UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 11, 2009

Mr. John T. Carlin
Vice President R.E. Ginna Nuclear Power Plant
R.E. Ginna Nuclear Power Plant, LLC
1503 Lake Road
Ontario, NY 14519

SUBJECT: RELIEF REQUESTS NOS. 20 AND 21 RE: REQUEST TO EXTEND THE FOURTH 10-YEAR INSERVICE INSPECTION PROGRAM INTERVAL - R.E. GINNA NUCLEAR POWER PLANT (TAC NOS. MD8734 AND MD8735)

Dear Mr. Carlin:

By letter dated May 10, 2008, R.E. Ginna Nuclear Power Plant, LLC submitted Relief Request Nos. 20 and 21, requesting relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) requirements at the R. E. Ginna Nuclear Power Plant (Ginna). The requests for relief would authorize an alternative to the ASME Code requirements to defer the reactor vessel weld and core support structure examinations of Ginna for one fuel cycle.

Based on the enclosed safety evaluation, the Nuclear Regulatory Commission staff concludes that the proposed alternatives provide reasonable assurance of structural integrity and that compliance with the specified ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to paragraph 50.55a(a)(3)(ii) of Title 10 of the *Code of Federal Regulations*, the licensee's alternative inspection as stated in Relief Request Nos. 20 and 21 is authorized for Ginna for the fourth 10-year inservice inspection interval. The proposed alternative is authorized until the end of the spring 2011 refueling outage for Ginna.

All other requirements of the ASME Code, Section III and XI for which relief has not been specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Sincerely,

Mark G. Kowal

Mark G. Kowal, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-244

Enclosure:
Safety Evaluation

cc w/encl: Distribution via Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

INSERVICE INSPECTION PROGRAM RELIEF REQUEST NOS. 20 AND 21

R.E. GINNA NUCLEAR POWER PLANT, LLC

R. E. GINNA NUCLEAR POWER PLANT

DOCKET NO. 50-244

1.0 INTRODUCTION

By letter dated May 10, 2008 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML081400722), R.E. Ginna Nuclear Power Plant, LLC (the licensee) submitted Relief Request Nos. 20 and 21 requesting relief from certain inservice inspection (ISI) requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) at the R.E. Ginna Nuclear Power Plant (Ginna). Relief Request No. 20 involves ISI examination of reactor pressure vessel (RPV) welded attachments while Relief Request No. 21 involves ISI examinations of the RPV interior attachments and the core support structure.

The fourth ISI interval ends on December 31, 2009. The licensee has requested a 6-month interval extension beyond the ASME Code allowed 12-month extension to December 31, 2010, for both relief requests such that the examinations would be performed during the unit's spring 2011 refueling outage. In addition, Relief Request No. 20 requested that volumetric examinations of category B-K welds be conducted from the RPV inside diameter (ID) instead of the outside diameter (OD).

2.0 REGULATORY REQUIREMENTS

The ISI of ASME Code Class 1, 2, and 3 components in nuclear plants is to be performed in accordance with an applicable edition and addenda of the ASME Code, Section XI, as required by 50.55a(g) of Title 10 of the *Code of Federal Regulations* (10 CFR). The regulation at 10 CFR 50.55a(a)(3) states:

> Proposed alternatives to the requirements of paragraphs (c), (d), (e), (f), (g), and (h) of this section or portions thereof may be used when authorized by the Director of the Office of Nuclear Reactor Regulation. The applicant shall demonstrate that: (i) The proposed alternatives would provide an acceptable level of quality and safety, or (ii) Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the pre-service examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that ISI examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The fourth 10-year ISI interval for Ginna ends on December 31, 2009. The ISI Code of record is the 1995 Edition with the 1996 Addenda. The components (including supports) may meet the requirements set forth in subsequent editions and addenda of the ASME Code incorporated by reference in 10 CFR 50.55a(b) subject to the limitations and modifications listed therein and subject to commission approval.

3.0 RELIEF REQUEST NOS. 20 and 21, REQUESTS TO EXTEND THE FOURTH 10-YEAR ISI PROGRAM INTERVAL

Relief Requests Nos. 20 and 21 are similar and will be combined into one safety evaluation.

3.1 ASME Code Requirements

Subsection IWA-2430(a) of the 1995 Edition, 1996 Addenda of ASME Code, Section XI states:

> The inservice examinations and system pressure tests required by IWB, IWC, IWD, IWE, and inservice examinations and tests of IWF shall be completed during each of the inspection intervals for the service lifetime of the plant. The inspections shall be performed in accordance with the schedule of Inspection Program A of IWA-2431, or optionally, Inspection Program B of IWA-2432.

Subsection IWB-2410 of this edition of the ASME Code states: "Inservice examinations and system pressure tests may be performed during plant outages such as refueling shutdowns or maintenance shutdowns."

Subsection IWA-2430(d)(1) of the 1995 Edition, 1996 Addenda of ASME Code, Section XI states:

> Each inspection interval may be reduced or extended by as much as one year. Adjustments shall not cause successive intervals to be altered by more than one year from the original pattern of intervals. If an inspection interval is extended, neither the start and end dates nor the inservice inspection program for the successive interval need be revised.

In accordance with this ASME Code-allowed extension, the licensee has opted to use this provision, thus extending the end of the fourth 10-year ISI interval for Ginna to December 31, 2010.

3.2 Licensee's Proposed Alternative

The licensee proposes to perform the fourth 10-year ISI of the subject RPV support welds, interior attachment welds, and core support structure during the unit's spring 2011 refueling outage. The additional extension being requested is approximately 6 months beyond the ASME Code allowed 1-year extension.

3.3 Components for which Relief Is Requested

The affected components are identified in the table below. The Examination Categories and Item Numbers are from Table IWB-2500-1 of the 1995 Edition of ASME Code, Section XI.

Examination Category	Item Number	Description
B-K	B10.10	Pressure vessel welded attachments (for RPV only)
B-N-2	B13.60	Interior attachments beyond the beltline region
B-N-3	B13.70	Core support structures

3.4 Licensee's Basis for Proposed Alternative

Licensee's Basis for Relief Request No. 20

The licensee stated that performing a volumetric ISI of the Examination Category B-K support skirt attachment welds from the RPV ID in lieu of the ASME Code-required surface examination is consistent with inspections performed in the past. In addition, approval of the requested interval extension would allow the Examination Category B-K weld ISI to be performed during the same outage as the ISI of the Ginna RPV shell welds, which would alleviate a hardship (without a compensatory increase in quality and safety) associated with performing these examinations at separate times.

The licensee concluded that there is a low probability that cracking will occur in the Ginna reactor vessel support welds during the time period that this relief is requested because (a) there are no known incidents of cracking or degradation of these support skirt welds in either the domestic pressurized-water reactor (PWR) or boiling-water reactor (BWR) fleet and (b) no recordable or reportable indications were observed during the most recent inservice examination at Ginna in April of 1999.

In addition, the licensee stated the following:

> The reactor pressure vessel body was designed and constructed to ASME Section III, 1965 Edition. Early Codes that were used in the construction of Ginna Station did not contain requirements to ensure that items be made accessible for future examinations. Due to the limitations of early construction codes, the two reactor pressure vessel welded attachments (welds RPV-VSL-1 and RPV-VSL-2) are not accessible from the outside. The only examination that can be performed is by the ultrasonic technique from the inside of the vessel.

> This examination would be a best effort examination like the examinations that were performed in the past intervals.
>
> Performing a volumetric examination from the ID of the Vessel on the two Reactor Pressure Vessel Welded Attachments during the same outage as the reactor vessel shell welds will result in a reduction of man-rem exposure. The performance of this examination would require the removal of all fuel and the core barrel from the reactor vessel. An unnecessary risk is created by the removal of the core barrel more than once within an inspection interval to perform associated vessel examinations without a compensating increase to quality or safety. The previous average dose rate in the general area of the vessel supports was 145 mRem per hour. The highest measured dose rate was 232 mRem per hour with a majority of the workers receiving 130-165 mRem per hour dose rates.
>
> Significant radiation exposure reduction (multiple Rem savings) can be realized since the same equipment and personnel used for the volumetric examination of the vessel shell welds and nozzle welds from the vessel interior can be used to examine the two vessel support welded attachments. The reactor pressure vessel welded attachments volumetric examinations (Table IWB-2500-1, Examination Category B-K, Item Number B10.10) have historically been performed during the same outage at the end of the inservice inspection interval.

<u>Licensee's Basis for Relief Request No. 21</u>

The licensee stated that performing the examination of the reactor vessel interior attachment welds and the core support structure in a separate refueling outage from the reactor vessel examinations would result in hardship or unusual difficulty without a compensating increase in quality or safety.

In addition, the licensee stated the following:

> The examination required by ASME Category B-N-2 and B-N-3 requires the removal of all the fuel and the core barrel from the reactor vessel. An unnecessary risk is created by the removal of the core barrel more than once within an inspection interval to perform associated vessel examinations without a compensating increase in quality or safety. If this request is not accepted, then the core barrel would be required to be moved during the 2009 Refueling Outage and again in the 2011 Refueling Outage.
>
> Visual examinations of the reactor pressure vessel interior attachments and the core support structure have been performed several times at R.E. Ginna Nuclear Power Plant with no relevant indications noted during the examinations. The examinations were last performed during the 1999 refueling outage with acceptable results. Additionally, review of industry surveys indicate that these examinations have been performed many times by the industry without any significant findings.

4.0 TECHNICAL EVALUATION

Staff Evaluation of Relief Request No. 20

Volumetric examination of the two reactor pressure vessel welded attachments has been performed several times at Ginna with no relevant indications noted. The examinations were last performed during the 1999 refueling outage with acceptable results. The 1965 Edition of ASME Section III, to which the Ginna RPV was constructed, did not have requirements to ensure that items be made accessible for future examinations. Because of this, the NRC staff concludes that surface examination from the vessel OD would represent a significant hardship, and volumetric examination from the vessel ID is the better alternative. Since there have been no known instances of cracking or degradation of these support welds in either the domestic PWR or BWR fleet, the staff believes that it is unlikely that an ID volumetric examination would not detect any indications that an OD surface examination would.

The licensee noted that combining the ISI examinations during the same refueling outage would save significant man-rem exposure by reducing the number of times the fuel and core barrel would have to be removed for inspections from two to one (2009 and 2011 versus only 2011). The NRC staff concurs that reducing the number of times major equipment removals occur is preferable in the context of reducing radiation exposure of workers.

Based on the above, the NRC staff concludes that there is a low probability that cracking will occur in the Examination Category B-K RPV support welds during the time period that this relief is requested. The staff finds that (1) performing the volumetric examination from the RPV ID in lieu of the OD surface examination, and (2) extending the fourth ISI period to the spring 2011 refueling outage, an extension of less than 6 months beyond the ASME Code allowed 1-year extension to December 31, 2010, would provide an acceptable level of quality and safety while reducing hardship on the licensee.

Staff Evaluation of Relief Request No. 21

The NRC staff notes that previous ISI examinations performed at Ginna, the most recent being April 1999, have not identified indications in the RPV interior attachment welds or core support structure. Industry surveys have likewise found no significant indications in Examination Category B-N-2 and B-N-3 components.

The licensee noted that combining the ISI examinations during the same refueling outage would save significant man-rem exposure by reducing the number of times the fuel and core barrel would have to be removed for inspections from two to one (2009 and 2011 versus only 2011). The NRC staff concurs that reducing the number of times major equipment removals occur is preferable in the context of reducing radiation exposure of workers.

The NRC staff concludes that there is a low probability that cracking will occur in the Examination Category B-N-2 and B-N-3 components during the time period that this relief is requested. The staff finds that extending the fourth ISI interval to the spring 2011 refueling outage, an extension of less than 6 months beyond the ASME Code allowed 1-year extension to December 31, 2010, would provide an acceptable level of quality and safety while reducing hardship on the licensee.

5.0 CONCLUSION

The NRC staff has reviewed the licensee's proposed Relief Requests Nos. 20 and 21 to defer the aforementioned ISI examinations at Ginna until the unit's spring 2011 refueling outage. The extensions would be less than 6 months beyond the Code allowed 1-year extension for the fourth ISI interval. Relief Request No. 20 also requested that volumetric examinations of Category B-K welds be conducted from the RPV ID instead of the OD surface examination required by the ASME Code. The staff concludes that the licensee's proposed alternatives provide reasonable assurance of structural integrity and that compliance with the ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the staff authorizes the proposed alternatives for the fourth 10-year ASME Code ISI interval at Ginna. The proposed alternatives are authorized until the end of the unit's spring 2011 refueling outage.

All other ASME Code, Section III and XI, and 10 CFR Part 50 requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: Daniel Widrevitz

Date: March 11, 2009

March 11, 2009

Mr. John T. Carlin
Vice President R. E. Ginna Nuclear Power Plant
R.E. Ginna Nuclear Power Plant, LLC
1503 Lake Road
Ontario, NY 14519

SUBJECT: RELIEF REQUESTS NOS. 20 AND 21 RE: REQUEST TO EXTEND THE FOURTH 10-YEAR INSERVICE INSPECTION PROGRAM INTERVAL - R.E. GINNA NUCLEAR POWER PLANT (TAC NOS. MD8734 AND MD8735)

Dear Mr. Carlin:

By letter dated May 10, 2008, R.E. Ginna Nuclear Power Plant, LLC submitted Relief Request Nos. 20 and 21, requesting relief from certain American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) requirements at the R. E. Ginna Nuclear Power Plant (Ginna). The requests for relief would authorize an alternative to the ASME Code requirements to defer the reactor vessel weld and core support structure examinations of Ginna for one fuel cycle.

Based on the enclosed safety evaluation, the Nuclear Regulatory Commission staff concludes that the proposed alternatives provide reasonable assurance of structural integrity and that compliance with the specified ASME Code requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Therefore, pursuant to paragraph 50.55a(a)(3)(ii) of Title 10 of the *Code of Federal Regulations*, the licensee's alternative inspection as stated in Relief Request Nos. 20 and 21 is authorized for Ginna for the fourth 10-year inservice inspection interval. The proposed alternative is authorized until the end of the spring 2011 refueling outage for Ginna.

All other requirements of the ASME Code, Section III and XI for which relief has not been specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Sincerely,
/RA/
Mark G. Kowal, Chief
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-244
Enclosure:
Safety Evaluation

Distribution:

PUBLIC	LPLI-1 r/f	RidsNrrDciCvib
RidsNrrDorlLpl1-1	RidsNrrPMDPickett	RidsNrrLASLittle
DWidrevitz	RidsOgcMailCenter	RidsRegion1MailCenter
RidsAcrsAcnw&mMailCenter		

cc w/encl: Distribution via Listserv
ADAMS Accession No. ML090540423

OFFICE	LPLI-1\PM	LPLI-1\LA	CVIB\BC	OGC	LPLI-1\BC
NAME	DPickett	SLittle	MMitchell	DRoth	MKowal
DATE	2/25/ 09	2/25/09	2/26/ 09	3/09/ 09	3/11/ 09

Official Record Copy