April 17, 2006

Mr. Bruce H. Hamilton
Vice President, Oconee Site
Duke Energy Corporation
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: RELIEF REQUEST 05-ON-001 FROM CERTAIN NON-DESTRUCTIVE EXAMINATION REQUIREMENTS FOR THE THIRD 10-YEAR INSERVICE INSPECTION INTERVAL OF OCONEE NUCLEAR STATION, UNIT 3 (TAC NO. MC7380)

Dear Mr. Hamilton:

By letter dated June 24, 2005, you submitted Relief Request 05-ON-001 for the third 10-year inservice inspection interval of Oconee Nuclear Station, Unit 3. The request pertains to relief from the volumetric examination of essentially 100 percent (greater than 90 percent in accordance with Code Case N–460) of the volume as required by the American Society of Mechanical Engineers, *Boiler and Pressure Vessel Code*, Section XI, for Class 1 and 2 welds identified in the relief request. The Code-required examination was considered impractical due to component geometry, interferences, and existing examination technology, pursuant to the provisions of 10 CFR 50.55a(g)(6)(i), and our safety evaluation is enclosed.

Sincerely,

/RA/
Evangelos C. Marinos, Branch Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Number 50-287

Enclosure: Safety Evaluation

cc w/encl: See next page

April 17, 2006

Mr. Bruce H. Hamilton
Vice President, Oconee Site
Duke Energy Corporation
7800 Rochester Highway
Seneca, SC 29672

SUBJECT: RELIEF REQUEST 05-ON-001 FROM CERTAIN NON-DESTRUCTIVE EXAMINATION REQUIREMENTS FOR THE THIRD 10-YEAR INSERVICE INSPECTION INTERVAL OF OCONEE NUCLEAR STATION, UNIT 3 (TAC NO. MC7380)

Dear Mr. Hamilton:

By letter dated June 24, 2005, you submitted Relief Request 05-ON-001 for the third 10-year inservice inspection interval of Oconee Nuclear Station, Unit 3. The request pertains to relief from the volumetric examination of essentially 100 percent (greater than 90 percent in accordance with Code Case N–460) of the volume as required by the American Society of Mechanical Engineers, *Boiler and Pressure Vessel Code*, Section XI, for Class 1 and 2 welds identified in the relief request. The Code-required examination was considered impractical due to component geometry, interferences, and existing examination technology, pursuant to the provisions of 10 CFR 50.55a(g)(6)(i), and our safety evaluation is enclosed.

Sincerely,

/RA/
Evangelos C. Marinos, Branch Chief
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Number 50-287

Enclosure: Safety Evaluation

cc w/encl: See next page

Distribution

Public	RidsAcrsAcnwMailCenter	EReichert
LPL2-1 R/F	RidsNrrPMSLingam	TChan
RidsNrrDorlLplc(EMarinos)	RidsNrrDorlDpr	SLee, RII, EDO
RidsNrrPMLOlshan(hard copy)	RidsNrrLAMO'Brien(hard copy)	
RidsRgn2MailCenter(MErnstes)	RidsOgcRp	

Accession Number: ML060830291 NRR-028

OFFICE	NRR/LPL2-1/PM	NRR/LPL2-1/PM	NRR-LPL2-1/LA	OGC	NRR/LPL2-1/BC
NAME	SLingam	LOlshan	MO'Brien	SHamrick	EMarinos
DATE	3/31/06	3/31/06	3/31/06	4/11/06	4/17/06

OFFICIAL RECORD COPY

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
THIRD TEN-YEAR INTERVAL INSERVICE INSPECTION PROGRAM
REQUEST FOR RELIEF NO. 05-ON-001
FOR DUKE ENERGY CORPORATION
OCONEE NUCLEAR STATION, UNIT 3
DOCKET NUMBER: 50-287

1.0 INTRODUCTION

By letter dated June 24, 2005, Duke Energy Corporation (the licensee) for Oconee Nuclear Power Station, Unit 3 (ON3), submitted Relief Request 05-ON-001 for the third 10-year inservice inspection interval. The request pertains to relief from the volumetric examination of essentially 100 percent (greater than 90 percent) of the volume as required by the American Society of Mechanical Engineers (ASME), *Boiler and Pressure Vessel Code,* Section XI, for the Class 1 and 2 welds identified in the relief request.

2.0 REGULATORY EVALUATION

Inservice Inspection (ISI) of the ASME Code Class 1, 2, and 3 components is performed in accordance with Section XI of the ASME Code and the applicable addenda as required by 10 CFR 50.55a(g), except where relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Section 50.55a(a)(3) states that alternatives to the requirements of (g) may be used, when authorized by the Nuclear Regulatory Commission (NRC), if (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements 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 ASME Code, Section XI, “Rules for Inservice Inspection (ISI) 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 inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the reference in 10 CFR 50.55a(b) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable ASME Code, Section XI, for ON3, third 10-year ISI interval is the 1989 edition with no 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.

Pursuant to 10 CFR 50.55a(g)(5), if the licensee determines that conformance with an examination requirement of Section XI of the ASME Code is not practical for its facility, information shall be submitted to the Commission in support of that determination and a request made for relief from the ASME Code requirement. After evaluation of the determination, pursuant to 10 CFR 50.55a(g)(6)(i), the Commission may grant relief and may impose alternative requirements that are determined to be authorized by law, will not endanger life, property, or the common defense and security, and are otherwise in the public interest, giving due consideration to the burden upon the licensee that could result if the requirements were imposed.

System Component for Which Relief is Requested

SYSTEM/COMPONENT	ID NUMBER	ITEM NUMBER
Reactor Coolant System Pressurizer Sensing Sample Nozzle to Heater Belt Weld	3-PZR-WP26-1	B03.110.009
Reactor Coolant System Pressurizer Sensing Sample Nozzle to Heater Belt Weld	3-PZR-WP26-2	B03.110.010
Reactor Coolant System Pressurizer Sensing Sample Nozzle to Heater Belt Weld	3-PZR-WP26-3	B03.110.011
Reactor Coolant System Pressurizer Sensing Sample Nozzle to Heater Belt Weld	3-PZR-WP26-7	B03.110.012
High Pressure Injection System Letdown Cooler 3B Inlet Nozzle to Channel Head Weld	3-LDCB-IN-V1	B03.150.003
High Pressure Injection System Letdown Cooler 3B Outlet Nozzle to Channel Head Weld	3-LDCB-OUT-V2	B03.150.004
Low Pressure Service Water System Component Support Attachment to Pipe Weld	3-14B-H20A	C03.020.017
High Pressure Injection System Pipe to Elbow Weld (circumferential weld)	3-51A-67-3	C05.021.049

High Pressure Injection System Pipe to Valve 3HP-194 Weld (circumferential weld)	3HP-241-2	C05.021.051
High Pressure Injection System Flange to Pipe Weld (circumferential weld)	3-51A-119-11	C05.021.076
High Pressure Injection System Elbow to Pipe Weld (circumferential weld)	3-51A-67-4	C05.021.091

Code Requirement

ASME Code, Section XI, 1989 edition, in examination categories B-D (Full Penetration Welded Nozzles in Vessels), C-C (Integral Attachments for Vessels, Piping, Pumps, and Valves), and C-F-1 (Pressure Retaining Welds in Austenitic Stainless Steel or High Alloy Piping) requires essentially 100% volumetric examination of the above welds.

ASME Code, Section XI, Code Case N-460, which has been approved for use by the NRC in Regulatory Guide 1.147, Revision 13, allows credit for full-volume coverage of welds if it can be shown that greater than 90-percent of the required volume has been examined.

Code Requirement from Which Relief is Requested

Relief is requested from the requirement to examine essentially 100 percent of the required volume specified in the ASME Code, Section XI, 1989 edition. Due to existing piping/valve geometry, interferences, and existing examination technology, the ultrasonic examination coverage did not meet the 90-percent examination requirements of Code Case N-460.

Licensee's Basis for Relief

Weld 3-PZR-WP26-1: The reactor coolant system pressurizer sensing sampling nozzle material is SA-508 Grade B, and the pressurizer heater belt material is SA-516 Grade 70. The weld has a diameter of 5.75 inches and a wall thickness of 6.187 inches.

The licensee stated that during the ultrasonic examination of weld 3-PZR-WP26-1, only 25.92 percent coverage of the required examination was obtained. The coverage reported represents the aggregate coverage from all the scans performed on the weld and the adjacent material. A 45E scan perpendicular and parallel to the weld covered 28 percent of the weld and base material. A 60E scan perpendicular and parallel to the weld covered 30 percent of the weld and base material. The licensee stated that the weld joint geometry is essentially a branch connection arrangement using a set-in nozzle that prevented scanning from both sides of

the weld. The licensee stated that in order to scan all of the required surfaces for the inspection of this weld, the sensing sampling nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

Weld 3-PZR-WP26-2: The reactor coolant system pressurizer sensing sampling nozzle material is SA-508 Grade B, and the pressurizer heater belt material is SA-516 Grade 70. The weld has a diameter of 5.75 inches and a wall thickness of 6.187 inches.

The licensee stated that during the ultrasonic examination of weld 3-PZR-WP26-2, only 25.92 percent coverage of the required examination was obtained. The coverage reported represents the aggregate coverage from all the scans performed on the weld and the adjacent material. A 45E scan perpendicular and parallel to the weld covered 28 percent of the weld and base material. A 60E scan perpendicular and parallel to the weld covered 30 percent of the weld and base material. The licensee stated that the weld joint geometry is essentially a branch connection arrangement using a set-in nozzle, which prevented scanning from both sides of the weld. The licensee stated that in order to scan all of the required volume for these welds, the sensing sampling nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

Weld 3-PZR-WP26-3: The reactor coolant system pressurizer sensing sampling nozzle material is SA-508 Grade B and the pressurizer heater belt material is SA-516 Grade 70. The weld has a diameter of 5.75 inches and a wall thickness of 6.187 inches.

The licensee stated that during the ultrasonic examination of weld 3-PZR-WP26-3, only 25.92 percent coverage of the required examination volume was obtained for this weld. The coverage reported represents the aggregate coverage from all scans performed on the weld and adjacent base material. A 45E scan perpendicular and parallel to the weld covered 28 percent of the weld and base material. A 60E scan perpendicular and parallel to the weld covered 30 percent of the weld and base material. The licensee stated that the weld joint geometry is essentially a branch connection arrangement using a set-in nozzle, which prevented scanning from both sides of the weld. The licensee stated that in order to scan all of the required volume for this weld, the sensing sampling nozzle would have to be redesigned to allow scanning from both sides of the weld which is impractical. There were no recordable indications found during the inspection of this weld.

Weld 3-PZR-WP26-7: The reactor coolant system pressurizer sensing sampling nozzle material is SA-508 Grade B, and the pressurizer heater belt material is SA-516 Grade 70. The weld has a diameter of 5.75 inches and a wall thickness of 6.187 inches.

The licensee stated that during the ultrasonic examination of weld 3-PZR-WP26-7, only 25.92 percent coverage of the required examination volume was obtained for this weld. The coverage reported represents the aggregate coverage from all scans performed on the weld and adjacent base material. A 45E scan perpendicular and parallel to the weld covered 28 percent of the weld and base material. A 60E scan perpendicular and parallel to the weld covered 30 percent of the weld and base material. The licensee stated that the weld joint geometry is essentially a branch connection arrangement using a set in nozzle, which prevented scanning from both sides of the weld. The licensee stated that in order to scan all of the required volume for these weld, the sensing sampling nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

Weld: 3-LDCB-IN-V1 The high pressure injection system letdown cooler inlet nozzle and channel head material is SA-182 Grade T316L. The weld has a diameter 3.0 inches and a wall thickness of .875 inches.

The licensee stated that during the ultrasonic examination of weld 3-LDCB-IN-V1, only 29.26 percent coverage of the required examination volume was obtained for this weld. The coverage reported represents the aggregate coverage of all scans performed. A 45E scan perpendicular and parallel to the weld covered 28 percent of the weld and base material. A 60E scan perpendicular and parallel to the weld covered 29 percent of the weld and base material. The licensee stated that the weld joint geometry is essentially a branch connection arrangement using a set-on nozzle, which prevented scanning from both sides of the weld. The licensee stated in order to scan all of the required surfaces for the inspection of this weld, the inlet nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

Weld: 3-LDCB-OUT-V2 The high pressure injection system letdown cooler outlet nozzle to channel head material is SA-182 Grade T316L. The weld has a diameter of 3 inches and a wall thickness of .875 inches.

The licensee stated that during the ultrasonic examination of weld 3-LDCB-OUT-V2, only 29.26 percent coverage of the required examination volume was obtained for this weld. The percentage of the coverage reported represents the aggregate coverage from all scans performed on the weld and adjacent base material. A 45E scan perpendicular and parallel to the weld covered 28 percent of the weld and base material. A 60E scan perpendicular and parallel to the weld covered 29 percent of the weld and base material. The licensee stated that the weld joint geometry is essentially a branch connection arrangement using a set-on nozzle, which prevented scanning from both sides of the weld. The licensee stated that in order to scan all of the required surfaces for the inspection of this weld, the outlet nozzle would have to be redesigned to allow scanning from both sides of the weld, which is impractical. The were no recordable indications found during the inspection of this weld.

Weld: 3-14B-H20A

The low pressure service water system component support attachment to pipe (pipe to lug) is carbon steel. The pipe has a diameter of 8.0 inches and a wall thickness of .500 inches. The four lugs are 1.5 inches thick and the welds are 1/4 inch fillet welds.

The licensee stated that during the magnetic particle examination (MT) of weld the attachment welds on lugs for the component support, 50 percent coverage of the required examination surface was obtained. The percentage of coverage represents the aggregate coverage for all the examination surfaces required to be examined. The licensee stated that the limitations were due to limited access space that would not allow two of the attachment lugs to be examined. The licensee stated that in order to examine all of the required surfaces for the inspection of these attachment lugs, the support would have to be redesigned to allow access for examining the attachment lugs or the piping rerouted to allow access, which is impractical. There were no recordable indications found during the inspection of the accessible lug welds.

Weld: 3-51A-67-3

The high pressure injection system pipe to elbow material is stainless steel. The circumferential weld has a diameter of 2.5 inches and a wall thickness of .375 inches.

The licensee stated that during the ultrasonic examination of the weld, 87.38 percent coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45E shear wave circumferential scans, both clockwise and counter-clockwise covered 100 percent of the examination volume and the 60E shear wave axial scan

covered 48 percent from the pipe side of the weld. A supplemental 70E shear wave scan covered 22 percent of the examination volume in one axial direction from the pipe side of the weld. The licensee stated that limitations were caused by elbow configurations which prevented scanning from that side. The licensee stated that in order to scan all of the required volume for this weld, the elbow would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

Weld: 3HP-241-2

The high pressure injection system pipe to valve 3HP-194 material is stainless steel. The weld has a diameter of 4.0 inches and a wall thickness of .674 inches.

The licensee stated that during the ultrasonic examination of the weld, 35.55 percent coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45E shear wave circumferential scans, both clockwise and counter-clockwise covered 47 percent of the examination volume, and the 60E shear wave axial scan covered 47 percent of the examination volume from one direction. A supplemental scan using a 60E refracted longitudinal wave search unit covered 52.6 percent of the examination volume including 100 percent of the inside surface within the area of interest. The licensee stated that the limitation was caused by the taper on the valve side of the weld which prevented scanning from that side. The licensee stated in order to scan all of the required surfaces for the inspection of this weld, the valve would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

Weld: 3-51A-119-11

The high pressure injection system flange to pipe material is stainless steel. The weld has a diameter of 4.0 inches, and a wall thickness of .531 inches.

The licensee stated that during the ultrasonic examination of the weld, 58 percent coverage of the required examination volume was obtained. The percentage of coverage represents the aggregrate coverage from all scans performed on the weld and adjacent base material. The 45E shear wave circumferential scans, both clockwise and counter-clockwise covered 100 percen of the examination volume and the 60E shear wave axial scan covered 32 percent of the examination volume from the elbow side. The licensee stated the limitation was caused by the taper on the flange side of the weld which prevented scanning from that side. The licensee stated in order to scan all of the required

surfaces for the inspection of this weld, the flange would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

Weld: 3-51A-67-4

The high pressure injection system elbow to pipe material is stainless steel. The weld has a diameter of 2.5 inches and a wall thickness of .375 inches.

The licensee stated that during the ultrasonic examination of the weld, 87.38 percent coverage of the required examination volume was obtained. The percentage of coverage represents the aggregate coverage from all scans performed on the weld and adjacent base material. The 45E shear wave circumferential scans, both clockwise and counter-clockwise covered 100 percent of the examination volume, and the 60E shear wave axial scan covered 48 percent. A supplemental 70E shear wave scan covered 22 percent of the examination volume in one axial direction from the pipe side. The licensee stated that the limitations were caused by the elbow configuration which prevented scanning from that side. The licensee stated that in order to scan all of the required surfaces for the inspection of this weld, the elbow would have to be redesigned to allow scanning from both sides of the weld, which is impractical. There were no recordable indications found during the inspection of this weld.

Justification for Granting Relief

The licensee stated that ultrasonic examination of areas/welds for item number B03.110 and B03.150 (Weld ID numbers 3-PZR-WP26-1, 3-PZR-WP26-2, 3-PZR-WP26-3, 3-PZR-WP26-7, 3-LDCB-IN-V1, 3LDCB-OUT-V2 respectively) were conducted using personnel qualified in accordance with ASME Code, Section XI, Appendix VII of the 1995 edition with the 1996 addenda. The ultrasonic procedures used complied with the requirements of ASME Code, Section V, Article 4, 1989 edition with no addenda. The licensee stated that although 100-percent coverage of the examination volume could not be achieved, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity. In addition to the volumetric examination with limited scan, the licensee will perform Class 1, Examination Category B-P, pressure testing and VT-2 visual examination to complement the limited scan examination. The Code requires that a pressure test be performed after each refueling outage for Class 1 components. The pressure tests require a VT-2 visual examination for evidence of leakage. The licensee stated that the testing provides adequate assurance of pressure boundary integrity.

The licensee stated that the magnetic particle examination (MT) of the support attachment welds for item number C03.020.017 (Weld ID number 3-14B-H20A) was conducted using personnel qualified in accordance with paragraph IWA-2300 of ASME Code, Section XI of the 1989 edition with no addenda. The MT examination procedure was demonstrated using the remote camera equipment and the 1/32-inch black line on an 18 percent neutral gray card. The licensee stated that although 100-percent coverage of the examination surfaces could not be

examined, the amount of surface that was examined provides an acceptable level of quality and integrity. The licensee stated that in addition to the MT examinations with limited coverage, a supplemental VT-1 examination on the welds of the 2 lugs that were not accessible for MT was performed and 100% coverage was achieved. The results of the VT-1 examination was acceptable. In addition to the MT examination, the licensee will perform Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to complement the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. The pressure tests require a VT-2 visual examination for evidence of leakage. The licensee stated that the testing provides adequate assurance of pressure boundary integrity.

The licensee stated that the ultrasonic examination of areas/welds for item number C05.020 (Weld ID numbers 3-51A-67-3, 3HP-241-2, 3-51A-119-11, and 3-51A-67-4) was conducted using personnel, equipment and procedures qualified in accordance with ASME Code, Section XI, Appendix VIII, Supplement 2 of the 1995 edition with the 1996 addenda, as administered by the Performance Demonstration Initiative (PDI). The licensee stated that although 100-percent coverage of the examination volume could not be achieved, the amount of coverage obtained for this examination provides an acceptable level of quality and integrity. In addition to the volumetric examinations with limited coverage, the licensee performed a Code-required surface examination on each of the C05.021 items and achieved 100% coverage. The results of the surface examination were acceptable.

For Weld ID numbers 3-51A-67-3, 3HP-241-2, and 3-51A-67-4, the licensee will perform Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to complement the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. The pressure tests require a VT-2 visual examination for evidence of leakage. The licensee stated that the testing provides adequate assurance of pressure boundary integrity.

The licensee stated that in addition to the above Code-required examinations, there are other activities which would detect and isolate leakage if leakage did occur through the weld. Specifically, leakage from these welds would be detected by monitoring of the RCS, which is performed once each shift. The RCS leakage monitoring is a requirement of Technical Specification (TS) 3.4.13, “Reactor Coolant System Leakage”. The licensee stated that any discovered leakage is also evaluated in accordance with this TS. The licensee also identified other leakage detection methods. One method is the reactor building air particulate monitor. This monitor is sensitive to low leak rates; the iodine monitor, gaseous monitor and area monitor are capable of detecting any fission products in the coolant and will make these monitors sensitive to coolant leakage. Other monitors include the level indicator in the Reactor Building normal sump, and monitoring a loss of level in the Letdown Storage Tank. The licensee stated that it is their belief that the combination of examinations identified above provides reasonable assurance of component integrity.

For Weld ID number 3-51A-119-11, the licensee will perform Class 2, Examination Category C-H, pressure testing and VT-2 visual examination to complement the limited examination coverage. The Code requires that a pressure test be performed once each period for Class 2 items. The pressure tests require a VT-2 examination for evidence of leakage. The licensee stated that the testing provides adequate assurance of pressure boundary integrity.

The licensee stated that in addition to the above Code-required examinations, there are other activities which would detect and isolate leakage if leakage did occur through the weld. Specifically, leakage from these welds would be detected by Operations pesonnel during their regular rounds (refer to procedure OP/3/A/1102/020A “Primary Rounds”). The Nuclear Equipment Operator has been trained to look for any unusual conditions, such as leaks. The licensee stated that the identified weld is located in an area where operations personnel will be walking through as part of their rounds, and, therefore, any leak would be identified by visual observation.

The licensee stated that in addition to the C05.021 welds that relief is being requested for limited scanning, there were 13 additional C05.021 welds that surface and volumetric examinations were performed on. The examinations didn’t identify any recordable indications and 100% coverage was obtained on each of the 13 welds. The 13 additional welds were from the same system as the C05.021 welds of this request.

In addition, the licensee stated that it does not claim credit for coverage of the far side of austenitic welds. The characteristics of austenitic weld metal attenuate and distort the sound beam when shear waves pass through the weld. Refracted longitudinal waves provide better penetration but cannot be used beyond the first path leg. The licensee uses a combination of shear waves and longitudinal waves to examine single-sided austenitic welds.

The licensee stated that the referenced welds/components have been examined to the maximum extent possible utilizing the latest in examination techniques and equipment. The welds/components were inspected by volumetric NDE during construction and verified to be free from unacceptable fabrication defects. The licensee concluded that the coverage and results of the required volumetric and surface exams and the pressure testing (VT-2) exams performed this outage provide reasonable assurance of component integrity.

3.0 STAFF EVALUATION

The NRC staff has evaluated the information provided by the licensee in support of the volumetric and surface examinations of the subject welds performed during the third 10-year inservice inspection interval. For the subject welds, ultrasonic testing and magnetic particle testing could not examine 100 percent of the volume and surfaces specified by the ASME Code, Section XI, 1989 edition, with no addenda (as modified by Code Case N–460) due to component configuration, interferences, and existing examination technology. The licensee’s best effort examination achieved coverages of the welds ranging from 25.92 percent to 87.38 percent.

Code Case N–460 which was approved for use by the NRC in Regulatory Guide 1.147, Revision 13, allows credit for full volume coverage if it can be shown that more than 90 percent of the required volume has been examined.

The NRC staff has determined that the examination coverage of the subject welds was reduced due to component configuration and geometries which restricted scanning to the ranges identified above. In addition to the volumetric examinations, the licensee performed surface examinations on all the welds. The results of the surface examinations were acceptable. For six of the welds, the licensee stated that it will also use Class 1, Examination Category B-P, pressure testing, and VT-2 visual examinations to complement the applicable limited

examination coverage. For the other five welds, the licensee stated that it will use Class 2, Examination Category C-H, pressure testing, and VT-2 visual examinations to complement the applicable limited examination coverage. In order to meet the Code requirements, the components would have to be redesigned, fabricated, and installed in the systems, which would impose a burden on the licensee. Therefore, the NRC staff has determined that the licensee's limited examination coverage of the welds provide reasonable assurance of structural integrity. Based on the access limitations, it is impractical for the licensee to meet the Code coverage requirements.

4.0 CONCLUSION

The NRC staff has reviewed the licensee's submittal and has concluded that compliance with the Code requirements for volumetric coverage of the subject welds is impractical due to component configuration. The NRC staff has also determined that if the Code requirements were to be imposed on the licensee, the components must be redesigned, which would impose significant burden on the licensee. The NRC staff finds the examination coverage of the accessible weld volume as complemented by the additional examinations performed by the licensee, provide reasonable assurance of structural integrity of the subject welds. Therefore, relief is granted pursuant to 10 CFR 50.55a(g)(6)(i) for the third 10-year inservice inspection interval of Oconee Nuclear Station, Unit 3. This relief is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility. All other ASME Code, Section XI requirements for which relief was not specifically requested and authorized herein by the NRC staff remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: E. Reichelt

Oconee Nuclear Station, Units 1, 2, and 3

cc:

Ms. Lisa F. Vaughn
Duke Energy Corporation
526 South Church Street
P. O. Box 1006
Mail Code = EC07H
Charlotte, North Carolina 28201-1006

Manager, LIS
NUS Corporation
2650 McCormick Dr., 3rd Floor
Clearwater, FL 34619-1035

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
7812B Rochester Highway
Seneca, SC 29672

Mr. Henry Porter, Director
Division of Radioactive Waste Management
Bureau of Land and Waste Management
Dept. of Health and Env. Control
2600 Bull St.
Columbia, SC 29201-1708

Mr. Michael A. Schoppman
Framatome ANP
1911 North Ft. Myer Dr.
Suite 705
Rosslyn, VA 22209

Mr. B. G. Davenport
Regulatory Compliance Manager
Oconee Nuclear Site
Duke Energy Corporation
ON03RC
7800 Rochester Highway
Seneca, SC 29672

Ms. Karen E. Long
Assistant Attorney General
NC Department of Justice
P.O. Box 629
Raleigh, NC 27602

Mr. R. L. Gill, Jr.
Manager - Nuclear Regulatory
Issues and Industry Affairs
Duke Energy Corporation
526 S. Church St.
Mail Stop EC05P
Charlotte, NC 28202

Division of Radiation Protection
NC Dept of Environment, Health, & Natural
Resources
3825 Barrett Dr.
Raleigh, NC 27609-7721

Mr. Peter R. Harden, IV
VP-Customer Relations and Sales
Westinghouse Electric Company
6000 Fairview Road
12th Floor
Charlotte, NC 28210

Mr. Henry Barron
Group Vice President, Nuclear Generation
and Chief Nuclear Officer
P.O. Box 1006-EC07H
Charlotte, NC 28201-1006