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Peter Zarakas
Vice President

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4 Irving Place, New York, NY 10003
Telephone (212) 460-3000

June 22, 1979

Re: Indian Point Unit No. 2
Docket No. 50-247

U.S. Nuclear Regulatory Commission
ATTN: Mr. Boyce H. Grier, Director
Region 1
Office of Inspection & Enforcement
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Grier:

Enclosed is a supplement to our April 26, 1979 response to IE Bulletin 79-06A.

Should you have any questions regarding our supplemental response and the actions we have taken or are planning to take, please contact this office.

Sincerely,

Peter Zarakas
Vice President

cc: U.S. Nuclear Regulatory Commission
Office of Inspection & Enforcement
Division of Reactor Operations Inspection
Washington, DC 20555

Mr. T. Rebelowski, Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 38
Buchanan, NY 10511

Mr. Leonard N. Olshan, Project Manager
Operating Reactors Branch No. 1
Division of Operating Reactors
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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# Supplemental Responses To
# IE Bulletin No, 79-06A and 79-06A (Revision 1)

Consolidated Edison Company of New York, Inc.

June 22, 1979

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Bulletin Item No. 2:

Review the actions required by your operating procedures for coping with transients and accidents, with particular attention to:

a. Recognition of the possibility of forming voids in the primary coolant system large enough to compromise the core cooling capability especially natural circulation capability.

b. Operator action required to prevent the formation of such voids.

c. Operator action required to enhance core cooling in the event such voids are formed.

Supplemental Response:

Our previous response discussed the results of prompt reviews conducted by both Con Edison and Westinghouse. Subsequent to its submittal a group of owners of operating Westinghouse reactors was formed to address on a generic basis, several of the issues raised by the investigations into the TMI-2 incident. Con Edison is participating in this group effort. One of the issues being addressed is appropriate procedures for dealing with transient and accident conditions. The Regulatory Staff will be kept fully informed of these generic efforts, and Con Edison will implement changes to procedures, as applicable to our facility, after proper reviews of the generic results. Our station personnel will be kept informed of the efforts underway by Con Edison and the owners group.

The current status of Con Edison supplemental efforts relating to this Bulletin Item are as follows:

1) An engineering study is underway for means to provide additional remote Reactor Coolant System Venting. The focus of this study is to investigate the feasibility of remote venting capability from the reactor vessel head to augment that currently available from the pressurizer gas space.

2) Con Edison is scheduling for this year's refueling outage, installation of equipment and calibration testing of equipment to provide unambiguous reactor vessel level indication. This effort, which must be considered as R&D at this stage, will utilize gamma radiation monitoring equipment. Con Edison is working closely with Westinghouse in this effort.

3) We have determined that the instrumentation listed below is available to provide useful information which may aid in detecting void formation. Specific procedural changes to require their use should await the completion of the generic reviews to assure that reliance on these instruments will not provide misleading or ambiguous information.

   a) Core exit thermocouples

   b) Hot leg RTDs

   c) Direct RCS flow measurement

   d) EXCORE Detectors

   e) Metal impact monitoring system

   f) Reactor Coolant Pump motor amperage

4. Con Edison is studying the effect of post incident secondary side pressure reduction to aid in enhancement of primary system subcooling and natural circulation capability. If it is determined to be beneficial, emergency procedures will be instituted to accomplish such a reduction in appropriate situations.

Bulletin Item No. 7:

Review the action directed by the operating procedures and training instructions to ensure that:

a) Operators do not override automatic actions of engineered safety features, unless continued operation of engineered safety features will result in unsafe plant conditions. For example if continued operation of engineering safety features would threathen reactor vessel integrity then HPI should be secured.

b) Operating procedures currently, or are revised to specify that if high pressure injection (HPI) system has been automatically actuated because of low pressure condition, it must remain in operation until either:

(1) Both low pressure injection (LPI) pumps are in operation and flowing for 20 minutes or longer; at a rate which would assure stable plant behavior; or

(2) The HPI system has been in operation for 20 minutes, and all hot and cold leg temperatures are at least 50 degrees below the saturation temperature for the existing RCS pressure. If 50 degrees subcooling cannot be maintained after HPI cutoff, that HPI shall be reactivated. The degree of subcooling beyond 50 degrees F and the length of the HPI is in operation shall be limited by the pressure/temperature considerations for the vessel intregity.

c) Operating procedures currently or are revised, to specify that, in the event of HPI initiation with reactor coolant pump (RCP) operating, at least one RCP shall be remain for two loop plants and at least two RCP's shall remain operating for 3 or 4 loop plants as long as the pump(s) is providing forced flow.

d) Operators are provided additional information and instructions to not solely upon pressurizer level indication alone, but to also examine pressurizer pressure and other plant parameter indications in evaluating plant conditions, e.g., water inventory in the reactor primary system.

Supplemental Response:

As discussed in our supplemental response to Bulletin Item 2, an owners group has been formed to address on a generic basis, several of the issues raised by the investigations into the TMI-2 incident. It is expected that the results of the work being performed by the owners group will provide additional information and/or guidance for means to enhance core cooling (such as whether or not operate Reactor Coolant Pumps) during and after transient and accident conditions, and for appropriate procedures for dealing with transient and accident conditions.

Until the results of the generic reviews are available, the following points of clarification of our previous response are provided:

1) Con Edison recognizes that forced flow (operation of Reactor Coolant Pumps) is the preferred and best operating mode for many of the postulated post incident conditions. Our intent is to maintain the Reactor Coolant Pumps running under such conditions. There are, however, certain limited conditions (listed below) in which operation of the reactor coolant pumps is not possible, or where current information suggests that continued operation of the pumps is not providing significant forced flow, such conditions might be unsafe and could also lead to degredation of core cooling capability. Natural circulation is available and shown to be acceptable for these cases. Current Westinghouse advice calls tripping the Reactor Coolant Pumps under these limited conditions.

   a) Loss of offsite power and unit trip (loss of power to pump motors).

   b) Coincidence of loss of coolant accident, isolation of pump cooling auxiliaries, and RCS at or approaching saturation conditions. (Loss of cooling and seal flow could cause seal failure and increased RCS leakage; operation at saturated conditions could increase void formation at the pumps).

   c) Steam line break accident (Tripping of the Reactor Coolant Pumps could reduce the cooldown transient).

2) We believe that further elaboration of our response concerning termination of automatically actuated safety features will clarify our intent.

The diversity in plant specific designs for safety systems precludes the complete adherence to all of the general guidelines suggested in this bulletin item. The Indian Point 2 HPI system has a maximum discharge pressure at least 500 psi below RCS operating pressure. In addition, the pump characteristics are such that significant flow is not produced near the maximum discharge pressure. Under several postulated accident scenarios, RCS pressure may remain high enough that the HPI pumps are running in a low flow recirculation mode (This is also the case for spurious SI initiation during operation). Operation in such a mode for the 20 minute period suggested by the bulletin exceeds the manufacturers recommended 15 minute time limit for operation in this mode.

For a large break LOCA sequence, all safeguards injections pumps are started automatically (3 HPI, 2LPI, 2 containment spray). At the point in time when low level is reached in the refueling water storage tank (suction for the above pumps), injection is terminated and cooling is switched to the recirculation mode (suction from in containment sumps). The prefered mode of recirculation is internal to containment to preclude pumping of radioactive fluids outside containment post-accident.

Under certain conditions, this switchover to recirculation will occur in less than 20 minutes, requiring that the HPI and LPI pumps be shutdown with cooling continuing with the internal recirculation pumps. Our procedures will therefore assure operation of SI pumps consistent with the basis for Bulletin Items 7a) and b). Our intent is to maintain safeguards equipment operating post-accident in a manner consistent with preferred modes of core cooling, and in a manner that does not degrade necessary performance.

Bulletin Item 8

Review all safety-related valved positions, positioning requirements and positive controls to assure that valves remain positioned (open or closed) in a manner to ensure that proper operation of engineered safety features. Also review related procedures, such as those for maintenance, testing, plant and system startup, and supervisory periodic (e.g., daily/shift checks) surveillance to ensure that such valves are returned to their correct positions following necessary manipulations and are maintained in their proper positions during all operational modes.

Supplemental Response :

In our previous response, we stated that safety-related valves located inside containment have continous indication of position in the control room. In order to clarify this response, it should be noted that the position indication referred to is for those valves with remote positioning capability. Other valves, such as manual valves for maintenance during shutdown, are located in systems inside containment and are positioned under administrative controls.

The administrative controls for certain valves in the plant require control with locks. For such valves, plant procedures require that they be subjected to periodic surveillance of position and the locks.

Bulletin Item 9;

Review your oprating modes and procedures for all systems designed to transfer potentially radioactive gases and liquids out of the primary containment to assure that undersired pumping, venting or other release of radioactive liquids and gasses will not occur inadvertently.

In particular, ensure that such an occurrence would not be caused by the resetting of engineered safety features instrumentation. List all such systems and indicate:

a) Whether interlocks exists to prevent transfer when high radiation indication exists.

b) Whether such systems are isolated by the containment isolation signal.

c) The basis on which continued operability of the above features is assured.

Supplemental Response:

Our previous response included, but did not specifically highlight the containment sump line 31. Line 31 is shown on figure 5.2-13 in Attachment III to our previous response. The isolation valves in this line are automatically closed on a containment phase A isolation signal. This signal is automatically initiated by SI. Resetting of SI will not reset Phase A isolation. This must be done separately. Subsequent resetting of Phase A isolation will not cause transfer of radioactive fluids out of the containment sump. The motor control center (MCC) supplying power for the containment sump pumps is also stripped by the SI sequencing. This MCC must be renergized, the pumps started, and the isolation valves opened to the waste system. All of the above required actions are deliberate, and would not result upon resetting of SI or containment isolation.

Bulletin Item 10:

Review and modify as necessary your maintenance and test procedures to ensure that they require:

C. Explicit notification of involved reactor operational personnel whenever a safety-related system is removed from and returned to service.

Supplemental Responses:

In order to provide clarification of the level of authority for removing and returning systems to service and the method for handling system status information at the shift change, the following two procedures are attached:

1) Administrative Directive No. OAD-6 Rev. 2

"EQUIPMENT STATUS IDENTIFICATION"

2) Adminustratived Directive No. OAD-2 Rev. 1

"WATCH RELIEF".

Bulletin Item 11:

Review your prompt reporting procedures for NRC notification to assure that NRC is notified within one hour of the time the reactor is not in a controlled or expected condition of operation. Further, at that time an open continuous communication channel shall be established and maintained with NRC.

Supplemental Response;

The procedural revisions to require the requested notification have been completed.

Bulletin Item 12:

Review operating modes and procedures to deal with significant amounts of hydrogen gas that may be generated during a transient or other accident that would either remian inside the primary system or be released to the containment.

Supplemental Response:

Although our previous response contained a considerable discussion of hydrogen control schemes for the primary system, specific procedural revisions should await the proper review of the owners group generic efforts (such as on void recognition and control now underway).