERFORM TEST. OTHER REPORTABILITY -
50.72(B)(2)(II).

WATCH-LIST CODES FOR THIS LER ARE:

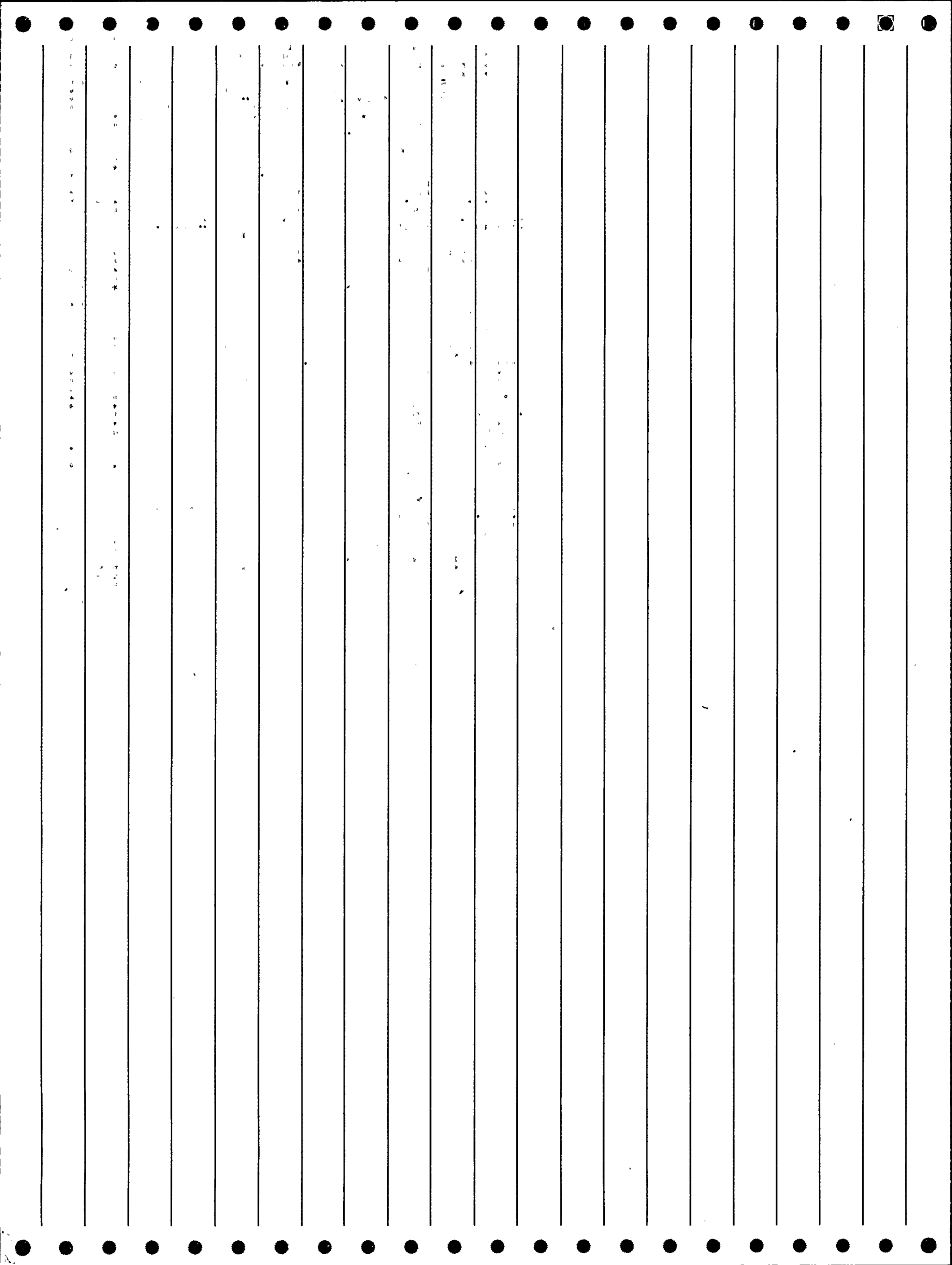
941: REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

21 OTHER: Voluntary report, special report, Part 21 report,
etc.

ABSTRACT

POWER LEVEL - 000%. ON 3/17/84 DURING A ROUTINE CALIBRATION CHECK OF
TRANSFER LOGIC RELAYS OF THE PLANT BACKUP TRANSFORMER, OPERATIONS
PERSONNEL WERE ATTEMPTING TO TRANSFER THE REACTOR PROTECTION SYSTEM
BUS "A" POWER FROM THE ALTERNATE SOURCE TO THE NORMAL SOURCE WHEN A
FULL RPS ACTUATION, A FULL NUCLEAR STEAM SUPPLY SYSTEM ISOLATION, AND
A DIVISION I AND II BALANCE OF PLANT ISOLATION OCCURRED. THE
UNSCHEDULED ESF ACTUATIONS WERE CAUSED BY OPERATOR ERROR IN
POSITIONING THE RPS POWER TRANSFER SWITCH. THIS EVENT WAS DEEMED
REPORTABLE UNDER REQUIREMENTS FOR 10 CFR 50.72(B) (2) (II).



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1985 006 0 8502250773 193436 01/17/85

DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

OTHER REPORTABILITY - 50.72(B)(2)(II).

WATCH-LIST CODES FOR THIS LER ARE:

941 REPORT ASSOCIATED WITH 10 CFR 50.72

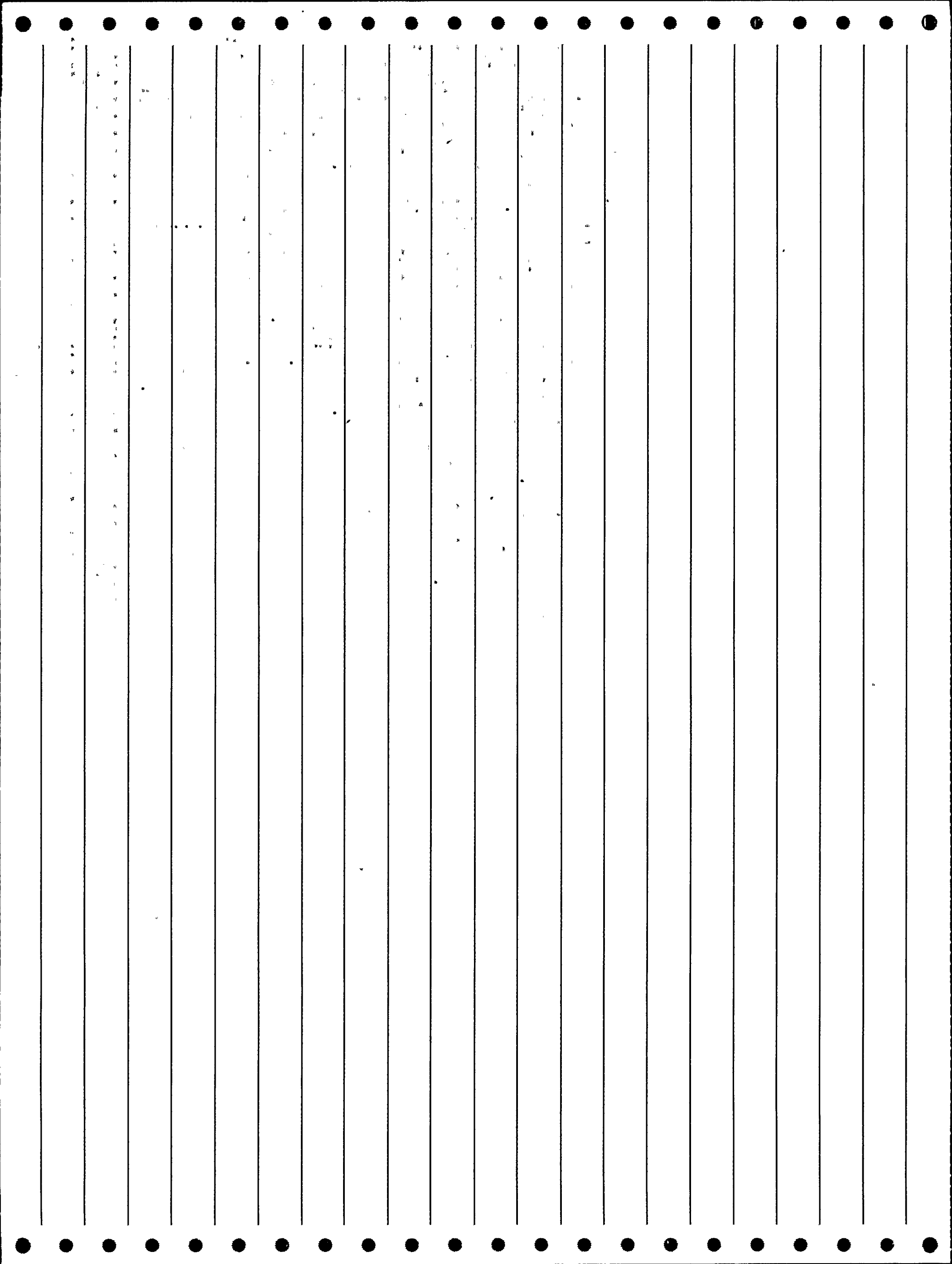
REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

21. OTHER: Voluntary report, special report, Part 21 report,
etc.

ABSTRACT

POWER LEVEL - 100%. ON 1-17-85 AN EQUIPMENT OPERATOR WAS RACKING IN 480V BREAKER ROA-FN-1A ON SWITCHGEAR SL-73. WHILE DOING SO IT APPEARED THAT THE TRIPPING BAR WAS EXTENDED FURTHER THAN NORMAL. TO VERIFY THIS, HE OPENED THE DOOR TO THE BREAKER BELOW (FEEDER BREAKER TO 480 V MOTOR CONTROL CENTER MC-7A) SO AS TO COMPARE THE TWO BREAKER CONFIGURATIONS. IN THE PROCESS OF THE CHECK THE TRIPPING BAR FOR THE MC-7A BREAKER WAS INADVERTENTLY MOVED SLIGHTLY INWARD, THEREBY CAUSING THE BREAKER TO TRIP. THE MC-7A TRIP CAUSED THE A RPS MOTOR-GENERATOR SET TO LOSE POWER AND DEENERGIZE ITS RESPECTIVE BUS. ALTHOUGH THE TRIP OF MC-7A WAS NOT IN ITSELF CAPABLE OF GENERATING A FULL SCRAM, A PLANT TRIP OCCURRED BECAUSE A COINCIDENT TRIP CONDITION EXISTED ON THE OPPOSITE RPS CHANNEL DUE TO A BLOWN FUSE ON THE APRM 'D' POWER SUPPLY. THE BLOWN FUSE WAS THE RESULT OF MAINTENANCE ACTIVITIES ASSOCIATED WITH APRM 'D' AND WAS IN THE PROCESS OF BEING REPLACED WHEN THE SCRAM OCCURRED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1985 022 0 8504110485 194595 03/08/85

DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

OTHER REPORTABILITY - 10CFR50.72(B)(2)(III); STEP 2: COMPONENT MEI - STATUS
LAMP SOCKET.

WATCH-LIST CODES FOR THIS LER ARE:

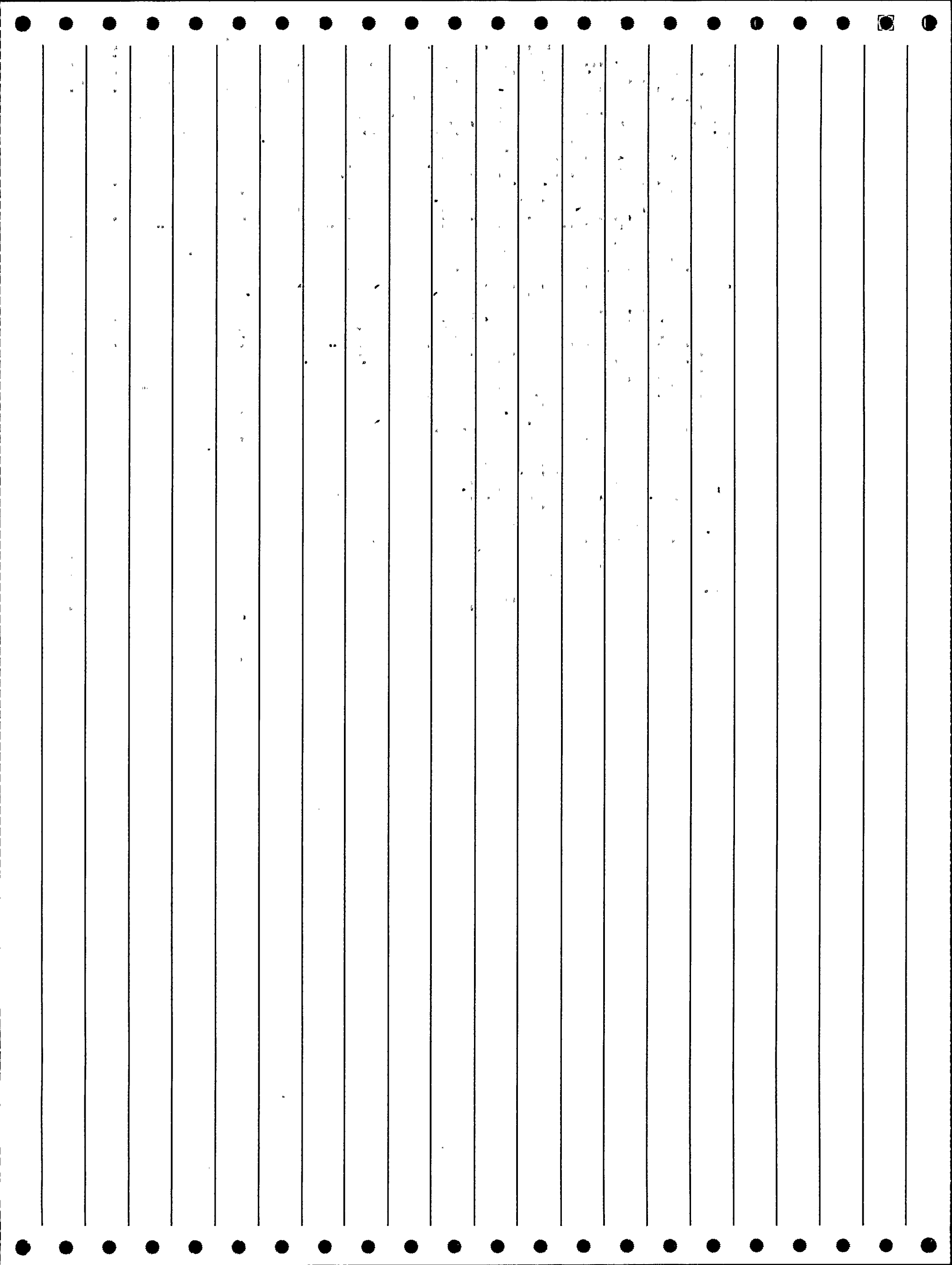
941. REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

- 14 10 CFR 50.73(a)(2)(v): Event that could have prevented fulfillment of a safety function.
- 21 OTHER: Voluntary report, special report, Part 21 report, etc.

ABSTRACT

POWER LEVEL - 100%. ON 3-7-85, PLANT PERSONNEL ACCIDENTLY SHEARED OFF 2 HPCS INITIATION STATUS LAMP SOCKETS WHILE REPLACING NAMEPLATE IDENTIFICATION TAGS ON CONTROL ROOM BACK PANEL P-625. UPON DISCONNECTING WIRES FROM THE LAMP SOCKETS TO FACILITATE REPLACEMENT, THE HPCS MINIMUM FLOW VALVE STARTED TO CYCLE AND THE 'LOSS OF BUS POWER' ANNUNCIATOR FOR HPCS WAS ILLUMINATED. UPON ATTACHING THE LEADS TO THE NEW SOCKETS, SYSTEM STATUS RETURN TO NORMAL. AT THIS POINT, THE OPERATIONS CREW INVOLVED THE TECHNICAL STAFF IN THE PROBLEM AND AGAIN REVIEWED SYSTEM ELEMENTARY DRAWINGS IN AN ATTEMPT TO EXPLAIN THE PHENOMENA EXPERIENCED. WHEN NO JUSTIFICATION FOR THE CONDITIONS COULD BE DETERMINED, IT WAS AGREED TO REPLACE THE REMAINING BROKEN SOCKET AND MORE CLOSELY MONITOR SYSTEM RELAYS AND COMPONENT ACTUATIONS. AGAIN, CERTAIN SYSTEM RELAYS CHANGED STATUS AND THE MINIMUM FLOW VALVE STARTED TO OPEN. DURING BOTH PERIODS OF MAINTENANCE AN OPERATOR WAS STATIONED AT THE HPCS CONTROL ROOM CONSOLE AS ADDED ASSURANCE THAT THE SYSTEM WOULD BE AVAILABLE. INVESTIGATION INTO THE INCIDENT CONCLUDED ON 3-8-85 AT 1000 HRS WHEN IT WAS DETERMINED, BY REFERENCE TO PANEL CONNECTION DIAGRAMS, THAT THE COMMON SIDE OF ALL THE SYSTEM INITIATION STATUS LIGHTS WAS WIRED IN SERIES ON THE PORTION OF THE CIRCUIT CLOSEST TO THE POWER SOURCE. THUS, DISCONNECTING ANY OF THE LAMP SOCKETS RESULTED IN DE-ENERGIZING THE ENTIRE LOGIC BUS FOR THE SYSTEM.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1985 059 0 8512180073 197590 11/13/85

DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

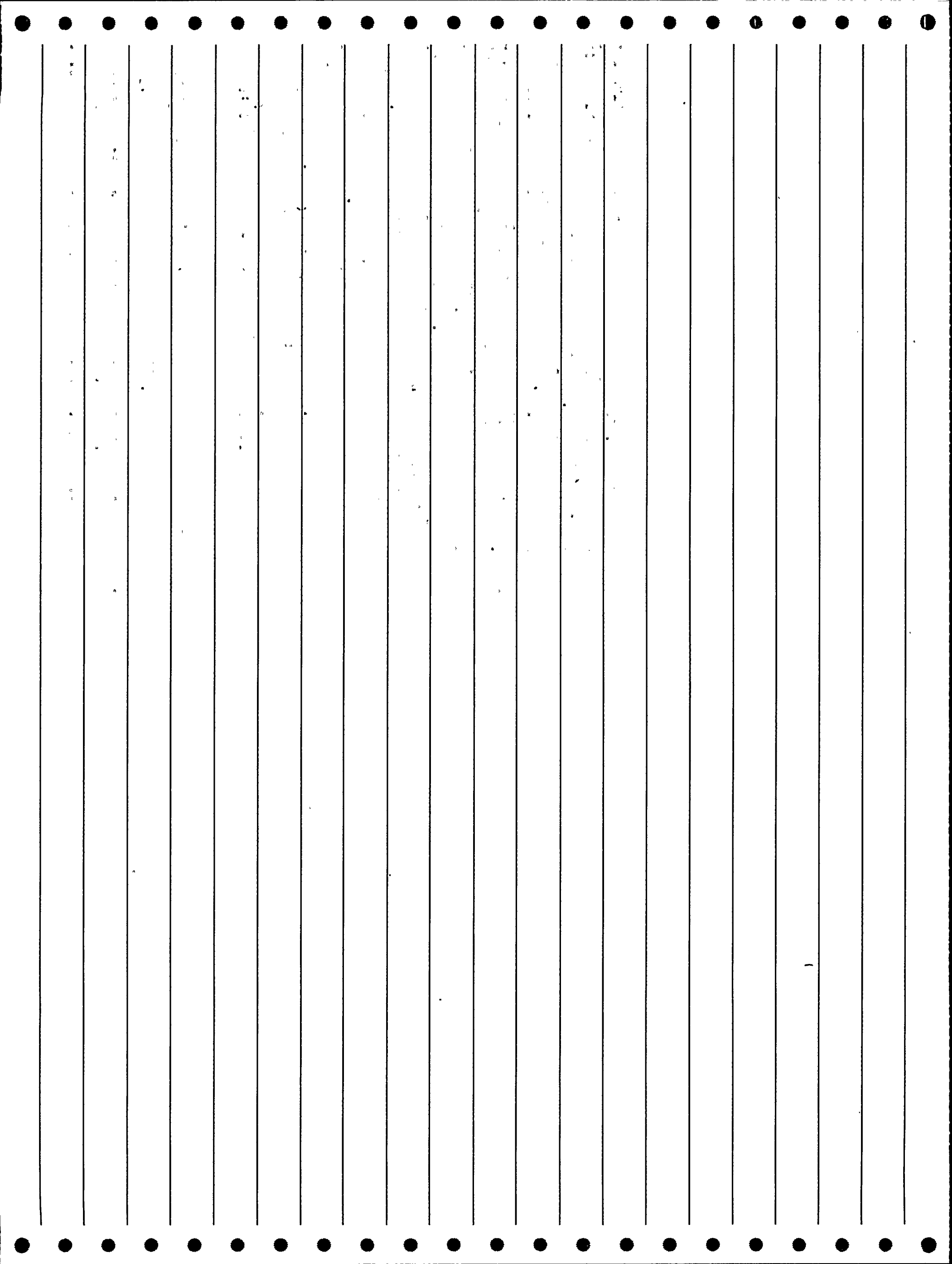
STEP 1: COMPONENT MSC - UNSPECIFIED SUBCOMPONENT; STEP 2: MODEL INV
203-101; STEP 14: COMPONENT CBL-TEST JUMPER.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 050%. ON 11-13-85, AT APPROXIMATELY 0600 HRS, A REACTOR SCRAM OCCURRED DUE TO FAILURE OF POWER TO THE CONTROLLING REACTOR FEEDWATER (RFW) SYSTEM REACTOR PRESSURE VESSEL (RPV) LEVEL INSTRUMENT CHANNEL. LOSS OF POWER CAUSED DOWNSCALE RPV LEVEL INDICATION ON THE CONTROLLING CHANNEL "A" WHICH CAUSED THE RFW SYSTEM TO RESPOND BY INCREASING RPV LEVEL UNTIL THE CHANNELS "B" AND "C" RPV HIGH LEVEL TURBINE TRIP SETPOINT WAS REACHED. THE POWER FAILURE TO THE RFW CHANNEL "A" INSTRUMENTATION WAS CAUSED BY COMPONENT FAILURE OF CRITICAL INSTRUMENT POWER INVERTER IN-3. THIS RESULTED IN THE FAILURE OF THE UNIT TO SUPPLY POWER TO ONE OF TWO CRITICAL INSTRUMENT BUSES WHICH WERE SUPPLYING POWER TO THE RFW LEVEL INSTRUMENTATION. AT APPROXIMATE 0845, WHILE TROUBLESHOOTING INVERTER IN-3, THE INVERTER WAS INADVERTENTLY SHUTDOWN WHEN THE NORMAL OPERATING PROCEDURE WAS USED TO TRANSFER INVERTER POWER SUPPLIES. THE INVERTER SHUTDOWN CAUSED AN INADVERTENT START OF THE CONTROL ROOM EMERGENCY FILTRATION SYSTEM AND A PARTIAL CONTAINMENT ISOLATION. AT APPROXIMATELY 1435 HRS, WHILE CONTINUING TO TROUBLESHOOT INVERTER IN-3, A TEST LEAD WAS ACCIDENTLY SHORTED TO GROUND WHICH CAUSED A FUSE IN THE POWER SUPPLY TO THE PP-7A-A CRITICAL INSTRUMENT BUS TO BLOW. THIS CAUSED A SECOND AUTOMATIC START OF THIS ESF SYSTEM AND A PARTIAL CONTAINMENT ISOLATION.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1986 012 0 8606190010 199788 05/12/86

DOCKET:397 WPPSS 2 TYPE:6WR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

STEP 1: CAUSE AX- PLANT SHUTDOWN. STEP 2: OPERATOR STARTED A RECIRCULATION PUMP.

REPORTABILITY CODES FOR THIS LER ARE:

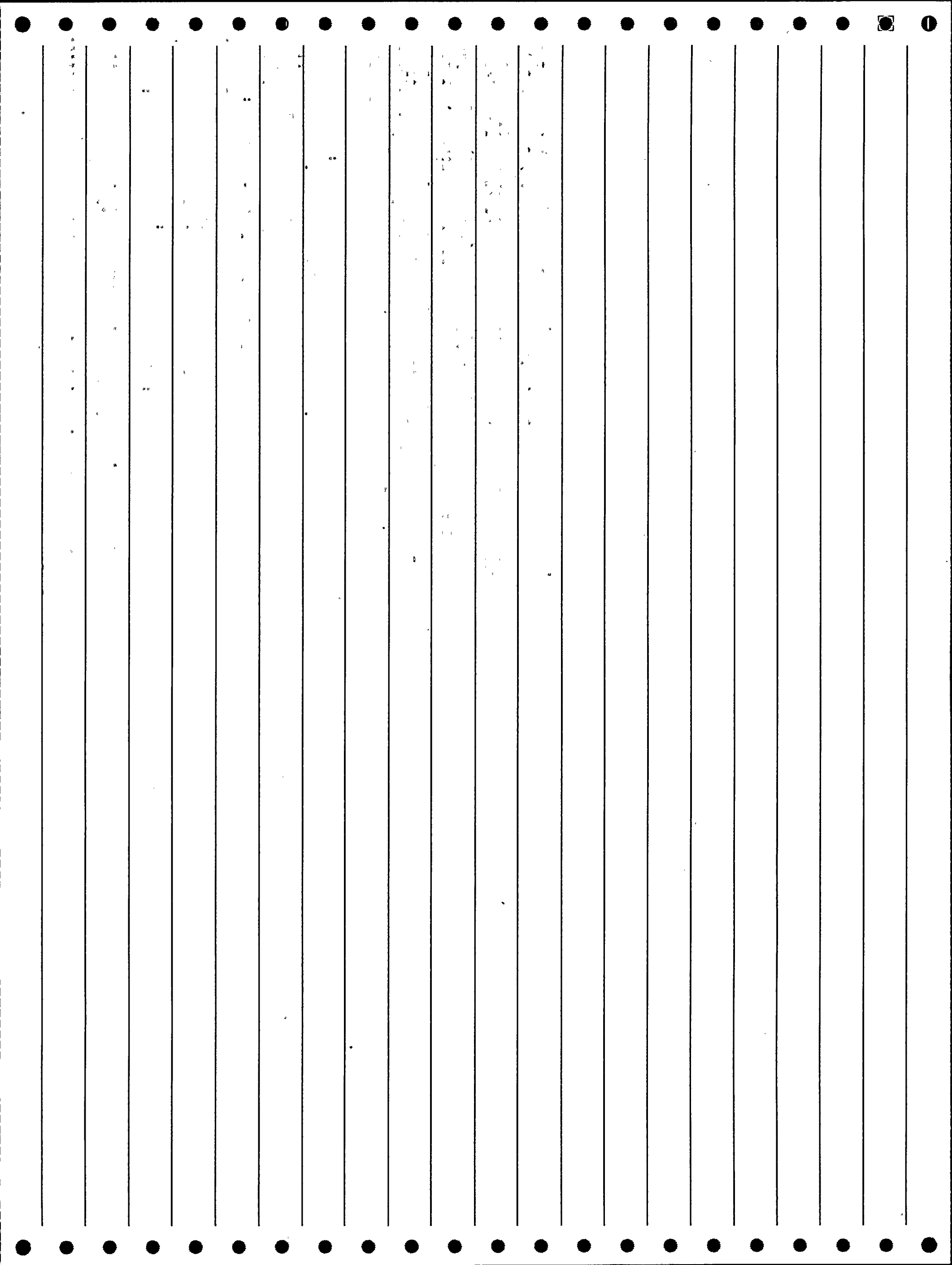
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 397/85-040

ABSTRACT

POWER LEVEL - 000%. ON MAY 12, 1986, AT 2206 HOURS, THE INBOARD ISOLATION FUNCTION OF THE NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM WAS SPURIOUSLY ACTUATED DUE TO DEENERGIZATION OF THE REACTOR PROTECTIVE SYSTEM POWER SUPPLY BUS A WHEN REACTOR RECIRCULATION PUMP 1A WAS STARTED. REACTOR PROTECTIVE SYSTEM BUS A WAS BEING SUPPLIED BY THE ALTERNATE POWER SUPPLY, A NON CRITICAL 480 VOLT AC BUS, INSTEAD OF ITS ASSOCIATED MOTOR GENERATOR SET. WITHOUT THE MOTOR GENERATOR SUPPLYING THE BUS, THE INRUSH VOLTAGE DROP EXPERIENCED WHEN STARTING A RECIRCULATION PUMP IS SUFFICIENT TO CAUSE DEENERGIZATION OF THE BUS BY ITS ELECTRICAL PROTECTION ASSEMBLY. THE REACTOR RECIRCULATION SYSTEM OPERATING PROCEDURE WILL BE MODIFIED TO INCLUDE MOTOR GENERATOR SET OPERATING LIMITATIONS TO PRECLUDE RECURRENCE OF THIS EVENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1987 010 0 8706190065 204893 05/12/87

DOCKET:397 WPPSS.2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

STEP 1: COMP MUR - PLANT OSCILLOGRAPH. STEP 3: COMP CBL - TEST LEAD.

WATCH-LIST CODES FOR THIS LER ARE:

40 PROCEDURAL DEFICIENCY
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

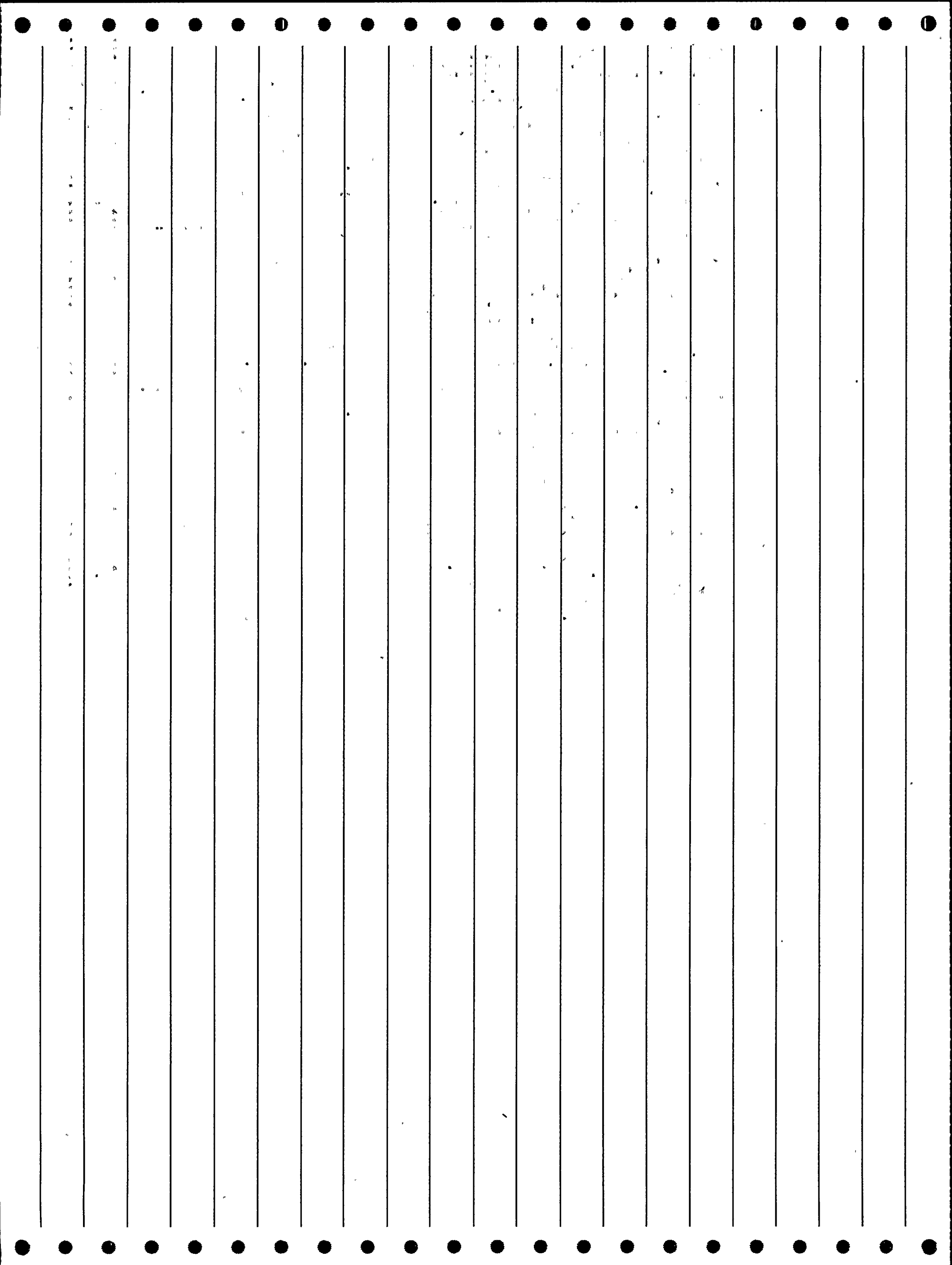
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 397/86-008

ABSTRACT

POWER LEVEL - 000%. ON MAY 12, 1987 WNP-2 WAS SHUTDOWN WITH THE REACTOR CAVITY FLOODED AND IN THE REFUELING MODE OF OPERATION. AT 1237 HOURS, A PLANT ELECTRICIAN WHILE CALIBRATING THE PLANT OSCILLOGRAPH, INADVERTENTLY CAUSED THE LOSS OF OFFSITE POWER SUPPLY (TRS). PLANT EMERGENCY BUS SM-7, WHICH WAS BEING SUPPLIED BY TRS, AUTOMATICALLY SWITCHED TO THE ALTERNATE OFFSITE POWER SUPPLY (TRB); HOWEVER, THE MOMENTARY LOSS OF POWER CAUSED THE REACTOR PROTECTION SYSTEM MOTOR GENERATOR A (RPS-MG-A) TO TRIP. THE LOSS OF RPS A POWER 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 6 ISOLATES RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING AND NSSSS GROUP 7 ISOLATES REACTOR WATER CLEANUP SYSTEM (RWCU). IN ADDITION, THE LOSS OF RPS A POWER CAUSES AN NSSSS GROUP 3 (PRIMARY AND SECONDARY CONTAINMENT VENTILATION AND PURGE SYSTEMS) ISOLATION INCLUDING STANDBY GAS TREATMENT (SGT) SYSTEM ACTUATION. PLANT OPERATORS RESTARTED RPS-MG-A AND RESTORED ALL SYSTEMS TO THEIR PRE-EVENT LINEUP IN LESS THAN ONE HOUR. THE CAUSE OF THE EVENT WAS AN INADEQUATE PLANT PROCEDURE WHICH FAILED TO PROVIDE STEPS TO FULLY ISOLATE THE CIRCUIT BEING CALIBRATED. THIS PROCEDURAL INADEQUACY ALLOWED A PORTION OF THE CIRCUIT TO BECOME ENERGIZED AND TRIP A PLANT LOCKOUT RELAY (E-RLY-86TS) ON OVERCURRENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1987 020 0 8708070106 205627 07/02/87

DOCKET:397 HPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

STEP 2: MODEL 5K326AN2608P. STEP 13: COMP MSC - STOP TAB. STEP 14: MODEL SBM.

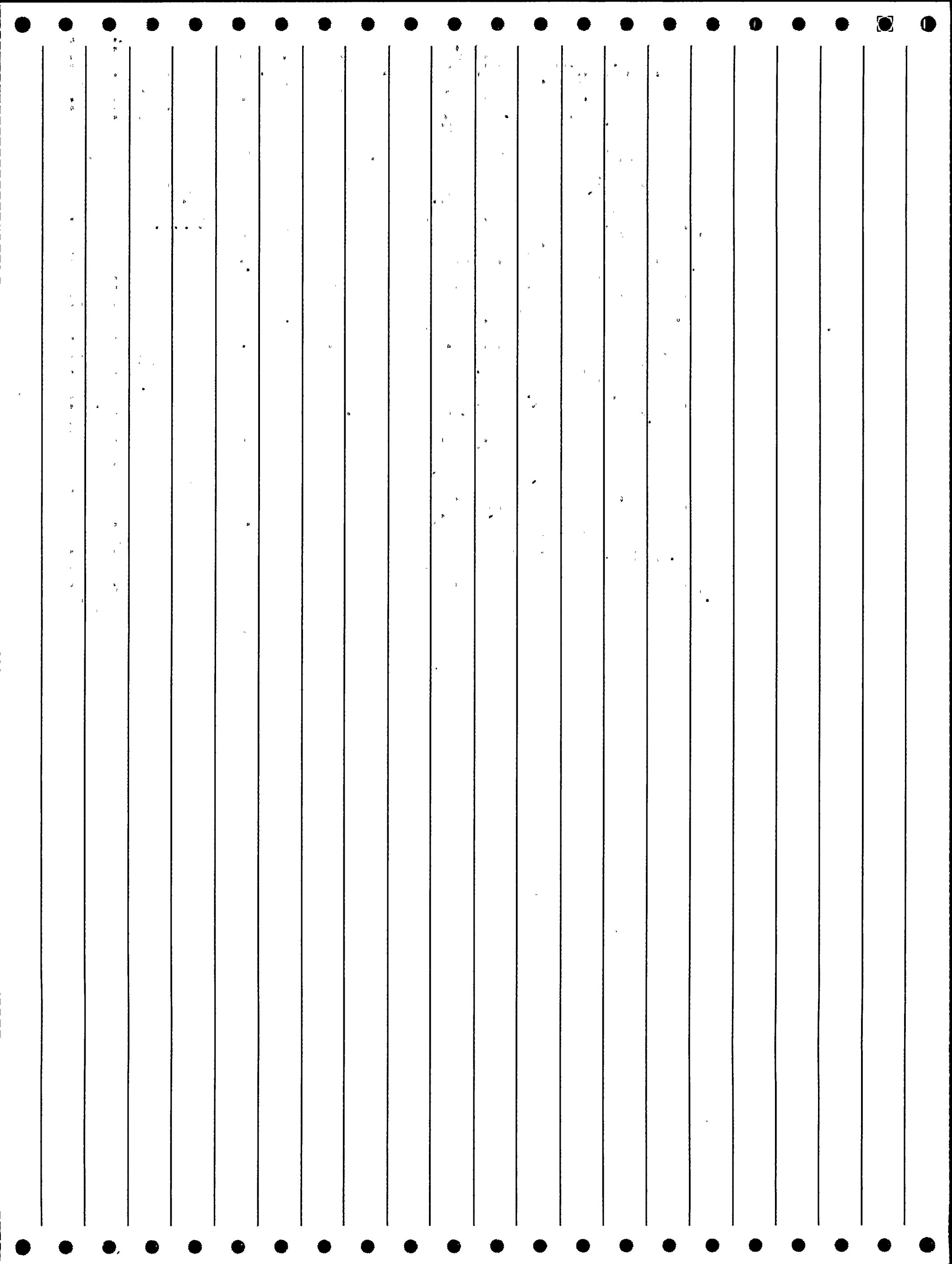
WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 397/87-022

ABSTRACT

POWER LEVEL - 080%. THE REACTOR SCRAMMED ON JULY 2, 1987, AT 1216 HOURS, WHILE OPERATING AT 80% POWER. ONE MINUTE PRIOR TO THE SCRAM THE MOTOR OF THE REACTOR PROTECTION SYSTEM (RPS) A MOTOR GENERATOR SET FAILED CAUSING THE LOSS OF RPS A POWER. WHEN PLANT OPERATORS ATTEMPTED TO SWITCH RPS A POWER TO ITS ALTERNATE SOURCE, RPS B POWER WAS LOST. THE DEENERGIZATION OF BOTH RPS POWER BUSES CAUSES, BY DESIGN, A REACTOR SCRAM AN INBOARD AND OUTBOARD ISOLATION OF NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NS4) GROUPS 1, 2, 5, 6, AND 7, AND A REACTOR BUILDING EXHAUST PLENUM PROCESS RADIATION SYSTEM "Z" SIGNAL WHICH INITIATES SEVERAL ENGINEERED SAFETY FEATURE (ESF) SYSTEMS INCLUDING STANDBY GAS TREATMENT (SGT), CONTROL ROOM EMERGENCY FILTRATION SYSTEM, AND A REACTOR BUILDING VENTILATION SYSTEM ISOLATION. INITIALLY, DUE TO THE MSIV CLOSURE (NS4 GROUP 1), REACTOR WATER LEVEL WAS CONTROLLED USING THE REACTOR CORE ISOLATION COOLING SYSTEM (RCIC), AND REACTOR PRESSURE WAS CONTROLLED BY MANUALLY OPENING MAIN STEAM LINE SAFETY RELIEF VALVES (MSRVS). WITHIN ONE HOUR ALL SYSTEMS WERE RESTORED TO THEIR NORMAL LINEUP FOR PLANT CONDITIONS AND A NORMAL PLANT SHUTDOWN FOLLOWED. BY 1910 HOURS ON JULY 2, 1987 THE PLANT WAS IN COLD SHUTDOWN. THE CAUSE OF THE MOTOR FAILURE OF THE RPS "A" MOTOR GENERATOR SET IS BELIEVED TO BE A PHASE TO GROUND SHORT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1988 013 0 8806210218 209676 05/12/88

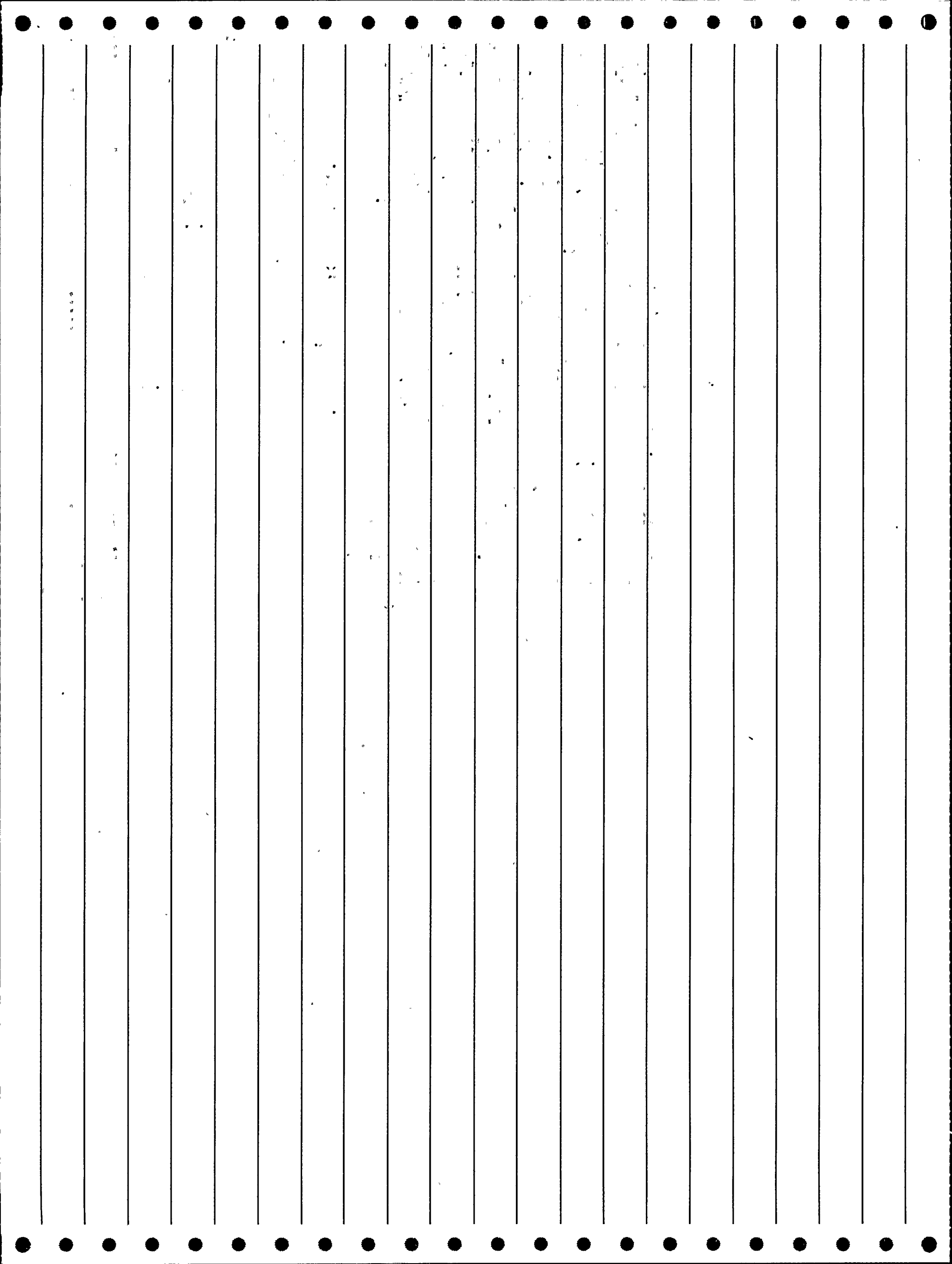
DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS
SE/Z

WATCH-LIST CODES FOR THIS LER ARE:
11 ACTS OF NATURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT
POWER LEVEL - 000%. 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-6B (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.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1988 015 0 8806220249 209661 05/15/88

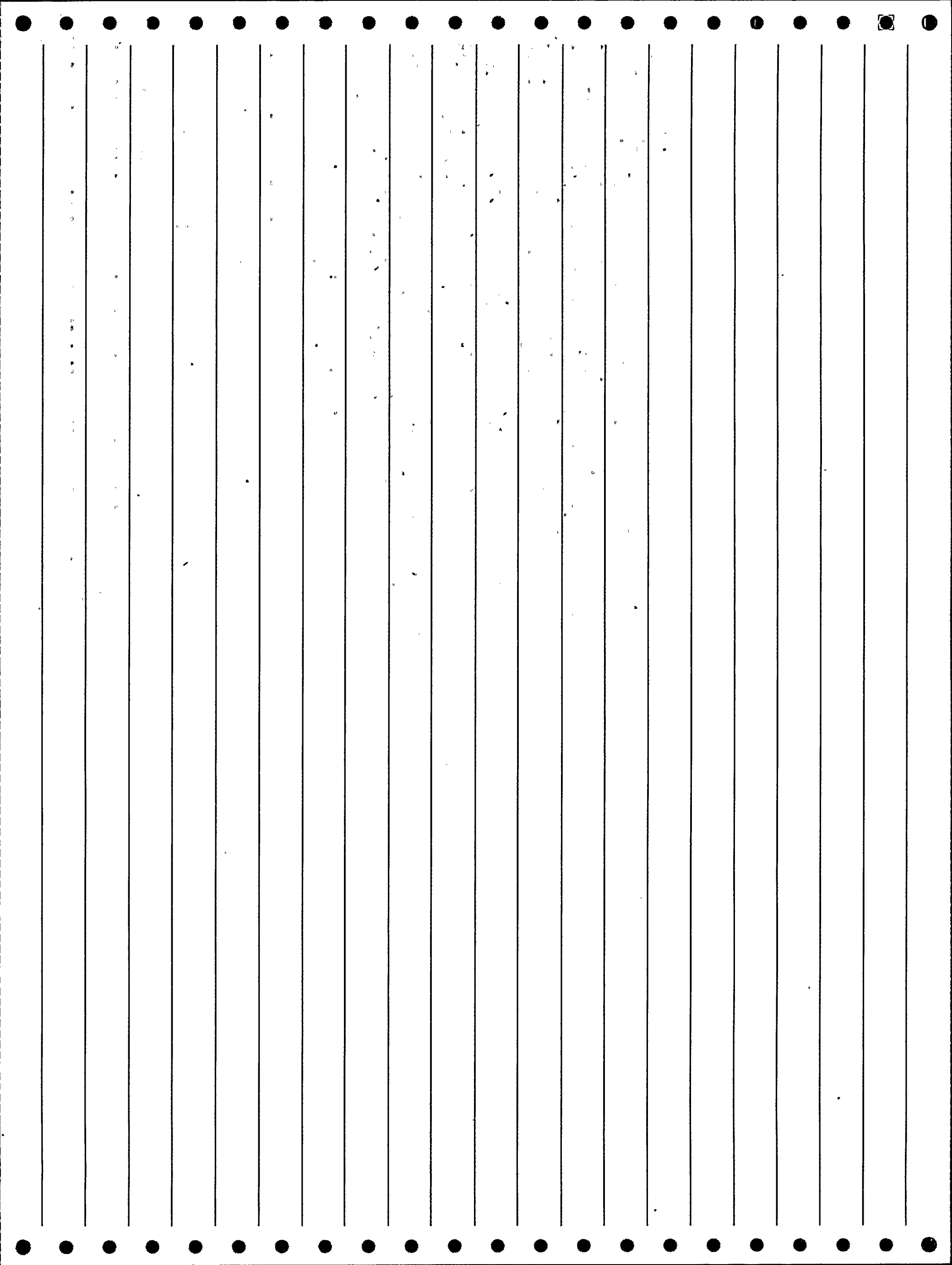
DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM /
SYMBOL: WPP

COMMENTS
\$AM/CX/REM: CORRECTIVE ACTIONS - IMPROVED LABELLING.

WATCH-LIST CODES FOR THIS LER ARE:
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT
POWER LEVEL - 000%. MAY 15, AT 1607 HOURS, WHILE IN PLANT MODE 5 (REFUELING) WITH THE REACTOR HEAD REMOVED, THE REACTOR CAVITY FLOODED, AND THE FUEL 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 (ESF) 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 PURG 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.



DOCKET. YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1989 010 1 8912150076 216155 05/01/89

DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

COMMENTS

STEP 1: COMP MEI - NAMEPLATE. EFF DX - HEAT DEGRADATION OF ADHESIVE GLUE.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

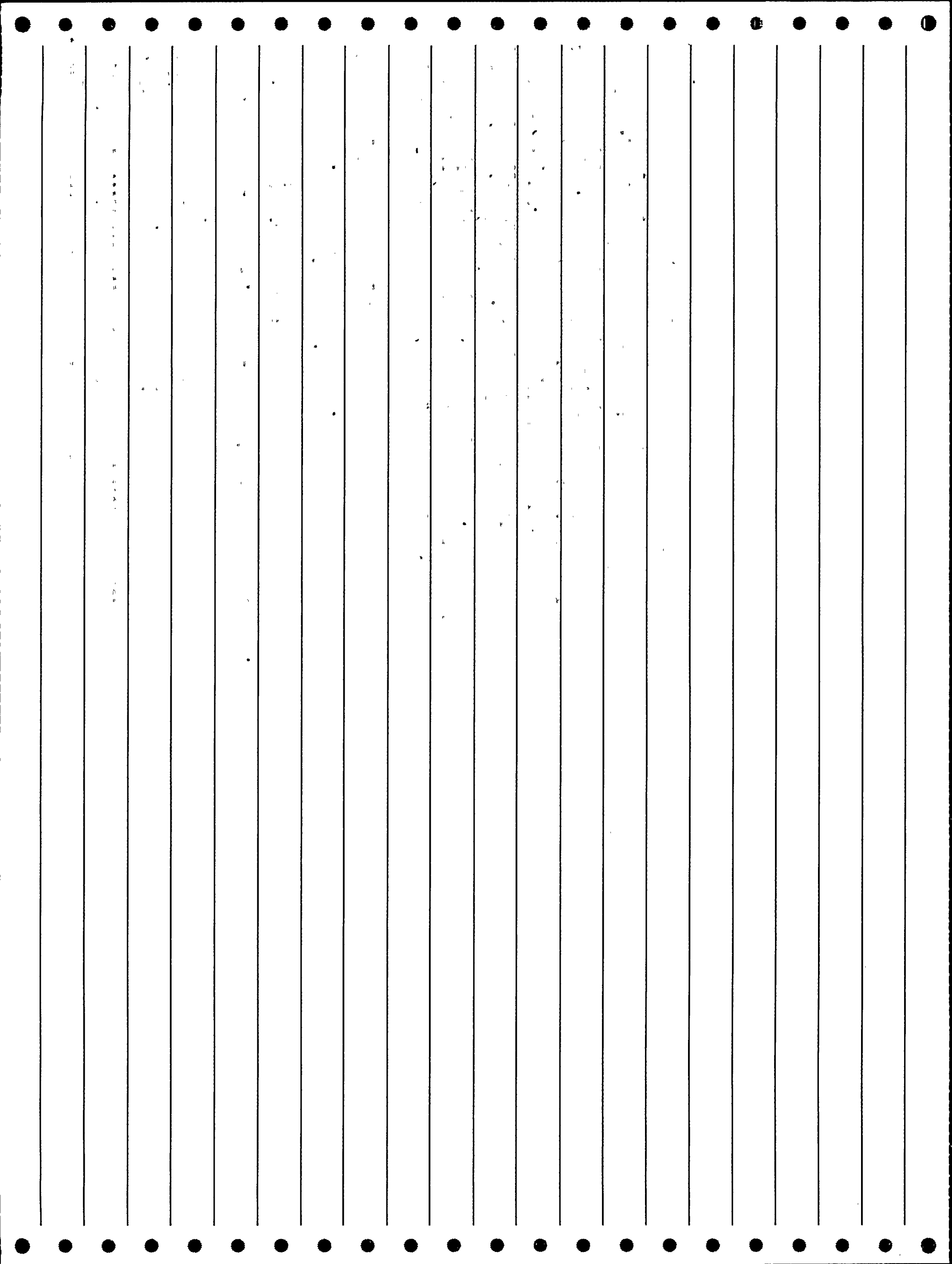
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 397/85-025 2 397/86-011

ABSTRACT

POWER LEVEL - 000%. DURING SHUTDOWN CONDITIONS FOR THE ANNUAL REFUELING OUTAGE, POWER WAS LOST TO THE "A" REACTOR PROTECTIVE SYSTEM (RPS) VOLT INSTRUMENT BUS ON TWO OCCASIONS, CAUSING ESF ACTUATIONS IN THE FORM OF PRIMARY AND SECONDARY CONTAINMENT ISOLATIONS. THE FIRST OCCURRENCE WAS MAY 1, 1989, AT 2146 HOURS AND THE SECOND OCCURRENCE WAS MAY 3, 1989, AT 1528 HOURS. THE FIRST EVENT WAS CHARACTERIZED BY A MOMENTARY (LESS THAN 100 MILLI-SECOND) LOSS OF 120 VOLT AC POWER TO THE BUS WITH ATTENDANT ACTUATION OF PRIMARY CONTAINMENT ISOLATION GROUPS 2,5,6, AND 7. THE SECOND EVENT DIFFERED IN THAT THE BUS SUFFERED A SUSTAINED LOSS OF 120 VOLT AC POWER WHICH CAUSED NOT ONLY A GROUP 2,5,6, AND 7 PRIMARY CONTAINMENT BUT A SECONDARY CONTAINMENT ISOLATION AS WELL. THE CAUSE OF THE EVENT WAS A METAL NAMEPLATE FALLING INTO THE RPS BUS "A" POWER SUPPLY CIRCUITRY RESULTING IN A SHORT CIRCUIT TO GROUND. THE SHORT CIRCUIT CAUSED POWER SUPPLY TRANSIENTS. CORRECTIVE ACTIONS CONSISTED OF: PROMPT ACTION BY THE PLANT OPERATORS TO TURN THE RESIDUAL HEAT REMOVAL SHUTDOWN COOLING SYSTEM TO OPERATION TO RESTORE COOLING THE REACTOR AND THE RECOVERY OF OTHER SYSTEMS AS NEEDED IN ACCORDANCE WITH PLANT PROCEDURES. TROUBLESHOOTING WAS IMPLEMENTED TO DISCOVER THE CAUSE OF THE POWER LOSS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1989 016 0 8906200200 214228 05/14/89

DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

WATCH-LIST CODES FOR THIS LER ARE:

35 HUMAN ERROR
36 INADEQUATE TRAINING
38 POOR ERGONOMICS OR HUMAN ENVIRONMENT

REPORTABILITY CODES FOR THIS LER ARE:

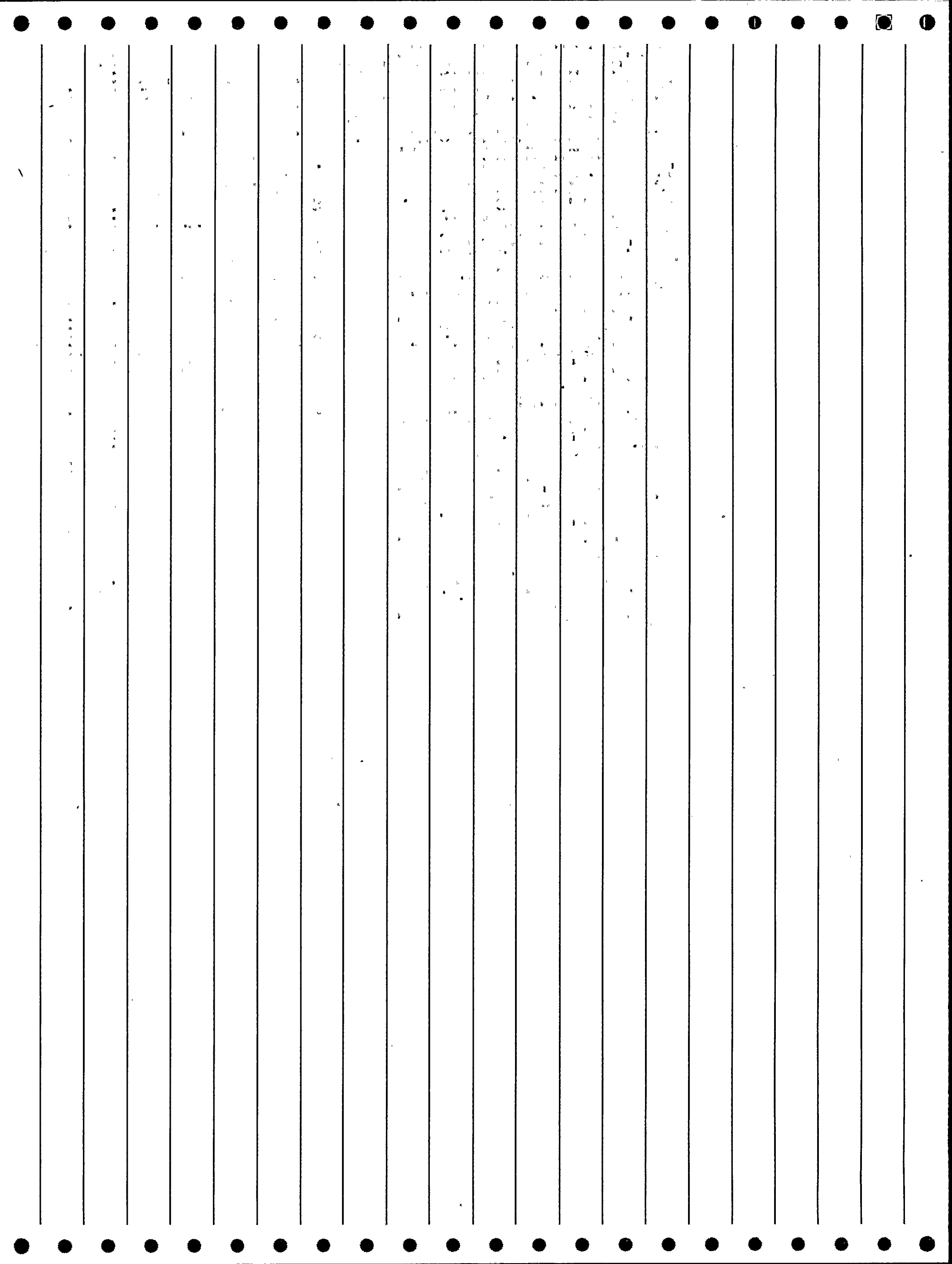
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 397/88-021.

ABSTRACT

POWER LEVEL - 000%. ON 5/14/89 AT 0912 HOURS, A PLANT REACTOR OPERATOR INADVERTENTLY TRIPPED THE DIVISION 1 AND 2 OFFSITE POWER SUPPLY FEEDERS WHICH CAUSED A LOSS OF POWER TO SAFETY ELATED POWER BUSES SM-7 (DIVISION 1) AND SM-4 (DIVISION 3). THE LOSS OF POWER TO BUS SM-7 CAUSED THE DIVISION 1 DIESEL GENERATOR TO START AND LOAD BUS SM-7. IN ADDITION, THE LOSS OF DIVISION POWER CAUSED THE LOSS OF POWER TO REACTOR PROTECTION SYSTEM (RPS) BUS WHICH CAUSED MULTIPLE ENGINEERED SAFETY FEATURE (ESF) ISOLATIONS AND ACTUATIONS. AT THE TIME OF THE EVENT THE PLANT WAS SHUTDOWN FOR THE ANNUAL REFUELING AND MAINTENANCE OUTAGE. PREVENTIVE MAINTENANCE WAS SCHEDULED FOR DIVISION 2 OF THE AC DISTRIBUTION SYSTEM (INCLUDING SAFETY RELATED BUS SM-8) AND IT WAS INOPERABLE PRIOR TO AND DURING THE EVENT. THE BACKUP POWER SUPPLY TR-B (WHICH POWERS SAFETY RELATED BUSES SM-7 AND SM-8) WAS DE-ENERGIZED AND UNAVAILABLE. THE CAUSE OF THE EVENT WAS THE INADVERTENT REMOVAL OF POTENTIAL TRANSFORMER FUSES THAT SENSE TR-S (OFFSITE STARTUP) LINE VOLTAGE AND PROVIDE TRIP AND LOCKOUT SIGNALS TO BREAKERS S-1 AND S-2 (THROUGH WHICH BUSES SM-1 AND SM-2 ARE POWERED). AS A RESULT OFF-SITE POWER WAS LOST OR UNAVAILABLE TO ALL SAFETY RELATED BUSES, AND DIESEL GENERATOR 1 (DG-1) STARTED AND WAS RELIED UPON TO RESTORE SAFETY RELATED BUS SM-7 TO POWER.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1989 018 0 8906260141 214417 05/22/89

DOCKET:397 WPPSS 2 TYPE:SWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

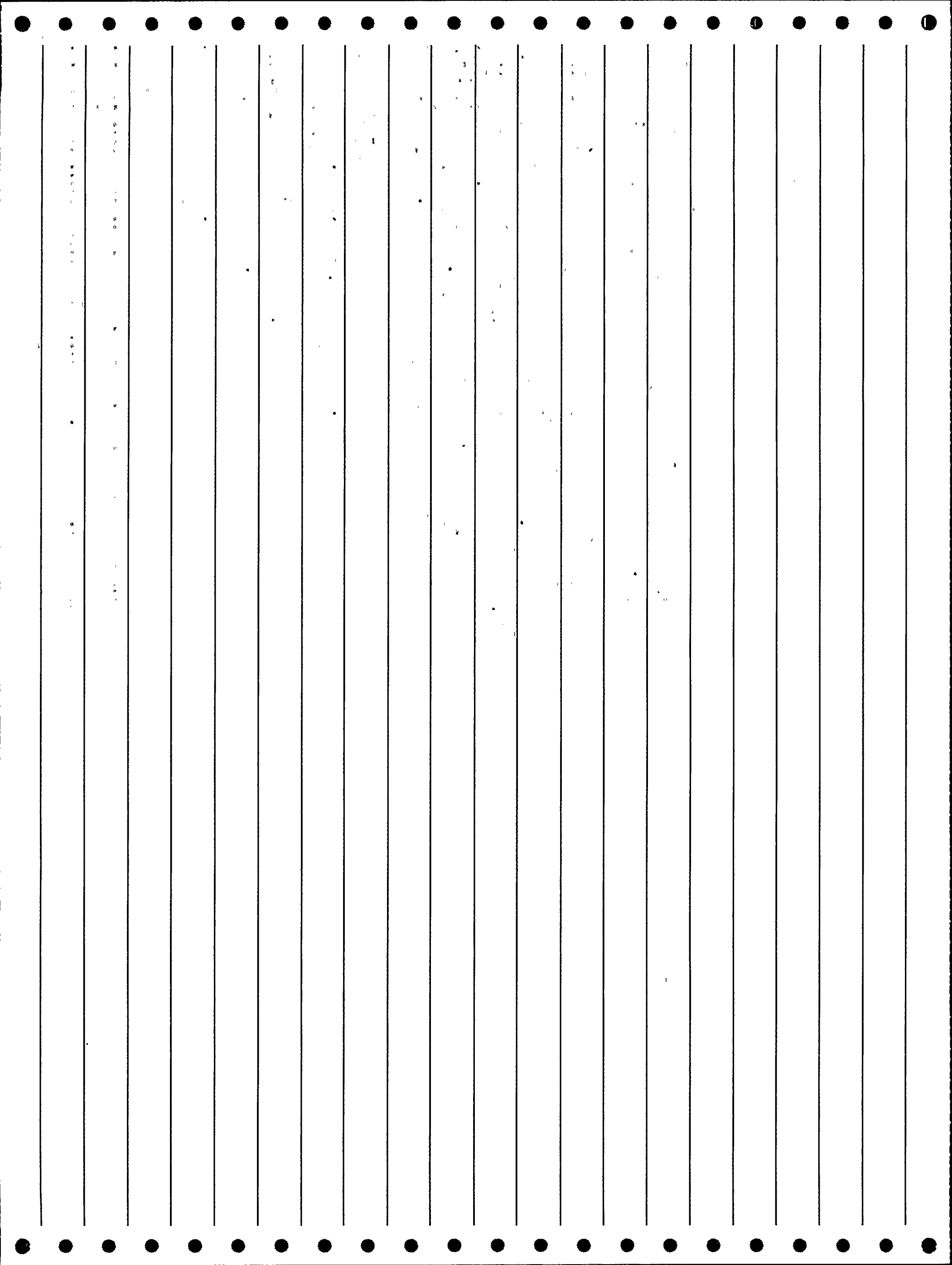
COMMENTS
STEP 3: MODEL 5K326AN2608P.

WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 397/87-020

ABSTRACT
POWER LEVEL - 000%. ON 5/22/89 AT 0151 HOURS THE REACTOR PROTECTION SYSTEM (RPS) A MOTOR-GENERATOR SET (RPS-MG-1) FAILED WHICH CAUSED A LOSS OF POWER TO RPS BUS A. THE LOSS OF POWER ON RPS A CAUSED A HALF-SCRAM IN RPS DIVISION A AND MULTIPLE ENGINEERED SAFETY FEATURE (ESF) ACTUATIONS. AT THE TIME OF THE EVENT THE PLANT WAS IN A SHUTDOWN CONDITION FOR THE ANNUAL MAINTENANCE AND REFUELING OUTAGE. REACTOR WATER LEVEL WAS GREATER THAN 22 FEET ABOVE THE REACTOR VESSEL FLANGE WHICH PROVIDED A LARGE HEAT SINK FOR CORE COOLING. THE LOSS OF RPS BUS A POWER CAUSES NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NSSSS) CONTAINMENT OUTBOARD ISOLATIONS FOR GROUPS 1,2,5,6 AND 7; AND A REACTOR BUILDING EXHAUST PLENUM RADIATION MONITOR "Z" SIGNAL WHICH INITIATES SEVERAL ESF ACTUATIONS INCLUDING THE STANDBY GAS TREATMENT (SGT) SYSTEM, THE CONTROL ROOM EMERGENCY FILTRATION SYSTEM, AND A REACTOR BUILDING VENTILATION SYSTEM ISOLATION. PLANT OPERATORS RESPONDED BY RESTORING SYSTEMS, INCLUDING RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING, TO PRE-EVENT LINEUP STATUS WITHIN 40 MINUTES. THE CAUSE OF THIS EVENT IS COMPONENT FAILURE. THE MOTOR BEARING CLOSE TO THE FLYWHEEL FAILED, WHICH IN TURN CAUSED THE FAILURE OF RPS-MG-1. THE MOTOR WAS REPLACED WITH A SPARE MOTOR AND RPS-MG-1 WAS TESTED AND RETURNED TO SERVICE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
397 1989 023 0 8907100048 214570 05/31/89

DOCKET:397 WPPSS 2 TYPE:BWR
REGION: 5 NSSS:GE
ARCHITECTURAL ENGINEER: BNRO
FACILITY OPERATOR: WASHINGTON PUBLIC POWER SUPPLY SYSTEM
SYMBOL: WPP

WATCH-LIST CODES FOR THIS LER ARE:

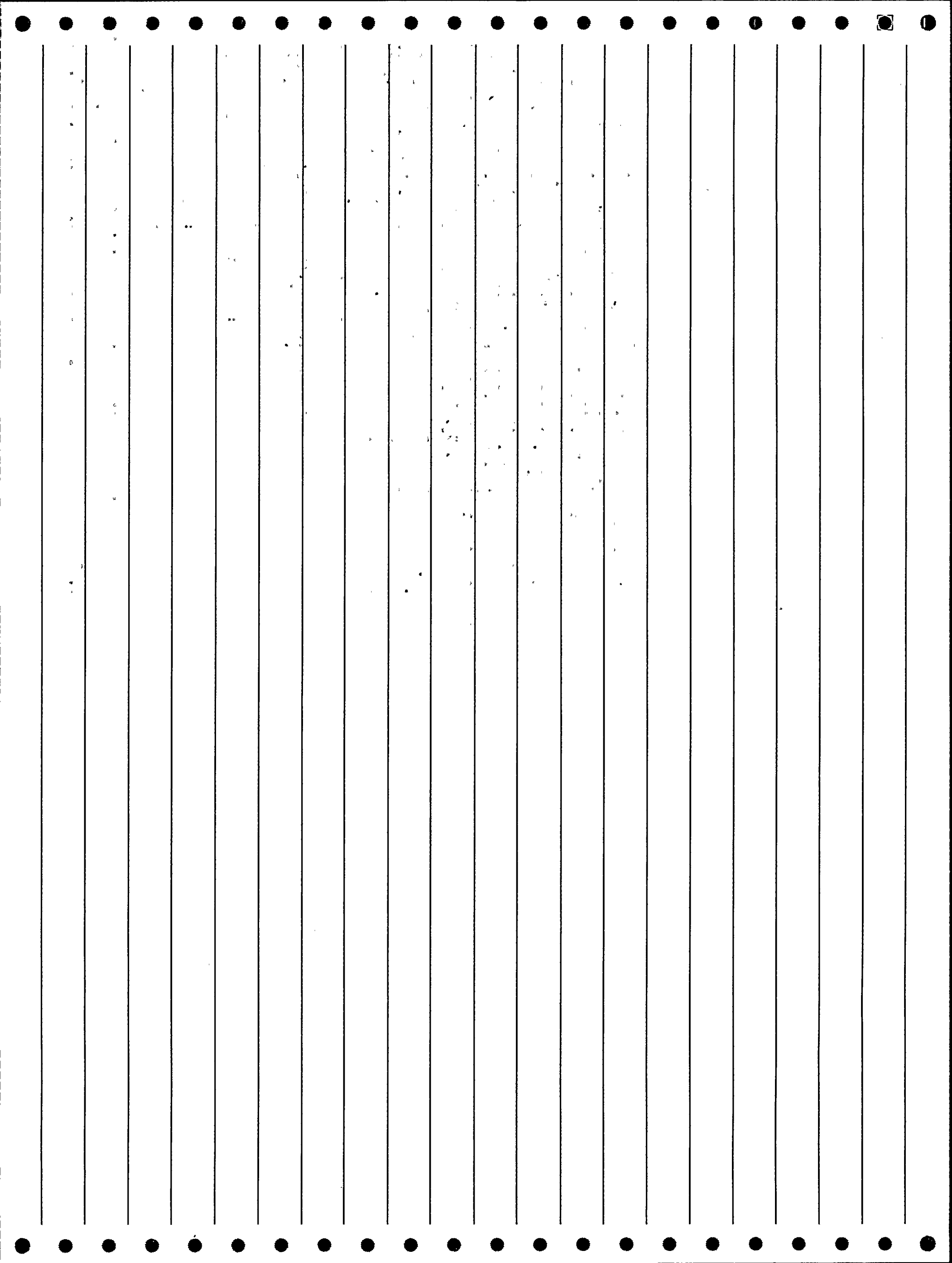
35 HUMAN ERROR
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON 5/31/89 AT 1406 HRS AN ELECTRICAL PROTECTION ASSEMBLY (EPA) BREAKER TRIPPED CAUSING A LOSS OF POWER TO REACTOR PROTECTION SYSTEM (RPS) BUS B. LOSS OF POWER TO RPS BUS B CAUSED A HALF-SCRAM IN RPS DIVISION B AND MULTIPLE PRIMARY AND SECONDARY CONTAINMENT ISOLATIONS AND ESF ACTUATIONS OF VENTILATION SYSTEMS. PLANT WAS SHUTDOWN FOR ANNUAL MAINTENANCE AND REFUELING OUTAGE. LOSS OF RPS B POWER CAUSES NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM CONTAINMENT INBOARD AND OUTBOARD ISOLATIONS FOR GROUPS 1,2,5,6 AND 7; AND A REACTOR BLDG EXHAUST PLENUM RADIATION MONITOR "Z" SIGNAL WHICH INITIATES SEVERAL ESF ACTUATIONS INCLUDING STANDBY GAS TREATMENT (SGT) SYSTEM, THE CONTROL ROOM EMERGENCY FILTRATION SYSTEM, AND A REACTOR BLDG VENTILATION SYSTEM ISOLATION. PLANT OPERATORS RESPONDED BY RESTORING ALL SYSTEMS, INCLUDING RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING, TO PRE-EVENT LINEUP STATUS BY 1430 HRS. THE CAUSES OF THIS EVENT ARE PERSONNEL ERROR IN THAT A PLANT TEST ENGINEER AND PLANT OPERATORS DID NOT ADEQUATELY REVIEW THE CONSEQUENCES OF STARTING A REACTOR RECIRCULATION PUMP WHILE THE PLANT WAS ALIGNED FOR THE PERFORMANCE OF LOGIC SYSTEM FUNCTIONAL TESTING (LSFT) OF THE ATWS RECIRCULATION PUMP "A" TRIP SYSTEM, AND 2) INADEQUATE PROCEDURE IN THAT THE LSFT PROCEDURE DID NOT SPECIFICALLY CAUTION AGAINST STARTING AN RRC PUMP DURING TEST PERFORMANCE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
400 1987 011 1 8707280188 205541 03/07/87

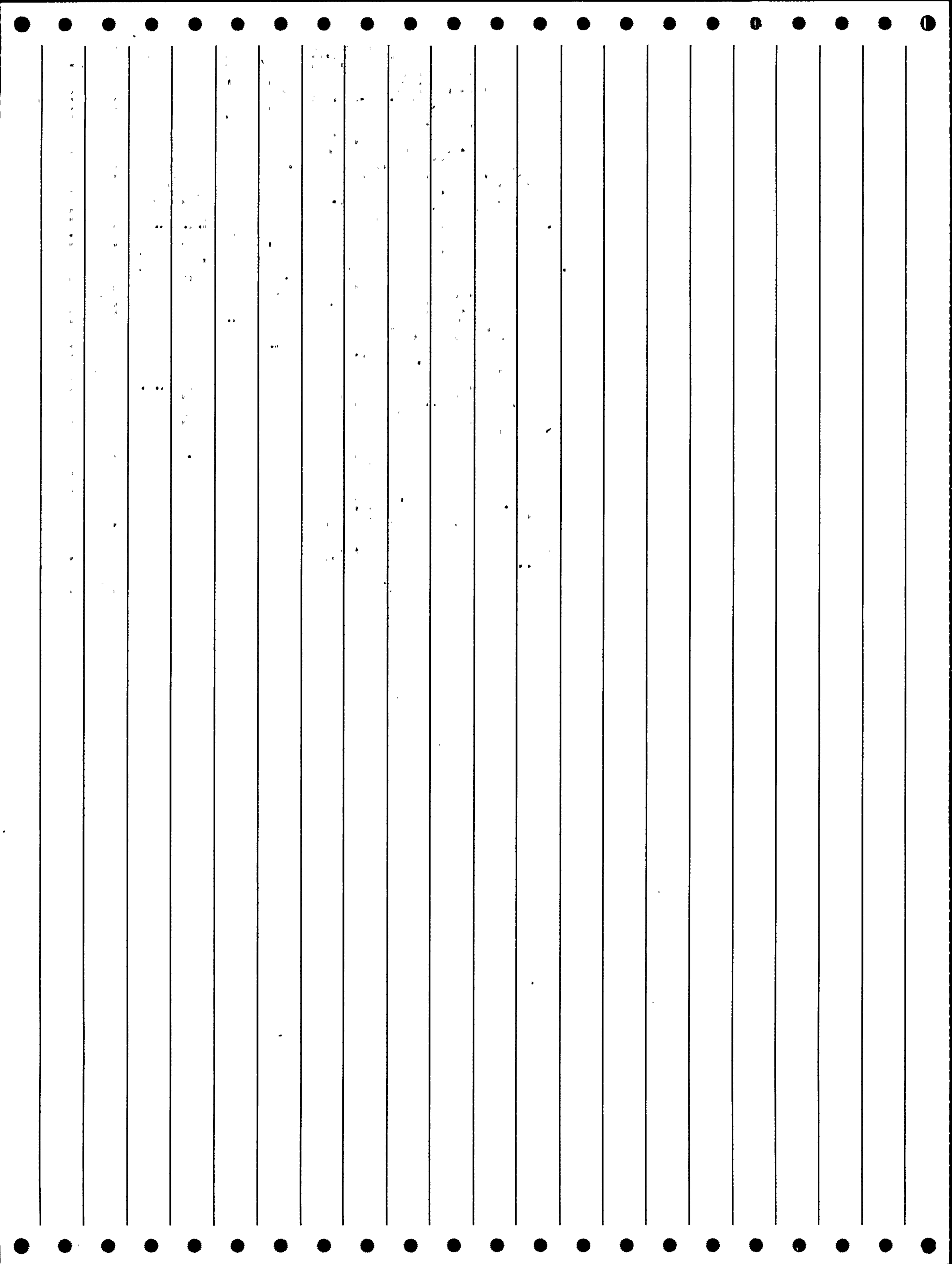
DOCKET:400 SHEARON HARRIS 1 TYPE:PHR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: CAROLINA POWER & LIGHT CO.
SYMBOL: CPL

WATCH-LIST CODES FOR THIS LER ARE:
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON MARCH 7, 1987, AN AUXILIARY OPERATOR (AO) WAS PERFORMING A WEEKLY SURVEILLANCE TEST (OST-1023) WHICH IS FOR OFFSITE POWER VERIFICATION. ONE OF THE REQUIREMENTS OF THE OST IS TO ENSURE THE BREAKER RELEASE LEVER IS IN THE NEUTRAL POSITION WITH THE BREAKER CLOSED. WHEN THE AO CHECKED AUXILIARY BUS IE FEEDER BREAKER 121, THE BREAKER WAS INADVERTENTLY TRIPPED OPEN CAUSING THE DE-ENERGIZATION OF AUXILIARY BUS IE AND SAFETY BUS IB-SB. THIS OCCURRED AT 2230 HOURS ON MARCH 7, 1987. THE DE-ENERGIZATION OF BUS 1B-SB CAUSED THE 1B-SB DIESEL GENERATOR TO START AND THE ACTUATION OF SEQUENCER 1B-SB ON BUS UNDERVOLTAGE. THE AO IMMEDIATELY CLOSED THE BREAKER CABINET AND NOTIFIED THE CONTROL ROOM OF THE INCIDENT. THE SENIOR CONTROL OPERATOR (SCO) THEN INITIATED AOP-025 FOR THE LOSS OF ONE EMERGENCY BUS AND ALL PLANT SYSTEMS WERE THEN RETURNED TO NORMAL. AT THE TIME OF THE INCIDENT, THE PLANT WAS IN MODE 4 AT 345F AND 350 PSIG. THERE WERE NO ADVERSE CONSEQUENCES DUE TO THIS EVENT AND SAFETY SYSTEMS PERFORMED AS REQUIRED. TO PREVENT RECURRENCE, THE APPLICABLE PROCEDURE HAS BEEN REVISED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
400 1987 054 0 8710200569 206693 09/15/87

DOCKET:400 SHEARON HARRIS 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: EBAS
FACILITY OPERATOR: CAROLINA POWER & LIGHT CO.
SYMBOL: CPL

COMMENTS

WATCH 931.- 10CFR21 REPORT SUBMITTED FOR THIS EVENT. STEP 1: COMP PX -
DESIGN RESPONSIBILITIES WERE COMBINED AMONG UTILITY, AE, AND REACTOR
VENDOR. STEP 5: COMP EC - FIELD FLASHING CIRCUIT. STEP 10: COMP 52 - BUS
TIE BREAKERS IN THE EMERGENCY AC SYSTEM.

WATCH-LIST CODES FOR THIS LER ARE:

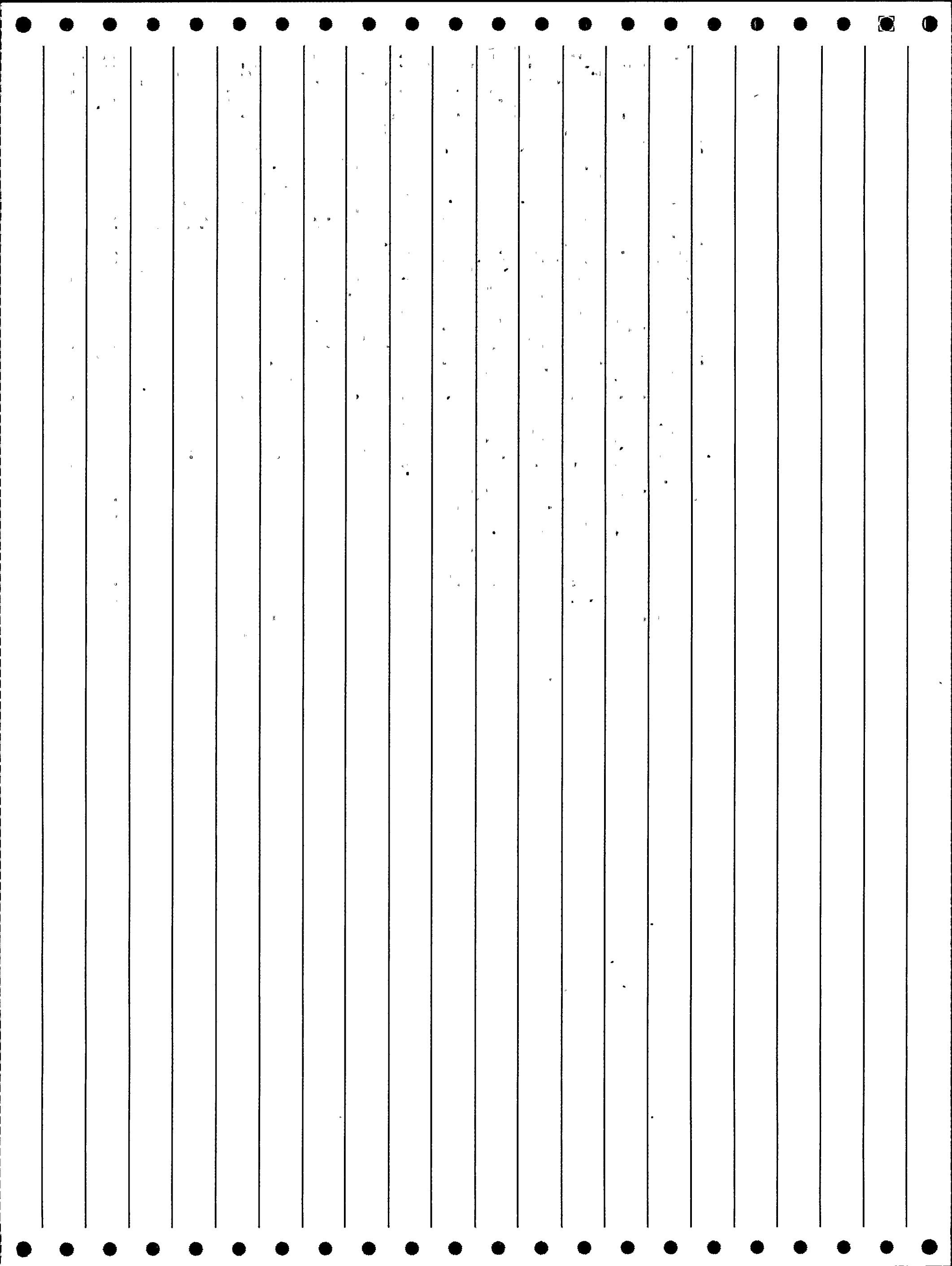
931 REPORTS ASSOCIATED WITH PART 21
34 DESIGN ERROR OR INADEQUACY
241 FAILURES THAT COULD EASILY ESCAPE DETECTION

REPORTABILITY CODES FOR THIS LER ARE:

11 10 CFR 50.73(a)(2)(ii): Unanalyzed conditions.

ABSTRACT

POWER LEVEL - 100%. ON SEPTEMBER 15, 1987, AT 2000, WITH THE PLANT IN
MODE 1 AT 100% POWER, IT WAS DETERMINE THAT A MORE LIMITING SINGLE
FAILURE THAN HAD BEEN PREVIOUSLY ANALYZED MIGHT EXIST, AND THAT IF
VALID, CONTINUED OPERATION OF THE PLANT WAS NOT JUSTIFIED. A PLANT
SHUTDOWN COMMENCED AT 2015, AND THE UNIT WAS OFF-LINE AT 0040 ON
SEPTEMBER 16, 1987. THE UNANALYZED FAILURE INVOLVED A LOSS OF "B"
VITAL DC BUS CAUSING A FAILURE OF THE TURBINE-DRIVEN AUXILIARY
FEEDWATER (AFW) PUMP AND THE "B" MOTOR-DRIVEN AFW PUMP. THE FINAL
SAFETY ANALYSIS REPORT (FSAR) ACCIDENT ANALYSIS FOR MAIN FEEDWATER
LINE BREAK ASSUMES THE AVAILABILITY OF BOTH MOTOR-DRIVEN PUMPS "A" AND
"B". THE PLANT WAS COOLED DOWN TO MODE 4 AT 0440 ON SEPTEMBER 16,
1987, WHERE AUXILIARY FEEDWATER IS NOT REQUIRED TO BE OPERABLE BY
TECHNICAL SPECIFICATIONS. ON SEPTEMBER 16, 1987, TWO ADDITIONAL
POTENTIAL FAILURE MODES WERE IDENTIFIED; ONE INVOLVED THE SPURIOUS
FAILURE OF A RELAY IN THE SOLID STATE PROTECTION SYSTEM (SSPS) CAUSING
INADVERTENT ISOLATION OF AFW TO ONE STEAM GENERATOR. THE SECOND WAS
THAT FAILURE OF "B" VITAL DC BUS COINCIDENT WITH A LOSS OF OFF- SITE
POWER WOULD ISOLATE AFW TO ALL THREE STEAM GENERATORS. REANALYSIS OF
ACCIDENTS WITH A REDUCED AFW CAPABILITY WAS DONE.



FORM 337

LER SCSS DATA

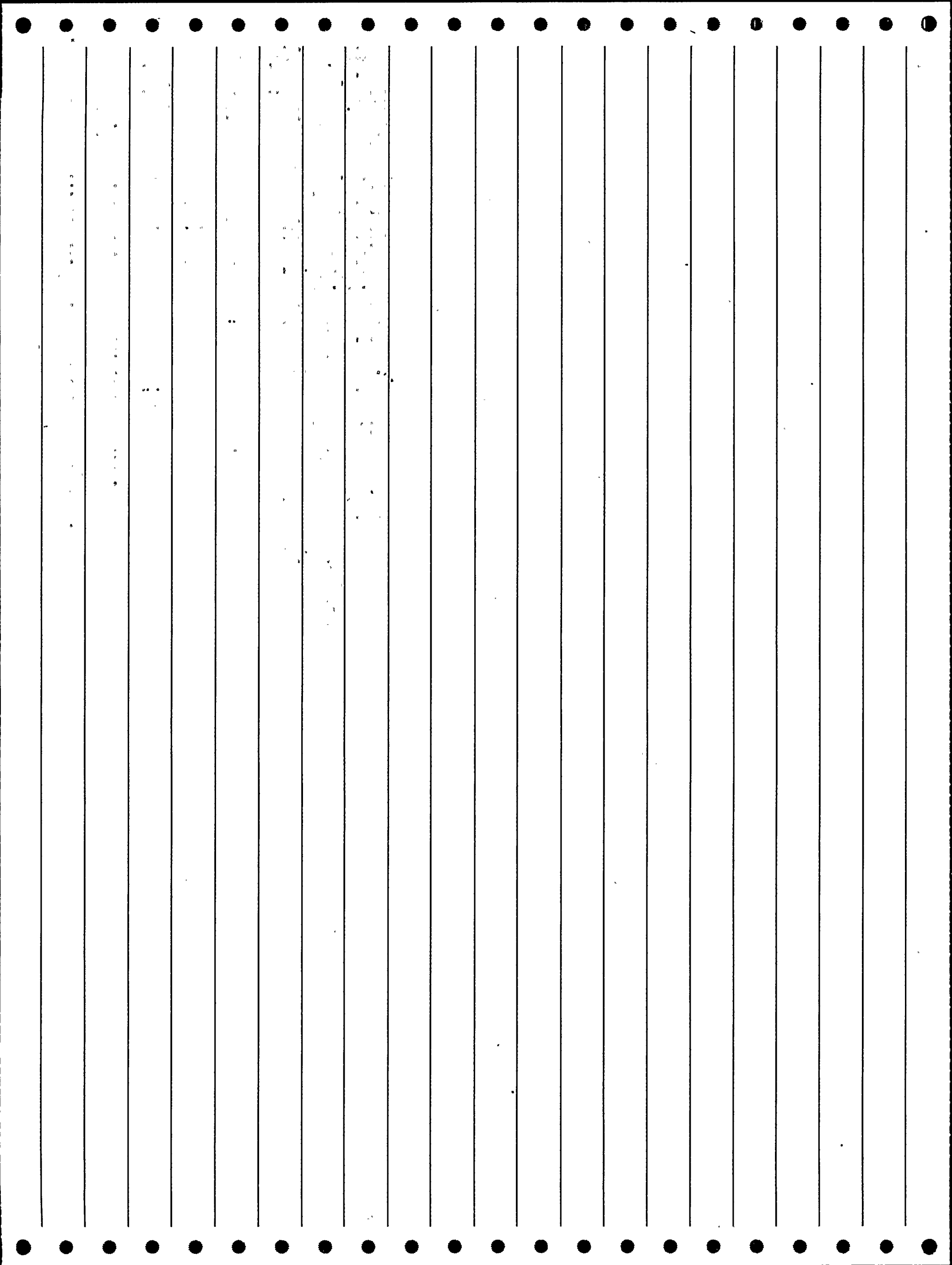
08-30-91

DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
409 1981 002 1 8106020440 166310 02/01/81

DOCKET:409 LACROSSE TYPE:BWR
REGION: 3 NSSS:AC
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: DAIRYLAND POWER COOPERATIVE
SYMBOL: DLP

WATCH-LIST CODES FOR THIS LER ARE:
911, MISFILED INFORMATION

ABSTRACT
THE INDEPENDENT CIRCUIT BETWEEN THE OFFSITE TRANSMISSION NETWORK AND
THE ONSITE POWER DISTRIBUTION SYSTEM WAS DISCONNECTED AND VITAL BUSES
WERE SUPPLIED BY THE EMERGENCY DIESEL GENERATORS. ALL AUTOMATIC
FUNCTIONS PERFORMED PROPERLY. OFFSITE POWER WAS RESTORED WITHIN 14
MINUTES. OPERATOR OPENED INCORRECT DISCONNECT SWITCH, POWER WAS
RESTORED BY RECLOSING SWITCH. IN THE FUTURE, TWO OPERATOR WILL
EXECUTE SWITCHING ORDERS WHEN POSSIBLE. ADDITIONAL PRACTICAL TRAINING
ON SWITCHYARD WAS PROVIDED TO OPERATORS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
409 1984 011 0 8408160186 191230 07/16/84

DOCKET:409 LACROSSE TYPE:BWR
REGION: 3 NSSS:AC
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: DAIRYLAND POWER COOPERATIVE
SYMBOL: DLP

COMMENTS

STEPS 11,16, AND 18: CAUSE IX - ELECTRICAL TRANSIENT. STEP 7: CAUSE LX -
SUSTAINED CLOSURE SIGNAL. STEP 10: COMP 52 MODEL LA1600A. STEP 9: COMPONENT
MSC - TOGGLE ROLLNUT. STEP 21: CAUSE SE - PRIORITY TO ACHIEVE STABLE PLANT
CONDITION. STEP 2: COMP RLX - DIFFERENTIAL PROTECTIVE RELAY.

WATCH-LIST CODES FOR THIS LER ARE:

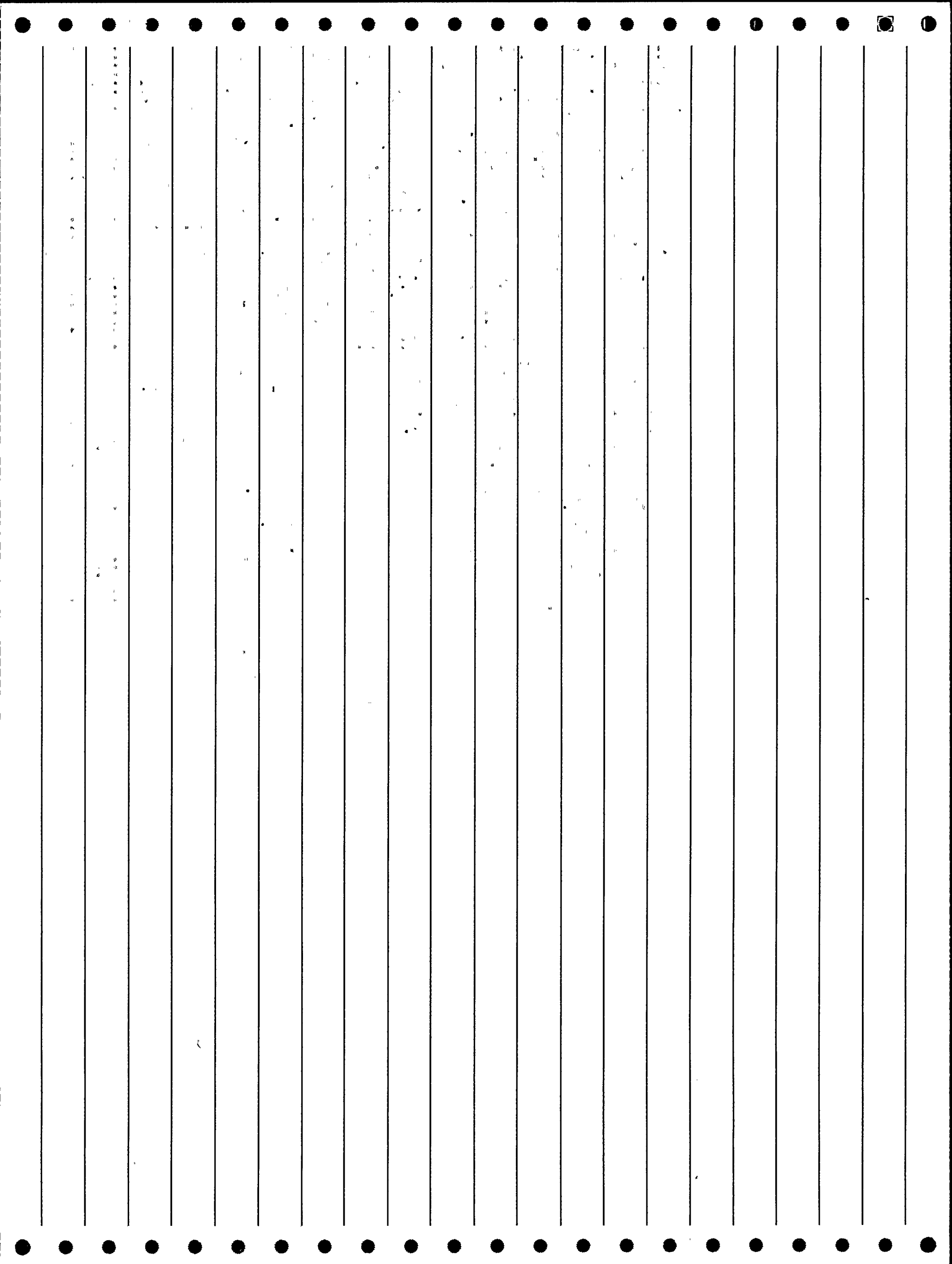
975 POSSIBLE SIGNIFICANT EVENT

REPORTABILITY CODES FOR THIS LER ARE:

- 10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.
- 12 10 CFR 50.73(a)(2)(iii): External threat.
- 13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. DURING A STORM, THE POTENTIAL TRANSFORMER IN THE
LACBWR SWITCHYARD SHORTED OUT DUE TO THE ACCUMULATION OF WET, DEAD
MAYFLIES ON IT. A LOSS OF OFFSITE POWER RESULTED. THE REACTOR WAS IN
THE HOT SHUTDOWN CONDITION AT THE TIME, WITH PRIMARY COOLANT AT 395
F. BOTH EMERGENCY DG'S (EDG) STARTED, BUT THE 1B EDG'S OUTPUT BREAKER
DID NOT CLOSE. OFFSITE POWER WAS REGAINED IN 20 MINS. TECH SPEC
TESTING REQUIRED WHEN AN EDG IS INOPERABLE WERE PERFORMED APPROX 6.5
HRS AFTER THE LOSS OF OFFSITE POWER, RATHER THAN 4 HRS. THE 1A EDG
AND ITS BREAKER LINEUP HAD DEMONSTRATED THEIR OPERABILITY DURING THE
EVENT. PRIORITY WAS PLACED ON ACHIEVING A STABLE, KNOWLEDGABLE PLANT
CONDITION RATHER THAN PERFORMING THE OFFICIAL SURVEILLANCE TESTS.
EXTENSIVE TROUBLESHOOTING WAS PERFORMED ON THE 1B EDG OUTPUT BREAKER
AND ITS CLOSING CIRCUIT. AFTER THE BREAKER TOGGLE ROLLNUT WAS
LUBRICATED, THE BREAKER TESTED SATISFACTORILY. THE POTENTIAL
TRANSFORMER WAS REPLACED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
409 1986 021 0 8608190726 200725 07/16/86

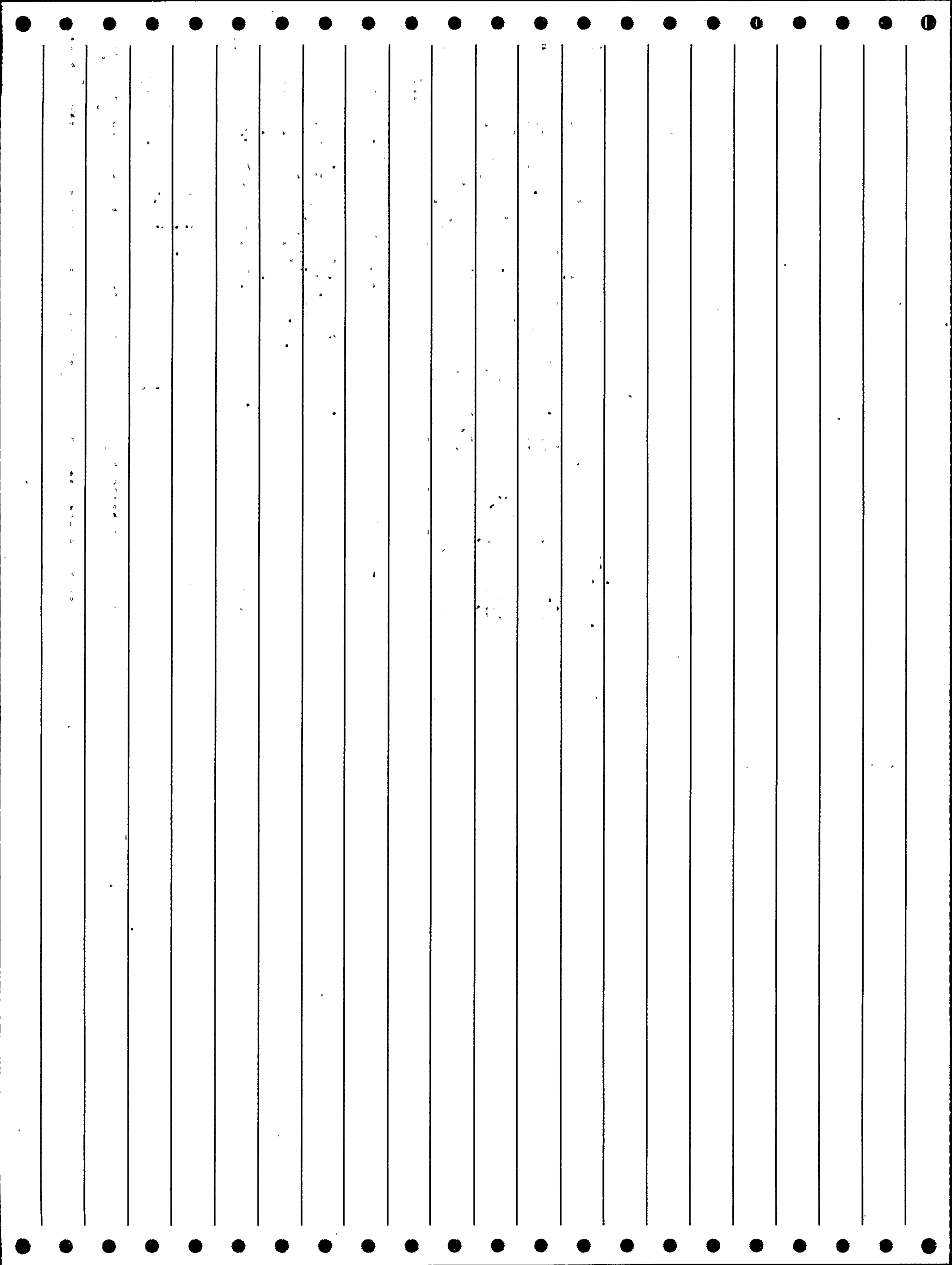
DOCKET:409 LACROSSE TYPE:BWR
REGION: 3 NSSS:AC
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: DAIRYLAND POWER COOPERATIVE
SYMBOL: DLP

COMMENTS
STEP 3: COMP RLX-MECHANICAL TRANSFER RELAY. STEP 4: ADVANCE CONVERSION
DEVICES CO. MODEL A66-1/118.

REPORTABILITY CODES FOR THIS LER ARE:
10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 409/74-003 2 409/79-017 3 409/80-011 4 409/83-007
5 409/86-016

ABSTRACT
POWER LEVEL - 098%. REACTOR SCRAMMED WHEN 1A STATIC INVERTER
TRANSFERRED TO ITS ALTERNATE SOURCE, MOMENTARILY DE-ENERGIZING ONE OF
THE SCRAM TRAINS. AFTER INVERTER WAS CHECKED, THE 1A
NON-INTERRUPTIBLE BUS WAS TRANSFERRED BACK TO THE INVERTER. LATER,
THE INVERTER LOAD TRANSFERRED AGAIN AND TWO FUSES BLEW, DE-ENERGIZING
SOME INSTRUMENTATION. HIGH PRESSURE CORE SPRAY (HPCS) PUMPS STARTED,
THE 1A SHUTDOWN CONDENSER (SDC) TRAIN INITIATED AND CONTAINMENT
BUILDING ISOLATED. THE HPCS PUMPS CONTROL SWITCHES WERE PLACED IN
"PULLOUT" TO PREVENT THE PUMPS FROM RUNNING. THE 1A SDC STEAM INLET
VALVE WAS MANUALLY ISOLATED. THE FUSES WERE REPLACED AND EQUIPMENT
RETURNED TO NORMAL. WHILE THE SDC WAS IN SERVICE, THE REACTOR VESSEL
COOLED DOWN AT A RATE IN EXCESS OF THE TECHNICAL SPECIFICATION LIMIT.
THE STRESSES EXPERIENCED WERE NOT IN EXCESS OF ALLOWABLE LIMITS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
409 1986 031 0 8610300314 201508 10/08/86

DOCKET:409 LACROSSE TYPE:BWR
REGION: 3 NSSS:AC
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: DAIRYLAND POWER COOPERATIVE
SYMBOL: DLP

COMMENTS

STEPS 1,11: EFFECT IX- MOMENTARY POWER INTERRUPTION. STEPS 3,9: MODEL-SV12150/TSNB/TSMB. STEP 10: COMPONENT RLX- AUTO RE-TRANSFER RELAY (WAS SUBSEQUENTLY REMOVED FROM INVERTER POWER SOURCE LOGIC).

REPORTABILITY CODES FOR THIS LER ARE:

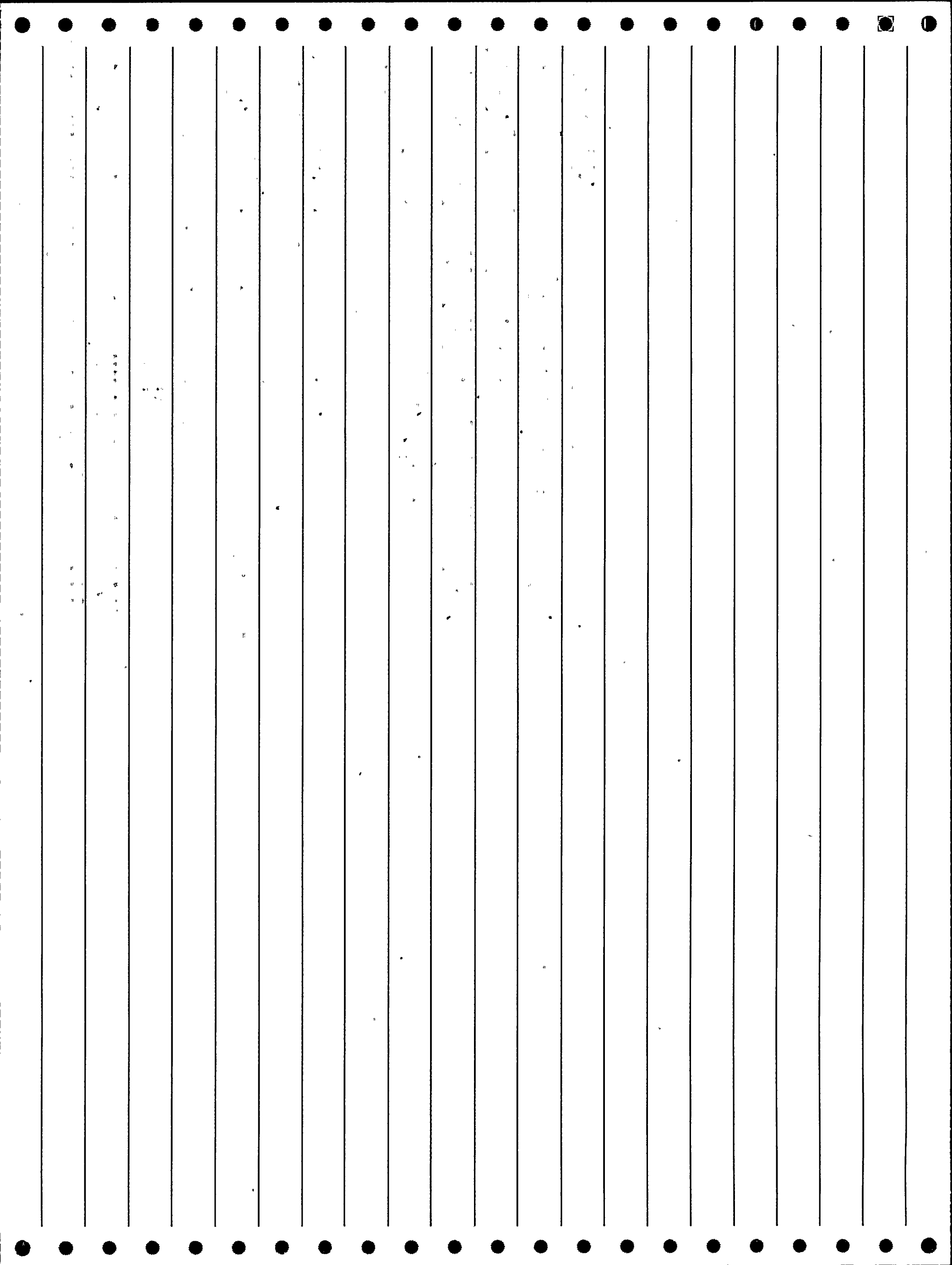
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 409/86-016 2 409/86-021

ABSTRACT

POWER LEVEL - 000%. DURING PLANT COLD SHUTDOWN, 1A EMERGENCY DIESEL GENERATOR, 1A HIGH PRESSURE CORE SPRAY PUMP, AND 1A HIGH PRESSURE SERVICE WATER/ALTERNATE CORE SPRAY DIESEL STARTED, BOTH FORCED CIRCULATION PUMPS TRIPPED, MOST CONTAINMENT ISOLATION VALVES CLOSED, AND APPROXIMATELY 40 ALARMS ANNUNCIATED. THE REASON WAS A MOMENTARY DISRUPTION IN THE 1B NONINTERRUPTIBLE BUS. THE 1B STATIC INVERTER HAD TRANSFERRED TO ITS ALTERNATE SOURCE AND A FUSE HAD BLOWN IN THE INVERTER. THE FUSE WAS REPLACED. THE INVERTER WAS THOROUGHLY CHECKED OUT AND DETERMINED TO BE FUNCTIONING PROPERLY. NO DEFINITE CONCLUSION WAS REACHED AS TO THE CAUSE OF THIS EVENT. THE SYMPTOMS MATCH THOSE OF A MOMENTARY INTERRUPTION OF DC POWER TO THE INVERTER. ALL SAFETY-RELATED EQUIPMENT THAT IS DESIGNED TO ACTUATE ON HIGH CONTAINMENT BUILDING PRESSURE OR LOW REACTOR WATER LEVEL WAS TESTED TO ACTUATE PROPERLY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
410 1986 007 1 8703250274 203492 11/20/86

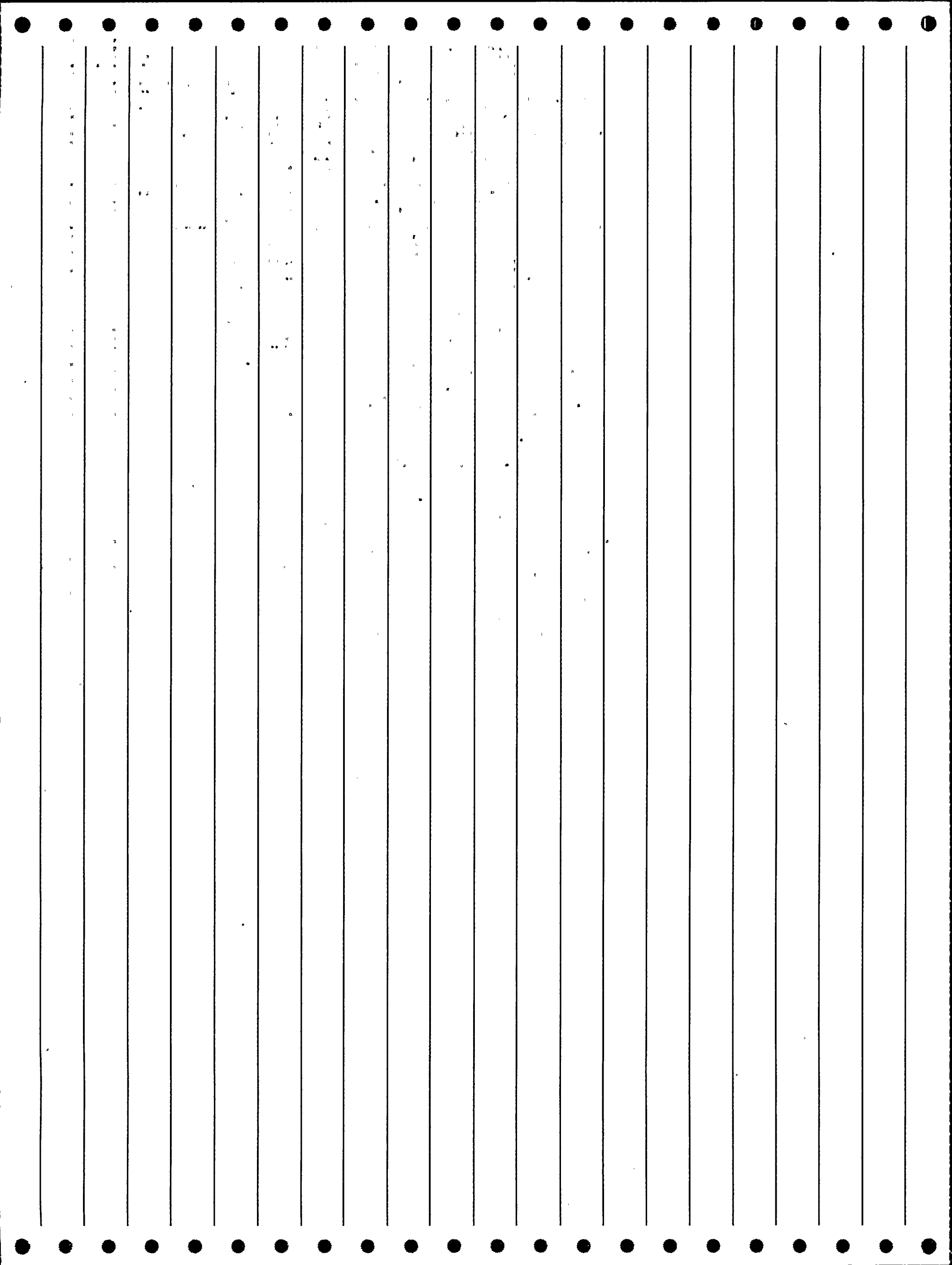
DOCKET:410 NINE MILE POINT 2 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: NIAGARA MOHAWK POWER CORPORATION
SYMBOL: NMP

WATCH-LIST CODES FOR THIS LER ARE:
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 410/86-015

ABSTRACT
POWER LEVEL - 000%. AT ZERO POWER LEVEL WITH THE MODE SWITCH IN REFUEL
ON NOVEMBER 20, 1986 TWO ELECTRICAL PROTECTION ASSEMBLIES (EPAS)
SPURIOUSLY TRIPPED TWICE WITHIN A TWO HOUR PERIOD, CAUSING A LOSS OF
120VAC POWER TO A SAFETY- RELATED CONTROL CIRCUIT BUS. LOSS OF THIS
BUS RESULTED IN A LOSS OF CONTROL POWER TO RPS 8 AND MSIV ISOLATION
LOGICS, PRODUCING A HALF SCRAM CONDITION, ISOLATION OF INBOARD PRIMARY
CONTAINMENT ISOLATION VALVES (GROUPS 2 THROUGH 9), SECONDARY
CONTAINMENT ISOLATION AND SUBSEQUENT STANDBY GAS TREATMENT SYSTEM
(SGTS) INITIATION. THE EPAS WERE RESET TO REPOWER THE CONTROL
CIRCUITS, AND ALL SYSTEMS WERE RETURNED TO NORMAL. INITIAL CORRECTIVE
ACTION WAS TO TROUBLE SHOOT THE TRIP SETPOINTS. THE INVESTIGATION
DID NOT REVEAL ANY MALFUNCTION OF THE EPAS AND THEIR SETPOINTS.
FURTHER INVESTIGATION CONCLUDES THE MOST PROBABLE CAUSE FOR THIS EVENT
IS PERSONNEL ERROR, RESULTING FROM A GROUND FAULT INTRODUCED
DOWNSTREAM OF THE EPAS DURING MSIV TESTING. SINCE NO DESIGN OR
TESTING DEFICIENCIES WERE IDENTIFIED AND NO SITE PROCEDURE OR POLICIES
WERE VIOLATED, NO FURTHER CORRECTIVE ACTIONS ARE NECESSARY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
410 1987 069 0 8711250128 207217 10/23/87

DOCKET:410 NINE MILE POINT 2 TYPE:BWR
REGION: 1 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: NIAGARA MOHAWK POWER CORPORATION
SYMBOL: NMP

COMMENTS

STEP 26: 10 CFR 50.72 NOTIFICATION NOT MADE. STEP 2: PART NO. A50P200.

WATCH-LIST CODES FOR THIS LER ARE:

941 REPORT ASSOCIATED WITH 10 CFR 50.72
34 DESIGN ERROR OR INADEQUACY
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:

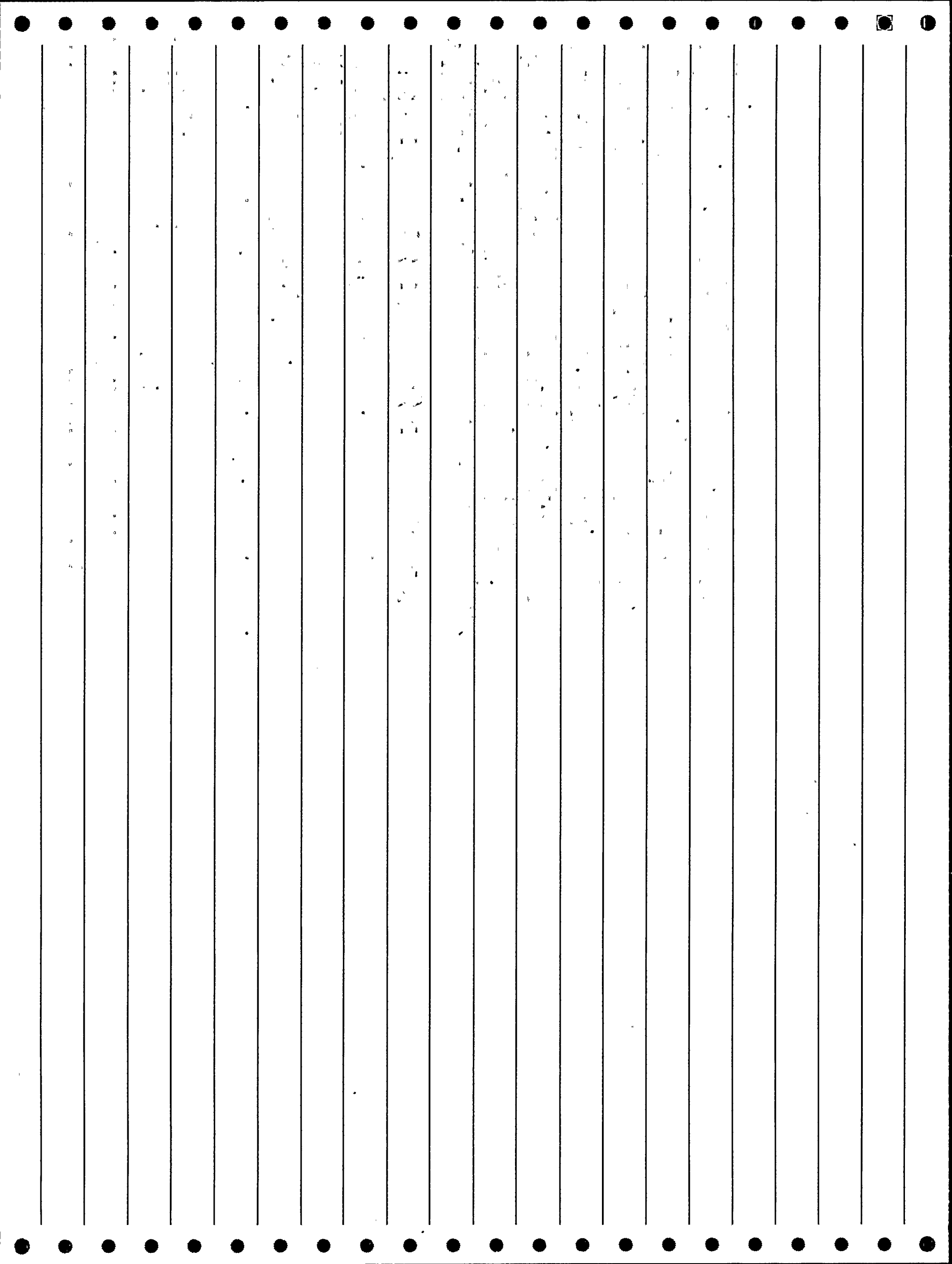
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 410/86-007	2 410/86-015	3 410/87-032	4 410/87-047
5 410/87-050	6 410/87-053	7 410/87-063	8 410/87-064

ABSTRACT

POWER LEVEL - 000%. WHILE IN MODE 3 ON OCTOBER 23, 1987 AT 1436 HOURS, A LOSS OF POWER TO A NON-CLASS 1E UNINTERRUPTIBLE POWER SUPPLY (UPS) RESULTED IN NUMEROUS ENGINEERED SAFETY FEATURE (ESF) ACTUATIONS. A NIAGARA MOHAWK LICENSED OPERATOR WAS RESPONDING TO A UPS3B TROUBLE ALARM AND UNKNOWINGLY TRANSFERRED POWER FROM THE NORMAL TO THE ALTERNATE DOWER SUPPLY. THE ALTERNATE SUPPLY WAS INOPERABLE DUE TO A BLOWN FUSE. THUS, UPS3B MOMENTARILY LOST POWER, RESULTING IN VARIOUS SYSTEM ISOLATIONS. THE CAUSES OF THIS EVENT ARE DESIGN DEFICIENCY, PERSONNEL ERROR, AND EQUIPMENT FAILURE. CONTRIBUTING CAUSES ARE LACK OF TRAINING AND PROCEDURAL AND HUMAN-FACTORS DEFICIENCIES. IMMEDIATE CORRECTIVE ACTIONS WERE TO RESTORE POWER, TO RESET SYSTEM ISOLATION SIGNALS AND TO BEGIN RETURNING ISOLATED SYSTEMS BACK TO SERVICE. WHILE ATTEMPTING TO RESTORE THE REACTOR WATER CLEANUP SYSTEM (WCS), THE SYSTEM ISOLATED AGAIN ON HIGH DIFFERENTIAL FLOW. THE CAUSE FOR THIS ISOLATION AND CORRECTIVE ACTIONS ARE GIVEN IN LER 87-63. ALL ISOLATED SYSTEMS WERE RESTORED AT 1516 HOURS. FURTHER CORRECTIVE ACTIONS TAKEN WERE TO REPLACE THE BLOWN FUSE, TO COUNSEL THE INDIVIDUAL INVOLVED, AND TO PLACE OPERATOR AIDS ON THE LOCAL UPS CONTROL PANELS. THE OPERATING PROCEDURE WILL BE REVISED AND OPERATORS WILL BE TRAINED VIA CONTINUED TRAINING AND THE LESSONS LEARNED PROGRAM.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
412 1987 001 0 8707300525 205543 06/28/87

DOCKET:412 BEAVER VALLEY 2 TYPE:PWR
REGION: 1 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: DUQUESNE LIGHT CO.
SYMBOL: DUQ

COMMENTS

STEP 2: ITE MODEL K-1600.

WATCH-LIST CODES FOR THIS LER ARE:

60 SPURIOUS/ UNKNOWN CAUSE

REPORTABILITY CODES FOR THIS LER ARE:

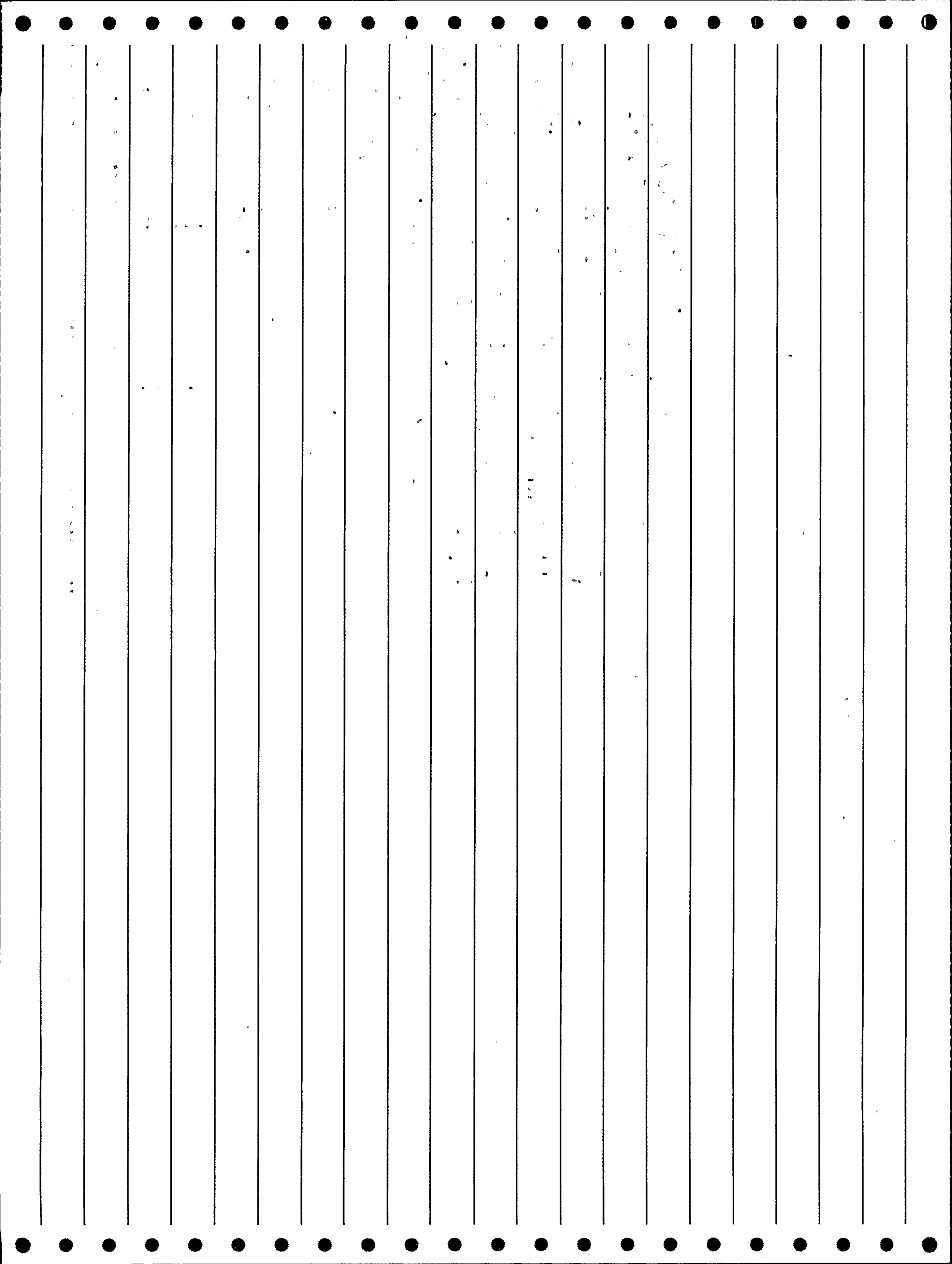
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 412/87-003

ABSTRACT

POWER LEVEL - 000%. AT 1647 HOURS ON 6/28/87, WITH THE UNIT IN COLD SHUTDOWN, A BREAKER SUPPLYING A 480 VAC EMERGENCY MOTOR CONTROL CENTER (MCC) TRIPPED ON OVERCURRENT, THUS DE-ENERGIZING THE BREAKER. THE NO. 1 120 VAC VITAL BUS WAS BEING SUPPLIED FROM THE MCC AT THE TIME BECAUSE ITS NORMAL UNINTERRUPTIBLE POWER SUPPLY (UPS) WAS OUT OF SERVICE FOR MAINTENANCE. THEREFORE, THE LOSS OF THE MCC RESULTED IN THE LOSS OF THE VITAL BUS, WHICH DE-ENERGIZED SOURCE RANGE NEUTRON FLUX DETECTOR N-31 AND CAUSED A REACTOR TRIP ON HIGH SOURCE RANGE FLUX. A TRIP SIGNAL WAS ALSO GENERATED ON LOW-LOW 'C' STEAM GENERATOR (SG) LEVEL. THIS TRIP SIGNAL RESULTED FROM THE LOSS OF THE 'C' SG CHANNEL 1 LEVEL TRANSMITTER (WHICH WAS BEING SUPPLIED WITH AN ARTIFICIALLY HIGH LEVEL SIGNAL TO PERMIT REACTOR TRIP BREAKER CLOSURE FOR CONTROL ROD TESTING) IN COINCIDENCE WITH AN ACTUAL LOW LEVEL SIGNAL ON CHANNEL 3. NO SAFETY IMPLICATIONS RESULTED BECAUSE THE UNIT WAS ALREADY IN COLD SHUTDOWN WITH AN ADEQUATE MARGIN OF NEGATIVE REACTIVITY. THE OVERCURRENT CONDITION WAS CLEARED AND THE SUPPLY BREAKER CLOSED AT 1657 HOURS ON 6/28/87. THE UPS WAS RETURNED TO SERVICE ON 7/2/87, THUS RESTORING THE NORMAL POWER SUPPLY CONFIGURATION FOR THE VITAL BUS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
412 1988 003 0 8803040053 208413 01/29/88

DOCKET:412 BEAVER VALLEY 2 TYPE:PWR
REGION: 1 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: DUQUESNE LIGHT CO.
SYMBOL: DUQ

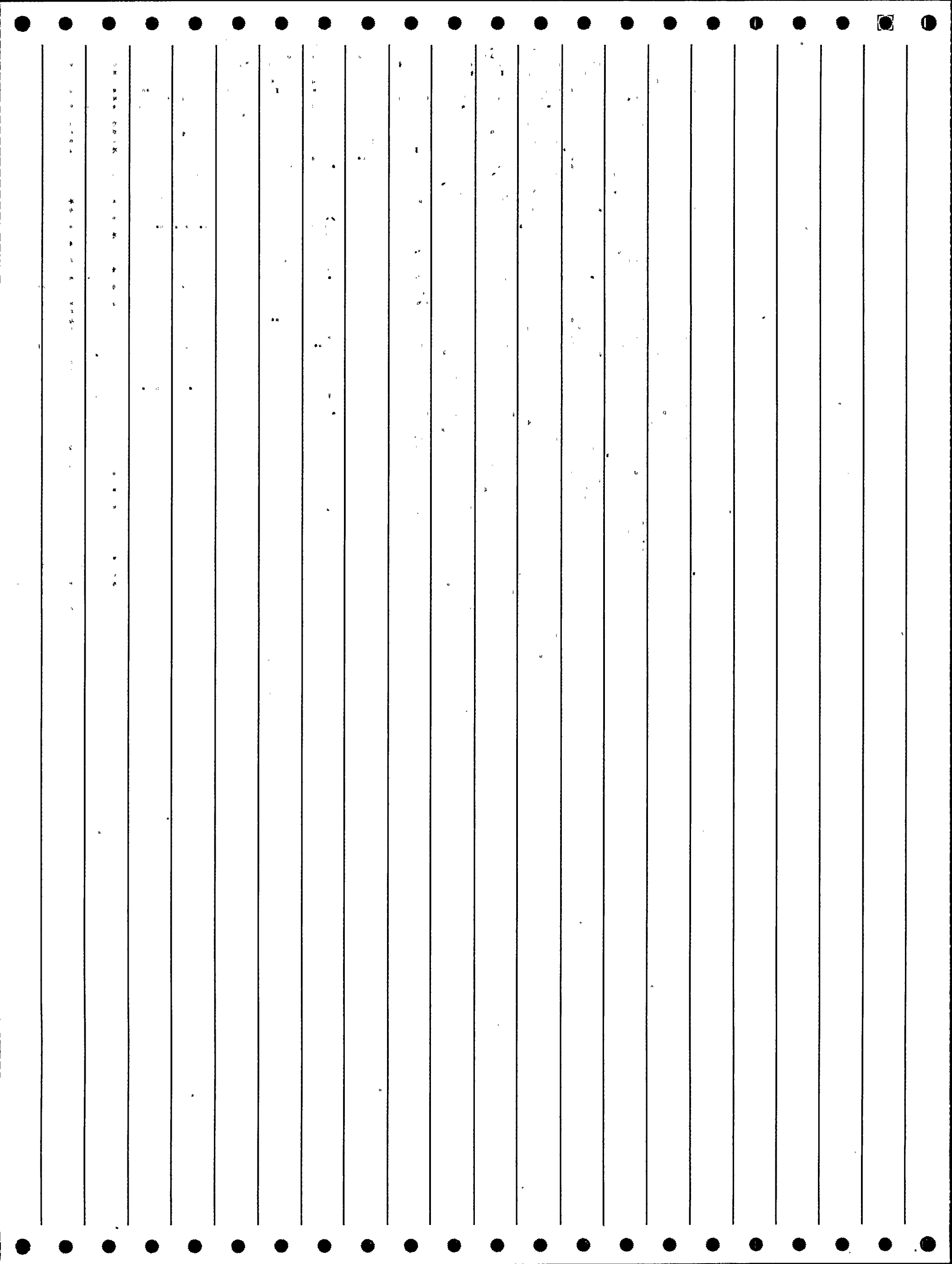
COMMENTS
SA/C A/C/334

WATCH-LIST CODES FOR THIS LER ARE:
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 412/87-013

ABSTRACT
POWER LEVEL - 000%. ON 1/29/88, AN EQUIPMENT CLEARANCE PERMIT WAS GENERATED IN ORDER TO PERFORM CORRECTIVE MAINTENANCE ON THE 1H9 4160VAC BREAKER (4160VAC SUPPLY BREAKER FROM THE 2H BUS TO THE 480VAC 2K BUS). A SWITCHING ORDER WAS PREPARED DETAILING THE ELECTRICAL SWITCHING REQUIRED TO MAINTAIN THE 2K BUS ENERGIZED AFTER BREAKER 1H9 WAS OPENED. THIS WAS TO BE ACCOMPLISHED BY CLOSING THE 480VAC TIE-BREAKER BETWEEN THE 2J AND 2K BUSES AND THEN OPENING THE 2K 480VAC SUPPLY BREAKER. DUE TO AN ERROR IN THE SWITCHING ORDER, THE 2J 480VAC SUPPLY BREAKER WAS OPENED INSTEAD OF THE 2K 480VAC SUPPLY BREAKER. WHEN BREAKER 1H9 WAS OPENED, BOTH THE 2J AND 2K BUSES WERE DE-ENERGIZED. THIS CAUSED A LOSS OF POWER TO THE LEAK COLLECTION VENT RADIATION MONITOR CAUSING A VENTILATION REALIGNMENT TO THE MAIN FILTER BANK (ESF ACTUATION). THE CAUSE FOR THIS EVENT WAS PERSONNEL ERROR DURING THE APPROVAL OF THE SWITCHING ORDER. TO PREVENT FUTURE OCCURRENCES OF THIS TYPE, THE INDIVIDUALS INVOLVED WERE COUNSELED REGARDING THE PROPER SELECTION OF CLEARANCE POINTS. ADDITIONALLY, THE FEASIBILITY OF CHANGING THE REALIGNMENT FEATURE ON A RADIATION MONITOR LOSS OF POWER IS BEING INVESTIGATED. THERE WERE NO SAFETY IMPLICATIONS TO THE PUBLIC DUE TO THIS EVENT BECAUSE THERE WAS NO ACTUAL RADIATION RELEASE TO INITIATE A VENTILATION REALIGNMENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
413 1985 032 0 8506240019 197936 05/12/85

DOCKET:413 CATAWBA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: DUKE
FACILITY OPERATOR: DUKE POWER CO.
SYMBOL: DPC

COMMENTS

OTHER REPORTABILITY - 10CFR 50.72, SECTION (B)(2)(II); STEP 7: COMP MEI -
120 VAC REGULATED DISTRIBUTION CENTER; STEP 9: ISYS SP - SERVICE WATER PUMP
HOUSE INTAKE PIT B; STEP 10: T-CODE X - UNIT 2 IN CONSTRUCTION PHASE.

WATCH-LIST CODES FOR THIS LER ARE:

941. REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

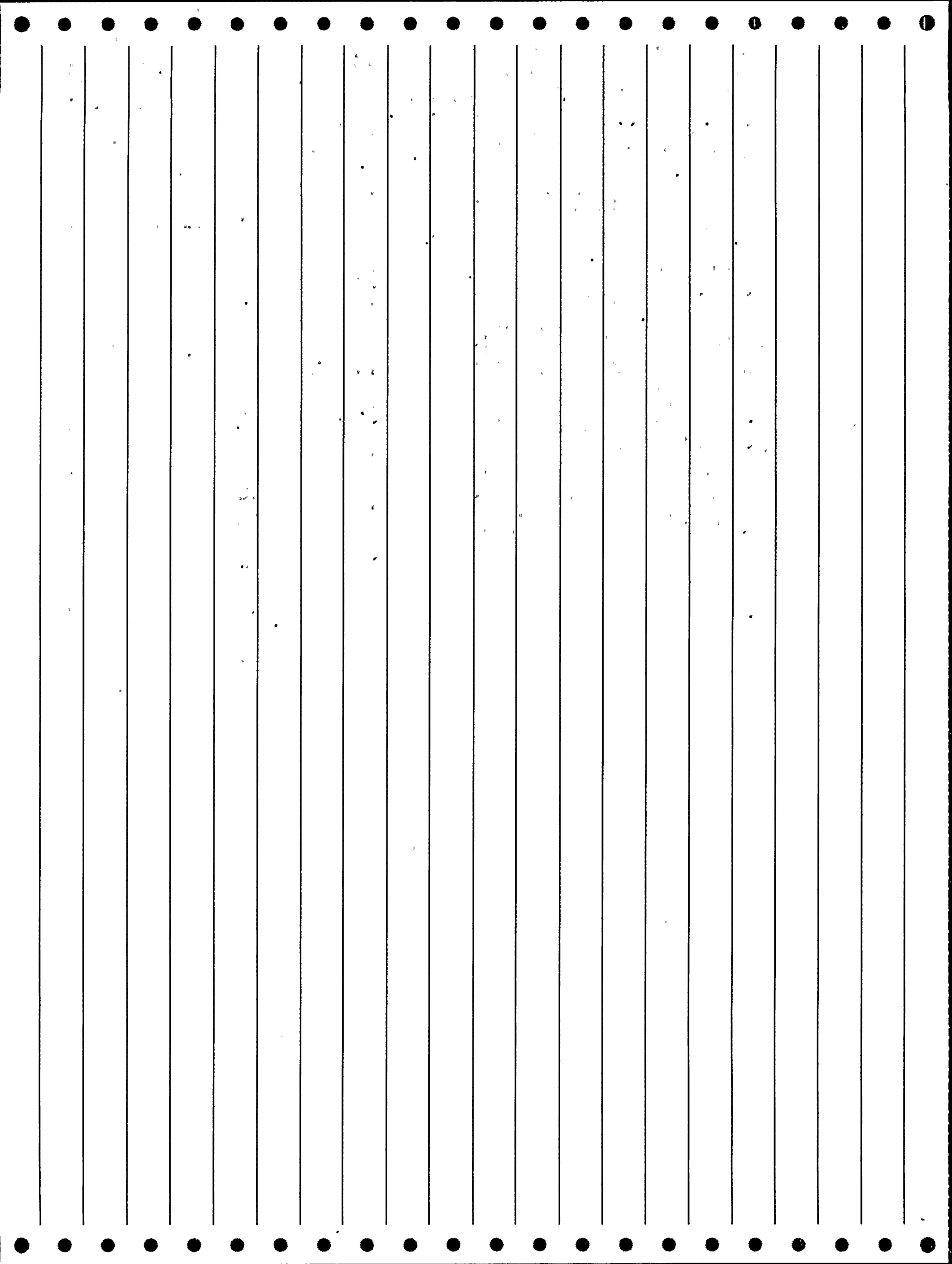
- 13 10 CFR 50.73(a)(2)(iv): ESF actuations.
- 21 OTHER: Voluntary report, special report, Part 21 report,
etc.

REFERENCE LERS:

1 413/85-030 2 413/85-031

ABSTRACT

POWER LEVEL - 000%. ON MAY 12, 1985, AT 2035:42 HOURS, THE NUCLEAR
SERVICE WATER SYSTEM (NSWS) AUTOMATICALLY SWAPPED TO THE STANDBY
NUCLEAR SERVICE WATER POND (SNSWP) AND ALL IDLE NSWS PUMPS STARTED DUE
TO A FALSE LOW-LOW LEVEL SIGNAL IN NSWS PUMPHOUSE PIT B. THE FALSE
LOW-LOW LEVEL WAS CAUSED BY A LOSS OF VOLTAGE ON ONE OF THE NSWS
SWAPOVER CIRCUITS. A NUCLEAR EQUIPMENT OPERATOR (NEO) WAS RETURNING
MOTOR CONTROL CENTER 2MXM FROM ITS ALTERNATE POWER SOURCE TO ITS
NORMAL POWER SOURCE, AND USED A DEAD BUS TRANSFER INSTEAD OF THE
REQUIRED HOT BUS TRANSFER. THEREFORE, ALL LOADS FED BY 2MXM WERE
DE-ENERGIZED FOR A SHORT TIME, INCLUDING NSWS PIT B SWAPOVER
CIRCUITRY. AT THE TIME OF THE INCIDENT, UNIT 1 WAS IN MODE 5 (COLD
SHUTDOWN), AND UNIT 2 WAS IN THE CONSTRUCTION PHASE. BECAUSE A
PROCEDURE WAS NOT UTILIZED WHEN TRANSFERRING 2MXM FROM ITS ALTERNATE
TO ITS NORMAL POWER SOURCE, THIS INCIDENT HAS BEEN CLASSIFIED AS A
PERSONNEL ERROR. RECOVERY FROM THE INCIDENT BEGAN WHEN THE NEO
RETURNED NORMAL POWER TO 2MXM RESTORING POWER TO NSWS PIT B SWAPOVER
CIRCUITRY. THE NSWS PUMPS NOT NEEDED TO SUPPORT PLANT OPERATION WERE
SUBSEQUENTLY SHUTDOWN AND THE NSWS PUMP SUCTION AND DISCHARGE WAS
REALIGNED TO LAKE WYLIE. THIS INCIDENT IS REPORTABLE PURSUANT TO 10
CFR 50.73, SECTION (A)(2)(IV), AND 10 CFR 50.72, SECTION (B)(2)(II).



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
413 1985 039 0 8507160362 195255 05/23/85

DOCKET:413 CATAWBA 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: DUKE
FACILITY OPERATOR: DUKE POWER CO.
SYMBOL: DPC

COMMENTS

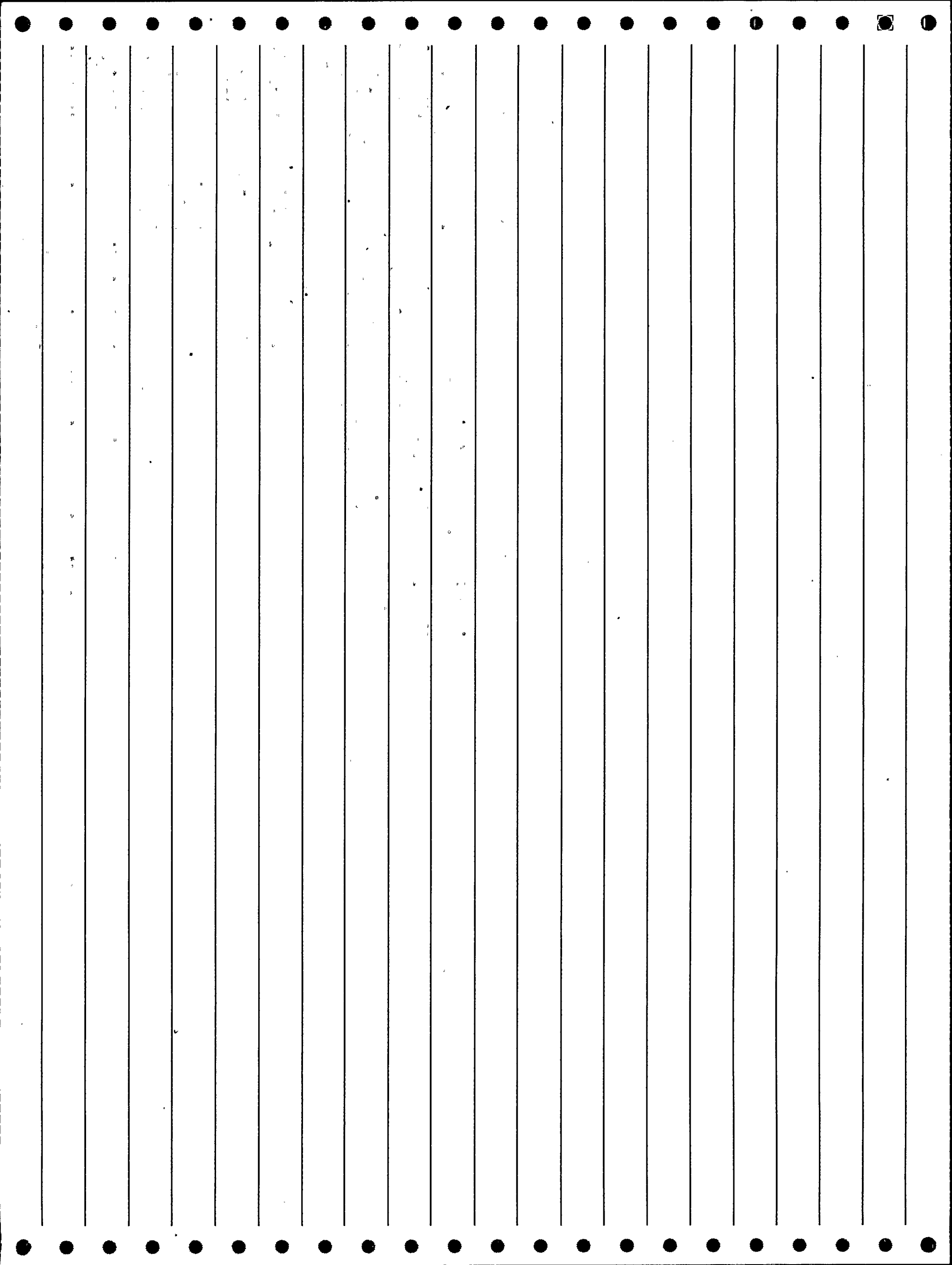
STEP 2: COMP MEI - SEISMIC SPACERS.

REPORTABILITY CODES FOR THIS LER ARE:

10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.

ABSTRACT

POWER LEVEL - 000%. ON MAY 23, 1985, SEVERAL SPACERS REQUIRED FOR
SEISMIC QUALIFICATION OF CHANNEL 2 VITAL BATTERY BANK 1EBB WERE NOT
REINSTALLED AFTER THE CELLS OF THE BANK WERE REPLACED. THIS WAS
DISCOVERED ON JUNE 4, 1985, AT APPROXIMATELY 1330 HOURS, AT WHICH TIME
THE UNIT WAS IN MODE 4 (HOT SHUTDOWN) AND THE BANK WAS REQUIRED TO BE
OPERABLE. THE SPACERS WERE REPLACED ON JUNE 6, 1985. BECAUSE THE
TECHNICIAN REPLACING THE BATTERY CELLS FAILED TO REINSTALL THE SEISMIC
SPACERS, THIS INCIDENT IS CLASSIFIED AS A PERSONNEL ERROR. THIS
INCIDENT IS REPORTABLE PURSUANT TO 10 CFR 50.73, SECTION (A)(2)(I)(B).



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
414 1988 019 1 8809290344 210568 05/27/88

DOCKET:414 CATAWBA 2 TYPE:PHR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: DUKE
FACILITY OPERATOR: DUKE POWER CO.
SYMBOL: DPC

WATCH-LIST CODES FOR THIS LER ARE:

34 DESIGN ERROR OR INADEQUACY
36 INADEQUATE TRAINING

REPORTABILITY CODES FOR THIS LER ARE:

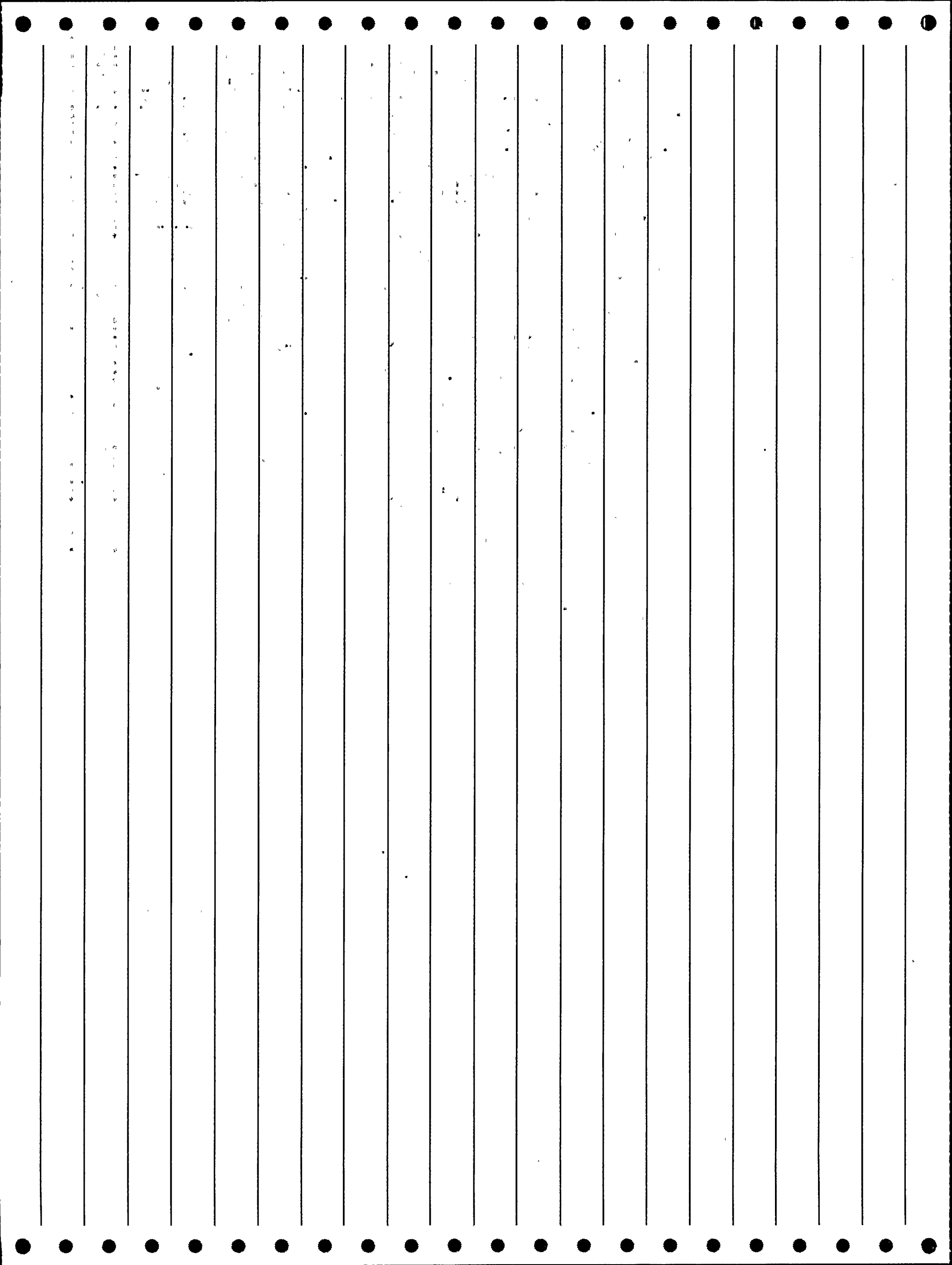
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 413/87-006 2 414/86-022 3 414/87-007

ABSTRACT

POWER LEVEL - 000%. ON MAY 27, 1988, AT 1403:21 HOURS, 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 SHAPPED 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.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
414 1988 024 1 8906060078 214077 06/22/88

DOCKET:414 CATAWBA 2 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: DUKE
FACILITY OPERATOR: DUKE POWER CO.
SYMBOL: DPC

COMMENTS

STEP 2: COMP RLX - LATCHING TRANSFER RELAY.

WATCH-LIST CODES FOR THIS LER ARE:

40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:

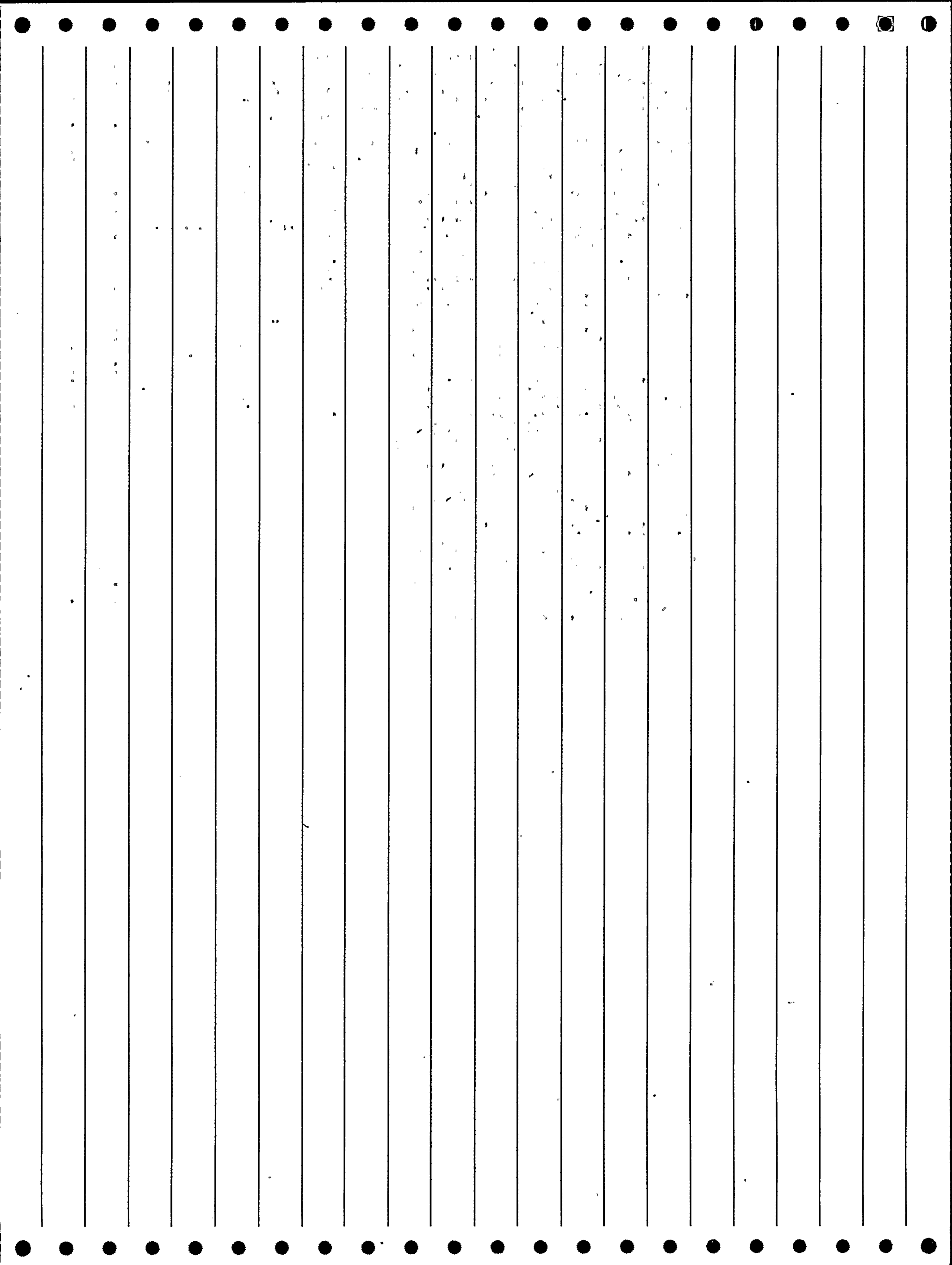
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 414/87-009

ABSTRACT

POWER LEVEL - 098%. ON 6/22/88, AT 0120 HOURS, THE UNIT 2 TURBINE DRIVEN AUX. FEEDWATER PUMP (CAPT) AUTOMATICALLY STARTED AND SUPPLIED FLOW TO STEAM GENERATORS (S/GS) B AND C. IN ADDITION, CONTROL ROOM INDICATION WAS LOST FOR 600V BLACKOUT LOAD CENTER 2LXI AND PRESSURIZER HEATER A. THIS INCIDENT OCCURRED WHEN INSTRUMENTATION AND ELECTRICAL (IAE) PERSONNEL DISCONNECTED THE CABLE SUPPLYING ALTERNATE 125 VDC CONTROL POWER FROM THE ALTERNATE BATTERY (2DPB) IN ORDER TO CLEAN ITS TERMINALS. IT WAS UNKNOWN TO IAE AND OPERATIONS PERSONNEL THAT 125 VDC CONTROL POWER HAD PREVIOUSLY BEEN AUTOMATICALLY TRANSFERRED FROM THE NORMAL SUPPLY (DISTRIBUTION CENTER 2CDA) TO THE ALTERNATE SUPPLY (2DPB). THE CONTROL ROOM OPERATOR (CRO) STABILIZED THE INCREASING LEVELS IN S/GS B AND C, AND SUBSEQUENTLY SECURED THE CAPT. THE UNIT SUPERVISOR RESET THE RELAY WHICH TRANSFERS 125 VDC CONTROL POWER, RESTORING THE NORMAL POWER SUPPLY TO THE AFFECTED LOADS. UNIT 2 WAS AT 98% POWER, AT THE TIME. THE CAUSE OF THE SWAP OF 125 VDC CONTROL POWER FROM THE NORMAL TO ALTERNATE SUPPLY COULD NOT BE DETERMINED. THE CONTROL ROOM STATUS INDICATION LIGHT WAS OFF, INDICATING THAT 125 VDC BLACKOUT CONTROL POWER WAS BEING SUPPLIED BY THE NORMAL SUPPLY, EVEN THOUGH IT WAS BEING SUPPLIED BY THE ALTERNATE SUPPLY. THIS INCIDENT MAY HAVE BEEN PREVENTED BY MORE THOROUGH PROCEDURES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
416 1983 185 2 8406110314 190503 12/01/83

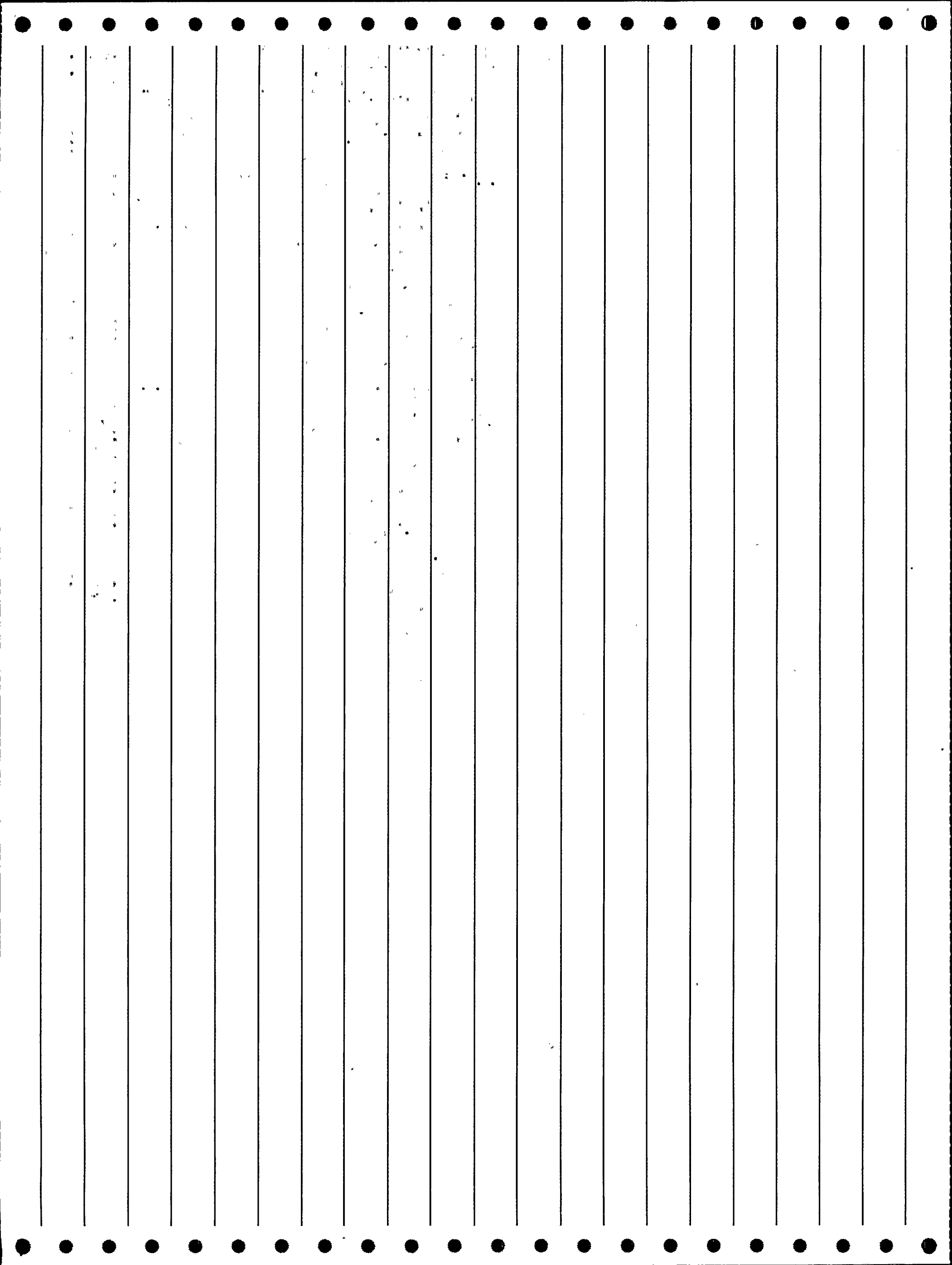
DOCKET:416 GRAND GULF 1 TYPE:BWR
REGION: 2 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SYSTEM ENERGY RESOURCES, INC.
SYMBOL: SER

COMMENTS

STEPS 4 AND 5: ISYS CODE ZX = DIVISION 1 ESF AND ALL BALANCE OF PLANT LOADS.

ABSTRACT

ON DECEMBER 1, 1983 AT 1420 HOURS WHILE IN COLD SHUTDOWN, BREAKER 552-2105 FROM SERVICE TRANSFORMER 21 TRIPPED CAUSING A LOSS OF POWER TO THE DIVISION 1 ENGINEERED SAFETY FEATURES BUS AND ALL BALANCE OF PLANT LOADS. THIS RESULTED IN A REACTOR SCRAM SIGNAL, A LOSS OF REACTOR PROTECTION SYSTEM BUSES, LOSS OF SHUTDOWN COOLING, REACTOR WATER CLEANUP ISOLATION, CONTAINMENT/AUX. BLDG. ISOLATIONS, CONTROL ROD DRIVE "A" PUMP TRIP, STANDBY GAS TREATMENT SYSTEM INITIATION, CONTROL ROOM SFAU INITIATION, AND AN AUTO START OF D/G 11. THE DIESEL GENERATOR WAS PARALLELED TO TRANSFORMER 11 TO RESTORE NORMAL POWER. TWO WIRES SHORTED IN THE BREAKER HANDSWITCH CAUSING THE TRIP. THE WIRES WERE PINCHED BETWEEN A PLATE AND A COVER BOX MOUNTED INSIDE PANEL 1H13-P807. THE WIRES AND BOX HAVE BEEN TEMPORARILY ALTERED TO PREVENT PINCHING. DESIGN CHANGE 84/3001 WILL REMOVE THE PLATE AS A FINAL RESOLUTION.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
416 1985 010 2 8512100705 197504 02/23/85

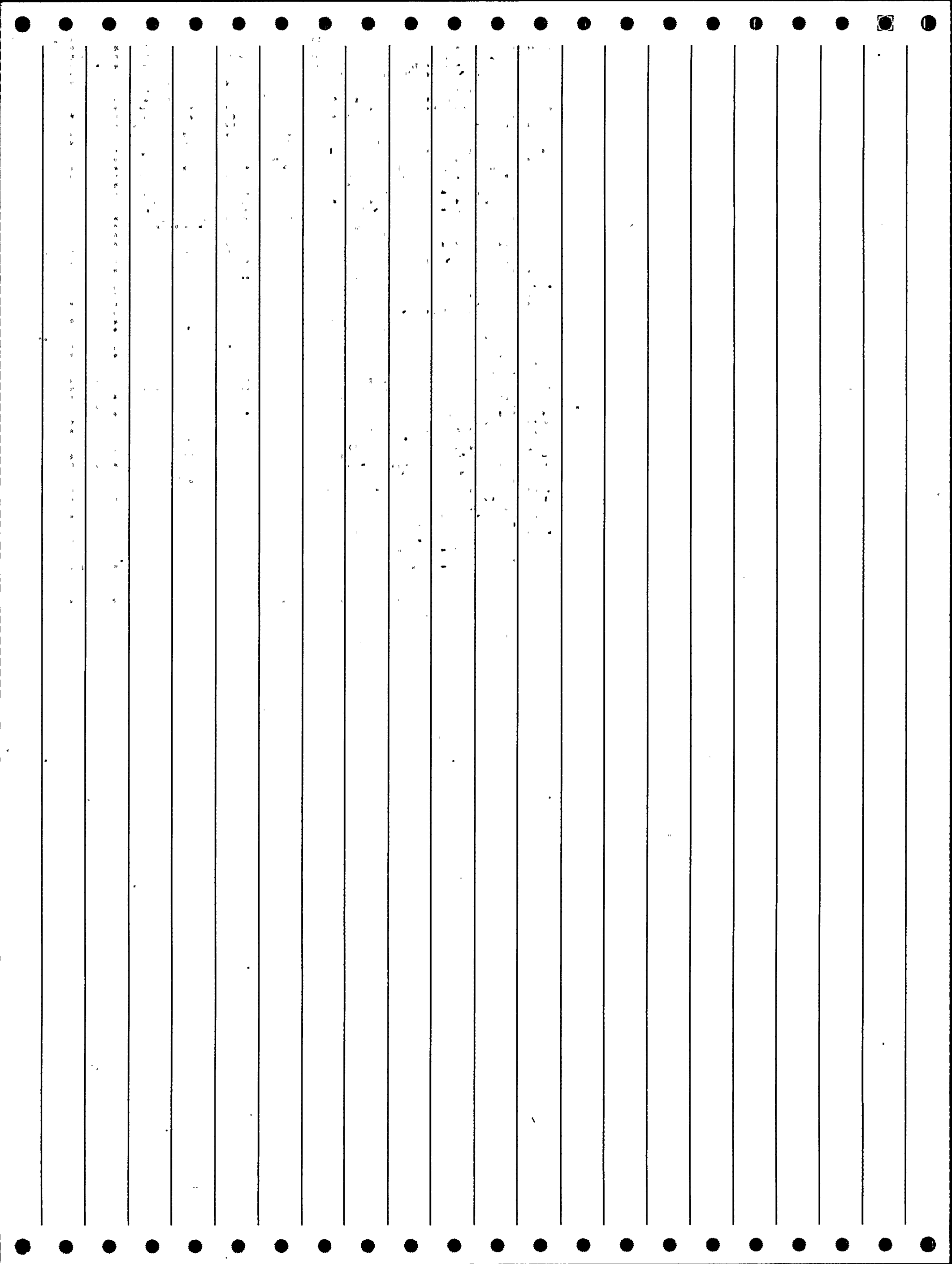
DOCKET:416 GRAND GULF 1 TYPE:BWR
REGION: 2 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SYSTEM ENERGY RESOURCES, INC.
SYMBOL: SER

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 416/84-001

ABSTRACT

POWER LEVEL - 000%. WHILE PLACING A SECOND DIV 2 BATTERY CHARGER ON EQUALIZE, THE DIV 2 INVERTER TRIPPED ON HIGH VOLTAGE CAUSING A LOSS OF POWER TO SEVERAL REACTOR VESSEL LEVEL INSTRUMENTS. WHEN THE INVERTER AUTOMATICALLY RESET, A DIV 2 ESF INITIATION OCCURRED. A RELAY POWERED FROM THE INVERTER REENERGIZED BEFORE LEVEL INSTRUMENTS, WHICH FAILED LOW ON THE LOSS OF POWER, COULD RECOVER. THE RELAY INITIATED ESF SYSTEMS ON AN ERRONEOUS REACTOR LOW WATER LEVEL SIGNAL. THE ESF INITIATIONS INCLUDED THE ISOLATION OF THE CONTROL ROOM FRESH AIR UNIT, THE START OF THE 'B' SGTS, AN INJECTION BY LPCI SUBSYSTEMS 'B' AND 'C', THE START OF THE STANDBY SERVICE WATER SYSTEM, AND A DIV 2 ISOLATION. THE DIV 2 DG WAS OUT OF SERVICE AT THE TIME. PROCEDURES HAVE BEEN REVISED TO REQUIRE ONLY 1 CHARGER TO BE PLACED IN SERVICE WHEN EQUALIZING. A DESIGN CHANGE WHICH INSTALLS TIME DELAY DEVICES IN THE LOGIC CIRCUITRY TO ALLOW INSTRUMENT LOOP CURRENT RESTORATION PRIOR TO THE TRIP RELAY ACTUATION WILL BE IMPLEMENTED DURING AN AVAILABLE MAINTENANCE OUTAGE. SIMILAR EVENT: 416/84-001.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
416 1985 039 0 8511250474 197232 10/17/85

DOCKET:416 GRAND GULF 1 TYPE:BWR
REGION: 2 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SYSTEM ENERGY RESOURCES, INC.
SYMBOL: SER

COMMENTS

STEP 4: MODEL IAC; CAUSE AX - FOR TEST.

WATCH-LIST CODES FOR THIS LER ARE:

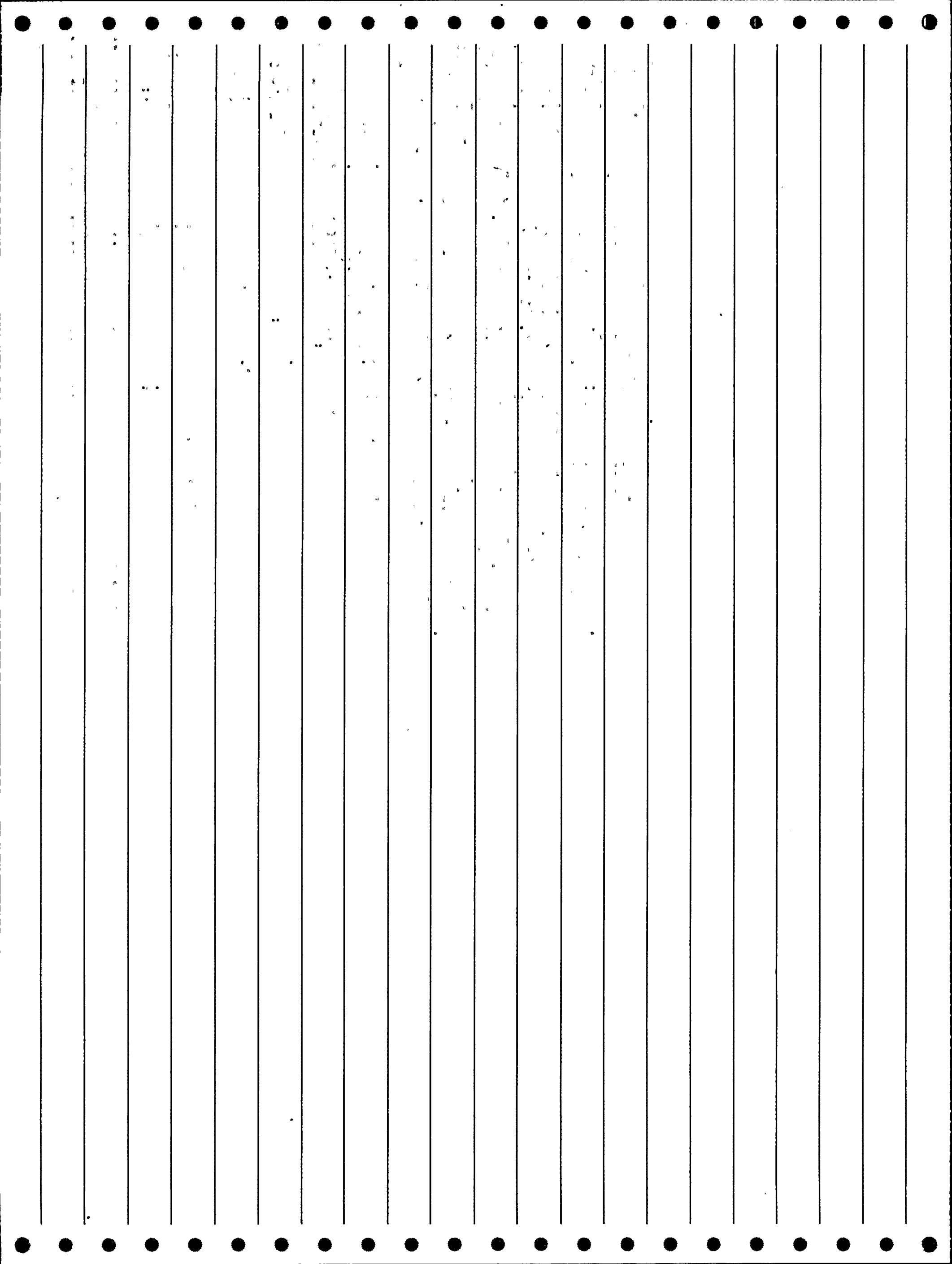
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

- 13 10 CFR 50.73(a)(2)(iv): ESF actuations.
- 14 10 CFR 50.73(a)(2)(v): Event that could have prevented fulfillment of a safety function.
- 15 10 CFR 50.73(a)(2)(vii): Single failure criteria.

ABSTRACT

POWER LEVEL - 000%. ON 10-17-85 AT 0002, AN INADVERTENT LOSS OF POWER TO THE DIV 2 ESF BUS CAUSED THE INOPERABILITY OF DIV 2 SAFETY SYSTEMS. WHEN POWER WAS RESTORED TO THE BUS, A SEALED-IN ISOLATION SIGNAL CAUSED THE LOSS OF THE SHUTDOWN COOLING FUNCTION OF THE RHR SYSTEM. AN ELECTRICIAN REMOVED A BUS PROTECTIVE RELAY FROM ITS PANEL ENCLOSURE CASE FOR CALIBRATION. ITS ASSOCIATED BREAKER WAS TAGGED OPEN. AFTER REMOVING THE RELAY, HE INADVERTENTLY LAID THE CONNECTION PLUG OR 'PADDLE' BACK INTO THE EMPTY CASE. REMOVING THIS 'PADDLE' ALLOWS FOR THE REMOVAL OF THE RELAY WITH THE CIRCUIT ENERGIZED. WHEN THE 'PADDLE' WAS LAID IN THE EMPTY CASE, AN ACCIDENTAL CONNECTION CAUSED THE LOCKOUT RELAY TO SENSE A TRIP SIGNAL AND TRIP THE BREAKER WHICH WAS ENERGIZING THE BUS. THE ELECTRICIAN WAS NOT KNOWLEDGEABLE OF THE RELATIONSHIP OF THE PROTECTIVE RELAY CIRCUIT TO OTHER FEEDER BREAKERS. ALL CERTIFIED ELECTRICAL MAINTENANCE JOURNEYMEN ARE BEING INSTRUCTED ON THE RELATIONSHIP OF THE PROTECTIVE RELAY CIRCUIT TO THE FEEDER BREAKERS. AN APPROPRIATE CAUTION NOTE WILL BE ADDED TO THE CALIBRATION PROCEDURE TO PRECLUDE RECURRENCE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
416 1986 032 2 8612100021 202042 09/16/86

DOCKET:416 GRAND GULF 1 TYPE:BWR
REGION: 2 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SYSTEM ENERGY RESOURCES, INC.
SYMBOL: SER

COMMENTS

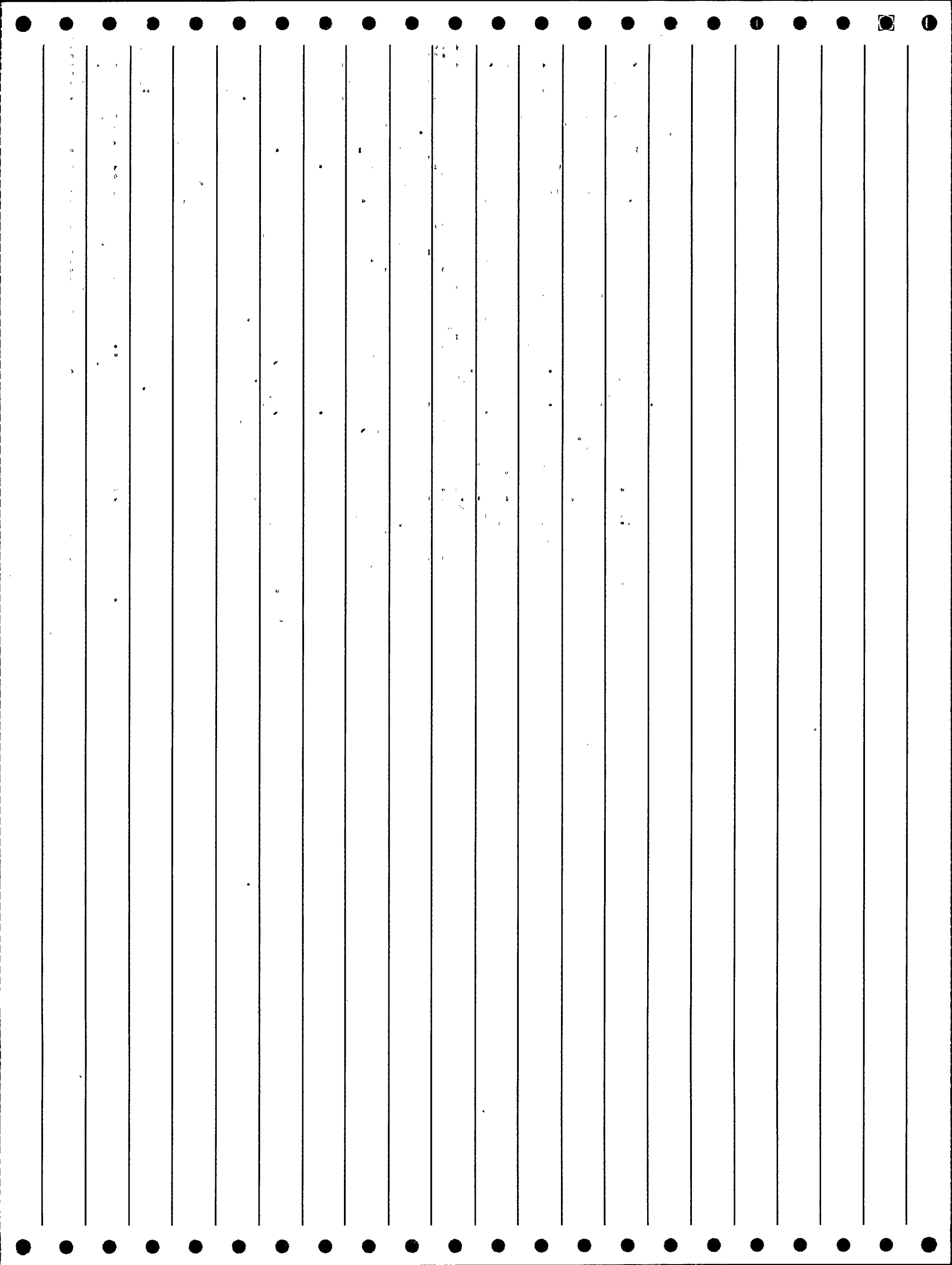
STEP 1: CAUSE XX - INVERTER SUPPLY POWER LOST AT SOME PREVIOUS TIME; COMP
52 - AC INPUT BREAKER INTERNAL TO INVERTER. STEPS 13,14,18,19: COMP RLX -
LOGIC RELAYS. EVENTS OCCURRED ON 9/16, 9/17, 10/15, AND 10/17/86.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. DURING A REFUELING OUTAGE, THE PLANT EXPERIENCED
INADVERTENT SECONDARY CONTAINMENT ISOLATIONS AND ESF SYSTEM ACTUATIONS
DUE TO OUTAGE WORK ACTIVITIES SUCH AS: 1. ON SEPTEMBER 16, AN
OPERATOR OPENED A DIVISION 1 DC BREAKER FOR PLANNED MAINTENANCE
ACTIVITIES. DIVISION 1 SECONDARY CONTAINMENT VALVES AUTOMATICALLY
CLOSED, THE STANDBY GAS TREATMENT SYSTEM STARTED AND THE CONTROL ROOM
STANDBY FRESH AIR UNITS INITIATED. THE ISOLATION LOGIC EXPERIENCED A
TOTAL LOSS OF POWER BECAUSE THE INTERNAL AC INPUT BREAKER ON THE
INVERTER HAD PREVIOUSLY TRIPPED AND WAS NOT RESET. 2. ON SEPTEMBER
17, A MAINTENANCE TECHNICIAN LIFTED AN ELECTRICAL LEAD TO REMOVE A
RELAY IN ACCORDANCE WITH AN APPROVED WORK DOCUMENT. LIFTING THE
ELECTRICAL LEAD DE-ENERGIZED ANOTHER RELAY WHICH CAUSED A LOSS OF
POWER TO THE ISOLATION LOGIC AND RESULTED IN THE SAME AUTOMATIC
ACTUATIONS AS OCCURRED ON SEPTEMBER 16. 3. ON OCTOBER 15, SEVERAL
ELECTRICAL TAG-OUTS WERE BEING HUNG IN PREPARATION FOR A DIVISION 2
ELECTRICAL OUTAGE AND OTHER DESIGN CHANGE WORK. DUE TO A SEQUENCING
PROBLEM THE ESF SYSTEMS WERE NOT TAGGED OUT BEFORE THEIR ACTUATION
LOGIC WAS DE-ENERGIZED, RESULTING IN THE START OF STANDBY GAS
TREATMENT AND CONTROL ROOM STANDBY FRESH AIR SYSTEMS. 4. ON OCTOBER
17, 1986 WHILE RESTORING POWER TO THE DIVISION 2 ELECTRICAL BUS AN RHR
SHUTDOWN COOLING SYSTEM ISOLATION OCCURRED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
416 1987 021 0 8801060086 207695 11/30/87

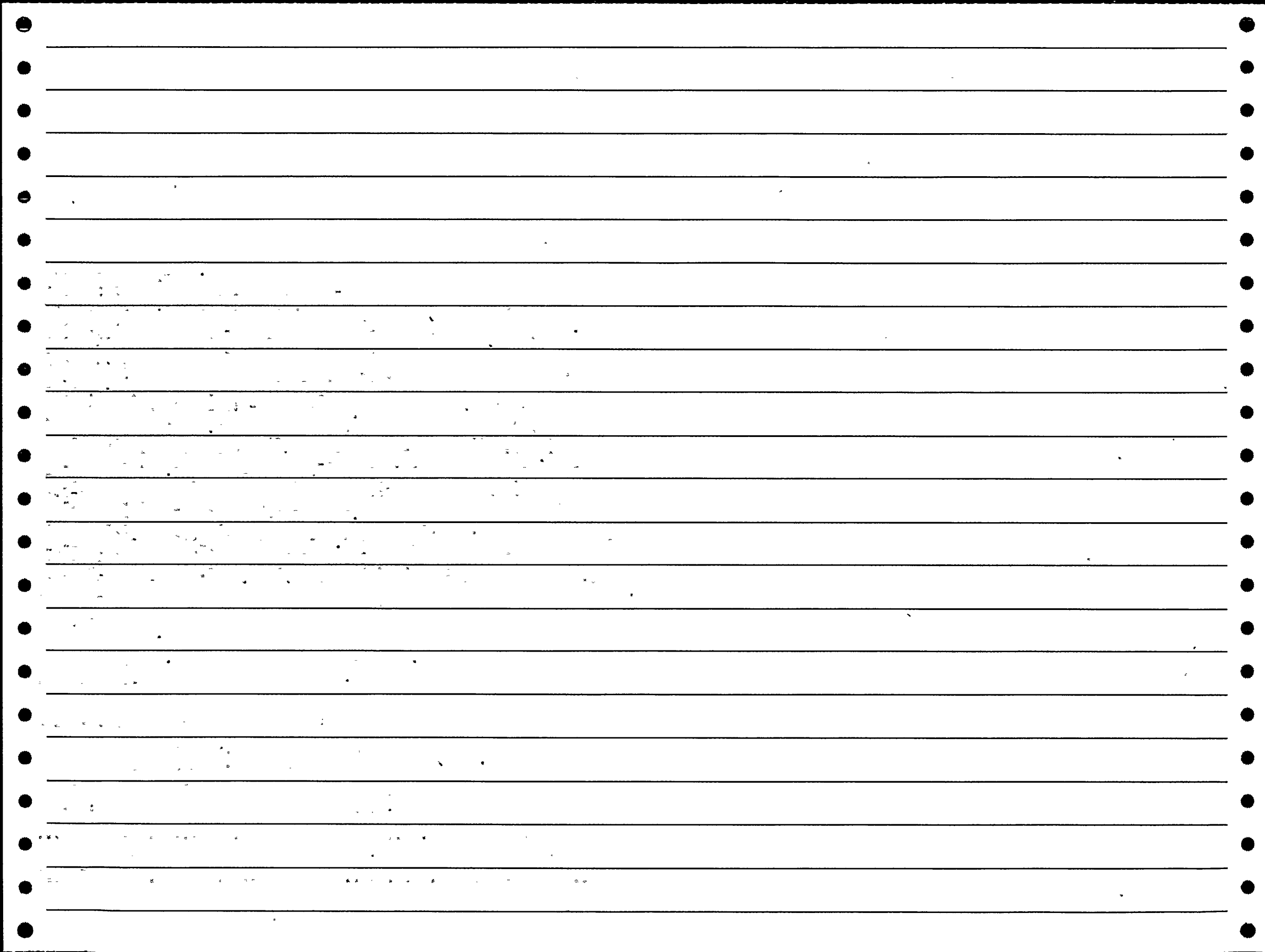
DOCKET:416 GRAND GULF 1. TYPE:BWR
REGION: 2 NSSS:GE
ARCHITECTURAL ENGINEER: BECH.
FACILITY OPERATOR: SYSTEM ENERGY RESOURCES, INC.
SYMBOL: SER

WATCH-LIST CODES FOR THIS LER ARE:
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 416/86-032

ABSTRACT
POWER LEVEL - 000%. ON 11/30/87 CONTAINMENT ISOLATION VALVE E12-F009 ISOLATED WHEN OPERATORS RESTORED POWER TO THE DIVISION 2 ESF BUS FOLLOWING A SCHEDULED POWER OUTAGE. THE VALVE IS LOCATED ON THE COMMON SUCTION PIPE OF BOTH SHUTDOWN COOLING LOOPS. SHUTDOWN COOLING PUMP A TRIPPED WHEN THE VALVE CLOSED. OPERATORS PERFORMED A PANEL WALKDOWN AND DETERMINED THAT THE BREAKER SUPPLYING POWER TO VALVE E12-F009 WAS CLOSED AND THE BREAKER SUPPLYING POWER TO THE ISOLATION LOGIC WAS OPEN. THE VALVE ISOLATED WHEN POWER WAS RESTORED TO ITS MOTOR OPERATOR BECAUSE OF THE DE-ENERGIZED ISOLATION LOGIC. IT WAS RECOGNIZED THAT THE ISOLATION LOGIC WAS DE-ENERGIZED PRIOR TO RESTORING BUS POWER. OPERATORS WERE PROVIDED A LIST OF ACTIONS TO PERFORM PRIOR TO RESTORING BUS POWER. ONE OF THE ACTIONS WAS TO OPEN THE BREAKER TO VALVE E12-F009 WHICH WOULD ENSURE THE VALVE DID NOT ISOLATE. THE OPERATOR BELIEVED THE BREAKER TO ALREADY BE OPENED BECAUSE THE VALVE POSITION INDICATOR LIGHTS WERE DE-ENERGIZED. HOWEVER, THE BREAKER WAS ACTUALLY CLOSED AND THE ABSENCE OF POWER TO THE VALVE INDICATOR LIGHTS WAS DUE TO THE BUS OUTAGE. LONG TERM CORRECTIVE ACTION WILL BE TO PROCEDURALIZE MAJOR POWER OUTAGES. FOR THE REMAINDER OF THE PRESENT REFUELING OUTAGE, A LICENSED PERSON ON THE OPERATION'S SUPPORT STAFF WILL DEVELOP CLEARLY WRITTEN INSTRUCTIONS FOR ENERGIZING AND DE-ENERGIZING EQUIPMENT FOR MAJOR ELECTRICAL OUTAGES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
416 1990 017 1 9010260079 219932 09/16/90

DOCKET:416 GRAND GULF 1 TYPE:BWR
REGION: 2 NSSS:GE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: SYSTEM ENERGY RESOURCES, INC.
SYMBOL: SER

COMMENTS

STEP 3: CORRECTIVE ACTION X - WARNING PLAQUE PLACED ON LOAD SHEDDING AND SEQUENCING PANELS: STEP 4: COMP MEI - INDICATING LIGHT. STEP 27: COMP X (ESF TYPE) - SAFETY RELIEF VALVES LIFTED.

WATCH-LIST CODES FOR THIS LER ARE:

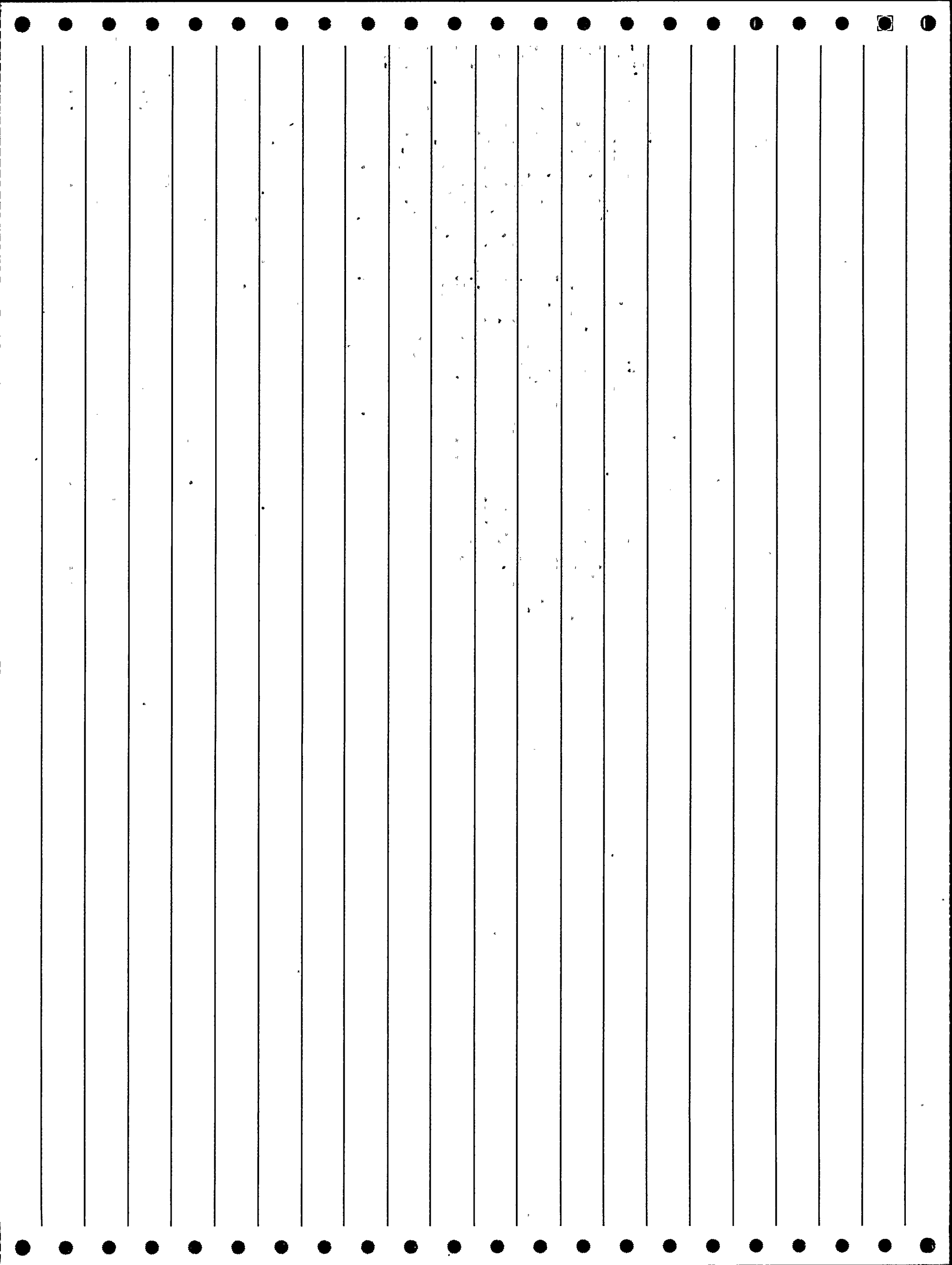
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. A DIVISION I LOAD SHEDDING AND SEQUENCING SYSTEM MALFUNCTION CAUSED A BALANCE OF PLANT (BOP) LOAD SHED ON SEPTEMBER 16, 1990. THE LOSS OF MAJOR PLANT EQUIPMENT, WHICH RECEIVED POWER FROM THE SHEDDED BOP BUSES, RESULTED IN A REACTOR SCRAM, DUE TO MAIN TURBINE CONTROL VALVE FAST CLOSURE. SUBSEQUENT TO THE SCRAM, REACTOR WATER LEVEL DECREASED TO -41.6 INCHES WHERE AN AUTOMATIC HIGH PRESSURE CORE SPRAY SYSTEM ACTUATION OCCURRED. DURING RESTORATION OF MAIN STEAM ISOLATION VALVES, AS A PART OF SCRAM SUBSEQUENT ACTIONS, A SECOND REACTOR SCRAM OCCURRED DUE TO LOW REACTOR WATER LEVEL. THE LOAD SHED IS ATTRIBUTED TO A DEFECTIVE LIGHT BULB BEING PLACED IN THE LOAD SHED PANEL. THE SHORTED LIGHT BULB CAUSED AN OVERCURRENT WHICH SUBSEQUENTLY CAUSED DEGRADATION OF A COMPUTER CHIP WHICH INITIATED THE LOAD SHED. THE CARDS WHICH CONTAINED DEGRADED COMPUTER CHIPS, DUE TO THE OVERCURRENT, WERE REPLACED. THE DIVISION I LOAD SHED PANEL WAS TESTED SATISFACTORILY AND OPERABILITY WAS VERIFIED. ALL SAFETY SYSTEMS FUNCTIONED AS DESIGNED. THE MINIMUM WATER LEVEL REACHED WAS -54.1 INCHES WHICH WAS APPROXIMATELY 112 INCHES ABOVE THE TOP OF ACTIVE FUEL.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
423 1986 036 0 8606230475 199813 05/19/86

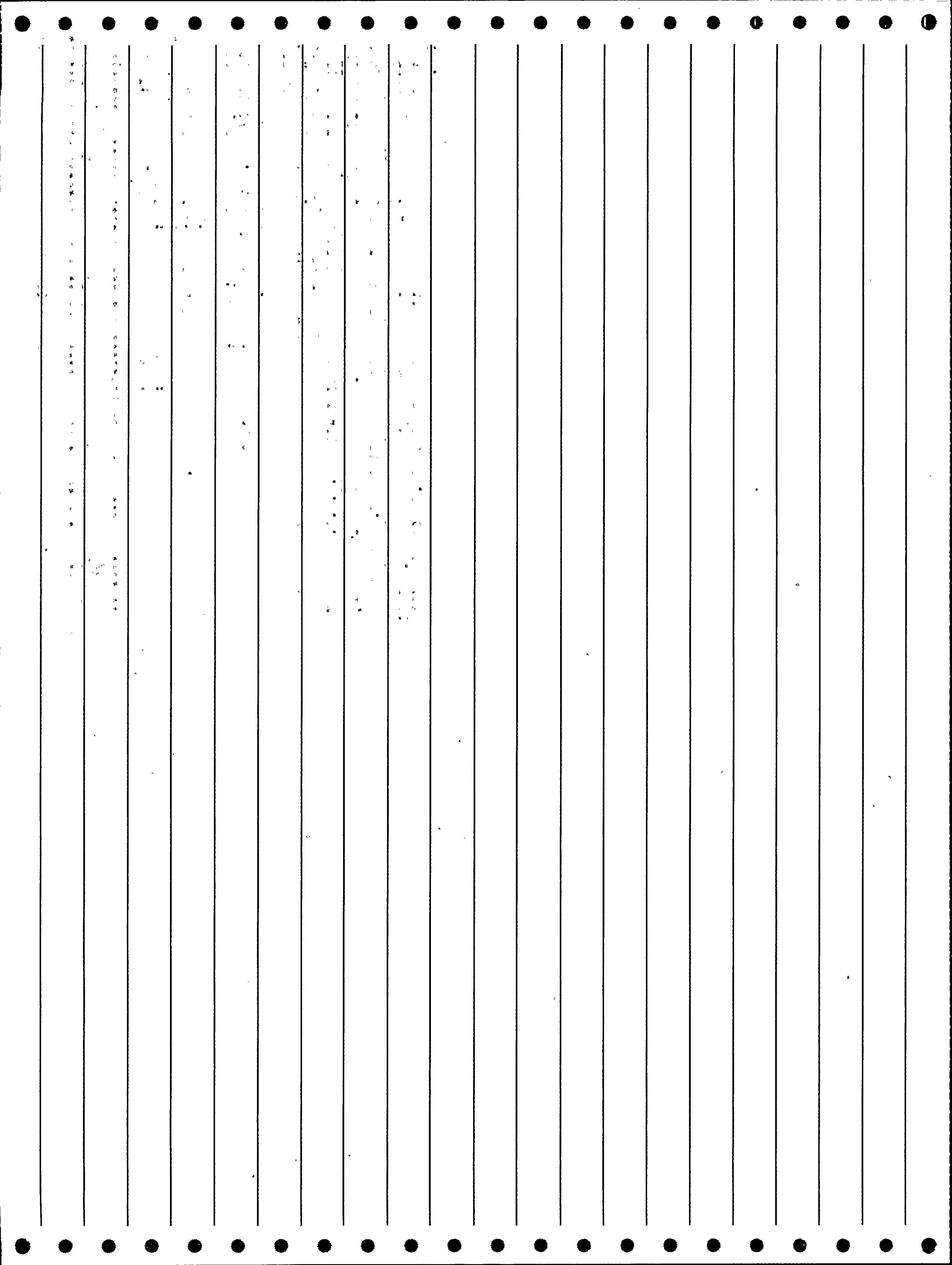
DOCKET:423 MILLSTONE 3 TYPE:PWR
REGION: 1 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: NORTHEAST NUCLEAR ENERGY CO.
SYMBOL: NNE

REPORTABILITY CODES FOR THIS LER ARE:

10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.

ABSTRACT

POWER LEVEL - 100%. ON 5/19/86 AT 1415 HOURS WHILE OPERATING AT 100%
POWER, IT WAS DISCOVERED THAT THE PLANT HAD BEEN OPERATING IN THE
ACTION STATEMENT OF PLANT TECHNICAL SPECIFICATION 3.8.2.1.B IN THAT
BATTERY BANK 301A-2 WAS NOT OPERABLE DUE TO AN UNPERFORMED
MODIFICATION TO BATTERY CHARGER 301A-2 TO CORRECT A CONDITION WHICH
COULD RESULT IN EQUIPMENT IMPACT DUE TO A SEISMIC EVENT. WITHIN 24
HOURS OF DISCOVERY, SEISMIC BRACING WAS DESIGNED AND INSTALLED ON
BATTERY CHARGER 301A-2 RESTORING THE EQUIPMENT TO OPERABILITY. THIS
REPORT IS BEING SUBMITTED IN ACCORDANCE WITH 10CFR50.73 (A) (2) (I)
(B).



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
423 1987 027 0 8707090095 205195 06/05/87

DOCKET:423 HILLSTONE 3 TYPE:PWR
REGION: 1 NSSS:WE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: NORTHEAST NUCLEAR ENERGY CO.
SYMBOL: NNE

WATCH-LIST CODES FOR THIS LER ARE:

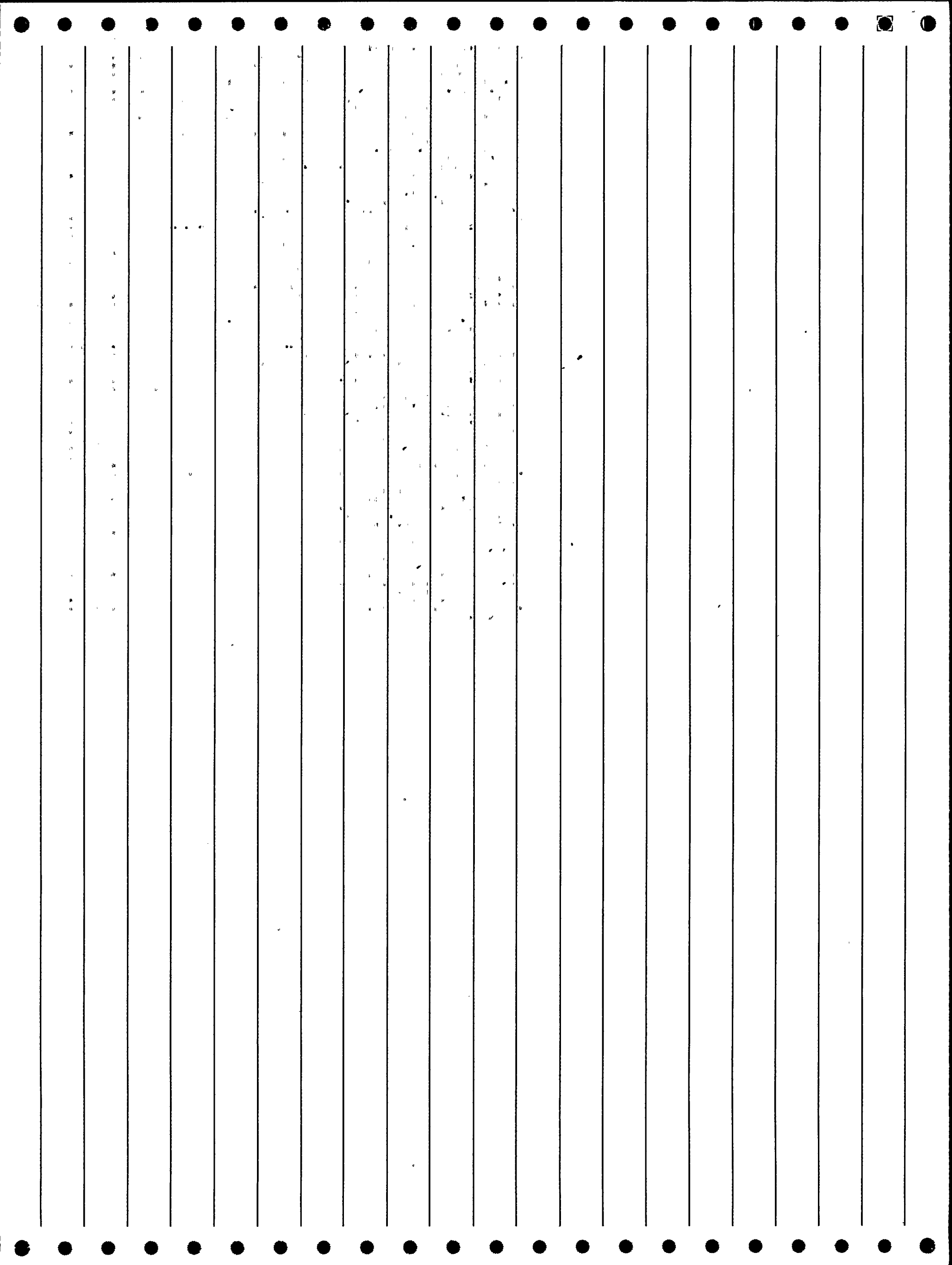
31. ACCIDENTAL ACTION
941. REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL ~.100%. AT 1323 ON JUNE 5, 1987, WITH THE PLANT AT 100% POWER, THE NORMAL SUPPLY BREAKER TO TRAIN "A" VITAL BUS 34C WAS TRIPPED OPEN. THE MAIN STEAM ISOLATION VALVES IMMEDIATELY CLOSED ON LOSS OF 120VAC TO THEIR SOLENOID TEST CONTROL CIRCUITRY. A REACTOR TRIP FOLLOWED ON LOW-LOW STEAM GENERATOR LEVELS, WHICH SIGNALLED A TURBINE TRIP. A TRAIN "A" LOSS OF POWER SIGNAL WAS GENERATED, THE EMERGENCY DIESEL GENERATOR STARTED AND SUCCESSFULLY ENERGIZED VITAL LOADS. THE MAIN STEAM ATMOSPHERIC RELIEF VALVES AND STEAM GENERATOR CODE SAFETIES OPENED AS DESIGNED. A TRAIN "A" CONTROL BUILDING ISOLATION, AND TRAIN "A" AND "B" FEEDWATER ISOLATION RESULTED FROM THE EVENT. THE PLANT WAS IN HOT STANDBY (MODE 3) BY 1600 HOURS, JUNE 5, 1987. THE CAUSE OF BUS 34C TRIP WAS A RESULT OF PERSONNEL ERROR, DUE TO AN OPERATOR DROPPING A RACKING MOTOR ONTO THE 4.16KV SWITCHGEAR.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
424 1987 005 6 8912080068 216048 02/23/87

DOCKET:424 VOGTLE 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: BESS
FACILITY OPERATOR: GEORGIA POWER CO.
SYMBOL: GPC

COMMENTS

STEP 1: MODEL NO.6091D46G01. REM - EVENTS OCCURRED ON 2/23, 2/27, 3/4,
3/26, 3/30, 4/6, 4/22.

WATCH-LIST CODES FOR THIS LER ARE:

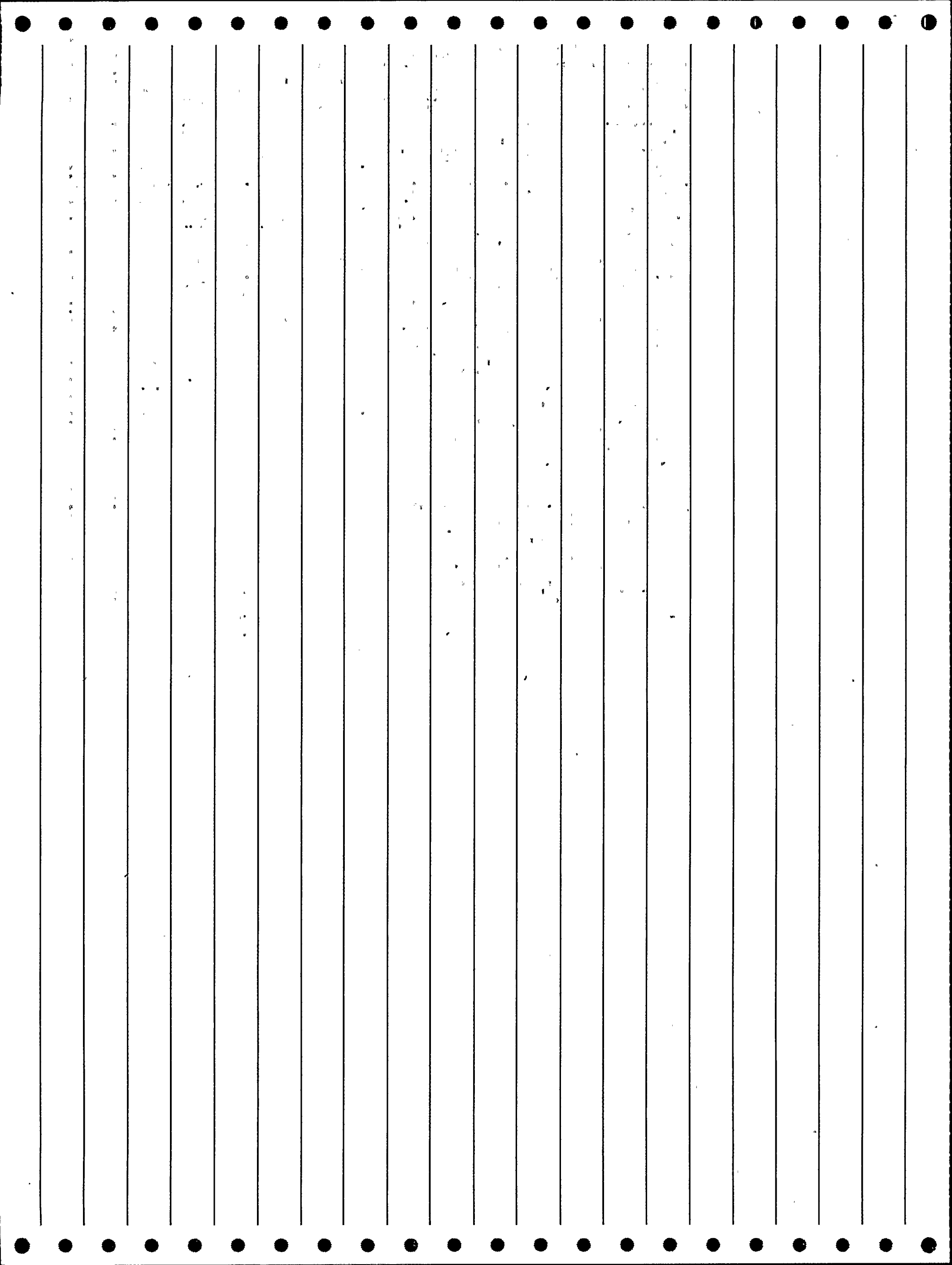
20 EQUIPMENT FAILURE
34 DESIGN ERROR OR INADEQUACY

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. SINCE 2/23/87, PLANT VOGTLE HAS EXPERIENCED 6
CONTROL ROOM VENTILATION ISOLATION SIGNALS FROM CONTROL ROOM OUTSIDE
AIR DUCT RADIATION MONITOR 1RE-12116. THESE ACTUATIONS OCCURRED ON
2/23 AND 2/27/1987; 3/26 AND 3/30/87, AND 4/6 AND 4/22/87. ON 3/4/87,
A CONTAINMENT ISOLATION ACTUATION (CIA) AND A CONTAINMENT VENTILATION
ISOLATION ACTUATION (CVI) OCCURRED AS A RESULT OF SPURIOUS SIGNALS
FROM HIGH RANGE RADIATION MONITOR IRE-0006 AND LOW RANGE RADIATION
MONITOR IRE-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 (DPMS) IN THE
RADIATION MONITORS TO SENSE A LOSS OF POWER, THEREBY INITIATING A
FALSE HIGH RADIATION SIGNAL AND CAUSING A CONTROL ROOM VENTILATION
ISOLATION. THE CAUSE OF THE CONTROL ROOM VENTILATION ISOLATIONS WAS
APPARENTLY DUE TO RANDOM FAILURES OF THE DPM, WHICH WAS REPLACED. THE
APPARENT CAUSE OF THE CIA/CVI WAS A CONSERVATIVE SETPOINT IN AN
INVERTER CIRCUIT WHICH SHUTS DOWN POWER TO THE RADIATION MONITOR'S DPM
WHENEVER A LARGE INRUSH OF CURRENT IS EXPERIENCED, SUCH AS WHEN THE
SFSS IS RE-ENERGIZED. PLANT PERSONNEL PLAN TO INCREASE THE CIRCUIT'S
SETPOINT DURING THE NEXT REFUELING OUTAGE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
424 1990 023 0 9101220420 220828 12/18/90

DOCKET:424 VOGTLE 1 TYPE:PWR
REGION: 2 NSSS:WE
ARCHITECTURAL ENGINEER: BESS
FACILITY OPERATOR: GEORGIA POWER CO.
SYMBOL: GPC

COMMENTS

STEP 2: CLASS AA/FA, 3 PHASE, DRY TYPE TRANSFORMER. STEP 18: MODEL NO.
5HK350-3000.

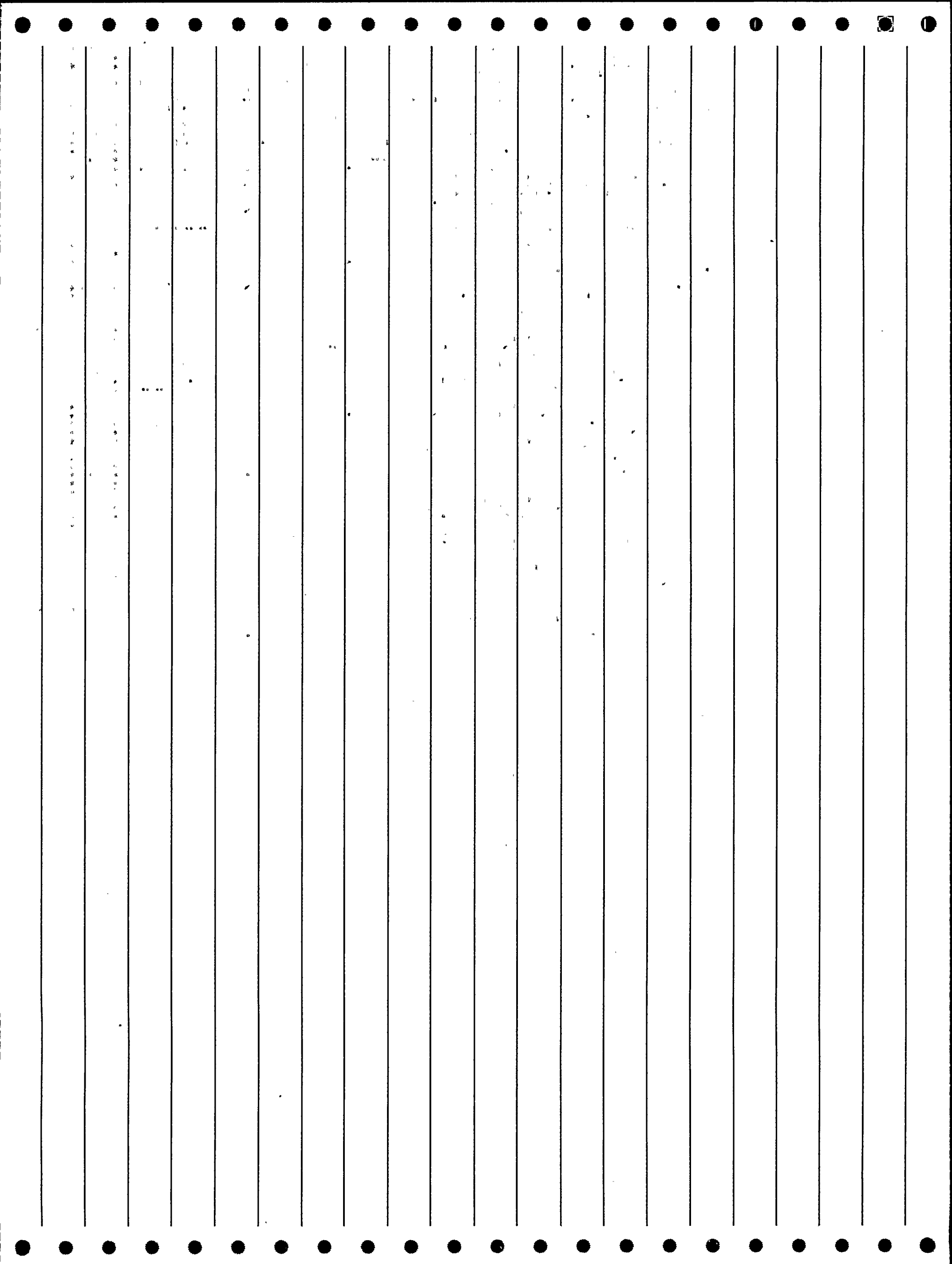
WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 424/90-016

ABSTRACT

POWER LEVEL - 100%. ON 12-18-90 AT 1936 CST, UNIT WAS OPERATING AT 100% POWER WHEN A 4160/480 VOLT NON-1E TRANSFORMER (1NB10X) EXPERIENCED AN INTERNAL FAULT. THIS FAILURE RESULTED IN A LOSS OF POWER FOR THE SPEED CONTROL CIRCUITRY FOR THE 1B MAIN FEEDWATER PUMP (MFP) TURBINE AND CERTAIN SUPPORT SYSTEMS FOR EMERGENCY DIESEL GENERATOR 1B. FEEDWATER PUMP SPEED, FEEDWATER FLOW, AND STEAM GENERATOR (SG) LEVELS DECREASED. THE REACTOR OPERATOR INITIATED A MANUAL REACTOR TRIP AT 1937 CST AFTER EFFORTS TO MAINTAIN SG LEVELS WERE UNSUCCESSFUL. ALL SAFETY RELATED FUNCTIONS OCCURRED PER DESIGN FOLLOWING THE REACTOR TRIP; HOWEVER, A NON-1E 4160 VOLT BUS FAILED TO AUTOMATICALLY TRANSFER TO THE RESERVE AUXILIARY TRANSFORMERS CAUSING A TEMPORARY LOSS OF VARIOUS NON-1E HOUSE LOADS. TRANSFER OF THE 4160 VOLT BUS WAS COMPLETED MANUALLY AND NORMAL PLANT CONDITIONS WERE ESTABLISHED FOR HOT STANDBY BY 1956 CST. THE ROOT CAUSE FOR THE TRANSFORMER FAILURE IS INDETERMINATE; HOWEVER, SEVERAL SIMILAR TRANSFORMER FAILURES HAVE OCCURRED AT VEGP (REFERENCE LER 50-424/1990-016). THE INVOLVED TRANSFORMERS ARE GE CLASS AA/FA, THREE PHASE, DRY TYPE TRANSFORMERS. THE FAILED TRANSFORMER HAS BEEN REPLACED AND FURTHER STUDY OF POSSIBLE FACTORS WHICH MAY HAVE LED TO THE FAILURE IS IN PROGRESS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
440 1986 041 0 8609080270 201010 07/31/86

DOCKET:440 PERRY 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: CLEVELAND ELECTRIC ILLUMINATING CO.
SYMBOL: CEI

COMMENTS

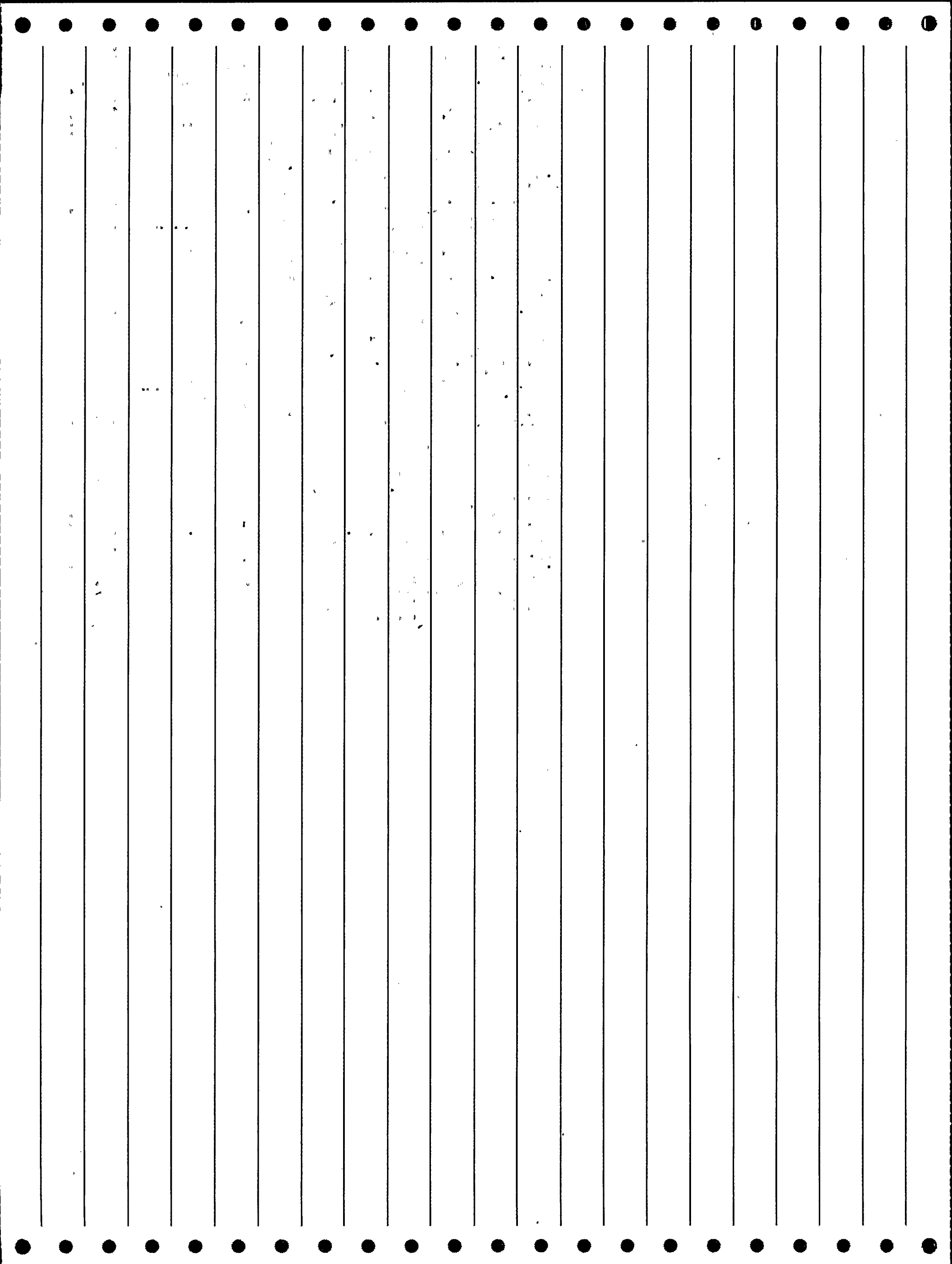
STEP 4: EFF IX - VOLTAGE FLUCTUATIONS. STEP 4: MODEL 3SD-130-50.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON JULY 31, 1986, THE DIVISION 3 DIESEL GENERATOR AND THE HIGH PRESSURE CORE SPRAY (HPCS) PUMP AUTO-STARTED. VOLTAGE FLUCTUATIONS IN THE OUTPUT OF A RESERVE BATTERY CHARGER CAUSED A MOMENTARY TRIP OF A DC TO AC INVERTER. THIS RESULTED IN TRIP SIGNALS FROM THREE REACTOR VESSEL LOW WATER LEVEL TRIP UNITS. THE TRIP SIGNALS CAUSED THE DIESEL GENERATOR AND HPCS PUMP TO START. SINCE THE REACTOR VESSEL WATER LEVEL WAS ALREADY ABOVE THE HIGH LEVEL SETPOINT, THE HPCS INJECTION VALVE DID NOT OPEN AND NO WATER WAS INJECTED INTO THE REACTOR VESSEL. CONTROL ROOM OPERATORS CONFIRMED THAT THE ACTUATIONS WERE SPURIOUS AND SECURED THE DIESEL GENERATOR AND HPCS PUMP. THE NORMAL BATTERY CHARGER WAS RETURNED TO SERVICE AND THE RESERVE CHARGER WAS SECURED. THE EVENT WAS CAUSED BY FLUCTUATIONS IN THE OUTPUT OF THE RESERVE BATTERY CHARGER. AN AMPLIFIER CARD HAS BEEN REPLACED IN THE BATTERY CHARGER. ADDITIONALLY, A DESIGN MODIFICATION TO INSTALL A FILTER NETWORK IN THE BATTERY CHARGER OUTPUT CIRCUIT IS BEING PROCESSED. ADDITIONAL CHANGES ARE ALSO BEING EVALUATED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
440 1986 044 0 8609080307 201012 08/06/86

DOCKET:440 PERRY 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: CLEVELAND ELECTRIC ILLUMINATING CO.
SYMBOL: CEI

COMMENTS

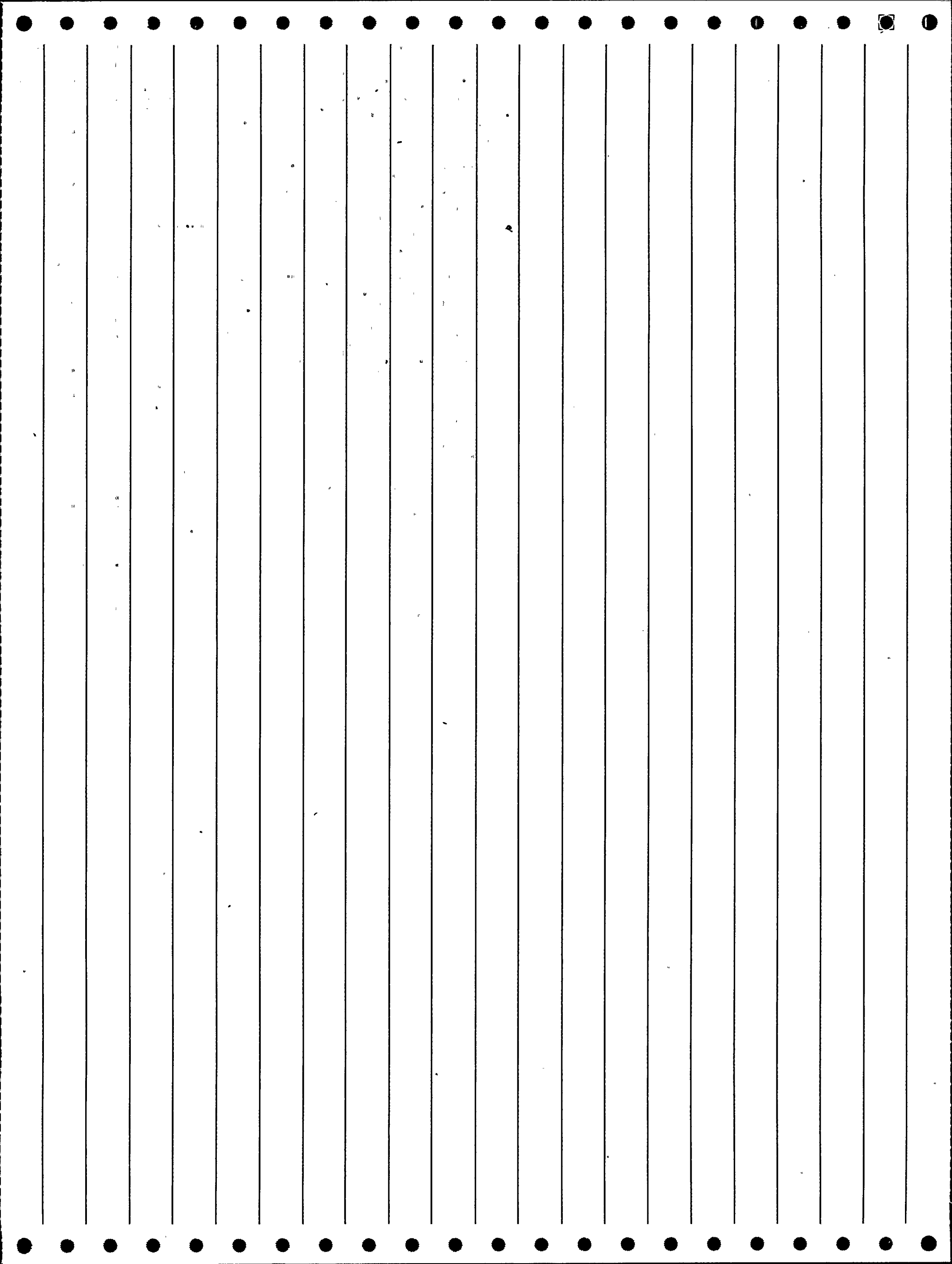
STEPS 2,8: STOCK NUMBER 9885906.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON AUGUST 6, 1986 AT 0409, AN ELECTRICAL PROTECTION ASSEMBLY (EPA) TRIP RESULTED IN THE LOSS OF REACTOR PROTECTION SYSTEM (RPS) BUS A. THE LOSS OF THE BUS RESULTED IN A HALF SCRAM, DIVISION 1 BALANCE OF PLANT ISOLATION AND A TRANSFER OF REACTOR RECIRCULATION PUMP A FROM FAST TO SLOW SPEED. THE CAUSE OF THE EPA TRIP HAS BEEN ISOLATED TO FAILING CAPACITORS IN AN EPA ELECTRONIC PROCESS CONTROL (PC) BOARD. IN RESPONSE TO THE EPA TRIP, PLANT OPERATORS REENERGIZED THE RPS BUS AND RETURNED ALL EFFECTED PLANT COMPONENTS TO SERVICE. THE PLANT RESTORATION WAS COMPLETED AT 0455. CORRECTIVE ACTIONS TO PREVENT RECURRENCE INCLUDE THE REPLACEMENT OF EPA PC BOARDS FOR BOTH RPS BUSES A AND B AND THE INITIATION OF A REPETITIVE TASK TO REPLACE THE PC BOARDS ON A ROUTINE PERIODIC SCHEDULE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
440 1986 072 0 8612010315 201939 10/25/86

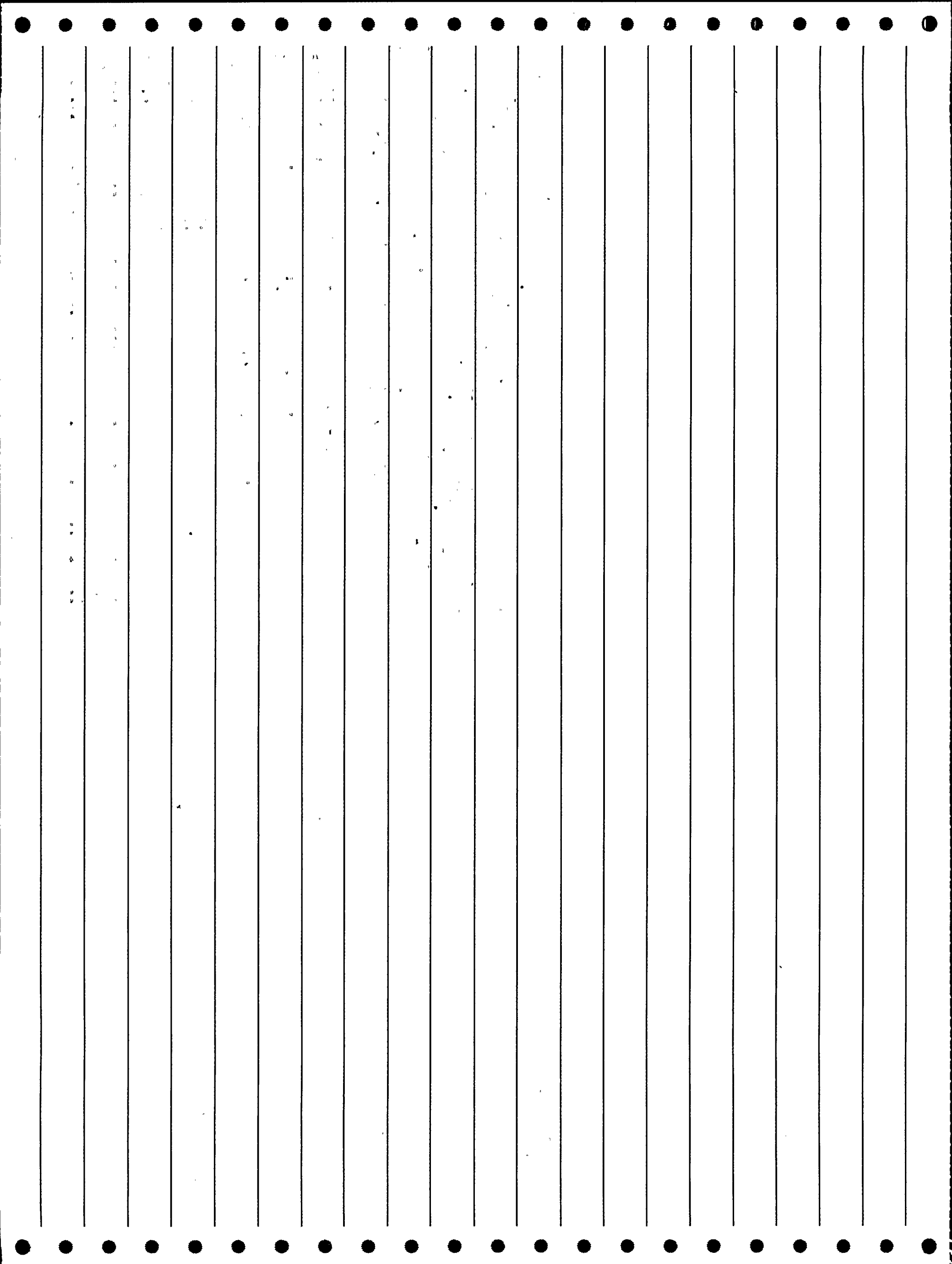
DOCKET:440 PERRY 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: CLEVELAND ELECTRIC ILLUMINATING CO.
SYMBOL: CEI

COMMENTS
EVENTS OCCURRED ON 10/25/86, 10/28/86, AND 10/29/86.

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 440/86-044 2 440/86-050 3 440/86-071

ABSTRACT
POWER LEVEL - 000%. ON OCTOBER 25, 28 AND 29, 1986, AT 0154, 2333 AND 0639 RESPECTIVELY, THE 'A' REACTOR PROTECTION SYSTEM (RPS) ALTERNATE POWER SUPPLY TRIPPED CAUSING A NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM (NSSSS) OUTBOARD ISOLATION. ON EACH OCCASION OPERATORS RE-ENERGIZED THE BUS AND RESTORED THE AFFECTED SYSTEMS TO OPERATION. ALL THREE EVENTS WERE CAUSED BY A DESIGN DEFICIENCY. VOLTAGE FLUCTUATIONS IN THE ALTERNATE POWER SUPPLY RESULTING FROM NORMAL GRID LOAD AND VOLTAGE CHANGES EXCEEDED THE MAXIMUM ALLOWABLE SETPOINTS OF THE ASSOCIATED ELECTRICAL PROTECTION ASSEMBLIES. TO PREVENT RECURRENCE, A DESIGN CHANGE IS IN PROGRESS TO INSTALL REGULATING TRANSFORMERS IN THE RPS BUS ALTERNATE POWER SUPPLIES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
440 1988 006 1 8807210082 209923 01/19/88

DOCKET:440 PERRY 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: CLEVELAND ELECTRIC ILLUMINATING CO.
SYMBOL: CEI

COMMENTS

STEP 1: EFF IX - VOLTAGE FLUCTUATIONS. SND/DP/2.

WATCH-LIST CODES FOR THIS LER ARE:

60 SPURIOUS/ UNKNOWN CAUSE

REPORTABILITY CODES FOR THIS LER ARE:

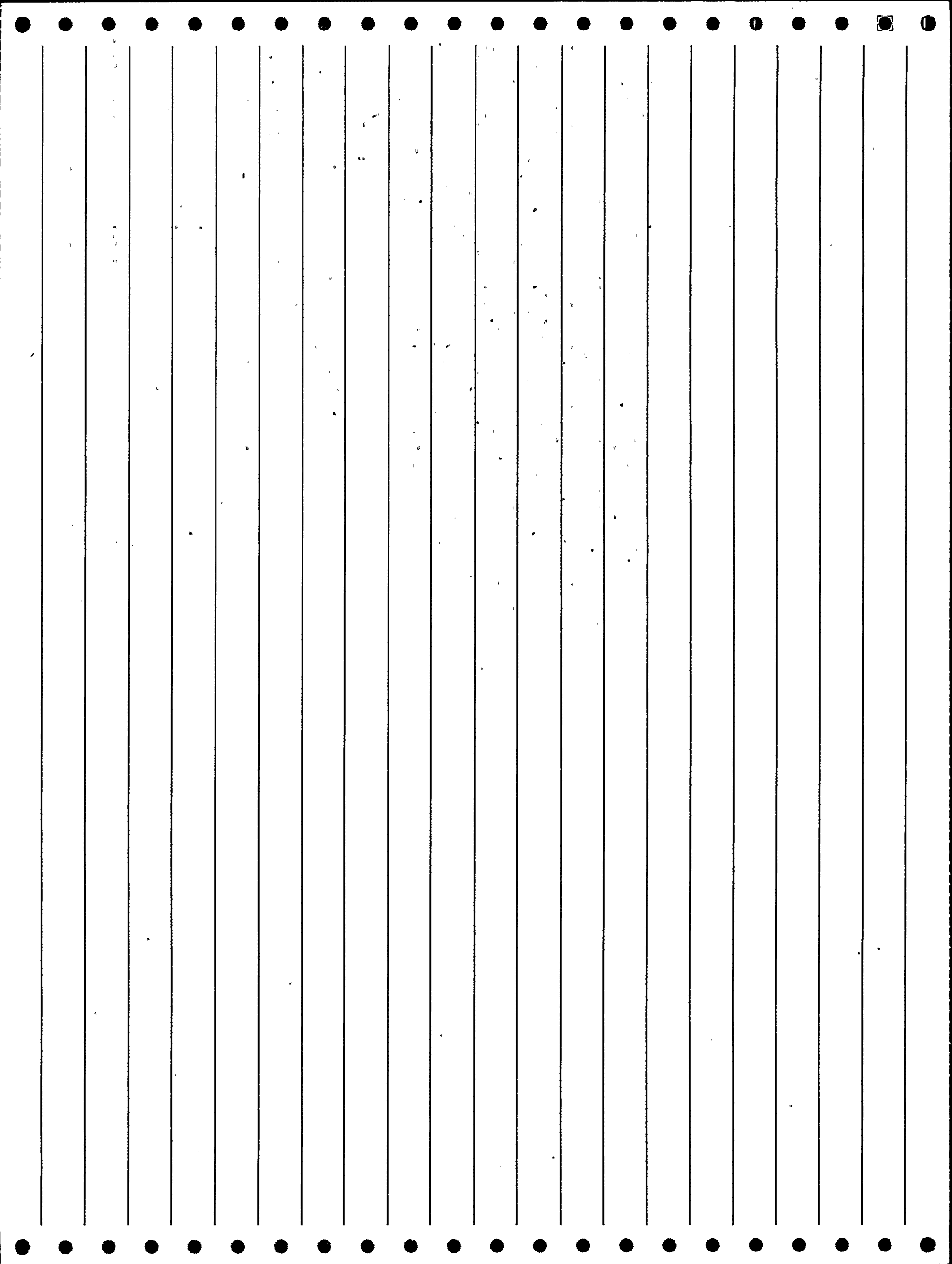
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1. 440/87-070

ABSTRACT

POWER LEVEL - 000%. 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.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
440 1988 012 0 8806020232 209479 04/27/88

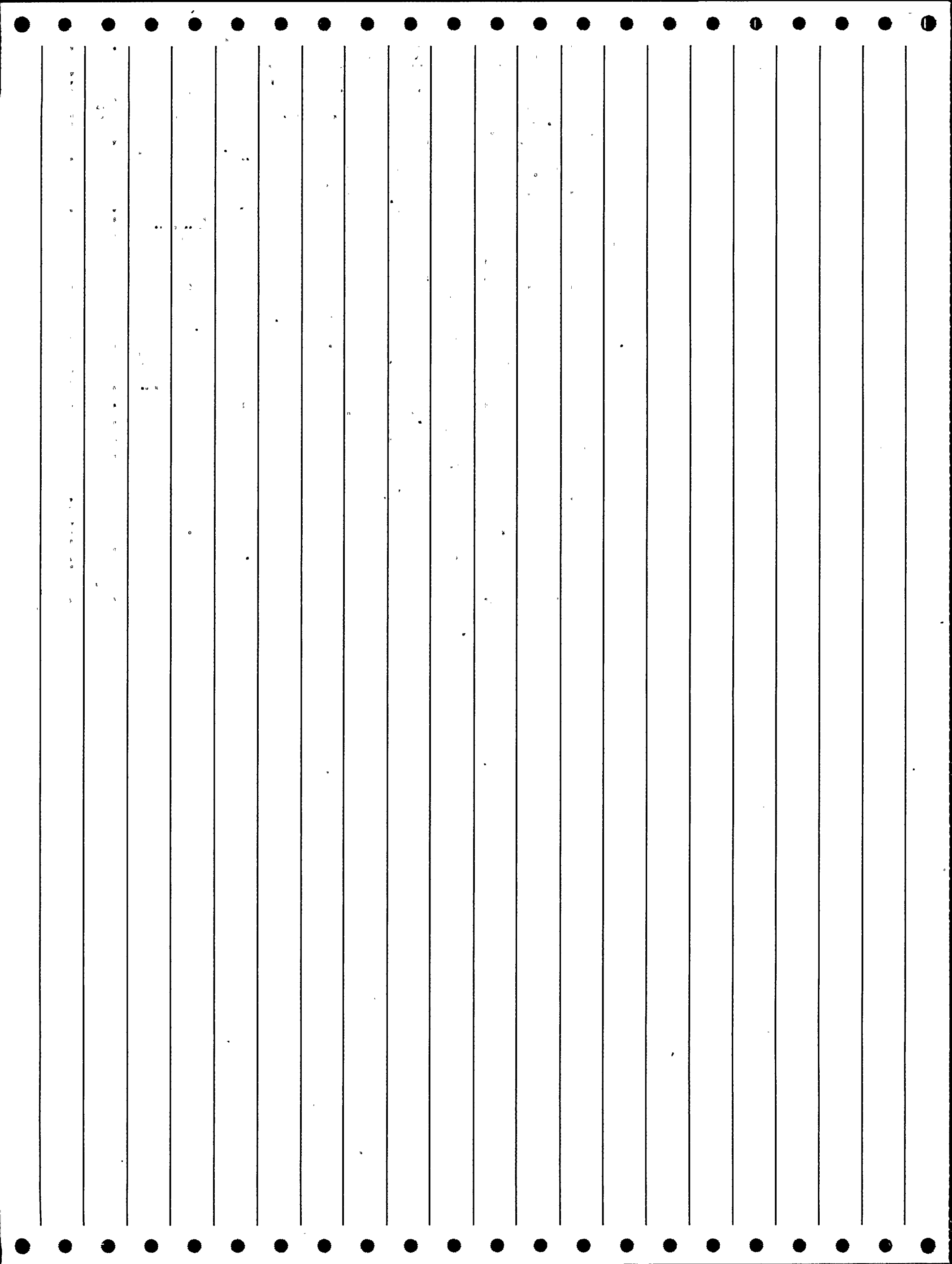
DOCKET:440 PERRY 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: CLEVELAND ELECTRIC ILLUMINATING CO.
SYMBOL: CEI

COMMENTS
SPA/CTP/2 REM: SCRAM ON LOSS OF FEEDWATER - HPCS UNAVAILABLE.

WATCH-LIST CODES FOR THIS LER ARE:
35 HUMAN ERROR
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT
POWER LEVEL - 100%. ON APRIL 27, 1988, AT 2209, AN AUTOMATIC REACTOR SCRAM OCCURRED DUE TO A REACTOR WATER LEVEL OF LESS THAN LEVEL 3 (+177.7 INCHES ABOVE THE TOP OF ACTIVE FUEL). THE LOW WATER LEVEL OCCURRED AFTER AN IMPROPER TRANSFER OF DC POWER SUPPLIES RESULTING IN A TEMPORARY LOSS OF AC CONTROL POWER FOR THE HOT SURGE TANK LEVEL CONTROL VALVES AND A SUBSEQUENT TRIP OF ALL OPERATING FEEDWATER PUMPS. THE CAUSES OF THE EVENT ARE PERSONNEL ERROR AND PROCEDURAL INADEQUACY. A MISINTERPRETATION OF THE INSTRUCTION DESCRIBING DC POWER SUPPLY TRANSFERS PLACED THE DC ELECTRICAL SYSTEM IN A NON-RECOMMENDED LINEUP LEADING TO THE LOSS OF VITAL 120 VAC POWER FED FROM THE DC BUS VIA AN INVERTER. THE INSTRUCTION WAS CONFUSING AND DIFFICULT TO IMPLEMENT. CORRECTIVE ACTIONS TO PREVENT RECURRENCE INCLUDE: COUNSELING OF THE OPERATORS INVOLVED REGARDING THEIR RESPONSIBILITIES TOWARDS FAMILIARITY WITH INSTRUCTIONS AND PROCEDURAL COMPLIANCE, TRAINING FOR ALL OPERATORS REGARDING THE SEQUENCE OF EVENTS, AND REVISING THE APPROPRIATE SYSTEM OPERATING INSTRUCTIONS TO PROVIDE GREATER EASE OF USE BY THE OPERATOR.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
440 1988 021 0 8807060466 210161 06/06/88

DOCKET:440 PERRY 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: CLEVELAND ELECTRIC ILLUMINATING CO.
SYMBOL: CEI

COMMENTS
SP/C/5.

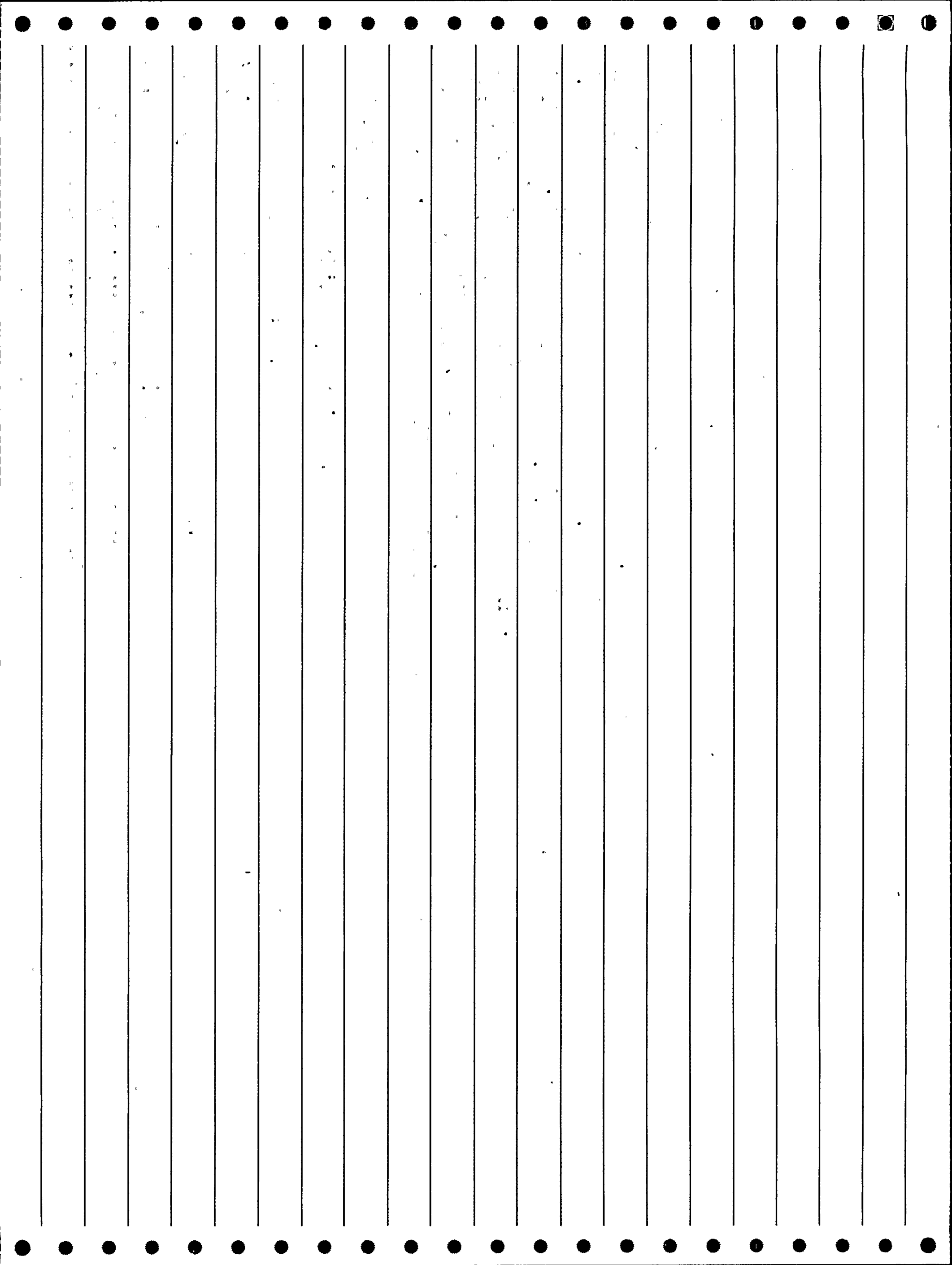
WATCH-LIST CODES FOR THIS LER ARE:
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 440/88-008

ABSTRACT

POWER LEVEL - 000%. ON JUNE 6, 1988 AT 0024 THE REACTOR PROTECTION SYSTEM (RPS) DISTRIBUTION BUS A WAS INADVERTENTLY DEENERGIZED. WHILE SECURING THE RPS MOTOR-GENERATOR SET A, A PLANT OPERATOR OPENED THE ELECTRICAL PROTECTION ASSEMBLIES (EPA) FROM THE ALTERNATE POWER SUPPLY. AS A RESULT, NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM BALANCE OF PLANT ISOLATION OCCURRED WHICH INCLUDED RESIDUAL HEAT REMOVAL (RHR) SHUTDOWN COOLING ISOLATION AND REACTOR WATER CLEANUP (RWCU) ISOLATION. THE OPERATORS ENERGIZED THE RPS BUS A, RESET ALL ISOLATIONS AND RETURNED RHR SHUTDOWN COOLING AND RWCU TO SERVICE. ALL ACTIONS WERE COMPLETED BY 0136. THE CAUSE OF THIS EVENT WAS PERSONNEL ERROR. DUE TO INATTENTION TO DETAIL, THE PLANT OPERATOR OPENED THE INCORRECT EPAS. THE EPAS ARE LABELED AND CAN BE EASILY IDENTIFIED. IN ORDER TO PREVENT RECURRENCE THE PLANT OPERATOR HAS BEEN COUNSELED AND DISCIPLINARY ACTION TAKEN TO SHARPEN HIS AWARENESS AND INCREASE HIS ATTENTION TO DETAIL, DURING THE CONDUCT OF ROUTINE OPERATIONS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
440 1988 023 0 8807120238 209845 06/08/88

DOCKET:440 PERRY 1. TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: CLEVELAND ELECTRIC ILLUMINATING CO.
SYMBOL: CEI

COMMENTS

STEPS 16 - 18: COMP LX - ISOLATION/ RECIRC SYSTEM TRIP. \$L/CT/9.

WATCH-LIST CODES FOR THIS LER ARE:

35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:

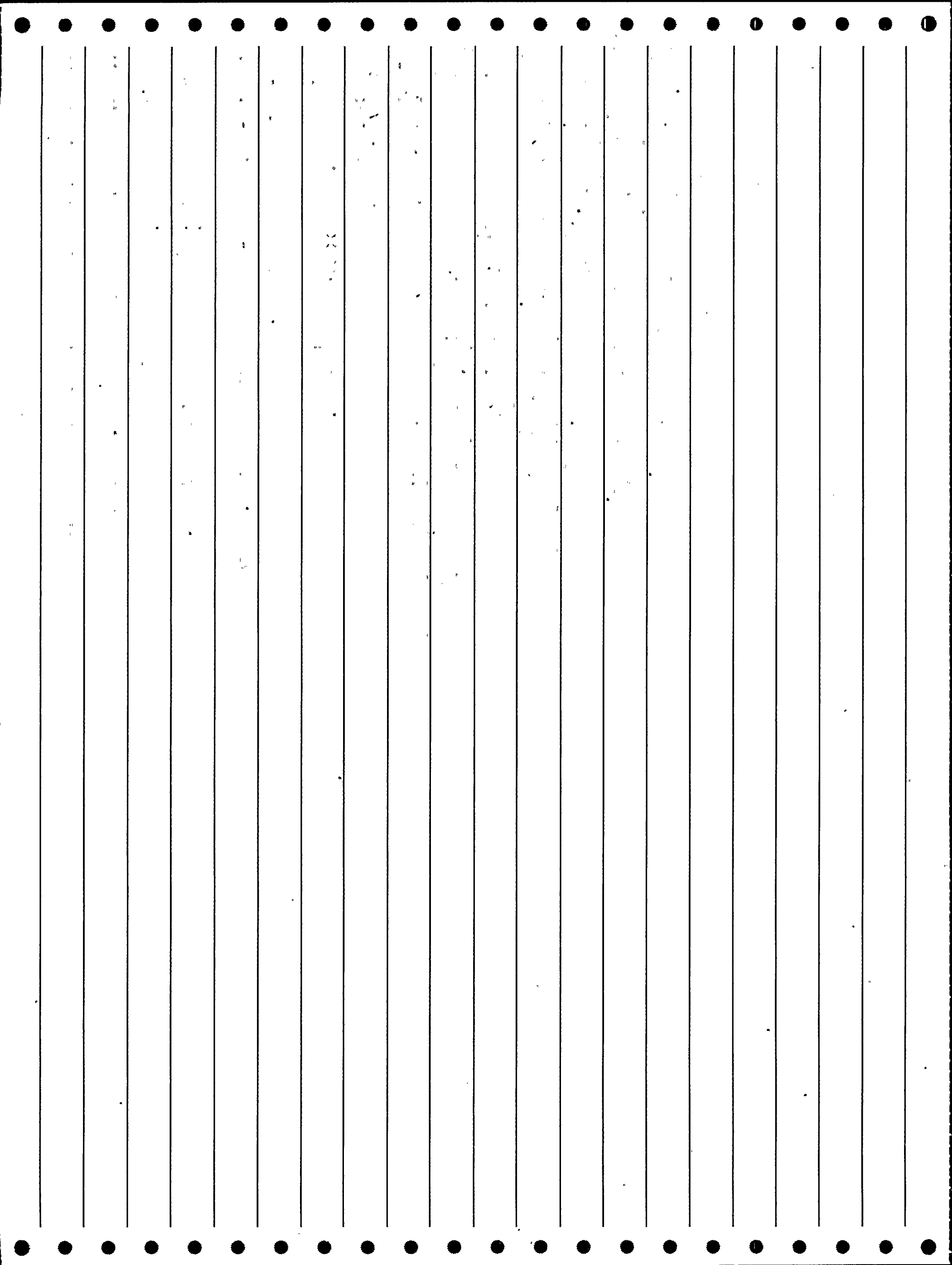
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 440/87-072

ABSTRACT

POWER LEVEL - 023%. ON JUNE 8, 1988 AT 0923, A REACTOR SCRAM AND NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM BALANCE OF PLANT (BOP) CONTAINMENT ISOLATION OCCURRED DUE TO LOSS OF POWER TO BOTH REACTOR PROTECTION SYSTEM (RPS) POWER DISTRIBUTION BUSES. AT 0922 THE MAIN TURBINE TRIPPED DUE TO HIGH LEVEL IN A MOISTURE SEPARATOR REHEATER DRAIN TANK. DURING RECOVERY FROM THE MAIN TURBINE TRIP, AN OPERATOR INADVERTENTLY TRIPPED THE TWO MAINLINE BREAKERS FEEDING THE BOP ELECTRICAL DISTRIBUTION BUSES. CONSEQUENTLY, BOTH RPS BUSES WERE DEENERGIZED, RESULTING IN A REACTOR SCRAM, A FULL CONTAINMENT ISOLATION, BOTH REACTOR RECIRCULATION PUMPS TRIPPING AND LOSS OF FEEDWATER. THE CONTROL ROOM OPERATORS VERIFIED ALL AUTOMATIC ACTUATIONS OCCURRED. THE REACTOR CORE ISOLATION COOLING SYSTEM WAS STARTED AT 0926 AND UTILIZED TO CONTROL REACTOR VESSEL LEVEL AND PRESSURE. THE CAUSE OF THE EVENT WAS PERSONNEL ERROR. THE SUPERVISING OPERATOR TURNED THE CONTROL SWITCHES IN THE WRONG DIRECTION WHEN ATTEMPTING TO RESET THE BREAKER POSITION INDICATION. FLAGS RESULTING IN THE BOP SUPPLY BREAKERS OPENING. THE OPERATOR HAS BEEN COUNSELED BY PLANT MANAGEMENT AND DISCIPLINARY ACTION HAS BEEN TAKEN. IN ACCORDANCE WITH THE LICENSED OPERATOR REQUALIFICATION TRAINING PROGRAM, OPERATORS WILL RECEIVE TRAINING ON THE SEQUENCE OF EVENTS WHICH LED TO THIS REPORT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
440 1989 012 0 8905190091 213923 04/09/89

DOCKET:440 PERRY 1 TYPE:BWR
REGION: 3 NSSS:GE
ARCHITECTURAL ENGINEER: GLBT
FACILITY OPERATOR: CLEVELAND ELECTRIC ILLUMINATING CO.
SYMBOL: CEI

COMMENTS

STEP 12: COMP XS - LOGIC RESET SWITCHES.

WATCH-LIST CODES FOR THIS LER ARE:

40 PROCEDURAL DEFICIENCY
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:

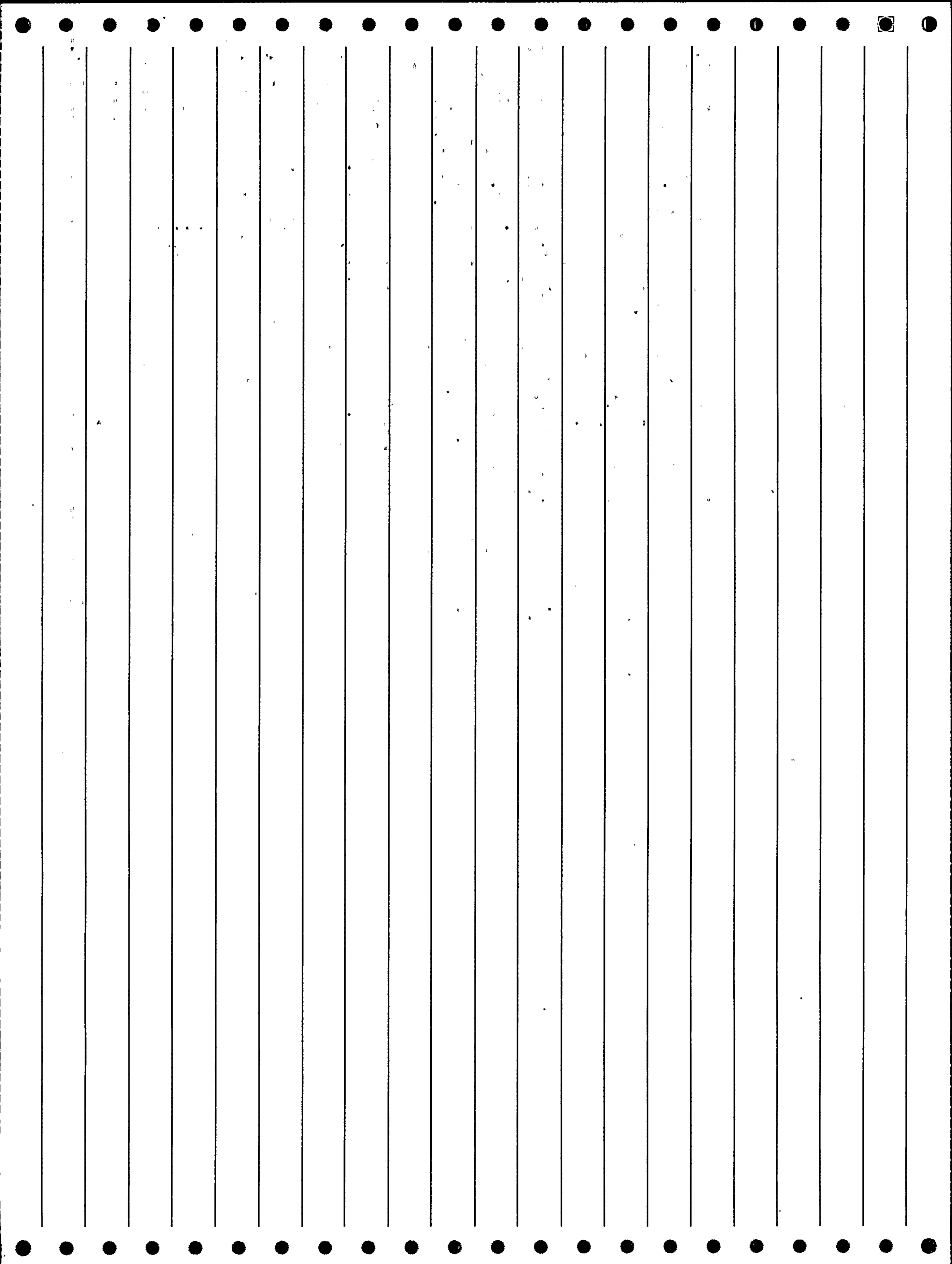
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 440/86-071 2 440/86-072 3 440/87-015 4 440/87-049

ABSTRACT

POWER LEVEL - 000%. ON 4/9/89 AT 1718 AND 2245, TWO UNEXPECTED AUTOMATIC ACTUATIONS OF CONTAINMENT ISOLATION VALVES OCCURRED AS A RESULT OF MANIPULATIONS TO ELECTRICAL DISTRIBUTION SYSTEM COMPONENTS DURING MAINTENANCE ACTIVITIES BEING PERFORMED IN SUPPORT OF THE REFUELING OUTAGE. THE CAUSE OF THE FIRST EVENT WAS A DEFICIENT OPERATING INSTRUCTION. WHILE MANUALLY TRANSFERRING AN AUTOMATIC BUS TRANSFER (ABT) DEVICE FROM ITS EMERGENCY SUPPLY TO ITS NORMAL SUPPLY THE FIRST ISOLATION OCCURRED UNEXPECTEDLY. THIS ABT SUPPLIES POWER TO THE F1C08 BUS WHICH IS THE ALTERNATE POWER SUPPLY TO THE A RPS BUS. SINCE THE A RPS BUS WAS ON THE ALTERNATE SUPPLY, AND THE B RPS BUS HAD BEEN PREVIOUSLY DE-ENERGIZED FOR MAINTENANCE, THE TRANSFER OF THE ABT CAUSED A MOMENTARY LOSS OF POWER TO THE BALANCE OF PLANT (BOP) ISOLATION RELAYS SUPPLIED BY THE A RPS BUS. THIS RESULTED IN AN OUTBOARD BOP ISOLATION. THE SECOND ISOLATION OCCURRED AS A RESULT OF AN INADEQUATE SAFETY TAG REVIEW. A FUSE HAD BEEN REMOVED AS PART OF A SAFETY TAGOUT WHICH PREVENTED A CONTAINMENT INBOARD ISOLATION SIGNAL FROM BEING RESET. THIS WAS NOT INDICATED ON THE SAFETY TAGOUT. WHEN OPERATIONS THEN RESTORED POWER TO THREE CONTAINMENT ISOLATION VALVES WHICH HAD BEEN TAGGED MANUALLY OPENED FOR OTHER OUTAGE WORK, THE VALVES ISOLATED DUE TO THE LOCKED IN ISOLATION SIGNAL.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
443 1987 006 1 9102050186 220851 02/19/87

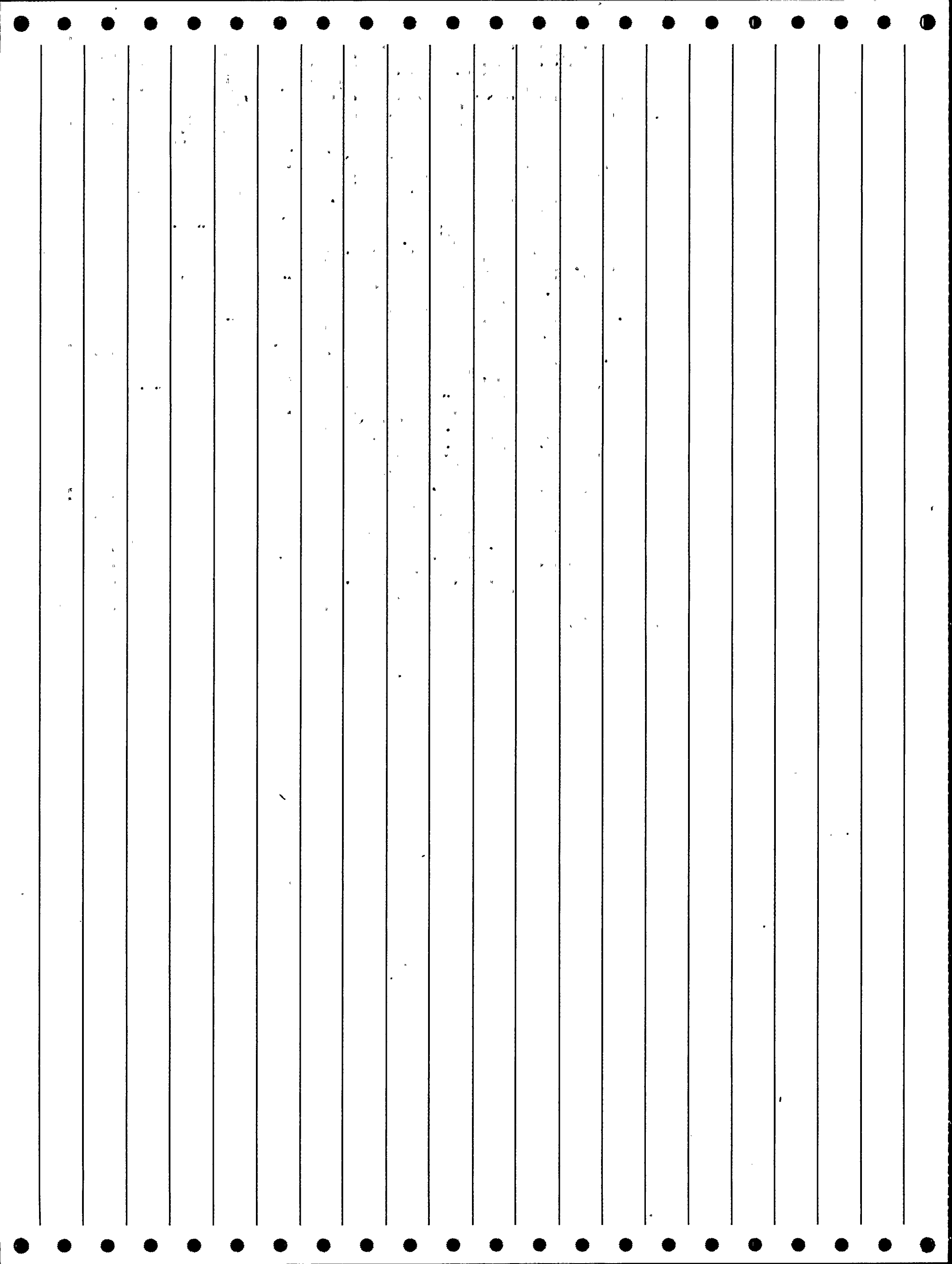
DOCKET:443 SEABROOK 1. TYPE:PWR
REGION: 1 NSSS:WE
ARCHITECTURAL ENGINEER: UECX
FACILITY OPERATOR: PUBLIC SERVICE OF NEW HAMPSHIRE
SYMBOL: PNH

WATCH-LIST CODES FOR THIS LER ARE:
14 ELECTROMAGNETIC INTERFERENCE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON 2/19/87, AT 3:20 AM EST, WHILE SEABROOK STATION WAS IN MODE 3, SEVERAL ALARMS WERE RECEIVED INDICATING A GROUND. IN ATTEMPT TO IDENTIFY THE SOURCE OF THE GROUND, WHICH APPEARED TO ORIGINATE FROM UNINTERRUPTIBLE POWER SUPPLY 1E, THE SUPPLY FROM DC BUS 11A WAS VERIFIED TO BE THE SUPPLYING SOURCE TO VITAL INSTRUMENT PANEL 1E THROUGH THE INVERTER. THE AC SUPPLY BREAKER TO UPS 1E FROM MOTOR CONTROL CENTER E512 WAS THEN OPENED WHICH RESULTED IN THE INVERTER OUTPUT BEING INTERRUPTED FOR APPROXIMATELY 2 SECONDS. THIS LOSS OF POWER RESULTED IN MULTIPLE ESF ACTUATIONS: I.E., ISOLATION OF THE NON-NUCLEAR SAFETY PORTIONS OF THE PRIMARY COMPONENT COOLING WATER SYSTEM, ACTUATION OF THE CONTROL ROOM EMERGENCY CLEAN-UP FILTER SYSTEM, AND ISOLATION OF THE CONTAINMENT VENTILATION SYSTEM. ALL ESF SYSTEMS FUNCTIONED AS DESIGNED. THE ROOT CAUSE WAS DETERMINED TO BE THE ACTIVATION OF THE UPS 1E TRANSDUCER BOARD DC UNDERVOLTAGE OPTICAL ISOLATOR BY EXTRANEOUS PLANT ELECTRICAL NOISE CAUSED BY AN INTERMITTENT AC SYSTEM GROUND. THE DC UNDERVOLTAGE ISOLATOR IN TURN ACTIVATED THE FAULT PROTECTION CIRCUITRY WHICH INITIATED THE TWO SECOND OUTPUT INTERRUPTION. A DESIGN CHANGE WAS IMPLEMENTED TO CHANGE THE VALUE OF THE BIAS RESISTORS AND REDUCE THE SENSITIVITY OF ALL THE UPS DC UNDERVOLTAGE OPTICAL ISOLATORS. THIS IS THE FIRST OCCURRENCE OF THIS TYPE AT SEABROOK STATION.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
443 1988 002 1 8805240112 209342 02/11/88

DOCKET:443 SEABROOK 1 TYPE:PWR
REGION: 1 NSSS:WE
ARCHITECTURAL ENGINEER: UECX
FACILITY OPERATOR: PUBLIC SERVICE OF NEW HAMPSHIRE
SYMBOL: PNH

COMMENTS

STEPS 1 - 5: EVENT DISCOVERED 2/11/88. STEPS 6 - 8: EVENT DISCOVERED
4/15/88. SAM/P/1.

WATCH-LIST CODES FOR THIS LER ARE:

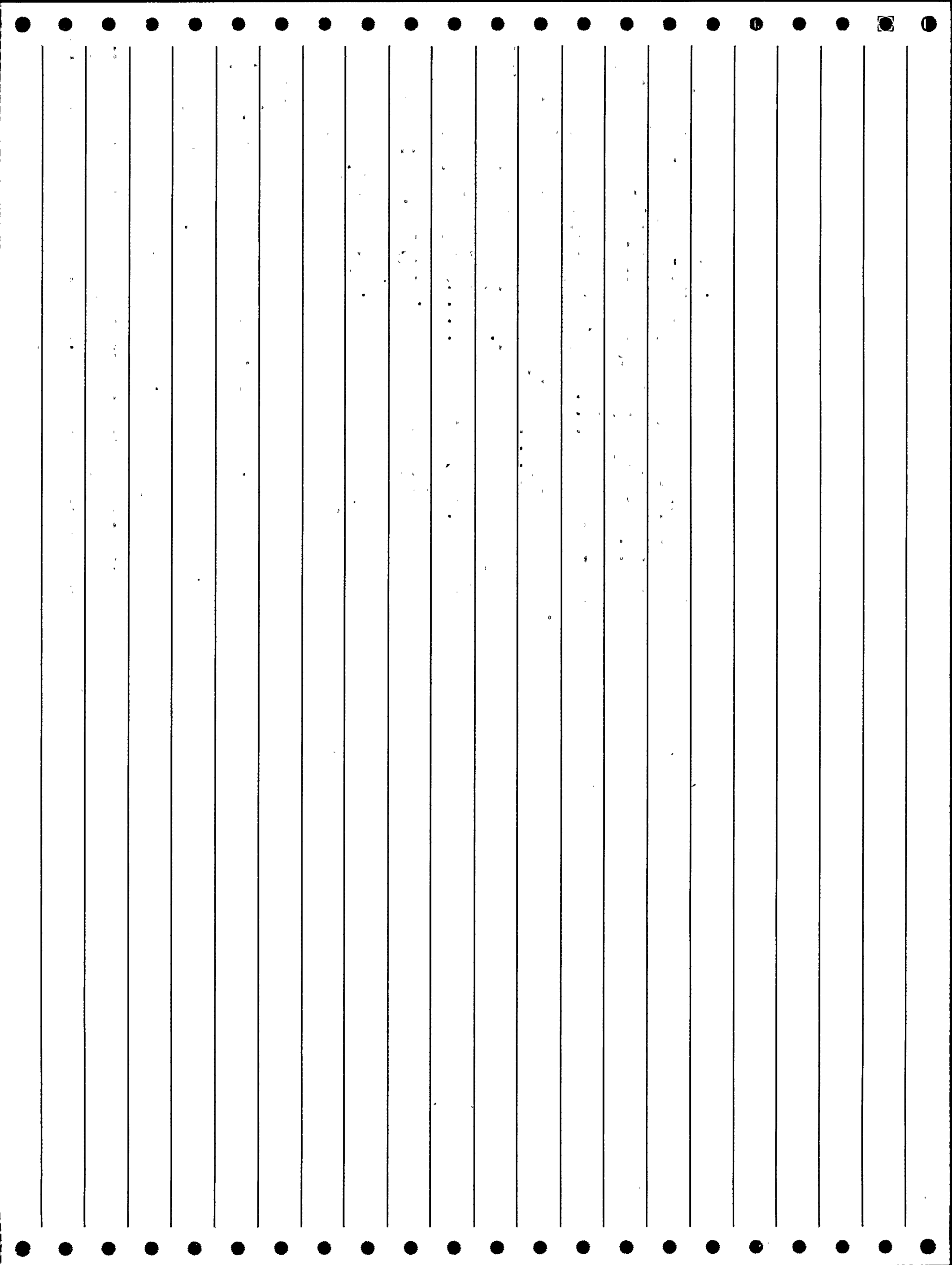
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:

10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.

ABSTRACT

POWER LEVEL - 000%. ON 2/1/88, IT WAS DETERMINED THAT THE SUPPLY
BREAKER FOR INVERTER 1-ED-1-28. WHICH IS SUPPLIED FROM UNIT SUBSTATION
1-EDE-US-51, HAD NOT BEEN TESTED IN ACCORDANCE WITH THE REQUIREMENTS
OF TECHNICAL SPECIFICATION 4.8.4.2. ON JANUARY 7, 1988. DURING A
REVIEW OF SURVEILLANCE PROCEDURES FOR PROTECTIVE DEVICES FOR CLASS 1E
POWER SOURCES CONNECTED TO NON-CLASS 1E DEVICES, IT WAS IDENTIFIED
THAT THIS BREAKER WAS NOT INCLUDED. FURTHER REVIEW REVEALED THAT THIS
BREAKER WAS NOT INCLUDED ON THE LIST OF BREAKERS WHICH REQUIRE
TESTING PURSUANT TO TECHNICAL SPECIFICATION 3.8.4.2. THIS BREAKER HAD
BEEN TESTED DURING THE PREOPERATIONAL TEST PROGRAM, AND THEREFORE IT
WAS DETERMINED THAT THE SURVEILLANCE INTERVAL HAD NOT BEEN EXCEEDED.
THE SUBJECT BREAKER WAS FUNCTIONALLY TESTED IN ACCORDANCE WITH THE
REQUIREMENTS OF TECHNICAL SPECIFICATION 4.8.4.2 AND WAS FOUND TO BE
INOPERABLE. ON FEBRUARY 11, 1988, FURTHER REVIEW INDICATED THAT THE
BREAKER HAD BEEN TESTED DURING THE PREOPERATIONAL TEST PROGRAM AND DID
NOT MEET THE REQUIREMENTS OF TECHNICAL SPECIFICATION 4.8.4.2.
FOLLOWING SURVEILLANCE TESTING ON THE SUPPLY BREAKER TO UNIT
SUBSTATION 1-EDE-US-61, IT WAS SUBSEQUENTLY DETERMINED THAT THE TIE
BREAKERS BETWEEN UNIT SUBSTATIONS 1-EDE-US-61 AND 1-EDE-US-63 AND
BETWEEN 1-EDE-US-51 AND 1-EDE-US-53 HAD ALSO BEEN OMITTED FROM THIS
TABLE. ACTIONS HAVE BEEN INITIATED TO ADD THESE BREAKERS TO THE LIST
OF BREAKERS REQUIRING TESTING.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
443 1990 016 0 9007250263 218918 06/24/90

DOCKET:443 SEABROOK 1 TYPE:PWR
REGION: 1 NSSS:WE
ARCHITECTURAL ENGINEER: UECX
FACILITY OPERATOR: PUBLIC SERVICE OF NEW HAMPSHIRE
SYMBOL: PNH

COMMENTS

STEP 4: EFF AP - AUTOMATIC SWITCH FROM NORMAL TO MAINTENANCE POWER SUPPLY.
STEP 5: CORR X - IMPROVED LABELLING.

WATCH-LIST CODES FOR THIS LER ARE:

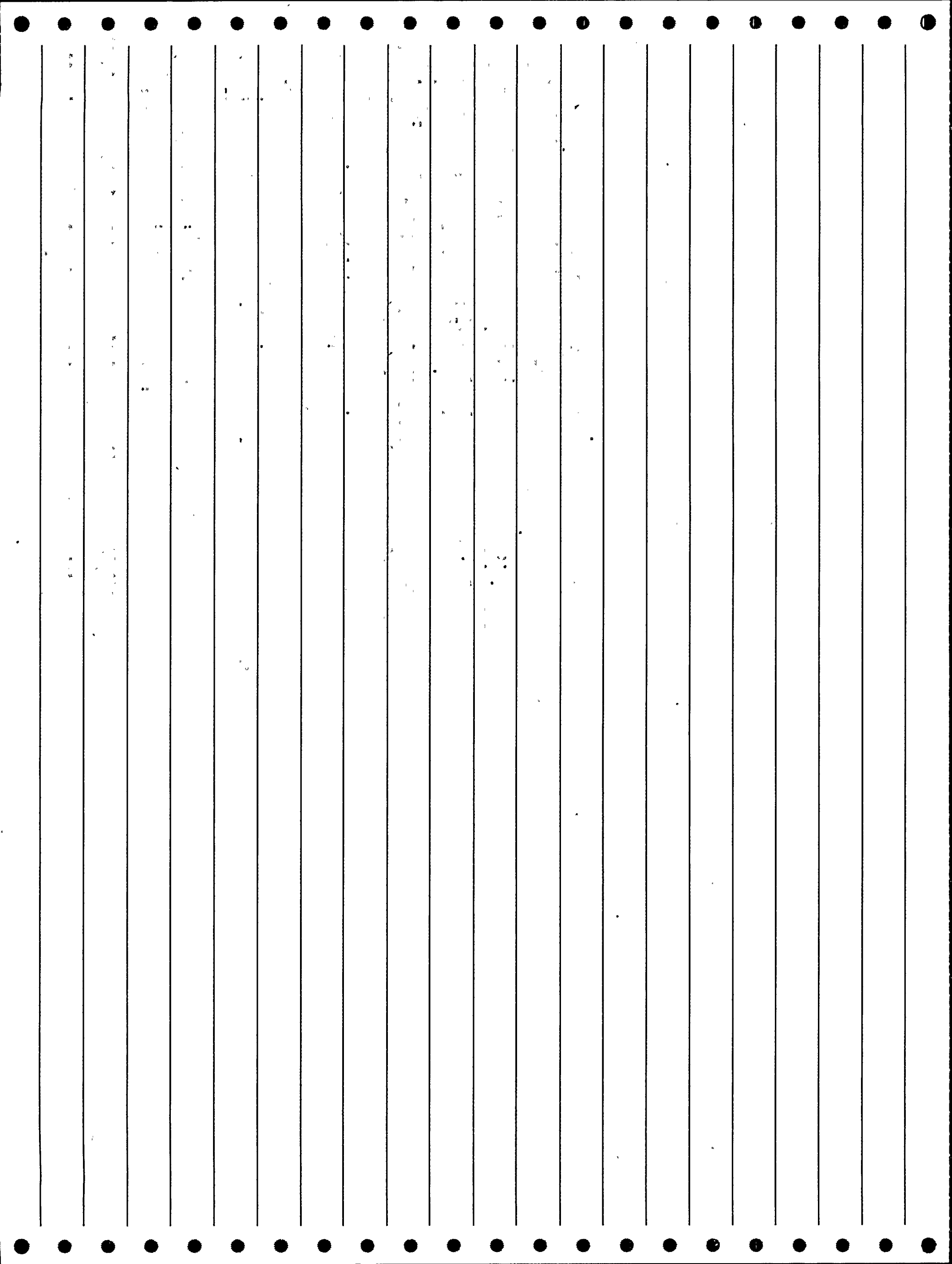
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON JUNE 24, 1990, THE NORMAL POWER SUPPLY TO VITAL 120 VAC POWER PANEL PP-1E EXPERIENCED A CAPACITOR FAILURE AND BLOWN FUSE. THIS FAILURE INITIATED AN AUTOMATIC SWAP FROM THE NORMAL POWER SUPPLY TO THE MAINTENANCE POWER SUPPLY. AN AUXILIARY OPERATOR (AO) WAS SENT TO INVESTIGATE THE PROBLEM AND IN THE COURSE OF DOING SO MISTAKENLY TRIPPED OPEN THE MAINTENANCE POWER SUPPLY BREAKER. DE-ENERGIZATION OF THIS BREAKER CAUSED THE TRAIN "A" CONTAINMENT ON-LINE PURGE RADIATION MONITORS TO FAIL IN THE SAFE/HIGH STATE. THIS INITIATED A TRAIN "A" CONTAINMENT VENTILATION ISOLATION (CVI). THE ROOT CAUSE OF THIS EVENT IS ATTRIBUTED TO PERSONNEL ERROR. CORRECTIVE ACTIONS INCLUDE MORE DESCRIPTIVE LABELS ON THE INVERTERS AND POWER PANELS, AND ONE LINE DRAWINGS INCLUDING AC AND DC FEEDS BEING PLACED ON INVERTERS. AT THE TIME OF THIS EVENT THE PLANT WAS IN MODE 3, HOT STANDBY, WITH A REACTOR COOLANT SYSTEM (RCS) (AB) TEMPERATURE OF 557 DEGREES FAHRENHEIT AND A PRESSURE OF 2235 PSIG.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
445 1990 002 0 9004170049 217600 03/05/90

DOCKET:445 COMANCHE 1 TYPE:PWR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: GIBB
FACILITY OPERATOR: TEXAS UTILITIES GENERATING CO.
SYMBOL: TUG

COMMENTS

STEP 3: COMP XPWT - FERRORESONANT TRANSFORMER. STEPS 5,12: MODEL NO.
ESELIV, 7.5 KVA. STEP 10: COMP LX - CONTAINMENT ISOLATION AND SWAP OF
CHARGING PUMP SUCTION FROM THE VCT TO THE RWST.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

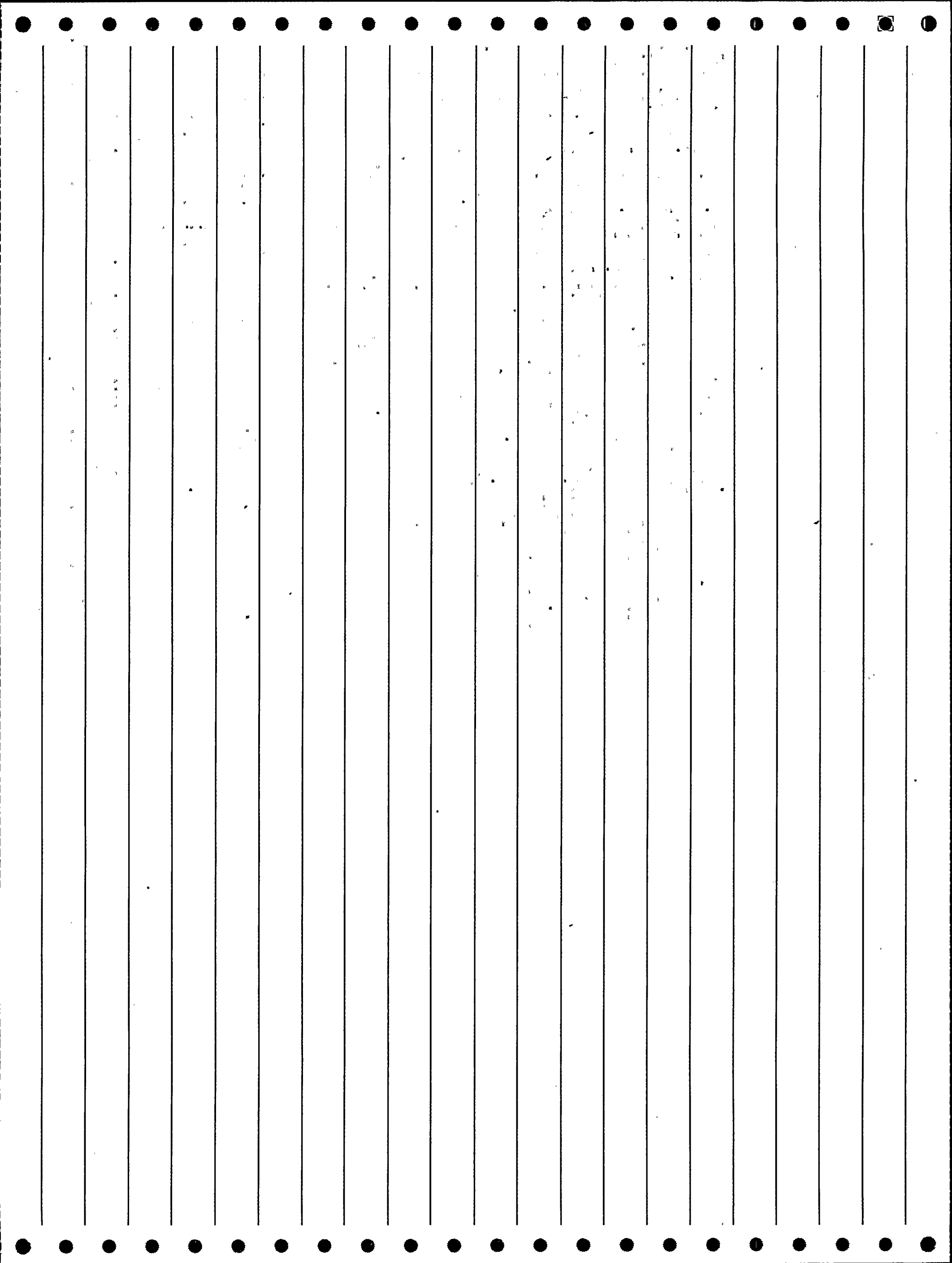
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 445/90-001 2 498/89-008

ABSTRACT

POWER LEVEL - 000%. AT 0155 CST ON 3/5/90, WHILE CONDUCTING COLD ROD
DROP TESTING, A BLOWN FUSE IN INVERTER IV1PC1 RESULTED IN A REACTOR
TRIP AND A SOURCE RANGE FLUX DOUBLING (SRFD) SIGNAL. THE DISTRIBUTION
PANELBOARD WAS RE-ENERGIZED ON ALTERNATE POWER. THIS RE-ENERGIZATION
CAUSED A MOMENTARY SPIKE ON A WIDE RANGE REACTOR COOLANT SYSTEM (RCS)
PRESSURE CHANNEL WHICH CLOSED THE RESIDUAL HEAT REMOVAL (RHR) HOT LEG
SUCTION VALVE, RESULTING IN THE TEMPORARY LOSS OF SHUTDOWN COOLING.
SHUTDOWN COOLING WAS RESTORED AT 0228 CST ON 3/5/90. AT APPROXIMATELY
0248 CST, AFTER VERIFYING THAT INDICATION WAS APPROPRIATE FOR PLANT
CONDITIONS, THE SRFD SIGNAL WAS RESET AND AFFECTED COMPONENTS RESTORED
TO THEIR ORIGINAL POSITION. THE ROOT CAUSE FOR THE FUSE FAILURE HAS
NOT BEEN DETERMINED. THE POSSIBLE CAUSES IDENTIFIED INCLUDE FAILURE
OF THE FERRO-RESONANT TRANSFORMER, AND LOOSE CONNECTIONS IN THE GATING
CIRCUIT. CORRECTIVE ACTIONS INCLUDED THE REPLACEMENT OF THE
FERRO-RESONANT TRANSFORMER AND A REWORK OF ALL LOOSE CONNECTIONS IN
THE INVERTER. A DETAILED VISUAL INSPECTION OF THE THREE OTHER SIMILAR
INVERTERS WILL BE PERFORMED DURING THE NEXT COLD SHUTDOWN OF
SUFFICIENT DURATION. THIS INSPECTION WILL INCLUDE THE VERIFICATION OF
ALL BOLTED AND SOLDERED CONNECTIONS IN THE INVERTERS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
454 1984 030 0 8501210416 192758 12/18/84

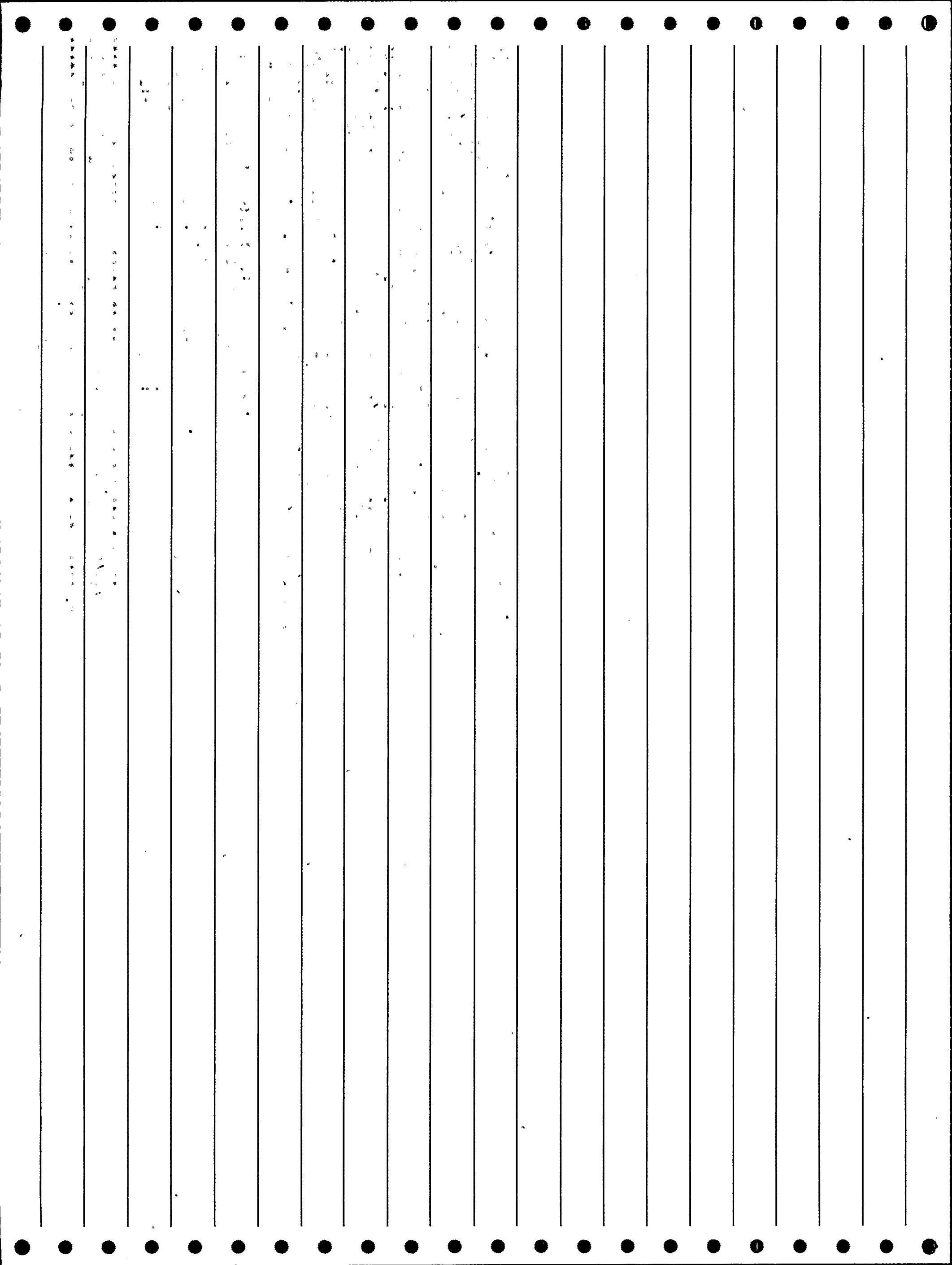
DOCKET:454 BYRON 1 TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. WITH THE PLANT OPERATING IN MODE 5, AC INSTRUMENT BUS 111 DE-ENERGIZED AND THE BORON DILUTION PROTECTION SYSTEM (BDPS) WAS ACTUATED DUE TO THE RESULTING DE-ENERGIZATION OF NUCLEAR INSTRUMENTATION CHANNEL I. THIS SWITCHED THE SUCTION FOR THE CENTRIFUGAL CHARGING PUMP FROM ITS NORMAL LETDOWN SOURCE (VOLUME CONTROL TANK) TO ITS BORATED WATER SOURCE (REFUELING WATER STORAGE TANK). THE TRAIN A ESF SEQUENCING CABINET, SOLID STATE PROTECTION SYSTEM (SSPS) TRAIN A OUTPUT, AND SSPS TRAIN A AND B INPUT CABINETS WERE ALSO DE-ENERGIZED BY THE LOSS OF THE AC INSTRUMENT BUS 111 AND THIS PREVENTED TRAIN A OF THE BDPS FROM ACTUATING. THE OPERATOR RESET THE BDPS AND RE-ENERGIZED BUS 111 FROM A STANDBY POWER SOURCE. THE AC BUS FAILURE WAS TRACED BACK TO A DEGRADED CAPACITOR IN THE BUS INVERTER, WHICH CAUSED THE INVERTER OUTPUT FUSE TO BLOW. THE CAPACITOR FAILURE IS ATTRIBUTED TO AGE DEGRADATION. TO PREVENT RECURRENCE OF THIS EVENT, NEW CAPACITORS ARE BEING INSTALLED AND MAINTENANCE PROCEDURES HAVE BEEN IMPLEMENTED TO MAINTAIN CAPACITORS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
454 1985 053 1 8507100328 197938 05/25/85

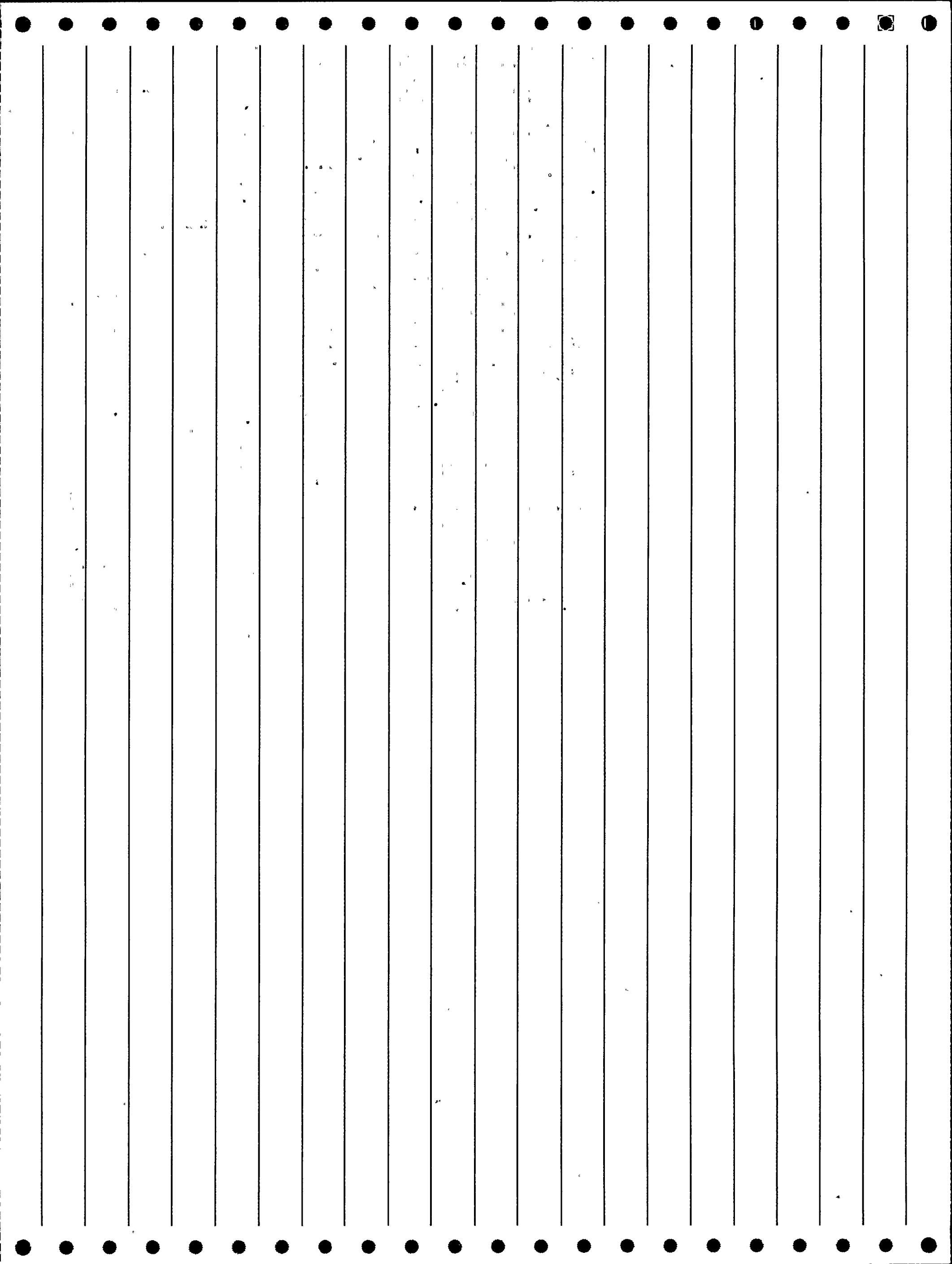
DOCKET:454 BYRON 1 TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

COMMENTS
STEPS 3, 6, AND 13: COMP RLX - CONTROL RELAY. STEP 22: EFFECT IX - VOLTAGE
TRANSIENT.

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.
14 10 CFR 50.73(a)(2)(v): Event that could have prevented
fulfillment of a safety function.

REFERENCE LERS:
1 454/85-007 2 454/85-030

ABSTRACT
POWER LEVEL - 013%. ON 5/25/85 AT 1134 CST, A REACTOR TRIP OCCURRED
DUE TO LOW-LOW STEAM GENERATOR WATER LEVEL. THE LOW LEVEL OCCURRED
WHEN AN INSTRUMENT BUS INVERTER FAILURE IN CONJUNCTION WITH A BLOWN
FUSE IN A 7300 SWITCH CARD CAUSED A PARTIAL FEEDWATER ISOLATION. THE
LOSS OF OUTPUT FROM THE 7300 SWITCH CARD DE-ENERGIZED A RELAY IN THE
WATER HAMMER PREVENTION SYSTEM. THE LOSS OF THE INSTRUMENT BUS
DE-ENERGIZED A SECOND RELAY (2-OF-3 RELAY LOGIC) WHICH WAS NEEDED TO
ACTUATE THE WATER HAMMER PREVENTION SYSTEM AND SUBSEQUENT PARTIAL
FEEDWATER ISOLATION. THE CAUSE FOR THE BLOWN FUSE ON THE 7300 SWITCH
CARD IS UNKNOWN. THE INSTRUMENT INVERTER FAILURE WAS CAUSED BY DIRT
AND FILINGS SHORTING AND WINDINGS OF A TRANSFORMER IN THE INVERTER.
THE SWITCH CARD FUSE WAS REPLACED AND THE DAMAGED TRANSFORMER INVERTER
WAS ALSO REPLACED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
455 1987 007 1 8709080017 206288 05/04/87

DOCKET:455 BYRON 2 TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

COMMENTS

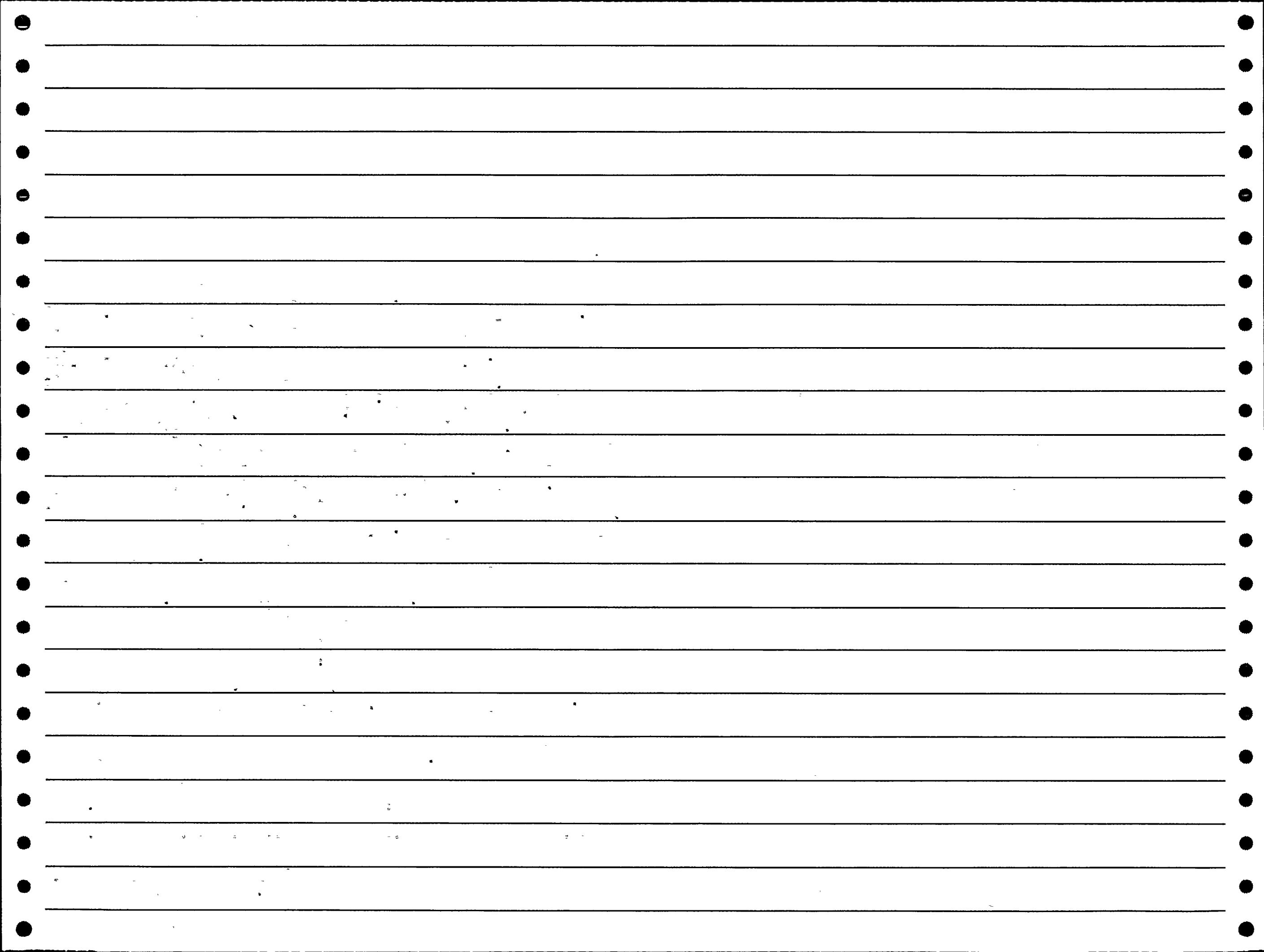
STEP 2: PART NUMBER 1815A70H23. STEP 3: PART NUMBER 1538A73H10. STEP 1:
CAUSE AX - CALIBRATION.

WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 088%. ON MAY 4, 1987, AT 0644, THE UNIT 2 REACTOR
TRIPPED DURING THE PERFORMANCE OF THE QUARTERLY POWER RANGE
CALIBRATION SURVEILLANCE ON CHANNEL NI-43. UNIT 2 WAS IN MODE 1 -
POWER OPERATIONS AT 88% POWER. AS A REQUIREMENT OF THE SURVEILLANCE,
THE POWER RANGE CHANNEL'S BISTABLES WERE TRIPPED. DURING THE CONDUCT
OF THE SURVEILLANCE, THE INSTRUMENT BUS 211 BREAKER TRIPPED. THIS
DE-ENERGIZED CHANNEL N41 AND TRIPPED ITS BISTABLES. THIS SATISFIED
THE 2 OUT OF 4 LOGIC COINCIDENCE FOR HIGH NEUTRON FLUX REACTOR TRIP.
AS A NORMAL RESULT, THE STEAM GENERATOR LEVEL REACHED THE LOW LEVEL
AUTOMATIC AUXILIARY FEEDWATER (AF) PUMP START SETPOINT. THE 2B DIESEL
DRIVEN AF PUMP STARTED, AS EXPECTED. THE 2A AF PUMP DID NOT START AS
A RESULT OF THE INSTRUMENT BUS 211 TRIP. THE UNIT WAS RECOVERED
CONSISTENT WITH EMERGENCY PROCEDURES WITHOUT INCIDENT. THE CAUSE OF
THE INSTRUMENT BUS 211 TRIP IS DUE TO A FAILURE OF A SILICON
CONTROLLED RECTIFIER AND A CAPACITOR IN THE INVERTER. THE CAPACITOR
FAILURE CAUSED THE RECTIFIER FAILURE. THE FAILURE MECHANISM OF THE
CAPACITOR COULD NOT BE DETERMINED AND IS ATTRIBUTABLE TO NORMAL
WEAROUT. THE COMPONENTS WERE REPLACED AND THE BUS RE-ENERGIZED.
THERE WERE NO ADVERSE SAFETY CONSEQUENCES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
455 1990 006 0 9010150142 219766 09/03/90

DOCKET:455 BYRON 2 TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

COMMENTS

STEP 11: PART NO. 443A322H17. STEP 12: PART NO. A501950. STEP 17: CAUSE AX
- PLANNED LOSS DURING SURVEILLANCE.

WATCH-LIST CODES FOR THIS LER ARE:

32 COMMUNICATION PROBLEM
40 PROCEDURAL DEFICIENCY
913 UPDATE NEEDED
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 454/90-001. 2 454/90-009

ABSTRACT

POWER LEVEL - 000%. ON 9/3/90 AT APPROXIMATELY 0805, WITH UNIT 2 IN
MODE 5 (COLD SHUTDOWN) 280S 3.2.1.1.A-1, "UNIT TWO TRAIN A MANUAL
SAFETY INJECTION INITIATION AND MANUAL PHASE A INITIATION
SURVEILLANCE," WAS BEING PERFORMED PER THE REFUELING OUTAGE SCHEDULE.
AFTER PERFORMING THE NORMAL SAFETY INJECTION (SI) (JE), IT WAS NOTED
THAT THE 2C REACTOR CONTAINMENT FAN COOLER (RCFC) LOW SPEED FAN
BREAKER DID NOT CLOSE. ATTEMPTS TO CLOSE THE BREAKER WERE
UNSUCCESSFUL. AT 0820, THE 480 VOLT BUS THAT FEEDS THE BREAKER WAS
DE-ENERGIZED TO ALLOW REMOVAL OF THE BREAKER. AT 0850, WHILE
STRIPPING THE BUS OF ITS ALTERNATING CURRENT LOAD, INSTRUMENT
INVERTERS 211 AND 213 WERE DE-ENERGIZED DUE TO A COMMUNICATIONS
BREAKDOWN. WHEN THE INSTRUMENT BUSES WERE DE-ENERGIZED, THE
PRESSURIZER PRESSURE LOW SI AND STEAMLINE PRESSURE LOW SI BLOCKS WERE
LOST ON TRAIN A. THE UNIT REACTOR OPERATOR WAS UNAWARE THAT THE
BLOCKS HAD BEEN LOST AND THE SURVEILLANCE DID NOT CONTAIN AN EMERGENCY
EXIT SECTION TO PROVIDE RESTORATION GUIDANCE. AT 0902, THE TRAIN A
REACTOR TRIP BREAKER WAS CLOSED PER THE SURVEILLANCE AND A SAFETY
INJECTION SIGNAL RESULTED DUE TO A LOSS OF THE REACTOR TRIP INTERLOCK
(P-4) WHILE CYCLING THE REACTOR TRIP BREAKER. CORRECTIVE ACTIONS
INCLUDE A PROCEDURE REVISION TO THE MANUAL SI SURVEILLANCE TO INCLUDE
AN EMERGENCY EXIT SECTION. THIS EVENT WILL ALSO BE INCLUDED IN
OPERATOR REQUIRED LISTENING.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
456 1989 005 0 8905250462 214012 04/23/89

DOCKET:456 BRAIDWOOD 1 TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

COMMENTS

STEP 1: MODEL NO. 20 MFD, 600V; PART NO. 1589A93H23.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE
942 UNUSUAL EVENT

REPORTABILITY CODES FOR THIS LER ARE:

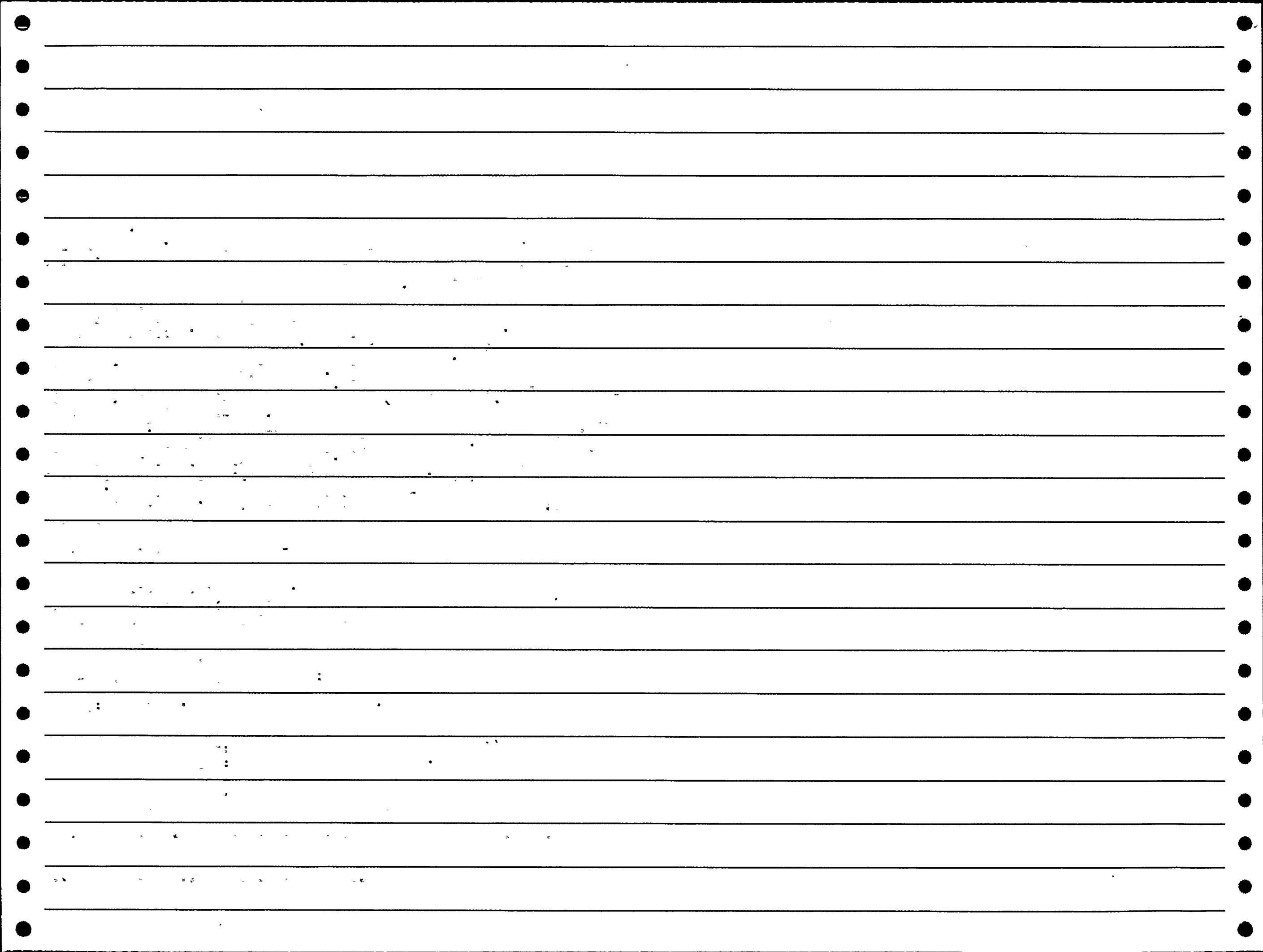
10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.

REFERENCE LERS:

1 456/87-010 2 456/89-001.

ABSTRACT

POWER LEVEL - 088%. AT 1349 ON 4/22/89 INSTRUMENT INVERTER 111 TRIPPED. AT 1409 INSTRUMENT BUS 111 WAS RE-ENERGIZED FROM ITS ASSOCIATED CONSTANT VOLTAGE TRANSFORMER (CVT). AT 1800 MAINTENANCE BEGAN TROUBLESHOOTING THE INVERTER. THE INVERTER WAS NOT REPAIRED WITHIN THE 24 HOURS PROVIDED FOR IN THE TECH SPECS. A PLANT SHUTDOWN WAS REQUIRED. AT 1248 ON 4/23 A REACTOR SHUTDOWN WAS INITIATED. AN UNUSUAL EVENT WAS DECLARED. AT 1259 THE APPROPRIATE NRC NOTIFICATION WAS MADE. AT 1820 UNIT 1 ENTERED MODE 3, HOT STANDBY. AT 1500 ON 4/24 A SHORTED CAPACITOR WAS FOUND. THE CAPACITOR WAS REPLACED AND THE INVERTER WAS SUCCESSFULLY STARTED. AT 0221 ON 4/25 THE INSTRUMENT BUS 111 WAS TRANSFERRED FROM THE CVT TO THE INVERTER. AT 1030 THE INVERTER WAS DECLARED OPERABLE. THE CAUSE OF THIS EVENT WAS THE SHORTED CAPACITOR. THIS WAS ATTRIBUTED TO NORMAL WEAR. THE CORRECTIVE ACTIONS WERE TO RE-ENERGIZE INSTRUMENT BUS 111 FROM THE CVT AND REPAIR THE INVERTER. A CLEANING AND INSPECTION PROGRAM WITH A FREQUENCY OF 18 MONTHS WILL BE IMPLEMENTED. CAPACITOR WILL BE REPLACED WITH A FREQUENCY OF 3 YEARS STARTING WITH THE 9/89 REFUELING OUTAGE. THERE HAVE BEEN PREVIOUS OCCURRENCES OF LOSS OF INVERTER OUTPUT VOLTAGE. PREVIOUS CORRECTIVE ACTIONS ARE NOT APPLICABLE TO THIS EVENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
457 1988 003 0 8803040343 208574 01/31/88

DOCKET:457 BRAIDWOOD 2 TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: SLXX
FACILITY OPERATOR: COMMONWEALTH EDISON CO.
SYMBOL: CWE

COMMENTS

STEP 3: VENDOR CARBONE; ROUND FIBERGLASS FUSE NO. 773E4040. STEP 2: VENDOR
FERRAZ. SMP/E

WATCH-LIST CODES FOR THIS LER ARE:

35 HUMAN ERROR
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

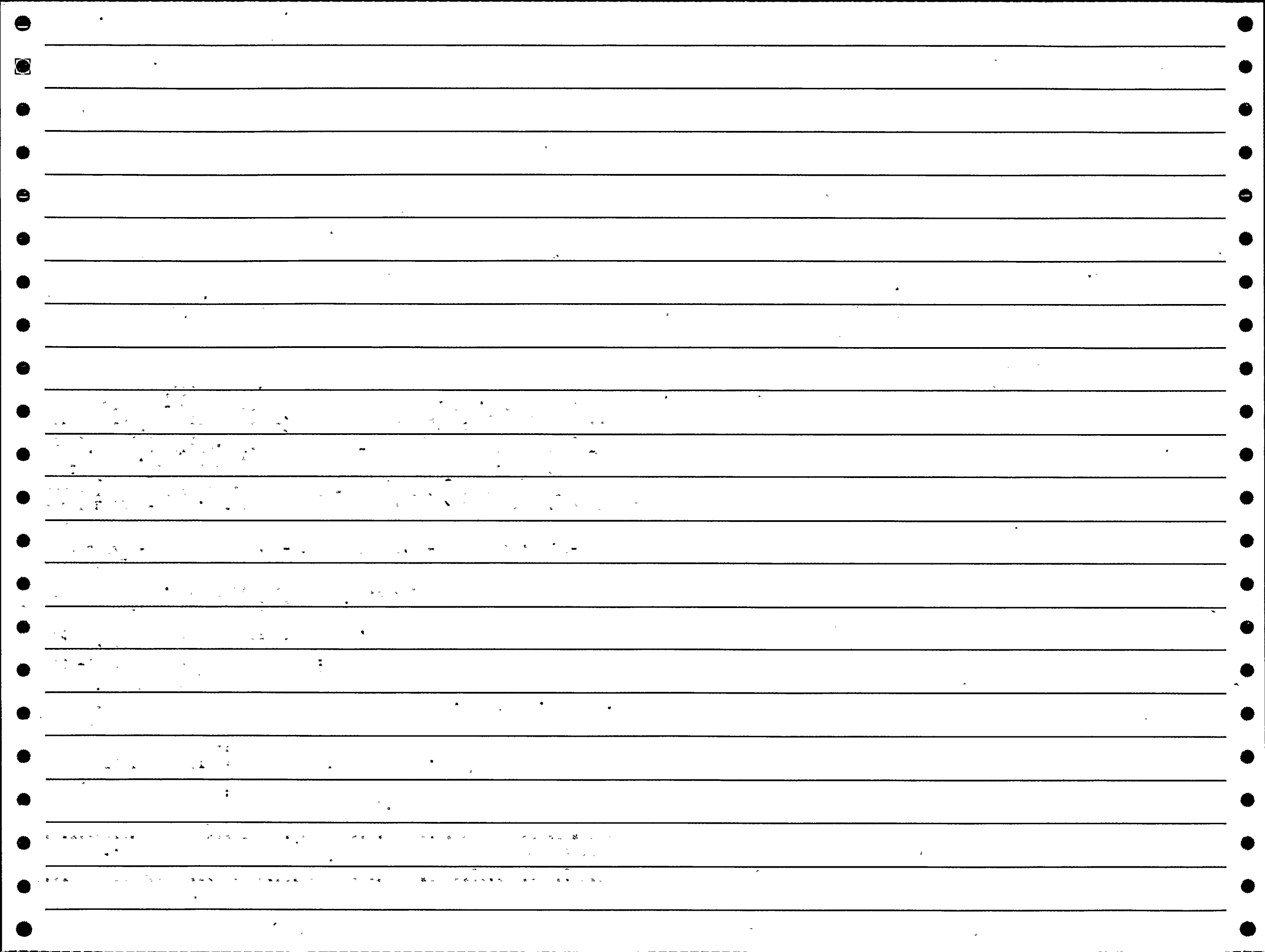
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 457/86-005 2 457/86-011 3 457/87-002 4 457/87-010

ABSTRACT

POWER LEVEL - 000%. AT 1052 ON JANUARY 31, 1988, A REACTOR TRIP SIGNAL
WAS RECEIVED AS A RESULT OF THE DE-ENERGIZATION OF INSTRUMENT BUS
212. THE DE-ENERGIZATION WAS CAUSED BY CONTRACTOR PERSONNEL WORKING
IN THE AREA. THE CONTRACTORS WERE PREPARING THE INVERTER CABINET FOR
BUS 212 FOR PAINTING. THE BUS WAS RE-ENERGIZED FROM ITS ASSOCIATED
CONSTANT VOLTAGE TRANSFORMER, THE PAINTERS WERE TOLD TO DISCONTINUE
WORK ON THE INVERTER CABINET, AND A FUSE WHICH WAS BLOWN AS A RESULT
OF IMPROPER DE-ENERGIZATION OF THE BUS WAS REPLACED. THERE HAVE BEEN
FOUR PREVIOUS OCCURRENCES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
458 1986 002 0 8602130217 199754 01/01/86

DOCKET:458 RIVERBEND 1 TYPE:BWR
REGION: 4 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: GULF STATES UTILITIES
SYMBOL: GSU

COMMENTS

WATCH LIST 975 - LOSS OF OFFSITE POWER; STEPS 6,41: CAUSE NX - RADIO
FREQUENCY INTERFERENCE; STEPS 5,6,40,41: COMPONENT XT - TONE
TRANSMITTER/RECEIVER; STEP 49: DIFFER X - ALL LOCKOUT RELAYS (DIFFER 1 AND
2); EFF LX - FAILURE TO RESET.

WATCH-LIST CODES FOR THIS LER ARE:

942 UNUSUAL EVENT
975 POSSIBLE SIGNIFICANT EVENT

REPORTABILITY CODES FOR THIS LER ARE:

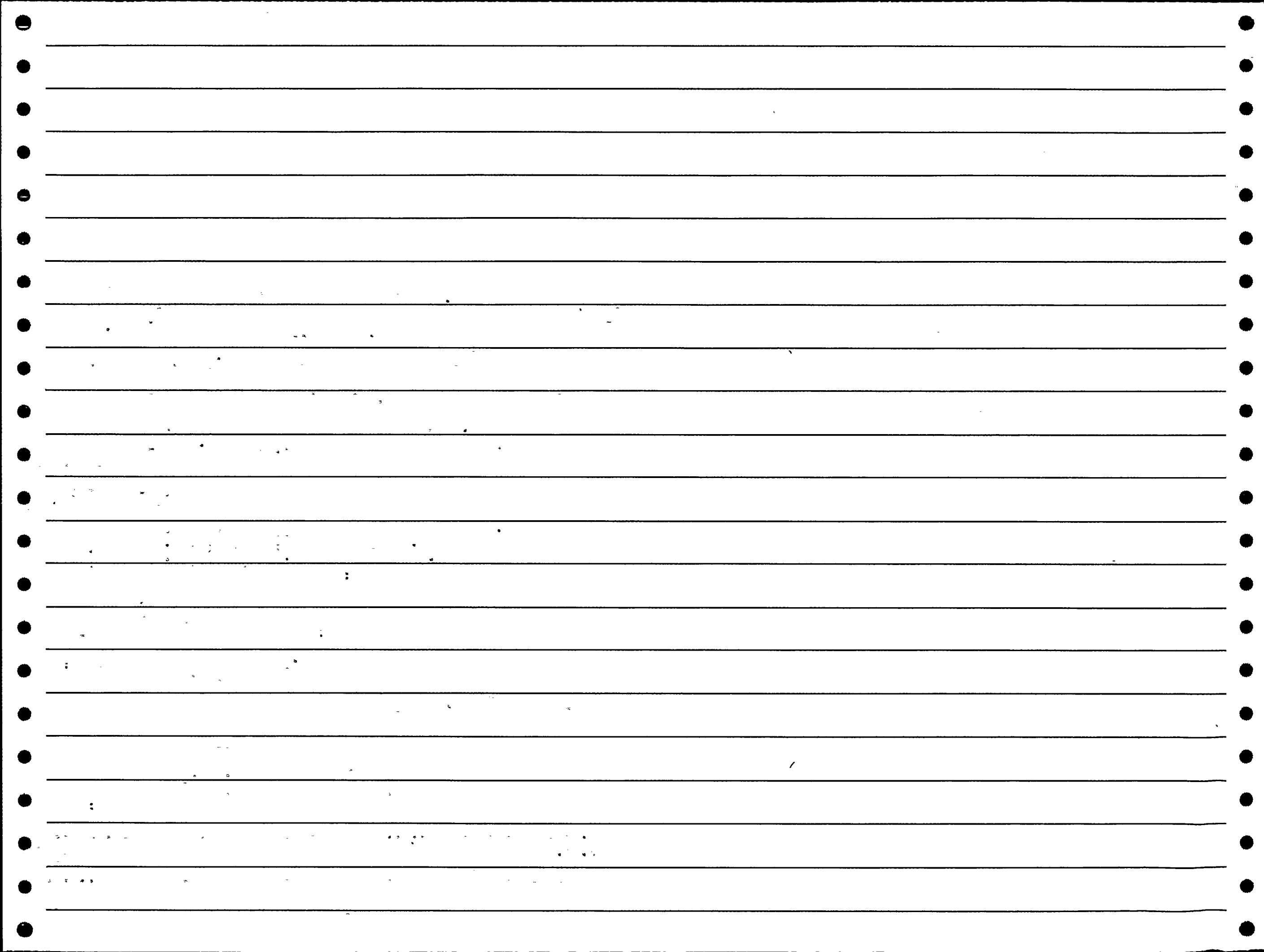
12 10 CFR 50.73(a)(2)(iii): External threat.
13 10 CFR 50.73(a)(2)(iv): ESF actuations.
15 10 CFR 50.73(a)(2)(vii): Single failure criteria.

REFERENCE LERS:

1 458/86-001

ABSTRACT

POWER LEVEL - 000%. ON 01/01/86 AT APPROXIMATELY 0941, PREFERRED
STATION TRANSFORMERS A AND C TRIPPED OFF THE LINE. ONE HOUR LATER, AT
APPROXIMATELY 1044 PREFERRED STATION TRANSFORMERS B AND D ALSO
TRIPPED PRIOR TO A AND C BEING RESTORED. THIS RESULTED IN A TOTAL
LOSS OF OFFSITE POWER (LOP) TO THE STATION. AN UNUSUAL EVENT WAS
DECLARED AT 1045 AND OPERATIONS ENTERED INTO APPROPRIATE ABNORMAL
OPERATING PROCEDURES. THE PLANT WAS SHUT DOWN AT THE TIME OF THE LOP
DUE TO A REACTOR SCRAM THAT HAD OCCURRED APPROXIMATELY SIX HOURS
EARLIER. UPON INVESTIGATION IT WAS DETERMINED THAT HAND HELD RADIOS
MOST LIKELY CAUSED SPURIOUS SIGNALS IN THE TONE RELAYING TRANSFER TRIP
RECEIVERS OF THE PREFERRED STATION TRANSFORMERS. CORRECTIVE ACTION IS
BEING TAKEN IN AN EFFORT TO MINIMIZE THE PROBABILITY OF RECURRENCE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
458 1986 027 0 8605140123 199338 04/03/86

DOCKET:458 RIVERBEND 1 TYPE:BWR
REGION: 4 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: GULF STATES UTILITIES
SYMBOL: GSU

COMMENTS

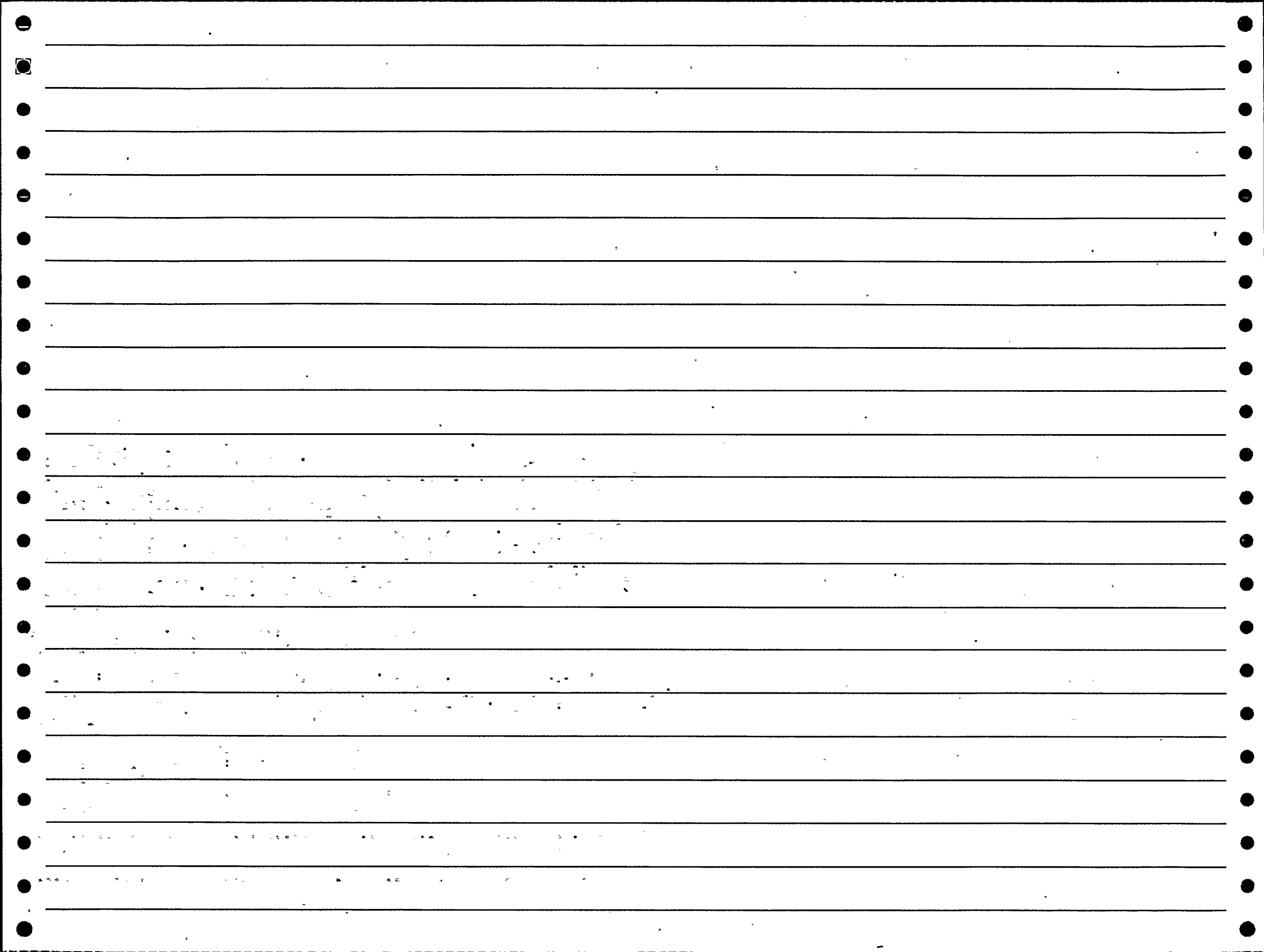
PREVIOUS SIMILAR EVENT- GSU CONDITION REPORT 85-0465. STEP 1: CAUSE AX-
TEST CONNECTORS WERE BEING INSTALLED IN THE RADIATION MONITORING CIRCUITS.
STEP 6: EFFECT IX- VOLTAGE PERTURBATION. STEP 8: MODEL- 503-1-1A.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. AT 2105 ON 4/3/86 WITH THE UNIT IN COLD SHUTDOWN,
A REACTOR PROTECTION SYSTEM (RPS) ACTUATION OCCURRED DUE TO A LOSS OF
CONTROL POWER TO BUS B WHILE AN INTENTIONAL ONE HALF RPS ACTUATION
EXISTED ON RPS A. THE LOSS OF POWER ALSO CAUSED AN ISOLATION AND LOSS
OF SHUTDOWN COOLING AND REACTOR WATER CLEAN UP (RWCU). BY 2148 POWER
WAS RESTORED, THE RPS ACTUATION CLEARED, AND RHR AND RWCU PUT BACK IN
SERVICE. INVESTIGATION DETERMINED THE LOSS OF RPS POWER TO BE CAUSED
BY A BLOWN POWER FUSE IN AN ELGAR CONTROLLED REGULATING 480/120 VAC
TRANSFORMER. A MODIFICATION HAS BEEN INITIATED TO ADJUST THE INTERNAL
CONTROL CIRCUITS FOR THIS UNIT. THERE WAS NO IMPACT ON THE HEALTH
AND SAFETY OF THE PUBLIC AS A RESULT OF THIS EVENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
458 1986 055 0 8610100456 201311 08/31/86

DOCKET:458 RIVERBEND 1 TYPE:BWR
REGION: 4 NSSS:GE
ARCHITECTURAL:ENGINEER: SWXX
FACILITY OPERATOR: GULF STATES UTILITIES
SYMBOL: GSU

COMMENTS

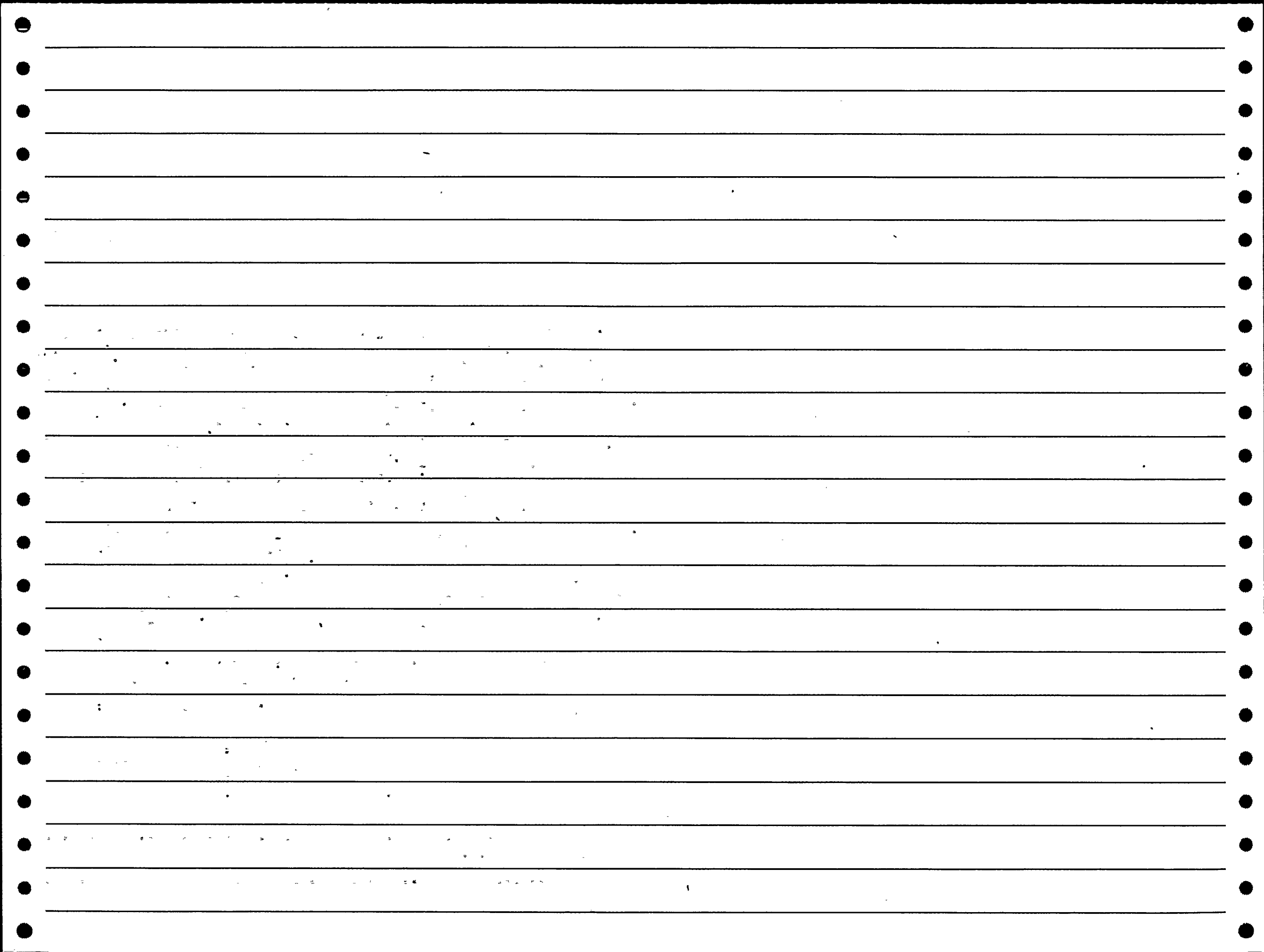
STEP 1: COMP MSC-WINDINGS.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. AT 0841. ON 8/31/86 WITH THE UNIT IN NORMAL FULL POWER OPERATION THE REACTOR SCRAMMED AS A RESULT OF THE LOSS OF REACTOR PROTECTION SYSTEM (RPS) A BUS CONCURRENT WITH A FAILURE IN THE B RPS BACKUP SCRAM CIRCUITRY. THE LOSS OF THE A RPS BUS BY ITSELF WOULD NOT HAVE CAUSED THE SCRAM. HOWEVER, THE A RPS TRIP ALONG WITH THE CONCURRENT FAILURE IN THE BRPS BACKUP SCRAM CIRCUITRY OPENED A BACKUP SCRAM VALVE CAUSING THE SCRAM AIR HEADER PRESSURE TO BLEED OFF. DUE TO THE REDUCTION IN THE SCRAM AIR HEADER PRESSURE, SCRAM VALVES OPENED AND CONTROL RODS BEGAN TO GO IN. AS A RESULT OF THE POWER REDUCTION AND CONCURRENT VOID COLLAPSE, VESSEL WATER LEVEL DECREASED CAUSING A FULL RPS AUTOMATIC SCRAM ACTUATION. ALL OTHER RPS CIRCUITRY AND PLANT EQUIPMENT PERFORMED AS DESIGNED. THE LOSS OF RPS A BUS WAS CAUSED BY A FAILURE OF COOLING TOWER FEEDER TRANSFORMER (1NJS-X2E). THIS TRIPPED THE 13.8 KV SUPPLY BREAKER (1NPS- ACB06) TO THE COMMON BUS SUPPLYING POWER TO BOTH THE COOLING TOWER AND TO THE RPS A MOTOR GENERATOR. THE CAUSE OF THE TRANSFORMER FAULT IS UNDER INVESTIGATION. THE FAILURE IN THE BACKUP SCRAM CIRCUITRY WAS DUE TO AN OPEN RELAY COIL IN THE B RPS GIVING A PERMISSIVE TO ENERGIZE THE BACKUP SCRAM SOLENOID. BOTH THE TRANSFORMER AND RELAY WERE REPLACED PRIOR TO STARTUP. TO PREVENT RECURRENCE AND PRIOR TO STARTUP, TEST JACK WERE INSTALLED TO ALLOW DAILY MONITORING OF THE BACKUP SCRAM CIRCUITRY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
458 1987 012 1 8802190192 208258 06/18/87

DOCKET:458 RIVERBEND 1 TYPE:BWR
REGION: 4 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: GULF STATES UTILITIES
SYMBOL: GSU.

COMMENTS

STEP 1: PART #633-270-40, ASSEMBLY J901.

WATCH-LIST CODES FOR THIS LER ARE:

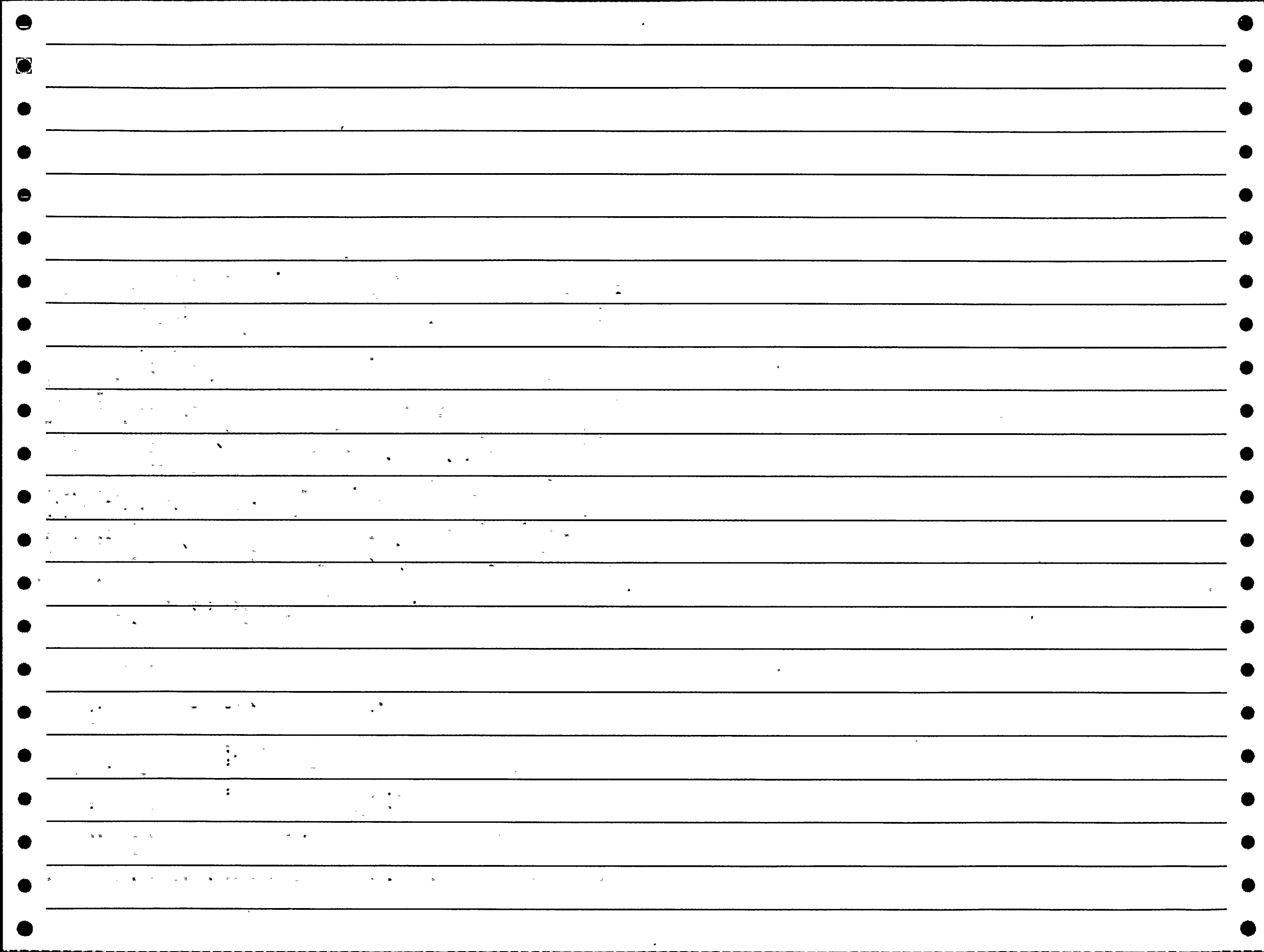
35 HUMAN ERROR
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 070%. ON 6/18/87 AT 0322, WITH THE UNIT AT APPROXIMATELY 70 PERCENT POWER, A REACTOR TRIP OCCURRED. INITIATION OF THE REACTOR PROTECTION SIGNAL WAS CAUSED BY A REACTOR VESSEL WATER LEVEL - HIGH LEVEL 8 (51 INCHES) CONDITION. A LOSS OF CONTROL POWER TO PANEL 1VBN-PNLO1B1 OCCURRED INADVERTENTLY DURING THE TROUBLE SHOOTING OF BATTERY INVERTER 1BYS-INV01BB *INVT*. LOSS OF CONTROL POWER TO THE FEEDWATER REGULATING VALVES CAUSED THEM TO LOCKUP IN A POSITION CONSISTENT WITH 70 PERCENT REACTOR POWER. ALSO, AS A RESULT OF THE LOSS OF THE INVERTER, THE RECIRCULATION SYSTEM FLOW CONTROL VALVES RAN BACK. SIMULTANEOUSLY, THE RECIRCULATION PUMPS RECEIVED A SIGNAL TO TRANSFER TO THE LOW FREQUENCY MOTOR GENERATORS. THIS CAUSED SUFFICIENT FEEDWATER FLOW/STEAM FLOW MISMATCH TO INCREASE THE VESSEL LEVEL TO HIGH LEVEL 8. OPERATIONS PERSONNEL RESPONDED BY SATISFACTORILY IMPLEMENTING THE IMMEDIATE AND SUBSEQUENT ACTIONS REQUIRED BY "REACTOR SCRAM" PROCEDURES. PROCEDURAL REVISIONS HAVE BEEN COMPLETED THAT WILL PRECLUDE RECURRENCE BY REQUIRING THE PLACEMENT OF THE BATTERY INVERTER IN MANUAL BYPASS MODE PRIOR TO TROUBLE SHOOTING. THERE WAS NO ADVERSE IMPACT ON THE SAFE OPERATION OF THE PLANT OR TO THE HEALTH AND SAFETY OF THE PUBLIC AS A RESULT OF THIS EVENT. THE PLANT'S RESPONSE WAS IN A CONSERVATIVE DIRECTION WITH NO IMPACT ON SAFETY SYSTEMS. PLANT STAFF'S RESPONSE WAS IN ACCORDANCE WITH APPROVED PROCEDURES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
458 1988 018 4 9002120339 216666 08/25/88

DOCKET:458 RIVERBEND 1 TYPE:BWR
REGION: 4 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: GULF STATES UTILITIES
SYMBOL: GSU

COMMENTS

WATCH 975 - REVERSE FLOW IN HPCS INJECTION LINE DUE TO CHECK VALVE FAILURE;
POTENTIAL FOR LOCA. STEP 2: COMP MSC - BRUSHES, EFF IX - LOSS OF EXCITER
FIELD VOLTAGE. STEP 7: COMP X - SRV LIFT. STEP 25: TYPE 1154, CAUSE LX -
LACK OF ELECTRONIC DAMPENING. STEP 30: EFF HX - REVERSE FLOW IN HPCS
INJECTION LINE.

WATCH-LIST CODES FOR THIS LER ARE:

942 UNUSUAL EVENT
40 PROCEDURAL DEFICIENCY
975 POSSIBLE SIGNIFICANT EVENT

REPORTABILITY CODES FOR THIS LER ARE:

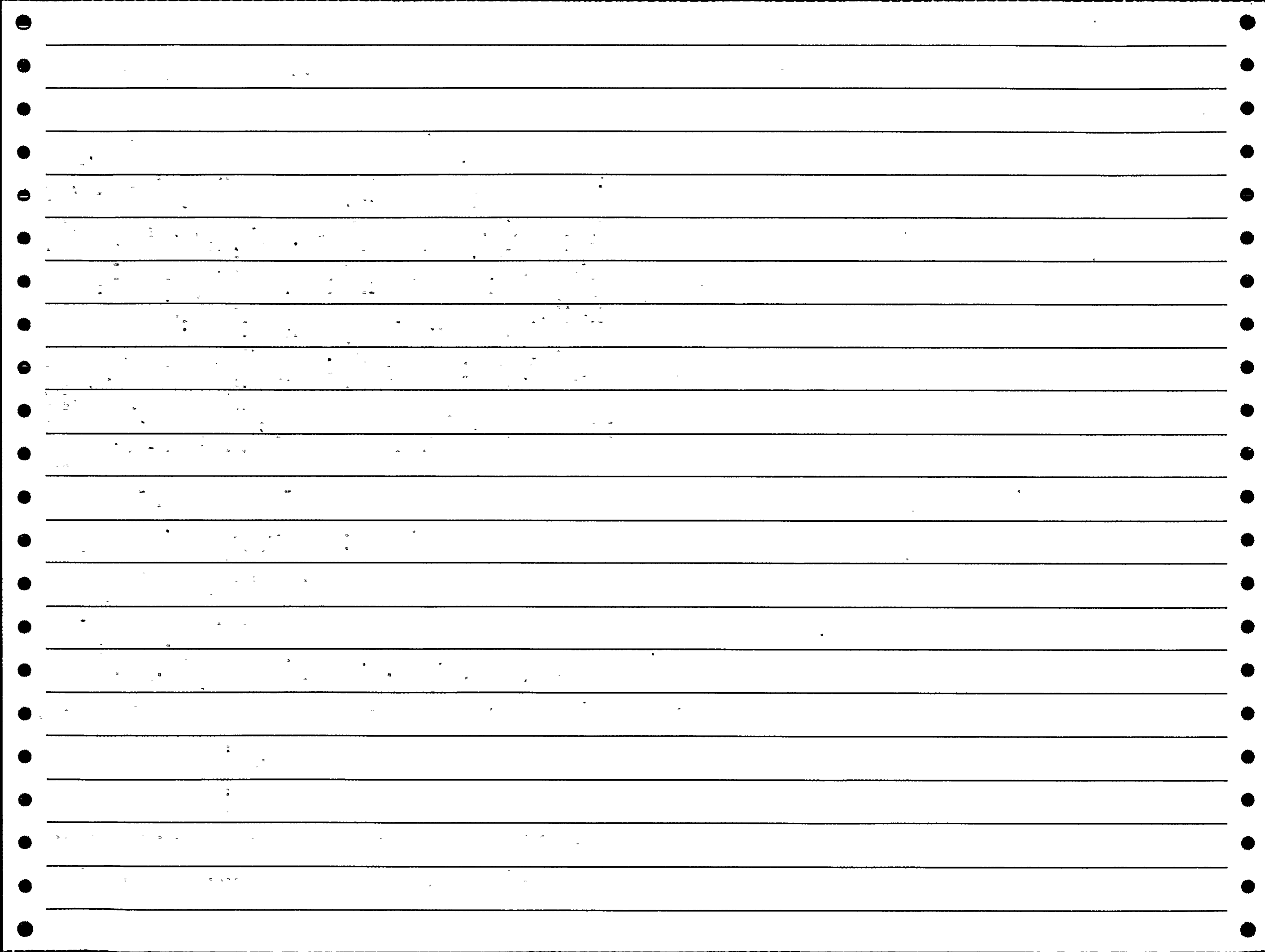
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 458/88-004 2 458/88-021

ABSTRACT

POWER LEVEL - 100%. AT 1232 ON 8/25/88 WITH THE UNIT AT 100% POWER
(OPERATIONAL CONDITION 1), THE REACTOR AUTOMATICALLY SCRAMMED DUE TO A
TURBINE CONTROL VALVE FAST CLOSURE CAUSED BY A LOSS OF MAIN GENERATOR
FIELD EXCITATION RESULTING IN AUTOMATIC MAIN GENERATOR AND TURBINE
TRIPS. IMMEDIATELY FOLLOWING THE SCRAM, REACTOR PRESSURE SPIKED TO A
PEAK BETWEEN 1100 AND 1117 PSIG CAUSING THE 5 LOW-LOW SET SAFETY
RELIEF VALVES TO CYCLE PER DESIGN. THE TURBINE BYPASS VALVES OPENED
AS REQUIRED AND THE REACTOR RECIRCULATION PUMPS TRANSFERRED TO SLOW
SPEED PER DESIGN. REACTOR WATER LEVEL INITIALLY DECREASED TO +4
INCHES AS INDICATED BY THE WIDE RANGE INSTRUMENTS DUE TO THE REACTOR
PRESSURE SPIKE. THE HIGH PRESSURE CORE SPRAY (HPCS) AND REACTOR CORE
ISOLATION COOLING (RCIC) SYSTEMS INJECTED AS A RESULT OF A SPURIOUS
LOW REACTOR WATER LEVEL 2 SIGNAL CAUSED BY A HYDRAULIC PERTURBATION IN
THE REACTOR WATER LEVEL INSTRUMENT REFERENCE LINES. AS A RESULT OF
THE FEEDWATER FLOW CONTINUING. (DUE TO THE "A" FEEDWATER CONTROL
VALVE BEING IN THE MANUAL MODE AT 50% OPEN) IN CONJUNCTION WITH THE
HPCS AND RCIC INJECTIONS, REACTOR WATER LEVEL RAPIDLY INCREASED TO
LEVEL 8 CAUSING THE HPCS INJECTION VALVE AND THE RCIC STEAM SUPPLY
VALVE TO CLOSE AND THE REACTOR FEEDWATER PUMPS TO TRIP PER DESIGN.
THERE WAS NO SIGNIFICANT ADVERSE IMPACT ON THE SAFE OPERATION OF THE
PLANT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
458 1989 020 0 8906020198 214188 04/19/89

DOCKET:458 RIVERBEND 1 TYPE:BWR
REGION: 4 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: GULF STATES UTILITIES
SYMBOL: GSU

COMMENTS

STEP 4: COMP MEI - FREEZE PLUG. STEP 5: LOSS OF 15,000 GALS OF SERVICE
WATER OUT DISASSEMBLED VALVES.

WATCH-LIST CODES FOR THIS LER ARE:

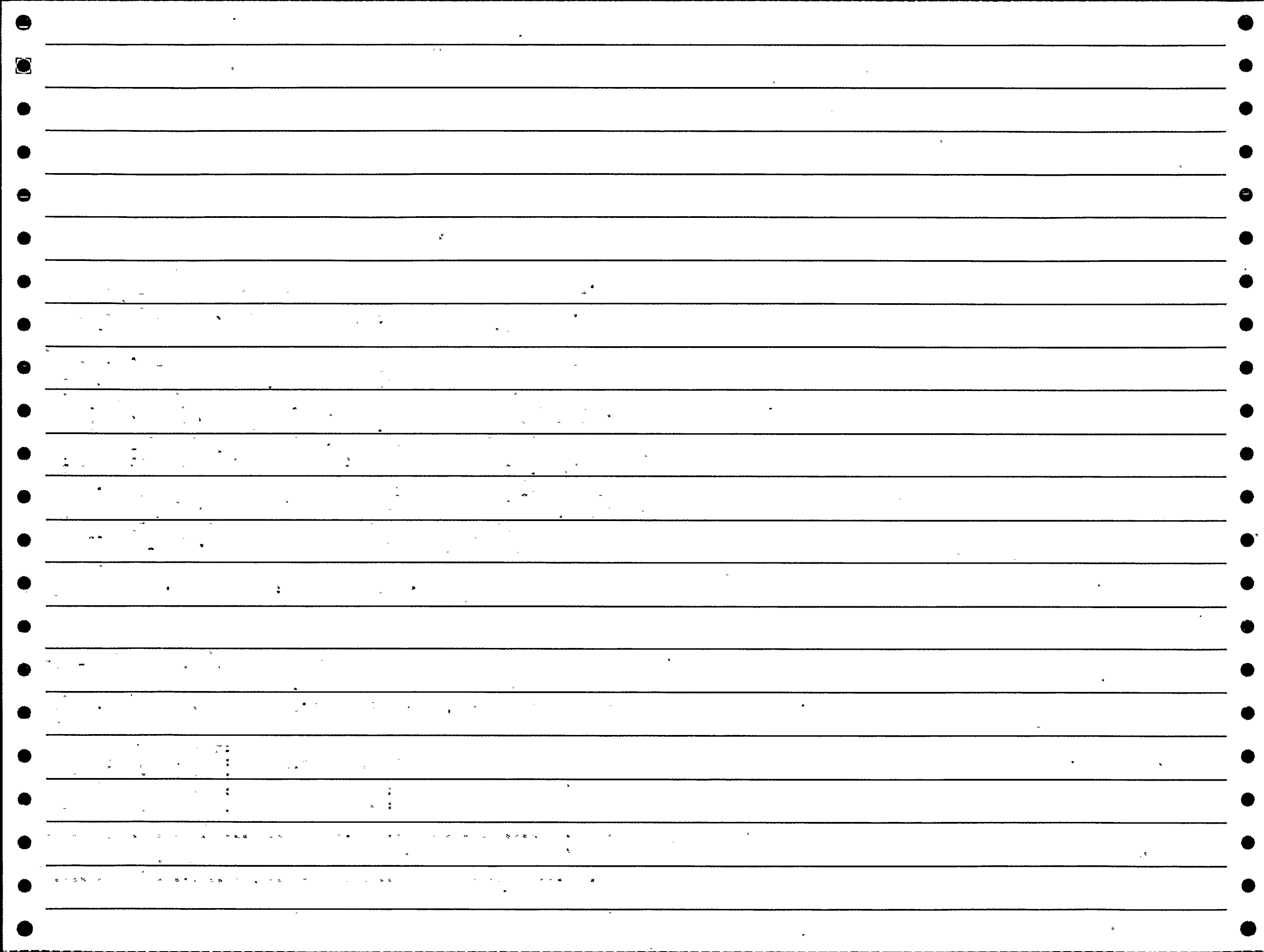
40 PROCEDURAL DEFICIENCY
36 INADEQUATE TRAINING

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. AT APPROXIMATELY 2345 ON 4/19/89 WITH THE UNIT IN
OPERATIONAL CONDITION 5 (REFUELING) AND REACTOR WATER LEVEL GREATER
THAN 23 FEET ABOVE THE TOP OF THE REACTOR PRESSURE VESSEL FLANGE, A
FREEZE PLUG ON A STANDBY SERVICE WATER LINE IN THE AUXILIARY BUILDING
FAILED. THIS RESULTED IN LEAKAGE OF SERVICE WATER INTO THE AUXILIARY
BUILDING AND SELECTIVE POWER OUTAGES THROUGHOUT THE PLANT. THE POWER
OUTAGE INCLUDED THE DIVISION II REACTOR PROTECTION SYSTEM (RPS) BUS
AND THE DE-ENERGIZATION OF A VITAL 120 VOLT POWER SUPPLY ALLOWING
CONTAINMENT ISOLATION VALVES TO ISOLATE. AS A RESULT OF THESE
ISOLATIONS, SHUTDOWN COOLING WAS LOST FOR APPROXIMATELY 17 MINUTES.
OPERATIONS PERSONNEL SECURED THE DIVISION II STANDBY SERVICE WATER
SYSTEM TO ISOLATE THE LEAK. RPS POWER WAS TRANSFERRED TO THE
ALTERNATE POWER SUPPLY AND SHUTDOWN COOLING WAS RESTORED AT 0015 HOURS
ON 4/20/89. THE ROOT CAUSE OF THIS EVENT HAS BEEN ATTRIBUTED TO
PROCEDURAL INADEQUACIES FOR ESTABLISHING AND MAINTAINING FREEZE PLUGS
AND A LACK OF PROPER TRAINING OF MAINTENANCE PERSONNEL. AS A RESULT
OF THE LOSS OF POWER, ALL SAFETY SYSTEMS RESPONDED AS DESIGNED.
THEREFORE, THERE WAS NO IMPACT ON THE SAFE OPERATION OF THE PLANT OR
TO THE HEALTH AND SAFETY OF THE PUBLIC AS A RESULT OF THIS EVENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
458 1990 004 2 9102050244 220854 02/11/90

DOCKET:458 RIVERBEND 1 TYPE:BWR
REGION: 4 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: GULF STATES UTILITIES
SYMBOL: GSU

COMMENTS

STEP 2: COMP XS - FLOAT/ EQUALIZE SWITCH.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

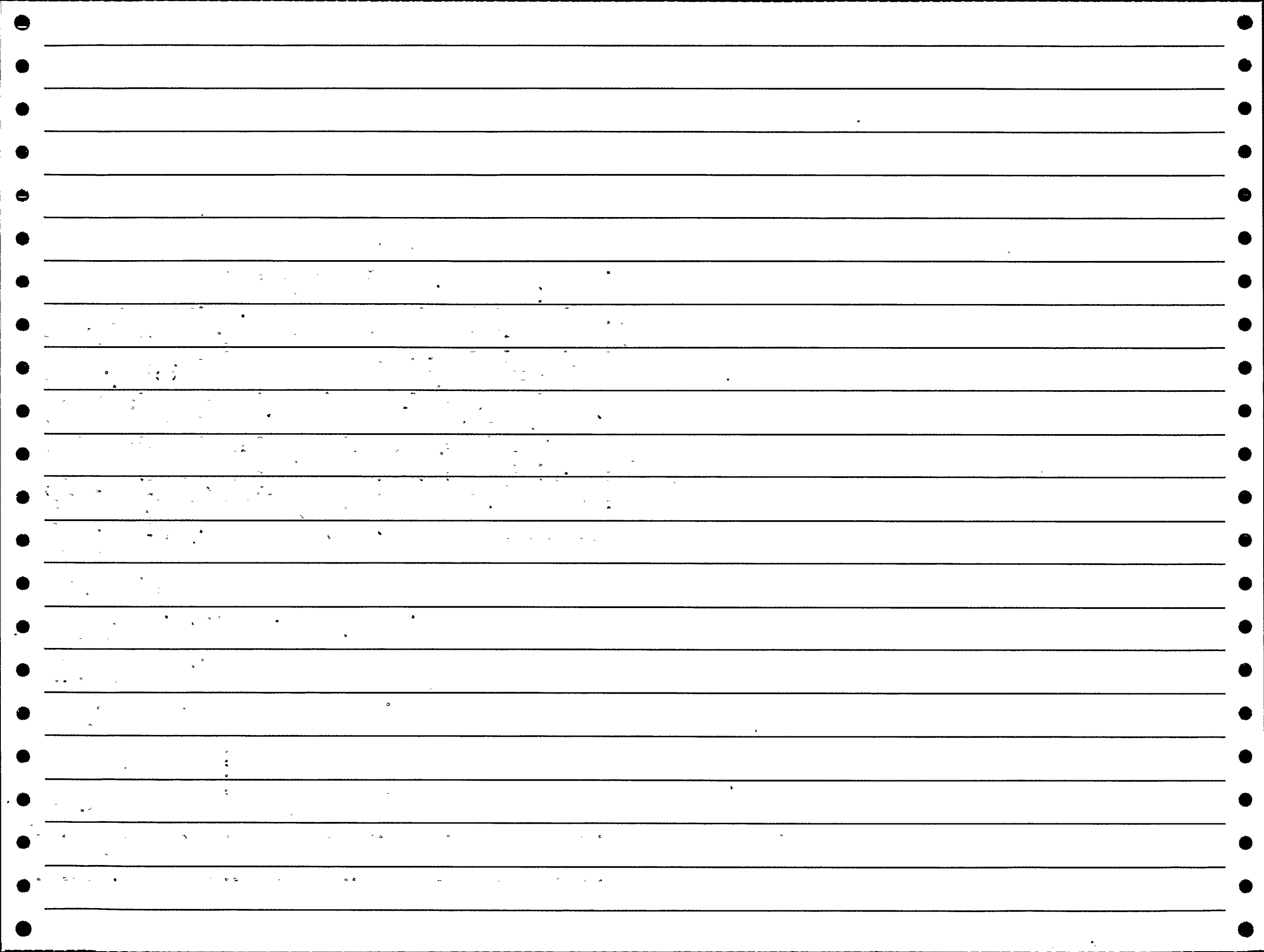
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 458/89-038

ABSTRACT

POWER LEVEL - 100%. AT 1009 ON 02/11/90, WITH THE PLANT AT 100 PERCENT POWER OPERATIONAL CONDITION 1), THE DIVISION II EMERGENCY 125 VDC BUS EXPERIENCED A VOLTAGE SPIKE WHICH CAUSED A TOPAZ INVERTER UNIT (1E12A-PS1) TO TRIP, RESULTING IN A LOSS OF POWER TO SPECIFIC INSTRUMENTATION ON CONTROL ROOM PANEL H13-P618 (DIVISION II). THIS EVENT OCCURRED COINCIDENT WITH A SCHEDULED PREVENTIVE MAINTENANCE TASK (PM) ON DIVISION II BATTERY CHARGER (ENB*CHGR1B) WHEN THE FLOAT/EQUALIZE SWITCH ON THE CHARGER WAS MOVED FROM THE FLOAT POSITION TO THE EQUALIZE POSITION. UPON RESTORATION OF THE INVERTERS, MULTIPLE DIVISION II ENGINEERED SAFETY FEATURE (ESF) ACTUATIONS OCCURRED. THEREFORE, THIS EVENT IS REPORTABLE PURSUANT TO 10CFR50.73(A)(2)(IV). CORRECTIVE ACTIONS INCLUDED REVISING THE PREVENTIVE MAINTENANCE TASK FREQUENCIES, DEVELOPING NEW PREVENTIVE MAINTENANCE TASKS TO INCLUDE CHECKING OF THE INVERTER TRIP SETPOINTS, TROUBLESHOOTING OF THE BATTERY CHARGER, AND DEVELOPMENT OF LOAD LISTS FOR THE TOPAZ INVERTERS. OPERATIONS PERSONNEL PROPERLY RESPONDED TO THIS EVENT BY LIMITING THE NUMBER OF ESF SYSTEM ACTUATIONS. THOSE ESF SYSTEMS WHICH DID ACTUATE RESPONDED PER DESIGN. THEREFORE, THIS EVENT DID NOT ADVERSELY AFFECT THE HEALTH AND SAFETY OF THE PUBLIC.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
458 1990 039 0 9012170275 220503 11/09/90

DOCKET:458 RIVERBEND 1 TYPE:BWR
REGION: 4 NSSS:GE
ARCHITECTURAL ENGINEER: SWXX
FACILITY OPERATOR: GULF STATES UTILITIES
SYMBOL: GSU

WATCH-LIST CODES FOR THIS LER ARE:

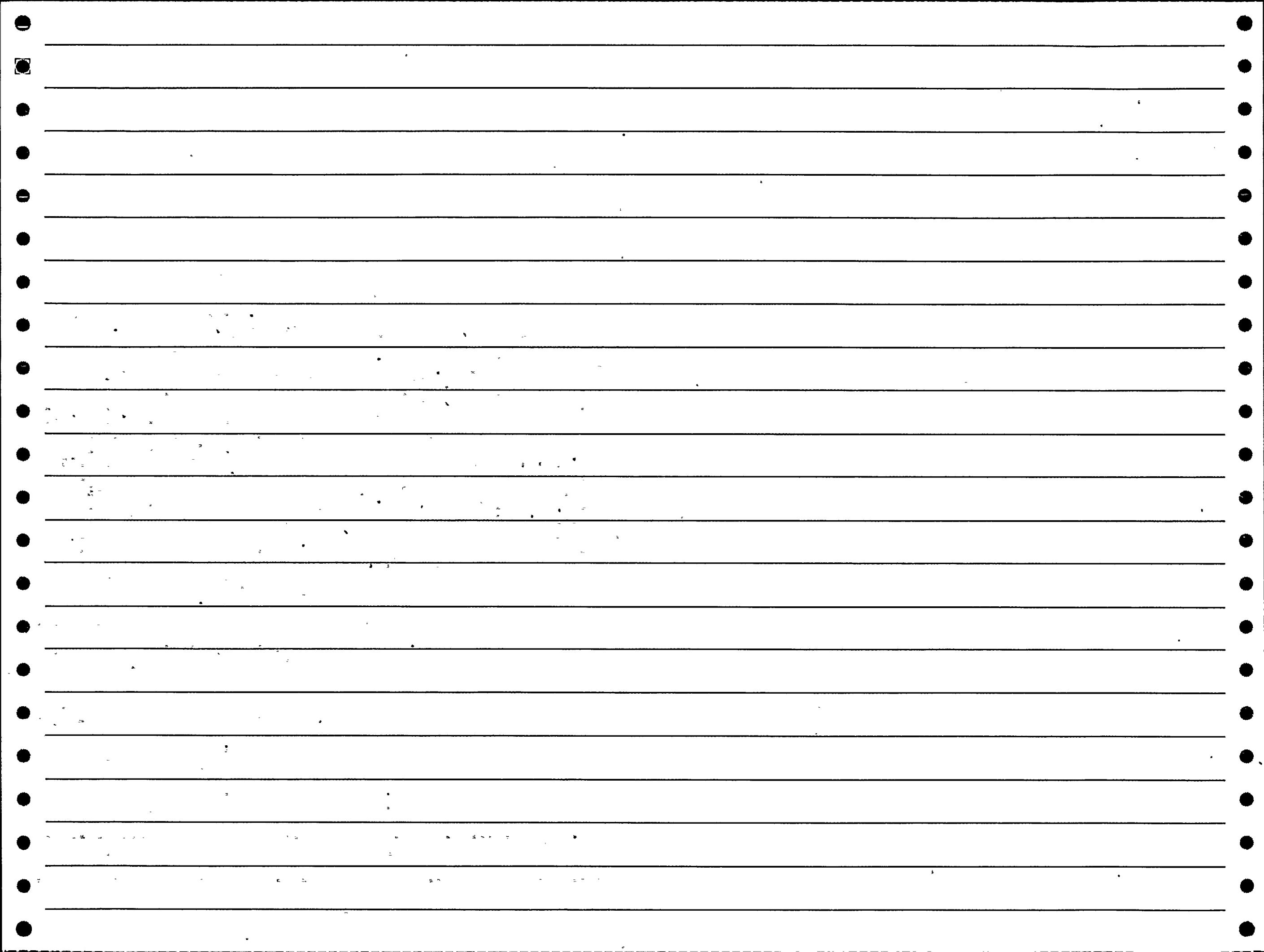
35 HUMAN ERROR
32 COMMUNICATION PROBLEM

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON 11/9/90 AT 2036 WITH THE UNIT IN OPERATIONAL CONDITION 5 (REFUELING), WITH THE WATER LEVEL GREATER THAN 23 FEET ABOVE THE REACTOR VESSEL FLANGE, POWER WAS LOST TO 480 VOLT LOAD CENTER 1NJS-SWG1D CAUSING LOSS OF THE 'B' REACTOR PROTECTION SYSTEM (RPS) MOTOR GENERATOR (MG) SET. THIS RESULTED IN ISOLATIONS OF THE REACTOR WATER CLEANUP SYSTEM (RWCU), AND THE DIVISION II CONTAINMENT ISOLATION VALVES, RESULTING IN A LOSS OF SHUTDOWN COOLING. THIS REPORT IS SUBMITTED PURSUANT TO 10CFR50.73(A)(2)(IV) TO DOCUMENT THESE ENGINEERED SAFETY FEATURE (ESF) ACTUATIONS. FOLLOWING COMPLETION OF MAINTENANCE ACTIVITIES, OPERATIONS PERSONNEL WERE IN THE PROCESS OF REALIGNING THOSE LOAD CENTERS NORMALLY POWERED FROM THE 'B' 13.8KV BUS BACK TO 1NPS-SWG1B. THE LOSS OF POWER OCCURRED BECAUSE A NUCLEAR EQUIPMENT OPERATOR DID NOT PERFORM THE VERIFICATIONS REQUIRED BY PROCEDURE. THIS EVENT WAS CAUSED BY INADEQUATE COMMUNICATION BETWEEN THE CONTROL OPERATING FOREMAN (COF) AND THE NEO, AND THE NEO NOT USING THE PROCEDURE TO PERFORM REQUIRED VERIFICATIONS. TRAINING ON THIS EVENT WILL BE PROVIDED TO OPERATIONS PERSONNEL. ALL ACTUATIONS OCCURRED AS DESIGNED UPON LOSS OF POWER. SHUTDOWN COOLING WAS RESTORED IN ABOUT 6 MINUTES AND NO INCREASE IN REACTOR VESSEL TEMPERATURE WAS OBSERVED. THEREFORE, THIS EVENT DID NOT ADVERSELY AFFECT THE HEALTH AND SAFETY OF THE PUBLIC.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
482 1985 082 0 8601080368 197986 12/02/85

DOCKET:482 WOLF CREEK 1 TYPE:PWR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: WOLF CREEK NUCLEAR OPER. CORP.
SYMBOL: WCN

COMMENTS

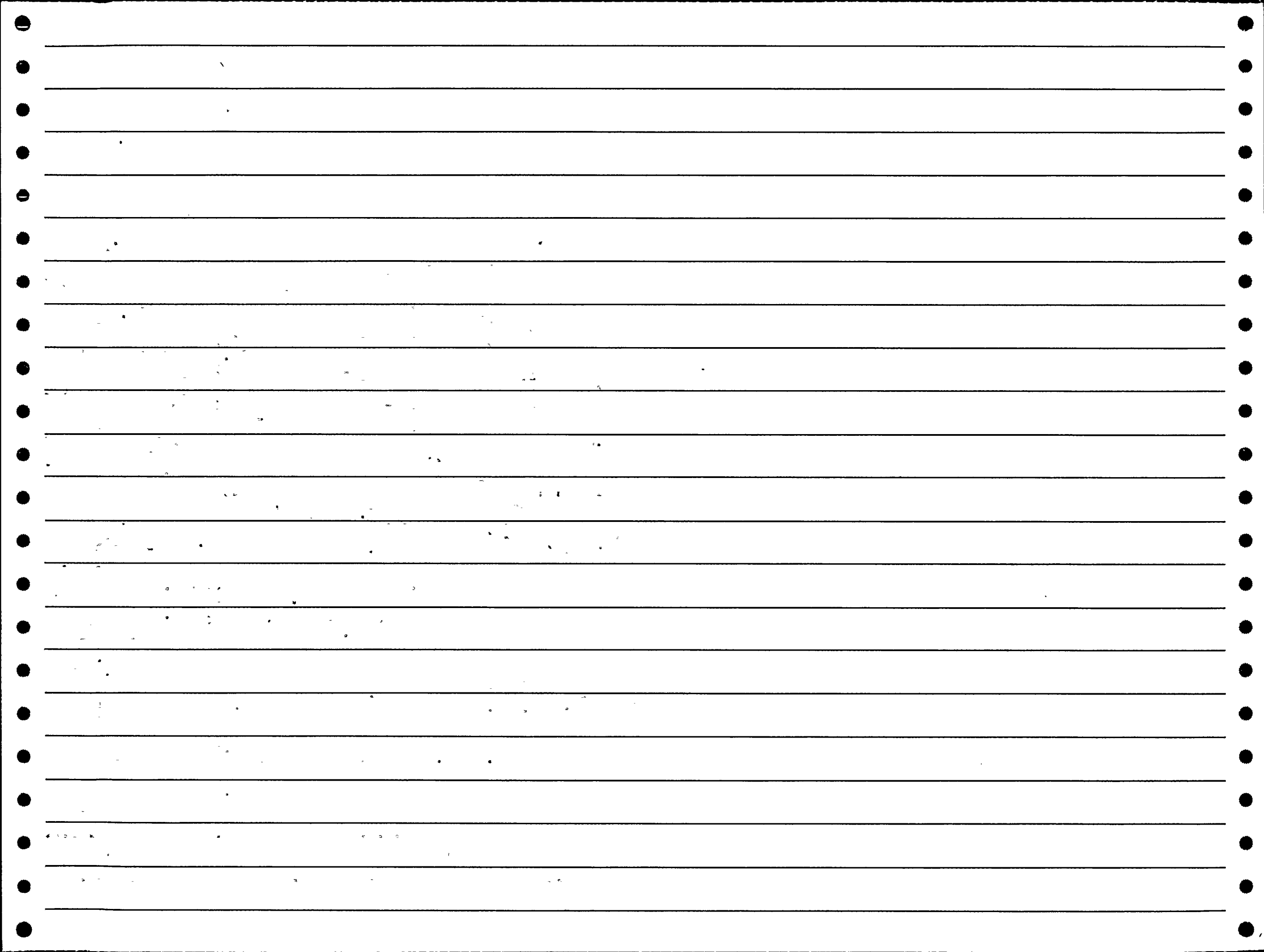
STEP 2: COMPONENT MSC - POTENTIAL TRANSFORMER CASING; STEP 3: MODEL JVS
350; STEP 5: LOSS OF ONE TRAIN OF OFFSITE POWER TO CLASS 1E DISTRIBUTION;
STEP 16: OPERABILITY OF OFFSITE TRANSMISSION NETWORK TO CLASS 1E ELECTRICAL
SYSTEM.

REPORTABILITY CODES FOR THIS LER ARE:

- 10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.
- 13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. AT APPROXIMATELY 0136 CST ON DECEMBER 2, 1985, A
CASING FAILURE ON A FEATURES (ESF) TRANSFORMER XNB01, THE POWER SUPPLY
FOR THE 4160 VOLT EMERGENCY BUS, NB01. THIS CAUSED AUTO STARTING OF
EMERGENCY DIESEL GENERATOR 'A', INITIATION OF A TURBINE-DRIVEN
AUXILIARY FEEDWATER ACTUATION SIGNAL AND ACTUATION OF THE 'A' SHUT
DOWN SEQUENCER. THE LOSS OF POWER TO SEVERAL RADIATION MONITORS ALSO
INITIATED A CONTAINMENT PURGE ISOLATION SIGNAL, A CONTROL ROOM
VENTILATION ISOLATION SIGNAL AND A FUEL BUILDING ISOLATION SIGNAL.
THE CAUSE OF THIS EVENT WAS THE FAILURE OF A METERING AND RELAY
POTENTIAL TRANSFORMER (FK-XPT) MONITORING ONE PHASE OF THE 69,000 VOLT
TRANSFORMER (FK-XFMR) WHICH PROVIDES OFF-SITE POWER TO ESF
TRANSFORMER XNB01. THE POTENTIAL TRANSFORMER FAILURE CAUSED A 69,000
VOLT BREAKER (FK-BKR) TO OPEN, RESULTING IN LOSS OF OFFSITE POWER TO
ESF TRANSFORMER XNB01. THE ONLY KEY PARAMETERS SHOWING A SIGNIFICANT
EFFECT DUE TO THIS EVENT WERE STEAM GENERATOR LEVELS, WHICH INCREASED
APPROXIMATELY 5 PERCENT DUE TO THE INTRODUCTION OF AUXILIARY
FEEDWATER. THE ESF TRANSFORMER WAS SHIFTED TO AN ALTERNATE OFFSITE
SOURCE AND THE EMERGENCY DIESEL GENERATOR WAS SECURED AT 0340 CST.
ALL ACTUATED EQUIPMENT AND SYSTEMS WERE RESTORED TO NORMAL
CONFIGURATIONS BY APPROXIMATELY 0505 CST. THE POTENTIAL TRANSFORMER
WAS REPAIRED AND NORMAL OFFSITE POWER WAS RESTORED AT APPROXIMATELY
1848 CST. THERE HAVE BEEN NO PREVIOUS SIMILAR OCCURRENCES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
482 1987 049 0 8711200328 207203 10/15/87

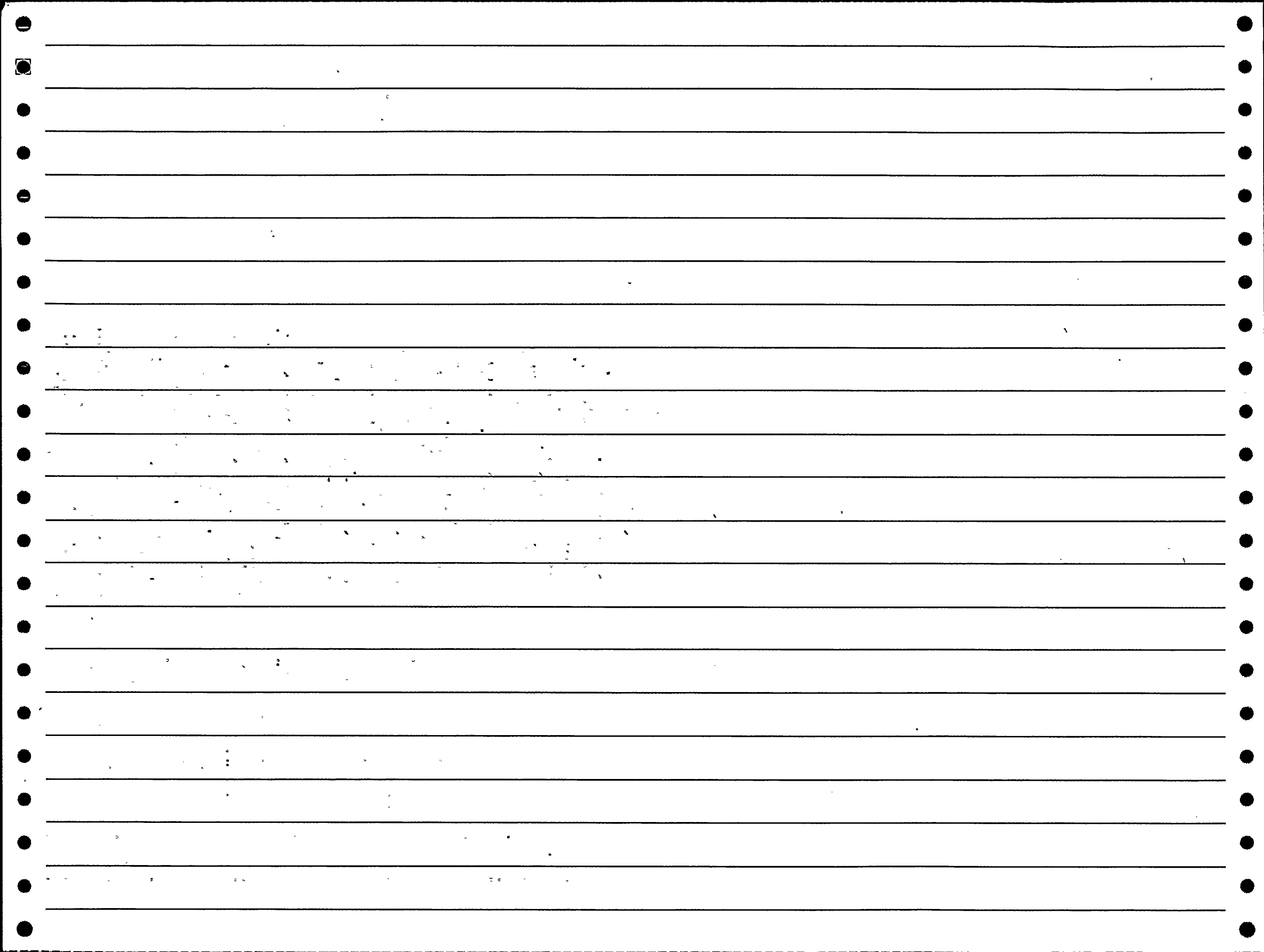
DOCKET:482 WOLF CREEK 1 TYPE:PWR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: WOLF CREEK NUCLEAR OPER. CORP.
SYMBOL: WCN

WATCH-LIST CODES FOR THIS LER ARE:
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1.482/87-048

ABSTRACT
POWER LEVEL - 000%. ON OCTOBER 15, 1987 AT APPROXIMATELY 2100 CDT,
CONTAINMENT PURGE ISOLATION SIGNAL (CPIS), CONTROL ROOM VENTILATION
ISOLATION SIGNAL (CRVIS), AND FUEL BUILDING ISOLATION SIGNAL (FBIS)
ACTUATIONS OCCURRED. ON OCTOBER 15, 1987, AT APPROXIMATELY 2332 CDT,
LOW SUCTION PRESSURE FOR AUXILIARY FEEDWATER PUMP SUCTION SWITCHOVER
TO THE ESSENTIAL SERVICE WATER SYSTEM, AND THE LOAD SHED AND EMERGENCY
LOAD SEQUENCER ACTUATIONS OCCURRED, INITIATING THE AUTOMATIC START OF
EMERGENCY DIESEL GENERATOR (D/G) 'A'. ON OCTOBER 16, 1987, AT
APPROXIMATELY 1915 CDT, CPIS, CRVIS, AND FBIS ACTUATIONS OCCURRED.
THESE EVENTS OCCURRED AS THE RESULT OF LOW BATTERY VOLTAGE, CAUSED BY
AN UNFORESEEN EXTENSION OF AN ELECTRICAL BUS OUTAGE. THE ROOT CAUSE
OF THE LOW BATTERY VOLTAGE HAS BEEN ATTRIBUTED TO COGNITIVE PERSONNEL
ERROR BY OPERATIONS AND MAINTENANCE MANAGEMENT PERSONNEL IN FAILING TO
PLAN FOR CAPABILITY TO PROVIDE TEMPORARY POWER SUPPLIES TO THE
BATTERIES DURING AN EXTENDED, SAFETY-RELATED ELECTRICAL BUS OUTAGE. A
PROCEDURE WILL BE WRITTEN FOR DE-ENERGIZING A SAFETY-RELATED 4.16
KILOVOLT DIVISION AND SUPPLYING TEMPORARY LOWER TO THE AFFECTED
BATTERIES FOR MAJOR OUTAGES.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
483 1984 052 0 8411280413 192274 10/16/84

DOCKET:483 CALLAWAY 1 TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: UNION ELECTRIC CO.
SYMBOL: UEC

COMMENTS

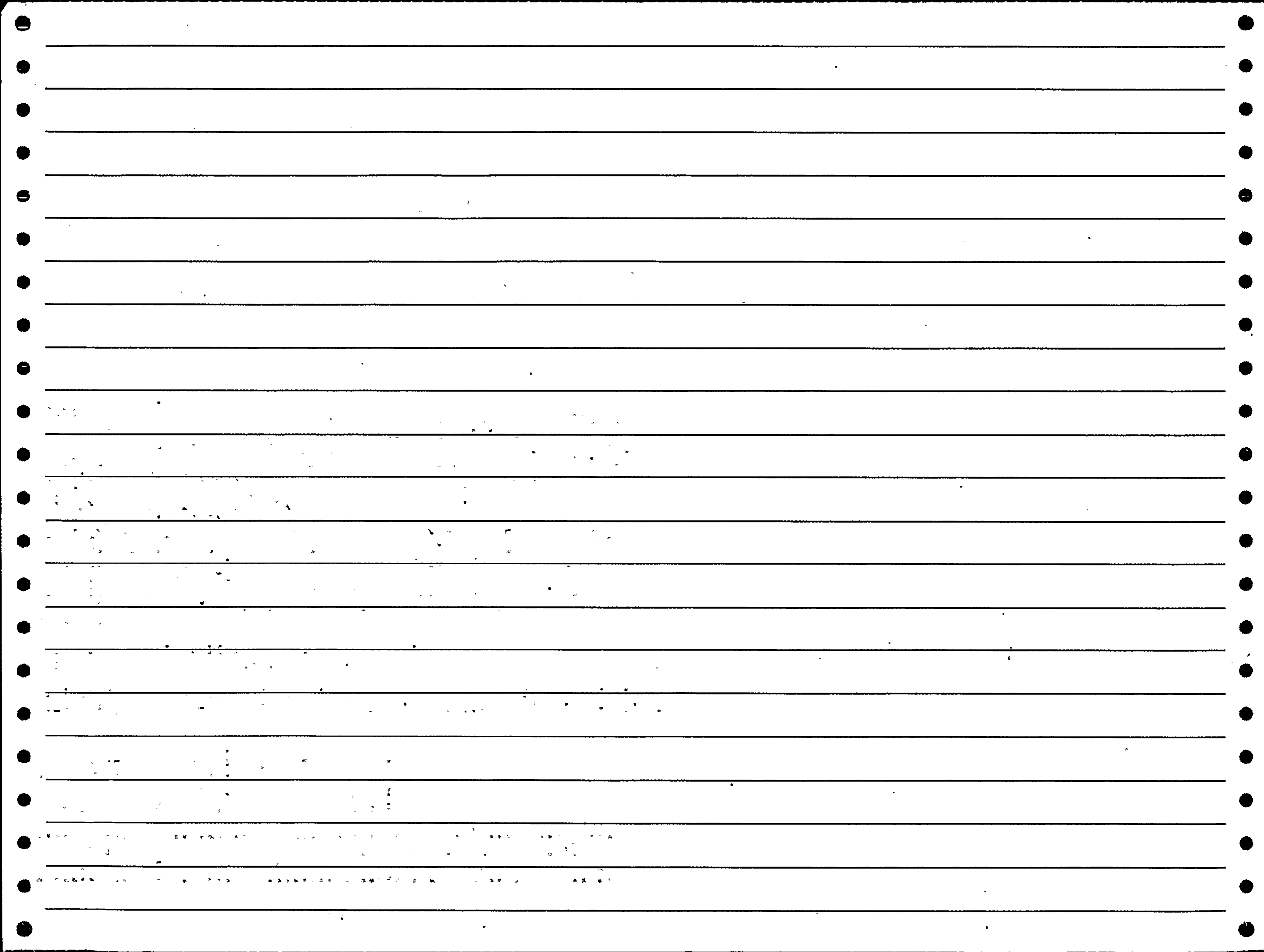
STEP 6: COMP XFMR - SAFEGUARDS TRANSFORMER. STEP 11: MODEL NO. LM-261. STEP
14: CAUSE XX - STARTUP CONDITION. STEP 2: COMP RLX - FLASHOVER RELAY.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 002%. ON 10-16-84 A SWITCHYARD BUS WAS INADVERTENTLY
ISOLATED DURING WORK ON A MAIN GENERATOR SWITCHYARD BREAKER. THE LOSS
OF SWITCHYARD BUS VOLTAGE SUBSEQUENTLY CAUSED AN UNDERVOLTAGE ON THE
CORRESPONDING ESF BUS. THE EMERGENCY DG STARTED AND CARRIED THE LOADS
BROUGHT ONTO THE BUS BY THE SHUTDOWN SEQUENCER. A CONTAINMENT PURGE
ISOLATION, CONTROL ROOM VENTILATION ISOLATION, AND FUEL BLDG ISOLATION
WERE ACTUATED. ALSO, UPON OBSERVING ERRATIC ROD POSITION DURING THE
EVENT, THE OPERATORS MANUALLY TRIPPED THE REACTOR. A FEEDWATER
ISOLATION AND AUX FEEDWATER ACTUATION OCCURRED FOLLOWING THE REACTOR
TRIP. A MODIFICATION TO THE BREAKER FAILURE CONTROL SCHEME IS BEING
EVALUATED TO PREVENT INADVERTENT ISOLATION OF THE SWITCHYARD BUS. THE
FAILED POWER SUPPLY WHICH LED TO THE ROD MOVEMENT DURING THE INCIDENT
WAS REPLACED AND THE RETEST PERFORMED SATISFACTORILY. THERE WAS NO
DAMAGE TO PLANT EQUIPMENT OR RELEASE OF RADIOACTIVITY AS A RESULT OF
THIS INCIDENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
483 1985 010 0 8504040449 193736 02/21/85

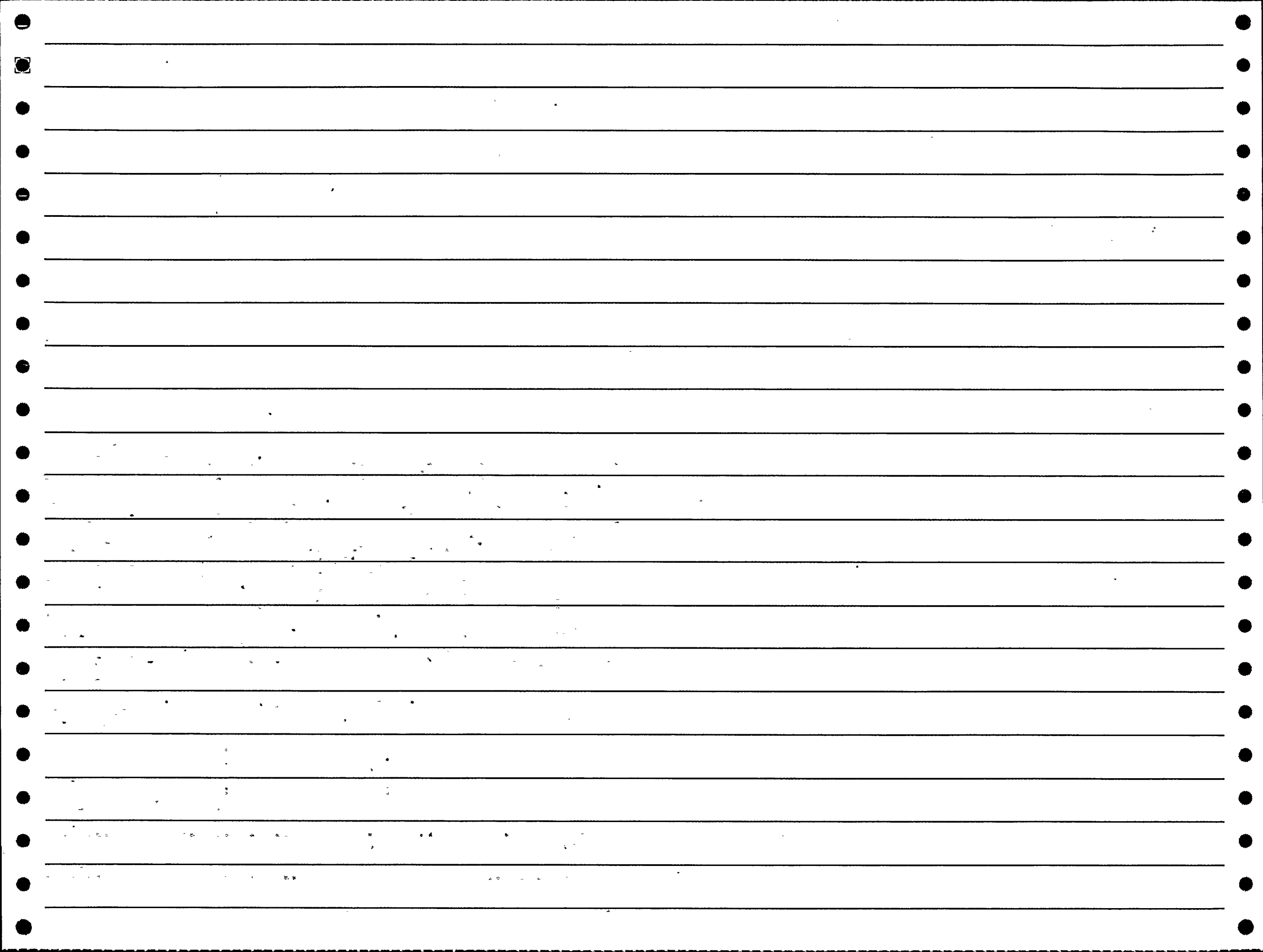
DOCKET:483 CALLAWAY 1 TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: UNION ELECTRIC CO.
SYMBOL: UEC

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. ON 2-21-85 A REACTOR TRIP, FEEDWATER ISOLATION, AUX FEEDWATER ACTUATION, AND SG BLOWDOWN ISOLATION OCCURRED WITH THE PLANT IN MODE 1 AT 100% POWER. THESE ESF'S ACTUATED AS A RESULT OF LOW SG LEVELS AND PERFORMED AS DESIGNED. THE LOW SG LEVELS OCCURRED WHEN A NONSAFETY-RELATED 120V AC INSTRUMENT BUS WAS DE-ENERGIZED DUE TO A FAULTY TRANSFORMER. THE DE-ENERGIZATION OF THE BUS CAUSED POWER TO BE LOST TO A FEEDWATER CONTROL PANEL WHICH IN TURN STOPPED THE MAIN FEEDWATER PUMP POWERED BY THAT PANEL. THE LOSS OF THE MFP RESULTED IN THE LOW SG LEVELS WHICH ACTUATED THE ESF SYSTEMS. THE OPERATORS RECOVERED FROM THE TRIP VIA PLANT PROCEDURES AND STABILIZED PLANT CONDITIONS. THE FAULTY TRANSFORMER WAS REPLACED AND IS TO BE SENT TO THE VENDOR FOR A FAILURE ANALYSIS. NO FURTHER CORRECTIVE ACTION IS DEEMED NECESSARY UNLESS PROVEN OTHERWISE BY THE VENDOR EVALUATION. THERE WAS NO DAMAGE TO PLANT EQUIPMENT OR RELEASE OF RADIOACTIVITY AS A RESULT OF THIS INCIDENT. THE REQUIRED SAFETY SYSTEMS PERFORMED AS DESIGNED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
483 1986 010 1 8610280571 201560 04/16/86

DOCKET:483 CALLAWAY 1. TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: UNION ELECTRIC CO.
SYMBOL: UEC

COMMENTS

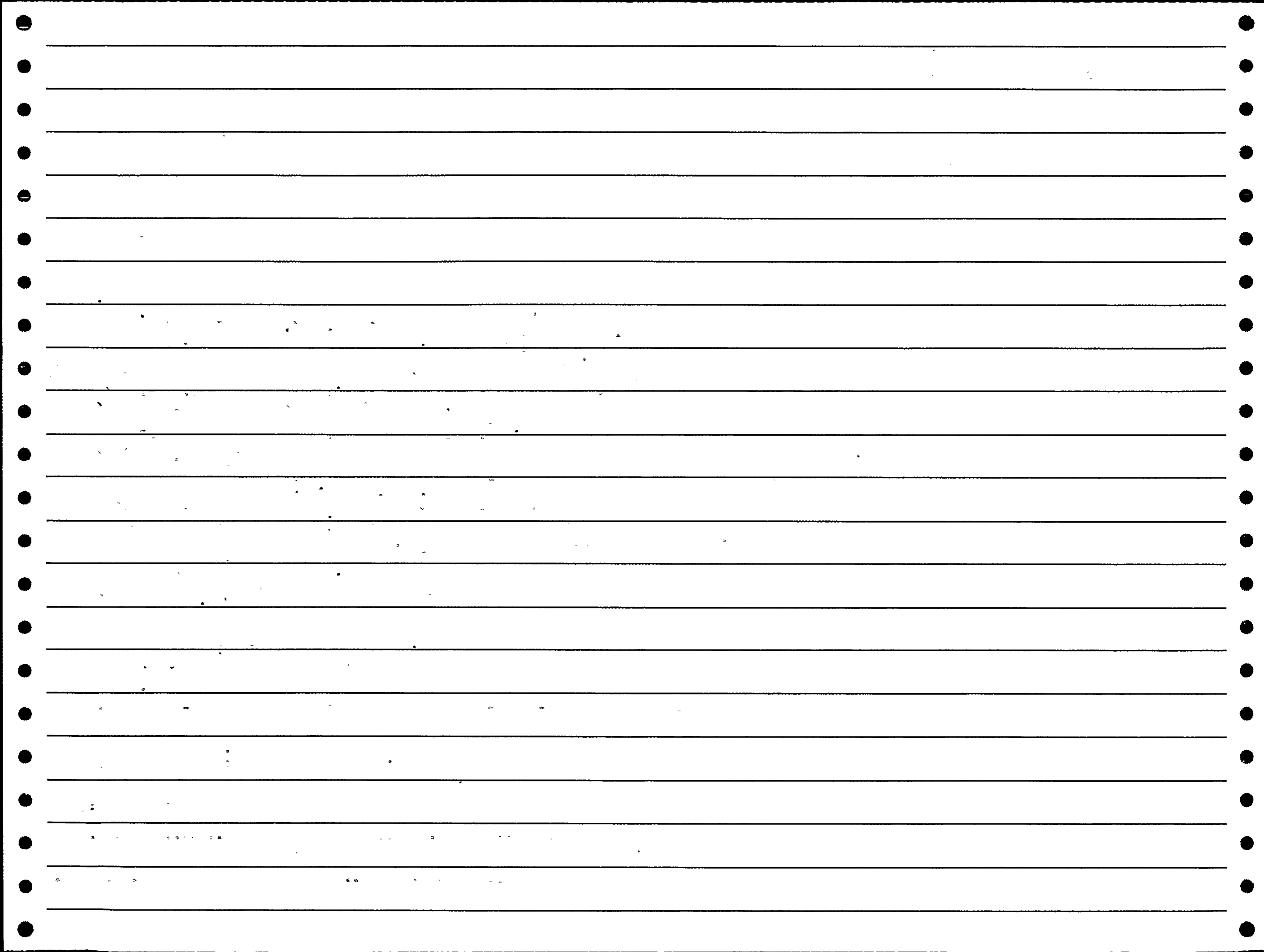
STEP 1: CAUSE AX-FOR CORE TESTING. STEP 6: COMP XFMR-FERRO- RESONANT OUTPUT TRANSFORMER.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON 4/16/86 AT 1424 CST, A REACTOR TRIP AND A FEEDWATER ISOLATION (FWIS) OCCURRED AS A RESULT OF A POWER RANGE HIGH SETPOINT HIGH FLUX (PRHSF) SIGNAL. AT THE TIME OF THE TRIP THE REACTOR WAS IN MODE 2, STARTUP, AT 0% OF RATED THERMAL POWER AND NORMAL OPERATING TEMPERATURE AND PRESSURE. THE PRHSF TRIP OCCURRED DUE TO LOSS OF 120 VAC POWER SUPPLYING POWER RANGE NUCLEAR INSTRUMENTATION (PRNI) CHANNEL 41. LOSS OF 120 VAC POWER TO PRNI CHANNEL 41 WAS CAUSED BY FAILURE OF THE NN-11 INVERTER TRANSFORMER THAT SUPPLIES POWER TO BUS NN-01. PREVIOUS TO THE TRIP, PRNI CHANNEL 44 WAS PLACED OUT OF SERVICE (IN TRIPPED CONDITION) TO FACILITATE CORE PHYSICS TESTING. SINCE PRNI CHANNEL 44 WAS ALREADY IN THE TRIPPED CONDITION, FAILURE OF THE POWER SUPPLY TO PRNI CHANNEL 41 SATISFIED THE 2 OF 4 LOGIC NECESSARY TO INITIATE THE REACTOR TRIP. THE OTHER FOUR INVERTER TRANSFORMERS AS WELL AS THE REPLACEMENT TRANSFORMER WERE TESTED, PER WESTINGHOUSE TECHNICAL BULLETIN 84-11 AS A PRECAUTIONARY MEASURE, WITH SATISFACTORY RESULTS. BASED UPON A GENERAL ELECTRIC FAULT ANALYSIS OF THE DEFECTIVE TRANSFORMER, WESTINGHOUSE CONCLUDED IT FAILED WHEN THE MAIN AND REACTOR TRANSFORMERS SHORTED TO GROUND. THE CAUSE OF THE FAILURE COULD NOT BE DETERMINED. THE FAILURE IS CONSIDERED AN ISOLATED EVENT. ALL ENGINEERED SAFETY FEATURES ACTUATED AS DESIGNED. AT NO TIME DID THIS EVENT ENDANGER THE PUBLIC HEALTH OR SAFETY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
483 1990 014 0 9012110235 220214 11/06/90

DOCKET:483. CALLAWAY 1. TYPE:PWR
REGION: 3 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: UNION ELECTRIC CO.
SYMBOL: UEC

COMMENTS

STEP 1: CAUSE AX - SURVEILLANCE TESTING. STEP 3: MODEL NO. 2837A13G02,
SERIAL NO. 803784.

WATCH-LIST CODES FOR THIS LER ARE:

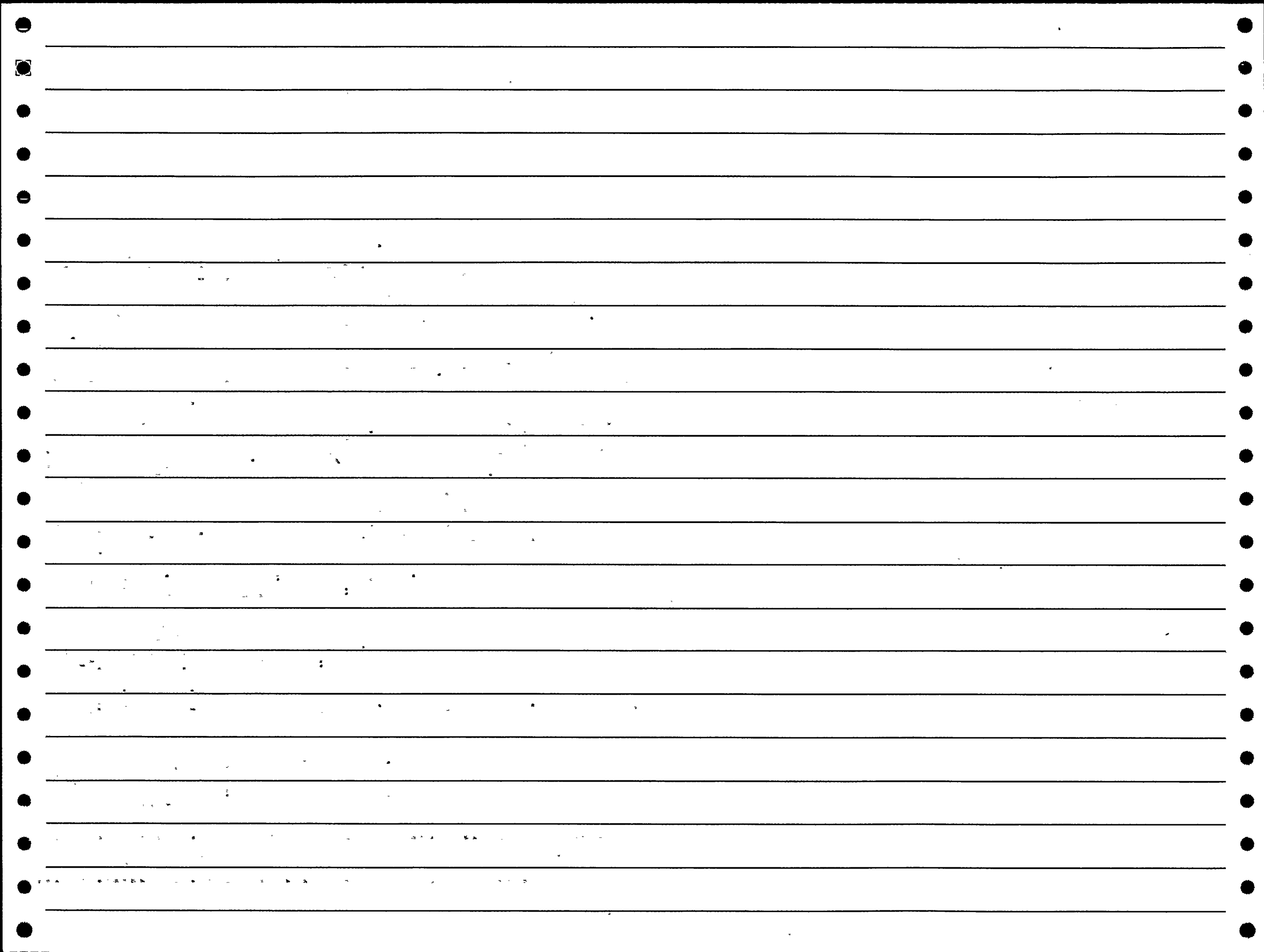
941 REPORT ASSOCIATED WITH 10 CFR 50.72
20 EQUIPMENT FAILURE
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON 11/6/90 AT 2242 CST, A REACTOR PROTECTION SYSTEM (RPS) ACTUATION AND FEEDWATER ISOLATION SIGNAL (FWIS) OCCURRED WHEN A UTILITY INSTRUMENT AND CONTROL (I&C) TECHNICIAN INADVERTENTLY GROUNDED THE SB038 PROTECTION SET I CABINET BACKUP POWER SUPPLY WHILE TIGHTENING A LOOSE FUSE HOLDER ON SB038 CARD FRAME 6. THE PLANT WAS IN MODE 4 - HOT SHUTDOWN. AT 2215, ALARMS CAME IN AND CLEARED WHEN THE SB038 PROTECTION SET I CABINET MAIN POWER SUPPLY FAILED AND THE BACKUP POWER SUPPLY PICKED UP THE LOAD. INVESTIGATION REVEALED THE SB038 MAIN POWER SUPPLY OUTPUT BREAKER HAD OPENED AND THE FUSE TO CARD FRAME 6 HAD BLOWN. WHILE TIGHTENING A LOOSE FUSE HOLDER RETAINING NUT, AN I&C TECHNICIAN SHORTED THE BACKUP POWER SUPPLY TO GROUND RESULTING IN A COMPLETE LOSS OF POWER TO SB038. LOSS OF POWER TO SB038 CAUSED THE TURBINE POWER/REACTOR TRIP PERMISSIVE TO DE-ENERGIZE WITH THE NECESSARY LOGIC MET TO INITIATE AN RPS ACTUATION AND FWIS. CAUSE OF THIS EVENT WAS THE TECHNICIAN USING INADEQUATELY INSULATED NEEDLE-NOSE PLIERS WHEN TIGHTENING THE FUSE HOLDER RETAINING NUT. THIS EVENT HAS BEEN REVIEWED WITH THE INDIVIDUAL INVOLVED. FAILURE OF PRIMARY POWER SUPPLY WAS DUE TO A CAPACITOR FAILURE IN POWER SUPPLY CIRCUIT OF CARD BB-TB-412 D/G IN FRAME 2 OF SB038. FUSE HOLDER RETAINING NUT WAS TIGHTENED. BB-TB-412 D/G WAS REPLACED, AND PLANT RESUMED SCHEDULED ACTIVITIES ON 11/7/90.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
498 1987 005 0 8710060486 206507 09/04/87

DOCKET:498 SOUTH TEXAS 1 TYPE:PWR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: HOUSTON LIGHTING & POWER CO.
SYMBOL: HLP

WATCH-LIST CODES FOR THIS LER ARE:

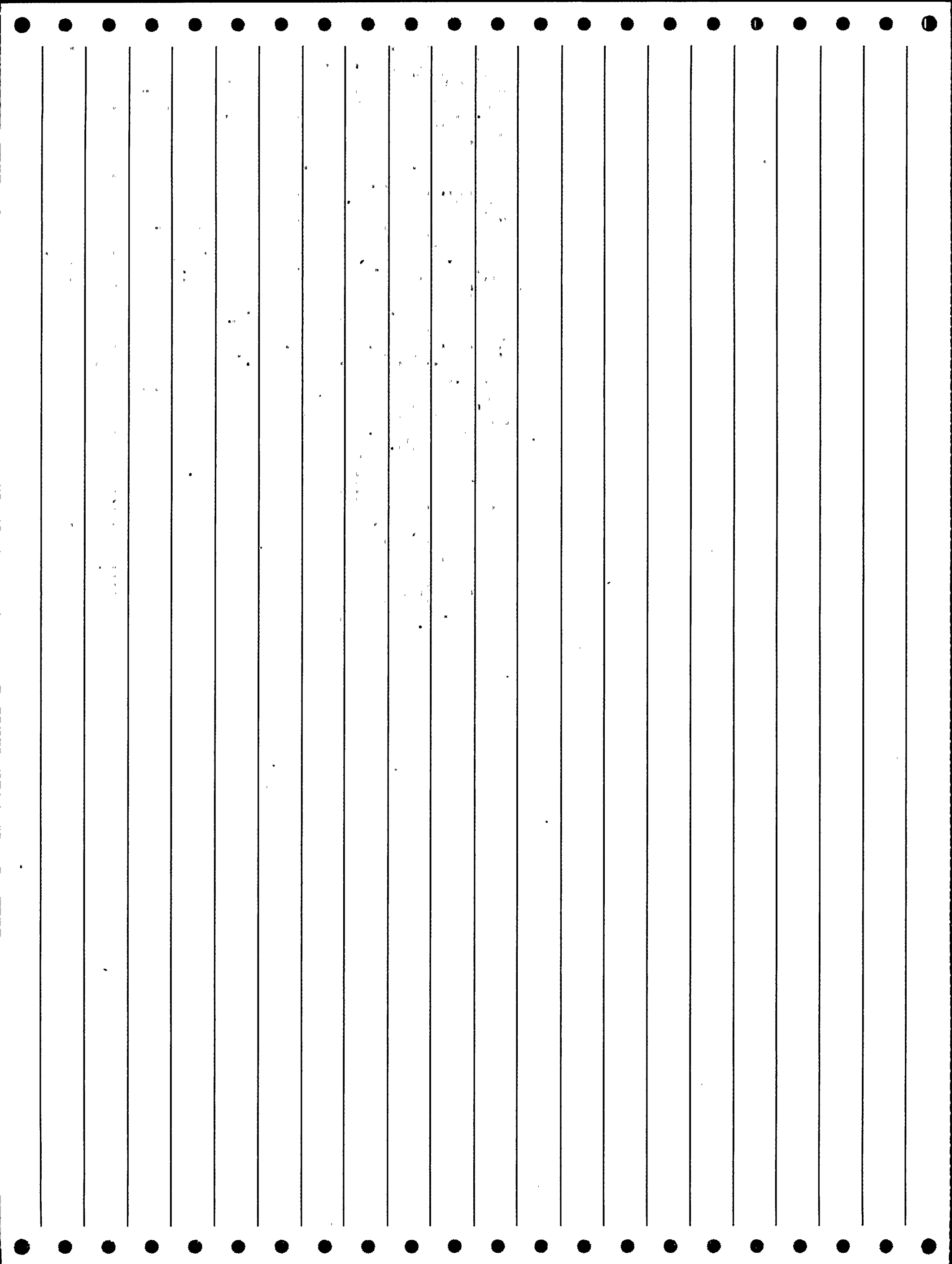
941 REPORT ASSOCIATED WITH 10 CFR 50.72
35 HUMAN ERROR

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. AT APPROXIMATELY 1500 HOURS ON SEPTEMBER 4, 1987 WITH THE UNIT 1 IN MODE 5, AN EMPLOYEE ACCIDENTLY TRIPPED AN AC BREAKER ON A NON-CLASS 1E VOLTAGE REGULATING TRANSFORMER, CAUSING THE LOSS OF BACKUP POWER TO A NON-CLASS 1E INVERTER. INCORRECT OPERATOR RESPONSE TO THE LOSS OF BACKUP POWER THEN RESULTED IN THE LOSS OF CONTROL POWER TO THE CONTROL ROOM TOXIC GAS MONITOR ACTUATION RELAYS. THIS CAUSED AN AUTO-ACTUATION OF THE CONTROL ROOM VENTILATION SYSTEM TO THE RECIRCULATION MODE. THE ROOT CAUSE OF THIS EVENT IS THE LACK OF OPERATOR KNOWLEDGE IN RESPONDING TO THE LOCAL ALARM ON THE INVERTER. THE CORRECTIVE ACTIONS WILL INCLUDE TRAINING OF OPERATORS ON THE PROPER OPERATION OF INVERTER SYSTEMS AND INSTALLING PROTECTIVE GUARDS ON THE BREAKERS IN HIGH TRAFFIC AREAS.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
498 1987 021 0 8801150249 207702 11/30/87

DOCKET:498 SOUTH TEXAS 1 TYPE:PHR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: HOUSTON LIGHTING & POWER CO.
SYMBOL: HLP

WATCH-LIST CODES FOR THIS LER ARE:

40 PROCEDURAL DEFICIENCY
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

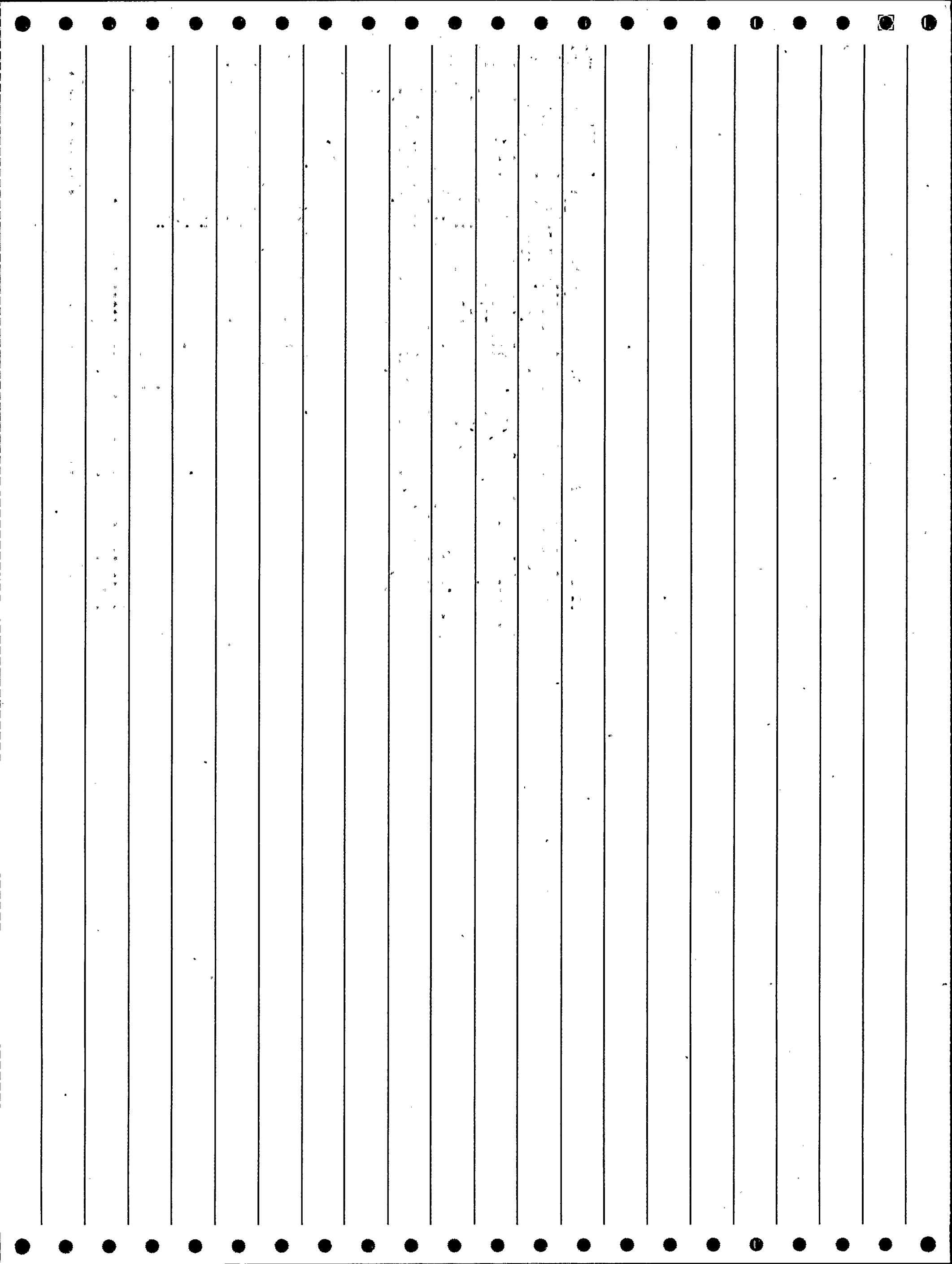
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 498/87-025

ABSTRACT

POWER LEVEL - 000%. AT APPROXIMATELY 2145 HOURS ON NOVEMBER 30, 1987 WITH THE UNIT IN MODE 4 PRIOR TO INITIAL CRITICALITY, WHILE TROUBLESHOOTING THE TRAIN B ENGINEERED SAFETY FEATURE (ESF) LOAD SEQUENCER, AN UNANTICIPATED BUS STRIP AND DIESEL GENERATOR START OCCURRED WHEN A MAINTENANCE TECHNICIAN DEENERGIZED THE SEQUENCER. THE SEQUENCER WAS REENERGIZED TO CLEAR THE BUS STRIP AND THE SEQUENCER CORRECTLY BEGAN A LOSS OF OFFSITE POWER (LOOP) LOADING SEQUENCE. AFTER CONFIRMING THAT NO LOOP ACTUALLY EXISTED, THE SEQUENCER WAS DEENERGIZED, THE DIESEL GENERATOR WAS STOPPED, AND AFFECTED EQUIPMENT WAS RETURNED TO NORMAL ALIGNMENT. THE CAUSE OF THE OCCURRENCE HAS NOT BEEN CONCLUSIVELY IDENTIFIED. THE MOST LIKELY CAUSE APPEARS TO BE THE CREATION OF UNUSUAL LOGIC STATES IN THE SEQUENCER MAIN-PROCESSOR WHEN IT WAS PARTIALLY DEENERGIZED. THE METHOD FOR DEENERGIZATION OF THE SEQUENCERS HAS BEEN REVISED TO PRECLUDE THE POSSIBILITY OF THIS TYPE OF FAILURE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
498 1988 021 1 8806210225 209682 02/24/88

DOCKET:498 SOUTH TEXAS 1 TYPE:PWR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: HOUSTON LIGHTING & POWER CO.
SYMBOL: HLP

COMMENTS

STEP 1: COMP CNV - DC TO DC CONVERTER ASSEMBLY. STEP 3: MODEL NO. UPS
253-1-112. SE/E/1.

WATCH-LIST CODES FOR THIS LER ARE:

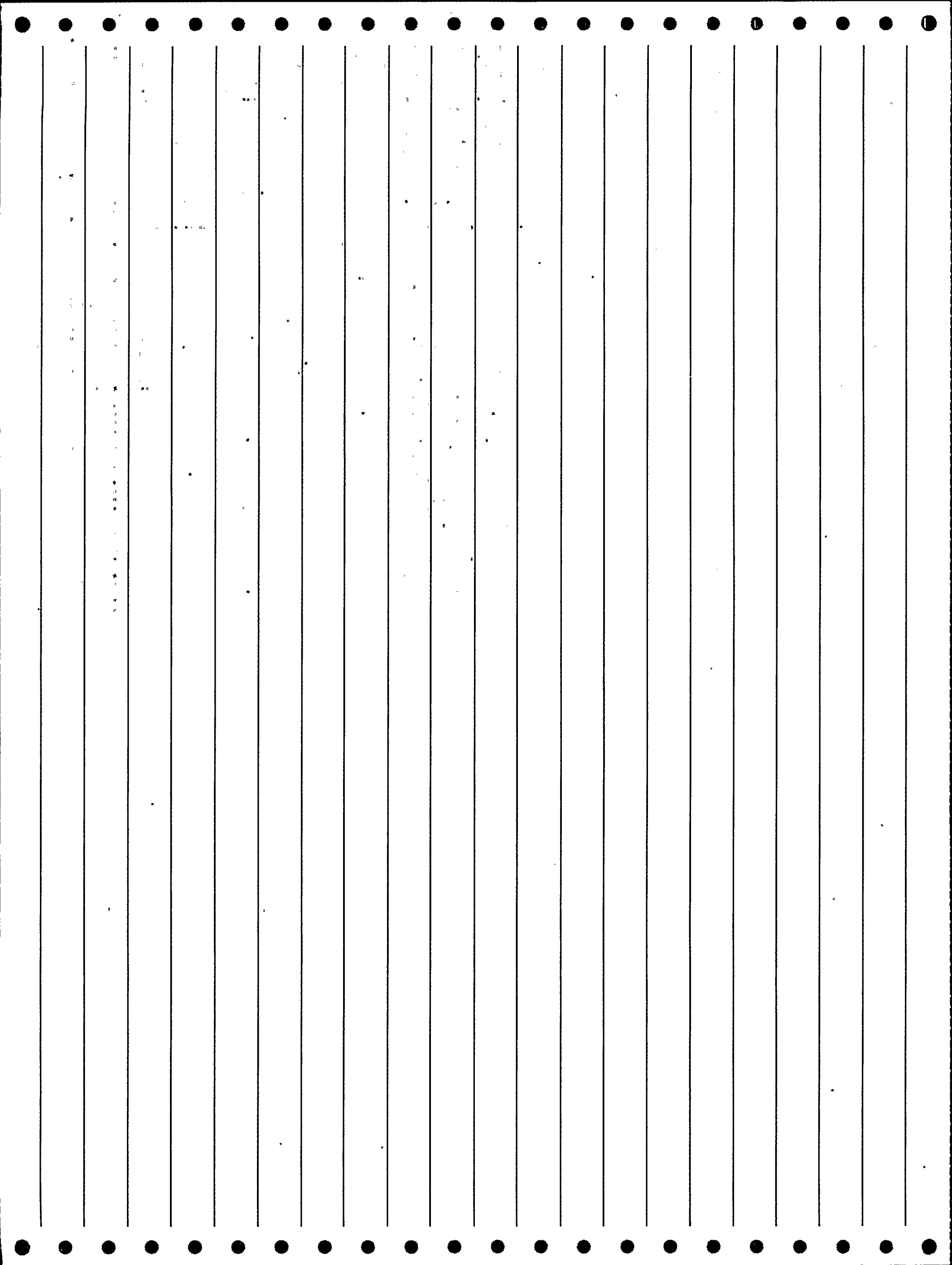
941 REPORT ASSOCIATED WITH 10 CFR 50.72
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. 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.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
498 1989 008 0 8903210145 213285 02/12/89

DOCKET:498 SOUTH TEXAS 1 TYPE:PWR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: HOUSTON LIGHTING & POWER CO.
SYMBOL: HLP

COMMENTS

STEP 1: COMP XFMR - FERRORESONANT TRANSFORMER, PART NO. 3485C38H08. STEPS
8, 9, 10: COMP HX - ACTUATION OF EMERGENCY HVAC AND SWAP OF CHARGING PUMP
SUCTION FROM VCT TO THE RWST.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE
941. REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

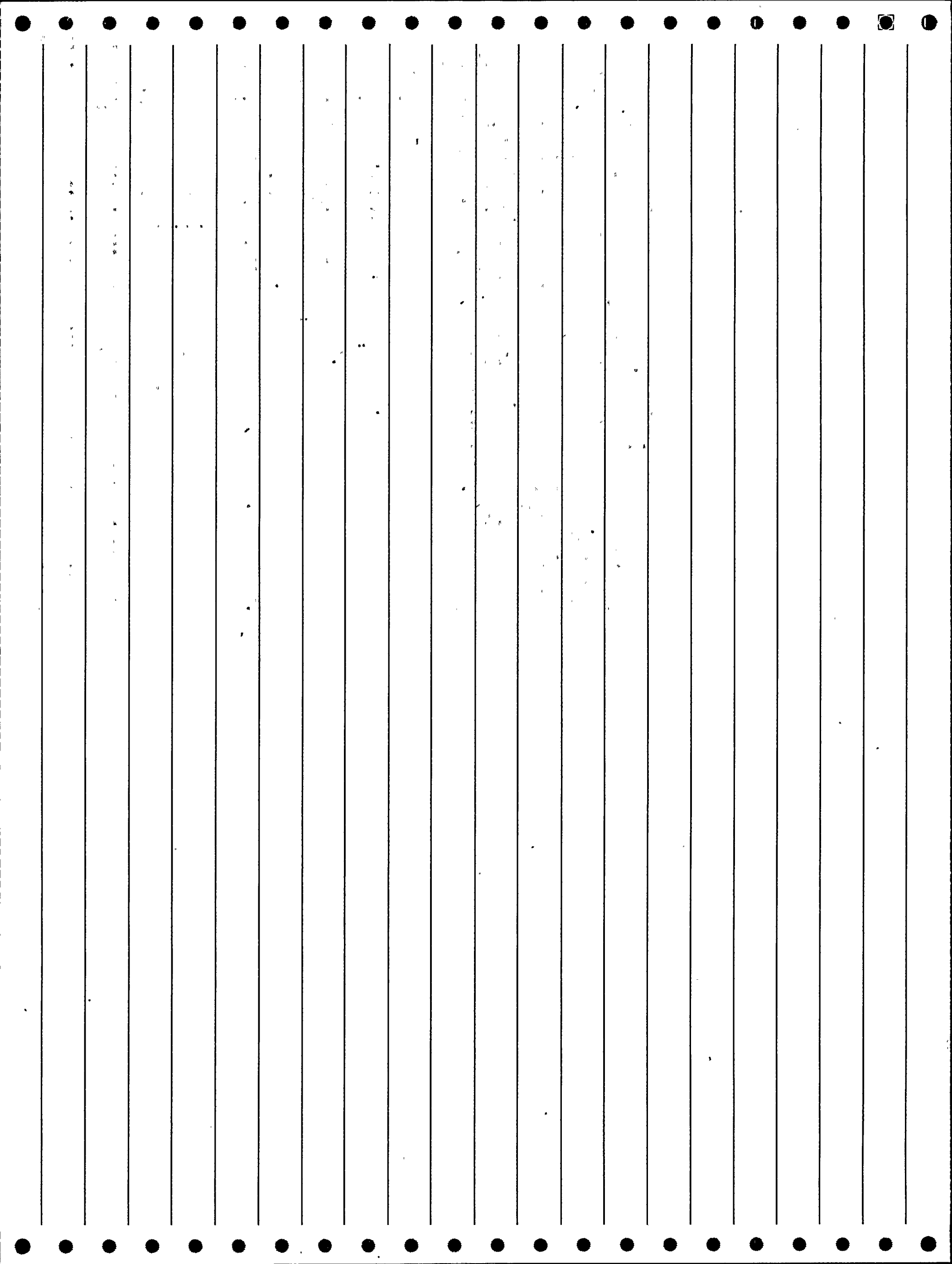
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 445/90-002

ABSTRACT

POWER LEVEL - 000%. ON 2/12/89, UNIT 1 WAS IN MODE 5. AT 0529 HOURS A
- PLANT OPERATOR NOTICIED EVIDENCE THAT INVERTER IV-1203, WHICH
SUPPLIES UNINTERRUPTABLE POWER TO DISTRIBUTION PANEL DP-1203, WAS
OVERHEATING. THE OPERATOR IMMEDIATELY TRANSFERRED THE DISTRIBUTION
PANEL TO ITS ALTERNATE SOURCE AND SECURED THE INVERTER. SINCE THIS
WAS A DEAD BUS TRANSFER, IT RESULTED IN A MOMENTARY LOSS OF POWER AND
SUBSEQUENT ACTUATION OF THE CONTROL ROOM AND FUEL HANDLING BUILDING
HVAC SYSTEMS TO THE EMERGENCY MODE, TRIPPING OF RESIDUAL HEAT REMOVAL
PUMP 1B, AND SHIFTING OF CENTRIFUGAL CHARGING PUMP 1B SUCTION TO THE
REFUELING WATER STORAGE TANK FROM THE VOLUME CONTROL TANK. THESE
SYSTEMS WERE RESTORED TO NORMAL OPERATION AFTER POWER WAS RESTORED.
THE CAUSE OF THIS EVENT WAS A SHORT TO GROUND ON THE SECONDARY SIDE OF
THE INVERTER FERRORESONANT TRANSFORMER. CORRECTIVE ACTIONS INCLUDE
REPLACEMENT AND FAILURE ANALYSIS OF THE FAILED TRANSFORMER.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
498 1989 020 0 8911150093 215927 10/11/89

DOCKET:498 SOUTH TEXAS 1 TYPE:PWR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: HOUSTON LIGHTING & POWER CO.
SYMBOL: HLP

COMMENTS

STEP 2: COMP CNV - DC TO DC CONVERTER BOARD. STEP 4: MODEL NO. INV
253-1-105.

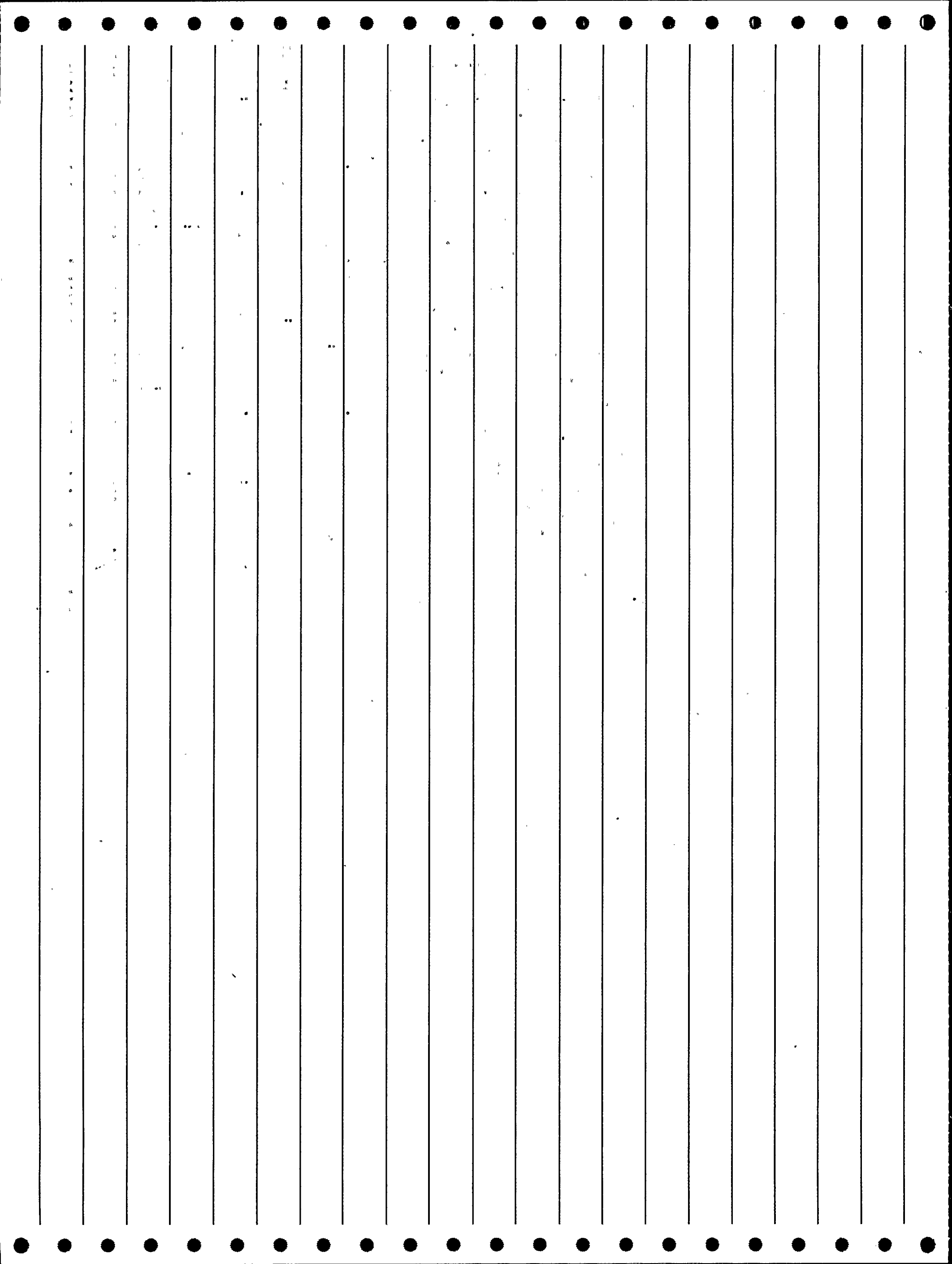
WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 498/88-021 2 499/89-023

ABSTRACT

POWER LEVEL - 000%. ON 10/11/89, UNIT 1 WAS IN MODE 3 PRIOR TO RESTART FROM A REFUELING OUTAGE. AT APPROXIMATELY 1533 HOURS, THE INVERTER WHICH FEEDS THE CHANNEL IV CLASS 1E VITAL AC DISTRIBUTION PANEL FAILED. THIS CAUSED ENGINEERED SAFETY FEATURES ACTUATIONS OF THE CONTROL ROOM, REACTOR CONTAINMENT BUILDING AND FUEL HANDLING BUILDING HVAC SYSTEMS DUE TO LOSS OF POWER TO THEIR RESPECTIVE RADIATION MONITORS. THE CAUSE OF THIS EVENT WAS FAILURE OF A BRIDGE RECTIFIER CIRCUIT ON THE INVERTER DC TO DC CONVERTER BOARD. THE CIRCUIT APPEARED TO HAVE FAILED DUE TO EXCESSIVE OUTPUT VOLTAGE OVER AN EXTENDED PERIOD OF TIME WHICH OVERHEATED THE COMPONENTS. THE INVERTER HAS BEEN REPAIRED AND THE DC TO DC CONVERTER VOLTAGE ADJUSTED. PREVENTIVE MAINTENANCE PROCEDURES WILL BE REVISED TO REQUIRE PERIODIC DC TO DC CONVERTER BOARD OUTPUT VOLTAGE ADJUSTMENTS. INVERTERS WILL BE ADDED TO THE EXISTING PLANT THERMOGRAPHY PROGRAM WHICH WILL ASSIST IN IDENTIFYING EQUIPMENT THAT COULD BE APPROACHING A SIMILAR FAILURE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
498 1990 021 0 9010260064 219954 09/09/90

DOCKET:498 SOUTH TEXAS 1 TYPE:PWR
REGION: 4 NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: HOUSTON LIGHTING & POWER CO.
SYMBOL: HLP

COMMENTS

STEP 5: MODEL NO. UPS 253-1-112..

WATCH-LIST CODES FOR THIS LER ARE:

942 UNUSUAL EVENT
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

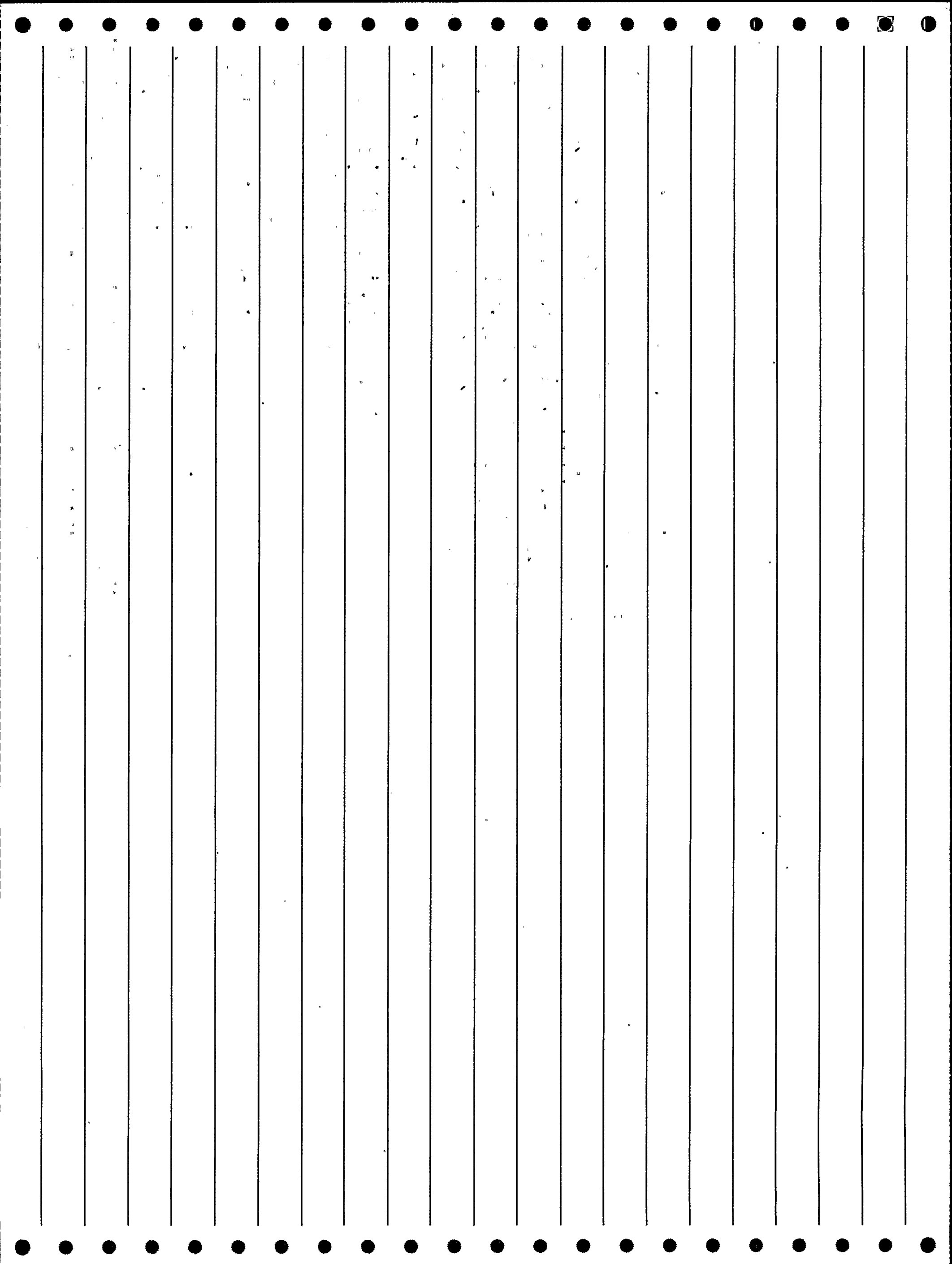
10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 498/88-021 2 498/89-020 3 499/89-023

ABSTRACT

POWER LEVEL - 100%. ON SEPTEMBER 9, 1990, UNIT 1 WAS IN MODE 1 AT 100% POWER. AT 0822 HOURS, THE INVERTER WHICH FEEDS THE CLASS 1E AC VITAL DISTRIBUTION PANEL DPO02 FAILED. THIS CAUSED ENGINEERED SAFETY FEATURES ACTUATIONS OF THE CONTROL ROOM, REACTOR CONTAINMENT BUILDING AND FUEL HANDLING BUILDING HVAC SYSTEMS DUE TO A LOSS OF POWER TO THEIR RESPECTIVE RADIATION MONITORS. TROUBLESHOOTING ACTIVITIES WERE EXTENSIVE AND COULD NOT BE COMPLETED WITHIN THE TWENTY-FOUR HOUR ACTION STATEMENT OF TECHNICAL SPECIFICATION 3.8.3.1. AT 0822 HOURS ON SEPTEMBER 10, 1990, A SHUTDOWN OF UNIT 1 COMMENCED. THE CAUSE OF THIS EVENT WAS FAILURE OF A POWER FILTER CAPACITOR WHICH INTERRUPTED POWER TO THE INVERTER CONTROLLER CARD AND BLEW TWO MAIN POWER FUSES. CORRECTIVE ACTIONS INCLUDE REPLACEMENT OF THE DC TO DC CONVERTER BOARD WHICH WILL BE RETURNED TO THE MANUFACTURER FOR ANALYSIS, TRENDING AND ANALYSIS OF MEASUREMENTS TAKEN FROM THE DC TO DC CONVERTER BOARDS OF SIMILAR INVERTERS, AND REVISION OF THE MAINTENANCE MANUAL.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
499 1990 016 0 9012110226 220507 10/27/90

DOCKET:499 SOUTH TEXAS 2 TYPE:PWR
REGION: 4. NSSS:WE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: HOUSTON LIGHTING & POWER CO.
SYMBOL: HLP

COMMENTS

STEP 2: EFF IX - CROSS-TIED.

WATCH-LIST CODES FOR THIS LER ARE:

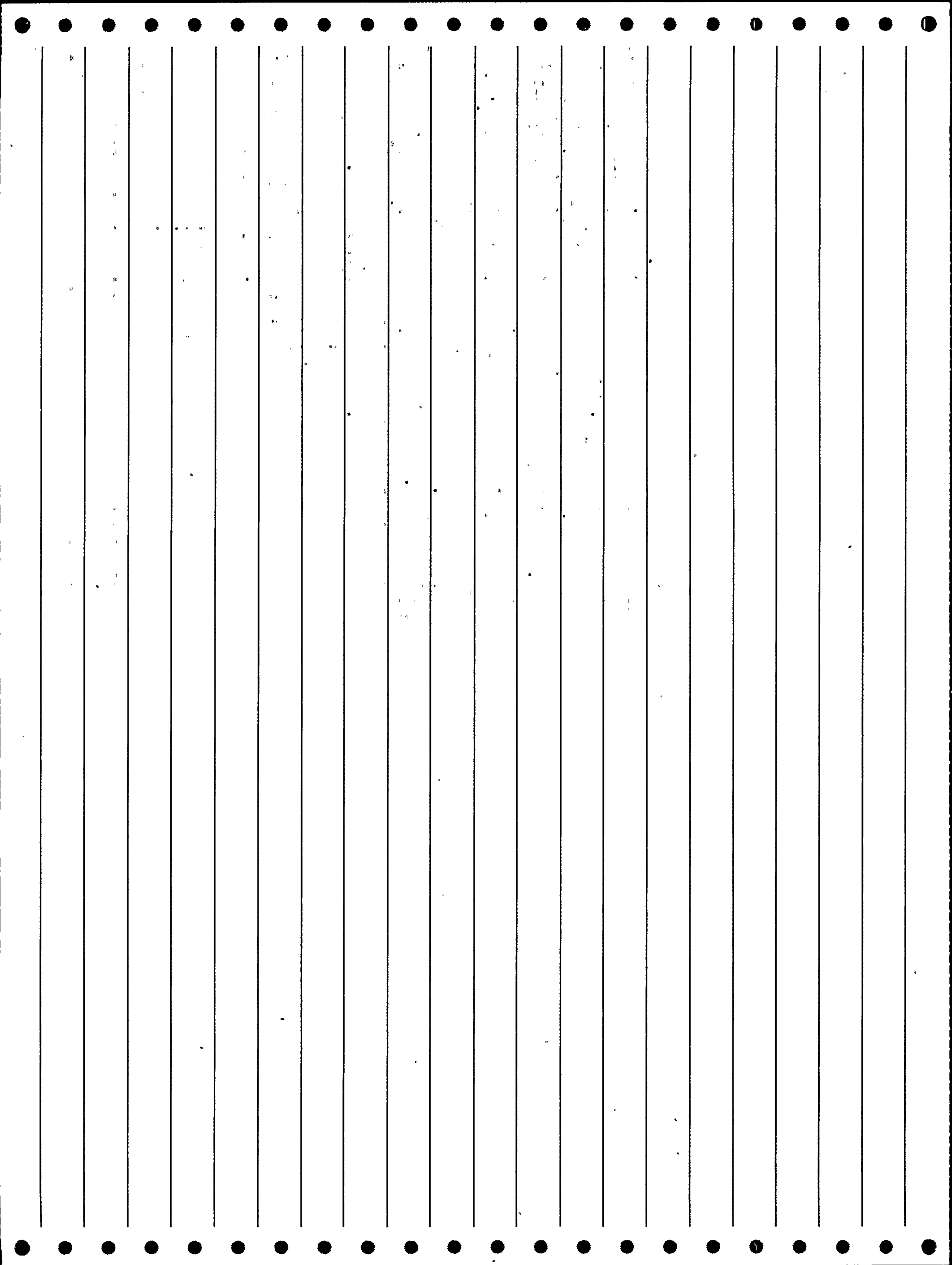
60 SPURIOUS/ UNKNOWN CAUSE
941 REPORT ASSOCIATED WITH 10 CFR 50.72

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. ON OCTOBER 27, 1990, UNIT 2 WAS IN ITS FIRST REFUELING OUTAGE WITH NO FUEL IN THE REACTOR VESSEL. AT APPROXIMATELY 0159 HOURS, AN ENGINEERED SAFETY FEATURES (ESF) ACTUATION OF ALL THREE TRAINS OF FUEL HANDLING BUILDING (FHB) HVAC OCCURRED. THE TRAIN 1 120 VOLT AC VITAL DISTRIBUTION PANEL DP002 PROVIDES POWER TO THE RADIATION MONITORING SYSTEM PANEL FOR THE FHB RADIATION MONITOR RT-8036. DISTRIBUTION PANEL DP002 WAS FED FROM THE E2C2 480 VOLT LOAD CENTER. AT APPROXIMATELY 0128 HOURS, A CROSS TYING OF THE E2C1 AND E2C2 480 VOLT LOAD CENTERS WAS PERFORMED WHICH RESULTED IN A MOMENTARY LOSS OF POWER TO DISTRIBUTION PANEL DP002. THE 25KVA INVERTER WHICH NORMALLY SUPPLIES POWER TO DP002 WAS OUT OF SERVICE THEREFORE THE UNINTERRUPTABLE POWER SUPPLY WAS NOT AVAILABLE DURING THIS MANIPULATION. THE CAUSE OF THIS ACTUATION IS NOT KNOWN. THE MOST PROBABLE CAUSE OF THE EVENT WAS A MOMENTARY LOSS OF POWER TO THE RADIATION MONITOR CONTROL ROOM PANEL ZCP023. THE MOMENTARY POWER INTERRUPTION MAY HAVE RESULTED IN A SOFTWARE ERROR IN THE TWO RADIATION MONITORING SYSTEM MODULES AND LATER CREATED AN ACTUATION OF THE FHB HVAC SYSTEM. CORRECTIVE ACTION WAS EXTENSIVE TROUBLESHOOTING OF THE RADIATION MONITORS.

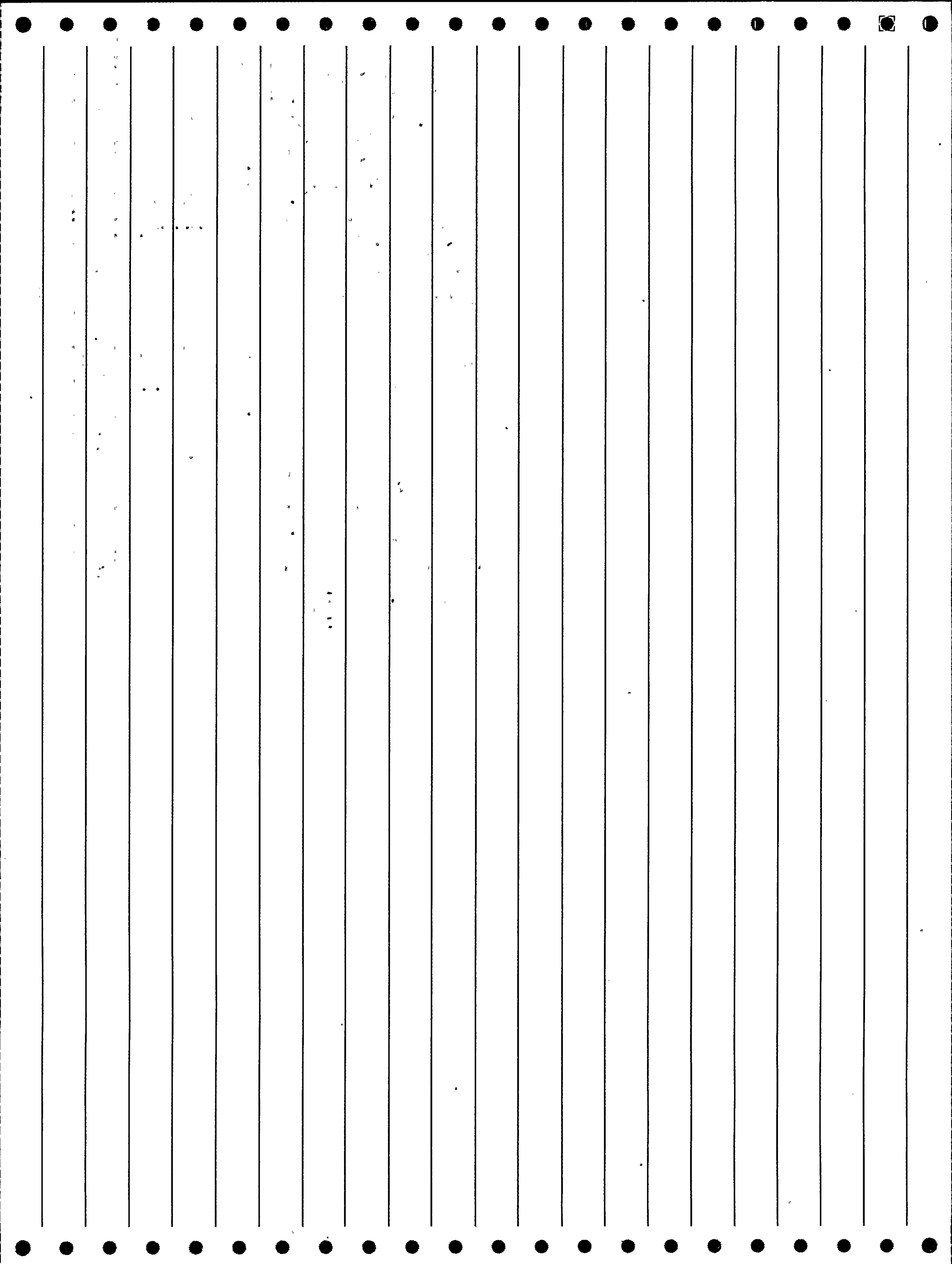


DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
528 1985 007 1 8604080483 198650 02/10/85

DOCKET:528 PALO VERDE 1 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT
POWER LEVEL - 000%. THIS IS A SUPPLEMENT TO LER 85-007-00. AT 2215 ON
FEBRUARY 10, 1985, WHILE PALO VERDE UNIT 1 WAS IN MODE 5, AN
AUTOMATIC ACTIVATION OF THE NSSS ENGINEERED SAFETY FEATURES ACTUATION
SYSTEM (JE) AUXILIARY RELAY CABINET OCCURRED BECAUSE OF A TRAIN "A"
LOWER SUPPLY FAILURE. THIS FAILURE OCCURRED WHILE TRANSFERRING TRAIN
"B", CLASS 1E, 120 VOLT INSTRUMENT AC POWER (EF) FROM THE NORMAL
SOURCE TO THE ALTERNATE. ALL ACTUATED ESFAS EQUIPMENT FUNCTIONED
NORMALLY. THE POWER SUPPLY WAS REPLACED AND FUNCTIONALLY CHECKED.
THE NSSS ESFAS AUXILIARY RELAY CABINET WAS RETURNED TO ITS NORMAL
CONDITION. TO PREVENT THE INADVERTENT TRANSFER OF ESFAS INSTRUMENT
POWER, OR ANY OTHER SAFETY RELATED AUCTIONEERED POWER SUPPLY TO A DEAD
INSTRUMENT POWER SOURCE, AN ALARM RESPONSE PROCEDURE HAS BEEN WRITTEN
TO DIRECT SHIFT PERSONNEL TO INVESTIGATE FOR A POTENTIALLY FAILED
POWER SUPPLY WHENEVER A POWER SUPPLY TROUBLE ALARM IS PRESENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
528 1985 028 0 8505300269 194738 04/17/85

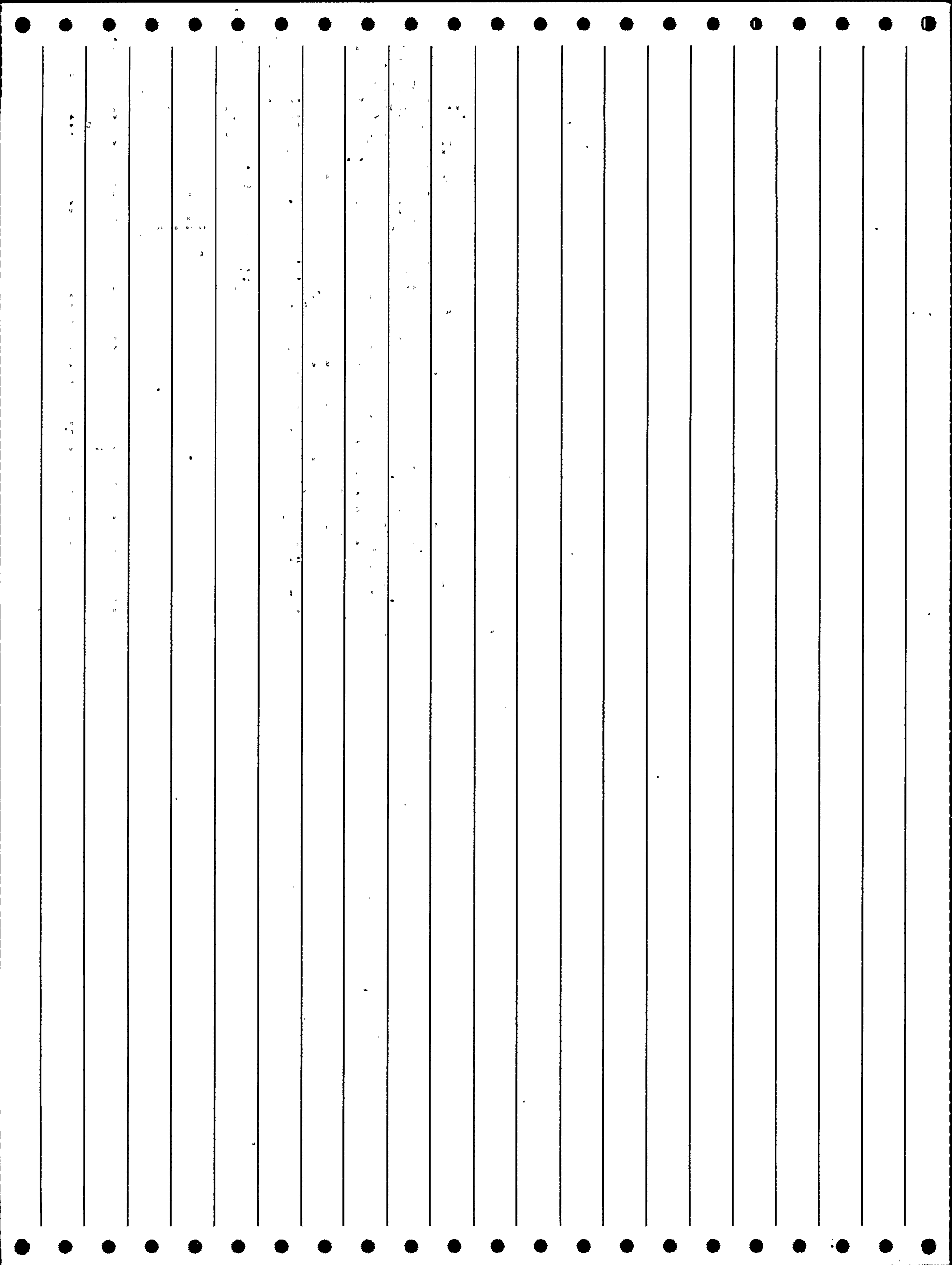
DOCKET:528 PALO VERDE 1 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. WHILE PERFORMING A SURVEILLANCE TEST OF LOCAL OPERABILITY OF THE TRAIN 'B' CLASS ELECTRICAL SYSTEM, THE "B" AND "D" BATTERY CHARGERS SUPPLIED BY THIS SYSTEM WERE NOT PROPERLY VERIFIED AS BEING RETURNED TO SERVICE IN ACCORDANCE WITH TWO CONSECUTIVE STEPS OF THE PROCEDURE. WHEN THE OPERATOR PERFORMING THE TEST PROCEEDED WITH THE NEXT STEP, WHICH OPENS AND RECLOSSES THE "B" AND "D" BATTERY BREAKERS, THE ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (ESFAS) 2 OUT OF 4 COINCIDENCE LOGIC WAS ACTUATED DUE TO BEING DE-ENERGIZED. A PROCEDURE CHANGE NOTICE (PCN) WAS ISSUED AND APPROVED TO PROVIDE ADDITIONAL CLARIFICATION TO THE OPERATORS TO PROVIDE POSITIVE DETERMINATION THAT THE BATTERY CHARGERS HAVE BEEN PROPERLY RETURNED TO SERVICE. WITH THE PCN IN PLACE, THE PROCEDURE WAS RERUN WITHOUT INCIDENT.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
528 1986 019 0 8605070193 198884 03/12/86

DOCKET:528 PALO VERDE 1 TYPE:PHR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

COMMENTS

STEP 1: CAUSE AX-TO PERFORM TEST.

REPORTABILITY CODES FOR THIS LER ARE:

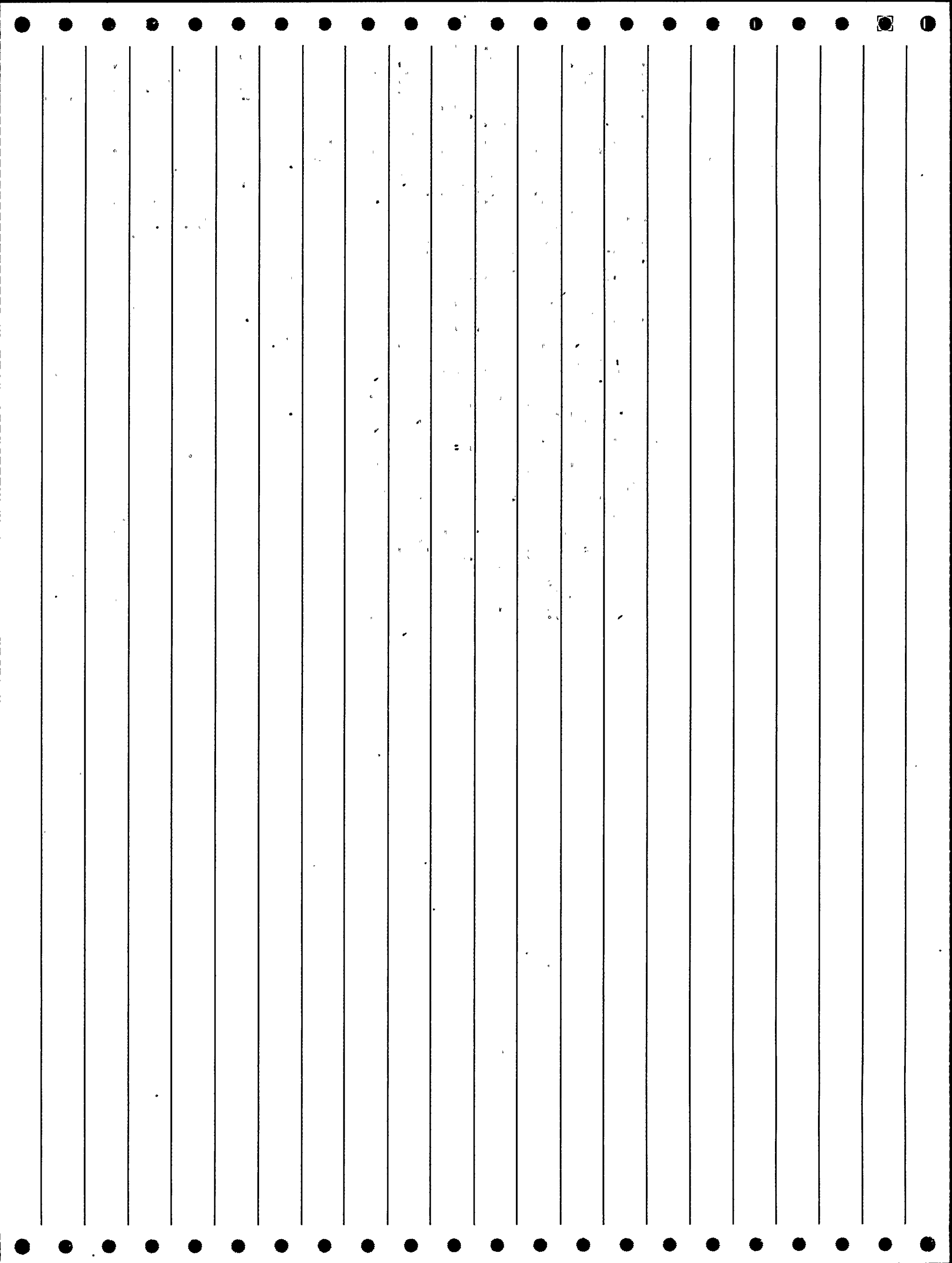
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 528/85-014

ABSTRACT

POWER LEVEL - 000%. AT 2301 ON MARCH 12, 1986, PALO VERDE UNIT 1 WAS IN MODE 5 (COLD SHUTDOWN) WHEN A CONTROL ROOM ESSENTIAL FILTRATION ACTUATION SIGNAL, CONTROL ROOM VENTILATION ISOLATION ACTUATION SIGNAL, CONTAINMENT PURGE ISOLATION ACTUATION SIGNAL, AND FUEL BUILDING ESSENTIAL VENTILATION ACTUATION SIGNAL WERE INITIATED ON BOTH BALANCE OF PLANT ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (BOP-ESFAS) TRAINS DUE TO A LOSS OF POWER TO THE CHANNEL "A" VITAL INSTRUMENT DISTRIBUTION PANEL AND THE 125 VOLT DC DISTRIBUTION PANEL. THE ROOT CAUSE OF THIS EVENT WAS PERSONNEL ERROR DUE TO AN INADEQUATE PROCEDURE. CONTROL ROOM PERSONNEL WERE ATTEMPTING TO TRANSFER BATTERY CHARGERS ON THE CHANNEL "A" DC BUS, WITH THE CHANNEL "A" BATTERY DISCONNECTED. A LOSS OF POWER OCCURRED WHEN THE STANDBY BATTERY CHARGER TRIPPED AFTER THE NORMAL BATTERY CHARGER WAS TAKEN OFF LINE. WITH THE BATTERY DISCONNECTED, THE BACKUP AC SOURCE NOT ALIGNED TO THE VITAL INSTRUMENT DISTRIBUTION PANEL, AND BOTH BATTERY CHARGERS OUT OF SERVICE, A LOSS OF AC AND DC POWER OCCURRED TO THE TRAIN "A" BOP-ESFAS. THIS RESULTED IN A TRAIN "A" BOP-ESFAS ACTUATION AND A SUBSEQUENT CROSSTRIP OF TRAIN "B" BOP-ESFAS. TO PREVENT RECURRENCE, A PROCEDURE CHANGE NOTICE WHICH CAUTIONS PERSONNEL AGAINST TRANSFERRING BATTERY CHARGERS WITHOUT THE BATTERY CONNECTED TO THE DC BUS HAS BEEN APPROVED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
528 1989 024 1 9003060264 217037 12/12/89

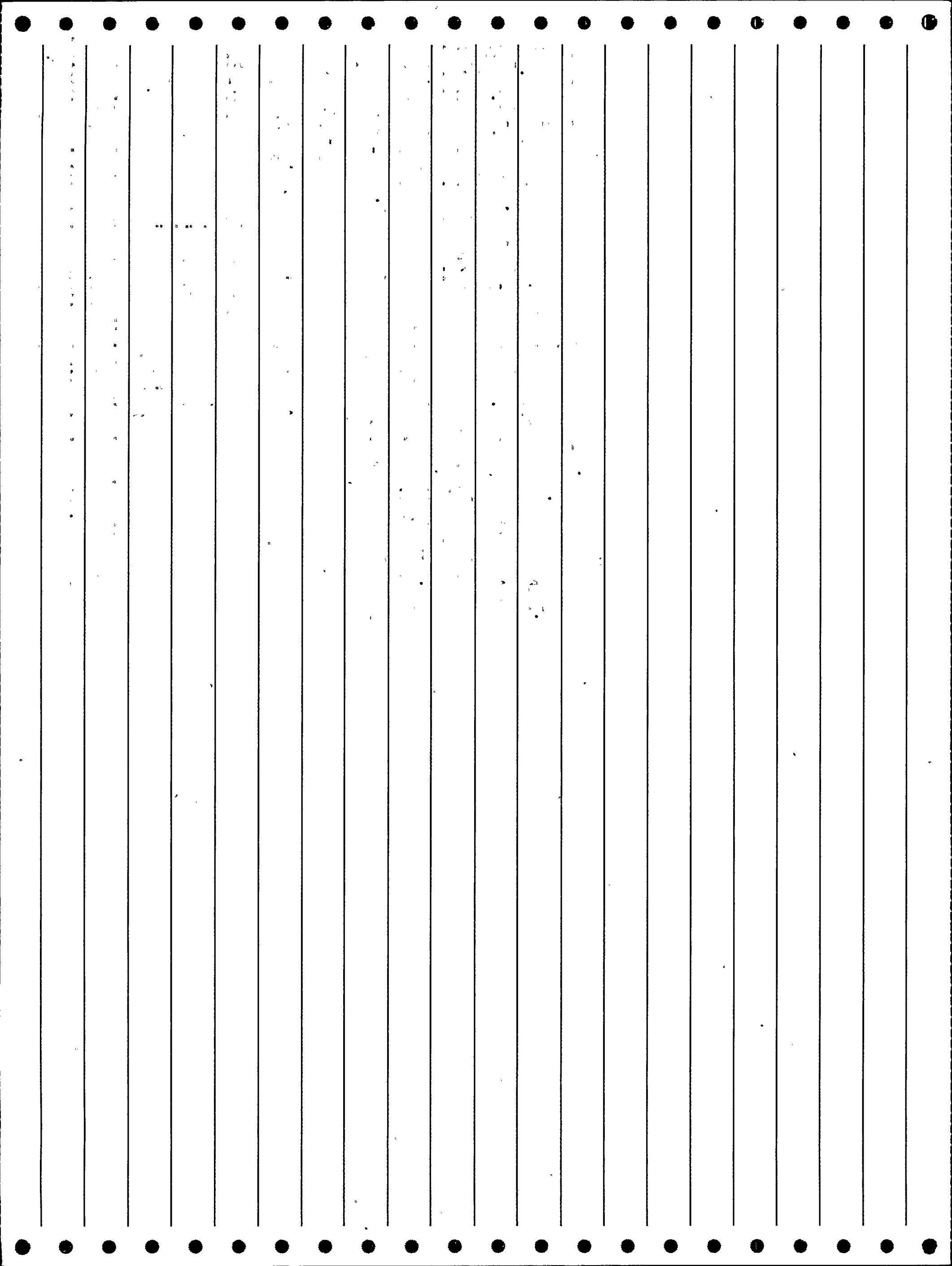
DOCKET:528 PALO VERDE 1 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

WATCH-LIST CODES FOR THIS LER ARE:
40 PROCEDURAL DEFICIENCY

REPORTABILITY CODES FOR THIS LER ARE:
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:
1 528/89-023

ABSTRACT
POWER LEVEL - 000%. ON DECEMBER 12, 1989 UNIT 1 WAS IN MODE 6 WITH THE REACTOR COOLANT SYSTEM AT ATMOSPHERIC PRESSURE AND APPROXIMATELY 95 DEGREES FAHRENHEIT. AT APPROXIMATELY 1055 MST, A TEST WAS INITIATED ON REACTOR COOLANT PUMP 2A MOTOR PRIOR TO COUPLING THE IMPELLER. THE MOTOR START CAUSED A VOLTAGE PERTURBATION IN THE ELECTRICAL SYSTEM THAT TRIPPED RADIATION MONITORS AND INITIATED A CONTAINMENT PURGE ISOLATION ACTUATION SIGNAL, A FUEL BUILDING ESSENTIAL VENTILATION ACTUATION SIGNAL, AND A CONTROL ROOM ESSENTIAL FILTRATION ACTUATION SIGNAL. ALL SYSTEMS RESPONDED AS DESIGNED. THE RCP MOTOR WAS IMMEDIATELY STOPPED. ALL ACTUATIONS WERE RESET BY APPROXIMATELY 1300 MST. THE INVESTIGATION OF THE EVENT DETERMINED THAT THE EVENT WAS CAUSED BY AN ABNORMAL ELECTRICAL ALIGNMENT AT THE TIME OF THE EVENT. TO PREVENT RECURRENCE THE OPERATING PROCEDURES FOR 13.8 KV PUMP MOTORS WILL BE REVISED TO INCLUDE A PRECAUTION ON THE CONSEQUENCES OF STARTING THE MOTORS WITH A 1E BATTERY DISCONNECTED.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
529 1986 005 0 8603120359 198340 01/30/86

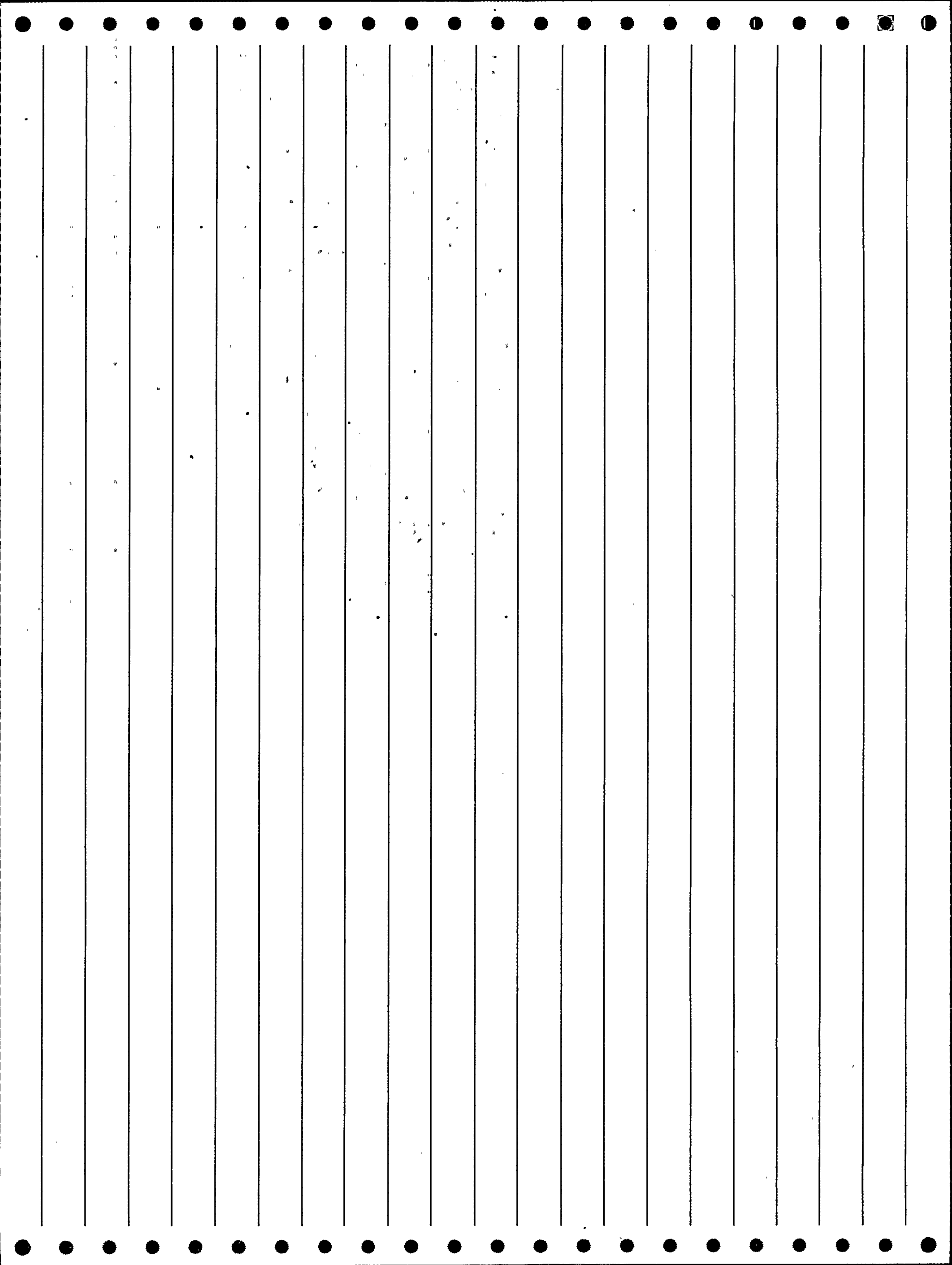
DOCKET:529 PALO VERDE 2 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 000%. AT 1924 MST ON 1-30-86, PALO VERDE 2 WAS IN MODE 5 WHEN AN UNAUTHORIZED MODIFICATION ON A VITAL POWER INVERTER CAUSED A FAILURE OF THE TRAIN 'A', CLASS 1E, I&C POWER SYSTEM, WHICH RESULTED IN A CONTROL ROOM ESSENTIAL FILTRATION ACTUATION SIGNAL AND A TEMPORARY LOSS OF TRAIN 'A' SHUTDOWN COOLING. THE CAUSE OF THE FAILURE WAS ATTRIBUTED TO INADEQUATE CONTROL OF A MODIFICATION CONSISTING OF A RESISTOR JUMPED AROUND A CAPACITOR IN THE CIRCUIT. THE MODIFICATION CAUSED AN EXCESSIVELY HIGH CURRENT ON AN INVERTER CIRCUIT BOARD, AND RESULTED IN 3 BLOWN INVERTER FUSES. THE INVERTER LOSS CAUSED A LOSS OF POWER TO A RADIATION MONITORING UNIT, WHICH IN TURN CAUSED THE CREFAS AND THE TEMPORARY TERMINATION OF TRAIN 'A' SDC. AS CORRECTIVE ACTION, ALL INVERTERS WERE INSPECTED FOR ADDITIONAL UNAUTHORIZED MODIFICATIONS, THE BLOWN FUSES WERE REPLACED, AND INVERTER SPECS WERE CHECKED. ADDITIONALLY, WORK CONTROL PROCEDURES WILL BE REVISED TO EMPHASIZE THE IMPORTANCE OF REMOVING ALL TEMPORARY MODIFICATIONS PRIOR TO PUTTING AN ELECTRICAL SYSTEM BACK IN SERVICE.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
529 1986 023 1 8703160089 203416 12/24/86

DOCKET:529 PALO VERDE 2 TYPE:PHR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

COMMENTS

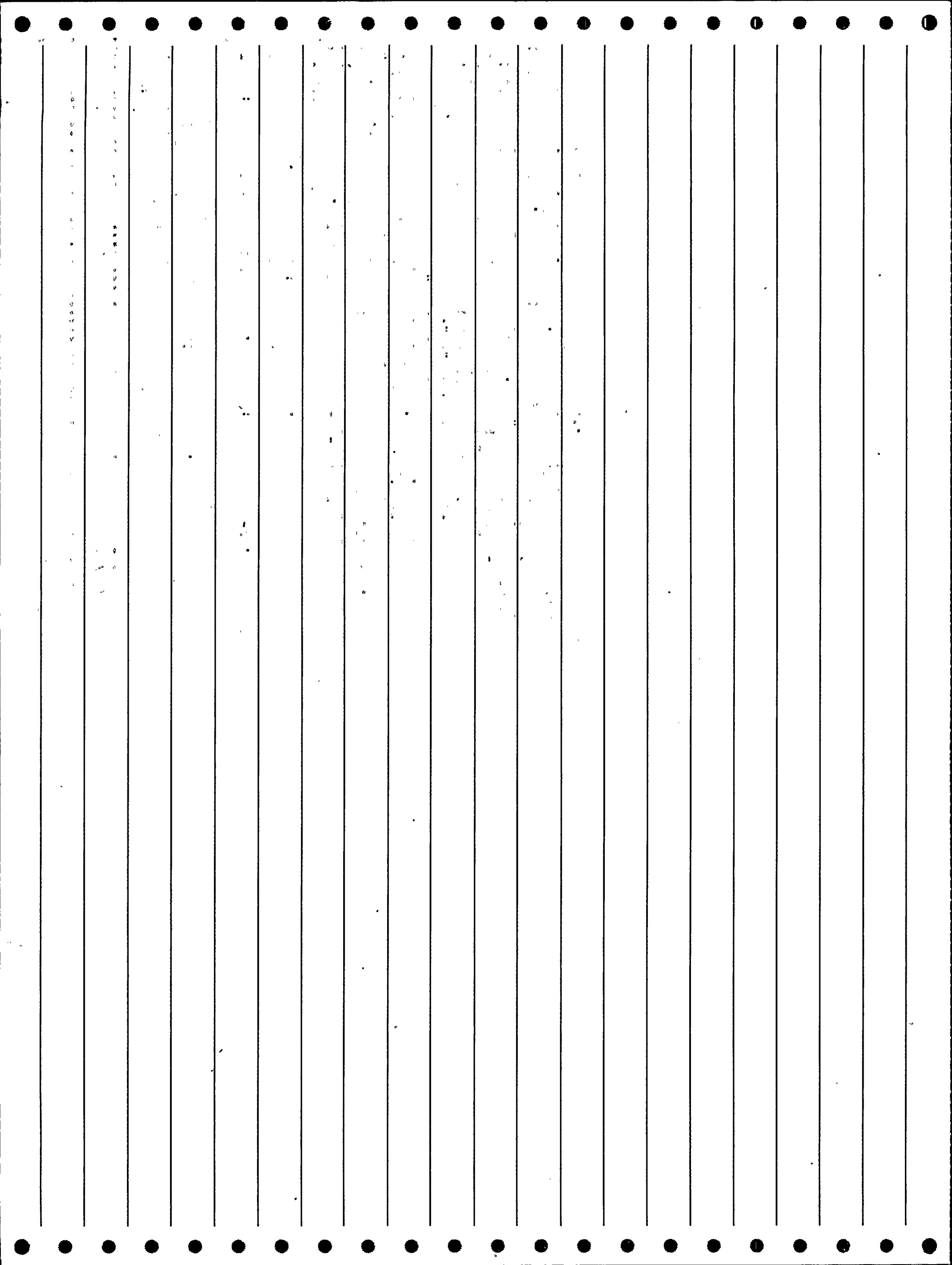
STEP 2: COMP MEI - INDICATION BULB. STEP 17: MODEL #SW12-75.

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

ABSTRACT

POWER LEVEL - 100%. AT ABOUT 2010 MST ON 12-24-86, UNIT 2 WAS IN MODE 1 (POWER OPERATION) AT 100% POWER WHEN THE AUTOMATIC ACTUATION OF THE PLANT PROTECTION SYSTEM (PPS)(JC) INITIATED A REACTOR (RCT) TRIP. THE REACTOR TRIP WAS ANNUNCIATED (ANN) AND RESPONDED TO BY UTILITY-LICENSED OPERATORS IN THE CONTROL ROOM (CR). ALL SAFETY SYSTEMS AND COMPONENTS OPERATED AS DESIGNED. THE CAUSE OF THE EVENT WAS DETERMINED TO BE AN INTERMITTENT GROUND ON THE 125 VOLT DC BUS (M42) CAUSING A DESIGNED "0" OUTPUT VOLTAGE RESPONSE FROM THE INVERTER, CONCURRENT WITH AN "OUT-OF-SYNC" CONDITION BETWEEN THE INVERTER AND VOLTAGE REGULATOR (ALTERNATE POWER). THIS PROHIBITED A TRANSFER OF THE 120 VOLT AC BUS (D26) TO THE VOLTAGE REGULATOR RESULTING IN A LOSS OF POWER TO D26. THE LOSS OF POWER TO D-26 RESULTED IN THE LOSS OF PPS CHANNEL "B". THIS LOSS COMBINED WITH A DEGRADED VOLTAGE CONDITION ON A PPS CHANNEL "A" POWER SUPPLY, RESULTED IN THE REACTOR TRIP. AS CORRECTIVE ACTION, THE GROUND WAS REMOVED AND THE POWER SUPPLY WAS REPLACED. FURTHER EVALUATIONS ARE CURRENTLY IN PROGRESS TO DETERMINE THE ROOT CAUSE OF THE DEGRADED VOLTAGE CONDITION EXPERIENCED BY THE PPS POWER SUPPLY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
529 1987 013 0 8706160395 204906 05/10/87

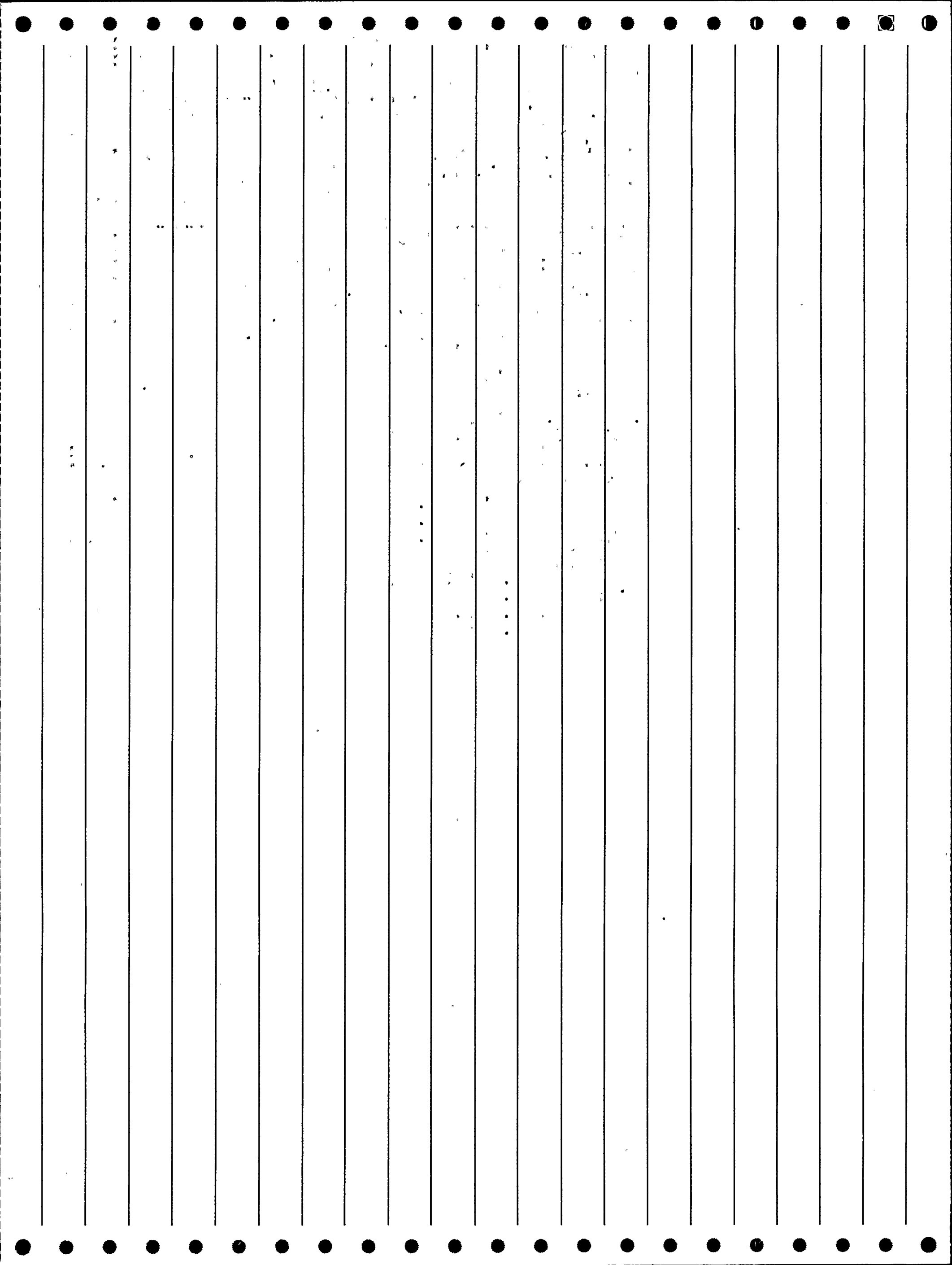
DOCKET:529 PALO VERDE 2 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

COMMENTS
STEP 9: MODEL NUMBER INV 253-1-101.

WATCH-LIST CODES FOR THIS LER ARE:
20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:
10 10 CFR 50.73(a)(2)(i): Shutdowns or technical
specification violations.

ABSTRACT
POWER LEVEL - 020%. AT 1532 ON MAY 10, 1987 PALO VERDE UNIT 2 WAS IN
MODE 1 (POWER OPERATION) AT 20 PERCENT POWER WHEN A SHUTDOWN WAS
COMMENCED IN ACCORDANCE WITH TECHNICAL SPECIFICATION 3.8.3.1 DUE TO AN
INOPERABLE INVERTER. THE INVERTER POWERS A 400 AMP BUS WHICH
SUPPLIES POWER TO PORTIONS OF THE PLANT PROTECTION SYSTEM (PPS), THE
ENGINEERED SAFETY FEATURES (ESF) ACTUATION SYSTEM, AND VARIOUS PLANT
INSTRUMENTATION. AT 1532 ON MAY 9, 1987, A FUSE HAD BLOWN ON THE "C"
TRAIN INVERTER. THE CONTROL ROOM OPERATORS DECLARED THE INVERTER
INOPERABLE AND ENTERED THE ACTION FOR TECHNICAL SPECIFICATION 3.8.3.1.
DURING TROUBLESHOOTING THE INVERTER FUSE BLEW AGAIN, AND ITS
ASSOCIATED STATIC TRANSFER SWITCH DID NOT SWITCH POWER TO THE BUS FROM
A BACKUP 120 VOLT ALTERNATING CURRENT SUPPLY. THIS CAUSED THE BUS TO
LOSE POWER, WHICH RESULTED IN SEVERAL SINGLE CHANNEL ESF AND PPS
TRIPS BEING GENERATED WHICH IS PER DESIGN. NO ESF OR PPS ACTUATIONS
OCCURRED. THE ROOT CAUSE OF THE INOPERABLE INVERTER WAS DETERMINED TO
BE A LOOSE SILICON CONTROLLED RECTIFIER (SCR). AS CORRECTIVE ACTION
THE LOOSE SCR WAS REPLACED AND SEVERAL OTHER SCRS WERE RETORQUED. NO
SIMILAR EVENTS HAVE BEEN REPORTED PREVIOUSLY.



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
530 1987 001 1 8709300290 206473 03/28/87

DOCKET:530 PALO VERDE 3 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

COMMENTS

STEP 3: PART NUMBER 62813541. STEPS 11,17: COMP ES - STATIC TRANSFER SWITCH. STEPS 1,2,3,16,17: THESE STEPS WERE ALSO CODED IN THE REFERENCED LER.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

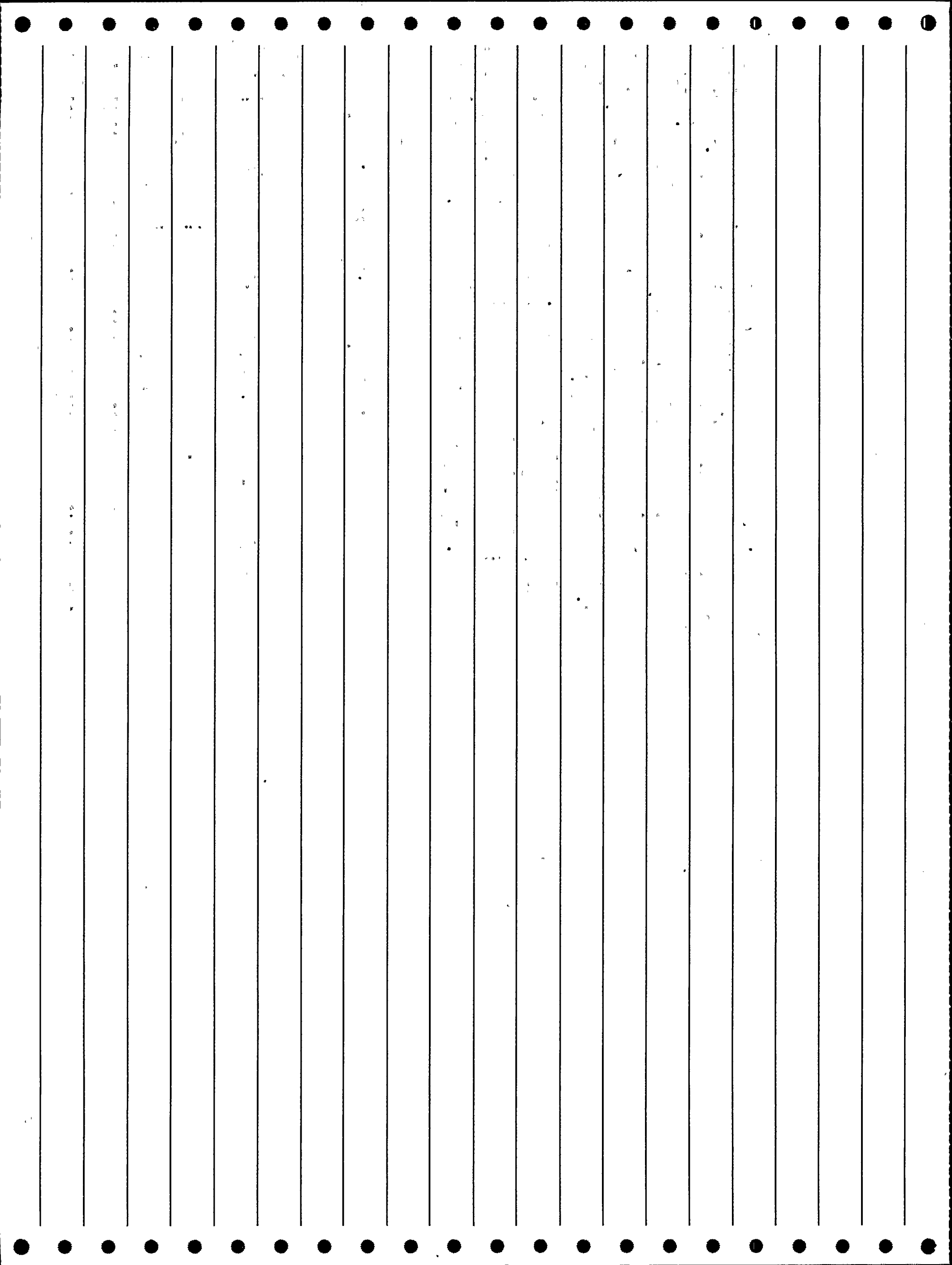
13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 530/87-002

ABSTRACT

POWER LEVEL - 000%. THIS IS A SUPPLEMENT TO LER 3-87-001-00. AT APPROXIMATELY 1301 MST ON MARCH 28, 1987, PALO VERDE UNIT 3 WAS PREPARING TO ENTER MODE 6 (REFUELING) WHEN CONTROL ROOM ESSENTIAL FILTRATION ACTUATION SIGNALS (CREFAS) AND CONTAINMENT PURGE ISOLATION ACTUATION SIGNALS (CPIAS) WERE RECEIVED ON BOTH CHANNELS OF THE BALANCE OF PLANT ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (BOP ESFAS). THESE BOP ESFAS ACTUATIONS WERE ANNUNCIATED IN THE CONTROL ROOM ON THE MAIN CONTROL BOARD. ALL ASSOCIATED EQUIPMENT RESPONDED AS DESIGNED. CONTROL ROOM PERSONNEL SECURED ALL ACTUATED EQUIPMENT IN ACCORDANCE WITH APPROVED PROCEDURES BY 1413 MST ON MARCH 28, 1987. BOTH CHANNELS OF CREFAS AND CPIAS WERE UNAVAILABLE FOR 1 HOUR AND 12 MINUTES. AT APPROXIMATELY 1301 MST, IMMEDIATELY PRIOR TO THE BOP ESFAS ACTUATION, A "PNL 26 AC UNDV/GND" TRIP WAS RECEIVED ON DISTRIBUTION PANEL 26 AND "120VDC INV B AC/DC STATUS" TROUBLE ALARM WAS RECEIVED FOR INVERTER "B". THE STATIC TRANSFER SWITCH AUTOMATICALLY TRANSFERRED FROM THE "B" INVERTER TO THE 120 VAC VOLTAGE REGULATOR. IMMEDIATELY FOLLOWING THE STATIC TRANSFER SWITCH OPERATION, BOTH CHANNELS OF CREFAS AND CPIAS WERE ACTUATED ON THE BOP ESFAS SYSTEM. THE ROOT CAUSE OF THIS EVENT WAS ATTRIBUTED TO THE SLOW STATIC TRANSFER SWITCH OPERATION AND A FAULTY DC TO DC CONVERTER BOARD. AS A CORRECTIVE ACTION THE STATIC TRANSFER SWITCH WAS RECALIBRATED AND THE DC TO DC CONVERTER BOARD WAS REPLACED. A SIMILAR EV



DOCKET YEAR LER NUMBER REVISION DCS NUMBER NSIC EVENT DATE
530 1987 002 1 8709300055 206474 06/15/87

DOCKET:530 PALO VERDE 3 TYPE:PWR
REGION: 5 NSSS:CE
ARCHITECTURAL ENGINEER: BECH
FACILITY OPERATOR: ARIZONA PUBLIC SERVICE CO.
SYMBOL: APS

COMMENTS

STEP 3: PART NUMBER 62813541. STEPS 9,10: COMP ES - STATIC TRANSFER SWITCH.

WATCH-LIST CODES FOR THIS LER ARE:

20 EQUIPMENT FAILURE

REPORTABILITY CODES FOR THIS LER ARE:

13 10 CFR 50.73(a)(2)(iv): ESF actuations.

REFERENCE LERS:

1 530/87-001.

ABSTRACT

POWER LEVEL - 000%. THIS IS A SUPPLEMENT TO LER 3-87-002. AT APPROXIMATELY 0611 MST ON JUNE 15, 1987, PALO VERDE UNIT 3 WAS IN MODE 5 (COLD SHUTDOWN) WHEN CONTROL ROOM ESSENTIAL FILTRATION ACTUATION SIGNALS (CREFAS) AND CONTAINMENT PURGE ISOLATION ACTUATION SIGNALS (CPIAS) WERE RECEIVED ON BOTH CHANNELS OF THE BALANCE OF PLANT ENGINEERED SAFETY FEATURES ACTUATION SYSTEM (BOP ESFAS). THESE BOP ESFAS ACTUATIONS WERE ANNUNCIATED IN THE CONTROL ROOM ON THE MAIN CONTROL BOARD. ALL ASSOCIATED EQUIPMENT RESPONDED AS DESIGNED. CONTROL ROOM PERSONNEL SECURED ALL ACTUATED EQUIPMENT IN ACCORDANCE WITH APPROVED PROCEDURES BY 0657 MST ON JUNE 15, 1987. THE DURATION OF THIS EVENT WAS APPROXIMATELY 46 MINUTES. AT APPROXIMATELY 0611 MST, THE DISTRIBUTION PANEL D26 MOMENTARILY LOST POWER AND A "120VAC INV B AC/DC STATUS" TROUBLE ALARM WAS RECEIVED FOR INVERTER "B". AS DESIGNED, THE STATIC TRANSFER SWITCH AUTOMATICALLY TRANSFERRED FROM THE "B" INVERTER TO THE 120 V AC VOLTAGE REGULATOR. IMMEDIATELY FOLLOWING THE STATIC TRANSFER SWITCH OPERATION, BOTH CHANNELS OF CREFAS AND CPIAS WERE ACTUATED ON THE BOP ESFAS SYSTEM. THE ROOT CAUSE OF THIS EVENT WAS ATTRIBUTED TO THE STATIC TRANSFER SWITCH CALIBRATION AT AN UNNECESSARILY HIGH VALUE AND A FAULTY DC TO DC CONVERTER BOARD.

*

THIS SESSION HAS USED 13.22 SECONDS OF CPU TIME AND
HAS BEEN ACTIVE FOR 189.90 SECONDS

THE ESTIMATED COST OF THE RUN IS \$ 4.06

