GPU NUCLEAR

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July 20, 2000
1940-00-20169

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Request for Enforcement Discretion, Supplement 1

This letter is being written to document a request for enforcement discretion from the Oyster Creek Nuclear Generating Station Technical Specifications regarding Post Accident Monitoring Instrumentation and Electromatic Relief Valve requirement for acoustic monitoring. This enforcement discretion will allow the Oyster Creek Nuclear Generating Station to operate until a proposed exigent amendment from Oyster Creek Nuclear Generating Station Technical Specifications can be processed and approved by the NRC.

On July 17, 2000, the A Electromatic Relief Valve (EMRV) acoustic monitor failed its surveillance test. The EMRV acoustic monitor was declared inoperable and a 48 hour Limiting Condition for Operation clock started. The A EMRV acoustic monitor which failed was the backup monitor, as the primary monitor had failed previously.

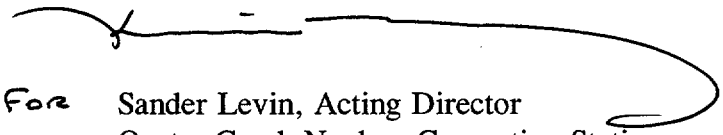
By this letter, GPU Nuclear, Inc. requests enforcement discretion to preclude the need for a unit shutdown. Our proposed exigent Technical Specification amendment will allow Oyster Creek to operate with the A EMRV acoustic monitor inoperable until the next unscheduled outage during which COLD SHUTDOWN is achieved, not to exceed restart from our next refueling outage (fall 2000). Attachment I to this cover provides the details of this request.

A001

During a recorded telecon on July 19, 2000, the staff requested that additional information be included in this supplement to the original submittal. The requested information has been added.

If any additional information or assistance is required, please contact Mr. John Rogers of my staff at 609.971.4893.

Very truly yours,



For Sander Levin, Acting Director
Oyster Creek Nuclear Generating Station

SL/JJR
Attachments

cc: Administrator, Region I
NRC Project Manager
Senior Resident Inspector

Attachment I
Request for Enforcement Discretion

BACKGROUND

On March 29, 2000, the primary A EMRV acoustic monitor failed its surveillance test and was declared inoperable. The backup acoustic monitor was placed in service. On July 17, 2000, the A EMRV backup acoustic monitor failed its surveillance test. At 1915 hours, Oyster Creek control room personnel declared the A EMRV acoustic monitor inoperable in accordance with Technical Specification 3.13.A.3. This specification allows 48 hours to return the EMRV acoustic monitor to operability, or "...place the reactor in the SHUTDOWN CONDITION within the next 24 hours...." The GPU Nuclear, Inc. investigation has determined the problem to be with the acoustic monitor system components located inside containment. Repair requires shutdown and containment entry. The Oyster Creek acoustic monitors were last verified operable on June 20, 2000.

Troubleshooting of the 108A EMRV Acoustic Monitors has concluded that the problems with the primary and the backup sensors are located in the drywell. During the monthly surveillance, the backup channel failed due to the lack of an accelerometer resonant frequency as measured by the spectrum analyzer. The resonant frequency is a characteristic of the accelerometer crystal and is checked during the monthly surveillance to confirm the accelerometer is providing a steam flow signal. Initial checks of the control room electronics were performed confirming the problem was not in the control room electronics module. The primary channel (previously failed) was tested and was also confirmed to have failed due to a loss of resonant frequency.

The vendor was contacted and brought on-site to assist in troubleshooting the monitors. Additional checks were performed which confirmed that the electronics in the control room were operating properly. The output signal of the primary sensor was evaluated by the vendor using a spectrum analyzer, and it was determined that the primary channel had failed at either: the accelerometer, the intervening cable, or at the connection of the intervening cable. The backup sensor was also evaluated and determined to be significantly degraded, but is currently providing a signal. The signal is observable but only at approximately 3% of the normal signal level. The vendor concluded the most likely cause is a bad connection of the cable, or a slow degradation of the line driver. All these components are located in the drywell and are not accessible with the plant in operation.

THE REQUIREMENTS FROM WHICH ENFORCEMENT DISCRETION IS REQUESTED

GPU Nuclear, Inc. is requesting enforcement discretion from Oyster Creek Technical Specifications: 1) Section 3.13, and 2) Table 3.13.1, Item 1. This will allow Oyster Creek to continue POWER OPERATIONS with the A EMRV acoustic monitor inoperable while a proposal to amend the Technical Specifications is processed. A markup of the proposed Technical Specification change is attached.

CIRCUMSTANCES REQUIRING PROMPT ACTION, ROOT CAUSE, RELEVANT HISTORICAL INFORMATION

Oyster Creek is currently in the POWER OPERATION mode at 100% power. Repair of the inoperable acoustic monitor requires taking Oyster Creek to cold shutdown, de-inerting the containment, making a containment entry to repair/replace the acoustic monitor failed component. Based on the justification provided below, GPU Nuclear, Inc. believes that this shutdown would represent an unwarranted transient on Oyster Creek.

GPU Nuclear, Inc. has established that the failure of the acoustic monitor is associated with components located within the containment, which is inaccessible during reactor operation. As such, a definitive root cause cannot be established at this time.

Failed acoustic monitors have occurred several times throughout the nuclear industry. During these events, the acoustic monitors either failed to respond or failed high indicating an open relief valve which resulted in a condition that would not clear or reset automatically. The causes of these events have been due to failed accelerometer cable connectors and/or line drivers.

Oyster Creek is currently in operating cycle 17. During the previous cycle 16, there were a total of five failures of EMRV acoustic monitors. Four of those failures were due to a loss of signal (no audio or resonant frequency), and one was due to a shift in the resonant frequency. Two of the five failed monitors passed subsequent surveillance tests, and two passed bench tests after being removed from the plant. During Cycle 17 there have been six EMRV acoustic monitor failures. Five of the six were due to loss of the signal, and the sixth was due to low bias voltage (which was declared operable after a wiring error was identified). One of the failed monitors was found to have a loose pin in the connector, using the new pin alignment tool.

In a recent event which occurred during June 1998, another Region I utility requested and received enforcement discretion due to a failed acoustic monitor (TAC No. MA2068, and NOED 98-6-009). This event resulted in an acoustic monitor that was erratic and would frequently produce erroneous open relief valve alarms. The alarm condition would clear automatically. The cause of this event was determined to be a shorted shield wire at a sensor cable connector. The event at Oyster Creek is similar to these prior events in that the monitor currently provides potentially erroneous information to the operators. In all of the above cases, it was determined that no relief valves opened.

SAFETY BASIS OF PROPOSED REQUEST

The referenced Technical Specifications require that the inoperable acoustic monitor be restored to its operable status within 48 hours or be in the SHUTDOWN mode within the next 24 hours. The purpose of the EMRV position indication system is to provide an indication of a stuck open EMRV.

The requirement for the EMRV primary position indication system (acoustic monitors) originated in TMI Item II.D.3, "Direct Indication of Relief and Safety Valve Position." By letter dated May 8, 1980, the NRC accepted the existing design of the referenced systems at Oyster Creek. The EMRV valve position indication system is indicated and alarmed on a control room panel. Also, backup methods of determining valve position are available and are discussed in the off-normal procedures and in the Technical Specifications as Backup Indications.

At Oyster Creek, the EMRVs are DC powered, solenoid initiated relief valves. As such, the operator is provided with an indication independent from the acoustic monitor to display when the demand for valve opening/closing is present. Also, it provides reliable indication of valve operation, except if the valve were to stick open. Procedure 2000-ABN-3200.40, "Stuck Open EMRV" Revision 0, is included as part of the current operator training program. The procedure directs the operators to observe the EMRV solenoid position indication, front panel alarm windows, and EMRV tailpipe temperatures. The operators and Shift Technical Advisors are trained on the effect of an open EMRV on plant parameters. Parameter indications include:

- Indicated feedwater flow greater than indicated steam flow
- Loss of generator MWe
- RPV pressure decreases
- RPV level decreases
- Suppression pool temperature increasing
- Suppression pool level increasing and oscillating

None of the above symptoms have been observed, providing verification that the A EMRV is currently closed.

For the A EMRV, tail pipe temperature will also provide an indication that the EMRV is open. Over the current Oyster Creek operating cycle neither this, nor the acoustic monitor when operable, indicated any leakage from the A EMRV.

NUREG-0783 requires that a postulated stuck open relief valve (SORV) transient be analyzed to verify that the maximum pool temperature remains below the quencher instability temperature. The SORV analysis assumes that the operator will take actions to trip the reactor, and initiate suppression pool cooling in accordance with procedure 2000-ABN-3200.40 "Stuck Open EMRV" Revision 0, and Technical Specifications. The analysis assumes that operator actions are a result of suppression pool temperature and do not credit the acoustic monitors. The suppression pool temperature monitoring system provides the operator with safety grade, redundant pool temperature information from which to take actions in accordance with the EOPs and Technical Specifications. The inoperable acoustic monitor for the A EMRV does not affect the ability of the operator to obtain pool temperature information.

The bulk temperature provides the necessary information to take actions that are consistent with NUREG-0783 pool temperature analysis. This analysis indicates that the maximum pool temperature complies with the NUREG-0783 requirements. Therefore, this requested Technical Specification enforcement discretion has no adverse impact on the containment SORV analysis.

The Emergency Operating Procedures (EOPs), direct the operator to control RPV pressure below the lift pressure for the EMRVs. This is done to preclude cycling of the valves which can lead to a SORV. In the event that an SORV occurs, with or without the accoustic monitor indication, the EOPs direct actions to control RPV pressure and containment parameters to mitigate the event. During EMRV operation, there are reactor water level fluctuations and significant dynamic loads imposed on the RPV, on the EMRV tail pipes and on the primary containment structures. The operator is directed to lower reactor pressure to below the relief pressure setpoint. Lowering pressure would stop any EMRV from cycling, and does not require identification of the operating valve. Hence the ability to respond to this situation is not impaired. Under these conditions, the operators will maintain RPV pressure within a specified band to diagnose EMRV related problems.

In addition to detecting an SORV the acoustic monitors provide the operator with one of several indications that the required number of EMRVs have been opened as required by the EOPs in either Emergency Depressurization or Vessel Flooding during an ATWS. The EOPs do not specify the use of acoustic monitors. If the operator must assume that less than the actual number of EMRVs are open the EOPs direct a higher pressure for ensuring adequate flow in Vessel Flooding during an ATWS or use additional pressure reduction paths in Emergency Depressurization.

Both of these actions result in plant response in the conservative direction (i.e. higher than required core cooling flow and a quicker depressurization that allows low-pressure injection or steam cooling to occur sooner).

Based on the above, Oyster Creek can be operated safely with the EMRV acoustic monitor inoperable.

QUALITATIVE RISK ASSESSMENT OF OPERATION WITHOUT AN OPERABLE EMRV ACOUSTIC MONITOR

As stated above, the A EMRV is currently operable and verified in the closed position based on alternate indications. The associated acoustic monitors are inoperable.

This has no impact on the probability of EMRV malfunction. It is the primary but not the only means of detecting EMRV position, and as such the risk to be considered is the operator's ability to quickly detect a stuck open EMRV.

This does not represent a significant degradation in risk, based on the following items which are described in this submittal:

- The alternate indications that exist. A number of these indications (e.g. EMRV tailpipe temperatures, suppression pool temperature and level, reactor vessel level and pressure, decrease in generator loads, and steam flow/feed flow mismatch) would provide adequate indication for prompt operator action;
- Existing operator training on the alternate indications;
- Compensatory actions, including operator training that focus the operator on plant operation without an acoustic monitor will be provided. This training will emphasize using alternate indications for problems with the EMRV with appropriate responses; and
- Solenoid position indication is available in the control room.

BASIS FOR CONCLUSION THAT THE ENFORCEMENT DISCRETION WILL NOT BE OF POTENTIAL DETRIMENT TO THE PUBLIC HEALTH AND SAFETY AND THAT A SIGNIFICANT SAFETY HAZARD IS NOT INVOLVED

The A EMRV is currently operable. However, its associated acoustic monitors are inoperable. As discussed above, existing procedures provide several alternate indications of valve position. Review of all pertinent alternate indications in accordance with the procedure has verified that the A EMRV is currently closed. Specific training on the Oyster Creek EMRV acoustic monitor condition and applicable procedures has been and will continue to be provided to appropriate personnel.

It is noted that the Improved Technical Specifications for a BWR 4 do not include any requirements for acoustic monitors on relief valves.

Based on the above, the enforcement discretion will not be of potential detriment to the public health and safety, and does not involve a significant safety hazard.

NO SIGNIFICANT HAZARDS CONSIDERATIONS

This proposal does not involve a significant increase in the probability or consequences of an accident previously evaluated. The acoustic monitor does not affect the operation of the EMRVs. No failure of the acoustic monitoring system can affect the ability of these valves to perform their design functions.

During an event when the EMRV operates as designed in response to an input signal, there are indications to the operator of solenoid operation.

During an event when the EMRV malfunctions (failure to completely close), there are alternate indications available to the operator to indicate the malfunction of the valve (e.g. EMRV tailpipe temperatures, suppression pool temperature and level, reactor vessel level and pressure, decrease in generator loads, and steam flow/feed flow mismatch).

Failure of the acoustic monitoring system to actuate in the event of an actual valve actuation does not affect the consequences of that event. Operation without this detection system will not significantly increase vulnerability to an undetected, open EMRV event.

EMRV tail pipe temperature rise above normal levels is a true indication of EMRV actuation and a reliable indication of closure. The probability of a Stuck Open EMRV Event is not affected by the lack of position indication for the EMRV. The ability to detect the stuck open EMRV condition is adequately covered by the tail pipe temperature indication and secondary (e.g. RPV level, RPV pressure, and suppression pool temperature) indicators, and will not result in an increase in the probability or consequences of an accident previously evaluated. Operators will be able to determine that a SORV has occurred and procedures are in place to mitigate this condition that do not depend on the EMRV acoustic monitoring system for indication.

This proposal does not create the possibility of a new or different type of accident from any previously evaluated. The EMRV Acoustic Monitor performs no control or protective function. It only provides an indirect indication of valve position. Failure of this device will not cause an unanalyzed failure of an engineered safety feature. Because of the diverse and redundant indications available, the inoperability of the acoustic monitor system will not cause a new accident, nor will it cause the operator to commit errors to create the possibility of a new or different type of accident.

This change does not involve a significant reduction in a margin of safety. Operating without the A EMRV position indication does not reduce the design or operating basis margin to safety. In the unlikely event that the A EMRV should cycle open and fail to fully close, sufficient backup indication is available to identify and mitigate the occurrence. Additionally, existing plant procedures provide sufficient guidance for detecting this condition and taking appropriate actions to mitigate an effect on continued safe operation. Monitoring of plant parameters would provide an early detection of any potential EMRV leakage. Thus, the proposed change does not involve a significant reduction in a margin of safety.

COMPENSATORY ACTIONS

Specific training on the Oyster Creek EMRV acoustic monitors and applicable procedures has been and will continue to be provided to appropriate personnel.

Plant procedures have been preliminarily reviewed and no revisions have been identified.

The tailpiece and downcomer thermocouples for the A EMRV will be checked once per shift while the NOED is in effect.

Pre-shift briefings will be conducted to alert operations personnel of the circumstances relating to the EMRV acoustic monitor and the NOED provisions.

JUSTIFICATION FOR DURATION OF PROPOSED REQUEST

GPU Nuclear, Inc. is proposing an amendment to the Oyster Creek Technical Specifications under separate cover (to be submitted by July 21, 2000) and is therefore requesting that this enforcement discretion remain in effect until the NRC acts on that submittal.

PLANT REVIEW GROUP

This proposed enforcement discretion has been reviewed and approved by the Oyster Creek Plant Review Group.

NOED CRITERIA

This request meets Criterion 1a of the NRC Inspection Manual Part 9900, " Guidance on Enforcement Discretion". Without the requested discretion, the Oyster Creek plant would have to shutdown, de-inert the drywell, replace two sensors, followed by a plant restart and drywell inerting. There is no increase in safety created by replacing the sensors.

The exigent need for the discretion was a result of failed plant equipment. Realizing that the acoustic monitors could require a plant shutdown on short notice, Oyster Creek Nuclear Generating Station had previously installed spare monitors on all five EMRVs. It was believed that the redundancy of the components in the drywell would increase the reliability of the instrumentation to reasonable levels. This is the first time in Oyster Creek history that both sensors on one EMRV were inoperable and unable to be repaired.

ENVIRONMENTAL IMPACT

This request involves plant events completely enveloped by the Primary Containment, and nothing in this request challenges the Primary Containment. Therefore, there can be no impact on the external environment.

MARKED UP TECH SPECS

A markup of the Tech Specs associated with the formal amendment which GPU Nuclear, Inc. will request by July 21, 2000 is attached.

Attachment II

Marked up Technical Specifications

Pages 3.13-1 and 3.13-5

3.13 ACCIDENT MONITORING INSTRUMENTATION

Applicability: Applies to the operating status of accident monitoring instrumentation.

Objective: To assure operability of accident monitoring instrumentation.

Specification:

A. Relief Valve Position Indicators

1. The accident monitoring instrumentation channels shown in Table 3.13.1 shall be OPERABLE when the mode switch is in the Startup or Run positions.

2. With the number of OPERABLE accident monitoring instrumentation channels less than the Total Number of Channels shown in Table 3.13.1, either restore the inoperable channels to OPERABLE status within 7 days, or place the reactor in the SHUTDOWN CONDITION within the next 24 hours.

REPLACE WITH (A)

3. With the number of OPERABLE accident monitoring instrumentation channels less than the Minimum Channels Operable requirements of Table 3.13.1, either restore the inoperable channel(s) to the OPERABLE status within 48 hours, or place the reactor in the SHUTDOWN CONDITION within the next 24 hours.

B. Safety Valve Position Indicators

1. During POWER OPERATION, both primary* and backup** safety valve monitoring instruments are required to be OPERABLE except as provided in 3.13.B.2.

2. If the primary* accident monitoring instrument on a safety valve becomes inoperable, the primary* accident monitoring instrument on an adjacent valve, if OPERABLE, must have its set point appropriately reduced. When a reduced setpoint causes an alarm condition due to background noise, the setpoint may be returned to normal. If the backup** accident monitoring instrument on a safety valve becomes inoperable, no action is required. The provisions of Specification 3.0.A do not apply.

*Acoustic Monitor
**Thermocouple

2. With no accident monitoring instrumentation operable for a relief valve as specified in Table 3.13.1, either restore any inoperable channel to operable status within 7 days, or place the reactor in the SHUTDOWN CONDITION within the next 24 hours. If only the primary detector or the backup indicator on a relief valve becomes inoperable, no action is required. The provisions of Specification 3.0.A do not apply.

TABLE 3.13.1

ACCIDENT MONITORING INSTRUMENTATION

	INSTRUMENT	TOTAL NO. OF CHANNELS	MINIMUM CHANNELS OPERABLE
1.	Relief Valve Position Indicator (Primary Detector*)	1/valve	~~1/valve~~
	Relief Valve Position Indicator (Backup Indications**)	1/valve	
2.	Wide Range Drywell Pressure Monitor (PT/PR-53 & 54)	2	1
3.	Wide Range Torus Water Level (LT/LR-37 & 38)	2	1
4.	Drywell H_2 Monitor	2	1
5.	Containment High Range Radiation	2	1
6.	High Range Radioactive Noble Gas Effluent Monitor		
	a. Main Stack	1	1
	b. Turbine Building Vents	1	1

* Acoustic Monitor
** Thermocouple
Thermocouple TE 65A can be substituted for thermocouple TE210-43V, W or X
Thermocouple TE 65B can be substituted for thermocouple TE210-43Y or Z