

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

JUL 28 1989

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of)
Tennessee Valley Authority)

Docket Nos. 50-390
50-391

WATTS BAR NUCLEAR PLANT (WBN) - APPLICATION OF LATER VERSIONS OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME), SECTION III, REQUEST FOR REVIEW AND APPROVAL

This is an update of the information previously provided on the application of later versions of the American Society of Mechanical Engineers (ASME) code at WBN in TVA letters to NRC dated August 21, 1987, and March 6, 1989. In these letters the process specifications specifically identified in Enclosure 1 reflect requirements from code versions later than the code of record (ASME Section III, 1971 Edition through and including Summer 1973 Addenda). TVA evaluated these specifications and their applications for compliance with the ASME Code of Record, including those which could be interpreted to be less restrictive.

This issue was discussed in detail with NRC during the welding team inspection conducted at WBN April 25 through May 19, 1989. Enclosure 2 reflects the results of those discussions by providing revised technical justification, as necessary, for the evaluation of the 21 process specifications.

This letter does not contain any new commitments. As previously committed, the Final Safety Analysis Report (FSAR) will be revised to address the use of later versions of the code.

In accordance with 10 CFR 50.55a, your review and approval is requested for the use of later code provisions which are less restrictive than the code of record, as identified in Enclosure 2. If there are any questions, please telephone G. R. Ashley at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

M. J. Ray Jr.
Manager, Nuclear Licensing
and Regulatory Affairs

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Enclosures
cc: See page 2

U.S. Nuclear Regulatory Commission

JUL 28 1989

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ENCLOSURE 1

PROCESS SPECIFICATIONS REVIEWED

Process Specification

Title

1.M.1.2 (R5)

General Welding Procedure
Specification for ASME and ANSI

Detail Weld Procedures

GT-SM11-0-2A, Rev 1
GT-SM11-0-3B, Rev 8
GT-SM13-0-2, Rev 0
GT-SM88-0-1A, Rev 5
GT-SM88-0-2, Rev 3
GT11-0-1A, Rev 8
GT88-0-1, Rev 6

1.M.3.1 (R7)

Specification for Welding Material
Control for Nuclear Power Plants

2.M.1.1 (R4) with Addendum 1
and Appendices A and B

Specification for Post Weld Heat
Treatment for ASME and ANSI

3.M.1.1 (R4) with Addenda 1
and 2 and Appendices A to G

Liquid Penetrant Examination
Color Contrast Method

3.M.2.1 (R3) with Appendices
A, B, and C

Dry Magnetic Particle
Examination of Welds and Weld
Edge Preparations

3.M.3.1 (R3) with Addenda
1, 2, and 3, and with
attachments 1 and 2

Radiographic Examination of Welded
Joints

3.M.5.1 (R6) with Addendum 1,
and with Appendices A, B,
C, and D

Examination of Weld Ends, Fit-Up,
and Dimensional Examination of
Weld Joints

3.M.7.1 (R3) with Appendices
A to E

Ultrasonic Examination of Weld
Joints

3.M.9.1 (R6) with Appendix
A and Addendum 1

Hydrostatic Testing of Piping
Systems

3.M.11.1 (R1) with Appendices
A and B

Pressure Bubble Leak Test

3.M.12.1 (R3)

Pneumatic Testing of Piping
Systems

Process Specification

Title

4.M.1.1 (R10) with Addenda 1, 2, 3, 4, and 5	Material Fabrication and Handling Requirements - Austenitic Stainless Steel
4.M.1.2 (R0) with Addendum 1	Control of Microbiologically Induced Corrosion in Nuclear Power Plants
4.M.2.1 (R7) with Addenda 1-7 and attachments A, B (R3), and C with Appendix A	Bending and Alignment of Pipe and Tubing
4.M.3.1 (R1) with Appendix A	Specification for Arc Strike Removal for ASME and ANSI
4.M.3.2 (R0)	Specification for Location of Weld Metal Interfaces
4.M.4.1 (R4) with Addenda 1, 2, and 3 with Appendices A and B	Surface Cleanliness of Austenitic Stainless Steel Piping and Components
4.M.5.1 (R4)	Elimination and Repair of Base Material Defects for ASME and ANSI
5.M.1.1 (R7) with Appendix A	Thickness Measurement
5.M.1.2 (R1) with Appendix A	Specification for Wall Thickness Measurement with the DM-2 Portable Digital Ultrasonic Thickness Gauge

ENCLOSURE 2

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
CODE APPLICATION FOR WELDING PROCESS SPECIFICATIONS
FROM TVA'S GENERAL CONSTRUCTION SPECIFICATION G-29
WHICH WILL BE USED IN WBN SAFETY-RELATED WELD PROGRAM

The 21 process specifications addressed in this enclosure are from the latest issued revision and addenda of G-29, dated July 28, 1987. These process specifications were reviewed against the requirements of the WBN Code of Record (ASME, Section III, 1971 Edition through and including Summer 1973 Addenda). When these process specifications use provisions of a later date, code, or a code case which is less restrictive than the code of record, the provisions have been identified, compared against the code of record, and appropriate technical discussion presented. Several of the process specifications are not derived from the ASME code but are included to encompass WBN's unit 1 safety-related weld program.

The evaluations of each specific provision of the process specification reflect earlier discussions with NRC.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 1.M.1.2(R5)

page 1 of 1

Title General Welding Procedure Specification for ASME and ANSI

Date of Specification: 5/22/87

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. Areas from which temporary attachments have been removed from Class 3 components are not required to be examined by the liquid penetrant or magnetic particle method (ND 4231.2, 1974).

Similar provision in
Summer 1973 Addenda

Areas from which temporary attachments have been removed from Class 3 components are required to be examined by the liquid penetrant or magnetic particle method (NB 4231.2; invoked by reference from ND-4110).

Used at specification paragraph 11.5.

Technical Discussion - The Code Committee in the winter 1973 addenda to Section III has stated this was an editorial change. The later Code provision makes the examination requirements for removal of temporary attachments consistent with the requirements for installation of permanent attachments for Class 3 fabrication.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

Specific Provision

2. For repairs to welds in which excavation of the defect removes the full thickness of the weld, the area prepared for repair welding is not required to be examined by the magnetic particle or liquid penetrant method when the back side of the weld is inaccessible for removal of examination materials (NB,NC/ND 4453.1, Summer 1983 Addenda).

Similar provision in
Summer 1973 Addenda

The excavated area in a weld requiring repair is required to be examined by the magnetic particle or liquid penetrant method. (NB-4452: Also invoked by reference from NC, ND-4110.)

Used at specification paragraph 17.4.4(c).

Technical Discussion - The later Code provision recognizes the undesirability of introducing examination material contamination to the inside of components where it cannot be removed.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions of the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Detail Weld Procedures (1) GT-SM11-0-2A, R1, (2) GT-SM11-0-3B, R8, (3) GT-SM13-0-2, R0, _____ page 1 of 1
(4) GT-SM88-0-1A, R5, (5) GT-SM88-0-2, R3, (6) GT11-0-1A, R8, (7) GT88-0-1, R6

The Detail Weld Procedures use specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. For items (1) and (3) only: 1974 Section IX, QW203 provides for welding procedure qualification in any position to qualify for all-position production welds except for qualifications involving impact tests which require qualification in the vertical position with upward progression.

Similar provision in

Summer 1973 Addenda

ASME Code, Section IX (Q-3) requires welding procedure qualification tests to be performed in several specified positions to qualify for all-position production welds.

Technical Discussion - A redevelopment of Section IX in 1974 reflected a change in philosophy regarding those welding variables essential to developing the desired mechanical properties (procedure qualification) and those essential to depositing sound weld metal (performance qualification). Welding position, except as affecting impact test properties, was made essential only to performance qualification.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.7.1 (R3) Appendices A to E

page 1 of 2

Title Ultrasonic Examination of Weld Joints

Date of Specification - January 24, 1985

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1974 Edition NB, NC, ND-5112. All nondestructive examination performed under this subsection shall be executed in accordance with detailed written procedures which have been proven by actual demonstration to the satisfaction of the Inspector.

Similar provision in
Summer 1973 Addenda

Each Manufacturer shall certify that the procedure is in accordance with the requirements of IX-3400 and shall make the procedure available to the Inspector for approval upon request (IX-3480).

Used at specification paragraph - N/A.

Technical Discussion - All ASME Section III, Division 1 work is required to be certified to comply with Section III (see NA-3640). A separate detail in the certification that it complies with a specific subparagraph of Section III does not enhance the certification process. Certification of compliance with the requirements of Section III includes certification with Appendix IX of Section III.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.7.1 (R3) Appendices A to E

page 2 of 2

Title Ultrasonic Examination of Weld Joints

Date of Specification - January 24, 1985

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1974 Edition NB, NC, ND-5112 requirements to meet Section V, T-535.1. When calibrating equipment and when using electronic distance-amplitude correction, "The primary reference response shall be equalized at 50 percent of full CRT screen height."

Similar provision in
Summer 1973 Addenda

Appendix IX-3451.1. When calibrating equipment and when using electronic distance-amplitude correction, "The primary reference shall be equalized at 75 percent full screen height."

Used at specification paragraph 6.3.

Technical Discussion - Percent of full screen height does not affect the procedure's effectiveness.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specification provisions of the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.9.1 (R6) with Addendum 1 and Appendix A

page 1 of 5

Title Specification for Hydrostatic Testing of Piping Systems

Date of Specification: 6/26/85

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. Summer 1981 Addenda, NX-6211, requires venting during filling for hydrostatic test to minimize air pockets.

Similar provision in
Summer 1973 Addenda

Requires vents at all high points to purge air pockets during filling (NB-6211).

Used at specification paragraph 2.6.

Technical Discussion - The Summer 1981 Addenda requires venting rather than requiring vents at high points to minimize air pockets.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

Specific Provision

2. Summer 1980 Addenda, NX-6211, requires methods to minimize air pockets. These are vents at high points, flushing the piping, or providing calculations to show that entrapped air is dissolved at the conditions of the hydrostatic test.

Similar provision in
Summer 1973 Addenda

Requires vents at all high points to purge air pockets during filling (NX-6211).

Used at specification paragraph 2.6.

Technical Discussion - The Summer 1980 Addenda requirements reflect the fact that absolute removal of air pockets is practically impossible and that there are several methods of adequately ensuring that air pockets are minimized.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.9.1 (R6) with Addendum 1 and Appendix A

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Title Specification for Hydrostatic Testing of Piping Systems

Date of Specification: 6/26/85

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

3. 1977 Edition, Summer 1978 Addenda, permits open-ended spray systems to be hydrostatically tested with spray nozzle attachment connections plugged and without testing the nozzles and any connections beyond the run connecting (NB, NC, ND-6128).

Similar provision in

Summer 1973 Addenda

All components shall be hydrostatically tested (NB-6111 also invoked by NC/ND-6000).

Used at specification paragraph 2.10

Technical Discussion - The purpose of spray nozzles is to discharge fluid. Hydrostatic testing for leak tightness would appear to be inconsistent. The revision is a change in the technical requirements of the extent of hydrostatic testing.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

Specific Provision

4. Code Case N-237-2 does not require hydrostatic test of open-ended Class 2 or Class 3 piping within Class 2 or Class 3 vessels or tanks or into the gaseous atmosphere of Class MC vessels.

Similar provision in

Summer 1973 Addenda

All components shall be hydrostatically tested (NB-6111 invoked by NC/ND-6000).

Used at specification paragraph 2.14.

Technical Discussion - The functions of the piping are to deliver and discharge fluids into the vessel or tank. Hydrostatic testing for leak tightness would appear to be inconsistent with these functions within the vessel or tank.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.9.1 (R6) with Addendum 1 and Appendix A

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Title Specification for Hydrostatic Testing of Piping Systems

Date of Specification: 6/26/85

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

5. Code Case N-241 contains provisions to not hydrostatically test Class 2 or Class 3 discharge piping in containment suppression pools.

Similar provision in
Summer 1973 Addenda

All components shall be hydrostatically tested (NB-6111 invoked by NC, ND-6000).

Used at specification paragraph 2.12.

Technical Discussion - The purpose of discharge piping is to discharge fluids. Hydrostatic testing for leak tightness is inconsistent with this purpose.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

Specific Provision

6. Code Case N-240 permits open-ended Class 2 and Class 3 piping whose only function is to transport fluids to ponds, lakes, reservoirs, or tanks open to the atmosphere to be exempted from hydrostatic testing.

Similar provision in
Summer 1973 Addenda

All components shall be hydrostatically tested (NB-6111 invoked by NC, ND-6000).

Used at specification paragraph 2.13.

Technical Discussion - The only function of the piping is to discharge fluid into an open container. Hydrostatic testing for leak tightness is inconsistent with this function.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.9.1 (R6) with Addendum 1 and Appendix A

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Title Specification for Hydrostatic Testing of Piping Systems

Date of Specification: 6/26/85

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

7. 1977 Edition, Winter 1978 Addenda, NC-6129 permits nondestructive examination of welds and a longer duration hydrostatic test without a drop in pressure to be substituted for examination of the outside surface of embedded or inaccessible Class 2 piping during hydrostatic testing.

Similar provision in
Summer 1973 Addenda

Examination for leakage during hydrostatic testing shall be made of all joints, connections, and of all regions of high stress (NB-6215 invoked by NC-6000).

Used at specification paragraph 2.11.

Technical Discussion - Either method would appear to demonstrate that the piping does not leak.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

Specific Provision

8. Code Case N-32, Revision 4, permits non-destructive examination of welds and a longer duration hydrostatic test without a drop in pressure to be substituted for examination of the outside surface of embedded or inaccessible Class 3 piping during hydrostatic testing.

Similar provision in
Summer 1973 Addenda

Examination for leakage during hydrostatic testing shall be made of all joints, connections, and of all regions of high stress (NB-6215 invoked by ND-6000).

Used at specification paragraph 2.11.

Technical Discussion - Either method would appear to demonstrate that the piping does not leak.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.9.1 (R6) with Addendum 1 and Appendix A

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Title Specification for Hydrostatic Testing of Piping Systems

Date of Specification: 6/26/85

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Provision of Process Specification

9. The process specification provides a tolerance on "equal to" which ensures the pressure during examination is at least at the "equal to" pressure and may be slightly greater.

Similar provision in
Summer 1973 Addenda

Following the application of the hydrostatic test pressure for a minimum of ten minutes, examination for leakage shall be at a pressure equal to the greater of the design pressure or three-fourths of the test pressure (NB-6215 also invoked by NC,ND-6000).

Used at specification paragraph 6.5

Technical Discussion - From an engineering standpoint, the tolerance is a definition of "equal to" and implements the requirement. Exactly "equal to" is not feasible or desired.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

Specific Provision

10. 1980 Edition with Winter 1981 Addenda NB, NC, ND-4436 permits limited welding of attachments to a piping system after it has been hydrostatically tested provided that: (and four provisions follow).

Similar provision in
Summer 1973 Addenda

All components shall be hydrostatically tested. (After completion of all welding.) (NB-6111 also invoked by NC,ND-6000.)

Used at specification paragraph 7.1.5.

Technical Discussion - The permitted, limited welding of attachments to the outside piping would not appear to affect its leak tightness as demonstrated by hydrostatic test. This Code provision was first required after Summer 1973 when reanalysis and resupporting of piping became commonplace in the nuclear industry.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.11.1 (R1) with Appendix A and Appendix B

page 1 of 1

Title Pressure Bubble Leak Test

Date of Specification: 2/23/83

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision
None.

Similar provision in
Summer 1973 Addenda

Use at specification paragraph - N/A.

Technical Discussion - The ASME Section III 1971 edition with addenda through and including the summer 1973 addenda contains no specific provision for the pressure bubble leak test.

All requirements of the process specification meet or exceed the specific provisions within 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 4.M.3.2(R0)

page 1 of 1

Title Specification for Location of Weld Metal Interfaces

Date of Specification: 3/4/85

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. None

Similar provision in

Summer 1973 Addenda

None

Used at specification paragraph - N/A.

Technical Discussion - This specification contains technical requirements not addressed by the Code.

All requirements of the process specification meet or exceed the specific provisions of the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 1.M.3.1(R7)

page 1 of 1

Title Specification for Welding Materials Control for Nuclear Power Plants

Date of Specification: 1/13/83

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. None

Similar provision in
Summer 1973 Addenda

Technical Discussion - Subject specification is more detailed and restrictive than the provisions of the Code.

All requirements of the process specification meet or exceed the specific provisions of the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 2.M.1.1(R4), With Addendum 1 and Appendices A and B

page 1 of 3

Title Specification for Post Weld Heat Treatment for ASME and ANSI

Date of Specification: 11/5/86

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. Above 800°F, the rate of heating and cooling shall not exceed (NB4623, 1974 Edition).

Used at specification paragraphs 3.3.1, 3.3.2, and 3.4.1

Similar provision in
Summer 1973 Addenda

The temperature of the furnace shall not exceed 600°F at the time the part is placed in it. (NB 4623.1). The furnace heating rate above 600°F shall not exceed (NB4623.2). Above 600°F, cooling shall be done in a closed furnace or cooling chamber at a rate not greater than (NB4623.5).

Technical Discussion - The 1971 Code through Summer 1973 Addenda postweld heat treatment (PWHT) requirements were carried forward intact from the earlier 1968 nuclear vessel code. They reflect then-current practices appropriate for PWHT of large heavy wall components in a furnace. The literal requirements are not compatible with field PWHT of piping systems. A rewrite of NB-4620 in 1974 provided requirements more appropriate to field PWHT of piping welds. In addition, the materials requiring post weld heat treatment do not exhibit metallurgical transformations in the 600°F to 800°F range. This is a technically justifiable less restrictive provision.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 2.M.1.1(R4), With Addendum 1 and Appendices A and B

page 2 of 3

Title Specification for Post Weld Heat Treatment for ASME and ANSI

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

2. The minimum width of the heated band on each side of the greatest width of the weld face shall be the weld thickness or 2 inches, whichever is less (NB4624.3, 1974 Edition)

Similar provision in
Summer 1973 Addenda

The width of the heated band on each side of the greatest width of the finished weld shall not be less than 2 times the weld metal thickness (NB4624.3).

Used at specification paragraph 2.3.1

Technical Discussion - The subject process specification retains the wider minimum width of 1973 provisions while incorporating the 2-inch upper limit of the 1974 Code. It is evidently the opinion of the Boiler and Pressure Vessel Code Committee that a heated band over 2 inches beyond the side of a weld is not required for proper postweld heat treatment.

The specific provision may be either more or less restrictive than the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 2.M.1.1(R4), With Addendum 1 and Appendices A and B

page 3 of 3

Title Specification for Post Weld Heat Treatment for ASME and ANSI

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

3. Holding time for material up to 2" thickness is 1 hour per inch of thickness. For material over 2", holding time is 2 hours plus 15 minutes for each inch over 2". (Table NB4622.1-1, 1974 Edition)

Similar provision in
Summer 1973 Addenda

Holding time at PWHT temperature is specified to be 1 hour per inch of thickness (Table NB4622.1-1)

Used at specification Table 1

Technical Discussion - It is evidently the opinion of the Boiler and Pressure Vessel Committee that the time at temperature required to perform a proper postweld heat treatment is not a linear function of material thickness. PWHT of welds greater than 2" thickness has not been performed at Watts Bar Nuclear Plant.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions of the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 4.M.1.2(R0), with Addendum 1

page 1 of 1

Title Control of Microbiologically Induced Corrosion in Nuclear Power Plants

Date of Specification: 7/8/87

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. None

Similar provision in
Summer 1973 Addenda
NB-3121

Used at specification paragraph - N/A.

Technical Discussion - The specification contains technical requirements not addressed by the Code.

All requirements of the process specification meet or exceed the specific provisions of the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 4.M.5.1(R4)

page 1 of 3

Title Elimination and Repair of Base Material Defects for ASME and ANSI

Date of Specification: 8/25/86

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1974 Edition, No Addendum. NC-2578 (Castings) and ND-2578 (Castings), "Elimination of Surface Defects" may be removed provided:

- 1) Thickness not reduced below minimum required
- 2) The cavity is blended uniformly into surrounding surface.

(No liquid penetrant or magnetic particle required for Class 3 castings.)

Similar provision in
Summer 1973 Addenda

NC-2578 (Castings) and ND-2578 (Castings) reference defect elimination per NB-2578 (Class 1 Castings) which in turn references NB-2538 (Plate) which requires liquid penetrant or magnetic particle examination of defect cavity.

(Liquid penetrant or magnetic particle required for Class 3 castings.)

Used at specification paragraph 2.1.3

Technical Discussion - The Code Committee has stated this was an editorial revision. 1971 Edition, Summer 1973 Addendum, does not require liquid penetrant or magnetic particle examinations for the other product forms (plate, pipe, tube, forgings, and bars) within Class 2 or 3. The 1974 Edition brings casting examination in line with the requirements of the other product forms.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 4.M.5.1(R4)

page 2 of 3

Title Elimination and Repair of Base Material Defects for ASME and ANSI

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

2. 1974 Edition, Winter 1976 Addendum. ND-4130
Elimination and Repair of Defects. For a repair
cavity exceeding the lesser of 3/8" or 10% of
section thickness, radiography (RT) is not required
for welded repairs in material used in components
provided the welds joining these materials are not
required to be RT and weld repair does not exceed
10 in² of surface area. (No RT required of repairs
not originally requiring RT)

Similar provision in
Summer 1973 Addenda

ND-4130, Elimination and Repair of Defects references
repair per ND-2500 which requires radiography (RT) when the
repair cavity exceeds the lesser of 3/8" or 10% of section
thickness.

(RT required of all repairs in Class 3 base material.)

Used at specification paragraph 3.3.2

Technical Discussion - 1974 Edition, Winter 1976 Addendum, requires the examination of the repair of material for Class 3 construction to be consistent with the examination of the welds used to join the material.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

Process Specification 4.M.5.1(R4)

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Title Elimination and Repair of Base Material Defects for ASME and ANSI

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

2. 1974 Edition, Winter 1974 Addendum. NB-4131 (Class 1), NC-4130 (Class 2) Elimination and Repair of Defects - Weld repairs to edge preps shall be in accordance with NB, NC-5130 which require a magnetic particle (MT) or liquid penetrant (PT) examination of repairs to weld preps in materials 2" or more in thickness.
(MT or PT for weld preps in materials 2" or more in thickness.)

Similar provision in
Summer 1973 Addenda

NB-4131 (Class 1), NC-4130 (Class 2) reference NB-2500 and NC-2500, respectively, to remove, repair, and examine defects. NB-2500 and NC-2500 require that repair by welding be liquid penetrant or magnetic particle examined for all thicknesses.

(MT or PT examined for all thicknesses.)

Used at specification paragraph 5.1.2

Technical Discussion - 1971 Edition, Summer 1973 Addendum, did not recognize weld end preps as a separate entity and repairs were treated as surface defects of base material. Winter 1974 specifically incorporated weld end preps examination, recognizing the effect of defects on weld preps is different from those on the surface of base material.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.3.1(R3) with Addenda 1, 2, 3 and with Attachments 1 & 2

page 1 of 1

Title Radiographic Examination of Welded Joints

Date of Specification: 1/26/87

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1974 Edition NB, NC, ND-5112. All non-destructive examination performed under this Subsection shall be executed in accordance with detailed written procedures which have been proven by actual demonstration to the satisfaction of the Inspector.

Similar provision in
Summer 1973 Addenda

Each manufacturer shall certify that the procedure is in accordance with the requirements of IX-3300 (IX-3350).

Used at specification paragraph - N/A.

Technical Discussion - All ASME Section III, Division 1, work is required to be certified to comply with Section III (See NA-3460). A separate detail in the certification that it complies with a specific subparagraph of Section III does not enhance the certification process. Certification of compliance with the requirements of Section III includes certification with Appendix IX of Section III.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.5.1(R6) with Addendum 1 and Appendices A through D

page 1 of 1

Title Examination of Weld Ends, Fit Up and Visual and Dimensional Examination of Weld Joints

Date of Specification: 4/7/87

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1980 Edition, Summer 1981 Addenda Figure NB, NC, ND-4427-1 - The minimum size of the fillet weld in a socket welded connection shall be 1.09 times the nominal pipe or tube wall thickness.

Similar provision in Summer 1973 Addenda

The minimum size of the fillet weld in a socket welded connection shall be 1.09 times the nominal pipe wall or tube thickness but not less than 1/8 inch.

Used at specification paragraph - B.7.2.

Technical Discussion - This specific provision formerly was a Code Case. It was "the opinion of the (Boiler and Pressure Vessel Code) Committee that fillet welds smaller than 1/8 inch may be used in Section III, Division 1, construction for attaching socket welding fittings to pipe or tubing provided the size of the fillet weld . . . is not less than 1.09 times the nominal thickness of the pipe or tube." The 1/8 inch minimum is not necessary for structural integrity and cannot be achieved with thin pipe or tube.

The specific provision is less restrictive as the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 5.M.1.1(R7) with Appendix A

page 1 of 1

Title Thickness Measurement

Date of Specification: 1/24/85

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. None.

Similar provision in
Summer 1973 Addenda
NB-3511 and others

Used at specification paragraph - N/A.

The specific provision is N/A restrictive than the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification S.M.1.2(R1) with Appendix A page 1 of 1

Title Specification for Wall Thickness Measurement with the DM-2 Portable Digital Ultrasonic Thickness Gage

Date of Specification: 10/5/83

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

<u>Specific Provision</u>	<u>Similar provision in Summer 1973 Addenda</u>
1. None.	NB-3511

Used at specification paragraph - N/A.

The specific provision is N/A restrictive than the similar provision in Summer 1973 Addenda.

All requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 4.M.4.1(R4) with Addenda 1, 2, & 3 and Appendices A & B

page 1 of 1

Title Surface Cleanliness of Austenitic Stainless Steel Piping and Components

Date of Specification: 3/27/87

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. None.

Similar provision in
Summer 1973 Addenda
NB-3121

Used at specification paragraph - N/A.

Technical Discussion - This specification contains technical requirements not addressed by the Code.

All requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 4.M.2.1(R7) with Addenda 1-7 and Attachments A, B(R3), and C and Appendix A page 1 of 1

Title Bending and Alignment of Pipe and Tubing

Date of Specification: 5/8/87

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1974 Edition - NB, NC, ND-4651 requires ferritic alloy steel pipe that has been heated for bending shall receive a heat treatment in accordance with NB,NC,ND-4620 NB-4620 provides an exemption to mandatory requirements if the item was subjected to temperatures above the PWHT temperature range specified in Table NB,NC,ND-4622.3-1. NB, NC, ND-4652 provide an additional exemption.

Similar provision in
Summer 1973 Addenda

Ferritic alloy-steel pipe that has been heated for bending shall receive a heat treatment in accordance with NB-4620. . . . NB-4620 provides no exemptions (NB-4651 also invoked by NC,ND-4000).

Used in specification paragraph - N/A

Technical Discussion - This appears to be a clarification of when heat treatment is required. Ferritic alloy steel pipe has not been heated for bending at Watts Bar Nuclear Plant.

The specific provision is less restrictive as the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 4.M.3.1, Rev. 1, with Appendix A

page 1 of 1

Title Specification for Arc Strike Removal for ASME and ANSI

Date of Specification: 2/23/83

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision
None

Similar provision in
Summer 1973 Addenda
None

Used at specification paragraph - N/A

Technical Discussion - N/A

All requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.12.1 (R3)

page 1 of 1

Title Pneumatic Testing of Piping Systems

Date of Specification: 1/24/85

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1980 Edition NC,ND-6322 requires that the maximum pneumatic test pressure of Class 2 and Class 3 piping be determined as is required for hydrostatic testing. If the minimum test pressure is to be exceeded by 6%, the maximum pressure shall be established by analysis.

Similar provision in
Summer 1973 Addenda

The maximum permissible test pressure for pneumatic tests shall be determined using the stress limits specified in NB-3226, "Design by Analysis of Pressure Testing Conditions" (NB-6222 by reference from NC, ND-6110).

Used at specification paragraph 6.2.3.

Technical Discussion - The Summer 1973 Addenda requirement is that all maximum test pressures be established in the manner required for Class 1 components such as reactor vessels. The summer 1981 Addenda requires Class 2 and Class 3 maximum test pressures be established in a manner compatible with Class 2 and Class 3 design requirements.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 4.M.1.1, Rev. 10, With Addenda 1, 2, 3, 4, and 5

page 1 of 1

Title Material Fabrication and Handling Requirements - Austenitic Stainless Steel

Date of Specification: 5/7/87

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision
None used

Summer 1973 Addenda
Multiple requirements addressing storage, fabrication and handling, marking, cleaning, etc.

Used at specification paragraph - N/A

Technical Discussion - The specification also contains additional requirements not addressed by the Code.

All requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.1.1 (R4) with Addenda 1 and 2 and Appendices A-G

page 1 of 4

Title Liquid Penetrant Examination Color Contrast Method

Date of Specification: 6/30/87

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1974 Edition, NB, NC, ND-5112. All nondestructive examination performed under this Subsection shall be executed in accordance with detailed written procedures which have been proven by actual demonstration to the satisfaction of the Inspector.

Similar provision in
Summer 1973 Addenda

Each manufacturer shall certify that the procedure is in accordance with the requirements of this Section of the Code and IX-3600 (IX-3680).

Used at specification paragraph - N/A.

Technical Discussion - All ASME Section III, Division 1, work is required to be certified to comply with Section III (see NA-3460). A separate detail in the certification that it complies with a specific subparagraph of Section III does not enhance the certification process. Certification of compliance with the requirements of Section III includes certification with Appendix IX and of Section III. Certification of compliance with the requirements of Section III includes certification with Appendix IX of Section III.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.1.1 (R4) with Addenda 1 and 2 and Appendices A-G

page 2 of 4

Title Liquid Penetrant Examination Color Contrast Method

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

2. 1977 Edition, Winter 1979 Addenda, ASME Section III, 1974 Edition NB, NC, ND-5112 require the use of ASME Section V, T-660. Qualification of liquid penetrant procedures for nonstandard temperatures requires comparison of the crack detecting capability of the nonstandard technique and a standard temperature technique. This is done using a quench cracked aluminum block. One section of the block shall be examined at the standard temperature and the other section shall be examined at the nonstandard temperature. The results on the two sections are compared. Alternatively, "it is permissible to use the entire block for the standard and nonstandard temperatures and to make the comparison by photograph."

Similar provision in
Summer 1973 Addenda

IX-3662.2 "This is accomplished by . . . examining one section of the block at the proposed (nonstandard) temperature and the other section of the block at a temperature in the range of 60 to 125 F" (standard temperature).

Used at specification paragraph - Appendix F, II(c).

Technical Discussion - Either provision produces the same comparison results.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.1.1 (R4) with Addenda 1 and 2 and Appendices A-G

page 3 of 4

Title Liquid Penetrant Examination Color Contrast Method

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

<u>Specific Provision</u>	<u>Similar provision in Summer 1973 Addenda</u>
3. 1974 Edition ASME Section III, 1974 Edition NB, NC, ND-5112 require the use of ASME Section V, T-660. Qualification of liquid penetrant procedures for nonstandard temperatures requires comparison of the crack detecting capability of the nonstandard technique and a standard temperature technique. This is done using a quench cracked aluminum block. A side of the block is tested using each technique and the results are compared. "A groove may be machined across the center of each face approximately 1/16" deep and 3/64" wide or some other means should be provided to permit side-by-side comparison without interfering cross contamination between the two sides."	IX-3662.2 - "A groove shall be machined across the center of each face 1/16 inch deep and 3/64 inch wide."

Used at specification paragraph - Appendix F, I.

Technical Discussion - Either provision produces the same comparison results.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

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AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.1.1 (R4) with Addenda 1 and 2 and Appendices A-G

page 4 of 4

Title Liquid Penetrant Examination Color Contrast Method

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

<u>Specific Provision</u>	<u>Similar provision in Summer 1973 Addenda</u>
3. 1974 Edition, Winter 1974 Addenda, NB, NC, ND-5112 require the use of ASME Section V, T-630: Materials to be used for liquid penetrant examination shall be evaporated for 3 hours. They shall leave no more than 50 parts per million residue or the residue shall contain no more than 1 percent sulfur or 1 percent halogen.	Materials to be used for liquid penetrant examination shall be evaporated for 3 hours. The residue shall contain no more than 1 percent sulfur or 1 percent halogen (IX-3630).

Used at specification paragraph - 5.2.

Technical Discussion - Either provision provides sufficient corrosion protection for the components to be examined using the liquid penetrant material.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.

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AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.2.1 (R3) with Appendices A, B, and C

page 1 of 3

Title Dry Magnetic Particle Examination of Welds and Weld Edge Preparations

Date of Specification: 2/10/83

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

1. 1974 Edition, NB, NC, ND-5112. All nondestructive examination performed under this Subsection shall be executed in accordance with detailed written procedures which have been proven by actual demonstration to the satisfaction of the Inspector.

Similar provision in Summer 1973 Addenda

Each manufacturer shall certify that the procedure is in accordance with the requirements of XI-3500 and shall make the procedure available to the Inspector for approval upon request. (IX-3580)

Used at specification paragraph - N/A.

Technical Discussion - All ASME Section III, Division I, work is required to be certified to comply with Section III (see NA-3460). A separate detail in the certification that it complies with a specific subparagraph of Section III does not enhance the certification process. Certification of compliance with the requirements of Section III includes certification with Appendix IX of Section III.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

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AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.2.1 (R3) with Appendices A, B, and C

page 2 of 3

Title Dry Magnetic Particle Examination of Welds and Weld Edge Preparations

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

Specific Provision

2. 1974 Edition, NB, NC, ND-5112 requirement to meet Section V, T-731.3 and T-732.4 - The magnetizing current used to perform magnetic particle examinations shall be:
- 1) For the prod method - 90 to 110 amperes for material less than 3/4 inch thick
 - 2) For the coil method on parts with a length to diameter ratio greater than 4 - 35,000 ampere turns divided by the quantity 2 plus the length to diameter ratio.

Similar provision in Summer 1973 Addenda

The magnetizing current used to perform magnetic particle examinations shall be:

- 1) For the prod method - A minimum of 100 amperes for all material thicknesses.
- 2) For the coil method - 45,000 ampere turns divided by the length to diameter of the parts being examined.

Used at specification paragraphs - 7.1.4 and 8.2.2.

Technical Discussion - ASME Section V, "Nondestructive Examination" established magnetizing currents for the prod method based on the thickness of the material being examined. It also established maximum permitted currents. It established requirements for the coil method based on the geometry of the part being examined. These requirements were in the 1971 Edition of Section V. However, they were not required by Section III, Division I, until the 1974 Edition.

The specific provision is as restrictive as the similar provision in Summer 1973 Addenda.

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AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE SECTION III, DIVISION I
USE OF SPECIFIC PROVISIONS OF EDITIONS AND ADDENDA

Process Specification 3.M.2.1 (R3) with Appendices A, B, and C

page 3 of 3

Title Dry Magnetic Particle Examination of Welds and Weld Edge Preparations

The Process Specification uses specific provisions within the 1971 Edition with addenda through and including Summer 1973 except as noted below:

<u>Specific Provision</u>	<u>Similar provision in</u> <u>Summer 1973 Addenda</u>
3. 1977 Edition - NB, NC, ND-5342 - When evaluating the results of a magnetic particle examination of a weld, only indications with major dimensions greater than 1/16" are relevant.	When evaluating the results of a magnetic particle examination of a weld, all indications are relevant.

Used at specification paragraph - 10.1.1.3.10

Technical Discussion - The Summer 1973 Addenda requirement that all indications are relevant was unique to magnetic particle examination of welds. It did not apply to surface examinations of base materials, weld preparations, or welds by the liquid penetrant method. It did not apply to magnetic particle examination of the base materials or to weld preparations.

The specific provision is less restrictive than the similar provision in Summer 1973 Addenda.

All other requirements of the process specification meet or exceed the specific provisions within the 1971 Edition with Addenda through and including Summer 1973.