UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

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December 29, 1978

Docket Nos. 50-443
50-444

Public Service Company of New Hampshire
ATTN: Mr. W. C. Tallman
President
1000 Elm Street
Manchester, New Hampshire 03105

Gentlemen:

The enclosed IE Circular No. 78-19 is forwarded to you for information. No written response is required. Should you have any questions related to your understanding of this matter, please contact this office.

Sincerely,

Robert F. Carlson
for Boyce H. Grier
Director

Enclosures:
1. IE Circular No. 78-19
2. List of IE Circulars
Issued in 1978

cc w/encls:
John D. Haseltine, Project Manager

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D.C. 20555

IE Circular No. 78-19
Date: December 29, 1978

MANUAL OVERRIDE (BYPASS) OF SAFETY SYSTEM ACTUATION SIGNALS

Description of Circumstances:

A review of several recent events has raised questions about safety system circuit designs which incorporate manual override (bypass) features. The two events described below directly relate to the practice of containment purging during normal plant operation by manually overriding containment isolation signals. In these instances the automatic isolation function of the purge system containment isolation valves was unintentionally made inoperable, and this condition was neither continuously indicated in the control room nor known to the plant operators.

During a review of operating procedures on July 25, 1978, the Northeast Nuclear Energy Company discovered that since May 1, 1978, intermittent containment purge operations had been conducted at Millstone Unit No. 2 with the safety actuation isolation signals to both inlet and outlet redundant containment isolation valves (48 inch butterfly valves) in the purge inlet and outlet penetrations manually overridden and inoperable. The isolation signals which are required to automatically close the purge valves for containment integrity were manually overridden to allow purging of containment with a high radiation signal present. The manual override circuitry designed by the plant's architect/engineer defeated not only the high radiation signal but also all other isolation signals to these valves. To manually override a safety actuation signal, the operator cycles the valve control switch to the closed position and then to the open position. This action energized a relay which blocked the safety signal and allowed manual operation independent of any safety actuation signal. This circuitry was designed to permit reopening these valves after an accident to allow manual operation of certain safety equipment.

On September 8, 1978, the Public Service Electric and Gas Company advised the staff that, as a matter of routine, Salem Unit No. 1 has been venting the containment through the containment ventilation system valves to reduce pressure. In certain instances this venting has occurred with the containment high particulate radiation monitor isolation signal to the purge and pressure-vacuum relief valves overridden. Override of

the containment isolation signal was accomplished by resetting the train A and B reset buttons. Under these circumstances, six valves in the containment vent and purge systems could be opened with a high particulate isolation signal present. This override was performed after verifying that the actual containment particulate levels were acceptable for venting. The licensee, after further investigation of this practice, determined that the reset of the particulate alarm also bypasses the containment isolation signal to the purge valves and that the purge valves would not have automatically closed in the event of an emergency core cooling system (ECCS) safety injection signal.

These events and information gained from recent licensing actions have raised a generic concern relative to potential design deficiencies that could permit manually defeating a protection function. Since all plants with construction permits must meet the requirements of IEEE 279, we recommend that you review the design of all safety actuation signal circuits which incorporate a manual override feature to ensure that overriding of one safety actuation signal does not also cause the bypass of any other safety actuation signal, that sufficient physical features are provided to facilitate adequate administrative controls, and that the use of each such manual override is annunciated at the system level for every system impacted.

Compliance with Federal Regulation 50.55a(h) requirements will be verified by NRC through the licensing review process and during regular onsite inspections for plants with construction permits. NRC's requirements relative to this matter have been conveyed to all operating plant licensee's via a generic letter.

No written response to this Circular is required. If you require additional information regarding this matter, contact the Director of the appropriate NRC Regional Office.

ENCLOSURE 2

LIST OF IE CIRCULARS ISSUED IN 1978

Circular No.	Subject	First Date of Issue	Issued To
78-01	Loss of Well Logging Source	4/14/78	All Holders of Well Logging Source Licenses
78-02	Proper Lubricating Oil for Terry Turbines	4/20/78	All Power Reactor Facilities with an Operating License (OL) or Construction Permit (CP)
78-03	Packaging Greater Than Type A Quantities of Low Specific Activity Radioactive Material for Transport	5/12/78	All Power Reactor Facilities with an OL or CP; and all Fuel Cycle, Priority I Materials and Waste Disposal Licensees
78-04	Installation Errors That Could Prevent Closing of Fire Doors	5/18/78	All Power Reactor Facilities with an OL or CP
78-05	Inadvertent Safety Injection During Cooldown	5/26/78	All PWR Power Reactor Facilities with an OL or CP
78-06	Potential Common Mode Flooding of ECCS Equipment Rooms at BWR Facilities	5/31/78	All Power Reactor Facilities with an OL or CP
78-07	Damaged Components on a Bergen-Paterson Series 25000 Hydraulic Test Stand	5/31/78	All Power Reactor Facilities with an OL or CP
78-08	Environmental Qualification of Safety-Related Electrical Equipment at Nuclear Power Plants	5/31/78	All Power Reactor Facilities with an OL or CP

ENCLOSURE 2 (Continued)

LIST OF IE CIRCULARS ISSUED IN 1978

Circular No.	Subject	First Date of Issue	Issued To
78-09	Arcing of General Electric Company NEMA Size 2 Contactors	6/8/78	All Power Reactor Facilities with an OL or CP
78-10	Control of Sealed Sources Used in Radiation Therapy	6/14/78	All Institutional Medical Licensees
78-11	Recirulation M-G Set Overspeed Stops	6/15/78	All BWR Power Reactor Facilities with an OL or CP
78-12	HPCI Turbine Control Valve Lift Rod Bending	6/30/78	All Power Reactor Facilities with an OL or CP having a HPCI Terry Turbine
78-13	Inoperability of Multiple Service Water Pumps	7/10/78	All Power Reactor Facilities with an OL or CP
78-14	HPCI Turbine Reversing Chamber Hold Down Bolting	7/17/78	All Power Reactor Facilities with an OL or CP having a HPCI Terry Turbine excepting Duane Arnold and Monticello
78-15	Tilting Disk Check Valves Fail to Close with Gravity in Vertical Position	7/24/78	All Power Reactor Facilities with an OL or CP
78-16	Limitorque Valve Actuators	7/26/78	All Power Reactor Facilities with an OL or CP
78-17	Inadequate Guard Training/Qualification and Falsified Training Records	10/13/78	All Power Reactor Facilities with an OL; Susquehanna 1 & 2, Shoreham, and Salem 2

ENCLOSURE 2 (Continued)

LIST OF IE CIRCULARS ISSUED IN 1978

Circular No.	Subject	First Date of Issue	Issued To
78-18	UL Fire Test	11/6/78	All Power Reactor Facilities with an OL or CP