

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1): Cooper Nuclear Station		DOCKET NUMBER (2): 0 5 0 0 0 2 9 1 8	PAGE (3): 1 OF 0 4
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TITLE (4): Failure of HPCI to Reach Rated Flow Within the Required Time Interval During Surveillance Testing Due to a Control System Electronics Failure

EVENT DATE (5): 0 8 2 7 8 8 8 8			LER NUMBER (6): 0 2 2 0 0 0			REPORT DATE (7): 9 2 6 8 8			OTHER FACILITIES INVOLVED (8):		
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES		
									DOCKET NUMBER (9): 0 5 0 0 0		

OPERATING MODE (10): N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11):																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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0	20.402(a)	20.406(a)	20.406(b)	20.406(c)	20.406(d)	20.406(e)	20.406(f)	20.406(g)	20.406(h)	20.406(i)	20.406(j)	20.406(k)	20.406(l)	20.406(m)	20.406(n)	20.406(o)	20.406(p)	20.406(q)	20.406(r)	20.406(s)	20.406(t)	20.406(u)	20.406(v)	20.406(w)	20.406(x)	20.406(y)	20.406(z)	20.406(aa)	20.406(ab)	20.406(ac)	20.406(ad)	20.406(ae)	20.406(af)	20.406(ag)	20.406(ah)	20.406(ai)	20.406(aj)	20.406(ak)	20.406(al)	20.406(am)	20.406(an)	20.406(ao)	20.406(ap)	20.406(aq)	20.406(ar)	20.406(as)	20.406(at)	20.406(au)	20.406(av)	20.406(aw)	20.406(ax)	20.406(ay)	20.406(az)	20.406(ba)	20.406(bb)	20.406(bc)	20.406(bd)	20.406(be)	20.406(bf)	20.406(bg)	20.406(bh)	20.406(bi)	20.406(bj)	20.406(bk)	20.406(bl)	20.406(bm)	20.406(bn)	20.406(bo)	20.406(bp)	20.406(bq)	20.406(br)	20.406(bs)	20.406(bt)	20.406(bu)	20.406(bv)	20.406(bw)	20.406(bx)	20.406(by)	20.406(bz)	20.406(ca)	20.406(cb)	20.406(cc)	20.406(cd)	20.406(ce)	20.406(cf)	20.406(cf)(A)	20.406(cf)(B)	20.406(cf)(C)	20.406(cf)(D)	20.406(cf)(E)	20.406(cf)(F)	20.406(cf)(G)	20.406(cf)(H)	20.406(cf)(I)	20.406(cf)(J)	20.406(cf)(K)	20.406(cf)(L)	20.406(cf)(M)	20.406(cf)(N)	20.406(cf)(O)	20.406(cf)(P)	20.406(cf)(Q)	20.406(cf)(R)	20.406(cf)(S)	20.406(cf)(T)	20.406(cf)(U)	20.406(cf)(V)	20.406(cf)(W)	20.406(cf)(X)	20.406(cf)(Y)	20.406(cf)(Z)	20.406(d)	20.406(e)	20.406(f)	20.406(g)	20.406(h)	20.406(i)	20.406(j)	20.406(k)	20.406(l)	20.406(m)	20.406(n)	20.406(o)	20.406(p)	20.406(q)	20.406(r)	20.406(s)	20.406(t)	20.406(u)	20.406(v)	20.406(w)	20.406(x)	20.406(y)	20.406(z)	20.406(aa)	20.406(ab)	20.406(ac)	20.406(ad)	20.406(ad)(A)	20.406(ad)(B)	20.406(ad)(C)	20.406(ad)(D)	20.406(ad)(E)	20.406(ad)(F)	20.406(ad)(G)	20.406(ad)(H)	20.406(ad)(I)	20.406(ad)(J)	20.406(ad)(K)	20.406(ad)(L)	20.406(ad)(M)	20.406(ad)(N)	20.406(ad)(O)	20.406(ad)(P)	20.406(ad)(Q)	20.406(ad)(R)	20.406(ad)(S)	20.406(ad)(T)	20.406(ad)(U)	20.406(ad)(V)	20.406(ad)(W)	20.406(ad)(X)	20.406(ad)(Y)	20.406(ad)(Z)	20.406(af)	20.406(ag)	20.406(ag)(A)	20.406(ag)(B)	20.406(ag)(C)	20.406(ag)(D)	20.406(ag)(E)	20.406(ag)(F)	20.406(ag)(G)	20.406(ag)(H)	20.406(ag)(I)	20.406(ag)(J)	20.406(ag)(K)	20.406(ag)(L)	20.406(ag)(M)	20.406(ag)(N)	20.406(ag)(O)	20.406(ag)(P)	20.406(ag)(Q)	20.406(ag)(R)	20.406(ag)(S)	20.406(ag)(T)	20.406(ag)(U)	20.406(ag)(V)	20.406(ag)(W)	20.406(ag)(X)	20.406(ag)(Y)	20.406(ag)(Z)	20.406(ah)	20.406(ai)	20.406(ai)(A)	20.406(ai)(B)	20.406(ai)(C)	20.406(ai)(D)	20.406(ai)(E)	20.406(ai)(F)	20.406(ai)(G)	20.406(ai)(H)	20.406(ai)(I)	20.406(ai)(J)	20.406(ai)(K)	20.406(ai)(L)	20.406(ai)(M)	20.406(ai)(N)	20.406(ai)(O)	20.406(ai)(P)	20.406(ai)(Q)	20.406(ai)(R)	20.406(ai)(S)	20.406(ai)(T)	20.406(ai)(U)	20.406(ai)(V)	20.406(ai)(W)	20.406(ai)(X)	20.406(ai)(Y)	20.406(ai)(Z)	20.406(aj)	20.406(ak)	20.406(ak)(A)	20.406(ak)(B)	20.406(ak)(C)	20.406(ak)(D)	20.406(ak)(E)	20.406(ak)(F)	20.406(ak)(G)	20.406(ak)(H)	20.406(ak)(I)	20.406(ak)(J)	20.406(ak)(K)	20.406(ak)(L)	20.406(ak)(M)	20.406(ak)(N)	20.406(ak)(O)	20.406(ak)(P)	20.406(ak)(Q)	20.406(ak)(R)	20.406(ak)(S)	20.406(ak)(T)	20.406(ak)(U)	20.406(ak)(V)	20.406(ak)(W)	20.406(ak)(X)	20.406(ak)(Y)	20.406(ak)(Z)	20.406(al)	20.406(am)	20.406(am)(A)	20.406(am)(B)	20.406(am)(C)	20.406(am)(D)	20.406(am)(E)	20.406(am)(F)	20.406(am)(G)	20.406(am)(H)	20.406(am)(I)	20.406(am)(J)	20.406(am)(K)	20.406(am)(L)	20.406(am)(M)	20.406(am)(N)	20.406(am)(O)	20.406(am)(P)	20.406(am)(Q)	20.406(am)(R)	20.406(am)(S)	20.406(am)(T)	20.406(am)(U)	20.406(am)(V)	20.406(am)(W)	20.406(am)(X)	20.406(am)(Y)	20.406(am)(Z)	20.406(an)	20.406(ao)	20.406(ao)(A)	20.406(ao)(B)	20.406(ao)(C)	20.406(ao)(D)	20.406(ao)(E)	20.406(ao)(F)	20.406(ao)(G)	20.406(ao)(H)	20.406(ao)(I)	20.406(ao)(J)	20.406(ao)(K)	20.406(ao)(L)	20.406(ao)(M)	20.406(ao)(N)	20.406(ao)(O)	20.406(ao)(P)	20.406(ao)(Q)	20.406(ao)(R)	20.406(ao)(S)	20.406(ao)(T)	20.406(ao)(U)	20.406(ao)(V)	20.406(ao)(W)	20.406(ao)(X)	20.406(ao)(Y)	20.406(ao)(Z)	20.406(ap)	20.406(aq)	20.406(aq)(A)	20.406(aq)(B)	20.406(aq)(C)	20.406(aq)(D)	20.406(aq)(E)	20.406(aq)(F)	20.406(aq)(G)	20.406(aq)(H)	20.406(aq)(I)	20.406(aq)(J)	20.406(aq)(K)	20.406(aq)(L)	20.406(aq)(M)	20.406(aq)(N)	20.406(aq)(O)	20.406(aq)(P)	20.406(aq)(Q)	20.406(aq)(R)	20.406(aq)(S)	20.406(aq)(T)	20.406(aq)(U)	20.406(aq)(V)	20.406(aq)(W)	20.406(aq)(X)	20.406(aq)(Y)	20.406(aq)(Z)	20.406(ar)	20.406(as)	20.406(as)(A)	20.406(as)(B)	20.406(as)(C)	20.406(as)(D)	20.406(as)(E)	20.406(as)(F)	20.406(as)(G)	20.406(as)(H)	20.406(as)(I)	20.406(as)(J)	20.406(as)(K)	20.406(as)(L)	20.406(as)(M)	20.406(as)(N)	20.406(as)(O)	20.406(as)(P)	20.406(as)(Q)	20.406(as)(R)	20.406(as)(S)	20.406(as)(T)	20.406(as)(U)	20.406(as)(V)	20.406(as)(W)	20.406(as)(X)	20.406(as)(Y)	20.406(as)(Z)	20.406(at)	20.406(au)	20.406(au)(A)	20.406(au)(B)	20.406(au)(C)	20.406(au)(D)	20.406(au)(E)	20.406(au)(F)	20.406(au)(G)	20.406(au)(H)	20.406(au)(I)	20.406(au)(J)	20.406(au)(K)	20.406(au)(L)	20.406(au)(M)	20.406(au)(N)	20.406(au)(O)	20.406(au)(P)	20.406(au)(Q)	20.406(au)(R)	20.406(au)(S)	20.406(au)(T)	20.406(au)(U)	20.406(au)(V)	20.406(au)(W)	20.406(au)(X)	20.406(au)(Y)	20.406(au)(Z)	20.406(av)	20.406(aw)	20.406(aw)(A)	20.406(aw)(B)	20.406(aw)(C)	20.406(aw)(D)	20.406(aw)(E)	20.406(aw)(F)	20.406(aw)(G)	20.406(aw)(H)	20.406(aw)(I)	20.406(aw)(J)	20.406(aw)(K)	20.406(aw)(L)	20.406(aw)(M)	20.406(aw)(N)	20.406(aw)(O)	20.406(aw)(P)	20.406(aw)(Q)	20.406(aw)(R)	20.406(aw)(S)	20.406(aw)(T)	20.406(aw)(U)	20.406(aw)(V)	20.406(aw)(W)	20.406(aw)(X)	20.406(aw)(Y)	20.406(aw)(Z)	20.406(ax)	20.406(ay)	20.406(ay)(A)	20.406(ay)(B)	20.406(ay)(C)	20.406(ay)(D)	20.406(ay)(E)	20.406(ay)(F)	20.406(ay)(G)	20.406(ay)(H)	20.406(ay)(I)	20.406(ay)(J)	20.406(ay)(K)	20.406(ay)(L)	20.406(ay)(M)	20.406(ay)(N)	20.406(ay)(O)	20.406(ay)(P)	20.406(ay)(Q)	20.406(ay)(R)	20.406(ay)(S)	20.406(ay)(T)	20.406(ay)(U)	20.406(ay)(V)	20.406(ay)(W)	20.406(ay)(X)	20.406(ay)(Y)	20.406(ay)(Z)	20.406(az)	20.406(ba)	20.406(ba)(A)	20.406(ba)(B)	20.406(ba)(C)	20.406(ba)(D)	20.406(ba)(E)	20.406(ba)(F)	20.406(ba)(G)	20.406(ba)(H)	20.406(ba)(I)	20.406(ba)(J)	20.406(ba)(K)	20.406(ba)(L)	20.406(ba)(M)	20.406(ba)(N)	20.406(ba)(O)	20.406(ba)(P)	20.406(ba)(Q)	20.406(ba)(R)	20.406(ba)(S)	20.406(ba)(T)	20.406(ba)(U)	20.406(ba)(V)	20.406(ba)(W)	20.406(ba)(X)	20.406(ba)(Y)	20.406(ba)(Z)	20.406(bb)	20.406(bc)	20.406(bc)(A)	20.406(bc)(B)	20.406(bc)(C)	20.406(bc)(D)	20.406(bc)(E)	20.406(bc)(F)	20.406(bc)(G)	20.406(bc)(H)	20.406(bc)(I)	20.406(bc)(J)	20.406(bc)(K)	20.406(bc)(L)	20.406(bc)(M)	20.406(bc)(N)	20.406(bc)(O)	20.406(bc)(P)	20.406(bc)(Q)	20.406(bc)(R)	20.406(bc)(S)	20.406(bc)(T)	20.406(bc)(U)	20.406(bc)(V)	20.406(bc)(W)	20.406(bc)(X)	20.406(bc)(Y)	20.406(bc)(Z)	20.406(bd)	20.406(be)	20.406(be)(A)	20.406(be)(B)	20.406(be)(C)	20.406(be)(D)	20.406(be)(E)	20.406(be)(F)	20.406(be)(G)	20.406(be)(H)	20.406(be)(I)	20.406(be)(J)	20.406(be)(K)	20.406(be)(L)	20.406(be)(M)	20.406(be)(N)	20.406(be)(O)	20.406(be)(P)	20.406(be)(Q)	20.406(be)(R)	20.406(be)(S)	20.406(be)(T)	20.406(be)(U)	20.406(be)(V)	20.406(be)(W)	20.406(be)(X)	20.406(be)(Y)	20.406(be)(Z)	20.406(bf)	20.406(bg)	20.406(bg)(A)	20.406(bg)(B)	20.406(bg)(C)	20.406(bg)(D)	20.406(bg)(E)	20.406(bg)(F)	20.406(bg)(G)	20.406(bg)(H)	20.406(bg)(I)	20.406(bg)(J)	20.406(bg)(K)	20.406(bg)(L)	20.406(bg)(M)	20.406(bg)(N)	20.406(bg)(O)	20.406(bg)(P)	20.406(bg)(Q)	20.406(bg)(R)	20.406(bg)(S)	20.406(bg)(T)	20.406(bg)(U)	20.406(bg)(V)	20.406(bg)(W)	20.406(bg)(X)	20.406(bg)(Y)	20.406(bg)(Z)	20.406(bh)	20.406(bi)	20.406(bi)(A)	20.406(bi)(B)	20.406(bi)(C)	20.406(bi)(D)	20.406(bi)(E)	20.406(bi)(F)	20.406(bi)(G)	20.406(bi)(H)	20.406(bi)(I)	20.406(bi)(J)	20.406(bi)(K)	20.406(bi)(L)	20.406(bi)(M)	20.406(bi)(N)	20.406(bi)(O)	20.406(bi)(P)	20.406(bi)(Q)	20.406(bi)(R)	20.406(bi)(S)	20.406(bi)(T)	20.406(bi)(U)	20.406(bi)(V)	20.406(bi)(W)	20.406(bi)(X)	20.406(bi)(Y)	20.406(bi)(Z)	20.406(bj)	20.406(bk)	20.406(bk)(A)	20.406(bk)(B)	20.406(bk)(C)	20.406(bk)(D)	20.406(bk)(E)	20.406(bk)(F)	20.406(bk)(G)	20.406(bk)(H)	20.406(bk)(I)	20.406(bk)(J)	20.406(bk)(K)	20.406(bk)(L)	20.406(bk)(M)	20.406(bk)(N)	20.406(bk)(O)	20.406(bk)(P)	20.406(bk)(Q)	20.406(bk)(R)	20.406(bk)(S)	20.406(bk)(T)	20.406(bk)(U)	20.406(bk)(V)	20.406(bk)(W)	20.406(bk)(X)	20.406(bk)(Y)	20.406(bk)(Z)	20.406(bl)	20.406(bm)	20.406(bm)(A)	20.406(bm)(B)	20.406(bm)(C)	20.406(bm)(D)	20.406(bm)(E)	20.406(bm)(F)	20.406(bm)(G)	20.406(bm)(H)	20.406(bm)(I)	20.406(bm)(J)	20.406(bm)(K)	20.406(bm)(L)	20.406(bm)(M)	20.406(bm)(N)	20.406(bm)(O)	20.406(bm)(P)	20.406(bm)(Q)	20.406(bm)(R)	20.406(bm)(S)	20.406(bm)(T)	20.406(bm)(U)	20.406(bm)(V)	20.406(bm)(W)	20.406(bm)(X)	20.406(bm)(Y)	20.406(bm)(Z)	20.406(bn)	20.406(bo)	20.406(bo)(A)	20.406(bo)(B)	20.406(bo)(C)	20.406(bo)(D)	20.406(bo)(E)	20.406(bo)(F)	20.406(bo)(G)	20.406(bo)(H)	20.406(bo)(I)	20.406(bo)(J)	20.406(bo)(K)	20.406(bo)(L)	20.406(bo)(M)	20.406(bo)(N)	20.406(bo)(O)	20.406(bo)(P)	20.406(bo)(Q)	20.406(bo)(R)	20.406(bo)(S)	20.406(bo)(T)	20.406(bo)(U)	20.406(bo)(V)	20.406(bo)(W)	20.406(bo)(X)	20.406(bo)(Y)	20.406(bo)(Z)	20.406(bp)	20.406(bq)	20.406(bq)(A)	20.406(bq)(B)	20.406(bq)(C)	20.406(bq)(D)	20.406(bq)(E)	20.406(bq)(F)	20.406(bq)(G)	20.406(bq)(H)	20.406(bq)(I)	20.406(bq)(J)	20.406(bq)(K)	20.406(bq)(L)	20.406(bq)(M)	20.406(bq)(N)	20.406(bq)(O)	20.406(bq)(P)	20.406(bq)(Q)	20.406(bq)(R)	20.406(bq)(S)	20.406(bq)(T)	20.406(bq)(U)	20.406(bq)(V)	20.406(bq)(W)	20.406(bq)(X)	20.406(bq)(Y)	20.406(bq)(Z)	20.406(br)	20.406(bs)	20.406(bs)(A)	20.406(bs)(B)	20.406(bs)(C)	20.406(bs)(D)	20.406(bs)(E)	20.406(bs)(F)	20.406(bs)(G)	20.406(bs)(H)	20.406(bs)(I)	20.406(bs)(J)	20.406(bs)(K)	20.406(bs)(L)	20.406(bs)(M)	20.406(bs)(N)	20.406(bs)(O)	20.406(bs)(P)	20.406(bs)(Q)	20.406(bs)(R)	20.406(bs)(S)	20.406(bs)(T)	20.406(bs)(U)	20.406(bs)(V)	20.406(bs)(W)	20.406(bs)(X)	20.406(bs)(Y)	20.406(bs)(Z)	20.406(bt)	20.406(bu)	20.406(bu)(A)	20.406(bu)(B)	20.406(bu)(C)	20.406(bu)(D)	20.406(bu)(E)	20.406(bu)(F)	20.406(bu)(G)	20.406(bu)(H)	20.406(bu)(I)	20.406(bu)(J)	20.406(bu)(K)	20.406(bu)(L)	20.406(bu)(M)	20.406(bu)(N)	20.406(bu)(O)	20.406(bu)(P)	20.406(bu)(Q)	20.406(bu)(R)	20.406(bu)(S)	20.406(bu)(T)	20.406(bu)(U)	20.406(bu)(V)	20.406(bu)(W)	20.406(bu)(X)	20.406(bu)(Y)	20.406(bu)(Z)	20.406(bv)	20.406(bw)	20.406(bw)(A)	20.406(bw)(B)	20.406(bw)(C)	20.406(bw)(D)	20.406(bw)(E)	20.406(bw)(F)	20.406(bw)(G)	20.406(bw)(H)	20.406(bw)(I)	20.406(bw)(J)	20.406(bw)(K)	2

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TEXT (If more space is required, use additional NRC Form 305A (1) (17))

A. Event Description

On August 27, 1988, at 11:30 A.M., surveillance testing of the High Pressure Coolant Injection (HPCI) System revealed that rated flow conditions (4250 gpm) could not be achieved within the design basis time limit. The acceptance criteria specified in the surveillance test procedure (Surveillance Procedure 6.3.3.3, HPCI Simulated Automatic Actuation Test) and USAR for pump startup time is less than or equal to 25 seconds. The actual elapsed time determined during performance of the test was 27.2 seconds.

B. Plant Status

At the time of discovery of this condition, the plant was in operation in the RUN Mode at approximately 10 percent power and was being returned to service following the unscheduled trip that occurred on August 25, 1988, (Reference LER 88-021).

C. Basis for Report

A situation which potentially jeopardized satisfactory fulfillment of the safety function of HPCI, reportable in accordance with 10CFR50.73(a)(2)(v).

D. Cause

The failure of the HPCI pump to achieve rated flow within the specified time was due to a malfunctioning EGM control box, a device manufactured by Woodward Governor (Part # 8270-811). The function of the EGM control box is to provide a signal to the EGR Actuator which, in turn, ports oil to the Remote Servo (Control Valve Servo), thereby positioning the turbine governor valve. Subsequent troubleshooting of the EGM control box revealed a failed transistor.

E. Safety Significance

As stated in the CNS Technical Specifications (Section 3.5, Basis), the HPCI System is provided to assure adequate core cooling in the event of a small break Loss of Coolant Accident (LOCA) which does not result in rapid depressurization of the reactor vessel. Chapter VI, Core Standby Cooling System and Chapter VII, Control and Instrumentation, of the CNS USAR, reflects that the HPCI Control System is capable of starting the pump/turbine combination and accelerating it to rated speed within 25 seconds of receipt of an initiation signal, delivering design flow of 4250 gpm at reactor pressures between 1120 and 150 psig.

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TEXT (if more space is required, use additional NRC Form 366A's) (17)

E. Safety Significance (Continued)

General Electric (GE) has advised that a time limit of 30 seconds, measured from the start of the accident, for actuation of the HPCI System was used for the CNS LOCA licensing analysis contained in NEDO 24045, "Loss of Coolant Accident Analysis Report for Cooper Nuclear Power Station", August 1977 and subsequent addenda. The 30 second limit includes the 25 second pump/turbine startup time and an additional 5 seconds for parameter sensing and logic actuation response time. This 5 second response time added to the 27.2 second as-found pump/turbine startup time gives a total of 32.2 seconds which is greater than the 30 seconds used in the LOCA analysis. However, GE has indicated that the capability of the plant to meet licensing requirements for postulated LOCAs is not very sensitive to the actual HPCI start time and/or flow rate. In the analysis of the effects of a small break LOCA, HPCI is assumed to not be available. Instead, reliance is placed on actuation of the Automatic Depressurization System and Low Pressure Emergency Core Cooling Systems by the high drywell pressure and/or low reactor vessel water level initiation signals. Of note, also, regarding the effects of a small break LOCA, is that such an event results in a much lower Peak Clad Temperature (PCT) when compared to the large break events in meeting the 2200°F PCT limit. For larger sized breaks up to and including the design basis LOCA, the HPCI System is assumed to actuate within the above mentioned 30 seconds. The calculated Peak Cladding Temperatures for large break LOCAs, specified in NEDO 24045 and subsequent addenda, are below the 2200°F limit specified in 10CFR50.46. However, startup time is of very little impact due to the rapid depressurization and blowdown of the reactor vessel. GE concluded that the HPCI startup time determined during performance of the surveillance test would not result in any unacceptable safety consequences.

F. Safety Implications

Based upon the fact that HPCI flow at the design rate would have been available in the event of a small break LOCA, (but, possibly, not within 30 seconds, depending on the actual instrument response time), the fuel clad temperature response would have been much improved over that specified in NEDO 24045. (As indicated in Paragraph E, for the small break analysis, no HPCI flow was considered.) For larger break sizes, some incremental increase in PCT could be expected. GE has stated that this increase would be much less than 5°F. Consequently, as evaluated by GE, under these conditions, the time to achieve full HPCI flow and the flow rate, itself, has an insignificant impact on the calculated PCT and PCT would still be within the 2200°F limit.

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G. Corrective Action

An extensive troubleshooting effort was initiated immediately upon discovery of the startup time deficiency. GE was contacted and as part of the discussion regarding the nature of the problem and troubleshooting activities that were in progress, GE input was specifically requested regarding the correct output speed circuit voltage signal that should be present with the HPCI System in standby. GE responded that the correct voltage should be approximately +3 volts. Knowing that the output voltage signal from the currently installed EGM control box was not providing that value, a spare EGM control box was installed and satisfactorily tested by performance of Surveillance Procedure 6.2.2.3.17, HPCI Control System Calibration Test. Additionally, the output speed circuit voltage signal was checked and confirmed to be +3 volts. On August 28 at 3:25 p.m., surveillance procedure 6.3.3.3 was then re-performed and HPCI startup time was determined to be satisfactory. Subsequently, the transistor failure in the EGM control box was confirmed.

To ensure a more thorough checkout of the EGM control box during future surveillance testing, a permanent change to Surveillance Procedure 6.2.2.3.17 is being processed to require that a positive voltage signal from the transistor circuit (that was found defective) to be verified as an element of the test.

H. Past Similar Events

None.