

POWER AUTHORITY OF THE STATE OF NEW YORK

10 COLUMBUS CIRCLE      NEW YORK, N. Y. 10019

(212) 397-6200

TRUSTEES

JOHN S. DYSON  
CHAIRMAN

GEORGE L. INGALLS  
VICE CHAIRMAN

RICHARD M. FLYNN

ROBERT I. MILLONZI

JAMES L. LAROCCA



January 26, 1983  
JPN-83-05

LEROY W. SINCLAIR  
PRESIDENT & CHIEF  
OPERATING OFFICER

WALTER T. KICINSKI  
FIRST EXECUTIVE  
VICE PRESIDENT &  
CHIEF ADMINISTRATIVE  
OFFICER

JOSEPH R. SCHMIEDER  
EXECUTIVE VICE  
PRESIDENT & CHIEF  
ENGINEER

STEPHEN L. BAUM  
SENIOR VICE PRESIDENT  
& GENERAL COUNSEL

Director of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Mr. Domenic B. Vassallo, Chief  
Operating Reactors Branch No. 2  
Division of Licensing

Subject: James A. FitzPatrick Nuclear Power Plant  
Docket No. 50-333  
Additional Information on Outages of ECC Systems  
Item II.K.3.17

- Reference: 1) Letter, D. G. Eisenhut (NRC) to all Licensees of  
Operating Plants, Applicants for Operating  
Licenses, and Holders of Construction Permits  
dated October 31, 1980.
- 2) Letter, D. B. Vassallo (NRC) to Mr. Leroy W. Sinclair  
(PASNY) dated March 17, 1982.

Dear Sir:

In response to Reference 2, "Request for Additional Information  
on Outages of Emergency Core Cooling Systems (ECCS)", Item  
II.K.3.17, a comprehensive ECCS outage report is enclosed.

In our original submittal dated January 8, 1981, we identified  
ECCS outages for the years 1976-1980 that resulted in FitzPatrick  
Licensee Event Reports (LER's). The enclosed report has been  
revised to include ECC system or equipment failures which  
resulted in an Occurrence Report (OR). These outages

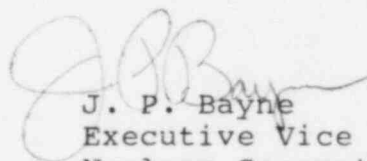
A046

occurred during Preventative Maintenance (PM), Surveillance Tests (ST's) or Instrument Surveillance Tests (ISP's) and are so noted in the report. In the process of reviewing ECCS outages, several additional instances of system unavailability which resulted in LER's were identified and added to the report. All outages added to the report have been marked with an asterisk. Other additions to the report include a separate column identifying the system, and entry of the affected train and component where applicable (i.e., 10-MOV-16A = System 10, Motor Operated Valve 16, Train A).

This report now identifies planned and unplanned outages of ECC systems and the emergency diesel generators which are due to system inoperability, preventative maintenance and surveillance testing and which resulted in LER's or OR's. Outage durations which are not specified are not available because: (i) the system or component was not returned to service due to interaction with other ongoing work; or, (ii) the system or component was not accessible or practical to repair until the next scheduled outage.

Should you require any additional information, please do not hesitate to contact J.A. Gray, Jr. of my staff.

Very truly yours,



J. P. Bayne  
Executive Vice President  
Nuclear Generation

cc: Mr. J. Linville  
Resident Inspector  
U.S. Nuclear Regulatory Commission  
P.O. Box 136  
Lycoming, NY 13093

II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CA
76-06	760321	RCIC	While performing ST-24C RCIC flow rate test, the turbine was started, exhaust pressure increased and rupture discs blew out.	Manual is haust val
76-10	760403	ADS/ HPCI	During surveillance testing (ST), the following switches were found to be a maximum of 0.05 psig higher than Technical Specification requirements of 20 psig: 10-119A, C, 101D, 100B, C, D, 5-17A, B, & D.	Instrumen
76-12	760405	ADS	During ST, pressure switch 2-3-55D would not function.	Mechanica bourdon t
76-30	760414	HPCI	During ST-4E the HPCI gland seal condenser cooling side gasket blew out.	Normal we
76-33	760420	HPCI	During ST-4E, the motor for 23-MOV-57 (HPCI tous suction valve) burned up when given an open signal.	Short in

ST - Surveillance Testing

PM - Preventive Maintenance

TS - Technical specifications

ISP - Instrument Surveillance Procedure

790327 - Year-Month-Day

USE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
plation ex- ve was closed.	Removed and replaced rupture discs.	Be t estimate made 760327	N/A
t drift.	Recalibrated immediately.	760403	1 hr.
l stop on ube.	Adjusted mechanical stop so micro switch contact could be made.	760406	N/A
ar.	Replaced gasket.	760414	6 hrs.
limitorque.	Replaced motor. In the interim, kept valve open to perform function.	760514	N/A



## II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CA
76-38	760424	RCIC	During ST-1C, primary containment valve  exercise, 13-MOV-15 failed to close.  During the test, the outboard isolation  valve 13-MOV-16 did operate.	Limitorqu
76-45	760713	RHR	During ST-2G, 10-SOV-263B, RHR process  sample line failed to isolate when  signaled to do so.	Incorrect
76-35	760504	RHR	RHR pump "C" breaker was racked out for  maintenance thus disabling a portion of  the RHR system. ST was not performed  on remaining components of system as  required by Tech. Specs.	Operator
76-21	760519	EDG	During ST-9B, when initiating "B" and  "D" emergency diesels, the "D" diesel  would not start.	Failed sp  relays.
76-24	760611	HPCI	Annunciator alarmed on HPCI valve over-  load or loss of control power.  Investigation revealed fire in BMCC 6.	Fire in b  valve 23-
76-25	760616	EDG	During ST-9B (EDG full load test) it  was noted that they were unstable, al-  though they did perform properly.  Found that the droop circuit had  drifted, causing the instability.  Droop is necessary for testing only,  not for emergency operation.	Problem i  circuit.

USE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
e torqued out.	After several attempts, valve closed   within the specified time frame and   event could not be duplicated. 	760424   	N/A   
test signals.	Corrected procedure. 	760713   	N/A   
error.	Surveillance testing was immediately   initiated. 	760504   	N/A   
eed tach	Replaced. 	760519   	4 hrs.   
reaker for MOV-16.	Fire extinguished and breaker replaced. 	760612   	12 hrs.   
n droop	Adjusted droop circuit. 	760616   	N/A   

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAU
76-37	760619	RCIC	RCIC turbine would not trip due to rusty linkage. This event would not have posed any particular problem as the turbine would start and the system operate as required.	Steam leak
76-90	760630	ADS	Failure of 02-RV-71E relief valve to reset following a turbine trip and subsequent scram.	Unknown.
76-42	760703	RHR	During ST-2C, MOV operability test, 10-MOV-25A motor burned up.	Large diff pressure a
76-97	760714	RHR	During refueling, while attempting to open 10-MOV-18 to utilize shutdown cooling, the breaker repeatedly tripped.	Motor burn
76-98	760714	RHR	During refueling while attempting to utilize shutdown cooling, could not open 10-MOV-17.	Appears mo driving.
76-46	760721	ADS	During normal operation, relief valve 02-RV-71E opened.	Excessive part of ol Rock valve
76-53	760815	HPCI	During normal operation, 23-INV-79, inverter power supply for HPCI tripped and could not be reset.	Inverter f
76-80	761119	HPCI	23-MOV-57 motor burned up while auto- matically transferring HPCI suction to torus on torus high level.	Apparent t load cause and failur windings.

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
on 13-MOV-32.	Freed up and lubricated linkage. Reset and tripped linkage for approximately 1 week.	760619	N/A
	Valve reset at approximately 500 psig coincidental with removal of fuses for 02-RV-71E solenoids.	760630	N/A
erential cross valve.	Motor replaced.	760703	20 hrs.
ed out.	Removed and replaced with rewound motor- valve kept in closed condition until then.	761126	N/A
tor not	Replaced motor.	760716	N/A
pilot leakage d Target problems.	Valve closed with no operator action. Proceeded with plant shutdown for inspection and changed valve with spare.	760722	N/A
ailure.	Inverter was immediately transferred to alternate supply. Inverter was replaced.	760815	4 hrs.
orque over- d overheating e of motor	Manually opened 23-MOV-57 and replaced motor.	761119	12 hrs.

## II.K.3.17

## REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIKE

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAUSE
76-65	761011	EDG	Fire in "A" Emergency Diesel Generator turbo-charger during ST-9B.	Loss of lubrication Turbocharger failure
76-67	761026	LPCI	During ST-2H, valve 10-MOV-24A failed to open.	Motor burned out
76-69	761101	RCIC	While stroking 13-MOV-16, outboard RCIC isolation valve to verify limit switch operation, the valve bound up and the increased torque burned up the valve motor operator.	Normal wear Switch needed adjustment.
76-72	761109	HPCI	Following scram with subsequent HPCI initiation, HPCI started and then isolated.	Apparent high pressure
76-76	761115	LPCI/ CORE SPRAY	During ISP-5-3 found pressure switch 12-352C low out of Technical Specification requirements.	Instrumentation failure
76-77	761117	EDG	During ST-9B, "B" EDG failed to start.	Generator inoperable
76-78	761117	EDG	During ST-9B, Fuel oil transfer pump 93-P-C2 would not pump.	Worn out.

## INSEE REPORT

USE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
be oil to er.	Replaced turbo-charger.	761025	N/A
ed up.	Manually opened valve so system would function in LPCI mode - replaced motor.	761026	N/A
r and torque ded adjust-	The inboard valve was closed providing PCIS and 13-MOV-16 was manually opened. The valve motor was replaced.	761101	N/A
igh flow rate.	Started HPCI manually and installed steam signal snubbing pins.	761109	1-1/2 hrs.
t drift.	Recalibrated immediately.	761115	N/A
tach relays	"A & C" EDG's run with ECCS loads. The tach relay was replaced.	761117	8 hrs.
	Tested remaining pumps - OK and replaced with spare pump.	761119	N/A

II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAU
76-82	761122	ADS	Relief valve 02-RC-71E lifted resulting in reactor scram from low pressure.	Relief val lifted.
76-88	761201	ADS	Loss of bellows monitoring on relief valve 02-RV-71A.	Found DC g pressure s
76-93	761212	ADS	Bellows leakage alarm on relief valve 02-RV-71E.	Crimped wi a false si
76-94	761215	EDG	During ST-9B, "A" EDG failed to start due to low lube oil pressure.	Relief val on soak ba
76-55	760821	RCIC	During ST-24C, noticed steam coming from leak-off between RCIC rupture discs 13-2-3.	Rupture di
76-64	761014	RHR	When shutting down "B" RHR pump, found check valve 42B leaking and unable to keep "B" RHR pump filled without causing the pump to rotate in the re- verse direction and increasing the torus water level.	Discharge failed.
*76-90	761203	ADS	It was discovered that the error im- posed by nitrogen setting was beyond $\pm$ 1% for relief valve 02-RV-71G.	Setting th with nitro accurate t setting.

\* ADDITIONS

USE	CORRECTIVE ACTION	DATE	EQUIP-
		RETURNED TO SERVICE	MENT DOWN TIME
ve 02-RV-71E	The valve was removed and replaced  with a spare valve. 	761123 	N/A 
round on witch.	The bellows leak detection was discon-  nected and thus inoperable on this  valve. This condition is permitted by  Technical Specifications 4.6.E.3.  During a subsequent outage, the grounded  wire was replaced. 	761201 	22 hrs. 
re produced gnal.	Replaced wire. 	761212 	N/A 
ve lifting ck pump.	"A" EDG was manually started and repeat  of ST-9B was successfully completed on  next start (lube oil low pressure not in  circuit for emergency start). Relief  valve was replaced. 	 	 
sc cracked.	Disc was replaced. 	760821 	N/A 
check valve	Overhauled discharge check valve.         	761016         	N/A         
e actuation gen is less han steam	Relief valve was reset to required  value.   	761203   	N/A   



## II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LICB

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAUSE
77-06	770114	EDG	During routine surveillance, EDG "D" on low lube oil pressure, tripped.	On emergen trip is by
77-10	770224	HPCI	During routine surveillance, HPCI level switches were found valved out of service.	Operator e
77-17	770314	RCIC	During routine tests, RCIC turbine tripped while being started.	Low oil le
77-21	770420	EDG	During routine surveillance test, EDG "A" failed to start.	Tachometer failed.
77-28	770521	RCIC	RCIC turbine damaged by overspeed.	Oil line f
77-30	770528	ADS	During normal operation, a ground on 02-RV-71L was discovered which pre- vented the bellows failure indicators from working.	DC ground.
77-35	770611	HPCI	During surveillance testing, 23-MOV-58 failed to open.	Unknown.
77-49	770928	RCIC	During surveillance testing, RCIC steam supply valve 13-MOV-131 would not open.	Improper s torque swi
77-52	771008	HPCI	During surveillance testing, HPCI steam isolation valve would not fully close.	Improper s of torque

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
cy start, passed.	EDG started on second start. No  equipment defect was found.	770114	1 hr.
error.	Redundant switches were found operable.	770311	N/A
vel.	Auxiliary oil sump was installed. Oil  was added to turbine oil sump.	770319	N/A
relay	Tachometer relay was replaced.	770425	N/A
ailure.	Site personnel installed a support  bracket for oil line. HPCI system  was verified operable. RCIC turbine  overhauled.	770531	N/A
	Ground was repaired.	770916  During Refuel  Outage	N/A
	All electrical circuits were checked.  Valve was cycled and returned to  service.	770611	1/2 hr.
etting of tch.	Torque switch was reset.	770930	N/A
etting of switch.	Torque switch was reset.	771008	N/A

## II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LICEN

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAUSE
77-61	771116	RHR	Instrument setpoint change for 10-PS-120A-H was implemented prior to NRC approval.	Operator error
77-67	771129	RCIC	During ISP-9-1, instrument channel was found high out of calibration.	Drift.
77-71	771228	RCIC	RCIC pump 13-P-1 was made inoperable for 7 hours to clean cuno filters.	Filter clog
*77-002	770112	RHR/ LPCI	While performing ISP, found setpoint of RHR and LPCI for isolation on increasing pressure was too high.	Former set made on de pressure.
*77-024	770404	HPCI	HPCI test valve failure.	Burned coil for test va

\* ADDITIONS

Enclosure 1, page 7

DATE	EQUIP-
RETURNED	MENT
TO	DOWN
SERVICE	TIME
10-PS-120-A-H were reset.	N/A
13-DPIS-84 was calibrated.	N/A
Filter was cleaned.	7 hrs.
Set isolation trip within specified range.	N/A
Replaced coil. Failed coil did not disable HPCI. Operator removed power to locate coil, but could have restored power at any time.	1 1/2 hr.

II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LICB

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAUSE
78-08	1780210	RCIC	During normal plant operation,  smoke was being emitted from  breaker 13-MOV-131 (RCIC turbine  steam inlet valve motor breaker).	Electrical
78-09	1780215	EDG	During ST-9B, "A" emergency diesel  generator tripped.	Blown fuse
78-18	1780404	LPCI	LPCI Loop "A" inoperable, to repack  valve 10-MOV-27A.	Packing gl
78-34	1780508	CORE  SPRAY	Failure to run required ST on redundant  system before de-energizing core spray  discharge valve motor to adjust  torque switch.	Operator e
78-40	1780518	LPCI	During normal plant operation, LPCI  inverter/charger tripped resulting in  loss of "B" LPCI independent power.	Failed SCR  inverter.
78-56	1780722	CORE  SPRAY	During normal operation, while per-  forming ST-1C on 14-MOV-11B (core spray  system outboard isolation valve) the  valve would not close when given a  close signal by the operator.	Limitorque  shaft key
78-58	1780805	RHR	During ST-2A, "A" loop RHR flow  indicator 10-FI-133A failed.	Electrical
78-60	1780806	HPCI	During routine testing, HPCI torus  suction valve 23-MOV-57 would not  operate electrically.	Limitorque  was burned

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
overload.	Replaced 74 coil, 42xC coil and several   burned wires.	780210	13 hrs.
	Replaced blown fuse, performed   operability tests.	780215	1 hr.
and leak.	Valve was repacked.	780406	40 hrs.
error.	Motor controller was immediately re-   energized after readjusting torque   switch.	780508	3 min.
's in the	Failed SCR's were replaced.	780519	18 hrs.
operator sheared.	Replace limitorque operator shaft key.	780723	8 hrs.
short.	The short was cleared and instrument   returned to service.	780805	4 hrs.
motor up.	Replaced limitorque motor.	780807	36 hrs.

II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAUSE
78-70	780828	EDG	During normal operation, operator  noted noisy operation of "A" EDG lube  oil soak back pump causing "A" EDG to  be placed out of service.	Pump misal
78-75	780902	CORE  SPRAY	During normal operation, while per-  forming ST-3D, 14-MOV-12B (inboard  core spray injection valve) would not  open electrically.	High differ  pressure.
78-81	780915	LPCI	During ST-2H, circuit breaker for RHR  pump 10-P-3C would not charge,  rendering pump inoperable.	Power fuse
78-83	780923	ADS/  LPCI	Logic power for "B" LPCI subsystem  de-energized for ADS maintenance.	Operator e
78-97	781215	HPCI/  RCIC	During ISP-10, eight temperature  switches used for HPCI line rupture  were found improperly set.	Operator e
78-98	781205	EDG	During start-up "A" EDG tripped while  being paralleled.	Misadjustm  engine gov
78-109	781224	RHR	During start-up "A" RHR loop could not  be maintained full of water.	Discharge  valve fail



USE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
ignment.	Aligned motor and pump.	780828	5 1/2   hrs.
rential	14-MOV-12V was cycled manually,   and declared operable.	780902	N/A
holder	Straightened fuse holder clip.	780915	1/2 hr.
rror.	Power restored.	780924	20 hrs.
rror.	Temperature switches readjusted.	781215	2 hrs.
ent of ernor.	Governor properly adjusted.	781205	3 hrs.
check ure.	"A" RHR pump was placed in operation   in the Torus cooling mode to comply   with Technical Specifications.	781225	38.8   hrs.



II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAUSE
*78-020	780408	HPCI	During normal operation, while per-  forming ST-4C, valve 23-MOV-14 motor  operator separated from valve body yoke.	Fasteners  attached a  plate to y
*78-021	780410	RCIC	During ST, a malfunction of limit  switch on B-MOV-131 resulted in loss  of speed control on RCIC turbine in  "test" mode.	Dirt on co  caused los  continuity
*78-022	780410	LPCI	While performing ST, LPCI valve  10-MOV-25A failed to open.	Low torque  setting.
*78-026	780429	HPCI	During reactor start-up and after in-  creasing pressure to greater than  150 psig, the HPCI steam isolation valve  23-MOV-15 would not open. Reactor  pressure was lowered to less than 150  psig, where HPCI is not required to be  operable (Tech. Specs. 3.5.c.1).	The torque  associated  "open valv  was out of
*78-052	780719	LPCI	Tech. Spec. amendment increased the low  pressure coolant injection from 50 to  125 psig for ADS permissive. ISP-46  was revised to reflect the new value  but the pressure switch was not  immediately recalibrated.	Tech. Spec  No. 37 Jun  Lack of co  in recalib
*78-065	780816	LPCI	During normal operation, valve operator  (O2-MOV-54B) lost power. Loss of con-  trol power renders the valve incapable  of automatic closure or remote manual  closure in event of LPCI system initia-  tion as required by TS-A-3.5.A.5.	Control po  blown. Ap  grounding  inside pri  tainment.

\* ADDITIONS

USE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
which adapter oke failed.	Fasteners were replaced.	780410	48 hrs.
contacts s of	Contacts jumpered and system in opera- tion while contacts were cleaned.	780410	4 hrs.
switch	Switch setting was readjusted, and ST completed satisfactorily.	780410	2 hrs.
switch with the e" circuit adjustment.	The torque switch was reset.	780419	2 hrs.
. Amendment e 14, 1978 mmunication rating same.	Switch was recalibrated to the new value on 780719.	780719	N/A
wer fuse was parent or a short mary con-	Fuse was replaced and the valve was closed to preclude the need for auto- operation. Ground was found in control circuit and repaired on 10/03/78.	780816	2 hrs.

## II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CA
79-20	790327	EDG	During ST-98, air compressor 93-AC-B1 did not load.	Dirt in u
79-23	790411	HPCI	During inspection of HPCI turbine piping for fixed fire suppression system, turbine must be disassembled violating Technical Specifications.	HPCI turb
79-24	790428	EDG	Emergency service water pump failed to meet shutoff head requirements of TS-4.11.D.1.6.	Normal we
79-35	790607	RCIC	RCIC low pump suction pressure switch setpoint too high (15.7" of mercury). Technical specifications require 15".	Out of ca
79-39	790627	LPCI	During ST-35A, "B" loop LPCI injection valve failed to open (10-MOV-25B).	Failure o switch in operator.

USE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
Unloader.	Unloader was disassembled and cleaned.	790514 Pipe Stress Outage	N/A
Line inspection.	None.	790615 Plant in cold shutdown for pipe stress.	N/A
Overhaul.	Overhaul and minor modification of impeller.	790803 Plant in cold shutdown for pipe stress.	3 mos.
Calibration.	I&C personnel recalibrated pressure switch. In addition, the surveillance test frequency has been increased from monthly to weekly until satisfactory performance has been demonstrated.	790607 Plant in cold shutdown for pipe stress.	2 hrs.
Torque motor	Replaced torque switch assembly.	790702 Pipe stress outage.	N/A

II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAT
79-40	790630	RHR	During ST-2A, reverse rotation of RHR  pump (10-P-3A) was noted.	Discharge  not fully
79-42	790713	RHR	During ST-2R, RHR service water pumps  could not meet required Technical  Specification 4.5.B.1	Orifice in  line was
79-46	790830	ADS/ HPCI	Deficiencies in the design of cable  separation between ADS and HPCI.	HPCI and  in the sam
79-58	790903	HPCI	During plant heatup, the HPCI turbine  was intentionally uncoupled from the  pump (for overspeed test) violating  Technical Specification Appendix A  3.5.C.1.a.	Technical  tions requ  operable  to startup  commencem  startup,  do overspe
79-64	790906	HPCI	During normal operation, while per-  forming ST-4E, the motor on the con-  densate storage tank HPCI suction  valve failed. The motor from 23-MOV-57  (HPCI torus suction valve) was to be  used to replace it. However, when the  motor of 23-MOV-57 was removed the  valve was not checked in the open  position as per technical specifica-  tions.	Inadequate  tion.
79-71	791004	EDG	During normal operation, emergency  service water pipe support H15-124 was  found inoperable.	Bulletin  effort.

INSEE REPORT

Enclosure 1, page 12

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
check valve closed.	Valve disassembled and repaired. 	790630 	N/A 
discharge too small.	Orifice in discharge line temporarily  removed, after resizing hole. 	790823  Pipe stress  outage 	N/A 
ADS cables in tray.	Rerouted HPCI and ADS cables with  termination performed during refuel  outage. 	800804 	N/A 
Specifica- tion pumps prior to - after start of plant can start test.	Reactor pressure was maintained below  150 psig. 	790903 	N/A 
communica-	23-MOV-57 was placed in the open  position as soon as the improper  condition was discovered. 	790906 	5 hrs. 
9-02, 07, 14	H15-124 was modified. 	791007 	3 days 

## II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LICB

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAUSE
79-73	790914	EDG	During ST-9B, EDG "C" tripped on over-  speed during the engine start sequence.	Loose conn  overspeed
79-81	791018	RHR/ LPCI	4 RHR pipe supports H10-135, H10-140,  H10-468, and PPSK-727 found to be  inoperable.	Bulletin 7  14 effort  ation to r  than furth  made.
79-86	791025	RHR/ EDG	7 pipe supports H66-62, H46-1, H46-2  H46-3, H46-27A, H10-175 and H10-177  determined inoperable.	
79-87	791029	RHR	3 RHR pipe supports determined  inoperable	
79-91	791020	RHR	During ST-2B, RHR pump "C" failed to  start properly.	Limit swit  suction va  improperly
79-90	791011	HPCI	As a result of hanger modification  for PSA, the cable for 23-MOV-17 re-  quired relocation, disabling the valve.  This caused the HPCI system to enter  a degraded mode.	Bulletin 7  14 effort.
79-92	791013	HPCI	During normal operation, an inter-  mittent isolation signal to 23-MOV-15  (HPCI system steam isolation valve)  was noted.	Loose lead  area tempe  switch.



SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
ection on load switch.	Loose connection was repaired.	790915	24 hrs.
9-02, 07, & - determin- repair rather er analysis	Modification to the supports was com-   pleted within the 7 day time frame.	791024	N/A
"	Modification and upgrading of the   supports was completed within the   7 day time frame.	791101	N/A
"	Upgrading of the 3 supports was   completed within the 7 day time frame.	791105	N/A
ches for lve) were adjusted.	Limit switches for 10-MOV-13C were   readjusted properly.	791020	4 hrs.
9-02, 07 &	Cable for 23-MOV-17 was rerouted.	791014	50 hrs.
on HPCI ature	Connection was tightened.	791013	2 hrs.



II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LICE

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAUSE
79-97	791030	EDG	During normal operation while performing ST-9D, EDG "C" would not parallel with EDG "A".	High resistance on relay B
79-100	791108	HPCI	During normal operation, in order to complete maintenance, the HPCI system was intentionally made inoperable.	Leak in hydraulic control valve gasket.
79-103	791205	RHR	RHR pipe hanger H10-539 was determined inoperable.	Bulletin 714 effort.
79-105	791114	EDG	During normal operation, EDG "C" was declared inoperable due to a noisy lube oil recirc pump.	Bad bearing
79-108	791206	RCIC	During normal operation, the RCIC system was declared inoperable to inspect turbine bearings due to operator smelling smoke.	Could not determine initially. Excessive temperature to inspect. Be sure.
79-110	791214	HPCI	During normal operation, HPCI steam supply inward isolation (23-MOV-15) closed as a result of a spurious isolation signal.	Extensive shooting of containment system ass 23-MOV-15 and no cause spurious signal found nor condition be

## NSEE REPORT

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
stance contacts SR-400.	Contacts on relay ESR-400 were cleaned.	791030	9 hrs.
draulic lve seat	Gasket for hydraulic control valve seat drain was replaced.	791108	4 hrs.
9-02, 07,	Modification to H10-539 was completed.	791206	24 hrs.
g in motor.	"C" EDG Recirc lube oil pump motor was replaced.	791114	12 hrs.
positively cause Suspected bearing e. Decided bearing to	Welding in the area was finally determined as the cause.	791209	48 hrs.
trouble- f the por- e primary t isolation ociated with was conducted, se for the ignal could be could the con- duplicated.	None	791214	N/A

II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LICE

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAU
*79-113	791221	CORE	During normal operation, while con-	The motor
		SPRAY	ducting ST-3D isolation valve 14-MOV-	associated
			11B would not reopen following closure.	limitorque
				worked loo
				shaft.
*79-056	790926	HPCI	Deficiencies in the design of cable	HPCI & ADS
			separation between ADS & HPCI. This	in same tr
			could affect the control of the in-	
			board isolation valve for HPCI system	
			steam supply (23-MOV-15).	
*79-057	790927	RHR/	During normal operation, 2 RHR pipe	Pipe stress
		CORE	supports (H10-533 and PFSK-503) and 1	by archite
		SPRAY	core spray (H14-46) were found to be	NRC letter
			inoperable.	dated 8/14,

\* ADDITIONS

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
pinion gear with MOV-11B operator had se from its	Motor pinion gear was replaced.	791222	13 hrs.
cable in ay.	In order to preclude spurious closure of 23-MOV-15, the valve motor has been deenergized (locked open). The out- side isolation valve (23-MOV-16) was checked daily as required by Tech. Spec. Appendix A, Par 3.7.D. until rerouting of cables.	790926	N/A
s reanalysis ct-engineer	Modifications done within seven (7) day time frame.	N/A	None
79			

## II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAU
80-04	800107	CORE SPRAY	During surveillance testing, one of the four core spray injection permissive switches 02-3-PS-52A was found incorrectly set.	Instrument
80-06	800108	CORE SPRAY	During a review of work requests, it was noted that core spray injection valve "A" had not operated properly on December 21, 1979 (14-MOV-12A) while undergoing surveillance testing.	Torque lin improperly and excess ential pre valve.
80-07	800109	RHR	During normal operation, "B" RHR loop was declared inoperable while hanger H10-28 was inoperable.	H10-28 had test requi Bulletin 7
80-08	800109	CORE SPRAY	During normal operation, while doing surveillance testing 3D, "B" core spray loop injection valve (14-MOV-12B) failed.	Improper t adjustment
80-12	800111	EDG	During ST-9B, EDG "A" tripped on low lube oil pressure.	Partial fa engine imm resulting oil and sl sure build engine sta
80-15	800123	LPCI	During normal operation, LPCI independent power supply "A" inverter tripped.	Failure of capacitors
80-18	800201	CORE SPRAY	During normal operation, core spray pipe break detector was outside Technical Specification limits in Table 3.2-2.	Receipt of Specificat after requ mentation
80-24	800213	HPCI	During normal operation, HPCI steam isolation valve (23-MOV-15) closed as a result of a spurious signal.	Defective connection

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
drift.	Corrective action recalibration  immediately.	800107	1/2 hr.
limit switches	Adjust torque and limit switches.	791221	24 hrs.
adjusted	Surveillance testing increased to		
live differ-	once every two weeks to monitor		
ssure across	valve performance.		
failed pull	Hanger H10-28 was repaired.	800109	32 hrs.
red for			
9-02.			
torque switch	Readjust torque switch.	800109	2 1/2
.			hrs.
ilure of	Heater was replaced.	801113	48 hrs.
ersion heater			
in cold lube			
ow oil pres-			
up during			
rt.			
filter	Replaced two failed capacitors.	800124	9 hrs.
.			
Technical	Recalibrated detector to new Technical	800201	4 hrs.
ion change	Specification value.		
ired imple-			
date.			
electrical	Connector was reconnected (23-TE-92A).	800214	20 hrs.
.			

## II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAU
80-27	1800322	HPCI	During normal operation, the HPCI  system was degraded to allow for pipe  hanger repair.	Bulletin 7  effort.
80-29	1800325	HPCI	During ICP-75, 23-LS-74A was found set  to a less conservative value than  allowed. This switch initiates  HPCI suction transfer to the torus  on condensate storage tank low level.	Drift
80-34	1800410	HPCI	During surveillance test, HPCI minimum  flow valve failed to close.	Cocked bru  DC motor d
80-35	1800415	RHR	During normal operation, primary  containment isolation valve was made  inoperable for preventive maintenance  of valve operator.	Open torqu  limit swit
80-38	1800418	RHR	During normal operation, valve .0-MOV-  57 was found incapable of fully closing.	Seat and d
80-40	1800422	LPCI	During normal operation, the "A"  LPCI independent power supply inverter  tripped.	Gate timin  failures.
80-47	1800501	RCIC	During normal operation while surveil-  lance testing to satisfy T.S.  Table 4.2.2, RCIC high  ambient temperature switch  13-TE-89B failed to operate.	Broken wir
80-56	1800510	EDG	During normal shutdown and ST following  preventive maintenance, EDG "C" tripped  on high circulating current.	High resis  voltage re  droop swit
80-62	1800717	RHR	During normal shutdown, testing RHR  service water pumps A and C flow was  less than required by Technical  Specification 4.5.B.1.	Orifice in  line was t

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
9-02, 14	Pipe hanger was repaired.	800322	4 hrs.
	Remove, clean and calibrate 23-LE-74A. Surveillance was increased from once each month to once each week.	800325	1 hr.
sh holder on rive.	Motor was replaced.	800410	8 hrs.
e bypass ch	Adjusted limit switches.	800415	8 hrs.
isc wear.	Overhauled valve and refurbished seat and disc.	800610 Refueling Outage.	N/A
g card	Replaced gate timing card, filter cap- acitors and internal power supply.	800423	5 hrs.
e.	Repaired broken wire.	800501	10 hrs.
tance gulator ch contacts.	Replaced switch.	800610	N/A
discharge oo small.	Orifice was removed.	800717	3 hrs.



II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LICE

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CAU
80-66	800805	CORE	During instrument surveillance pro-	Drift.
		SPRAY	cedure (ISP-8), the core spray sparger	
			break detection differential pressure	
			transmitter (14-PPIS-43A & 43B) was	
			set out of calibration and beyond	
			T.S. limits.	
80-67	800805	HPCI/	During ISP-12, HPCI and RCIC low	Drift.
		RCIC	pressure switches 23-PS-68A and 13-S-	
			878 were found set higher than	
			allowed by Technical Specification	
			Table 3.2-2.	
80-69	800807	ADC	During ST-22A, ADS timer was set lower	Drift.
			than allowed by Technical Specifi-	
			cation Table 3.2-2.	
80-71	800810	RCIC	During plant startup, RCIC turbine	Failed amp
			speed would not control in manual.	
80-72	800812	LPCI	During plant startup, "B" LPCI inverter	Electronic
			tripped. Trips also took place on	failure du
			8/22/80, 9/5/80 and 9/6/80.	control bo
80-75	800913	LPCI	During normal operation, "B" LPCI	Failure of
			inverter tripped.	A <sub>2</sub> .
80-79	801008	RCIC	During normal operation, RCIC system	Normal wea
			was made inoperable to allow repair of	
			system drain valve steam leaks.	
80-80	801011	RHR	During normal operation, while con-	Motor oper
			ducting ST, the primary containment	was diseng
			isolation valve (10-MOV-57) from RHR	scaffold i
			to radwaste would not close when	
			required to be operable by TS 3.7.D.	

## NSEE REPORT

SE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
	Instruments were calibrated and returned to service. Surveillance frequency was increased.	800805	1/2 hr.
	Instruments were calibrated.	800805	1/2 hr.
	Timer was adjusted.	800808	3 hrs.
lifier.	Amplifier was replaced.	800810	11 hrs.
control e to one ard.	Causes of trips were repaired and the central control board which created problem was finally identified and corrected.	800812	N/A
logic card	Logic card was replaced.	800917	96 hrs.
r.	Replaced valve body to bonnet gaskets.	801008	24 hrs.
ator clutch aged due to nstallation.	Removal of scaffolding in the area restored the valve to operable status.	801011	1 hr.

## II.K.3.17 REPORT ON OUTAGES OF EMERGENCY CORE-COOLING SYSTEMS LIC

LER/ OR NO.	EVENT DATE	SYSTEM	DESCRIPTION	CA
*80-28	800324	RHR	During normal operation, "B" loop of  torus cooling was declared inoperable  when required by T.S. 3.5.B. The base  plate for hanger H10-49A failed the  flexibility requirements of I&E  Bulletin 79-02.	I&E Bulle
*80-35	800415	RHR	During normal operations, personnel  noted that the RHR system discharge  valve (10-MOV-67) to Radwaste would  not open. The valve was closed as re-  quired by T.S.3.7.D.2. The other  primary containment isolation valve  (10-MOV-57) in the same line was fully  operable.	Bypass li  not set p
*80-85	801208	HPCI	During normal operation, while con-  ducting S.T. required by TS.4.5.C. the  outside isolation valve motor failed.  The inside I.V. was closed to satisfy  T.S.3.7.D. and other systems were  verified operable as required by  T.S.3.5 C.9.	Mechanica  the torque  assembly.
*80-215	801110	EPD	During normal operation, while per-  forming surveillance testing EDG  "B&D" tripped on low oil pressure.  This would not occur on ECCS start.  Trip is bypassed on ECCS start.	Low oil te
*80-93	800507	RHR	During shutdown, RHR shutdown cooling  suction cooling isolation valve would  not open. Redundant system was  available.	Valve moto  burned up.

\* ADDITIONS

USE	CORRECTIVE ACTION	DATE RETURNED TO SERVICE	EQUIP- MENT DOWN TIME
tin 79-02.	A temporary repair restored the system to operable status on the following day. Permanent repairs were completed in 15 days.	800325	24 hrs.
mit switch properly.	Performed P.M. on operator which included adjustment of limit switches.	800415	8 hrs.
failure of switch	The valve motor was repaired and torque switch assembly parts replaced.	801211	4 days
mp.	Raise thermostat setting.	801110	1 1/2 hrs.
r operator	Motor replaced.	800508	24 hrs.