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March 5, 2002
5928-01-20355

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

**SUBJECT: THREE MILE ISLAND, UNIT 1 (TMI UNIT 1)
OPERATING LICENSE NO. DPR-50
NRC DOCKET NO. 50-289**

**TMI Unit 1 Relief Requests RR-02-19 and RR-02-20 Regarding Weld
Examinations Applicable to the Second and Third Ten Year Inservice Inspection
(ISI) Interval**

Pursuant to 10 CFR 50.55a(g)(5)(iii), the purpose of this letter is to request relief from certain code requirements regarding weld examinations performed during the second and third ten year Inservice Inspection (ISI) Intervals including examinations performed during the previous T1R14 refueling outage which ended in December 2001. Because of the configuration of certain welds, it was not possible to obtain the required examination coverage.

The third ten year ISI interval for TMI Unit 1 began on April 20, 2001. Therefore, during the T1R14 outage, third interval examinations were being performed in accordance with the ASME Code Section XI, 1995 Edition through 1996 Addenda along with deferred second interval examinations in accordance with the ASME Code Section XI 1986 Edition and augmented examinations of Reactor Vessel shell welds in accordance with the ASME Code Section XI 1989 Edition. Details of these requests are provided in the attached Relief Requests RR-02-19 and RR-02-20. These requests for relief are similar to the relief granted by the NRC for Comanche Peak in a Safety Evaluation dated January 9, 2002 and for Davis Besse in a Safety Evaluation dated June 4, 2001.

Respectfully,


Michael P. Gallagher
Director – Licensing and Regulatory Affairs
Mid-Atlantic Regional Operating Group

Attachment 1 – Relief Request No. RR-02-19
Attachment 2 – Relief Request No. RR-02-20

cc: H. J. Miller, USNRC, Regional Administrator, Region I
T. G. Colburn, USNRC, Senior Project Manager, TMI Unit 1
J. D. Orr, USNRC, Senior Resident Inspector, TMI Unit 1
File No. 01086

A047

ATTACHMENT 1

TMI Unit 1

**ASME Code Section XI Relief Request Associated with
Second Ten Year ISI Interval Class I Weld Examinations
Relief Request No. RR-02-19**

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part A: Examination of the Reactor Vessel Lower Shell to Head Circumferential Weld

I. System/Component for which Relief is Requested:

Reactor Vessel Lower Shell to Head Circumferential Weld No. RCT0001RV0015

II. Code Requirement:

ASME Code Section XI, 1989 Edition, Subsection IWB,
Examination Category B-A, Item B1.11

10 CFR 50.55a(g)(6)(ii)(A)(2) requires licensees to implement the examination requirements of the 1989 Edition of ASME Code Section XI for Reactor Vessel shell welds. Subsection IWB, Table IWB-2500-1, Examination Category B-A, Item B1.11 requires essentially 100% of the shell welds to be examined. As defined in 10 CFR 50.55a(g)(6)(ii)(A)(2), essentially 100% means more than 90% of the examination volume of each weld where the reduction in coverage is due to interference by another component, or part geometry.

III. Basis for Relief:

The location of the Reactor Vessel welds is shown in Figures 1a and 1b. Figures 2a and 2b provide drawings of the Reactor Vessel Lower Shell to Head Circumferential Weld (Weld Number RCT0001RV0015) and a plan view.

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume due to interference caused by the core support lugs and flow stabilizer remnants. Access to approximately 71% of the examination volume is restricted. The core support lugs are welded to Reactor Vessel shell just above the lower shell to head weld and extend approximately 2 inches below the centerline of the weld. The flow stabilizer remnants are located just below the lower shell to head weld. These lugs and remnants restrict the URSULA manipulator's ability to move to areas necessary to fully examine the required volume.

Due to the configuration of the Reactor Vessel, and the existing obstructions, it is impractical to meet the examination requirements of the 1989 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject weld.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The accessible area was examined with techniques that have been demonstrated and qualified in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of ASME Code Section XI, Appendix VIII, using the Performance Demonstration Initiative (PDI) protocol. These examinations were performed from both sides of the weld, scanning both parallel and perpendicular to the weld. The aggregate examination coverage of the weld and base metal areas was approximately 29% of the required examination volume; and all indications were within the ASME Code Section XI acceptance criteria.

The Reactor Vessel welds were examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume. The URSULA and ACCUSONEX system has been successfully demonstrated and qualified in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of ASME Code Section XI, Appendix VIII, using the PDI protocol.

In addition to the required ultrasonic examination, the welds attaching the core support lugs received a VT-1 examination in accordance with Table IWB-2500-1, Examination Category B-N-2, Code Item B13.50, Interior Attachment Welds Within Beltline Region. The VT-1 examination identified the structural condition of the Core Support Lug welds as acceptable, which would indicate the area of the lower shell to bottom head weld had not been subjected to any excessive loads. Also a VT-3 examination of the clad interior surfaces (category B13.10) on and adjacent to this weld was performed; and the results were found to be acceptable in accordance with the ASME Code.

This weld was examined in the first interval during the ten year Reactor Vessel examination. The examination coverage during this second interval examination is approximately the same or greater than that examined during the first interval ten year Reactor Vessel examination. No reportable indications were noted during the first interval examinations.

The Core Support Lugs were also visually examined during the first interval ten year Reactor Vessel examination. No deficiencies were noted during that examination.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

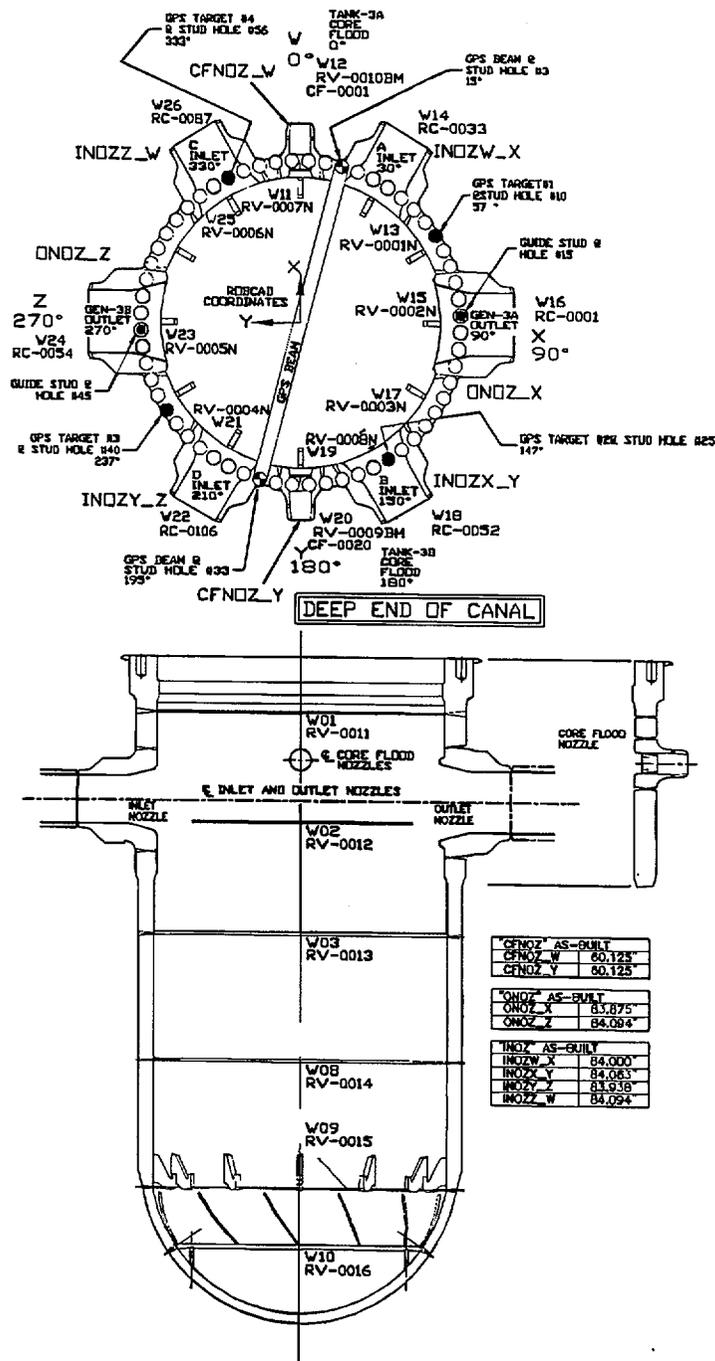
VI. Implementation Schedule:

The subject weld examination, applicable to the third period of the second ten year ISI interval, was performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

**Three Mile Island Unit 1
 Second Ten Year ISI Interval
 Request for Relief No. RR-02-19
 Examination Coverage of ASME Section XI Code Class I Welds**

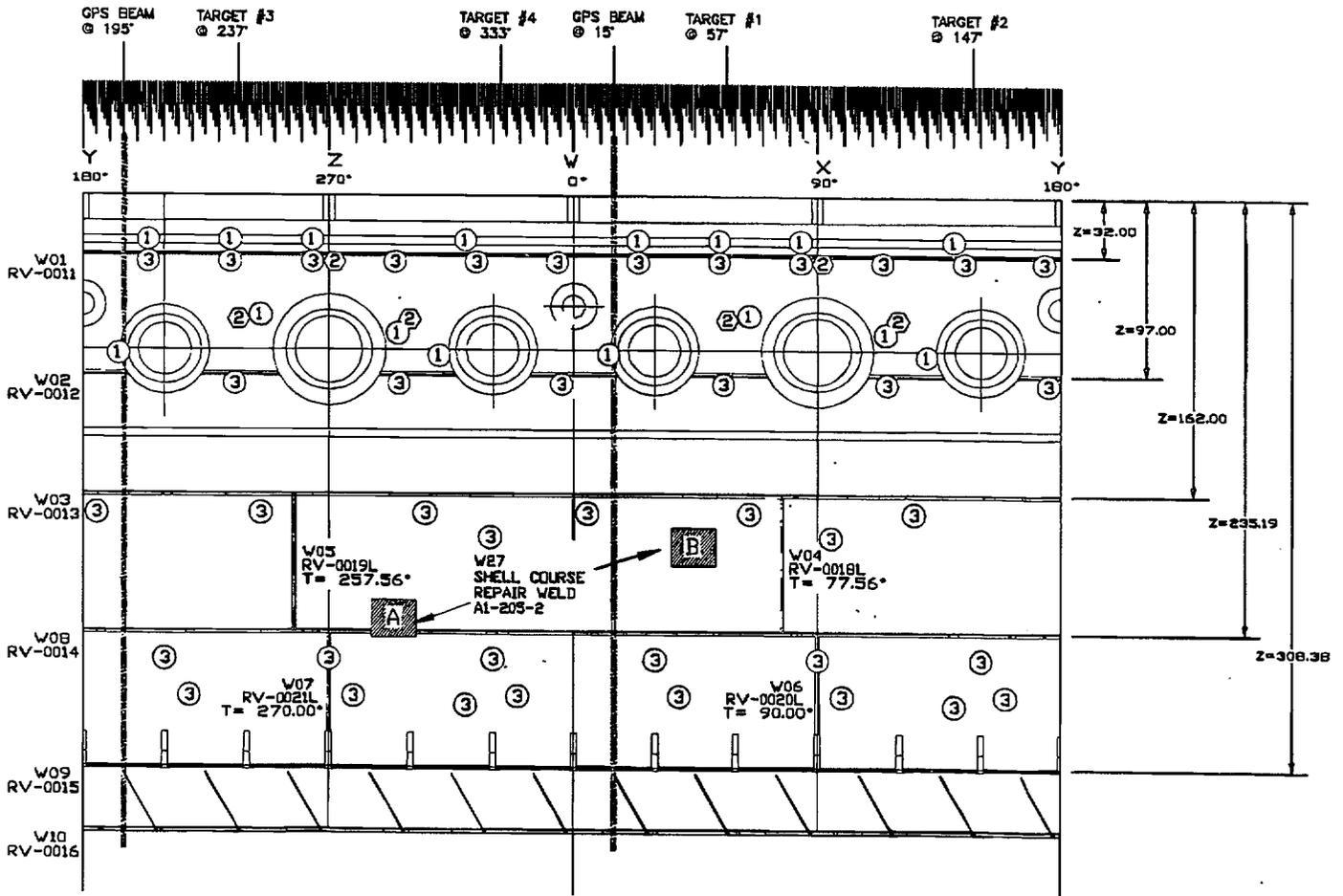
Figure 1a

RPV Plan & Section Views



Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

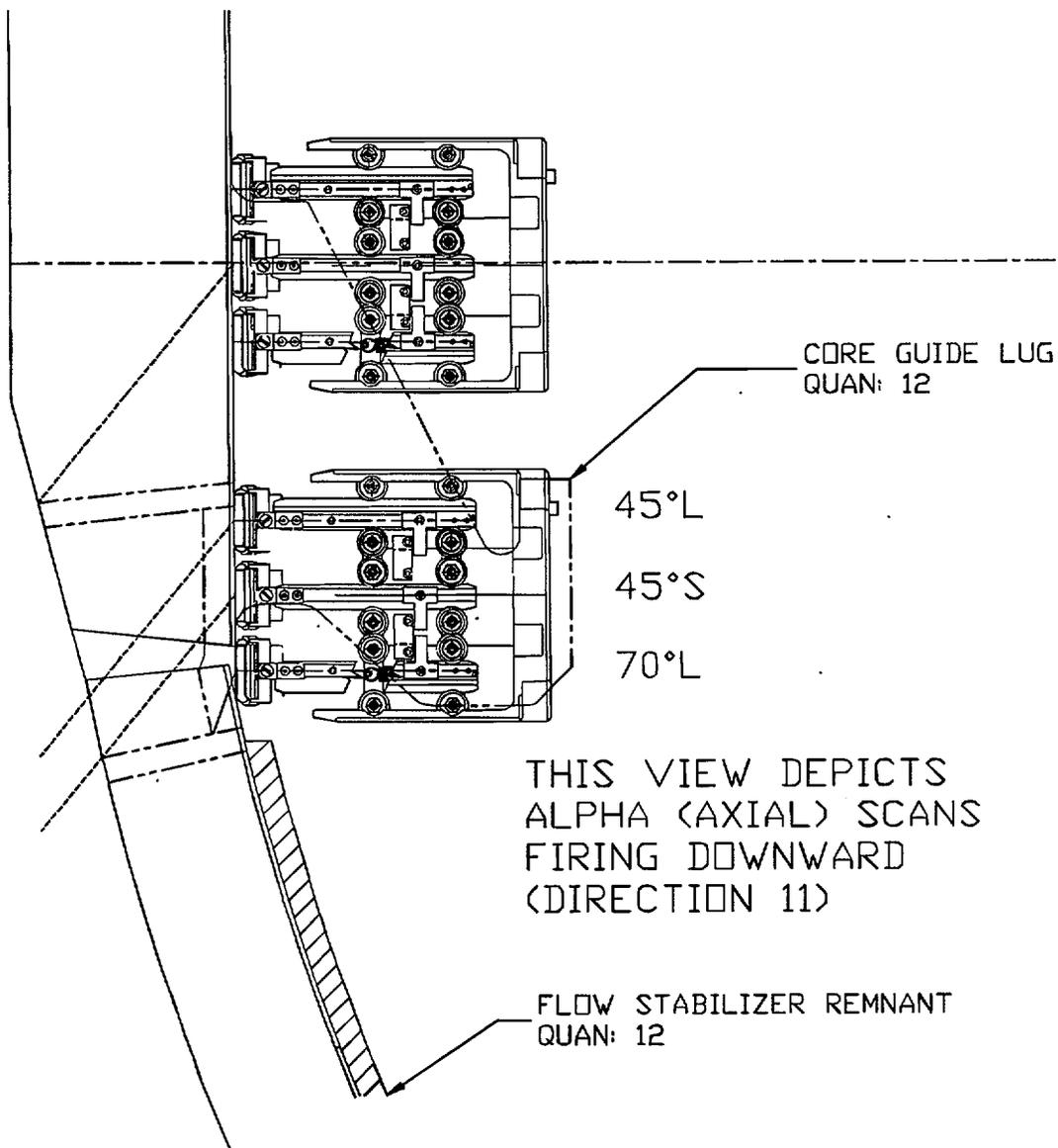
Figure 1b
RPV Layout View



Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 2a

Weld: RCT0001RV0015

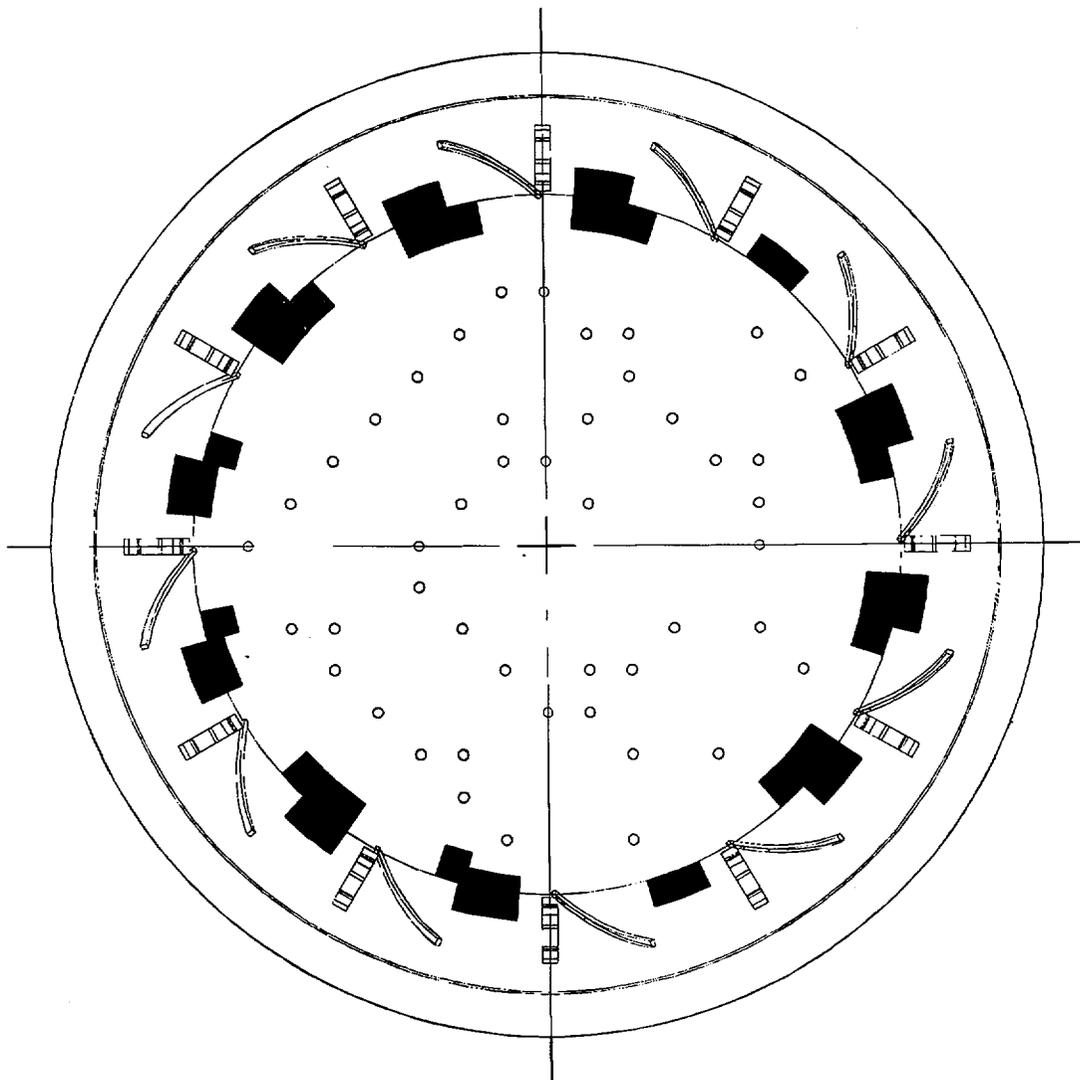


PARTIAL SCANS DUE TO GUIDE LUGS AND FLOW STABILIZER REMNANTS

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 2b

Welds: RCT0001RV0015/16 Plan View



**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part B: Examination of the Reactor Vessel Head Circumferential Weld

I. System/Component for which Relief is Requested:

Reactor Vessel Lower Head Circumferential Weld No. RCT0001RV0016

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB,
Examination Category B-A, Item B1.21

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-A, Item B1.21 requires essentially 100% of the head weld as defined by Figure IWB-2500-3 to be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

The location of the Reactor Vessel welds is shown in Figures 1a and 1b. Figure 3 provides a drawing of the Reactor Vessel Lower Head Circumferential Weld (RCT0001RV0016).

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume due to interference caused by the incore instrument nozzles, the core support lugs, and flow stabilizer remnants. Access to approximately 58% of the examination volume is restricted. The remaining 42% of the examination volume was examined with techniques which have been demonstrated and qualified in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of ASME Code Section XI, Appendix VIII, using the Performance Demonstration Initiative (PDI) protocol. These welds were examined from both sides of the weld, scanning both parallel and perpendicular to the weld. These ultrasonic examinations did not reveal any recordable or reportable flaws in accordance with the ASME Code Section XI, 1986 Edition.

This weld was examined in the first interval during the ten year Reactor Vessel examination. The examination coverage during the first interval examination is approximately the same or less than that performed during the second interval ten year Reactor Vessel examination. No indications exceeding the acceptance criteria of ASME Code Section XI were noted during the first interval examination.

Due to the configuration of the Reactor Vessel, it is impractical to meet the examination coverage requirements of the ASME Code Section XI, 1986 Edition as clarified by Code Case N-460. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject weld.

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The accessible area was examined with techniques that have been demonstrated and qualified in accordance with Supplements 4 and 6 of ASME Code Section XI, Appendix VIII using PDI protocol. These examinations were performed from both sides of the weld, scanning both parallel and perpendicular to the weld. The aggregate examination coverage of the weld and base metal areas was approximately 42% of the required examination volume.

The Reactor Vessel welds were examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume. The URSULA and ACCUSONEX system has been successfully demonstrated and qualified in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of ASME Code Section XI, Appendix VIII, using the PDI protocol.

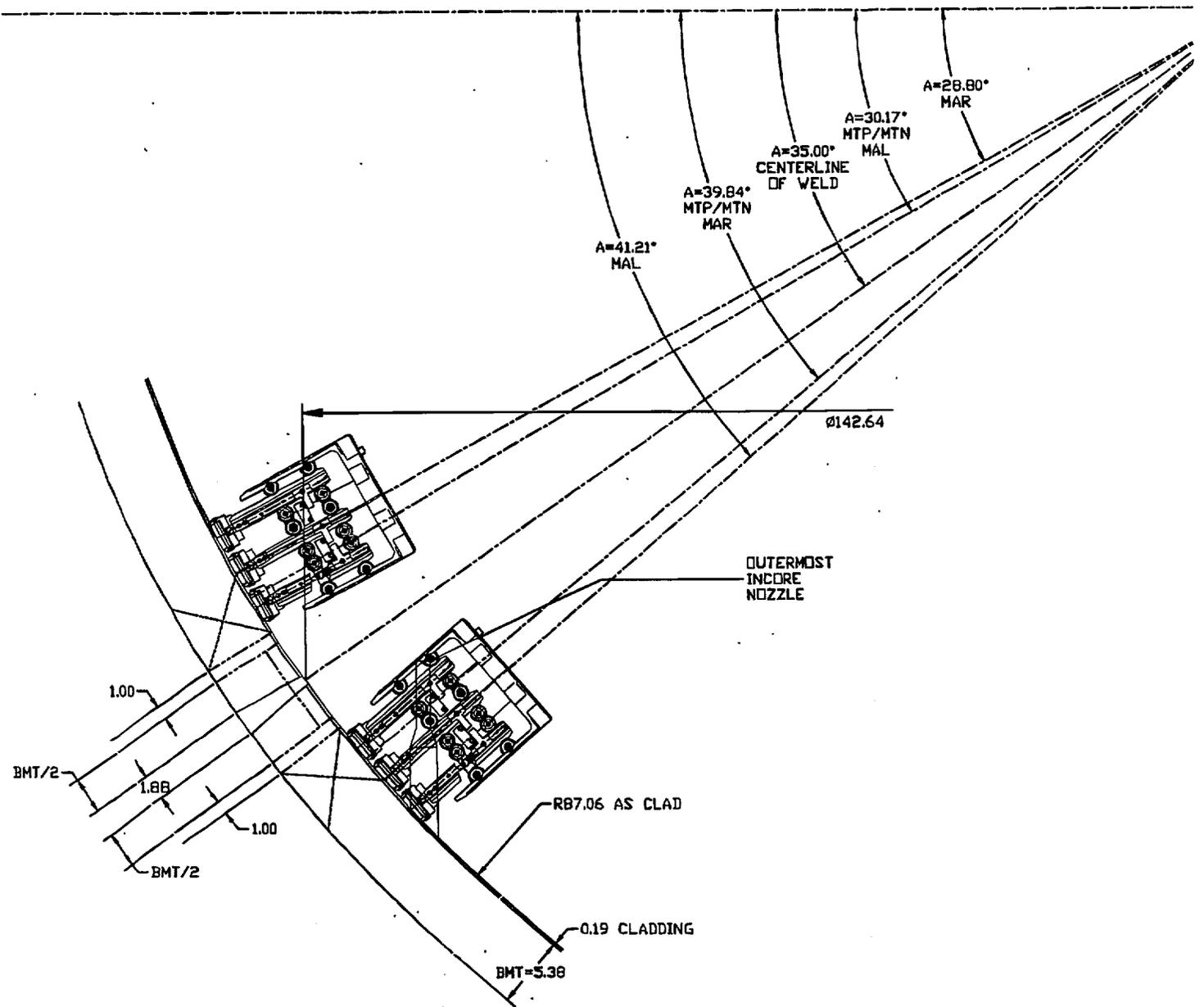
VI. Implementation Schedule:

The subject weld examination, applicable to the third period of the second ten year ISI interval, was performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 3

Weld: RCT0001RV0016



**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part C: Examination of the Reactor Vessel Shell to Shell Longitudinal Welds

I. System/Component for which Relief is Requested:

Reactor Vessel Shell to Shell Longitudinal Weld No. RCT0001RV0020L and RCT0001RV0021L)

II. Code Requirement:

ASME Code Section XI, 1989 Edition, Subsection IWB, Examination Category B-A, Item B1.12.

10 CFR 50.55a(g)(6)(ii)(A)(2) requires licensees to implement the examination requirements of the 1989 Edition of ASME Code Section XI for Reactor Vessel shell welds. Subsection IWB, Table IWB-2500-1, Examination Category B-A, Item B1.12 requires essentially 100% of the shell welds to be examined. As defined in 10 CFR 50.55a(g)(6)(ii)(A)(2), essentially 100% means more than 90% of the examination volume of each weld where the reduction in coverage is due to interference by another component, or part geometry.

III. Basis for Relief:

The location of the Reactor Vessel welds is shown in Figures 1a and 1b. Figure 4 provides a drawing of the Reactor Vessel shell longitudinal welds.

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume due to interference caused by the core support lugs. These lugs restrict the URSULA manipulator's ability to move to areas necessary to fully examine the required volume. Access to approximately 21% of the examination volume of these welds is restricted. The remaining 79% of the examination volume of these welds was examined by techniques which have been demonstrated and qualified in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of ASME Code Section XI, Appendix VIII, using the Performance Demonstration Initiative (PDI) protocol. These examinations were performed from both sides of the weld, scanning both parallel and perpendicular to the welds. These ultrasonic examinations did not reveal any recordable or reportable flaws in accordance with the ASME Code Section XI, 1989 Edition.

Due to the configuration of the Reactor Vessel, and the existing obstructions, it is impractical to meet the examination requirements of the 1989 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject welds.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The accessible areas were examined with techniques that have been demonstrated and qualified in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of ASME Code Section XI, Appendix VIII, using the PDI protocol. These examinations were performed from both sides of the weld, scanning both parallel and perpendicular to the weld. The aggregate examination coverage of the weld and base metal areas was approximately 79% of the required examination volume for each of these welds.

The Reactor Vessel welds were examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume. The URSULA and ACCUSONEX system has been successfully demonstrated and qualified in accordance with Supplements 4 and 6 of the 1995 Edition, 1996 Addenda of ASME Code Section XI, Appendix VIII, using the PDI protocol.

In addition to the required ultrasonic examination, the welds attaching the core support lugs received a VT-1 examination in accordance with Table IWB-2500-1, Examination Category B-N-2, Code Item B13.50, Interior Attachments within Beltline Region. The VT-1 examination identified the structural condition of the Core Support Lug welds as acceptable, which would indicate the areas within the shell to shell longitudinal welds had not been subjected to excessive loads.

These welds were examined in the first interval during the ten year Reactor Vessel examination. The examination coverage during the first interval examination is approximately the same or less than that examined during the second interval ten year Reactor Vessel examination. No reportable indications were noted during the first interval examinations.

The Core Support Lugs were also visually examined during the first interval ten year Reactor Vessel examination. No deficiencies were noted during this examination.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

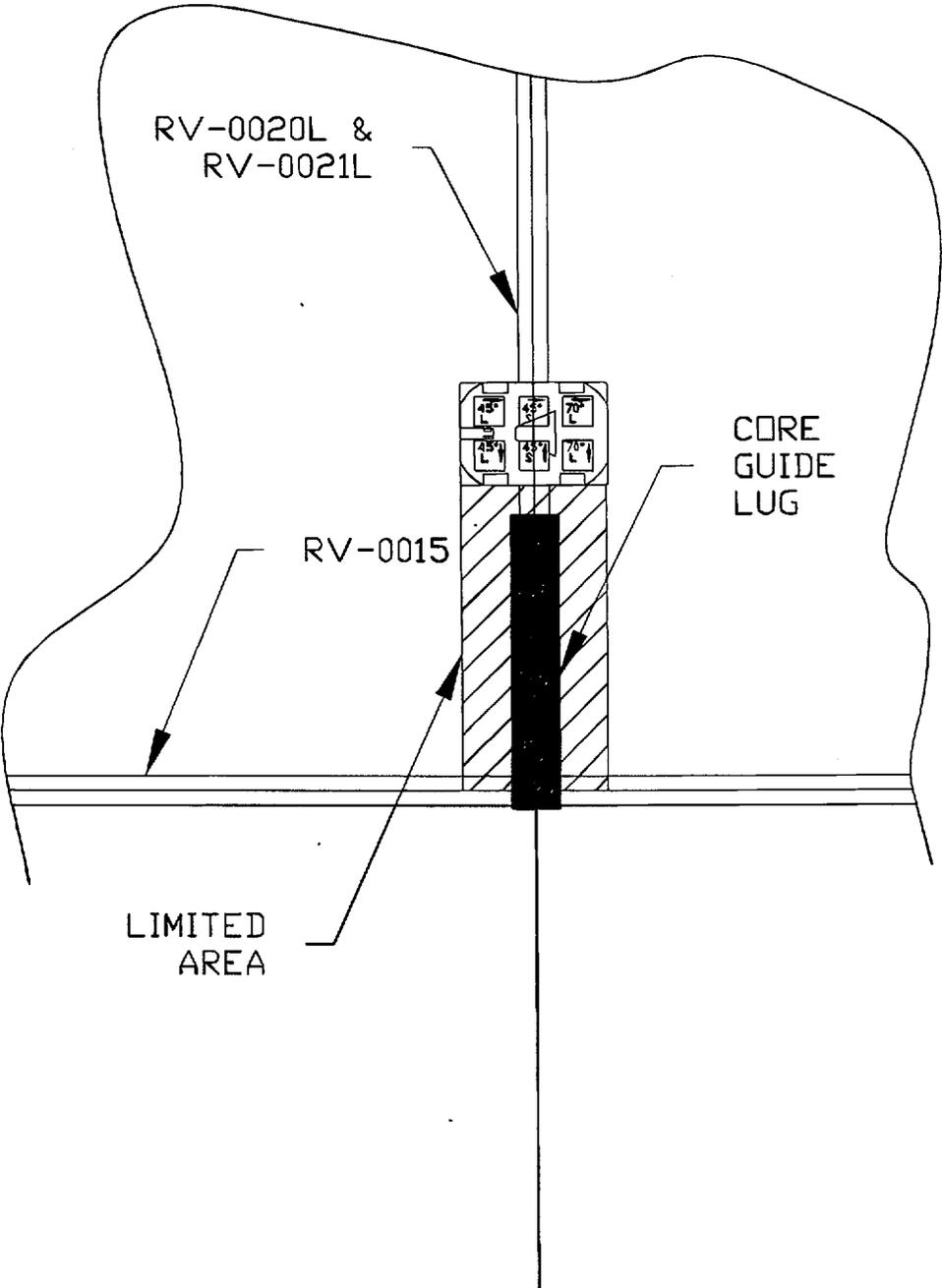
VI. Implementation Schedule:

The subject weld examinations, applicable to the third period of the second ten year ISI interval, were performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 4

Welds: RCT0001RV0020L & RCT0001RV0021L



**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part D: Examination of the Inlet Nozzle to Reactor Vessel Shell Welds

I. System/Component for which Relief is Requested:

Inlet Nozzle to Reactor Vessel Shell Welds No. RCT0001RV0001N, RCT0001RV0003N, RCT0001RV0004N, and RCT0001RV0006N

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB, Examination Category B-D, Item B3.90

The ASME Code Section XI, 1986 Edition, Subsection IWB 2500-1, Examination Category B-D, Item B3.90 for Reactor Vessel nozzle to vessel welds requires essentially 100% of the weld length as defined by Figure IWB 2500-7(b) be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

The location of the Reactor Vessel welds is shown in Figures 1a and 1b. Figures 5a and 5b provide drawings representative of the Inlet Nozzle to Reactor Vessel Shell Welds (Weld Numbers RCT0001RV0001N, RCT0001RV0003N, RCT0001RV0004N, and RCT0001RV0006N).

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume, due to the configuration of the Inlet nozzle boss. The contour of the nozzle radius (See Figures 5a and 5b) restricts the URSULA manipulator's ability to scan the weld and adjacent base material from the vessel shell. Access to approximately 20% of the examination volume from the vessel shell is restricted.

Due to the configuration of the nozzle, it is impractical to meet the examination requirements of the ASME Code Section XI 1986 Edition. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of the ultrasonic examination of the inaccessible portion of the subject welds.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The aggregate examination coverage of the weld and base metal areas was approximately 80% of the required examination volume for each of these welds. As there is no limitation for the examination from the nozzle bore, 100% of the weld is examined by at least two angles.

The Reactor Vessel welds were examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. The inlet nozzle to shell welds were examined from the shell side to the extent possible. These examinations were performed from both sides of the weld, scanning both parallel and perpendicular to the weld. The aggregate examination coverage of the weld and base metal areas was approximately 80% of the required examination volume. The requirements of the ASME Code Section XI 1986 Edition as clarified by Code Case N-460 was met for the examinations from the nozzle bore.

URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume.

These welds were examined in the first interval during the ten year Reactor Vessel examination. The examination coverage during the second ten year interval examination is approximately the same or greater than that performed during the first interval ten year Reactor Vessel examination. No indications exceeding the acceptance criteria of ASME Code Section XI were noted during this examination.

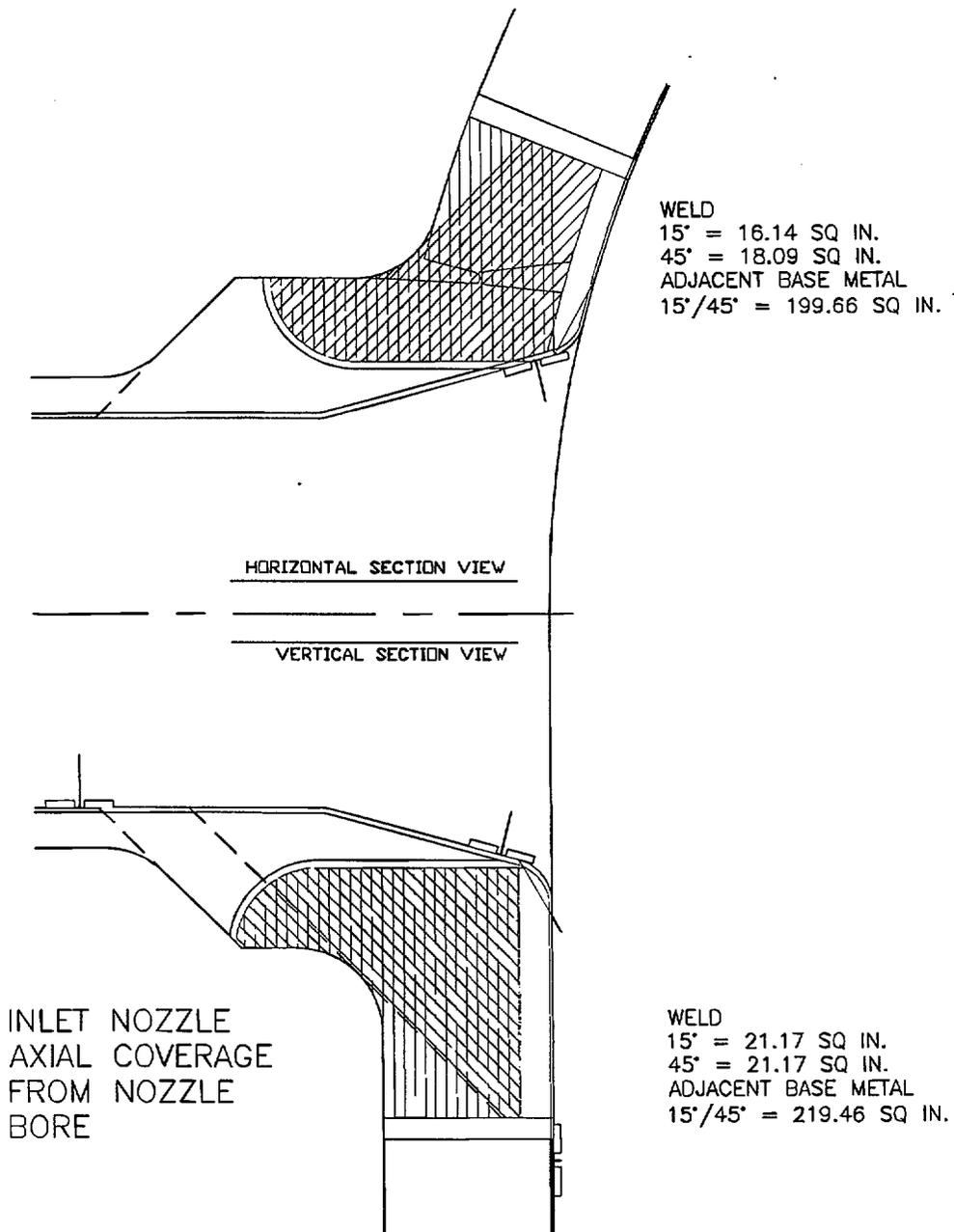
VI. Implementation Schedule:

The subject weld examinations, applicable to the third period of the second ten year ISI interval, were performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 5a

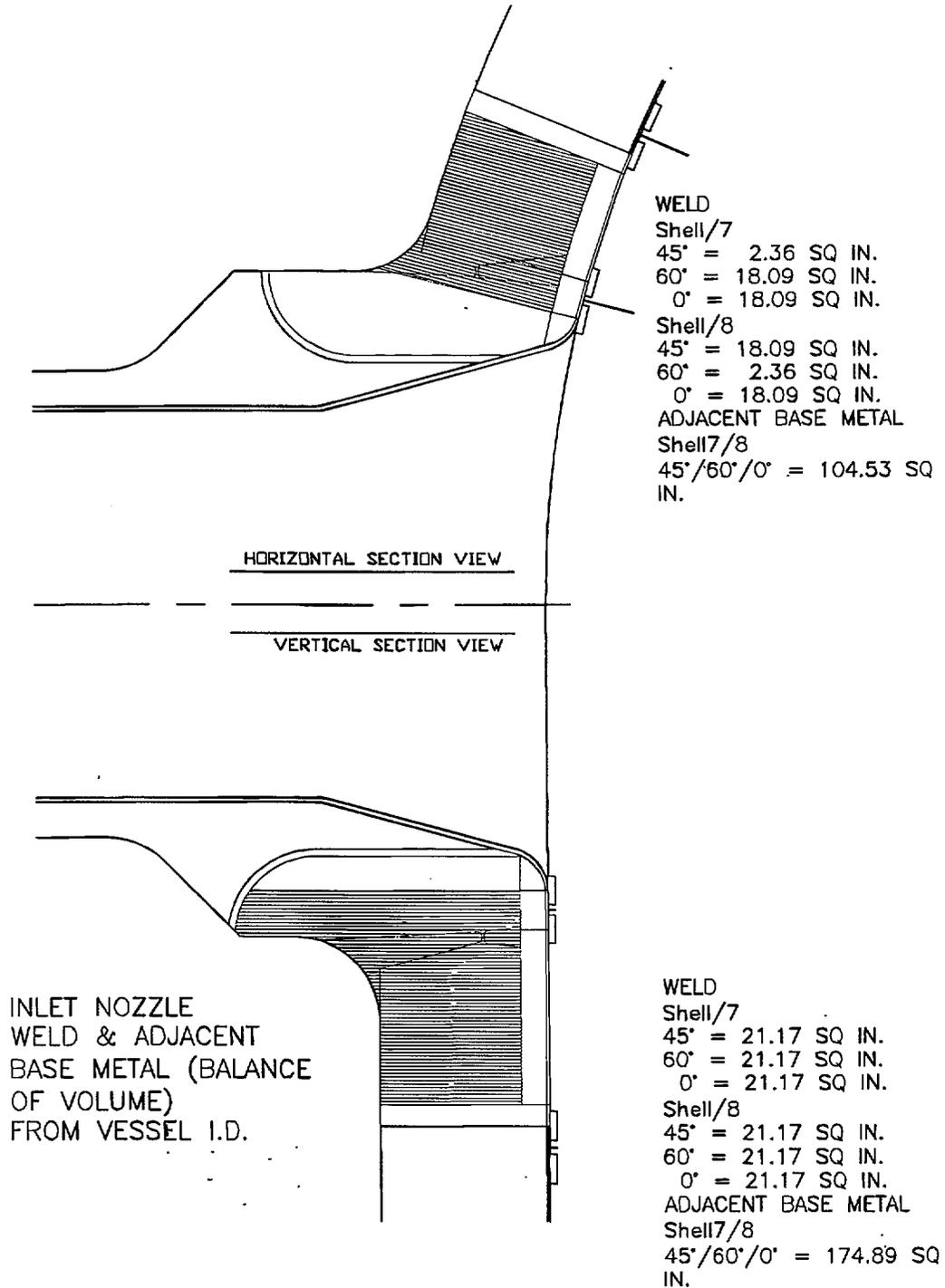
Welds: RCT0001RV0001N, 3N, 4N, & 6N



Three Mile Island Unit 1
 Second Ten Year ISI Interval
 Request for Relief No. RR-02-19
 Examination Coverage of ASME Section XI Code Class I Welds

Figure 5b

Welds: RCT0001RV0001N, 3N, 4N, & 6N



**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part E: Examination of the Core Flood Nozzle to Shell Welds

I. System/Component for which Relief is Requested:

Core Flood Nozzle to Shell Welds No. RCT0001RV0007N, and RCT0001RV0008N

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB,
Examination Category B-D, Item B3.90.

The ASME Code Section XI, 1986 Edition, Subsection IWB 2500-1, Examination Category B-D, Item B3.90 for core flood nozzle to shell welds requires essentially 100% of the weld length as defined by Figure IWB 2500-7(b) be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

The location of the Reactor Vessel welds is shown in Figures 1a and 1b. Figures 6a, 6b, 6c, and 6d provide drawings representative of the Core Flood Nozzle to Shell Welds (Weld Numbers RCT0001RV0007N, and RCT0001RV0008N).

It is not possible to obtain ultrasonic interrogation of greater than 90% of the weld volume. This is due to scan limitations caused by the flow restrictor located in the bore of the core flood nozzles, and the radius blend between the Reactor Vessel shell and the bore of the core flood nozzle. The flow restrictor is welded to the bore of the core flood nozzle and therefore is not removable. This restriction prohibits any examination of the weld from the bore of the nozzle. Access to approximately 18% of the examination volume from the vessel shell is restricted.

Due to the configuration of the nozzle, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject welds.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The core flood nozzle to shell welds were examined from the shell side to the extent possible. These examinations were performed from both sides of the weld, scanning both parallel and perpendicular to the weld. The aggregate examination coverage of the weld and base metal areas was approximately 82% of the required examination volume. The accessible 82% of the examination volume were examined from the shell side in accordance with the ASME Code Section XI, 1986 Edition.

The Reactor Vessel welds were examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume.

These welds were examined in the first interval during the ten year Reactor Vessel examination. The examination coverage during the first ten year interval examination is approximately the same or less than that performed during the second interval ten year Reactor Vessel examination. No indications exceeding the acceptance criteria of ASME Code Section XI were noted during this examination.

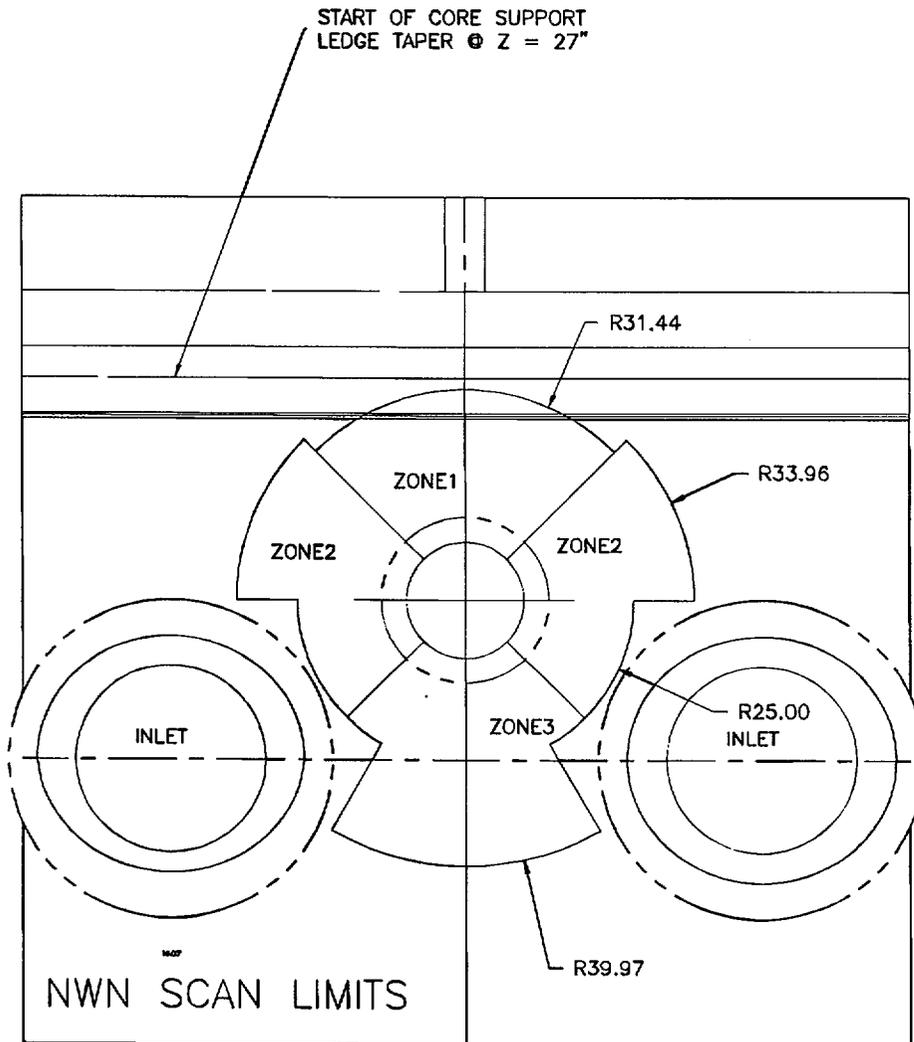
VI. Implementation Schedule:

The subject weld examinations, applicable to the third period of the second ten year ISI interval, were performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 6a

Welds: RCT0001RV0007N/NI & RCT0001RV0008N/NI

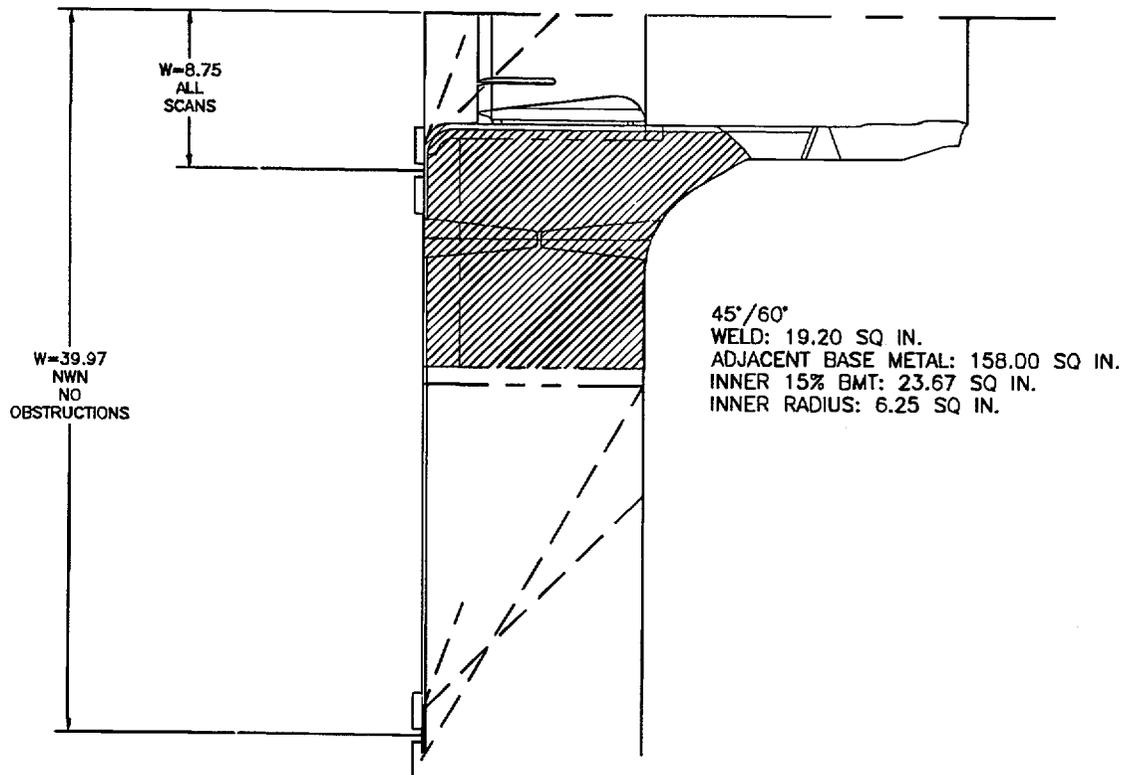


BEAM DIRECTION 1 = NWN SCANS

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 6b

Welds: RCT0001RV0007N/NI & RCT0001RV0008N/NI

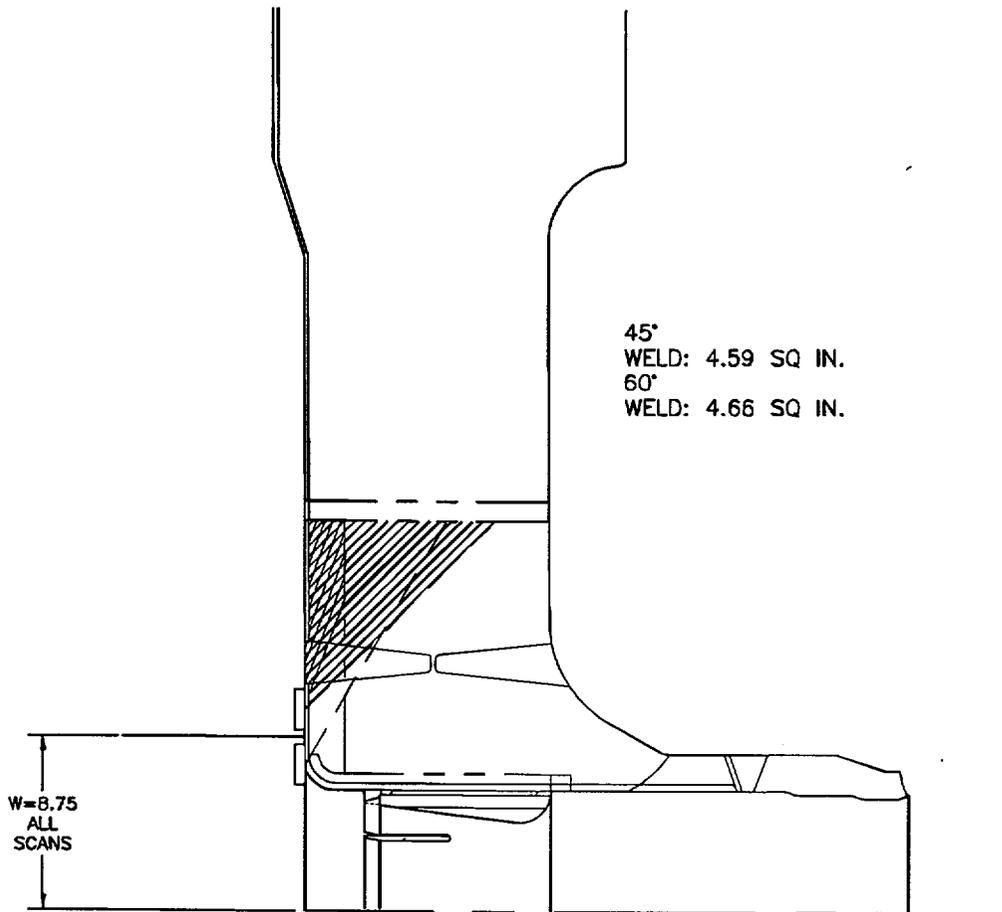


BEAM DIRECTION 1-ZONE 3
60° OF 90° (66.6% OF SCAN)

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 6c

Welds: RCT0001RV0007N/NI & RCT0001RV0008N/NI

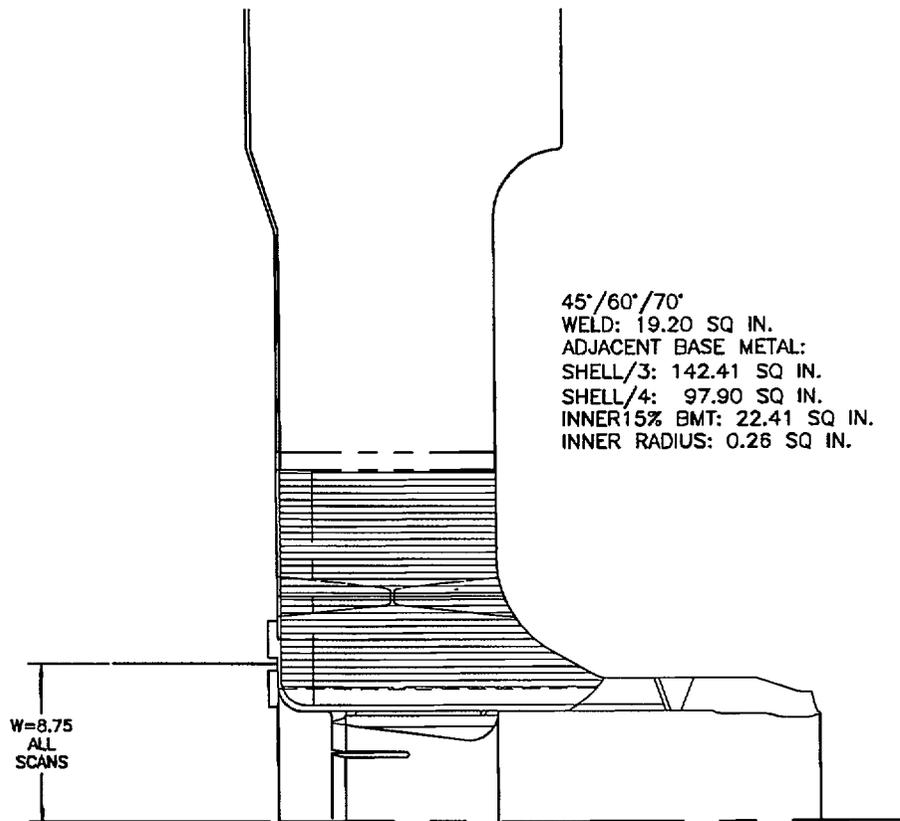


BEAM DIRECTION 2-ZONE 4

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 6d

Welds: RCT0001RV0007N/NI & RCT0001RV0008N/NI



BEAM DIRECTION 3 & 4—ZONE 5

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part F: Examination of the Core Flood Nozzle Inner Radius Sections

I. System/Component for which Relief is Requested:

Core Flood Nozzle Inner Radius Sections No. RCT0001RV0007NI and RCT0001RV0008NI

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB, Examination Category B-D, Item B3.100.

The ASME Code Section XI, 1986 Edition, Subsection IWB 2500-1, Examination Category B-D, Item B3.100 for core flood nozzle inside radius sections requires essentially 100% of the weld length as defined by Figure IWB 2500-7(b) be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

The location of the Reactor Vessel welds is shown in Figures 1a and 1b. Figures 6a and 6b provide drawing of the core flood nozzle inner radius sections (RCT0001RV0007NI, and RCT0001RV0008NI).

It is not possible to obtain ultrasonic interrogation of greater than 90% of the inner radius section volume due to scan limitations caused by the flow restrictor located in the bore of the core flood nozzle. The flow restrictor is welded to the bore of the core flood nozzle and therefore is not removable. This restriction prohibits any examination of the inner radius from the bore of the nozzle. Access to approximately 48% of the examination volume from the vessel shell is restricted for each of these welds.

Due to the configuration of the nozzle, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject welds.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The core flood nozzle inner radius sections were examined from the shell side to the extent possible. These examinations were performed from both sides of the weld, scanning both parallel and perpendicular to the weld. The aggregate examination coverage of the weld and base metal areas was approximately 52% of the required examination volume of each weld.

The remaining 52% of the examination volume was examined from the shell side in accordance with the ASME Code Section XI, 1986 Edition. No indications exceeding the acceptance criteria of ASME Code Section XI were noted during this examination.

The Reactor Vessel welds were examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume.

These welds were examined in the first interval during the ten year Reactor Vessel examination. The examination coverage during the first ten year interval examination is approximately the same or less than that performed during the second interval ten year Reactor Vessel examination. No indications exceeding the acceptance criteria of ASME Code Section XI were noted during this examination.

VI. Implementation Schedule:

The subject weld examinations, applicable to the third period of the second ten year ISI interval, were performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part G: Examination of the Core Flood Pipe to Safe End Welds

I. System/Component for which Relief is Requested:

Core Flood Pipe to Safe End Welds No. CF0001 and CF0020

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB,
Examination Category B-J, Item B9.11.

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-J, Item B9.11 for core flood pipe to safe end to weld, requires essentially 100% of the weld length as defined by Figure IWB-2500-8 be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

The location of the Reactor Vessel welds is shown in Figures 1a and 1b. Figure 7 provides a drawing of the core flood pipe to safe end welds (CF0001, and CF0020).

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume, due to configuration of the safe end and existing weld melt through in the root of the weld. The contour of the safe end (See Figure 8) restricts intimate contact (lift-off) with the surface of the transducers face 100% of the time. Access to approximately 11% (Weld Number CF0001) and 29% (Weld Number CF0020) of the examination volume from the safe end is restricted.

Due to the configuration of the safe end and the existing weld melt through, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject welds.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The core flood pipe to safe end welds were examined from both sides of the weld, scanning both parallel and perpendicular to the weld. Due to the configuration of the safe end and existing weld metal convexity in the root of the weld, the inspection from the safe end side was restricted. The aggregate examination coverage of the welds and base metal areas was approximately 89% (Weld Number CF0001) and 71% (Weld Number CF0020), of the required examination volume.

The remaining 89% (Weld Number CF0001) and 71% (Weld Number CF0020), were examined from the safe end side and pipe sides in accordance with the ASME Code Section XI, 1986 Edition. No indications exceeding the acceptance criteria of ASME Code Section XI were noted during this examination.

The Reactor Vessel welds were examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume.

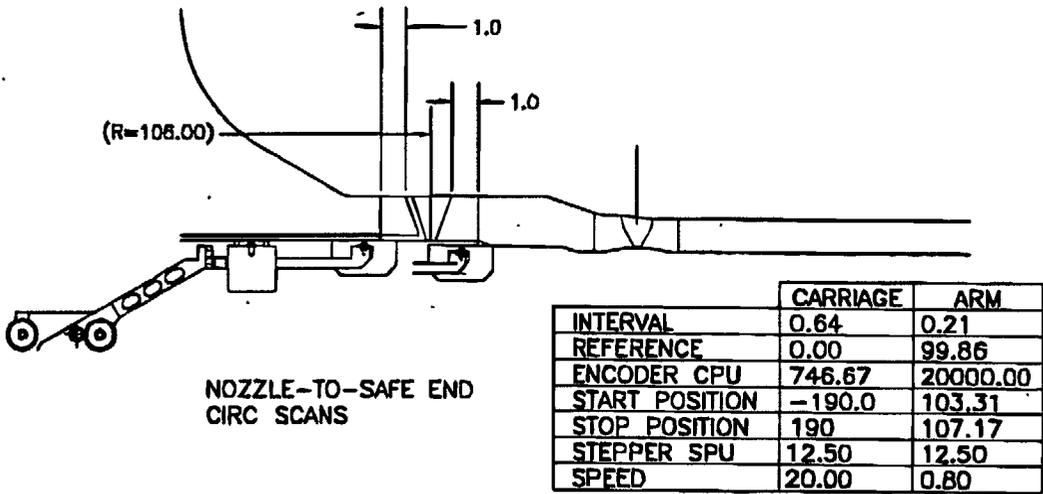
VI. Implementation Schedule:

The subject weld examinations, applicable to the third period of the second ten year ISI interval, were performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

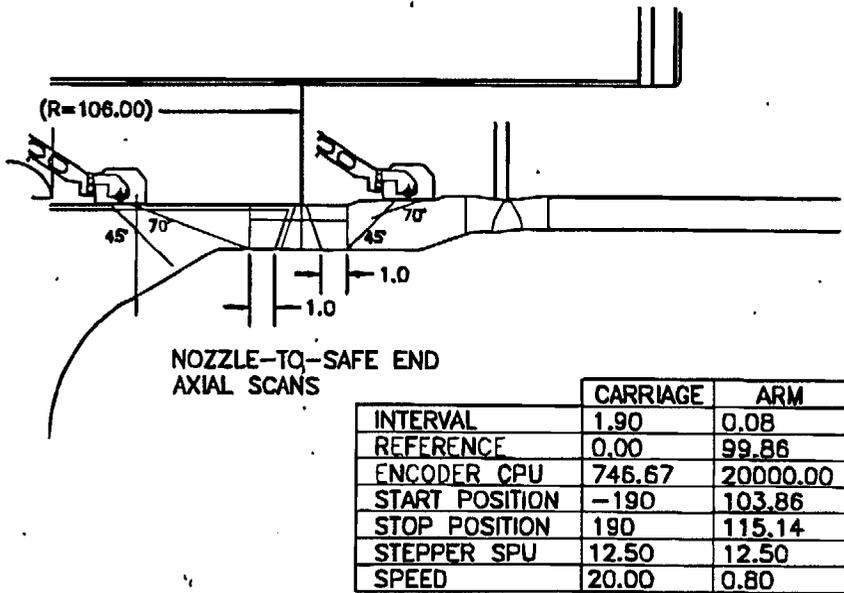
Three Mile Island Unit 1
 Second Ten Year ISI Interval
 Request for Relief No. RR-02-19
 Examination Coverage of ASME Section XI Code Class I Welds

Figure 8

Welds: RCT0001RV0009BM & RCT0001RV0010BM



INDEX DIR: ARM
 CONFIGURATION 2



INDEX DIR: CARRIAGE
 CONFIGURATION 1

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part H: Examination of the Core Flood Nozzle to Safe End Welds

I. System/Component for which Relief is Requested:

Core Flood Nozzle to Safe End Welds No. RCT0001RV0009BM and RCT0001RV0010BM

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB, Examination Category B-F, Item B5.10.

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-F, Item B5.10 for core flood nozzle to safe end welds requires essentially 100% of the weld length as defined by Figure IWB-2500-8 be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

The location of these Reactor Vessel welds is shown in Figures 1a and 1b. Figure 8 provides a drawing depicting the configuration of the core flood nozzle to safe end welds (RCT0001RV0009BM, and RCT0001RV0010BM).

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume, due to configuration of the safe end. The contour of the safe end (See Figure 8) restricts intimate contact (lift-off) with the surface of the transducer face. Access to approximately 20% (Weld Number RCT0001RV0009BM) and 16% (Weld Number RCT0001RV0010BM) of the examination volume from the safe end is restricted.

Due to the configuration of the safe end, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject welds.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The core flood nozzle to safe end welds were examined from both sides of the weld, scanning both parallel and perpendicular to the weld. Due to the configuration of the safe end, the inspection from the safe end side was restricted. The aggregate examination coverage of the welds and base metal areas was approximately 80% (Weld Number RCT0001RV0009BM) and 84% (Weld Number RCT0001RV0010BM) of the required examination volume.

The accessible 80% (Weld Number RCT0001RV0009BM) and 84% (Weld Number RCT0001RV0010BM) were examined from the safe end and nozzle sides in accordance with the ASME Code Section XI, 1986 Edition. No indications exceeding the acceptance criteria of ASME Code Section XI were noted during this examination.

The Reactor Vessel welds were examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume.

VI. Implementation Schedule:

The subject weld examinations, applicable to the third period of the second ten year ISI interval, were performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part I: Examination of the Reactor Vessel Head to Flange Weld

I. System/Component for which Relief is Requested:

Reactor Vessel Head to Flange Weld No. RCT0001/RH0001

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB,
Examination Category B-A, Item B1.40.

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-A, item B1.40 requires essentially 100% of the Reactor Vessel head-to-flange weld length as defined by Figure IWB-2500-5 be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

Figure 9 provides a drawing of the Reactor Vessel Head to Flange Weld (Weld Number RCT0001/RH0001).

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume due to flange configuration, and interference from three lifting lugs. The lifting lugs are welded to the Reactor Vessel head just above the head-to-flange weld, and restrict the ultrasonic transducer's ability to move to areas necessary to fully examine the required volume. The configuration of the head-to-flange interface only permits the weld to be scanned from the head side. Access to approximately 15% of the examination volume is restricted. The remaining 85% of the examination volume was examined by techniques which have been demonstrated and qualified in accordance with the 1986 Edition of ASME Code Section XI.

Due to the configuration of the head-to-flange interface and the three lifting lugs, it is impractical to meet the examination requirements of the ASME Code Section XI, 1986 Edition. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject weld.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The accessible areas were examined with techniques that have been demonstrated and qualified in accordance with the ASME Code Section XI, 1986 Edition. The aggregate examination coverage of the weld and base metal areas was approximately 85% of the required examination volume and was found to be acceptable in accordance with the ASME Code.

In addition to the required ultrasonic examination, the weld was examined by the magnetic dry particle test method (MT) and found to be acceptable.

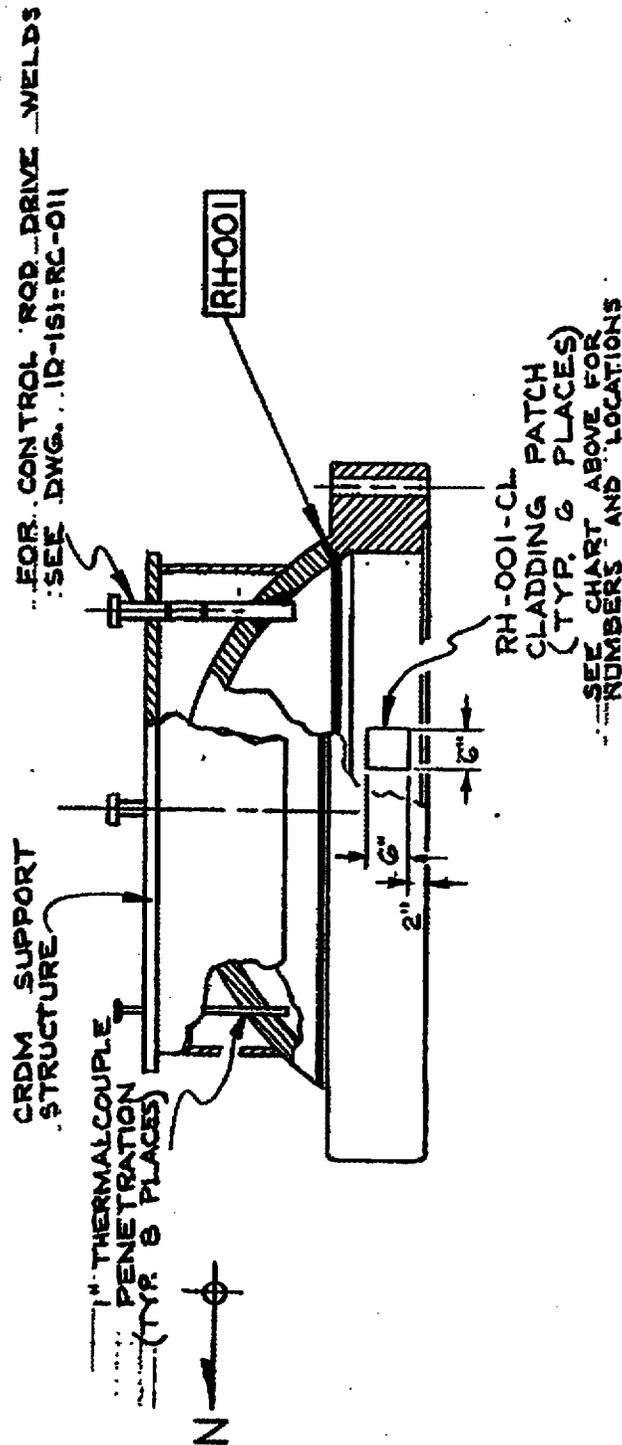
VI. Implementation Schedule:

The subject weld examination applies to the second ten year ISI interval. Portions of the examination were performed during the Outages 10R (September 1993 – October 1993), 12R (September 1997 – October 1997), and 13R (September 1999 – October 1999).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 9

Weld: RCT0001/RH0001



**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part J: Examination of the Steam Generator Tubesheet to Head Weld

I. System/Component for which Relief is Requested:

Steam Generator Tubesheet to Head Weld No. RCH0001BSG0012

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB,
Examination Category B-B, Item B2.40.

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-B, item B2.40 requires essentially 100% of the steam generator tubesheet-to-head weld length as defined by Figure IWB-2500-6 be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

Figure 10 provides a drawing that shows the Steam Generator Tubesheet to Head Weld (Weld Number RCH0001BSG0012).

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume, due to the steep entry angle from the tubesheet side into the weld, which causes transducer lift off. This lift off restricts the transducer's ability to move to areas necessary to fully examine the required volume. Access to approximately 26% of the examination volume is restricted.

Due to the configuration of the steep tubesheet entry angle to head, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject welds.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

The accessible areas were examined with techniques that have been demonstrated and qualified in accordance with the 1986 Edition of ASME Code Section XI. The aggregate examination coverage of the weld and base metal areas was approximately 74% of the required examination volume.

The accessible 74% of the examination volume was examined by techniques which have been demonstrated and qualified in accordance with the 1986 Edition of ASME Code Section XI and was found to be acceptable.

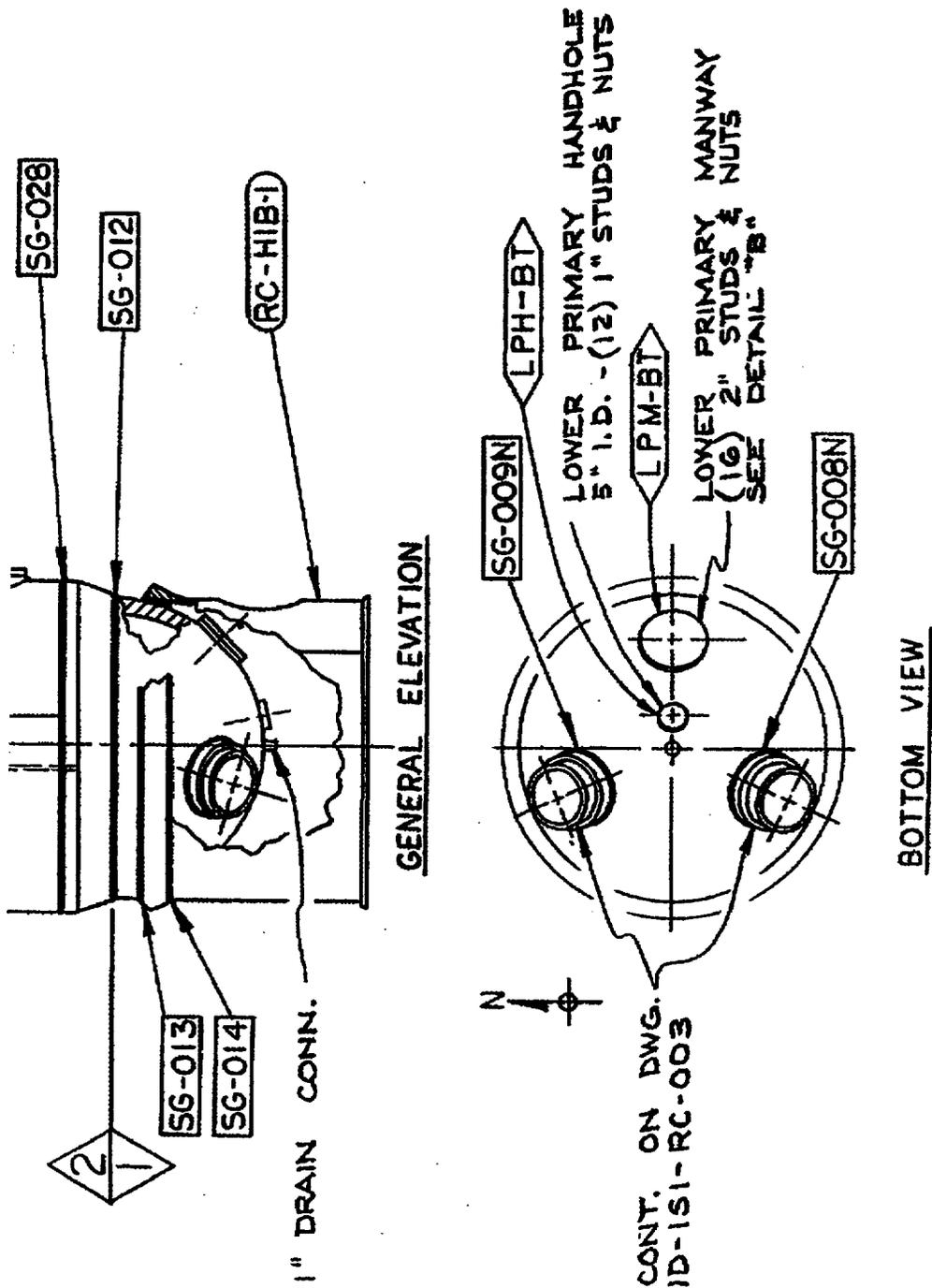
VI. Implementation Schedule:

The subject weld examination applies to the second ten year ISI interval and was performed during the 13R Outage (September 1999 – October 1999).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 10

Weld: RCH0001BSG0012



**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part K: Examination of the Steam Generator Nozzle to Vessel Welds and Inner Radius

I. System/Component for which Relief is Requested:

Steam Generator Nozzle to Vessel Welds No RCH0001BSG0008N and RCH0001BSG0009N

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB, Examination Category B-D, Items B3.130 and B3.140.

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-D, item B3.130 requires essentially 100% of the steam generator nozzle-to-vessel welds as defined by Figure IWB-2500-7(a) be examined. Examination Category B-D, item B3.140 requires essentially 100% of the nozzle inner radius section, as defined by Figure IWB-2500-7(a), be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

Figure 11 provides a drawing depicting the configuration of the Steam Generator Nozzle to Vessel Welds and associated inner radius (Weld Numbers RCH0001BSG0008N and RCH0001BSG0009N)

It is not possible to obtain ultrasonic interrogation of greater than 90% of weld volume due to nozzle to vessel interface radius is too small causing transducer lift off. Also, the configuration of the barrel type nozzle restricts the transducer's ability to move to areas necessary to fully examine the required volume. The configuration of the barrel type nozzle only permits the weld to be scanned from the vessel side. It is not possible to obtain ultrasonic interrogation of greater than 90% of nozzle inner radius volume due to the external nozzle to vessel interface radius being too small, and causing transducer lift off. Access to approximately 53% of the weld and 21% of the nozzle inner radius volumes were restricted from examination.

Due to the configuration the barrel type nozzle and the small nozzle to vessel radius causing transducer lift off, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

IV. Alternative Examination:

No alternate examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject welds.

V. Justification for Granting Relief:

The accessible areas were examined with techniques that have been demonstrated and qualified in accordance with the 1986 Edition of ASME Code Section XI. The aggregate examination coverage of the welds was approximately 47%, and the nozzle inner radius volumes were approximately 79% of the required examination volume and the results were found to be acceptable in accordance with the ASME Code.

In addition to the required ultrasonic examination, the welds were examined by magnetic particle test method (MT) and found to be acceptable.

VI. Implementation Schedule:

The subject weld examinations apply to the second ten year ISI interval and were performed during the 13R Outage (September 1999 – October 1999).

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part L: Examination of the Pressurizer Nozzle to Safe End Weld

I. System/Component for which Relief is Requested:

Pressurizer Nozzle to Safe End Weld No. RCT0002PR0021BM

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB, Examination Category B-F, Item B5.40.

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-F, B5.40 requires essentially 100% of the pressurizer nozzle-to-safe end butt weld as defined by Figure IWB-2500-8 be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

Figure 12 provides a drawing depicting the configuration of the Pressurizer Nozzle to Safe End Weld (Weld Number RCT0002PR0021BM).

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume, due to the remaining portion of the nozzle restraint creating interference on approximately 180 degrees of the examination area. The remaining portion of the restraint is just above the weld area and restricts the transducer's ability to move to areas necessary to fully examine the required volume. Access to approximately 13% of the examination volume is restricted.

Due to the non-removable remaining portion of the nozzle restraint at the nozzle to safe end weld, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of the ultrasonic examination of the inaccessible portion of the subject weld.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

The accessible areas were examined with techniques that have been demonstrated and qualified in accordance with the 1986 Edition of ASME Code Section XI. The aggregate examination coverage of the weld and base metal areas was approximately 87% of the required examination volume and the results were acceptable in accordance with the ASME Code.

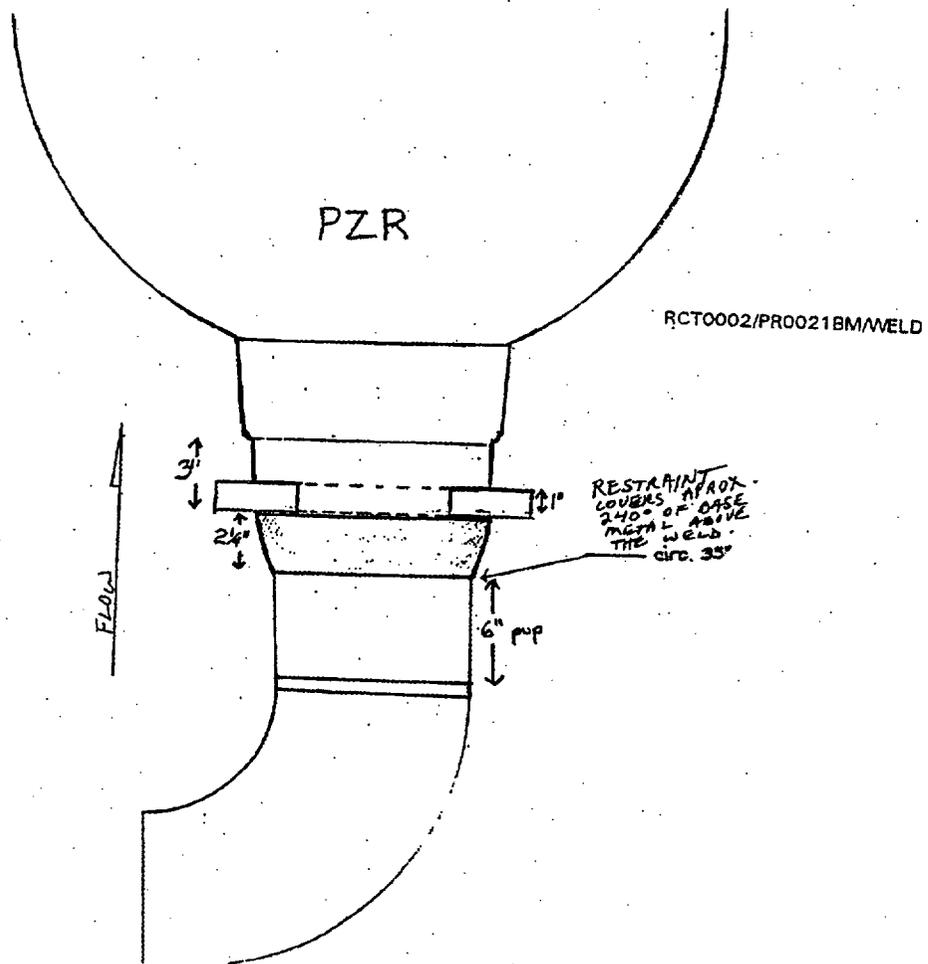
VI. Implementation Schedule:

The subject weld examination applies to the second ten year ISI interval and were performed during the 13R Outage (September 1999 – October 1999).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 12

Weld: RCT0002PR0021BM



**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part M: Examination of the Reactor Coolant Pump Integral Attachment Welds

I. System/Component for which Relief is Requested:

Reactor Coolant Pump Integral Attachment Welds No. RCP0001BRC0279WA, RCP0001BRC0280WA, and RCP0001BRC0281WA

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB, Examination Category B-K-1, Item B10.20.

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-K-1, item B10.20 requires essentially 100% of the integrally welded attachments as defined by Figure IWB-2500-15 be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

Figures 13a, 13b, and 13c provide sketches of the Reactor Coolant Pump Integral Attachment Welds (Weld Numbers RCP0001BRC0279WA, RCP0001BRC0280WA, and RCP0001BRC0281WA).

It is not possible to obtain surface examination coverage greater than 90% of the examination surface area, due to the pump motor stand obstructing a portion of the weld and the insulation structural steel framework creating interference in the examination area. Access to approximately 50% of the examination surface area for welds RCP0001BRC0279WA, and RCP0001BRC0280WA is restricted. For weld RCP0001BRC0281WA approximately 17% of the examination surface area is restricted.

Due to the obstruction of the pump motor stand, and interference caused by the insulation structural steel framework, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of the surface examination of the subject welds.

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

The accessible areas were examined with techniques that have been demonstrated and qualified in accordance with the 1986 Edition of ASME Code Section XI. The aggregate examination coverage of the weld and base metal areas was approximately 50% for welds RCP0001BRC0279WA, and RCP0001BRC0280WA, and approximately 83% for weld RCP0001BRC0281WA, of the required examination volumes and the results were acceptable in accordance with the ASME Code.

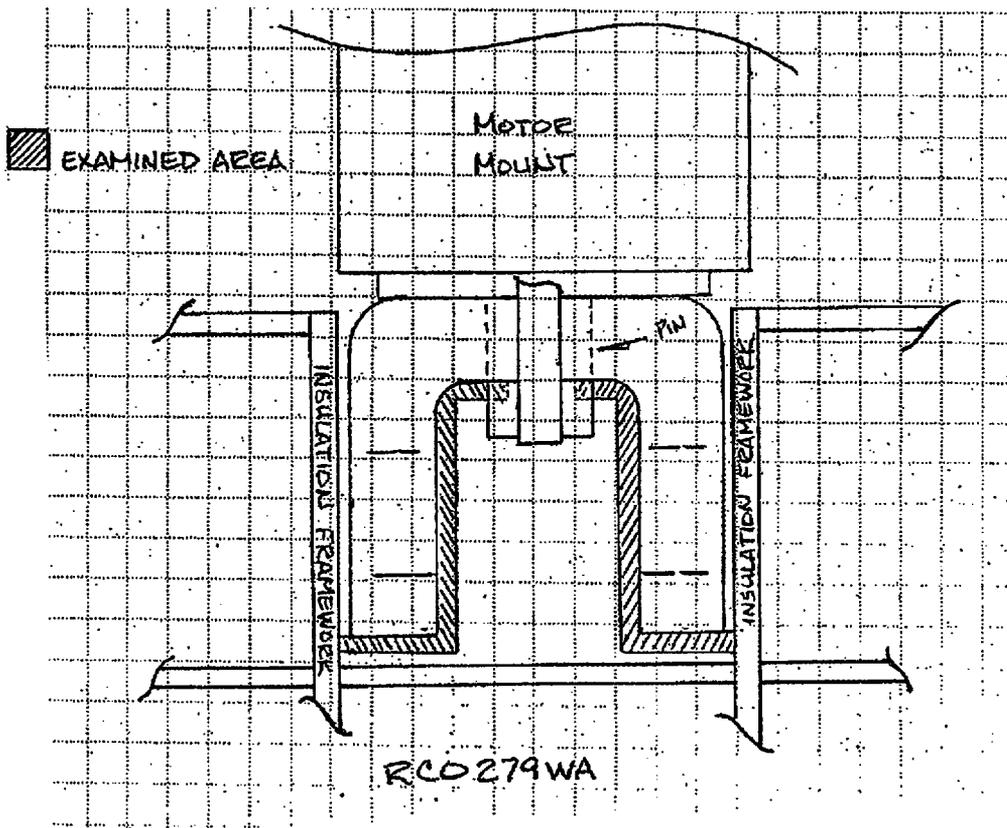
VI. Implementation Schedule:

The subject weld examinations apply to the second ten year ISI interval. Weld numbers RCP0001BRC0279WA, RCP0001BRC0280WA were examined during the 11R Outage (September 1995 – October 1995). Weld number RCP0001BRC0281WA was examined during the 13R Outage (September 1999 – October 1999).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 13a

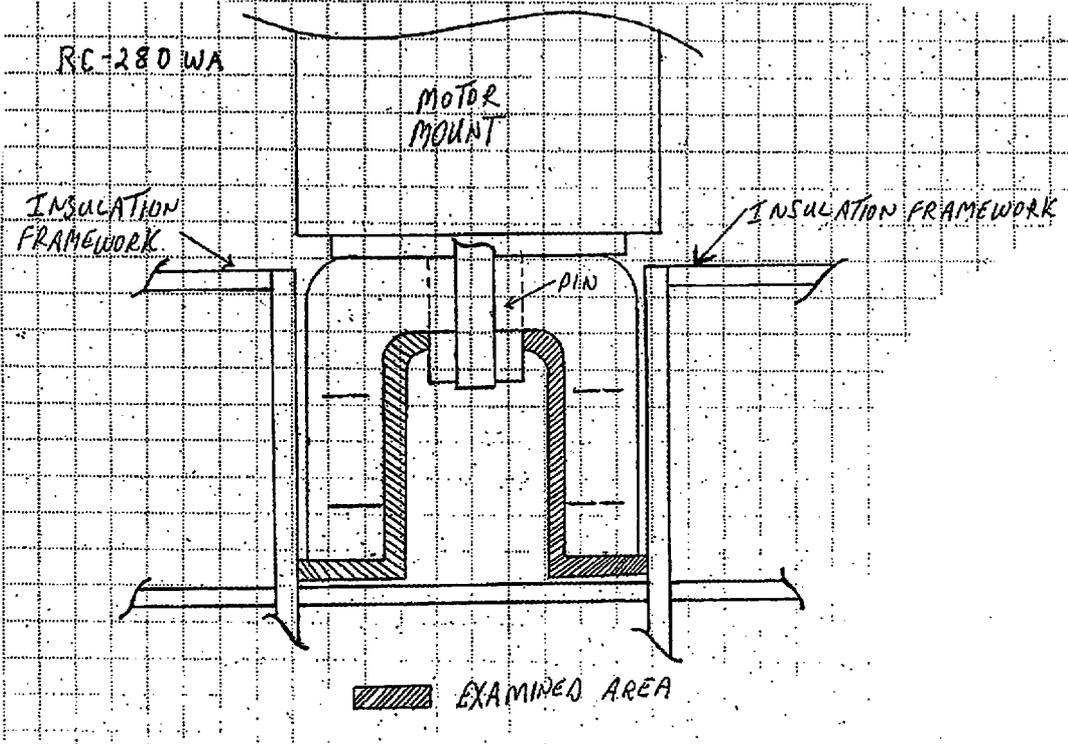
Weld: RCP0001BRC0279WA



Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 13b

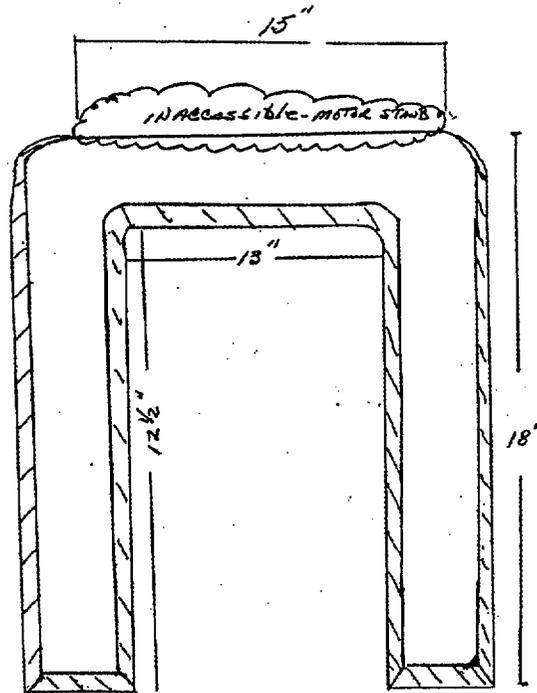
Weld: RCP0001BRC0280WA



Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 13c

Weld: RCP0001BRC0281WA



RCP0001BRC0281WA
LU9

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

Part N: Examination of the Pressurizer Integral Attachment Welds

I. System/Component for which Relief is Requested:

Pressurizer Integral Attachment Welds No. RCT0002PR0022WA, RCT0002PR0023WA, RCT0002PR0024WA, RCT0002PR0025WA, RCT0002PR0026WA, RCT0002PR0027WA, RCT0002PR0028WA, and RCT0002PR0029WA

II. Code Requirement:

ASME Code Section XI, 1986 Edition, Subsection IWB, Examination Category B-K-1, Item B10.10.

The ASME Code Section XI, 1986 Edition, Subsection IWB, Table IWB-2500-1, Examination Category B-K-1, item B10.10 requires essentially 100% of the integrally welded attachments as defined by Figure IWB-2500-15 be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 and Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

Figure 14a provides a sketch showing the location of the Pressurizer Integral Attachment Welds (Weld Numbers RCT0002PR0022WA, RCT0002PR0023WA, RCT0002PR0024WA, RCT0002PR0025WA, RCT0002PR0026WA, RCT0002PR0027WA, RCT0002PR0028WA, and RCT0002PR0029WA). Figure 14b provides a sketch showing one of the attachment welds that allowed no weld examination coverage.

It is not possible to obtain surface examination coverage greater than 90% of the examination surface area, due to the obstruction caused by the existing structural support I-beam. The I-beam supports the lugs, which are attached by the subject welds to the Pressurizer. The I-beam obstructs the access to the portion of the attachment welds under the lug and the supporting surface of the I-beam. Another obstruction that interferes with the examination of the integral attachment welds, is the insulation shroud above the support lugs. Also, there are bolted connections on the I-beam next to the supporting lugs, which interfere with a portion of the vertical direction of the integral attachment weld. Access to approximately 29% of the examination surface area for welds RCT0002PR0022WA, and RCT0002PR0023WA is restricted. Access to approximately 45% of the examination surface area for welds RCT0002PR0024WA, and RCT0002PR0025WA is restricted. Access to 100% of the examination surface area for welds RCT0002PR0026WA, and RCT0002PR0027WA is restricted. Access to approximately 45% of the examination surface area for weld

**Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds**

RCT0002PR0028WA is restricted. Access to approximately 83% of the examination surface area for weld RCT0002PR0029WA is restricted.

Due to the obstruction created by the structural support I-beam and attachments, it is impractical to meet the examination requirements of the 1986 Edition of ASME Code Section XI. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternate examinations are proposed in lieu of a surface examination of the inaccessible portion of the subject welds.

V. Justification for Granting Relief:

The remaining percentage for the subject welds were examined by techniques which have been demonstrated and qualified in accordance with the 1986 Edition of ASME Code Section XI and found to be acceptable.

These welds were examined in the first interval. The examination coverage during this second interval examination is approximately the same or greater than that examined during the first interval.

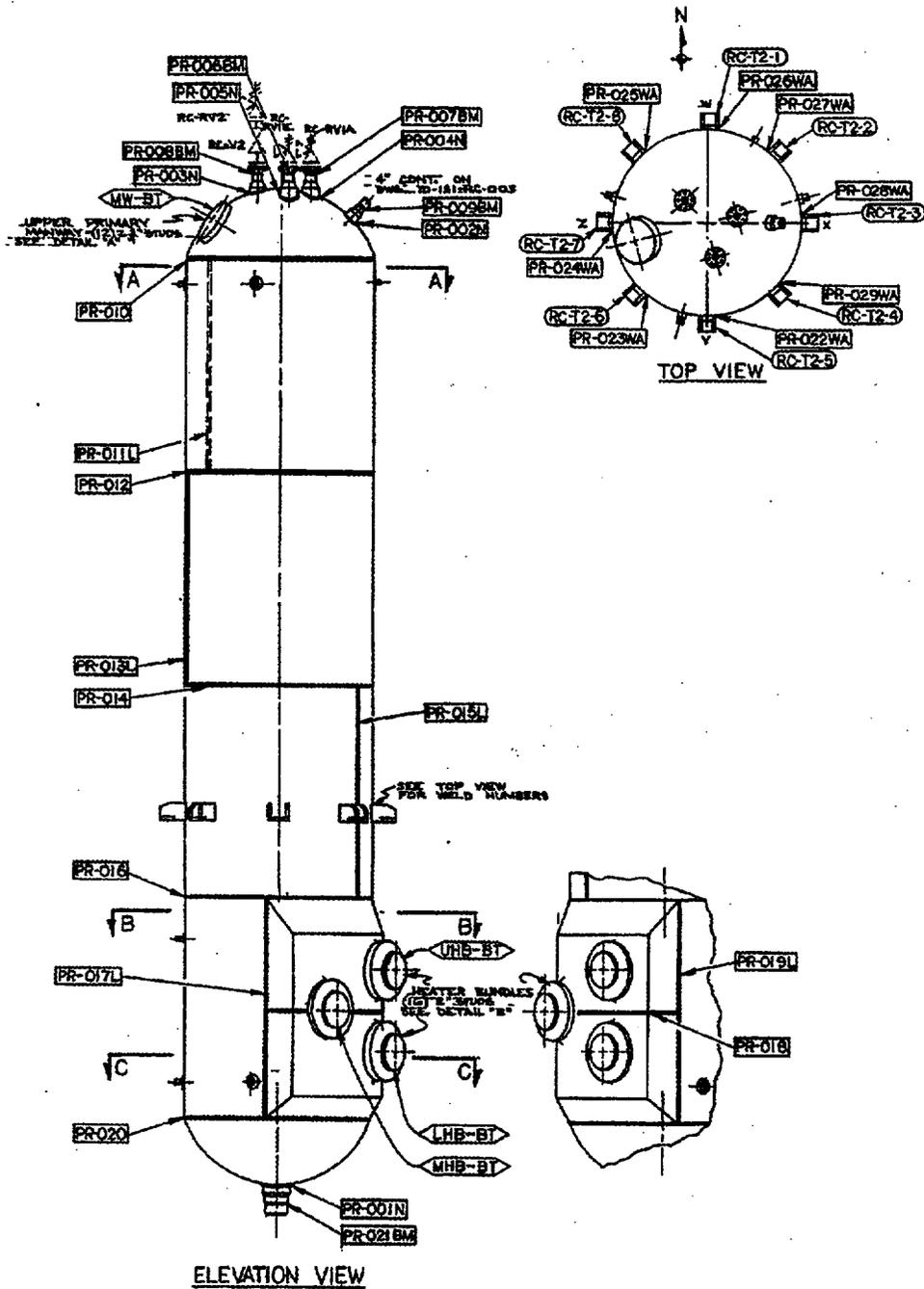
VI. Implementation Schedule:

The subject weld examinations apply to the second ten year ISI interval. Weld numbers RCT0002PR0022WA and RCT0002PR0023WA were examined during the 10R Outage (September 1993 – October 1993). Weld numbers RCT0002PR0024WA, RCT0002PR0025WA, RCT0002PR0026WA, RCT0002PR0027WA, RCT0002PR0028WA, and RCT0002PR0029WA were examined during the 12R Outage (September 1997 – October 1997).

Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 14a

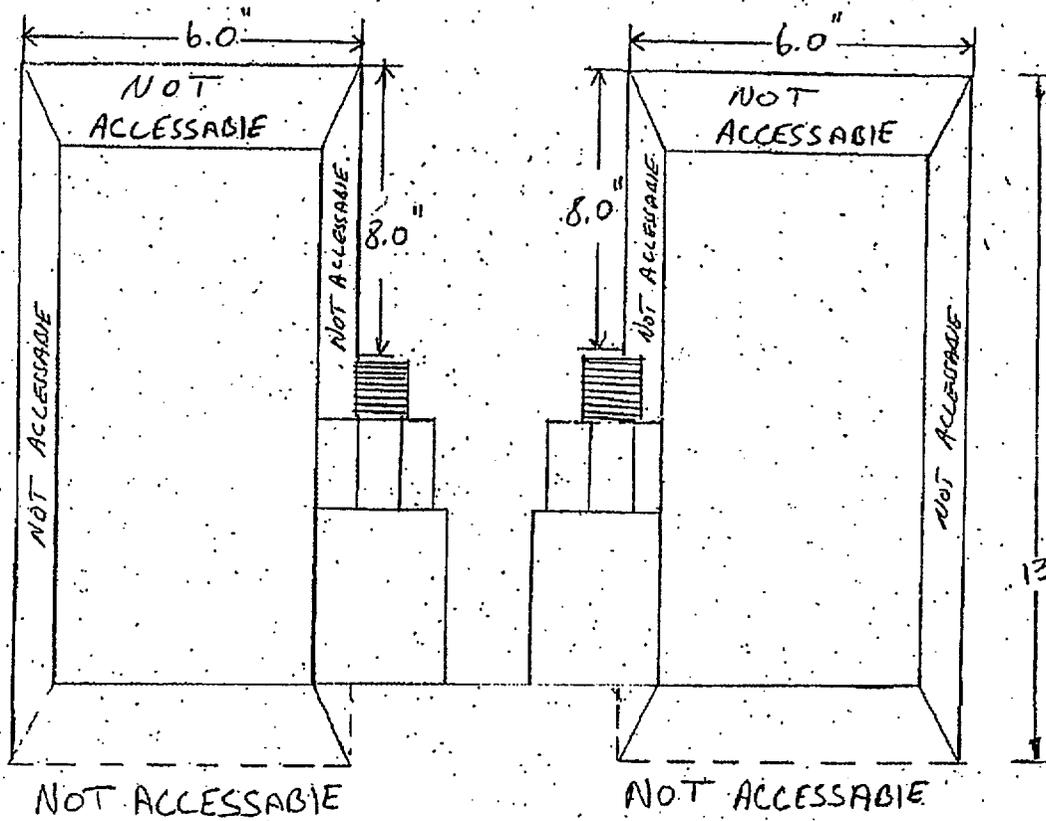
Welds: RCT0002PR0022WA, RCT0002PR0023WA, RCT0002PR0024WA,
RCT0002PR0025WA, RCT0002PR0026WA, RCT0002PR0027WA,
RCT0002PR0028WA & RCT0002PR0029WA



Three Mile Island Unit 1
Second Ten Year ISI Interval
Request for Relief No. RR-02-19
Examination Coverage of ASME Section XI Code Class I Welds

Figure 14b

Weld: RCT0002PR0027WA



ATTACHMENT 2

TMI Unit 1

**ASME Code Section XI Relief Request Associated with
Third Ten Year ISI Interval Class I Weld Examinations
Relief Request No. RR-02-20**

**Three Mile Island Unit 1
Third Ten Year ISI Interval
Request for Relief No. RR-02-20
Examination Coverage of ASME Section XI Code Class I Welds**

Examination of the Outlet Nozzle to Reactor Vessel Shell Welds

I. System/Component for which Relief is Requested:

Outlet Nozzle to Reactor Vessel Shell Welds No. RCT0001RV0002N and RCT0001RV0005N

II. Code Requirement:

ASME Code Section XI, 1995 Edition with Addenda through 1996, Subsection IWB, Examination Category B-D, Item B3.90.

The ASME Code Section XI, 1995 Edition with Addenda through 1996, Subsection IWB 2500-1, Examination Category B-D, Item B3.90 for Reactor Vessel nozzle to shell welds require essentially 100% of the weld length as defined by Figure IWB 2500-7(a) be examined. Code Case N-460, Alternative Examination Coverage for Class 1 and Class 2 Welds, states that a reduction in examination coverage on any Class 1 or Class 2 weld may be accepted provided the reduction in coverage for that weld is less than 10%.

III. Basis for Relief:

The location of the Reactor Vessel welds is shown in Figures 1a and 1b. Figures 15a and 15b provide drawings depicting the configuration of the Outlet Nozzle to Reactor Vessel Shell Welds (Weld Numbers RCT0001RV0002N and RCT0001RV0005N).

It is not possible to obtain ultrasonic interrogation of greater than 90% of this volume, due to the configuration of the outlet nozzle boss. The contour of the nozzle radius (See Figures 15a and 15b) restricts the URSULA manipulator's ability to scan the weld and adjacent base material from the vessel shell. Access to approximately 44% of the examination volume from the vessel shell is restricted.

Due to the configuration of the nozzle, it is impractical to meet the examination coverage requirements of the ASME Code Section XI, 1995 Edition. Relief is requested in accordance with 10 CFR 50.55a(g)(5)(iii).

IV. Alternative Examination:

No alternative examinations are proposed in lieu of ultrasonic examination of the inaccessible portion of the subject welds.

**Three Mile Island Unit 1
Third Ten Year ISI Interval
Request for Relief No. RR-02-20
Examination Coverage of ASME Section XI Code Class I Welds**

V. Justification for Granting Relief:

During preparations for the 1R14 Outage, the equipment and scan plan were developed to achieve maximum inspection coverage.

The outlet nozzle to shell welds were examined from the shell side to the extent possible. These examinations were performed from both sides of the weld, scanning both parallel and perpendicular to the weld. The aggregate examination coverage of the weld and base metal areas was approximately 56% of the required examination volume of each weld. The requirements of the ASME Code Section XI, 1995 Edition was met for the examinations from the nozzle bore.

The Reactor Vessel welds are examined from the inside surface using the Framatome URSULA inspection manipulator in conjunction with the Framatome ACCUSONEX data acquisition and analysis system. URSULA is a computer controlled, remotely operated manipulator which uses a contact UT head to obtain ultrasonic data for the detection and sizing of indications. The contact head is fitted with an array of transducers in direct contact with the Reactor Vessel surface. With the ACCUSONEX data acquisition system multiple channels of ultrasonic data are amplified, filtered, digitized and processed, and integrated with the transducer position to provide computer generated images of the examination volume.

The remaining 56% of the examination volume of each weld was examined from the shell side of each weld in accordance with the ASME Code Section XI, 1995 Edition with Addenda through 1996. As there is no limitation for the examination from the nozzle bore, 100% of each weld is examined by at least two angles.

These welds were examined in the first and second ten year interval Reactor Vessel examinations. The examination coverage during the third ten year interval examination was approximately the same or greater than that performed during the first and second ten year interval Reactor Vessel examination. No indications exceeding the acceptance criteria of ASME Code Section XI were noted during this examination.

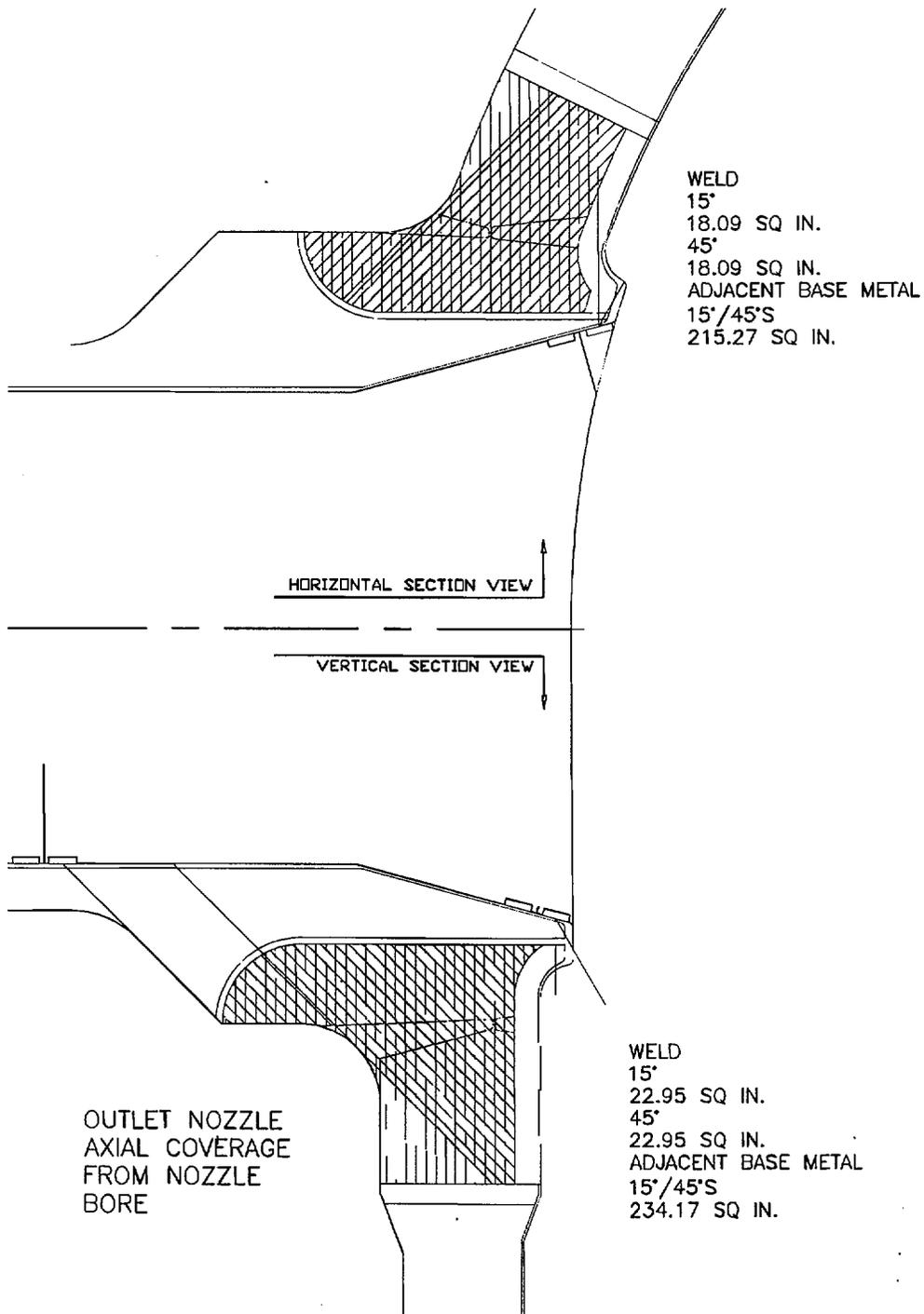
VI. Implementation Schedule:

The subject weld examinations, applicable to the first period of the third ten year ISI interval, were performed during the T1R14 outage (October 9, 2001 through December 6, 2001).

Three Mile Island Unit 1
Third Ten Year ISI Interval
Request for Relief No. RR-02-20
Examination Coverage of ASME Section XI Code Class I Welds

Figure 15a

Welds: RCT0001RV0002N & RCT0001RV0005N



Three Mile Island Unit 1
 Third Ten Year ISI Interval
 Request for Relief No. RR-02-20
 Examination Coverage of ASME Section XI Code Class I Welds

Figure 15b

Welds: RCT0001RV0002N & RCT0001RV0005N

