December 27, 2006

Mr. Rick A. Muench
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION - REQUEST FOR RELIEF I2R-37 AND I2R-38 FOR THE SECOND 10-YEAR INTERVAL INSERVICE INSPECTION (TAC NOS. MD0291 AND MD0292)

Dear Mr. Muench:

By letter dated March 2, 2006 (ET 06-0011), the Wolf Creek Nuclear Operating Corporation (the licensee) requested relief from certain examination requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (i.e., the ASME Code) for the second 10-year inspection interval at Wolf Creek Generating Station (WCGS). Relief Requests (RRs) I2R-34, I2R-35, I2R-36, I2R-37, and I2R-38 were submitted in that letter. This letter addresses RRs I2R-37 and I2R-38. The licensee also provided a supplemental letter dated August 23, 2006 (ET 06-0034), for these two RRs.

In the enclosed safety evaluation (SE), the Nuclear Regulatory Commission (NRC) staff has evaluated the information provided by the licensee for RRs I2R-37 and I2R-38. Based on the SE, the NRC staff concludes that the ASME Code-required examination is impractical and, therefore, granting relief, pursuant to paragraph 50.55a(g)(6)(i) of Title 10 of the *Code of Federal Regulations*, 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. Therefore, the NRC staff grants the relief in RRs I2R-37 and I2R-38 in accordance with 10 CFR 50.55a(g)(6)(i), for the second 10-year ISI program interval at WCGS. All other ASME Code, Section XI, 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.

Sincerely,

/RA/

David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosure: Safety Evaluation

cc w/encl: See next page

December 27, 2006

Mr. Rick A. Muench
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION - REQUEST FOR RELIEF I2R-37 AND I2R-38 FOR THE SECOND 10-YEAR INTERVAL INSERVICE INSPECTION (TAC NOS. MD0291 AND MD0292)

Dear Mr. Muench:

By letter dated March 2, 2006 (ET 06-0011), the Wolf Creek Nuclear Operating Corporation (the licensee) requested relief from certain examination requirements of Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (i.e., the ASME Code) for the second 10-year inspection interval at Wolf Creek Generating Station (WCGS). Relief Requests (RRs) I2R-34, I2R-35, I2R-36, I2R-37, and I2R-38 were submitted in that letter. This letter addresses RRs I2R-37 and I2R-38. The licensee also provided a supplemental letter dated August 23, 2006 (ET 06-0034), for these two RRs.

In the enclosed safety evaluation (SE), the Nuclear Regulatory Commission (NRC) staff has evaluated the information provided by the licensee for RRs I2R-37 and I2R-38. Based on the SE, the NRC staff concludes that the ASME Code-required examination is impractical and, therefore, granting relief, pursuant to paragraph 50.55a(g)(6)(i) of Title 10 of the *Code of Federal Regulations*, 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. Therefore, the NRC staff grants the relief in RRs I2R-37 and I2R-38 in accordance with 10 CFR 50.55a(g)(6)(i), for the second 10-year ISI program interval at WCGS. All other ASME Code, Section XI, 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.

Sincerely,
/RA/
David Terao, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosure: Safety Evaluation

cc w/encl: See next page
DISTRIBUTION:

PUBLIC	RidsNrrDorlDpr	RidsOgcRp
LPLIV r/f	RidsNrrDorlLpl4 (DTerao)	RidsRgn4MailCenter
RidsAcrsAcnwMailCenter	RidsNrrLALFeizollahi	TChan, CPNB
RidsNrrDorl (CHaney/JLubinski)	RidsNrrPMJDonohew	WKoo, CPNB
		JLamb, EDO RIV

ADAMS Accession No.: ML063470082 Nlo sub to edits

OFFICE	NRR/LPL4/PM	NRR/LPL4/LA	CPNB/BC	OGC	NRR/LPL4/BC
NAME	JDonohew	LFeizollahi	TChan	TCampbell	DTerao
DATE	12/1/5/06	12/27/06	12/05/2006	12/21/06	12/27/06

OFFICIAL RECORD COPY

cc:
Jay Silberg, Esq.
Pillsbury Winthrop Shaw Pittman LLP
2300 N Street, NW
Washington, D.C. 20037

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 311
Burlington, KS 66839

Chief Engineer, Utilities Division
Kansas Corporation Commission
1500 SW Arrowhead Road
Topeka, KS 66604-4027

Office of the Governor
State of Kansas
Topeka, KS 66612

Attorney General
120 S.W. 10th Avenue, 2nd Floor
Topeka, KS 66612-1597

County Clerk
Coffey County Courthouse
110 South 6th Street
Burlington, KS 66839

Chief, Radiation and Asbestos Control Section
Kansas Department of Health and Environment
Bureau of Air and Radiation
1000 SW Jackson, Suite 310
Topeka, KS 66612-1366

Vice President Operations/Plant Manager
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

Supervisor Licensing
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

U.S. Nuclear Regulatory Commission
Resident Inspectors Office/Callaway Plant
8201 NRC Road
Steedman, MO 65077-1032

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELIEF REQUESTS I2R-37 and I2R-38

FOR THE SECOND 10-YEAR INSERVICE INSPECTION INTERVAL

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

1.0 INTRODUCTION

By application dated March 2, 2006 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML060720056), Wolf Creek Nuclear Operating Corporation (the licensee) submitted Relief Requests (RRs) I2R-34, I2R-35, I2R-36, I2R-37, and I2R-38 pertaining to the inservice inspection (ISI) requirements at Wolf Creek Generating Station (WCGS) for the second 10-year ISI interval. Specifically, the licensee proposed alternatives to the examination requirements in Section XI of America Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code).

This letter addresses RRs I2R-37 and I2R-38. The licensee also provided a supplemental letter dated August 23, 2006 (ADAMS Accession No. ML062410238), for these two RRs.

The proposed alternatives were used for ISI during the Cycle 14 refueling outage (RF14) at WCGS in the second 10-year ISI interval.

2.0 REGULATORY REQUIREMENTS

Paragraph 50.55a(g) of Title 10 of the *Code of Federal Regulations* (i.e.,10 CFR 50.55a(g)) specifies that the ISI of nuclear power plant components shall be performed in accordance with the requirements of the ASME Code, Section XI, except where specific written relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). Paragraph 50.55a(a)(3) of 10 CFR states that alternatives to the requirements of paragraph (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. Paragraph 50.55a(g)(5)(iii) of 10 CFR states that if the licensee has determined that conformance with certain code requirements is impractical for its facility, the licensee shall notify the Commission and submit, as specified in 10 CFR 50.4, information to support the determination. Paragraph 50.55a(g)(5)(iv) of 10 CFR requires that where an examination requirement by the code or addenda is determined to be impractical by the licensee and is not included in the revised ISI program, the basis for this determination must be

demonstrated to the Commission not later than 12 months after the expiration of the initial 120-month (10-year) period of operation during which the examination is determined to be impractical.

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 preservice 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. Pursuant to 10 CFR 50.55a(g)(4)(i) and (ii), the regulations require that ISI 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 applicable ASME Code of record for the second 10-year ISI interval at WCGS is the 1989 Edition with no Addenda.

The information provided by the licensee in support of RRs I2R-37 and I2R-38 has been evaluated by the NRC staff and the bases for disposition are documented below.

3.0 TECHNICAL EVALUATION FOR RRs I2R-37 AND I2R-38

3.1 Applicable Code Edition and Addenda

The ASME Code of record for the second 10-year ISI program at WCGS is the ASME Code, Section XI, 1989 Edition with no addenda. The second 10-year ISI interval began on September 3, 1995, and ended on September 2, 2005.

3.2. Relief Request I2R-37

3.2.1 Components for which Relief is Requested

The subject relief request applies to twelve (12) ASME Code Class 1, pressure retaining piping welds which were examined during the RF 14. These welds consist of four (4) reactor pressure vessel (RPV) inlet nozzle to safe-end dissimilar metal welds (Category B-F) and eight (8) RPV inlet and outlet safe-end to pipe welds (Category B-J). In the licensee's risk-informed ISI (RI-ISI) program, these welds correspond to Item R1.20 welds using the format in Code Case N-578-1.

3.2.2 Applicable Code Requirement

ASME Code, Section XI, Figure IWB-2500-8(c) requires a volumetric examination of a minimum volume of the inner 1/3 thickness of the weldment. The weldment consists of the weld and the base material on each side of the weld equal to a distance of 1/4 inch on each side of the weld crown. In addition, the regulation also requires that the performance of the ultrasonic testing (UT) examination meet the performance demonstration requirements in ASME Code, Section XI, Appendix VIII. Essentially 100 percent of the required volume of each weld must be inspected, and ASME Code Case N-460 permits a reduction in coverage of not less than 10 percent. The reduction in coverage of not less than 10 percent in the ASME Code case defines

"essentially 100 percent" in the ASME Code, Section XI, Appendix VIII, for examination coverage, as stated in NRC Information Notice 98-42, "Implementation of 10 CFR 50.55a(g) Inservice Inspection," dated December 1, 1998.

The RI-ISI program requires a volumetric examination of a minimum volume of the inner 1/3 thickness of the weldment. The weldment consists of the weld and the base material on each side of the weld equal to a distance of 1/4 inch on either side of the weld counterbore or 1/2 inch past the edge of the weld crown if no counterbore is present. The RI-ISI program was approved by the NRC for the method and frequency of examination, and selection of welds for the ISI of Code Class 1 and 2 piping welds.

3.2.3 Licensee Proposed Alternative and Basis for Use

In its application and supplemental letter, the licensee requested relief from the ASME Code-required volumetric examination coverage because the contracted vendor for UT examination did not meet the qualification requirements for the detection of axial flaws (circumferential scans) in either austenitic or dissimilar metal welds due to the presence of surface roughness in the inside diameter (ID) configuration. Therefore, in the examination of the subject welds, the UT coverage was credited by the licensee at 50 percent due to the licensee taking credit for the axial scans.

The licensee stated that due to the configuration of the ID surface of the subject welds at WCGS, it was impractical to comply with the ASME Code-required volumetric examination coverage. For the licensee to comply with the code requirements, it would require modifications or the replacement of the subject components. Compliance with the regulations would impose a considerable burden on the licensee.

The licensee proposed the following alternatives in lieu of the ASME Code-required volumetric examination coverage:

(1) UT of the subject welds to the maximum extent practical.

(2) Supplemental examination by eddy current techniques.

(3) VT-2 visual examination after pressure test of the subject welds.

The licensee stated that the proposed alternatives provide the best examination coverage practical within the limitations of the ID configuration of the subject welds. The performance of UT examinations will use a system (procedures, personnel, and equipment) qualified to Appendix VIII, Supplements 2 and 10 on specimens with smooth ID surfaces.

The techniques of eddy current testing (ET) examination have been developed and demonstrated to have the capability to detect ID connected flaws. In its supplemental letter, the licensee provided information on the use of the ET technique to supplement the UT examination. At V.C. Summer Nuclear Station, this was done in reactor vessel primary nozzle examinations in 2002 and 2003 and in a number of domestic pressurized-water reactor nozzle-to-pipe examinations. This ET technique has also been successfully blind tested at the Swedish Authority SQC Qualification Center. The ET examination personnel were qualified

using the established procedures and equipment to Level II or Level III in accordance with a written practice that is in compliance with the applicable requirements of American Society of Nondestructive Testing SNT-TC-1A, CP-189, and ASME Code, Section XI.

The licensee stated that the performance of a partial UT examination combined with the supplemental ET examination and visual examination for leakage provide a level of safety and quality equal to the ASME Code-required volumetric examination.

3.2.4 NRC Staff Evaluation

The licensee's contracted vendor did not fully meet the qualification requirements of ASME Code, Section XI, Appendix VIII, Supplements 2 and 10, because the vendor was unable to detect the axial flaws in the presence of rough surfaces. The unfavorable ID geometry caused the UT transducer to lift off from the rough surface such as the counter bore or the weld root protrusion. However, the contracted vendor was fully qualified when the welds are smooth. The NRC staff notes that at the time of this relief request, the Electric Power Research Institute Performance Demonstration Initiative (EPRI-PDI) program was not successful in qualifying examiners to detect axial flaws in the presence of rough surface. Therefore, the NRC staff determined that compliance with the ASME Code-required volumetric examination coverage for the examination of the welds with rough surfaces was impractical at that time. At that time, grinding or machining the welds smooth was not considered practical.

In a response to the NRC staff's request for additional information regarding potential degradation mechanisms that may occur in the affected safe-end welds, the licensee provided the following information:

(1) The safe-end to pipe welds are made of stainless steel and are not susceptible to a degradation mechanism. Furthermore, there have been no failures of these welds in the industry.

(2) The dissimilar metal welds constructed with Alloy 82/182 may be susceptible to primary water stress-corrosion cracking (PWSCC). However, the industry has not found any cracking in dissimilar metal welds that are exposed to a temperature lower than 565 °F. Therefore, the subject dissimilar welds are not considered highly susceptible to PWSCC because they are exposed to a maximum operating temperature not exceeding 558 °F.

Based on the above information, the staff has determined that the likelihood of finding cracks in the affected safe-end welds is relatively low.

The licensee proposed to perform VT-2 visual examinations after the pressure test as required by the ASME Code for Category B-P components. The VT-2 visual examinations are of sufficient detail to determine whether there was any leakage during the pressure test; therefore these examinations will detect any cracks and will provide reasonable assurance for leakage integrity.

The licensee proposed the use of ET to supplement the UT for the detection of axial flaws when significant surface roughness is present in the welds. The ET is known to have the capability of

detecting surface breaking flaws. The ET methodology to be used is similar to that used in the V.C. Summer Nuclear Station's 2000, 2002, and 2003 outages. The technique was refined based on examinations performed on field samples removed from the V.C. Summer Nuclear Station during the 2000 refueling outage. The field samples contained surface-induced PWSCC flaws and nonrelevant indications resulting from surface geometry and metallurgical interfaces. In addition, the licensee's contracted vendor has significant experience in performing such examinations using a combined ET/UT approach. Therefore, the NRC staff has determined that the licensee's proposed alternative of performing a partial UT examination and combined with the ET and VT-2 will provide reasonable assurance that the axial flaws in the presence of rough surface will be detected and, thus, provide reasonable assurance of structural integrity.

3.2.5 Conclusion

Based on the above evaluation, the NRC staff concludes that compliance with the ASME Code-required volumetric examination coverage in the presence of rough surfaces is impractical. The NRC staff also concludes that the proposed alternative of using ET and VT-2 to supplement the UT is acceptable because ET is capable of detecting axial flaws in the presence of rough ID surfaces and will thus provide reasonable assurance for structural integrity. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted for WCGS for the second 10-year ISI interval.

3.3 Relief Request I2R-38

3.3.1 Components for which Relief is Requested

The affected Class 1 and Class 2 RI-ISI piping welds are listed below:

Code Item	Description	Weld No.
R1.11	6" 180 Degree Return to 6" Flange (Valve 8010A)	BB-02-FW301
R1.11	3" Pipe to Valve 8378A	BG-21-F013B
R1.11	12" Pipe to Valve HV-8701A	EJ-04-F048A
R1.11	6" Pipe to Valve 8818A	EP-01-F009
R1.11	6" Pipe to Valve 8818D	EP-01-F021
R1.11	6" Pipe to Valve 8818C	EP-02-F022A
R1.20	6" Pipe to Pressurizer Safety Nozzle Safe-End	BB-02-F001A
R1.20	Valve PCV-455C to 4" Pipe	BB-04-F014

The assigned item numbers are based on the format in ASME Code Case N-578-1 for the licensee's RI-ISI program.

3.3.2 Applicable Code Requirement

ASME Code, Section XI, as shown in Figure IWB-2500-8(c) and Figure IWC-2500-7(a) for Class 1 and Class 2 components, respectively, requires a volumetric examination of a minimum volume of the inner 1/3 thickness of the weldment. The weldment consists of the weld and the base material on each side of the weld equal to a distance of 1/4 inch on each side of the weld

crown. In addition, the regulation also requires that the performance of UT examination shall meet the performance demonstration requirements in ASME Code, Section XI, Appendix VIII. Each weld is required to be inspected essentially 100 percent of the required volume. In ASME Code Case N-460, it permits a reduction in coverage of not less than 10 percent.

The RI-ISI program requires a volumetric examination of a minimum volume of the inner 1/3 thickness of the weldment. The weldment consists of the weld and the base material on each side of the weld equal to a distance of 1/4 inch on either side of the weld counterbore or 1/2 inch past the edge of the weld crown if no counterbore is present. The RI-ISI program was approved by the NRC for the method and frequency of examination and selection of welds for the ISI of Code Class 1 and 2 piping welds.

3.3.3 Licensee Proposed Alternative and Basis for Use

The licensee stated that due to the geometry of the subject components, the performance of the ultrasonic examination on the outside diameter surface is limited to one side. Furthermore, the licensee's contracted vendor is not qualified to a single-sided examination that can be considered to be equivalent to a two-sided examination on austenitic piping welds. Therefore, it is not practical to meet the ASME Code-required examination coverage requirements with a single-sided examination.

In lieu of the required examination coverage of essentially 100 percent, the licensee proposed the following alternatives:

(1) Due to the design configuration restrictions, UT of the subject welds will be performed to the maximum extent practical. This includes a best effort examination to the far side of each component to the extent possible utilizing a 60-degree refracted longitudinal search unit for components with a thickness greater than 0.5 inch, and utilizing a 70-degree shear wave search unit for components with a thickness equal to or less than 0.5 inch.

(2) Perform VT-2 visual examinations after pressure tests as required by ASME Code Category B-P.

The basis for using these alternatives is that they provide the best examination coverage possible within the limitations of the current design configuration. The UT examination was performed using a system (i.e., procedures, personnel, and equipment) qualified in accordance with Appendix VIII, Supplement 2. In addition, the thinner side of each component where the degradation typically begins, was fully examined.

3.3.4 NRC Staff Evaluation

The licensee's contracted vendor is unable to perform a full examination from both sides of the subject welds because the examinations can only be performed from one side (pipe side) of the welds. This access limitation is due to the presence of unfavorable geometry at the component side (far side) of the welds. The licensee provided sketches in their submittal to show the configurations of the valves, valve flange, and nozzle safe-end at the far side of the welds that limit the examination to a single side (pipe side). Furthermore, the contracted vendor is not

qualified by the EPRI-PDI program to perform a one-sided examination. To comply with the ASME Code-required volumetric examination coverage, the licensee needs to redesign and reinstall the subject components which are a significant burden to the licensee. The NRC staff notes that, at the time of this relief request, EPRI-PDI had not been able at that time to qualify anyone to meet the ASME Code coverage requirements by inspecting from a single side for welds made of austenitic materials. With no one qualified at that time to meet the ASME Code coverage requirements, it was impractical for the licensee to meet the requirements. Therefore, the NRC staff concludes that compliance with the ASME Code coverage requirements in the inspection of the subject welds was impractical at that time.

Based on the UT examinations performed during the RF14, some limited examinations were performed on the far side of the welds. The licensee stated that, for the axial scans, 85 percent to 100 percent of the required coverage was achieved; however, for the circumferential scans, only 20 percent to 65 percent of the required coverage was achieved.

Based on its review of the geometry of the welds from sketches provided by the licensee, the NRC staff finds that there is a counterbore in each of the subject welds and that the wall thickness in the counterbore area at the component side (far side) of the weld is thicker than at the pipe side. Based on the designed weld configurations as shown by the sketches, the stress level is expected to be higher at the pipe side of the weld and, particularly, at the stress concentration area of the counterbore, where degradation typically would start. Thus, if no degradation was found in the pipe side of the welds, the likelihood of finding cracks in the component side (far side) of the welds is low. Based on this, the NRC staff concludes that the examinations from the pipe side of the welds with the best effort to the maximum extent possible provides reasonable assurance of structural integrity.

3.3.5 Conclusion

Based on the above evaluation, the NRC staff concludes that compliance with the ASME Code-required volumetric examination coverage in the presence of unfavorable geometry at the component side (far side) of the welds is not practical. The NRC staff also concludes that the proposed alternative is acceptable because it will provide reasonable assurance of structural integrity. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted for WCGS for the second 10-year ISI interval.

4.0 CONCLUSION

The licensee submitted RRs I2R-37 and I2R-38 to request relief from certain examination coverage requirements of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (i.e., the ASME Code) for the second 10-year inspection interval at WCGS on the basis that the requirements were impractical. The second 10-year interval at WCGS ended on September 2, 2005. By the application March 2, 2006, for these two RRs, the licensee has submitted its requests for relief within 12 months of the end of the second 10-year interval and, therefore, the NRC staff concludes that the licensee has met the requirements of 10 CFR 50.55a(g)(5)(iii) and (iv).

Based on the above evaluation in Sections 3.2 and 3.3 of this safety evaluation, the NRC staff concludes that it is impractical for the licensee to comply with the ASME Code-required

volumetric examination coverage required for the affected welds and the proposed alternative is acceptable because it will provide reasonable assurance of structural integrity. Therefore, pursuant to 10 CFR 50.55a(g)(6)(i), relief is granted for WCGS for the second 10-year ISI interval. Based on the above evaluation, the granting of relief from the requirements of the ASME Code of record for WCGS 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: William Koo

Date: December 27, 2006