



MISSISSIPPI POWER & LIGHT COMPANY

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NUCLEAR PRODUCTION DEPARTMENT

June 3, 1984

U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Washington, D. C. 20555

Attention: Mr. Harold R. Denton, Director

Dear Mr. Denton:

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-13
File: 0290/1065
MP&L Response to Generic
Letter 84-11
AECM-84/0297

This letter provides the Mississippi Power & Light Company (MP&L) response to Generic Letter (GL) 84-11, dated April 19, 1984, pertaining to inspections of BWR stainless steel piping for intergranular stress corrosion cracking (IGSCC). Attached to this letter is MP&L's response to each of the actions addressed in GL-84-11, with respect to Grand Gulf Nuclear Station (GGNS) Unit 1.

For the purpose of evaluating our compliance with the requirements of GL 84-11, MP&L's review was limited to only those piping welds which, according to NUREG-0313, Revision 1, are considered susceptible to IGSCC. The twenty-four circumferential butt welds identified as non-conforming and service sensitive were reported to the Nuclear Regulatory Commission (NRC) in MP&L letter AECM-83/0481, dated August 17, 1983. MP&L will comply with all of the required action items, except for leak detection. A description of the GGNS leak detection systems and justification for the exception to the Generic Letter requirements are provided in the attached response to Action Item 4.

Please contact this office, if any questions arise concerning this submittal.

Yours truly,

J. G. Cesare
Manager of Nuclear Licensing

MLC/JGC:rg
Attachment

cc: See next page

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MISSISSIPPI POWER & LIGHT COMPANY

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MP&L'S RESPONSE TO GENERIC LETTER 84-11

NRC Action Item 1:

A reinspection program of piping susceptible to IGSCC should be undertaken. The reinspection should commence within about two calendar years, adjusted to coincide with the next scheduled outage, from the previous inspection performed under IE Bulletins 82-03, 83-02, or our August 26, 1983 order.

MP&L Response to 1:

The above referenced documents are not applicable to GGNS. These documents were issued to operating plants and GGNS did not have its operating license at that time.

MP&L has identified twenty-four (24) welds in the recirculation system that are non-mitigated and are susceptible to IGSCC. These welds which are restricted to two pipe sizes, 24 inches and 16 inches, were reported to the NRC in MP&L letter AECM-84/0481, dated August 17, 1983.

The GGNS inservice inspection (ISI) program currently contains augmented inspection for 8 of the 24 welds to comply with the requirements of NUREG-0313, Revision 1. The program calls for inspection of 4-24" and 4-16" non-mitigated welds during each refueling outage, but not more frequently than every 6 months.

It is MP&L's position that this augmented inspection program complies with the above action item.

NRC Action Item 2:

These reinspections should include the following, stainless steel welds, susceptible to IGSCC, in piping equal to or greater than 4" in diameter, in systems operating over 200°F, that are part of or connected to the reactor coolant pressure boundary, out to the second isolation valve as follows:

- (a) Inspection of 20% of the welds in each pipe size of IGSCC sensitive welds not inspected previously (but not less than 4 welds) and reinspection of 20% of the welds in each pipe size inspected previously (but not less than 2 welds) and found to be cracked, this sample should be selected primarily from weld locations shown by experience to have the highest propensity for cracking.

MP&L Response to 2(a):

No previous inspections for IGSCC were performed on any of the welds susceptible to IGSCC. As previously stated, the only applicable pipe sizes are 24" and 16". To comply with this action item, the GGNS ISI program requires IGSCC inspection on four welds in each of these pipe sizes. The welds selected for inspection are the two end caps on the 16" header and the 24" welds at the recirculation pump inlet and outlet. Inspection of these welds was already scheduled as part of our commitment to NUREG-0313. Experience has shown that the end cap welds are most susceptible to IGSCC.

The welds numbers selected for inspection are as follows:

| Pipe Size | Weld Number | |
|-----------|-------------|----------|
| | Loop A | Loop B |
| 16" | G10-A1-C | G10-B1-C |
| 16" | G10-A1-D | G10-B1-D |
| 24" | W-5 | W-28 |
| 24" | W-6 | W-29 |

See the attached sketches for the location of each weld.

NRC Action Item 2:

- (b) All unrepaired cracked welds

MP&L Response to 2(b):

This requirement is not appropriate for GGNS. This position is based on the fracture mechanics evaluation contained in the IGSCC report for GGNS submitted to the NRC via AECM-83/0481, dated August 17, 1983.

When the nondestructive testing discussed in the response to Action Item 2 (d) is performed, any evidence of cracking will be evaluated for continued operation or need of repair.

NRC Action Item 2:

- (c) Inspection of all weld overlays on welds where circumferential cracks longer than 10% of circumference were measured. Disposition of any findings will be reviewed on a case-by-case basis. Criteria for operation beyond one cycle with overlaid joints are under development.

MP&L Response to 2(c):

None of the welds susceptible to IGSCC have overlay repairs.

NRC Action Item 2:

- (d) Inspection of any weld treated by induction heating stress improvement which has not been post treatment UT acceptance tested.

MP&L Response to 2(d):

None of the susceptible welds at GGNS have received IHSI. The 24 welds susceptible to IGSCC are scheduled to receive IHSI during the first refueling outage. UT examinations for IGSCC detection will be performed on these welds immediately before and as soon as practical after the performance of the IHSI measures, but prior to returning to full power operation. These examinations will identify the effect of IHSI on the welds and base metal.

NRC Action Item 2:

- (e) In the event new cracks or significant growth of old cracks are found, the inspection scope should be expanded in accordance with IEB 83-02.

MP&L Response to 2(d):

If flaws indicative of cracking are found during the above examination, additional inspections will be conducted, in accordance with IWB-2430 of ASME Code Section XI, prior to resuming power operations as required by IEB 83-02.

NRC Action Item 3:

All level 2 and level 3 UT examiners should demonstrate competence in accordance with IEB 83-02 and level 1 examiners should demonstrate field performance capability.

MP&L Response to 3:

IEB 83-02 requires that licensee/ISI contractor personnel, who will actually be supervising, performing examinations, recording data and evaluating indications, participate in performance demonstration tests.

MP&L has contracted the services of General Electric-Apparatus and Engineering Service Operation (GE) to perform inservice inspections during the first ten year inspection interval. The GE personnel and examination procedures were tested at EPRI and have demonstrated their ability to detect cracks and flaws due to IGSCC.

In addition, MP&L personnel are scheduled to attend EPRI training classes for IGSCC flaw detection and sizing.

NRC Action Item 4:

Leak detection and leakage limits should be sufficiently restrictive to ensure timely investigation of unidentified leakage. (See Attachment 1 to Generic Letter 84-11)

MP&L Response to 4:

ATTACHMENT 1, PART A

MP&L has no special surveillance procedures in effect or proposed for primary system leak detection beyond those measures required by the plant's technical specifications. The technical specifications provide adequate monitoring capabilities to determine excess or abnormal leakage. The systems used to monitor leakage at GGNS are a particulate radioactivity monitoring system, drywell floor and equipment drain sump level and flow metering systems, drywell air coolers condensate flow rate monitoring system, and drywell gaseous radioactivity monitoring system. The above systems provide capability to monitor leakage from pump seals, valve packing, unidentified leakage into sumps, evaporated leakage which is condensed on drywell cooler coils, and radioactivity which was released by leakage into the drywell atmosphere.

MP&L has determined that the existing technical specifications provide adequate monitoring to enable detection of a through wall pipe crack. Therefore, MP&L does not presently plan to propose any special procedures pertaining to leakage monitoring.

The GGNS leakage detection systems comply with Part A of Attachment 1 to NRC Generic Letter 84-11. The leakage detection systems employed are sensitive enough to detect and measure small leaks and to identify the sources within practical limits. Section 5.2.5 of the GGNS SER (NUREG-0831) states "that the reactor coolant pressure boundary leakage detection systems provide reasonable assurance for detection of small leaks across the reactor coolant pressure boundary in accordance with the requirements of General Design Criteria 30 and the guidelines of Regulatory Guide 1.45 and are, therefore, acceptable." Upgrading of leakage detection systems will be performed as deemed necessary. At present, MP&L has no plans to modify or upgrade the existing leakage detection systems, as they provide adequate leak detection and leakage measurement.

ATTACHMENT 1, PART B

GGNS Technical Specification Action Statement 3.4.3.2.e requires that with any reactor coolant system unidentified leakage increase greater than 2 gpm within any 4-hour period to identify the source of leakage increase as not service sensitive Type 304 or 316 austenitic stainless steel within 4 hours or be in at least hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours. Although the GGNS Technical Specification is not as restrictive as the 2 gpm increase per 24 hour period of the NRC Generic Letter 84-11, MP&L does not presently plan to revise GGNS Technical Specifications. The wording of the GGNS Technical Specifications is in accordance with the NRC recommendations for the BWR-6 Standard Technical Specifications and is appropriate for GGNS. MP&L uses a sump level monitoring system to determine leakage increases, and this is monitored at least once per 4 hours.

ATTACHMENT 1, PART C

GGNS Technical Specification 3.4.3.1 action statement requires immediately proceeding to hot shutdown within 12 hours upon an inoperable drywell floor and equipment drain sump level and flow monitoring system. It is apparent that for this section the NRC letter is assuming redundant instrumentation associated with monitoring sump level by allowing a 24 hour outage time for inoperable sump instruments. GGNS does not have redundant instrumentation for leakage measurements associated with the sumps. Since GGNS does not have redundant instrumentation, upon loss of sump level and/or flow monitoring instrumentation the plant must be in hot shutdown within 12 hours and in cold shutdown within the following 24 hours.

ATTACHMENT 1, PART D

The definition of unidentified leakage in the GGNS Technical Specifications envelopes the definition provided in NRC Generic Letter 84-11, except the letter has "leakage to the containment atmosphere" versus GGNS "leakage into the drywell atmosphere." Because the Mark III containment design differs from earlier BWR designs, which did not have a drywell, MP&L interprets the

"containment atmosphere" in NRC Generic Letter 84-11 to be equivalent to the GGNS drywell atmosphere. As stated in AECM-83/0481, the only piping at GGNS which is susceptible to IGSCC is the recirculation piping, which is located entirely inside the drywell. Thus, leakage due to IGSCC will occur in recirculation piping located in the drywell, which will be treated as unidentified leakage as is the intent of Generic Letter 84-11. MP&L has determined that unidentified leakage as defined in GGNS Technical Specifications is equivalent to that defined in NRC Generic Letter 84-11.

ATTACHMENT 1, PART E

MP&L will commit to perform a visual examination for leakage of the reactor coolant piping during each refueling outage in accordance with the code requirements specified in Attachment 1, Part E of Generic Letter 84-11.

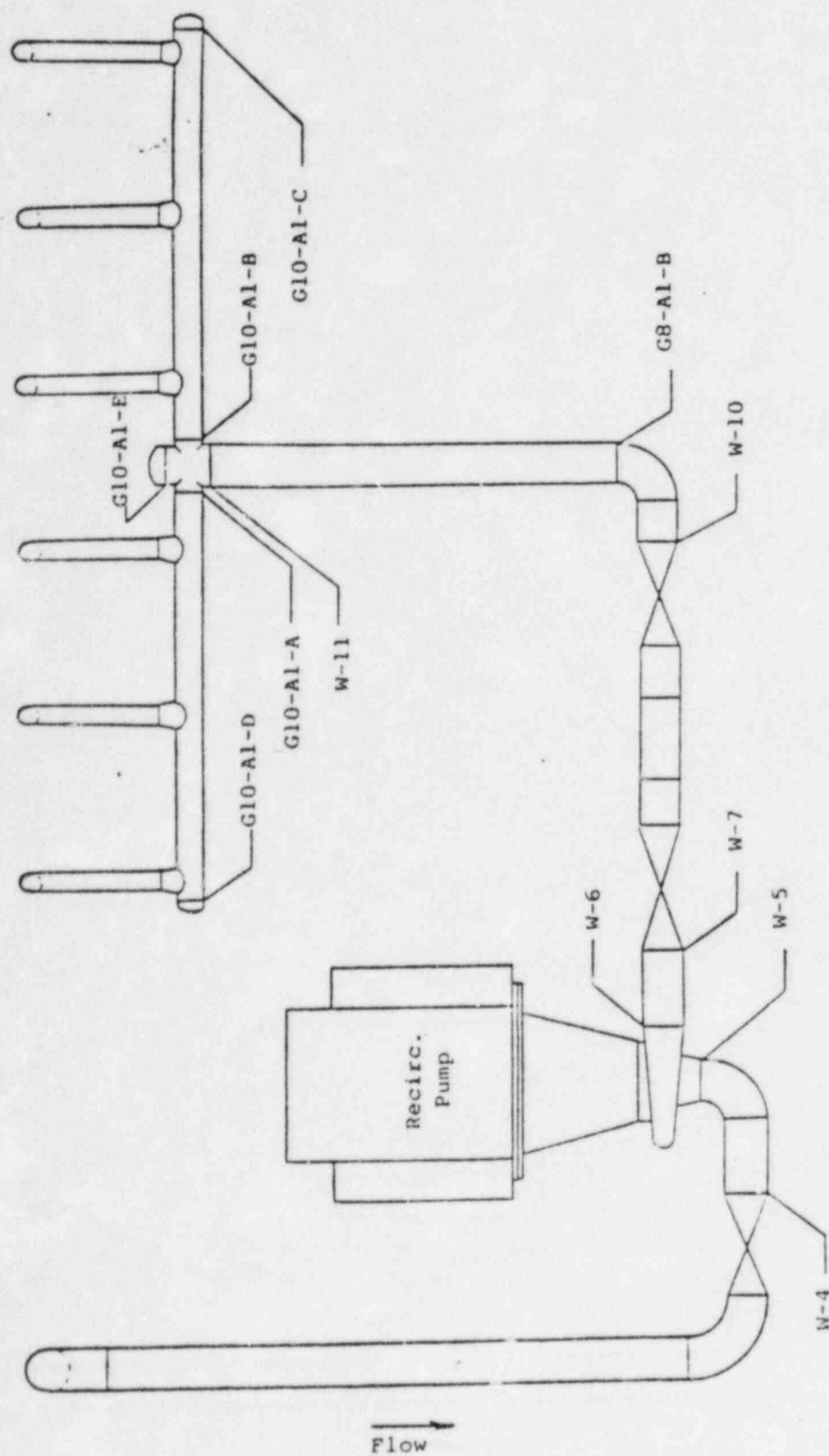
NRC Action Item 5:

For crack evaluation and repair criteria, see Attachment 2 (to Generic Letter 84-11).

MP&L Response to 5:

GGNS crack evaluations and repair will comply with the requirements of paragraph 2, "Staff Acceptance Criteria," of Attachment 2.

MP&L's current commitment to comply with the Summer 1979 Addenda of ASME Code Section XI will be amended to invoke Paragraph IWB-3640 for evaluation procedures and acceptance criteria for flaws in austenitic piping, as referenced in Attachment 2. This code paragraph was added in the Winter 1983 Addenda of the 1983 Edition of ASME Section XI.



IHSI WELD IDENTIFICATION LOOP A

RECIRCULATING PIPING