

# 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 UTILITIES ENERGY COMPANY

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Docket Nos. 50-213  
50-245  
50-336  
A01473



Mr. Darrell G. Eisenhut, Director  
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 Licensees of Operating Nuclear Power Reactors and Applicants for Operating Licenses (Except for St. Lucie Unit Nos. 1 and 2), dated February 25, 1981.
  - (2) W. G. Council letter to D. G. Eisenhut, dated November 28, 1979.
  - (3) W. G. Council letter to R. A. Clark, dated February 29, 1981.

Gentlemen:

Haddam Neck Plant  
Millstone Nuclear Power Station, Unit Nos. 1 and 2  
Emergency Procedures and Training for Station Blackout Events  
(Generic Letter 81-04)

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Station blackout events (i.e., loss of all offsite and onsite AC power) are currently being assessed generically by the NRC Staff as part of Task Action Plan (TAP) A-44. The purpose of TAP A-44 is to evaluate the adequacy of current licensing design requirements regarding the risk of a station blackout event resulting in unacceptable core damage. During the development of TAP A-44, the NRC Staff performed a preliminary study in October, 1979 to identify any operating plants having an especially high probability of station blackout events. This effort revealed that there were no then-current operating plants of unusually high susceptibility to severe core damage due to a station blackout event. Accordingly, the NRC Staff concluded that plants may continue to be licensed and operated while TAP A-44 was being conducted, which is scheduled to be completed in 1982. Nevertheless, the Atomic Safety and Licensing Appeal Board has recommended that more immediate measures be taken to ensure that station blackout events can be accommodated by licensees prior to completion of TAP A-44.

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Connecticut Yankee Atomic Power Company (CYAPCO) and Northeast Nuclear Energy Company (NNECO) concur with the NRC Staff's conclusion as stated above and conclude that the very small likelihood of a station blackout event in conjunction with current station operating practices more than adequately justifies continued operation of the Haddam Neck Plant and Millstone Nuclear Power Station, Unit Nos. 1 and 2, as well as station blackout events not being part of any licensing basis for either Haddam Neck Plant or Millstone Nuclear Power Station, Unit Nos. 1 and 2.

Concurrent loss of all offsite AC power and emergency onsite AC power is a highly improbable scenario requiring the postulation of multiple failures. Specifically, in the case of Millstone Nuclear Power Station, there are three (3) 345-KV and one (1) 23-KV incoming lines supplying offsite power to the station. Appropriate tie-ins between Unit No. 1 and Unit No. 2 exist and are sized to provide sufficient power to place the applicable unit into a safe shutdown condition. Also, Millstone Unit No. 1 has the capability to run back its turbine such that on loss of offsite power, Millstone Unit No. 1 can supply house loads for both Millstone Unit No. 1 and Millstone Unit No. 2. In addition, each unit has two redundant emergency onsite AC power supplies. The capability to cross tie emergency onsite AC power sources between Millstone Unit No. 1 and Millstone Unit No. 2 if during loss of offsite power both emergency onsite power sources for a given unit were inoperable, is currently being evaluated.

At the Haddam Neck Plant, offsite power is supplied by two (2) 115-KV lines. Two redundant onsite emergency diesel generators also exist. Therefore, the two (2) 115-KV lines and the two (2) emergency diesel generators would all have to fail for the Haddam Neck Plant to experience a station blackout event.

Although station blackout events are highly unlikely events and are justifiably not part of any licensing basis for the Haddam Neck Plant or the Millstone Nuclear Power Station, Unit Nos. 1 and 2, CYAPCO and NNECO concur that it is prudent to review our current plant operations to determine our capability to mitigate a station blackout event. Therefore, an assessment of existing and/or planned station procedures and training programs as requested in Reference (1) can be found below:

Item (a):

The actions necessary and equipment available to maintain the reactor coolant inventory and heat removal with only DC power available, including consideration of the unavailability of auxiliary systems such as ventilation and component cooling.

Haddam Neck Plant and Millstone Unit No. 1:

Station procedures have been written which address the actions necessary and equipment available to maintain the reactor coolant inventory and heat removal with only DC power available. These procedures are currently in the review process, but are scheduled to be approved and implemented by September 1, 1981. It should be noted that both auxiliary feedwater trains at the Haddam Neck Plant are AC-independent. Also, the isolation condenser at Millstone Unit No. 1 can be made operable from the control room independently of AC power and can continue to be operable for approximately forty (40) minutes without make-up water to the shell side. However, the AC-powered fill valve can easily be manually opened within forty (40) minutes and long-term make-up water to the shell side can be provided by the diesel-driven fire pump.

Millstone Unit No. 2:

Station procedures are currently in effect which address the actions necessary and equipment available to maintain the reactor coolant inventory and heat removal with only DC power available. These procedures indicate that the steam-driven auxiliary feedwater train can be made operable locally. However, modifications are planned for the next refueling outage that will make remote operation of the steam-driven auxiliary feedwater train AC-independent. (References (2) and (3)).

Item (b):

The estimated time available to restore AC power and its basis.

Haddam Neck Plant, Millstone Unit No. 1 and Millstone Unit No. 2:

Estimates of how long reactor coolant inventory and heat removal can be maintained with only DC power available are scheduled to be determined and submitted on or about September 1, 1981.

Item (c):

The actions for restoring offsite AC power in the event of a loss of the grid.

Item (d):

The actions for restoring offsite AC power when its loss is due to postulated onsite equipment failures.

Item (e):

The actions necessary to restore emergency onsite AC power. The actions required to restart diesel generators should include consideration of loading sequence and the unavailability of AC power.

Haddam Neck Plant and Millstone Unit No. 1:

Station procedures currently in effect address the actions necessary to restore onsite or offsite AC power. These current procedures were utilized in the development of the station procedures which have been written to address station blackout events. As stated in Item (a) above, these recently written procedures are currently in the review process, but are scheduled to be approved and implemented by September 1, 1981.

Millstone Unit No. 2:

Station procedures are currently in effect which address the actions necessary to restore onsite and offsite AC power.

Item (f):

Consideration of the availability of emergency lighting, and any actions required to provide such lighting, in equipment areas where operator or maintenance actions may be necessary.

Haddam Neck Plant, Millstone Unit No. 1 and Millstone Unit No. 2:

The availability of emergency lighting is currently being addressed pursuant to Item III.J of Appendix R to 10CFR50, which has an implementation date of November 17, 1981. However, CYAPCO and NNECO are investigating the escalation of this implementation date to September 1, 1981 in accordance with Reference (1).

Item (g):

Precautions to prevent equipment damage during the return to normal operating conditions following restoration of AC power. For example, the limitations and operating sequence requirements which must be followed to restart the reactor coolant pumps following an extended loss of seal injection water should be considered in the recovery procedures.

Haddam Neck Plant and Millstone Unit No. 1:

Station procedures have been written which address the precautions to prevent equipment damage during the return to normal operating conditions following restoration of AC power. As stated in Items (a) and (e) above, these procedures are currently in the review process, but are scheduled to be approved and implemented by September 1, 1981.

Millstone Unit No. 2:

Station procedures currently in effect address precautions to prevent equipment damage during the return to normal operating conditions following restoration of AC power.

Item (h):

The annual requalification training program should consider the emergency procedures and include simulator exercises involving the postulated loss of all AC power with decay heat removal being accomplished by natural circulation and the steam-driven auxiliary feedwater system for PWR plants, and by the steam-driven RCIC and/or HPCI and the safety-relief valves in BWR plants.



Haddam Neck Plant and Millstone Unit No. 1:

Annual simulator training for Haddam Neck Plant and Millstone Unit No. 1 operators already includes station blackout events. In addition, any required revisions to operator training due to the recently written station procedures are scheduled to be completed by September 1, 1981. It is noted that Millstone Unit No. 1 does not have either a steam-driven RCIC or HPCI system, but does have an isolation condenser which can be utilized as indicated in Item (a) above.

Millstone Unit No. 2:

The annual training program for Millstone Unit No. 2 operators currently considers those station procedures which address station blackout events, and in addition, inclusion of station blackout events as part of the simulator exercises is planned.

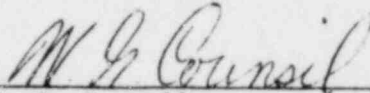
It is also noted that Millstone Unit No. 1 is one of the plants being reviewed during the Interim Reliability Evaluation Program (IREP). NNECO's participation in this program ensures timely availability of any relevant data stemming from the IREP. It is our contention that the adequacy of the existing offsite and onsite power supply systems will be confirmed during the conduct of this program.

We trust that the above adequately addresses the 90-day requirements of Reference (1).

Should you have any questions, please feel free to contact me.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY  
NORTHEAST NUCLEAR ENERGY COMPANY



W. C. Council  
Senior Vice President