



MISSISSIPPI POWER & LIGHT COMPANY

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P. O. BOX 1640, JACKSON, MISSISSIPPI 39205

PRODUCTION DEPARTMENT

November 3, 1978

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

Attention: Mr. Harold R. Denton, Director

Dear Sir:

SUBJECT: Grand Gulf Nuclear Station
Units 1 and 2
Docket Nos. 50-416 and 50-417
File 0260/0277/L-860.0/L-952.0/
1078/M-189.0
Preservice Inspection to ASME
Section XI
AECM-78/77

Mississippi Power & Light Co. is formulating the details of the preservice inspection (PSI) program for the Grand Gulf Nuclear Power Station Units 1 and 2. Piping preservice examinations are expected to begin in the last quarter of 1978.

As previously committed to your Dr. W. R. Butler in our letter AECM-76/36, dated July 26, 1976, Mississippi Power & Light Co. has contracted with General Electric Company's Installation and Service Engineering Division for preservice and inservice inspection of the Grand Gulf Nuclear Station Units 1 and 2. The examinations will be in accordance with the requirements of 10CFR Part 50 (including the latest revision to 50.55a (g) and Section XI of the ASME Boiler and Pressure Vessel Code, 1974 Edition, including the 1974 Summer and Winter Addenda and the errata to the 1974 Edition and Summer 1974 Addenda as published in the Summer 1975 Addenda, and the Summer 1975 Addenda.

In addition, your approval is now being requested to utilize Appendix III ("UT Examination Method for Class 1 and 2 Piping Systems Made from Ferritic Steels") of the Winter 1975 Addenda to Section XI for the Grand Gulf Units 1 and 2 piping inspections, except, as our procedures require, we will record indications that exceed 50% of the reference level. This coincides with recent discussions between the NRC and the ASME Section Code Committee and recent NRC proposed modifications to IWA-2232(b) of ASME Section XI. This Appendix additionally provides positive and definitive UT techniques and procedures which are not available in the Summer of 1975 Addenda.

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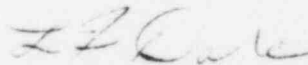
Furthermore, the recent changes to ASME and NRC requirements for exempting Class 1 and 2 piping from volumetric examinations are of primary concern. As a result, the specific application of exemptions currently permitted by Addenda thru the Summer 1975 for preservice examination are also being submitted for your early review and approval. Attachment A describes the basic preservice examinations as applicable to ASME Class 1 and 2 components.

Attachment B, along with the necessary Piping and Instrument Diagrams (P&ID's), describes the actual boundaries for the exemptions per IWC-1220 of the Code for Class 2 components. Class 1 systems are not shown since 100% of the welds greater than one (1) inch nominal pipe size are examined during the preservice examination.

As specified in the Grand Gulf FSAR Subsections 3.9.6, 5.2.4, and 6.6.1, the plans and schedules for inservice inspection as provided for in the MP&L/GE contract and Section XI of the ASME Code will be completed and filed with enforcement and regulatory authorities having jurisdiction at the plant site. The procedures, GE Quality Assurance Manual, and other documents necessary to commence the site preservice examination work will be generated as needed and incorporated into the overall inspection plan.

We would appreciate your response by November 15, 1978. Please contact me if you require further information.

Yours truly,



for J. P. McGaughy, Jr.
Director of Power Production

FMK/dwe

Enclosures: 1) Attachment A: Preservice Examination of Class 1 & 2 Components
2) Attachment B: Specific Class 2 Exemptions per IWC-1220
3) Piping & Instrument Diagrams to Supplement Attachment B
4) System Flow Diagrams to Supplement Attachment B

cc: Mr. R. B. McGehee (w/o attach)
Mr. T. B. Conner (w/o attach)

Dr. Ernst Volgenau, Director
Division of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

PRESERVICE EXAMINATION OF CLASS 1 AND 2 COMPONENTS

The preservice inspection of Class 1 and 2 components shall be made, insofar as practical, prior to system hydrostatic testing using shop and field examinations per IWB/IWC-2100 (ASME Section XI).

Piping system welds (shop and field) requiring subsequent volumetric examinations will be ultrasonically (manually) examined on site by qualified NDE personnel on a continuing basis as construction progresses. In addition, these NDE personnel will provide inputs to construction such that hindrances to inservice inspection activities will be minimized in the as-built plant.

Per IWB-2100, all Class 1 piping and components larger than 1 inch nominal pipe size will be examined per the detailed examinations listed in Tables IWB-2500 and IWB-2600. This would be essentially 100% of the pressure retaining welds for the preservice examination requirement of Class 1 components.

Per IWC-2100, Class 2 components not exempted from subsequent inservice inspections by IWC-1220 will be subjected to the detailed examinations listed in Tables IWC-2520 and IWC-2600. This would provide the preservice inspection requirements for these Class 2 components. Portions of systems subject to this examination include the main steam and feed water lines in the Auxiliary Building, the steam supply to the RCIC turbine, the Control Rod Drive System (scram discharge headers), and portions of lines carrying steam to the RHR heat exchangers.

Attachment B along with the necessary Piping and Instrumentation Diagrams (P&ID's) are submitted for your review as our intended course of action on applying the exemptions allowed for Class 2 components in accordance with IWC-1220 of the Code. To be consistent with the recent NRC proposed modifications to 10CFR, the maximum operating pressures and temperatures will be utilized.

We recognize that none of the above exemptions would apply to any Class 2 piping or components penetrating containment in the pipe break exclusion regions delineated in the Branch Technical Position MEB-3-1 on pipe break. These would be examined in accordance with the Nuclear Regulatory Commission's (NRC) Standard Review Plan (SRP) Section 3.6.1.

All of the Class 2 components to which exemption IWC-1220(c) was applied are carbon steel material. Periodic sampling will be in accordance with approved plant chemistry procedures and will comply with the applicable technical specifications. In addition, these components are operationally tested, periodically, in accordance with Sub-Sections IWV and IWP of the Code. This provides added system integrity assurance in the form of an operational readiness test.

However, because of recent discussions between the ASME Section XI Committee and the NRC, nondestructive examinations will be conducted even in the exclusion areas of IWC-1220(c) delineated in Attachment B for the Residual Heat Removal, and Emergency Core Cooling Systems as follows:

- (1) 10% of the number of welds in portions of the above systems.
- (2) The welds to be examined shall be 100% of the terminal ends of pipe at vessel nozzles, with the remainder of the 10% selected proportionally from the following:

- (a) Circumferential welds at locations where loadings due to Normal and Upset conditions would result in stress levels calculated to exceed the value $0.8 (1.2 S_h + S_A)$ when determined by the sum of equations (9) and (10) in paragraph NC-3652 of Section III of the ASME Code.
 - (b) Dissimilar metal welds.
 - (c) Welds which cannot be pressure tested in accordance with IWC-5000.
 - (d) A sufficient number of additional welds at structural discontinuities.
- (3) The welds to be examined shall be distributed approximately equally among runs (or portions of runs) that are essentially similar in design, size, system function, and service conditions.

SPECIFIC CLASS 2 EXEMPTIONS PER IWC-1220

- A. Make Up Water Treatment System, P&ID M-0033B.
(1) IWC-1220(d) will be applied to all Class 2 lines since 4 inch nominal pipe size is the largest shown.
- B. Domestic Water System, P&ID M-0034B.
(1) There are no Class 1 or 2 components in this system.
- C. Fire Protection System, P&ID's M-0035B, C, and E.
(1) Same as (B) (1).
- D. Auxiliary Steam System, P&ID M-0036B.
(1) Same as (B) (1).
- E. Standby Service Water System, P&ID's M-1061A, B, and C.
(1) Same as (B) (1).
- F. Standby Service Water System, P&ID M-1061D.
(1) IWC-2110 (c) will be applied to the only Class 2 line on this drawing, 18" GBB-17 from F094-B to the RHR system on P&ID M-1085A. This coincides with application of IWC-1220 (c) on M-1085A.
- G. Component Cooling Water System, P&ID M-1063A.
(1) Same as (B) (1).
- H. Component Cooling Water System, P&ID M-1063B.
(1) IWC-1220 (a) will be applied to the small amount of Class 2 components on this drawing where it is used between containment and auxiliary building and between dry well and containment. The lines are low pressure and temperature lines, 10" HBB-38, 10" HBB-35, 8" HBB-36 and 8" HBB-37.
- I. Condensate and Refueling Water Storage and Transfer System, P&ID M-1065.
(1) IWC-1220 (a) will be applied to the Class 2 components on this drawing because of their low pressure and temperature. The lines are 20" HCB-9 from F021 to 18 X 20 reducer to F001-C on P&ID M-1086 (See M-1086) and 6" HBB-34 from F075 to F004. Also 6" HCB-8 from where it connects to 20" HCB-9 to F010-A on P&ID M-1083A (See P&ID M-1083A).
(2) IWC-1220(d) will be applied to HBB-187.
- J. Instrument Air System, P&ID's M-1067A and B.
(1) This is not a fluid system and as such, is not specifically addressed by the present Code.

K. Service Air System, P&ID M-1068A

- (1) This is not a fluid system and as such, is not specifically addressed by the present Code.

L. Standby Diesel Generator System, P&ID's M-1070A and M-1070B.

- (1) Same as (B) (1).

M. Plant Service Water System

- (1) M-1072A, Same as (B) (1).
- (2) M-1072B, IWC-1220 (a) will be applied to 5" HBB-39 and 5" HBB-40 between the two 4 X 5 reducers, 5" HBB-42, again, between two 4 X 5 reducers and 5" HBB-41 between two 4 X 5 reducers. IWC-1220 (d) will be applied to the remainder of Class 2 components on this drawing because of their size.

N. Nuclear Boiler System

- (1) M-1077A & B, the only exemption application to be used on these drawings would be IWC-1220 (d) for the Class 2 components 4 inch nominal pipe size and smaller.
- (2) M-1077C, has no Class 2 components and will be the same as (B) (1).

O. Reactor Recirculation System, P&ID M-1078A & B

- (1) Same as (N) (1) above.

P. Reactor Water Clean-up System, M-1079.

- (1) IWC-1220 (b) will be applied to 6" EBB-1 from F028-B to F034A.
- (2) IWC-1220 (d) will be applied to all Class 2 components on this drawing 4 inch nominal pipe size and smaller.

Q. Filter Demineralizer System (RWCU).

- (1) M-1080A, same as (B) (1).
- (2) M-1080B, IWC-1220 (d) will be applied to all Class 2 components on this drawing 4 inch nominal pipe size and smaller.

R. Control Rod Drive Hydraulic System, P&ID's M-1081A and B

- (1) The only exemption application intended for this drawing would be IWC-1220 (d) for Class 2 components 4 inch nominal pipe size and smaller.

S. Standby Liquid Control System, P&ID M-1082

- (1) Same as (R) (1).

T. Reactor Core Isolation Cooling System, P&ID 1083A

- (1) IWC-1220 (a) will be applied to 6" HBB-49, suction line from Condensate and Refueling Water Storage and Transfer System to closed F010-A, 6" HBB-57 from F010A to connection with 6" HBB-52 from RHR System and 20" HBB-53 from 6" HCB-8 from condensate system to F010A.

(2) IWC-1220 (b) will be applied to 16" and 20" HBB-53 from RCIC pump turbine system (from 1083-B) to suppression pool, and 6" DBB-44, discharge from RCIC cooling pump to 6" DBB-51 and 6" DBB-51 to F013A.

(3) IWC-1220 (d) will be applied to all Class 2 lines 4 inch nominal pipe size and smaller.

U. Reactor Core Isolation Cooling System, P&ID-1083B.

(1) IWC-1220 (b) will be applied to 16" HBB-61 piping between rupture discs on RCIC turbine exhaust, and 6" DBB-57 from F045 A to 6 X 4 reducer and 8" HBB-53 from RCIC turbine to 8 X 16 reducer and 16" HBB-53 from reducer to rupture disc and line to P&ID 1083A.

(2) IWC-1220 (d) will be applied to all Class 2 lines 4 inch nominal pipe size and smaller.

V. Residual Heat Removal System, P&ID 1085A.

(1) IWC-1220 (a) will be applied to; 24" HBB-74 thru reducer/20" HBB-74 thru reducer/24" GBB-62 to suction of RHR pump C002CB - 18" GBB-63 from F066C to 24" GBB-62. 24" HBB-73 thru reducer/20" HBB-73 to F004B-B.

10" HBB-79 from reducer off PSV F055 to suppression pool.

6" HBB-78 from PSV F036 to suppression pool.

18" HBB-76 from F024B-B to suppression pool. 14" HBB-75 &

18" HBB-75 from F021-B to suppression pool.

8" GBB-98 from 18" GBB-118 to 8 X 4 reducer.

8" & 6" GBB-118 from 18" GBB-118.

18" GBB-99 from F028B to 8 X 18 reducer.

8" GBB-100 from 8 X 18 reducer.

RHR pump C002C-B.

18" GBB-58 from discharge of RHR pump C002CB to 12 X 18 reducer.

12" GBB-58 from 12 X 18 reducer to F242-B.

14" GBB-61 from connection with 18" GBB-58 to F021-B.

(2) IWC-1220 (c) will be applied to the following:

12" GBB-120 from 14" GBB-81 connection to F037B-B.

14" GBB-81 from connection to 18" GBB-81 to F042B-B.

18" GBB-81 from 18" GBB-118 to 14" GBB-81, to 12" GBB-120 to 18 X 20 reducer off RHR heat exchanger.

18" GBB-118 to F028BB.

20" GBB-81 from 18 X 20 reducer to RHR heat exchanger B002B. RHR heat exchanger B002B.

20" GBB-78 from heat exchanger B001B to 18 X 20 reducer.

18" GBB-78 from 18 X 20 reducer to other 18 X 20 reducer.

20" GBB-78 from 18 X 20 reducer to RHR heat exchanger B001B.

RHR heat exchanger B001B.

20" line from heat exchanger thru 18 X 20 reducer and 18" GBB-74 from reducer to RHR pump C002B-B discharge.

RHR pump C002B-B.

24" GBB-73 from F004B-B to suction of RHR pump C002B-B.

18" GBB-32 from 18 X 20 reducer on P&ID M-1085B to connection with 24" GBB-73.

18" GBB-107 from F066B to connection with 24" GBB-73.

12" GBB-86 from connection with 18" GBB-81 to F050B.

12" GBB-131 from connection with 18" GBB-58 to F001 on P&ID M-1099.

6" GBB-84 from connection with 18" GBB-81 to F023A.

14" GBB-96 from connection with 18" GBB-81 to F099B.

18" GBB-89 from connection with 18" GBB-81 to F024B-B.

18" GBB-75 from connection with 18" GBB-74 to connection with 18" GBB-81.

18" GBB-76 from connection with 18" GBB-74 to F087B-B.

6" GBB-92 from connection with 18" GBB-76 to PSV F055.

18" GBB-17 from connection with 18" GBB-81 to F094-B on P&ID M-1061D.

8" DBB-87 from F087B-B to F052B-B.

8" DBB-70 from connection with 8" DBB-87 to PV F-51.

18" GBB-77 from PV F-51 to connection with 18" GBB-76.

- (3) IWC-1220 (d) will be applied to all Class 2 lines 4 inch nominal pipe size and smaller.

W. Residual Heat Removal System, P&ID 1085B.

- (1) IWC-1220 (a) will be applied to the following:

18" GBB-52 from F028A-A to 8 X 18 reducer.

8" GBB-55 from 8 X 18 reducer to end of line.

8" GBB-53 from connection with 18" GBB-52 to 4 X 8 reducer.

8" GBB-54 from connection with 18" GBB-52 to 6 X 8 reducer.

6" GBB-54 from 6 X 8 reduce to end of line.

18" HBB-82 from F024A-A to suppression pool.

- 24" HBB-81 from strainer to 20 X 24 reducer.
- 20" HBB-81 from 20 X 24 reducer to F004A-A.
- 10" HBB-84 from 8 X 10 reducer to suppression pool.
- 8" HBB-84 from PSV F-55 to 8 X 10 reducer.
- (2) Sub-Article IWC-1220 (c) will be applied to the following:
 - 18" GBB-52 from its connection with 18" GBB-20 to F028A-A.
 - 12" GBB-115 from its connection with 18" GBB-52 to F037A-A.
 - 14" GBB-20 from its connection with 18" GBB-20 to F042A-A.
 - 14" GBB-46 from its connection with 18" GBB-20, through a 14 X 18 reducer, to F099A.
 - 18" GBB-20 from the 18 X 20 reducer near the heat exchanger B002A outlet to its connection with 18" GBB-51 and 14" GBB-20, and 18" GBB-52.
 - 12" GBB-114 to F053A-A.
 - 12" DBB-72 to F050 A.
 - 18" GBB-21 from its connection with 18" GBB-18 to its connection with 18" GBB-20.
 - 18" GBB-18 from the discharge of RHR pump C002A-A to the 18 X 20 reducer on top of heat exchanger B001A.
 - 18" GBB-51 from its connection with 18" GBB-20 to F024A-A, 20" GBB-31 from F008A to both 18 X 20 reducers.
 - 18" GBB-31 from 18 X 20 reducer to its connection with 24" GBB-30.
 - 18" GBB-33 from F066A to its connection with 24" GBB-30.
 - 24" GBB-30 from F004A-A to RHR pump suction C002A-A.
 - RHR pump "A" C002A-A.
 - 20" line on top of RHR heat exchanger B001A to 18 X 20 reducer.
 - RHR heat exchanger B001A.
 - 18" GBB-22 from its connection with 18" GBB-18 to F087A-A.
 - 8" DBB-87 from F087A-A to F052A-A.
 - 18" GBB-23 from PV F051 to its connection with 18" GBB-22.
 - 8" DBB-69 from PV F051 to its connection with 8" DBB-87.
 - 6" GBB-43 from its connection with 18" GBB-22 to PSV F055.
 - 20" GBB-18 from heat exchanger B001A to 18 X 20 reducer.
 - 18" GBB-19 from 18 X 20 reducer to other 18 X 20 reducer on top of heat exchanger B002A.

20" GBB-19 from heat exchanger B002A to 18 X 20 reducer B002A RHR
heat exchanger, 20" GBB-20 from heat exchanger B002A to 18 X 20 reducer.

- (3) Sub-Article IWC-1220 (d) will be applied to all Class 2 lines on this drawing 4 inch nominal pipe size and smaller.

X. High Pressure Core Spray System, P&ID M-1086.

- (1) IWC-1220 (a) will be applied to the following:

24" HBB-21 from strainers in suppression pool to 20 X 24 reducer.

20" HBB-21 from reducer to F015C.

24" HBB-21 from F015C to where it connects to 24" HBB-19.

18" HCB-1 from 18 X 20 reducer on P&ID M-1065 to F001C.

18" HBB-19 from F001C to 18 X 24 reducer.

24" HBB-19 from reducer to suction side of High Pressure Core Spray pump.

12" HBB-32 from F023C to 12 X 14 reducer.

14" HBB-32 from reducer to suppression pool.

- (2) IWC-1220 (c) will be applied to the following:

16" DBB-8 from the discharge of HPCS pump to 12 X 16 reducer and a 14 X 16 reducer, including HPCS pump.

14" DBB-16 from 14 X 16 reducer of 16" DBB-8 line to 12 X 14 reducer.

12" DBB-16 from reducer to F023C.

10" DBB-18 from where it connects to 14" DBB-16 to F011C.

12" DBB-8 from 12 X 16 reducer to F004C.

- (3) IWC-1220 (d) will be applied to all Class 2 lines on this drawing 4 inch nominal pipe size and smaller.

Y. Low Pressure Core Spray System, P&ID M-1087.

- (1) IWC-1220 (a) will be applied to the following:

24" HBB-8 from strainers in suppression pool to 20 X 24 reducer.

20" HBB-8 from reducer to F001A.

24" HBB-8 from F001A to suction of LPCS pump.

14" HBB-9 from F012A to suppression pool.

18" HBB-14 from F036 to where it connects with 24" HBB-8.

- (2) IWC-1220 (c) will be applied to the following:

14" and 16" GBB-7 from LPCS pump discharge to F005A.

LPCS pump C001A.

14" GBB-14 from F-12A to where it connects to 16" GBB-7.

- (3) IWC-1220 (d) will be applied to all Class 2 lines on this drawing 4 inch nominal pipe size and smaller.
- Z. Fuel Pool Cooling and Cleanup System, P&ID's M-1088A, B, C, and D.
- (1) M-1088A and C, IWC-1220 (a) will be applied to 12" HBB-4, 8" HBB-6 and 8" HBB-7 and IWC-1220 (d) to 3/4" HBB-126. These are the only Class 2 component areas on these drawings.
- (2) M-1088B and D, Same as (B) (1).
- AA. Leak Detection System P&ID's M-1090A and B.
- (1) Same as (N) (1).
- BB. Combustible Gas Control System, P&ID M-1091.
- (1) This is not a fluid system and as such, is not specifically addressed by the present Code.
- CC. HPCS Diesel Generator System, P&ID M-1093.
- (1) Same as (B) (1).
- DD. Floor and Equipment Drains System, P&ID M-1094A, B, and C.
- (1) M-1094A, same as (R) (1).
- (2) M-1094B, IWC-1220 (a) will be applied to the only two Class 2 component areas, 6" HBB-102 from F067 to F068 and 6" HBB-101 from F061 to F062, IWC-1220 (d) will be applied to the two small 3/4" lines in these same areas.
- (3) M-1094C, same as (B) (1).
- EE. Suppression Pool Make-Up System, P&ID M-1096.
- (1) IWC-1220 (a) will be applied to 30" HCB-26 and 30" HBB-162.
- (2) IWC-1220 (d) will be applied to all piping 4" nominal pipe size and smaller.
- FF. Main Steam Isolation Valve Leakage Control System, P&ID M-1097.
- (1) IWC-1220 (b) will be applied to 6" HBB-176.
- (2) IWC-1220 (d) will be applied to lines 4 inch nominal pipe size and smaller.
- GG. Suppression Pool CleanUp System, P&ID M-1099
- (1) IWC-1220 (a) will be applied to 12" GBB-131, 12" GBB-143.
- (2) IWC-1220 (d) will be applied to Class 2 piping 4 inch nominal pipe size and smaller.
- HH. Containment Cooling System, P&ID M-1100A & B
- (1) This is not a fluid system and as such, is not specifically covered by the present Code.

II. Plant Chilled Water System, P&ID's M-1109A & D.

(1) M-1109A, same as (B) (1).

(2) M-1109D, same as (R) (1).

JJ. Containment Leakage Rate Test System, P&ID M-1111A

(1) This is not a fluid system and as such, is not specifically covered by the present Code.