May 1, 1979

Mr. James G. Keppler
Director - Region III
Office of Inspection and Enforcement
United States Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

The following information relative to the Monticello Nuclear Generating Plant is submitted in response to Items 1-10 of IE Bulletin 79-08:

1. All licensed operators and plant management and supervisors with operational responsibilities have been scheduled to participate in a review of the Three Mile Island Accident. The review will (1) include the circumstances described in Enclosure 1 of IE Bulletin 79-05 and the chronology included in Enclosure 1 to IE Bulletin 79-05A, and (2) be directed toward understanding the subjects discussed in IE Bulletin 79-08, Item 1.a. The review sessions will be conducted on regular scheduled retraining days. Attendance will be documented.

It must be recognized that several valid reasons exist for overriding automatic actions (e.g., see response to Item 5 below). Therefore, Administrative Directives have been issued to instruct operational personnel that automatic action of engineered safety features and isolation signals shall not be manually overrun unless:

(a) Continued operation of the engineered safety features or isolation signals will result in unsafe plant conditions, or

(b) It is known or positively determined that the automatic action was initiated by a spurious or erroneous signal and it is verified that operation of the engineered safety feature or isolation is not required, or

(c) Approved procedures specifically allow manual override under specific conditions, and those conditions are verified to be satisfied.
Administrative Directives have also been issued to instruct operational personnel that all available information should be considered in decisions to manually initiate, terminate or control operation of safety systems. When one or more confirmatory indications are available, operational decisions on abnormal conditions shall not be based solely on a single plant parameter indication.

2. Containment isolation design and procedures have been reviewed. All lines that connect to the reactor coolant system or the primary containment atmosphere (with the exception of engineered safeguards and feedwater systems) are automatically isolated upon reactor vessel low water level or high drywell pressure prior to or simultaneous with initiation of emergency core cooling systems.

3. The auxiliary heat removal systems provided to remove decay heat from the reactor core and containment following loss of the feedwater system are:

- High Pressure Coolant Injection (HPCI) System
- Reactor Core Isolation Cooling (RCIC) System
- Safety Relief Valves (SRV) and Auto Pressure Relief System (APRS)
- Low Pressure Core Spray System (LPCS)
- Residual Heat Removal (RHR) System

The operation of systems needed to achieve initial core cooling, containment cooling, and extended core cooling for long term plant shutdown is described below—

(a) Initial Core Cooling

Following a loss of feedwater and reactor scram, a low reactor water level signal will automatically initiate main steam line isolation valve closure. The safety relief valves (SRV) will automatically actuate to maintain reactor pressure. At the same time, the low level signal will automatically initiate the HPCI and RCIC Systems. These systems will continue to inject water into the vessel until a high water level signal automatically trips the systems. Following a high reactor water level trip, the HPCI system will automatically reinitiate when reactor water level decreases to the low water level setpoint. The RCIC System must be manually reset before it will automatically reinitiate after a high water level trip. The HPCI and RCIC Systems have redundant supplies of water. Normally they take suction from the condensate storage tanks (CST). The HPCI System suction will automatically transfer from the CST to the suppression pool if the CST water is depleted or the suppression pool water level...
increases to a high level. The RCIC System suction must be manually transferred from the CST to the suppression pool using controls located in the main control room. This action would be taken when control room alarms indicate low CST or suppression pool high water level.

The operator can manually initiate the HPCI and RCIC Systems from the control room before the low level automatic initiation level is reached. The operator has the option of manual control after automatic initiation and can maintain reactor water level by throttling system flow rates. This would prevent a trip of the systems due to high water level. The operator can verify that these systems are delivering water to the reactor vessel by --

(1) Verifying reactor water level increases when systems initiate.

(2) Verify systems flow using flow indicators in the control room.

(3) Verify system flow is to the reactor by checking control room position indication of motor-operated valves. This assures no diversion of system flow to the reactor.

The HPCI and RCIC can maintain reactor water level at full reactor pressure and until pressure decreases to where low pressure systems such as the Core Spray (CS) or Low Pressure Coolant Injection (LPCI) can maintain water level.

(b) Containment Cooling

After reactor scram and isolation and establishment of satisfactory core cooling, the operator would start containment cooling. This mode of operation removes heat resulting from safety relief valve (SRV) discharge to the suppression pool and RCIC and HPCI exhaust to the suppression pool. This would be accomplished by placing the RHR System in the containment (suppression pool) cooling mode; i.e., RHR suction from and discharge to the suppression pool.

The operator could verify proper operation of the RHR System containment cooling function from the control room by --

(1) Verifying RHR and Service Water (SW) System flow using system control room flow indicators.

(2) Verify correct RHR and SW System flow paths using control room position indication of motor-operated valves.
Even though the RHR is in the containment cooling mode, core cooling is its primary function. Thus, if a high drywell pressure signal is received at any time during the period when the RHR is in the containment cooling mode, the RHR system will automatically revert to the LPCI injection mode. The CS System would automatically initiate and both the LPCI and CS Systems would inject water into the reactor vessel if reactor pressure is below system discharge pressure. If there is a coincident low reactor water level and high drywell pressure, the Automatic Pressure Relief System (APRS) will automatically relieve reactor pressure to allow the LPCI and CS Systems to inject water into the vessel after a two-minute time delay.

(c) Extended Core Cooling

When the reactor has been depressurized, the RHR System can be placed in the long term shutdown cooling mode. The operator manually terminates the containment cooling mode of one of the RHR containment cooling loops and places the loop in the shutdown cooling mode as follows:

1. trip the RHR pumps,
2. close motor-operated valves in the suppression pool suction and discharge lines,
3. open suction valves from the discharge valves to the reactor vessel, and
4. restart the RHR pumps.

In this operating mode, the RHR System can cool the reactor to cold shutdown. Proper operation and flow paths in this mode can be verified by methods similar to those described for the containment cooling mode.

4. Reactor vessel water is continuously monitored by nine indicators or recorders for normal and accident conditions. Level instruments used to provide automatic safety feature actuation are arranged in a redundant array of one or two instruments in each of two independent divisions.

A separate set of level instrumentation provides reactor level control by means of the feedwater system. This set includes two control room indicators and one recorder.
For a detailed description of the reactor vessel level monitoring system refer to FSAR Section 7.5.0, Reactor Vessel Instrumentation. Application of the reactor vessel level signals is described in FSAR Sections 6.2.0, Emergency Core Cooling Systems, and 7.7.0, Plant Protection System.

As noted in Item 1, above, Directives have been issued to instruct operators to utilize all available information.

5. Plant operating procedures have been reviewed, and it has been determined that several valid reasons exist for allowing an override of an automatic initiation signal or shutdown of a system after it has been automatically initiated (see response to Item 1, above). For example,

(a) If an automatic initiation of the HPCI System and RCIC System occurs, the operator is allowed to shutdown the HPCI System if the RCIC System is capable of maintaining vessel level. This is allowed to prevent an automatic trip of both systems due to high water level. As noted in response to Item 3 of this Bulletin, a trip of the RCIC System requires manual operator action to reset.

(b) The procedures allow the operator to manually override automatic actuation of the APRS if it has been determined that adequate water level is being maintained by the high pressure injection systems. In this case, low pressure coolant injection is not required and therefore APRS actuation can be interrupted. This override is permitted to allow a controlled cooldown and depressurization of the reactor and to prevent injection of poor quality torus water into the reactor when it is not required.

(c) The procedures allow transfer of part or all of the RHR System from the LPCI mode of operation to the containment cooling mode of operation when adequate reactor water level is maintained with part of the RHR System and/or other systems. This is allowed to assure that torus water temperature and containment pressure limits are maintained.

Other procedures which specifically discuss override or shutdown of an emergency system allow it only with Plant Management approval and would only be performed after consideration by plant technical staff personnel.

Directives were issued, as stated in the response to Item 1, above, to assure operators consider all available information in decisions to take manual action. Operating procedures for specific events do describe expected parameter indications. However, it should be recognized that
events might occur such that vessel level indication might be the only immediately obvious parameter affected. We are reluctant to issue instructions which might be considered contrary to the longstanding directive for operators to believe and respond conservatively to instrument indications unless the indications are proven to be incorrect.

6. Prior to a plant startup, valve checklists are completed to establish and verify valve positioning. On plant restarts, following short outages when major maintenance is not performed, checklists may not be completed; however, they are reviewed by the Shift Supervisor to assure he understands the status of plant systems and equipment. The valve checklists are prepared and reviewed in accordance with Operational Q.A. Program requirements.

For maintenance and surveillance, most activities are governed by specific procedures which are also prepared and reviewed in accordance with Operational Q.A. Program requirements. Activities not governed by specific procedures are controlled by the Work Request Authorization process which includes controls on valves for pre and post work valve positioning.

The operational checklists and maintenance, surveillance, and special procedures are reviewed by an independent person knowledgeable in the affected area and by the Plant Operations Committee, and they are approved by a member of plant management. In addition, all procedures, including checklists, are reviewed at least once every two years for required changes (or prior to use as may be the case for special procedures). A temporary change process is used to document and review situations when valves cannot or should not be positioned as specified in the procedure or checklist. This process includes considerations for any required permanent changes to procedures.

In addition to specific procedure controls, control room operators check all control and annunciator panels for normal indications each shift. This includes valve position indications. Valves critical to system operation but without position indication in the control room are locked in the required position. Their positioning is verified with completion of startup checklists and in most cases with periodic completion of surveillance testing.

We believe that the procedures, controls, and reviews described above are adequate to assure proper valve positioning.
7. All systems designed to transfer potentially radioactive gases and liquids out of the primary containment are provided with automatic isolation signals initiated by a variety of reactor, containment or system conditions. These systems and the signals which initiate isolation are listed in Technical Specification Table 3.7.1. As discussed in Items 1 and 4, administrative controls will require that reactor conditions be evaluated prior to resetting the isolation signals and opening the valves. Continued operability of these features is assured by periodically calibrating the sensors as well as testing the isolation functions to insure proper response. Additionally, administrative controls and checklists, as discussed in Item 6 above are used to verify systems are lined up for automatic operations. The feasibility of installing additional isolation signals on high radiation will be evaluated.

8. Removal of equipment from service is controlled by a procedure or with a Work Request Authorization. In each instance, administrative controls require Technical Specification requirements for the operability of redundant safety-related systems be identified and verified.

Likewise, administrative controls require identification and verification of functional testing or other actions necessary to assure operability that must be conducted upon completion of procedure or WRA activities.

Signed authorization to commence all maintenance and test activities must be obtained from the Shift Supervisor. In addition, plant operators are the only personnel who remove equipment from and return it to service. Records of equipment tagging, installation of jumpers and bypasses, and the use of keylocked switches for maintenance or modification activities are maintained by the Shift Supervisors. This provides adequate notification and control by operating personnel of safety-related system status.

The procedures and WRAs are reviewed, approved, and audited in accordance with requirements of the Operational Q.A. Program. This ensures that the above requirements are included and adhered to.

9. Emergency and operating procedures will be revised to establish a continuous open communication channel with the NRC as rapidly as possible in the event that the reactor is not in a controlled or expected condition of operation. During normal daytime working hours, and for events which are not extremely complex, it is expected that such communication can be established within one hour. However, if a complex emergency were to occur during weekend, holiday, or evening hours when the number of on-site personnel is reduced, conditions might
require utilization of all on-site personnel for activities related to assessment of conditions and controlling or mitigating the situation. In that event, establishment of continuous communication would be delayed until arrival of additional staff personnel.

10. During normal operation, the containment is inerted with nitrogen gas to maintain oxygen concentration below five percent by volume. This minimizes the possibility of hydrogen combustion following an accident in which significant amounts of hydrogen are generated.

In the event of an accident, samples of the containment atmosphere may be obtained and analyzed in the laboratory for hydrogen. The containment may be purged and vented using non-safeguards systems to control hydrogen concentration.

In the event of hydrogen that may remain inside the reactor vessel, these gases may be vented to the containment through the reactor head vent. The head vent isolation valves, while not safeguards equipment, can be operated remotely from the control room.

In the October 27, 1978, Federal Register, the NRC published their final rule on combustible gas control systems for nuclear power plants. The rule, contained in Section 50.44 of 10 CFR Part 50, establishes requirements for combustible gas control systems based on the date of the construction permit notice and on the results of accident dose calculations. We will comply with this rule and have initiated an engineering study to identify the plant modifications which are needed. This engineering study will include the feasibility of installing hydrogen recombiners.

If additional information is required, please communicate directly with plant management.

Yours very truly,

L. J. Wachter
Vice President - Power Production and System Operation

cc: Mr. G. Charnoff
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Washington, D.C.