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

July 13, 2010

Mr. Ross T. Ridenoure
Senior Vice President and Chief Nuclear Officer
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

SUBJECT: SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3 – RELIEF REQUEST ISI-3-30, REQUEST FOR RELIEF FROM INSERVICE INSPECTION REQUIREMENTS FOR REACTOR VESSEL HEAD IN-CORE INSTRUMENT NOZZLES (TAC NOS. ME2340 AND ME2341)

Dear Mr. Ridenoure:

By letter dated October 2, 2009 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML092790155), as supplemented by letter dated December 18, 2009 (ADAMS Accession No. ML093570270), Southern California Edison Company (SCE, the licensee) submitted "Third Ten-Year Inservice Inspection (ISI) Interval Relief Request ISI-3-30, Inspection of Reactor Vessel Head In-Core Instrument Nozzles," for the San Onofre Nuclear Generating Station (SONGS), Units 2 and 3. The submittal requests U.S. Nuclear Regulatory Commission (NRC) approval for relief from the inspection requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, ASME Code Case N-729-1, as required and conditioned by Title 10 of the *Code of Federal Regulations* (10 CFR), paragraph 50.55a(g)(6)(ii)(D).

The NRC staff has completed its review and concludes that complying with the specified requirement would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Accordingly, the staff concludes that the licensee has adequately addressed all of the regulatory requirements set forth in 10 CFR 50.55a(a)(3)(ii), and that the alternative provides reasonable assurance of structural integrity and leak tightness of the subject in-core instrument (ICI) nozzles. The staff previously provided verbal authorization for the use of this alternative for SONGS, Unit 2, on December 23, 2009. The summary of the staff's verbal authorization is documented in a memorandum dated January 20, 2010 (ADAMS Accession No. ML100060627).

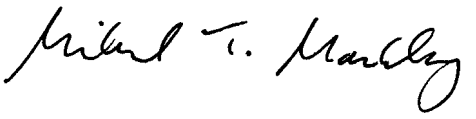
As discussed in the NRC staff's enclosed safety evaluation (SE), the licensee's proposed alternative examination for the ICI nozzles is authorized for SONGS, Units 2 and 3, up to the commencement of the 17th refueling outage for each unit (fall of 2011 and fall of 2012, respectively), when the reactor pressure vessel heads are scheduled to be replaced. In its letter dated October 2, 2009, SCE requested authorization of the proposed alternative for Units 2 and 3 for the remainder of the third 10-year ISI interval. However, the staff's authorization of the alternative examination applies only to one cycle of operation, as specified in the SE. For SONGS, Unit 2, that is the current operating cycle (the alternative examinations were performed during the fall 2009 refueling outage). For SONGS, Unit 3, that is the next operating cycle (the

alternative examinations will be performed during the upcoming fall 2010 refueling outage). Furthermore, the staff has set an additional condition on the use of the proposed alternative for Unit 3, based on the extent of examination coverage achieved. Specifically, the NRC staff's evaluation and conclusions are based, in part, on the combination of eddy current test coverage and on the extent of ultrasonic test examination with acceptable data quality that was successfully achieved for the ICI nozzles in SONGS, Unit 2. Since such data are not yet available for examination of the ICI nozzles in SONGS, Unit 3, the staff stipulates that if SCE is unable to achieve at least 90 percent acceptable data quality coverage for the volume between the root of the J-groove weld and 2 inches below the J-groove weld root for the SONGS, Unit 3, ICI nozzles, SCE will need to submit a new relief request for Unit 3 which includes further justification for the extent of acceptable data quality coverage achieved.

All other requirements of the ASME Code, Section XI, Code Case N-729-1, and 10 CFR 50.55a(g)(6)(ii)(D) for which relief was not specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact Randy Hall at (301) 415-4032 or via e-mail at randy.hall@nrc.gov.

Sincerely,



Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-361 and 50-362

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

THIRD 10-YEAR INSERVICE INSPECTION INTERVAL RELIEF REQUEST ISI-3-30, INSPECTION OF REACTOR VESSEL HEAD IN-CORE INSTRUMENT NOZZLES

SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3

SOUTHERN CALIFORNIA EDISON COMPANY

DOCKET NOS. 50-361 AND 50-362

1.0 INTRODUCTION

By letter dated October 2, 2009 (Reference 1), as supplemented by letter dated December 18, 2009 (Reference 2), Southern California Edison Company (SCE, the licensee) submitted "Third Ten-Year Inservice Inspection (ISI) Interval Relief Request ISI-3-30, Inspection of Reactor Vessel Head In-Core Instrument Nozzles." The licensee requests relief from the inspection requirements of American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Case N-729-1, "Alternative Examination Requirements for Pressurized Water Reactor (PWR) Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial Penetration Welds, Section XI, Division 1," as required and conditioned by Title 10 of the *Code of Federal Regulations*, Part 50 (10 CFR 50) paragraph 55a(g)(6)(ii)(D), for the San Onofre Nuclear Generation Station (SONGS), Units 2 and 3. Specifically, the licensee stated that, due to the inability to qualify the ultrasonic examination techniques and personnel in accordance with 10 CFR 50.55a(g)(6)(ii)(D)(4), the required surface examination of the in-core instrument (ICI) nozzles to the extent specified by Code Case N-729-1, as required and conditioned by 10 CFR 50.55a(g)(6)(ii)(D)(3), would result in a hardship without a compensating increase in the level of quality or safety. The information provided by the licensee in support of the request for relief from ASME Code requirements has been evaluated by the U.S. Nuclear Regulatory Commission (NRC) staff and the basis for disposition is documented below.

The NRC staff previously provided verbal authorization for the use of this alternative for SONGS, Unit 2, on December 23, 2009. The summary of the staff's verbal authorization is documented in a memorandum dated January 20, 2010 (Reference 3).

2.0 REGULATORY EVALUATION

The regulations in 10 CFR 50.55a(g)(6)(ii)(D) require augmented inservice inspection (ISI) of reactor pressure vessel head (RPVH) penetration nozzles of pressurized-water reactors (PWRs) in accordance with ASME Code Case N-729-1, subject to the conditions specified in paragraphs (2) through (6) of 10 CFR 50.55a(g)(6)(ii)(D). Paragraph (3) states, in part, "Instead

of the specified 'examination method' requirements for volumetric and surface examinations in Note 6 of Table 1 of Code Case N-729-1, the licensee shall perform volumetric and/or surface examination of essentially 100 percent of the required volume or equivalent surfaces of the nozzle tube, as identified by Figure 2 of ASME Code Case N-729-1."

Paragraph 55a(a)(3) of 10 CFR 50 states, in part, that alternatives to the requirements of 10 CFR 50.55a(g) may be used when authorized by the NRC, if the applicant demonstrates that: (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. The licensee's request for authorization to use the proposed alternative examination for the ICI nozzles has been submitted on the basis that compliance with the specified requirements would result in hardship due to significant personnel radiation exposure without a compensating increase in the level of quality and safety.

The Code of record for SONGS Units 2 and 3 for the third 10-year ISI interval, which started in August 2003 and is scheduled to be complete in August 2013, is ASME Code, Section XI, 1995 Edition through the 1996 Addenda.

The licensee requested authorization of the proposed alternative for ICI nozzle tube examinations for Units 2 and 3 for the existing RPVHs for the remainder of the third 10-year ISI interval. SCE further indicated that it plans to install replacement RPVHs in SONGS, Units 2 and 3, during the Cycle 17 refueling outages, currently scheduled for fall of 2011 and fall of 2012, respectively. The replacement heads incorporate design changes that will remove the need for the requested relief.

3.0 TECHNICAL EVALUATION

3.1 Components Affected

The components affected are ten ASME Code Class 1 RPVH penetration ICI nozzle tubes, penetrations 92 through 101, identified by item number B4.20 in Table 1 of ASME Code Case N-729-1 for SONGS, Units 2 and 3.

3.2 Code Requirements

The regulations in 10 CFR 50.55a(g)(6)(ii)(D)(1) state, in part, that licensees of existing operating PWRs shall augment their ISI program with ASME Code Case N-729-1, subject to the conditions specified in paragraphs (g)(6)(ii)(D)(2) through (6). The licensee is to perform a volumetric and/or surface examination of essentially 100 percent of the required volume or equivalent surfaces of the nozzle tube, as identified below in Figure 2 of ASME Code Case N-729-1.

FIG. 2 EXAMINATION VOLUME FOR NOZZLE BASE METAL AND EXAMINATION AREA FOR WELD AND NOZZLE BASE METAL

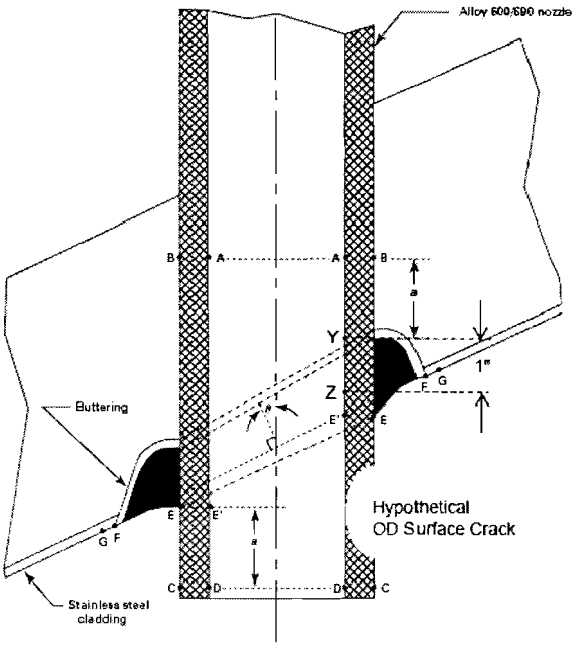


Figure 2 identifies the required volume of nozzle tube to be inspected as a distance "a" above the highest point of the root (Y) of the J-groove weld to a distance "a" below the lowest point of the toe (E) of the J-groove weld. The distance "a" is equal to 1.5 inches (38 millimeters (mm)) for incidence angle, Θ, $\leq$ 30 degrees and for all nozzles $\geq$ 4.5 inches (115 mm) outside diameter (OD) or 1 inch (25 mm) for incidence angle, Θ, $\geq$ 30 degrees; or to the end of the nozzle tube, whichever is less. Since the ICI nozzle tubes have an OD of 5.563 inches, the required distance "a" is 1.5 inches. If a surface examination is being substituted for a volumetric examination on a portion of a penetrating nozzle tube that is below the toe of the J-groove weld, the surface examination shall be of the inside and outside wetted surface of the penetration nozzle tube not examined volumetrically (A-D-C-E).

3.3 Licensee's Proposed Alternative and Basis

The licensee was unable to qualify the ultrasonic test (UT) examination personnel and procedures for the ICI nozzle tubes in accordance with the requirements of 10 CFR 50.55a(g)(6)(ii)(D)(4). As an alternative to UT examination, 10 CFR 50.55a(g)(6)(ii)(D)(3) allows substitution of surface examination of the nozzle tube inside diameter (ID) and OD wetted surfaces. The licensee stated that the ID surface examination can be performed remotely but, due to nozzle tube geometry, the OD surface examination would have to be performed manually. Manually performing an OD surface examination would constitute a hardship due to significant occupational radiation exposure, estimated to be 5 person-roentgen equivalent man (person-rem).

The licensee proposes to perform an eddy current (ET) examination of the nozzle tube ID (A-D) and bottom surfaces (C-D). The ET examination will extend from a distance "a" above the

highest point of the J-groove weld root (Y) to the extent possible below the J-groove weld. Instead of the ET examination of the nozzle tube OD surface (C-E), the licensee proposes to perform a volumetric examination of the nozzle tube on the ID surface from a distance "a" above the highest point of the J-groove weld root to the extent possible below the J-groove weld (A-D) using time-of-flight diffraction (TOFD) UT examination. Where the UT data quality between the J-groove weld root to 1 inch below the J-groove weld root (Y-Z) are determined to be unacceptable, a compensatory ET examination of the corresponding ICI nozzle tube OD surface will be performed. The compensatory ET examination of the OD surface will include approximately ¼ inch of the outside nozzle tube surface adjacent to the lower extent of the J-groove weld fillet.

The licensee states that a finite element (FE) analysis of the operating and fabrication stresses, and a fracture mechanics (FM) evaluation of crack growth have been performed to show that a postulated through-wall crack with its tip 1 inch below the J-groove weld root will not propagate to the root within one operating cycle.

The licensee states that the combination of the ET examination of the nozzle tube ID and bottom-end surfaces, along with TOFD UT examination of the ID surface and the crack growth evaluation demonstrates that a hypothetical through-thickness axial crack located at least 1 inch below the root of the J-groove weld will not reach the root of the J-groove weld within one operating cycle, thus assuring the integrity of the pressure boundary until the RPVH is replaced during the Cycle 17 refueling outage for each unit (fall of 2011 and fall of 2012, respectively).

4.0 NRC STAFF EVALUATION

The susceptibility of RPVH penetration nozzles in PWRs to primary water stress-corrosion cracking (PWSCC) is a safety concern. The nozzles are nickel-based alloys and are welded using nickel-based weld metal alloy to the RPVH. Primary-water coolant, high-tensile stress, and elevated operating temperatures of PWRs can result in PWSCC of the nickel-based alloys used in the ICI nozzle tubes. The subject ICI nozzle tubes at SONGS, Units 2 and 3, meet the conditions for PWSCC and, therefore, may be susceptible to cracking in the nozzle tubes and associated J-groove welds which could result in leakage of boric acid and corrosion of the low alloy steel RPVH.

The licensee has identified physical limitations which prevent qualification of volumetric inspections of the ICI nozzles below the J-groove weld. These limitations include an elliptical nozzle tube cross-section that results from lower end of the nozzle tube conforming to the spherical head surface. The nozzle tube distortion can make it impossible to maintain adequate contact of the UT transducers with the nozzle tube ID surface, resulting in the inability to qualify and perform the UT examination. The NRC staff notes that other licensees have also been unable to qualify UT examination of the ICI tubes to the requirements of 10 CFR 50.55a(g)(6)(ii)(D)(4) and acknowledges that qualification cannot be accomplished at this time.

Paragraph 55a(g)(6)(ii)(D)(3) of 10 CFR 50 gives the licensee the option of performing a surface examination of the wetted surface of the penetration nozzle tube not examined volumetrically. The nozzle tube ID and lower-end surface inspections can be performed remotely using ET equipment, but the dimensional variations in the nozzles that result from tolerances in allowable J-groove weld reinforcement during original fabrication makes manual ET examination of the

nozzle tube OD surface necessary. The licensee estimated that manual ET examination of the OD surfaces would result in a significant occupational radiation exposure to workers, approximately 5 person-rem for ET examination of all ICI locations. The NRC staff notes that other licensees are also unable to remotely perform ET examination of the ICI nozzle tube OD surface, and finds that remote ET examination cannot be performed at this time. Based on the above, the NRC staff concludes that compliance with the surface coverage requirements of 10 CFR 50.55a(g)(6)(ii)(D)(3) would result in a hardship because of significant occupational exposure to workers.

As an alternative to the examination required by 10 CFR 50.55a(g)(6)(ii)(D)(3), the licensee has proposed using ET to examine the ICI nozzle tube ID surface from the required distance "a," per Code Case N-729-1, above the highest point of the root of the J-groove weld to the maximum extent possible below the J-groove weld, including the bottom-end surface of the nozzle. However, instead of performing an ET examination of the nozzle tube OD surface below the J-groove weld toe, the licensee proposes to perform a supplemental UT examination of the nozzle tube ID surface from a distance "a" above the root of the J-groove weld to the extent possible below the J-groove weld using personnel and procedures which were Electric Power Research Institute (EPRI)-qualified to perform UT examinations on control element drive mechanism (CEDM) nozzles. The NRC staff notes that such UT examination has been used previously to satisfy the requirements of the First Revised NRC Order EA-03-009 (Order) (Reference 4).

The licensee has recognized that the physical limitations which prevented qualification of the UT procedure and personnel for ICI nozzle tube examination will also be present during the UT examination of the subject ICI nozzle tubes in the field, and may result in areas where the quality of the TOFD data is unacceptable. If EPRI-qualified analysts determine that the TOFD data has unacceptable quality from the root of the J-groove weld to 1 inch below the root of the J-groove weld (Y-Z), the licensee proposes to perform a manually delivered ET examination of the nozzle tube OD, including the nozzle tube surface that is within ¼ inch of the toe of the J-groove weld. The NRC staff concludes that the compensatory ET examination on the nozzle tube OD surface adequately compensates for unacceptable UT data quality and will provide reasonable assurance of the structural integrity and leak tightness of the nozzles. Thus, the staff concludes that the compensatory ET examination is acceptable.

In response to a request for additional information (RAI), the license provided UT examination data for penetrations 92 through 101 of SONGS, Unit 2, showing that the UT examination had between 94 and 100 percent acceptable data quality coverage of the nozzle tube volume between the root of the J-groove weld and 2 inches below the J-groove weld root (Reference 2). The successful UT examination coverage on the nozzle tube uphill side extends in excess of 3 inches below the root of the J-groove weld for each of the tubes, and that for the downhill side extends in excess of 1 inch for each of the nozzle tubes (Reference 2). The NRC staff has examined the data in Reference 2 and notes that the short nozzle tube extension length below the J-groove weld root is responsible for the small extent of examination on the downhill side of the nozzle tubes. Where this is the case, the ET examination of the nozzle tube bottom surface is capable of detecting through-wall axial cracks that could exist near the weld toe. The staff has reviewed the UT coverage data and is satisfied that the UT and ET examinations successfully capture the critical, high-stress areas of the ICI nozzle tubes and were carried out to the extent possible.

The licensee has performed an analysis of the expected propagation of postulated cracks (Reference 5). The first part of the analysis consisted of a three-dimensional elastic-plastic FE stress analysis to evaluate the stresses in the head penetration region. This analysis considered the pressure loads associated with steady-state operation, as well as the stresses that are produced by the fabrication process. The second part of the analysis consisted of an FM evaluation of the propagation of postulated cracks. The NRC staff has reviewed the licensee's analysis and accepted the methodology and conclusions in a previous safety evaluation for the SONGS reactor head penetration nozzle tube examination (Reference 6). The NRC staff's safety evaluation was conditioned on the acceptance of the crack growth formula and constants that were used. The crack growth formula and the associated numerical constants that were employed in Reference 5 are the same as those for reactor vessel head penetration nozzles given in ASME Code, Section XI, Appendix O, 2004 Edition; therefore, the staff concludes their use is acceptable.

The NRC staff concludes that circumferential cracking below the J-groove weld has no structural significance, except that loose parts must be avoided, and notes that the licensee's estimate of the required time for a circumferential crack above the J-groove weld to affect the integrity of the ICI nozzle tube is approximately 40 years. Therefore, the NRC staff concludes that circumferential cracking has been adequately addressed.

The NRC staff notes that axial through-wall cracks and axial ID surface cracks do not need to be considered in the flaw growth analysis since the Code-compliant ET examination of the nozzle tube ID surface (A-D) will ensure that no surface penetrating cracks exceeding Code limits exist on the ID surface. Also, OD surface cracks above the J-groove weld toe do not need to be considered in the flaw growth analysis since they cannot be initiated in the absence of primary water, and the existence of primary water in the OD surface region above the J-groove weld is evaluated by the required bare metal visual inspection of the head and the qualified weld leak path assessment.

The bounding condition for a hypothetical crack that is in contact with primary water and is not examined by a Code-compliant procedure is a surface crack below the J-groove weld on the nozzle tube OD surface whose crack depth (a) approaches the wall thickness (t) at the time of the ET ID surface examination (i.e., a/t approaches unity). The uppermost extent that such a hypothetical crack on the nozzle tube surface could exist is determined by the TOFD UT examination from the nozzle tube ID surface. The licensee's requirement of a minimum of 1 inch of acceptable UT data quality below the weld root ensures that a crack cannot exist in this volume. The NRC staff notes that, although the UT examination is not compliant with the requirements of 10 CFR 50.55a(g)(6)(ii)(D)(4), the operators and procedures have been qualified for CEDM nozzle tube examinations, and UT examination has been accepted for ICI nozzle tube examination under the Order. Therefore, the staff concludes that the examination provides reasonable assurance that an OD surface flaw does not exist within the specified 1-inch distance below the weld root.

After an increment in operating time, such an OD surface crack would be expected to become a through-wall crack and begin propagating in the axial direction. The licensee has analyzed the time required for a through-wall crack whose upper tip is located 1 inch below the J-groove weld root (Z) to propagate to the weld root (Y). The NRC staff has evaluated the licensee's FM crack

growth data (Reference 5, Figures C-5 and C-6) and calculated the time necessary for through-wall axial cracks on both the downhill and uphill sides of the ICI nozzle tube to propagate to the weld root. The staff determined that the minimum time required for such a through-wall axial flaw to propagate to the J-groove weld root is in excess of 2 years. Since this time is in excess of the length of an operating cycle at SONGS, the staff concludes that there is adequate margin to ensure the pressure boundary integrity for one cycle of operation.

The NRC staff notes that there are a number of conservative assumptions incorporated in the licensee's flaw growth analysis, several of which were identified in Reference 6. In addition, the licensee's data supplied in response to the staff's RAI shows that a minimum distance of 1 inch below the root of the J-groove weld has been examined by UT for all nozzle tubes, with most examination distances extending significantly farther, between 2.5 and 4.0 inches. The extent of acceptable UT examination beyond the 1-inch minimum UT examination distance, along with the full ET coverage on the nozzle tube ID and bottom surfaces, provide a high degree of assurance that cracks that could potentially propagate to the J-groove weld root are detected. In addition, the licensee's analysis assumes a hypothetical through-wall crack, the most detrimental configuration, 1 inch below the J-groove weld toe. However, Code-compliant ET examination from the nozzle tube ID surface eliminates the possibility of a through-wall crack in this volume. Also, the time required for propagation of the hypothetical OD surface crack to become a through-wall crack has not been used to calculate the time to propagate to the J-groove weld root.

ASME Code Case N-729-1, on which the examination requirements are based, allows justification of an alternative examination zone when it can be demonstrated, using the methodology in Appendix I of the Code Case, that a hypothetical axial crack in the unexamined zone below the J-groove weld in the nozzle tube will not grow to the toe of the J-groove weld prior to the next examination[1]. For continuing long-term operation of the RPVH over several operating cycles, the possibility of corrosion of the steel RPVH must be avoided. Therefore, setting the acceptance criterion of axial crack propagation to the toe of the J-groove weld is both reasonable and conservative. The NRC staff has considered the proposed acceptance criterion that a hypothetical crack will not grow to the root, rather than to the toe, of the J-groove weld. The staff concludes that, when the RPVH will be replaced at the next refueling outage, as is the case for SONGS, Units 2 and 3, an appropriate acceptance criterion is to ensure the integrity of the pressure boundary for that one cycle. Thus, the staff concludes that crack propagation to the root of the J-groove weld is an appropriate evaluation criterion and accepts the licensee's analysis.

The NRC staff's evaluation and conclusions are based, in part, on the combination of ET coverage and on the extent of UT examination with acceptable data quality that was successfully achieved for the ICI nozzles in SONGS, Unit 2. Since such data are not yet available for examination of the ICI nozzles in SONGS, Unit 3, the staff stipulates that if the licensee cannot achieve at least 90 percent acceptable data quality coverage for the volume between the root of the J-groove weld and 2 inches below the J-groove weld root for SONGS, Unit 3, the licensee will need to submit a new relief request for Unit 3 which includes further justification for the extent of acceptable data quality coverage achieved.

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[1] Paragraph 6 of 10 CFR 50.55a(g)(6)(ii)(D) does not allow the use of Appendix I of Code Case N-729-1 to determine an alternate examination zone without prior NRC approval.

In summary, the NRC staff concludes that the licensee's proposed alternative provides reasonable assurance of structural integrity and leak tightness of the ICI nozzle tubes, and that compliance with the requirements of 10 CFR 50.55a(g)(6)(ii)(D) would result in hardship without a compensating increase in the level of quality and safety.

5.0 CONCLUSION

As set forth above, the NRC staff has determined that the licensee's proposed alternative provides reasonable assurance of structural integrity and leak tightness of the subject ICI nozzle tubes and that complying with the requirements ASME Code Case N-729-1, as required and conditioned by 10 CFR 50.55a(g)(6)(ii)(D), would result in hardship due to significant occupational radiation exposure without a compensating increase in the level of quality or safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the NRC staff authorizes the proposed alternative for SONGS, Units 2 and 3, for the 16th operating cycle up to the commencement of the 17th refueling outage for each unit, when the respective RPVHs are scheduled to be replaced.

All other requirements of Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D) not specifically requested and approved in the subject request for relief remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

6.0 REFERENCES

1. Conklin, L., Southern California Edison, letter to U.S. Nuclear Regulatory Commission, "Third Ten-Year Inservice Inspection (ISI) Interval, Relief Request ISI-3-30, Inspection of Reactor Vessel Head In-Core Instrument Nozzles, San Onofre Nuclear Generating Station, Units 2 and 3," dated October 2, 2009 (ADAMS Accession No. ML092790155).

2. St. Onge, R. J. ., Southern California Edison, letter to U.S. Nuclear Regulatory Commission, "Response to Request for Additional Information Regarding Third Ten-Year Inservice Inspection (ISI) Interval, Relief Request ISI-3-30, Inspection of Reactor Vessel Head In-Core Instrument Nozzles, San Onofre Nuclear Generating Station, Units 2 and 3," dated December 18, 2009 (ADAMS Accession No. ML093570270).

3. Hall, J. R., U.S. Nuclear Regulatory Commission, memorandum to M. Markley, U.S., Nuclear Regulatory Commission, "Summary of the December 23, 2009, Conference Call with Southern California Edison Company Regarding Relief Request ISI-3-30 for the San Onofre Nuclear Generating Station, Units 2 and 3 (TAC Nos. ME2340 and ME2341)," dated January 20, 2010 (ADAMS Accession No. ML100060627).

4. Borchardt, R. W., U.S. Nuclear Regulatory Commission, letter to Holders of Licenses for Operating Pressurized Water Reactors, "Issuance of First Revised NRC Order (EA-03-009) Establishing Interim Inspection Requirements for Reactor Pressure Vessel Heads at Pressurized Water Reactors," dated February 20, 2004 (ADAMS Accession No. ML040220181).

5. Westinghouse Electric Company LLC, WCAP-15819-P, Revision 1, "Structural Integrity Evaluation of Reactor Vessel Upper Head Penetrations to Support Continued Operation: San Onofre Units 2 and 3," January 2004 (Proprietary) (WCAP-15819-NP, Revision 1, publicly available at ADAMS Accession No. ML040500598).

6. Berkow, H. N., U.S. Nuclear Regulatory Commission, letter to H. Ray, Southern California Edison Company, "Relaxation of The Requirements of Order EA-03-009 Regarding Reactor Pressure Vessel Head Inspections, San Onofre Nuclear Generating Station (SONGS), Units 2 and 3 - Relaxation Request 3 (TAC Nos. MC5522 and MC5523)," dated June 27, 2005 (ADAMS Accession No. ML051780416).

Principal Contributor: J. Wallace

Date: July 13, 2010

alternative examinations will be performed during the upcoming fall 2010 refueling outage). Furthermore, the staff has set an additional condition on the use of the proposed alternative for Unit 3, based on the extent of examination coverage achieved. Specifically, the NRC staff's evaluation and conclusions are based, in part, on the combination of eddy current test coverage and on the extent of ultrasonic test examination with acceptable data quality that was successfully achieved for the ICI nozzles in SONGS, Unit 2. Since such data are not yet available for examination of the ICI nozzles in SONGS, Unit 3, the staff stipulates that if SCE is unable to achieve at least 90 percent acceptable data quality coverage for the volume between the root of the J-groove weld and 2 inches below the J-groove weld root for the SONGS, Unit 3, ICI nozzles, SCE will need to submit a new relief request for Unit 3 which includes further justification for the extent of acceptable data quality coverage achieved.

All other requirements of the ASME Code, Section XI, Code Case N-729-1, and 10 CFR 50.55a(g)(6)(ii)(D) for which relief was not specifically requested and approved remain applicable, including third-party review by the Authorized Nuclear Inservice Inspector.

If you have any questions, please contact Randy Hall at (301) 415-4032 or via e-mail at randy.hall@nrc.gov.

Sincerely,

/RA/

Michael T. Markley, Chief
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-361 and 50-362

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Safety Evaluation

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