June 27, 2005

Mr. Harold B. Ray
Executive Vice President
Southern California Edison Company
San Onofre Nuclear Generating Station
P.O. Box 128
San Clemente, CA 92674-0128

SUBJECT: 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)

Dear Mr. Ray:

On February 11, 2003, the U.S. Nuclear Regulatory Commission (NRC) issued Order EA-03-009 requiring specific inspections of the reactor pressure vessel (RPV) head and associated penetration nozzles at pressurized water reactors. The NRC issued an errata to the Order on March 14, 2003, to correct an administrative part of the Order related to requests for relaxation of the Order requirements. On February 20, 2004, the NRC issued the First Revised Order Modifying Licenses, which supersedes and revises certain inspection aspects of the original Order.

Section IV.F of the Order states that requests for relaxation associated with specific penetration nozzles will be evaluated by the NRC staff using its procedure for evaluating proposed alternatives to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) in accordance with Section 50.55a(a)(3) of Title 10 of the *Code of Federal Regulations* (10 CFR 50.55a(a)(3)).

Sections IV.A and IV.B of the Order provide the criteria to categorize each plant's RPV head with respect to its susceptibility to primary water stress corrosion cracking. For plants like SONGS, Units 2 and 3, with RPV heads categorized as highly susceptible to PWSCC, Section IV.C.(1) of the Order requires that the RPV head penetration nozzles be inspected each refueling outage as prescribed in Sections IV.C.(5)(a) and IV.C.(5)(b).

By letter dated January 3, 2005 (Agencywide Documents Access and Management System Accession No. ML050050216), Southern California Edison Company (SCE or the licensee) requested relaxation of the First Revised Order to implement an alternative to the requirements of Section IV, paragraphs C.(5)(b)(i) and C.(5)(b)(ii), for RPV head penetration nozzles at SONGS, Units 2 and 3. The relaxation request was made pursuant to the procedure specified in Section IV.F of the Order. Specifically, SCE requested relaxation from nondestructive examination requirements in inaccessible areas around control element drive mechanisms (CEDMs).

The NRC staff has reviewed and evaluated the information provided in support of your request for relaxation as documented in the enclosed safety evaluation (SE). The staff's SE concludes that SCE has demonstrated good cause for the requested relaxation because the proposed alternative provides an acceptable level of quality and safety, and because compliance with the First Revised Order would result in hardship without a compensating increase in the level of quality and safety. Therefore, pursuant to Section IV.F of the First Revised NRC Order EA-03-009 dated February 20, 2004, the staff authorizes the proposed alternative inspection for the 91 CEDMs at SONGS, Unit 2, and the 91 CEDMs at SONGS, Unit 3, for each operating cycle, not greater than 21 months, for a time period for which the First Revised NRC Order EA-03-009 dated February 20, 2004, remains in effect, subject to the condition proposed by you and stated in the enclosed SE, as follows:

> If the NRC staff finds that the crack-growth formula in industry report MRP-55 is unacceptable, then SCE will revise its analysis that justifies relaxation of the Order within 30 days after the NRC informs the licensee of an NRC-approved crack growth formula. If SCE's revised analysis shows that the crack growth acceptance criteria are exceeded prior to the end of the current operating cycle, SCE will consider Relaxation Request 3 [licensee's January 3, 2005, submittal] to be rescinded and, within 72 hours, SCE will submit to the NRC written justification for continued operation. If the revised analysis shows that the crack growth acceptance criteria are exceeded during the subsequent operating cycle, SCE will, within 30 days, submit the revised analysis for NRC review. If the revised analysis shows that the crack growth acceptance criteria are not exceeded during either the current operating cycle or the subsequent operating cycle, SCE will, within 30 days, submit a letter to the NRC confirming that its analysis has been revised. Any future crack-growth analyses performed for this and future cycles for RPV head penetrations will be based on a crack growth rate formula that is acceptable to the NRC.

You should be aware that, when vessel head inspections are performed using ASME Code requirements, acceptance criteria, or qualified personnel, those activities and all related activities fall within the jurisdiction of the ASME Code. Therefore, Order-related inspection activities may be subject to third party review, including those by the Authorized Nuclear Inservice Inspector.

Sincerely,

/RA/

Herbert N. Berkow, Director
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-361 and 50-362

Enclosure: Safety Evaluation

cc w/encl: See next page

The NRC staff has reviewed and evaluated the information provided in support of your request for relaxation as documented in the enclosed safety evaluation (SE). The staff's SE concludes that SCE has demonstrated good cause for the requested relaxation because the proposed alternative provides an acceptable level of quality and safety, and because compliance with the First Revised Order would result in hardship without a compensating increase in the level of quality and safety. Therefore, pursuant to Section IV.F of the First Revised NRC Order EA-03-009 dated February 20, 2004, the staff authorizes the proposed alternative inspection for the 91 CEDMs at SONGS, Unit 2, and the 91 CEDMs at SONGS, Unit 3, for each operating cycle, not greater than 21 months, for a time period for which the First Revised NRC Order EA-03-009 dated February 20, 2004, remains in effect, subject to the condition proposed by you and stated in the enclosed SE, as follows:

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You should be aware that, when vessel head inspections are performed using ASME Code requirements, acceptance criteria, or qualified personnel, those activities and all related activities fall within the jurisdiction of the ASME Code. Therefore, Order-related inspection activities may be subject to third party review, including those by the Authorized Nuclear Inservice Inspector.

Docket Nos. 50-361 and 50-362
Enclosure: Safety Evaluation
cc w/encl: See next page

Sincerely,
/RA/
Herbert N. Berkow, Director
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELAXATION OF THE REQUIREMENTS OF ORDER EA-03-009

REGARDING REACTOR PRESSURE VESSEL HEAD INSPECTIONS FOR

REACTOR PRESSURE VESSEL HEAD PENETRATION NOZZLES

SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3

SOUTHERN CALIFORNIA EDISON

DOCKET NOS. 50-361 AND 50-362

1.0 INTRODUCTION

The First Revised Nuclear Regulatory Commission (NRC) Order EA-03-009 (Order) , issued on February 20, 2004 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML040220181), requires specific examinations of the reactor pressure vessel (RPV) head and vessel head penetration (VHP) nozzles of all pressurized water reactor (PWR) plants. Section IV, paragraph F, of the Order states that requests for relaxation of the Order associated with specific penetration nozzles will be evaluated by the NRC staff using the procedure for evaluating proposed alternatives to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) in accordance with 50.55a(a)(3) of Title 10 of the *Code of Federal Regulations* (10 CFR). Section IV, paragraph F, of the Order states that a request for relaxation regarding inspection of specific nozzles shall address the following criteria: (1) the proposed alternative(s) for inspection of specific nozzles will provide an acceptable level of quality and safety, or (2) compliance with this First Revised NRC Order for specific nozzles would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

For San Onofre Nuclear Generating Station (SONGS), Units 2 and 3, and other similar plants determined to have a high susceptibility to primary water stress corrosion cracking (PWSCC) in accordance with Section IV, paragraph A and B, of the Order, the following inspections are required to be performed every refueling outage in accordance with Section IV, paragraph C.(5)(a) and paragraph C.(5)(b) of the Order:

(a) Bare metal visual [BMV] examination of 100 percent of the RPV head surface (including 360E around each RPV head penetration nozzle). For RPV heads with the surface obscured by support structure interferences which are located at RPV head elevations downslope from the outermost RPV head penetration, a bare metal visual inspection of no less than 95 percent of the RPV head surface may be performed provided that the examination shall include those areas of the RPV head upslope and downslope from the support structure interference to identify any evidence of boron or corrosive product. Should any evidence of boron or corrosive product be identified, the licensee shall examine the RPV

head surface under the support structure to ensure that the RPV head is not degraded.

(b) For each penetration, perform a nonvisual NDE [nondestructive examination] in accordance with either (i), (ii), or (iii):

(i) Ultrasonic testing of the RPV head penetration nozzle volume (i.e., nozzle base material) from 2 inches above the highest point of the root of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) to 2 inches below the lowest point at the toe of the J-groove weld on a horizontal plane perpendicular to the nozzle axis (or the bottom of the nozzle if less than 2 inches [see Figure IV-1 [of the February 20, 2004,Order]]); OR from 2 inches above the highest point of the root of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) to 1.0-inch below the lowest point at the toe of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) and including all RPV head penetration nozzle surfaces below the J-groove weld that have an operating stress level (including all residual and normal operation stresses) of 20 ksi tension and greater (see Figure IV-2 [of the February 20, 2004,Order]). In addition, an assessment shall be made to determine if leakage has occurred into the annulus between the RPV head penetration nozzle and the RPV head low-alloy steel.

(ii) Eddy current testing or dye penetrant testing of the entire wetted surface of the J-groove weld and the wetted surface of the RPV head penetration nozzle base material from at least 2 inches above the highest point of the root of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) to 2 inches below the lowest point at the toe of the J-groove weld on a horizontal plane perpendicular to the nozzle axis (or the bottom of the nozzle if less than 2 inches (see Figure IV-3 [of the February 20, 2004, Order]); OR from 2 inches above the highest point of the root of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) to 1.0-inch below the lowest point at the toe of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) and including all RPV head penetration nozzle surfaces below the J-groove weld that have an operating stress level (including all residual and normal operation stresses) of 20 ksi tension and greater (see Figure IV-4 [of the February 20, 2004, Order]).

(iii) A combination of (i) and (ii) to cover equivalent volumes, surfaces and leak paths of the RPV head penetration nozzle base material and J-groove weld as described in (i) and (ii). Substitution of a portion of a volumetric exam on a nozzle with a surface examination may be performed with the following requirements:

1. On nozzle material below the J-groove weld, both the outside diameter and inside diameter surfaces of the nozzle must be examined.

2. On nozzle material above the J-groove weld, surface examination of the inside diameter surface of the nozzle is permitted provided a surface examination of the J-groove weld is also performed.

Footnote 3 of the Order provides specific criteria for examination of repaired VHP nozzles.

By letter dated January 3, 2005 (ADAMS Accession No. ML050050216), Southern California Edison (SCE or the licensee) requested relaxation to implement an alternative to the requirements of Section IV, paragraph C.(5)(b)(i) and C.(5)(b)(ii), of the Order for RPV head penetration nozzles at SONGS, Units 2 and 3.

2.0 FIRST REVISED NRC ORDER EA-03-009 RELAXATION REQUEST FOR EXAMINATION COVERAGE FOR REACTOR PRESSURE VESSEL HEAD PENETRATION NOZZLES

2.1 Order Requirements for Which Relaxation is Requested

Section IV.C.(5)(b) of the Order dated February 20, 2004, requires, in part, that the following inspections be performed every refueling outage for high susceptibility plants similar to SONGS, Units 2 and 3:

(i) Ultrasonic testing of the RPV head penetration nozzle volume (i.e., nozzle base material) from 2 inches above the highest point of the root of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) to 2 inches below the lowest point at the toe of the J-groove weld on a horizontal plane perpendicular to the nozzle axis (or the bottom of the nozzle if less than 2 inches [see Figure IV-1 [of the February 20, 2004,Order]]); OR from 2 inches above the highest point of the root of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) to 1.0-inch below the lowest point at the toe of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) and including all RPV head penetration nozzle surfaces below the J-groove weld that have an operating stress level (including all residual and normal operation stresses) of 20 ksi tension and greater (see Figure IV-2 [of the February 20, 2004,Order]). In addition, an assessment shall be made to determine if leakage has occurred into the annulus between the RPV head penetration nozzle and the RPV head low-alloy steel.

(ii) Eddy current testing or dye penetrant testing of the entire wetted surface of the J-groove weld and the wetted surface of the RPV head penetration nozzle base material from at least 2 inches above the highest point of the root of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) to 2 inches below the lowest point at the toe of the J-groove weld on a horizontal plane perpendicular to the nozzle axis (or the bottom of the nozzle if less than 2 inches [see Figure IV-3 [of the February 20, 2004,Order]]); OR from 2 inches above the highest point of the root of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) to 1.0-inch below the lowest point at the toe of the J-groove weld (on a horizontal plane perpendicular to the nozzle axis) and including all RPV head penetration nozzle surfaces below the J-groove weld

have an operating stress level (including all residual and normal operation stresses) of 20 ksi tension and greater (see Figure IV-4 [of the February 20, 2004,Order]).

(iii) A combination of (i) and (ii) to cover equivalent volumes, surfaces and leak paths of the RPV head penetration nozzle base material and J-groove weld as described in (i) and (ii). Substitution of a portion of a volumetric exam on a nozzle with a surface examination may be performed with the following requirements:

1. On nozzle material below the J-groove weld, both the outside diameter and inside diameter surfaces of the nozzle must be examined.

2. On nozzle material above the J-groove weld, surface examination of the inside diameter surface of the nozzle is permitted provided a surface examination of the J-groove weld is also performed.

The licensee has requested relief from Section IV, paragraph C.(5)(b)(i) and paragraph C.(5)(b)(ii) of the Order. The specific relaxation requested is identified below.

2.2 Licensee's Proposed Alternative

The licensee seeks relaxation from the Order dated February 20, 2004, where inspection coverage is limited by inaccessible areas of 91 CEDM penetration nozzles for SONGS, Unit 2, and 91 CEDM penetration nozzles for SONGS, Unit 3, with respect to NDE, including ultrasonic testing (UT), eddy current testing (ET), and dye penetrant testing (PT).

SCE proposes to meet the Order requirements, or to examine each CEDM nozzle from 2 inches above the top of the attachment weld to as far down the nozzle as physically possible. The licensee stated that the distance shall be at least the minimum inspection distance below the bottom of the attachment weld as follows:

CEDM # 1	0.44 inches below the bottom of the weld
CEDM #s 2 through 35	0.43 inches below the bottom of the weld
CEDM #s 36 through 87	0.42 inches below the bottom of the weld
CEDM #s 88 through 91	0.35 inches below the bottom of the weld

2.3 Licensee's Basis for Proposed Alternative

The licensee stated that the material near the bottom of each CEDM nozzle cannot be inspected due to the presence of a CEDM extension shaft guide cone threaded to the inside diameter (ID) surface of the nozzle. The licensee stated that the length of the ID surface of each CEDM nozzle that cannot be inspected is approximately 1.5 inches.

In a letter dated February 9, 2004 (ADAMS Accession No. ML040480385), the licensee

provided a response to a previous NRC Request for Additional Information (RAI) that was related to a prior relaxation request dated December 9, 2003, which was approved on March 19, 2004, regarding the CEDM extension shaft guide cone threads. The licensee stated that the guide cones are threaded into the ID of all 91 CEDM penetrations. The guide cone threads are staked with a set screw which is plug welded to preclude unthreading of the cone during operation. In addition, the licensee stated that there are two 1-inch long fillet welds between the top of the tapered portion of the guide cone and the bottom of the CEDM nozzles. The licensee stated that the removal of each guide cone would require destructive removal of three welds and the stake, then unthreading the guide cone. The licensee estimated the time to perform this labor would be at least one hour per guide cone in a radiation field of approximately 4 rem per hour. The licensee estimated the dose to be 4 person-rem per nozzle to remove the guide cones. The licensee also stated additional dose and time would be required to replace the guide cones. The licensee stated that grinding and drilling operations required to remove the guide cones would degrade the CEDM penetrations with respect to PWSCC resistance.

2.4 Evaluation

The NRC staff's review of this request was based on criterion (2) of paragraph F of Section IV of the Order, which states:

> compliance with this Order for specific nozzles would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Within the context of the licensee's proposed alternative examination of the RPV head penetration nozzles, the licensee has demonstrated the hardship that would result from implementing examinations to the bottom end of these nozzles.

The phenomenon of concern is PWSCC, which typically initiates in the areas of highest stress. The area of CEDM penetrations that has the highest residual stress is the area adjacent to the J-groove attachment weld. Therefore, it is most likely that PWSCC will initiate in an area adjacent to the J-groove attachment weld.

The licensee proposed to examine the minimum distance of the nozzle base material below the attachment weld as follows:

CEDM # 1	0.44 inches below the bottom of the weld
CEDM #s 2 through 35	0.43 inches below the bottom of the weld
CEDM #s 36 through 87	0.42 inches below the bottom of the weld
CEDM #s 88 through 91	0.35 inches below the bottom of the weld

The licensee's proposed minimum inspection distance of the nozzle base material below the

attachment weld is supported by the licensee's analysis, which demonstrated that no flaw below that portion of the nozzle identified above would propagate to a level adjacent to the J-groove weld within one operating cycle. The licensee's flaw evaluation was performed by postulating an axial flaw in the area of missed coverage below the weld. The methodology was described in Westinghouse Report WCAP-15819, Rev. 1, "Structural Integrity Evaluation of Reactor Vessel Upper Head Penetrations to Support Continued Operation: San Onofre Units 2 and 3." This methodology was used to generate the crack growth curves illustrated in WCAP-15819, Rev. 1. The licensee identified the conservatisms embedded in the flaw evaluation, and they are listed below:

1. The postulated axial flaw is assumed to be a through-wall flaw.

2. In Appendix C of WCAP-15819, Rev. 1 the lower extremity of the initial through-wall flaw is assumed to be located where either the inside or outside surface hoop stress drops below 0 ksi.

3. The flaw has been assumed to initiate in and propagate from a region below the proposed inspection coverage area. Flaws have never been observed in this low stress region away from the weld without the presence of other flaws in the high stressed region near the weld.

4. The stress intensity factor calculation was based on the highest stress anywhere along the postulated flaw and was applied uniformly along the entire length of the through-wall axial flaw.

5. The crack growth curves shown in Appendix C of WCAP-15819, Rev. 1 were generated based on the hoop stress distribution for the as-designed weld configuration which is more conservative than the as-built weld configuration.

The licensee provided a table in a letter dated February 28, 2004 (ADAMS Accession No. ML040620442), comparing the required time in Effective Full Power Years (EFPY) for the upper crack tip to reach the bottom of the weld from the inspection coverages extracted from Appendix C using as-designed weld sizes to the as-built weld sizes calculation results. The results are identified below:

Nozzle Angle (E)	Nozzle Number	Minimum Required Inspection Coverage Below the Weld per Appendix C curves (inches)	EFPY (Appendix C)	EFPY (As-Built Weld Sizes)
0	1	0.43	1.75	1.81
7.8	2-35	0.43	1.75	2.17
29.1	36-87	0.42	1.75	4 (Note 1)
49.7	88-91	0.35	1.75	4 (Note 1)

Note 1: Stress intensity is less than the threshold of 9 Mpa / m [K_{th} from page 4-5 of the

> licensee's letter dated February 28, 2004] and therefore will not propagate towards the bottom of the weld.

The results above illustrate the conservatism in the licensee's requested relaxation, as the calculated inspection frequency is longer than a SONGS operating cycle. The operating cycle for each SONGS Unit is 19.5 months. The licensee's calculations for the relaxation request based on as-designed weld sizes will support a period of 21 months.

The licensee's analysis in WCAP-15819, Rev. 1 used the crack growth formula in Electric Power Research Institute (EPRI) Report Material Reliability Program (MRP) report MRP-55, "Material Reliability Program (MRP) Crack Growth Rates for Evaluating Primary Water Stress Corrosion Cracking (PWSCC) of Thick Wall Alloy 600 Material (MRP-55), Revision 1." However, the NRC staff has not yet made a final determination on the acceptability of the subject industry report. Should the NRC staff determine the crack growth formula used by the licensee to be unacceptable, the licensee will be required to revise its analysis to incorporate an acceptable crack growth formula as described below. In agreement with this, the licensee included in their submittal dated January 3, 2005, the following condition:

> If the NRC staff finds that the crack-growth formula in industry report MRP-55 is unacceptable, then SCE will revise its analysis that justifies relaxation of the Order within 30 days after the NRC informs the licensee of an NRC-approved crack growth formula. If SCE's revised analysis shows that the crack growth acceptance criteria are exceeded prior to the end of the current operating cycle, SCE will consider Relaxation Request 3 [licensee's January 3, 2005, submittal] to be rescinded and, within 72 hours, SCE will submit to the NRC written justification for continued operation. If the revised analysis shows that the crack growth acceptance criteria are exceeded during the subsequent operating cycle, SCE will, within 30 days, submit the revised analysis for NRC review. If the revised analysis shows that the crack growth acceptance criteria are not exceeded during either the current operating cycle or the subsequent operating cycle, SCE will, within 30 days, submit a letter to the NRC confirming that its analysis has been revised. Any future crack-growth analyses performed for this and future cycles for RPV head penetrations will be based on a crack growth rate formula that is acceptable to the NRC.

As an added conservatism, the licensee stated that the crack growth curves do not include the time that would be required for an axial crack to propagate through the attachment weld and result in a leakage path. Additional operating time would be required for a safety concern (ejection of a nozzle or substantial corrosion of the low-alloy steel RPV head) to develop as a result of that leak. Therefore, it would take more than one operating cycle for a postulated flaw in the uninspected region to develop into a safety concern.

The licensee stated that the threaded portion of the extension shaft guide cone would serve to retain potential loose parts resulting from a circumferential crack in the uninspected area. A postulated 360-degree through-wall crack in the narrow un-inspected annulus above the guide cone threads could result in separation of the guide cone from the penetration. However, the licensee stated the guide cone would be retained by the control element assembly (CEA) shroud and associated CEA extension shaft. This condition would not interfere with CEA

function or any other reactor coolant system function, and would be readily observed in the subsequent refueling outage.

Based upon the information above, the staff finds that the licensee has demonstrated good cause for the relaxation and that the proposed alternative examination is acceptable as it provides reasonable assurance of the structural integrity of the RPV head, VHP nozzles and welds. Furthermore, inspections to comply with the Order requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

3.0 CONCLUSION

The staff concludes that the licensee's proposed alternative examination for each of the 91 CEDMs for SONGS, Units 2 and 3 from 2 inches above the J-groove weld to the level identified below:

CEDM # 1	0.44 inches below the bottom of the weld,
CEDM #s 2 through 35	0.43 inches below the bottom of the weld,
CEDM #s 36 through 87	0.42 inches below the bottom of the weld, and
CEDM #s 88 through 91	0.35 inches below the bottom of the weld,

provides reasonable assurance of the structural integrity of the RPV head, VHP nozzles and welds. Furthermore, inspections of these VHP nozzles in accordance with Section IV, paragraph C.(5)(b), of the Order dated February 20, 2004, would result in hardship without a compensating increase in the level of quality and safety. Therefore, pursuant to Section IV, paragraph F, of the Order dated February 20, 2004, the staff authorizes the proposed alternative inspection for the 91 CEDMs at SONGS, Unit 2, and the 91 CEDMs at SONGS, Unit 3, for each operating cycle, not greater than 21 months, for a time period for which the Order dated February 20, 2004, remains in effect, subject to the following condition:

> If the NRC staff finds that the crack-growth formula in industry report MRP-55 is unacceptable, then SCE will revise its analysis that justifies relaxation of the Order within 30 days after the NRC informs the licensee of an NRC-approved crack growth formula. If SCE's revised analysis shows that the crack growth acceptance criteria are exceeded prior to the end of the current operating cycle, SCE will consider Relaxation Request 3 to be rescinded and, within 72 hours, SCE will submit to the NRC written justification for continued operation. If the revised analysis shows that the crack growth acceptance criteria are exceeded during the subsequent operating cycle, SCE will, within 30 days, submit the revised analysis for NRC review. If the revised analysis shows that the crack growth acceptance criteria are not exceeded during either the current operating cycle or the subsequent operating cycle, SCE will, within 30 days, submit a letter to the NRC confirming that its analysis has been revised. Any future crack-growth analyses performed for this and future cycles for RPV head penetrations will be based on a crack growth rate formula that is acceptable to the NRC.

Principal Contributor: J. Collins

Date: June 27, 2005