50-320

Rec'd 7/6/79

BADDAM NECK PLANT
DOCKET NO. 50-213
SUPPLEMENTARY RESPONSES TO
I&E BULLETIN 79-06A, REV. 1

6.45

During the course of our continuing evaluation of the areas identified in I&E Bulletin 79-06 and, based on our discussions with the NRC Staff, additional pertinent information has been developed by CYAPCO. The following information is submitted, with the numbers corresponding to the Bulletin items, to supplement our earlier responses, dated April 24, 1979 and May 18, 1979.

DR

Item 2a

The applicable emergency procedures have been reviewed thoroughly in light of the TMI incident to include steps that specifically warn of the potential for void formation and the instrumentation available for recognizing or identifying the indications for potential or actual voiding, that is, the possibility for void formation exists in the Reactor Coolant Systems whenever pressure is equal to or less than saturation pressure. An example of the procedural wording is given below.

> "Verify that the reactor and turbine have tripped. Core cooling has initiated and that all core cooling equipment is operating properly. Operating reactor coolant pumps can remain in service until RCS pressure is 325 psig. If all reactor coolant pumps must be secured, monitor the degree of subcooling in the core by comparing core outlet temperature with saturation temperature for pressurizer pressure. Use the saturation curve (Attachment A to this procedure) and maintain pressure in the reactor core equal to or greater than "saturation curve + 50°F safety band". Establish a flow producing a core ΔT greater than 10°F by steam dump/atmospheric vent operation in conjunction with auxiliary feedwater flow. Monitor the potential for voiding by verifying a stable or decreasing core ΔT of less than 50°F. Other instrumentation which can be used to monitor core conditions both during natural or forced circulation are listed in Attachment A. If voiding occurs, reestablish pressurizer pressure and level using pressurizer heaters, charging pumps, and/or HPSI, as needed and isolate break if possible."

Item 2b

The applicable emergency procedures have been further reviewed and revised to specifically address operator actions based upon the indications described in Item 2a, for terminating conditions leading to void formation. An example of the procedural wording is given below.

> "Regulate feedwater additions to the steam generators as necessary to maintain heat sink. Maintain water level between 50% and 95% on the wide range level indication. If normal station power has been lost, operate the steam driven auxiliary feed pumps. Dump steam to condenser until overriden by low condenser (if loss of offsite power).
>
> Caution: Be careful not to over feed the steam generator and cause a further RCS pressure reduction."

576092

Roisman 79-98

Item 8

Applicable maintenance and operating procedures have been reviewed and revised to provide for proper positions and alignment checks of safety related valves following maintenance activities associated with safety related components and/or systems. Periodic surveillance of all safety related valves, except those included on the "Locked Valve List", will be performed monthly. The "Locked Valve List" has been formalized as a plant procedure and which requires a check of all locked valves prior to any startup from a cold shutdown (Mode 5) condition.

Item 9

CTAPCO has reevaluated the capability for inadvertently transferring radioactive materials from inside to outside containment through various systems.

As noted in the May 18, 1979 response, four penetration (lines) are normally isolated by closed manual shutoff valves. They would be open only for sampling operations involving sampling effluent from their particular sources. Because they are normally isolated, they are fitted with single trip valves for redundant isolation during high containment pressure conditions. Instructions have been included in the applicable emergency procedures to place the control switche for these four trip valves TV-950, 955, 960, and 965 in the close position to preclude automatic opening if resetting of high containment pressure (HCP) relays were to occur.

All other penetrations have been reviewed and fall within the categories of lines in use, lines essential for supporting services, non-essential lines and those that are isolated during power operation.

Those lines which are isolated by high containment pressure other than the four above are fitted with two redundant trip valves, one of which must be reset manually following reset of the high containment pressure relays.

To prevent inadvertent releases following reset of HCP, a step has been included in the applicable emergency procedures to preclude resetting of the individual trip valves which have been automatically or manually isolated. Prior to reset, it must be verified that the line could perform its intended function and that it would not constitute a significant release path to the environment. For example, Step 1.4 of EOP 3.1-4, Loss of Coolant, states "Before opening any valves that have been closed by HCP initiation, verify by available instrumentation that the lines have integrity; would perform its intended function or would not cause a significant release path."

Containment sump pumps are covered additionally by placing the control switches in the trip pullout position. This maintains the discharge valves in closed position.

Item 10a

Operations Department Instruction ODI-39 has been revised to include testing of safety related systems prior to removal and following the return to service of redundant systems.

phases (i.e., injection to recirculation) of an incident, the following steps have been included in the applicable procedures:

"Safety injection can be secured only when:

Both low pressure safety injection pumps or a combination of low pressure safety injection pumps and residual heat removal pumps are in operation and flowing for twenty (20) minutes or longer; at a rate which would ensure stable plant behavior; or

The HPSI pumps or a combination of HPSI pumps and charging pumps have been in operation for twenty (20) minutes, and all hot and cold leg temperatures are at least fifty (50) degrees below the saturation temperature for the existing RCS pressure. If fifty (50) degrees subcooling cannot be maintained after HPSI and/or charging cutoff, the HPSI and/or charging shall be reactivated. The degree of subcooling beyond fifty (50) degrees and the length of time HPSI and/or charging is in operation shall be limited by the pressure/temperature considerations for the vessel integrity."

Item 2c

The applicable procedures have been revised to provide guidance to the operators for enhancing core cooling should void formation in the primary system actually occur, as noted in the above responses.

Item 4

A method has been developed which enables an operator to manually initiate containment isolation from the Control Room upon automatic initiation of safety injection. Detailed steps have been included in the applicable emergency procedures for implementing this method.

The reactor coolant pumps could be operated under a containment isolation condition for a short period of time. For periods of operation longer than just a few minutes, cooling water must be reestablished for bearing cooling otherwise, this could result in severe damage to the pump. If cooling water is not reestablished, bearings could fail resulting in excessive vibration leading to seal failure and excessive reactor coolant leakage to the containment. This condition would require isolation of the affected loop and loss of that particular steam generator as a heat sink for decay heat removal. Cooling water flow to the reactor coolant pumps bearing coolers could be reestablished by resetting and blocking open the trip relay for the containment isolation trip valve (TV-1411) on this system. This function would be performed by the auxiliary operator locally in the primary auxiliary building, upon instruction from the Control Room.

Item 7a

DRAFT

Steps have been included in the applicable procedures instructing the operators not to override automatic actions of engineered safety features unless initiatio is, in fact, spurious or continued operation of those features would result in unsafe plant conditions. An example of the procedural wording is as follows:

> "Do not override automatic actions of engineered safety features unless continued operation of engineered safety features will result in unsafe plant conditions."

Licensed operators have been instructed to comply with the above direction. Training on all revised emergency procedures will be completed by June 30, 1979.

The above direction will also be included in the Licensed Operator Training and Requalification Program by June 30, 1979.

Item 7b

576095

In reviewing this I&E Bulletin item, CYAPCO recognized the NRC Staff position yet needed to factor into the response the fact that the charging and residual heat removal pumps at the Haddam Neck Plant function as part of the ECCS. Therefore, in recognition of this function and previous discussions with the NRC Staff regarding the ability to provide core cooling during the transition

Item 12

Existing plant procedure NOP 2.13-4, Venting of Hydrogen from the Containment Following A Loss of Coolant Accident, has been reviewed and found adequate for control of hydrogen concentrations in the containment.

Existing plant procedure NOP 2.14-9, Degassing of Reactor Coolant System, as well as supporting procedures, have been reviewed. A new procedure for controlling hydrogen gas accumulation in the reactor coolant system during off-normal situations will be implemented by August 1, 1979.