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NUCLEAR PRODUCTION DEPARTMENT

March 31, 1982

Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Attention: Mr. J. P. O'Reilly, Regional Administrator

Gentlemen:

SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 and 50-417
File 0260/L-401.0
Evaluation of IE Bulletin 80-24
AECM-82/83

Mississippi Power & Light Company (MP&L) has completed its review of IE Bulletin 80-24, "Prevention of Damage Due to Water Leakage Inside Containment". Each action item specified in the bulletin is listed below with our response.

1. Provide a summary description of all open cooling systems present inside containment. Your description of the cooling water systems must include:

   (a) Mode of operation during routine reactor operation and in response to a LOCA.

   Response:

   There is one open cooling water system present inside containment. It is the Plant Service Water (PSW) System P44. (The PSW system supplies cooling water to the steam tunnel cooler in the containment and to the drywell coolers.)

   The PSW system is operational during normal reactor operation. During a LOCA, the PSW system will isolate on a containment isolation signal [for background see AECM-81/369, dated September 30, 1981, SER item I.9(8)]. The isolation signal can be bypassed from the control room if the system is required during an isolation. When the isolation signal clears, the system must be manually reset to restore it to normal operation.

   During a LOCA or a loss of off-site power, selective loads will be isolated from PSW and be supplied by Standby Service Water (SSW) including the drywell coolers. If necessary, the drywell coolers can be manually isolated from the control room.

   (b) Source of water and typical chemical content of water.

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Response:

Water from the PSW system is supplied unfiltered, from the Radial wells. Typical water quality, based on the FER is:

Conductivity	576 (umhos/cm)
pH	7.2 (mg/1)
Hardness (as $CaCo_3$)	332 (mg/1)
Disolved solids	376 (mg/1)
Suspended solids	19.1 (mg/1)

In addition, the water is treated with sodium hypochlorite (maximum .5 ppm residual chlorine), a poly carbolic acid copolymer (4.0 ppm) for iron and silt despersion or an acrylate copolymer (14.0 ppm) to control orthophosphate induced iron deposition.

(c) Materials used in piping and coolers.

Response:

In the PSW system, the piping is carbon steel. The coolers are 90/10 copper-nickel with steel headers.

(d) Experience with system leakage.

Response:

This is not applicable since Grand Gulf is not an operating plant.

(e) History and type of repairs to coolers and piping systems (i.e., replacement, weld, braze, etc.)

Response:

In the PSW system, no repairs have been required.

(f) Provisions for isolating portions of the system inside containment in the event of leakage including vulnerability of those isolation provisions to single failure.

Response:

The PSW loop within the drywell can be isolated from containment via motor operated globe valves. The PSW lines into containment can be isolated by the control room operator. Both drywell isolation and containment isolation valving arrangements consist of MOVs on the inlet and outlet outside the boundary, a testable check valve on the inlet and a MOV on the outlet inside the boundary. The MOVs outside the boundary and the MOV inside the boundary are powered from different ESF divisions. In addition, each individual cooler can be isolated by shutting the respective inlet MOV.

(g) Provisions for testing isolation valves in accordance with Appendix J to 10 CFR 50.

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Response:

For the PSW system, GGNS Technical Specification 4.6.4.2 contains surveillance requirements for leakage tests of the PSW drywell isolation valves.

GGNS Technical Specification section 4.6.4.1 contains surveillance requirements for leakage tests of the containment isolation valves.

(h) Instrumentation (pressure, dew point, flow, radiation detection, etc.) and procedures in place to detect leakage.

Response:

In the PSW system, the flow of any water from the drywell coolers is monitored by a flow element in the common header to the drywell floor drain sump. Flow above the setpoint causes a "Drywell Air Cooler Flow High" alarm in the control room. Four of the drywell coolers are provided with temperature elements in the PSW supply and return lines. Differential temperatures across these four coolers are calculated by the computer and recorded. Although these means are primarily for detection of a steam leak from the NSSS, they can also serve to detect PSW leaks. The leak detection system is discussed in the response to Action Item 2.a.

(i) Provisions to detect radioactive contamination in service water discharge from containment.

Response:

No radioactivity monitors have been provided on the plant service water system. The only radioactive fluids normally cooled by the PSW system are in the steam jet air ejector (SJAE) intercondenser. Since the SJAE intercondenser operates under a vacuum, any leakage would be from the PSW system into the SJAE intercondenser shell, not vice versa. The PSW pressure is higher than the containment design pressure, so that it is highly unlikely that the PSW system would provide a release pathway.

2. For plants with open cooling water systems inside containment take the following actions:

(a) Verify existence or provide redundant means of detecting and promptly alerting control room operators of a significant accumulation of water in containment (including the reactor vessel pit if present).

Response:

The drywell equipment drain sump, the drywell floor drain sump, the containment equipment drain sump and containment floor drain sump all have essentially the same means for detecting and alerting control room operators to a significant accumulation of water in the sump; the only differences are the instrument numbers and setpoints. Each sump has two high level switches, one of which (LSHH) is set for a higher level than the other (LSHL).

The lower switch (LSHL) starts the first sump pump, and two timers in the leak detection system. These two timers and associated logic activate sump flow high alarms for the drywell equipment drain sump, drywell floor drain sump, containment equipment drain sump, and containment floor drain sump. The higher level switch (LSHH) and associated logic actuate sump level high alarms in the control room for each of the sumps listed above.

The drywell floor drain is also equipped with a separate level transmitter which provides continuous recording of the sump level. This also provides input to a differentiator which actuates a drywell floor drain sump pump run out alarm in the control room.

(b) Verify existence or provide positive means for control room operators to determine flow from containment sumps used to collect and remove water from containment.

Response:

Both the drywell equipment and floor drain sumps utilize timers to monitor leakage. The pump-out rate timer is used to tell how long the sump pump is running and the fill-rate timer is used to measure how long it takes to fill the sump. Excessively long pump run times or short fill times are both indications of abnormal leakage rates. The normal cycle times for these timers are set to correspond to leakage rates of 25 gpm. If a short fillup time or long pump-down time exists, the operator is alerted by a "Drywell Equipment Drain Sump Flow High" alarm on the Reactor Core Cooling Benchboard.

The drywell floor drain sump leakage detection method is identical to the equipment sump although different fill-rate timers and pump-down timers are utilized. Timers are adjusted to indicate leakage rates in excess of the 5 GPM limit for unidentified leakage. In the event the 5 GPM rate is exceeded, the operator is alerted by a "Drywell Floor Drain Sump Flow High" alarm on the Reactor Core Cooling Benchboard.

Additionally, using inputs already in place, and assuming software availability, the computer can be programmed to integrate the pumping time of the various sump pumps, verify the increase in transfer tank level, and calculate the amount of fluid pumped from the containment or drywell.

(c) Verify or establish at least monthly surveillance procedures, with appropriate operating limitations, to assure plant operators have at least two methods of determining water level in each location where water may accumulate. The surveillance procedures shall assure that at least one method to remove water from each such location is available during power operation. In the event either the detection or removal systems become inoperable, it is recommended that continued power operation be limited to seven days and added surveillance measures be instituted.

Response:

Generally, GGNS surveillance procedures are developed based on requirements set forth in the Technical Specifications. Based on appropriately developed Technical Specifications, our surveillance procedures are adequate to insure the safe operation of GGNS.

(d) Review leakage detection procedures and provide or verify ability to promptly detect water leakage in containment, and to isolate the leaking components or system. Periodic containment entry to inspect for leakage should be considered.

Response:

The sump leak detection systems, the individual steam leak-off temperature sensors and isolations, the area temperature monitors and the drywell activity monitors provide adequate, prompt detection of water leakage into the drywell. The annunciator response instructions give the operator proper direction to determine the source of leakage and means to isolate the component or system. Periodic drywell entries are normally not permitted during plant operation due to radiation levels present in the drywell.

(e) Beginning within 10 days of the date of this bulletin, whenever the reactor is operating and until the measures described in (a) through (d) above are implemented, conduct interim surveillance measures. The measures shall include where practical (considering containment atmosphere and ALARA considerations) a periodic containment inspection or remote visual surveillance to check for water leakage. If containment entry is impractical during operation, perform a containment inspection for water leakage at the first plant shutdown for any reason subsequent to release of this bulletin.

Response:

This is not applicable since Grand Gulf is not an operating plant.

(f) Establish procedures to notify the NRC of any service water leaks within containment via a special licensee event report (24 hours with written report in 14 days) as a degradation of containment boundary.

Response:

GGNS reporting requirements to the NRC are based on requirements set forth in the Technical Specifications. Our reporting procedures are in compliance with Technical Specification requirements.

3. For plants with closed cooling water systems inside containment provide a summary of experiences with cooling water system leakage into containment.

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Response:

This is not applicable since Grand Gulf is not an operating plant.

This constitutes our complete response to IE Bulletin 80-24, no further action is presently planned. Should you have any further questions regarding this matter, please advise.

Yours truly,

L. F. Dale
Manager of Nuclear Services

DDW/SHH/JDR:ph

cc: Mr. N. L. Stampley
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