

NORTHEAST UTILITIES



THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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August 16, 1982

Docket Nos. 50-213
50-245
50-336
A02589

Mr. Dennis M. Crutchfield, Chief
Operating Reactors Branch #5
Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

- References:
- (1) D. G. Eisenhut letter to All Operating Plants and Applicants for Operating Licenses and Holders of Construction Permits, dated October 31, 1980, forwarding NUREG-0737.
 - (2) W. G. Council letter to D. G. Eisenhut, dated December 31, 1980.
 - (3) W. G. Council letter to D. G. Eisenhut, dated March 4, 1981.
 - (4) R. A. Clark letter to W. G. Council, dated June 22, 1982.

Gentlemen:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2
NUREG-0737 Item II.K.3.17, Emergency Core Cooling System Outages

Item II.K.3.17 of Reference (1) required Connecticut Yankee Atomic Power Company (CYAPCO) and Northeast Nuclear Energy Company (NNECO) to submit a report detailing outages of all Emergency Core Cooling Systems (ECCS) for the Haddam Neck Plant and Millstone Unit Nos. 1 and 2 for a continuous five year period of recent operation.

CYAPCO and NNECO provided outage data through 1980 in References (2) and (3). Reference (4) requested additional information be provided to complete the review of this item. Accordingly, Attachments 1, 2, and 3 for the Haddam Neck Plant and Millstone Units Nos. 1 and 2, respectively, are provided in response to the Reference (4) request. It should be noted that the ECCS Outage Reports provided in References (2) and (3) are considered representative of all ECCS outages as clarified by the following information:

A046

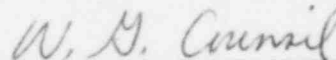
- a. Surveillance testing that is performed while operating, which does not require taking an ECC system/component out of service, is not listed.
- b. Preventive maintenance, such as a major overhaul, is scheduled on ECCS components during refueling outages, and therefore, does not affect their availability. Additionally, the actual duration of such planned maintenance would not provide useful information towards determining the availability of ECCS components. During these periods, only one of the redundant components is required to be available, and this maintenance is performed on a flexible schedule dependent on available manpower and other higher priority work throughout the course of a refueling outage.
- c. Some preventive maintenance is performed on ECCS components during plant operations which affects their availability. This maintenance is reflected in Attachments 1, 2 and 3.
- d. Any unplanned maintenance on ECCS components during operation would place the unit in a Limiting Condition for Operation and the summary of outages already provided in References (2) and (3) addresses this item.
- e. In review of this subject, it was noted that some ECCS outages at the Haddam Neck Plant were inadvertently omitted from References (2) and (3). These items have been included in Attachment (1).

CYAPCO and NNECO have reviewed Attachments 1, 2, and 3 and reiterate the conclusions in References (2) and (3) that no system or Technical Specification modifications are required to enhance plant reliability, availability, or safety, and, as such, no action as a result of this review is planned. CYAPCO and NNECO will, however, use the compiled information in conjunction with future compilations to determine if future system or Technical Specification modifications are indeed necessary.

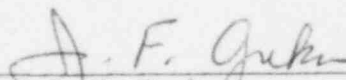
We trust you will find this information responsive to your request.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY



W. G. Council
Senior Vice President



By: J. F. Opeka
Vice President Nuclear Operations

Attachment 1

Haddam Neck Plant

TMI Action Plan Item 11.K.3.17

Emergency Core Cooling System Outage Report

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Haddam Neck UNIT One SYSTEM Emergency Diesel PAGE 1 OF 2

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE /CORRECTIVE ACTION</u>
Monthly	.02 (per diesel per month)	Electrical and vibration checks. Preventive Maintenance function.
Monthly	.08 (per diesel per month)	General lubrication of diesel components. Preventive maintenance function.
Annually	.75 (per diesel per year)	Partial mechanical overhaul of diesel. Preventive maintenance function. (This is in addition to the complete lubrication, mechanical and electrical overhaul of diesel and generator performed during refuelings.)
5/20/81	.01	Emergency diesel generator breaker EG2A tripped on reverse power when operator delayed loading after phase.
8/3/81	.3	EG2A generator could not be phased to bus during routine surveillance due to failed stability potentiometer in governor unit.
8/3/81	1.1	EG2A generator found to have increased load from 2800 kw to 3300 kw during test runs. Potentiometer stabilized.
9/1/81	.5	EG2B cooling water heat exchanger developed leakage following test run.
5/2/76	.05	EG2A diesel starting motor failure alarm. Successful start followed.
6/2/78	.2	Diesel would not shutdown using electrical shutdown buttons. Possible cause could have been a particle in governor oil.
7/12/78	.3	Diesel starting motors would not disengage during a diesel start due to a faulty solenoid valve.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Haddam Neck UNIT One SYSTEM Emergency Diesel PAGE 2 OF 2

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE /CORRECTIVE ACTION</u>
5/10/79	1.1	EG2A during a timer test the starter motors failed to disengage due to a stuck air valve. Repaired air valve.
7/10/79	*	EG2B air cylinder relief valve was inadvertently open when it was jarred with a ladder. Shut relief valve.
9/10/80	*	EG2A start breaker found to be inoperable. Replaced breaker.
10/31/80	*	EG2B diesel air start motors failed to reach normal operating speed during test. Replaced upper motor.

*Indicates that outage duration information is not readily available following a reasonable search effort.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Haddam Neck UNIT One SYSTEM CVCS PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE/CORRECTIVE ACTION</u>
Refueling*	.3 (per pump per refueling)	Charging pump preventive maintenance.
4/26/77	4.3	Charging pump 1A seal housing leak. Seal was replaced.
4/28/77***	2.3	Charging pump motor 1A bearing failure due to improper alignment. Replaced bearing.
6/11/77	.17	Charging pump 1A bearing oil thermocouple failure. Replaced thermocouple.
7/30/77	.5	Charging pump 1B recirculation orifice bypass valve leak. Replaced valve.
10/4/78	**	Selector switch failed causing charging flow recorder/controller to fail high, closing the charging flow control valve. Replaced switch.
6/2/80	**	Charging pump motor 1A surge capacitor failed over potential test. Capacitor replaced.
12/14/77	1.6	Charging pump 1A outboard seal leak. Replaced seal.

*Performed during refueling outage. Specific time for this work is carefully selected because Technical Specifications require one charging pump capable of injecting borated water to RCS be available when changes in core geometry are taking place.

**Indicates that outage duration information is not readily available following a reasonable search effort.

***Date correction. Reference (2) indicated "4/28/78" vice "4/28/77".

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Haddam Neck UNIT One SYSTEM AC Power PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE/CORRECTIVE ACTION</u>
12/31/77	*	Circuit breaker tripped the first time it was closed. Operated normally on second attempt.
2/9/79	*	While testing relays on the 8T2 breaker, the 480V loadcenter was inadvertently tripped due to misreading the schematic. Load center reenergized.
10/8/79	.04	Vital bus inverter capacitor found to be leaking. Capacitor replaced.
2/19/80	*	4160V ground detection circuit found with loose terminal block screw resulting in loss of all ground detection on 4160V busses. Screw was tightened.
5/14/80	*	Breaker was found during preventative maintenance with improperly wired breaker failure relay; Rewired.
11/9/81	*	Vital bus deenergized during load test. Reenergized vital bus.

*Indicates that outage duration information is not readily available following a reasonable search effort.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Haddam Neck UNIT One SYSTEM RHR PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE/CORRECTIVE ACTION</u>
6/3/76	.125	Valve failed to close fully due to leaking air gages on the valve operator. Resulted in a plant cooldown from 111°F. Leaks repaired.
6/16/80	1.75	Refueling water storage tank partially collapsed during ECCS flow test due to undersized vent. The tank was tested with a redesigned vent and returned to service.
9/9/81	*	RHR pump breaker auxiliary contacts did not close during an attempt to start. Second attempt successful.

*Indicates that outage duration information is not readily available following a reasonable search effort.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Haddam Neck UNIT One SYSTEM Safety Injection PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE/CORRECTIVE ACTION</u>
1/9/76	*	Safety injection system isolation valve leakage. Repaired valve.
5/8/78	*	Safety injection motor operated valve failed to close due to a loose screw in the operating switch. Replaced switch.
12/19/78	*	Refueling water storage tank level indicator slowly decreased to zero due to moisture in air supply. Dewpoint indicator installed.
7/23/80	.1	Miswiring of LPSI core cooling system caused automatic core cooling actuation with RCS at 1745 psig during plant heatup. Modified wiring.

*Indicates that outage duration information is not readily available following a reasonable search effort.

Attachment 2

Millstone Nuclear Power Station, Unit No. 1

TMI Action Plan Item 11.K.3.17

Emergency Core Cooling System Outage Report

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Millstone UNIT I SYSTEM FWCI PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE /CORRECTIVE ACTION</u>
Annually*	.08 (per pump per year)	Booster Pump oil change. Preventive maintenance function.
Annually	.125 (per pump per year)	Emergency Cond. Pump flush and oil change. Preventive maintenance function.

*The frequency of this preventive maintenance item is expected to be decreased in the future because the oil change schedule will be based on the results of oil analysis.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Millstone UNIT I SYSTEM Core Spray PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE / CORRECTIVE ACTION</u>
Annually	.33 (per pump per year)	Core Spray Pump Motor oil change (upper and lower bearing). Preventive Maintenance function.

FORM B

ECC SYSTEM OUTAGE REPORT Low Pressure
Coolant

PLANT Millstone UNIT I SYSTEM Injection PAGE 1 OF 1

OUTAGE
DATE

DURATION OF
OUTAGE (DAYS)

CAUSE/CORRECTIVE ACTION

Annually

.16 (per pump
per year)

LPCI Pump Motor bearing oil change. Preventive maintenance
function.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Millstone UNIT I SYSTEM Emergency Service Water PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE / CORRECTIVE ACTION</u>
Annually	.04 (per pump per year)	Megger check of ESW pump motor. Preventive maintenance function.
Annually	.02 (per strainer per year)	Megger check of A&B ESW strainer motors. Preventive maintenance function.
Annually	.08 (per strainer per year)	Inspect cups on A&B ESW strainers. Preventive maintenance function.

Attachment 3

Millstone Nuclear Power Station, Unit No. 2

TMI Action Plan Item 11.K.3.17

Emergency Core Cooling System Outage Report

FORM A

ECC SYSTEM OUTAGE REPORT

UTILITY Northeast Nuclear Energy Co.

PLANT Millstone

UNIT II

DATE OF COMMERCIAL OPERATION 12/26/75

REPORT COVERS PERIOD 1/76 THROUGH 12/81

NUMBER OF DAYS OF COLD SHUTDOWN DURING REPORT PERIOD 552.6

FORMS B COMPLETED FOR FOLLOWING SYSTEMS:

- Safety Injection
- Engineered Safety Features
- Diesel Generator
- Containment Spray
- Shutdown Cooling
- Chemical and Volume Control
-
-
-
-
-
-
-
-
-

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Millstone UNIT II SYSTEM Safety Injection PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE/CORRECTIVE ACTION</u>
2/25/81	.3	"B" HPSI pump removed from service while performing snubber replacement. Completed snubber replacement.
3/4/81	1.08	"A" HPSI pump removed from service while performing snubber replacement. Completed snubber replacement.
5/7/81	.1	"A" HPSI pump removed from service for snubber inspection. Completed snubber inspection.
Semiannually	.16 (per pump per 6 months)	HPSI pumps: Bearing and coupling oil change. Preventive maintenance function.
Annually	.1 (per pump per year)	LPSI pump motor oil change. Preventive maintenance function.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Millstone UNIT II SYSTEM Power System Diesel Standby PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE /CORRECTIVE ACTION</u>
Weekly*	.33 (per diesel per week)	Inspection, cleaning, lubrication. Preventive maintenance function.
Monthly*	.30 (per diesel per month)	Inspection, cleaning, lubrication. Preventive maintenance function.
1/2/81	.25	Leak in "B" diesel SW flow valve. Leak repaired.

*Inspection of the service water cooled diesel heat exchangers for mussels was performed weekly until May, 1981. This was changed to a monthly inspection after the installation of a heat exchanger bypass modification.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Millstone UNIT II SYSTEM Containment Spray PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE/CORRECTIVE ACTION</u>
Semiannually	.1 (per pump per 6 months)	Bearing and coupling oil change. Preventive maintenance function.
2/26/81	.1	"B" pump not available while performing snubber replacements. Completed snubber replacement.
3/4/81	1.18	"A" pump not available while performing snubber replacement. Completed snubber replacement.
9/28/81	.1	"B" pump not available while performing snubber repair. Completed snubber repair.

FORM B

ECC SYSTEM OUTAGE REPORT

PLANT Millstone UNIT II SYSTEM Shutdown Cooling PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE /CORRECTIVE ACTION</u>
7/24/81	.5	Faulty SDC relief valve. Repaired valve.

FORM B

ECC SYSTEM OUTAGE REPORT

Chemical and
Volume
Control

PLANT Millstone

UNIT II

SYSTEM

PAGE 1 OF 1

<u>OUTAGE DATE</u>	<u>DURATION OF OUTAGE (DAYS)</u>	<u>CAUSE /CORRECTIVE ACTION</u>
6/12/81	1.1	"A" and "B" charging pumps declared inoperable due to suction and discharge valves being improperly installed. Installed valves correctly.
Annually	.2 (per pump per year)	Change out suction and discharge valves. Preventive maintenance function.
Semiannually	.2 (per pump per 6 months)	Inspection; bearing and coupling oil change. Preventive maintenance function.