SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

Brian Katz
Vice President

May 27, 2005

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: **Docket Nos. 50-361 and 50-362**
Supplement One To Amendment Application Nos. 224 and 208
Proposed Change Number (PCN) 554
Technical Specification (TS) 5.5.2.15
Containment Leakage Rate Testing Program
San Onofre Nuclear Generating Station
Units 2 and 3

Reference: Letter from D. E. Nunn to the U.S. Nuclear Regulatory Commission dated June 30, 2004; Subject: "Docket Nos. 50-361 and 50-362, Amendment Application Nos. 224 and 208, Proposed Change Number (PCN) 554, Technical Specification (TS) 5.5.2.15, Containment Leakage Rate Testing Program, San Onofre Nuclear Generating Station, Units 2 and 3."

Dear Sir or Madam:

As requested by NRC staff, this supplement to Amendment Application Nos. 224 and 208 provides the Evaluation of Risk Significance of ILRT Extension Based on the NEI Approach (Enclosed).

In addition to the baseline assessment of the main report, the enclosed supplemental evaluation includes two sensitivity studies. The first sensitivity study examines the risk impact of the ILRT extension when external events are included. This analysis is provided in Appendix A. The second sensitivity study is presented in Appendix B and examines how different assumptions related to evacuation and population dose could impact the baseline analysis results. The enclosed supplemental evaluation validates the conclusion in SCE's original submittal (Referenced) that the requested change for a one-time deferral of the next Type A Containment Integrated Leak Rate Test is not risk significant.

This supplemental evaluation did not result in any change to the No Significant Hazards Consideration contained in Amendment Application Nos. 224 and 208. Additionally, Amendment Application Nos. 224 and 208, Supplement 1 contain no new or revised commitments.

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SCE requests review of the supplement and approval of the to Amendment Application Nos. 224 and 208 by October 2005, to be implemented within 60 days of issuance. This would allow deferral of the next ILRT Type A Test from the fourteenth refueling outage (scheduled for January 2006 for Unit 2 and October 2006 for Unit 3) to not later than March 30, 2010 for Unit 2 and September 9, 2010 for Unit 3.

If you have any questions or require additional information, please contact Mr. Jack Rainsberry at (949) 368-7420.

Sincerely,

Brian Katz

Enclosures:
1) PCN 554, Supplement 1, Notarized Amendment Application Affidavits
2) PCN 554, Supplement 1, Licensee Evaluation
3) San Onofre Nuclear Generating Station Probabilistic Risk Assessment, Evaluation of Risk Significance of ILRT Extension Based on the NEI Approach

cc: B. S. Mallett, Regional Administrator, NRC Region IV
C. C. Osterholtz, NRC Senior Resident Inspector, San Onofre Units 2 and 3
B. M. Pham, NRC Project Manager, San Onofre Units 2 and 3
S. Y. Hsu, Department of Health Services, Radiologic Health Branch

Enclosure 1

PCN 554, Supplement 1

Notarized Amendment Application Affidavits

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. for a Class 103) License to Acquire, Possess, and Use a Utilization Facility as Part of Unit No. 2 of the San Onofre Nuclear Generating Station	Docket No. 50-361 Amendment Application No. 224, Supplement 1

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 224, Supplement 1. This amendment application consists of proposed change No. NPF-10-554, Supplement 1 to Facility Operating License NPF-10. Proposed change No. NPF-10-554, Supplement 1 is a request to revise Technical Specification (TS) 5.5.2.15, "Containment Leakage Rate Testing Program," to allow a one-time extension of the ten-year period of the performance-based leakage rate testing program for Type A tests as prescribed by NEI 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J." The ten-year interval between integrated leakage rate tests is to be extended to 15 years from the previous integrated leakage rate test.

State of California
County of San Diego

Brian Katz

Brian Katz, Vice President

Subscribed and sworn to (or affirmed) before me on this 27th day of May, 2005,

by Brian Katz

personally known to me or proved to me on the basis of satisfactory evidence to be the person who appeared before me.

Frances M Thurber

Notary Public

FRANCES M. THURBER
Commission #1565776
Notary Public - California
San Diego County
My Commission Exp. Mar. 31, 2009

FRANCES M. THURBER
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Notary Public - California
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My Commission Exp. Mar. 31, 2009

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. for a Class 103 License to Acquire, Possess, and Use a Utilization Facility as Part of Unit No. 3 of the San Onofre Nuclear Generating Station	))))))	Docket No. 50-362 Amendment Application No. 208, Supplement 1

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 208, Supplement 1. This amendment application consists of proposed change No. NPF-15-554, Supplement 1 to Facility Operating License NPF-15. Proposed change No. NPF-15-554, Supplement 1 is a request to revise Technical Specification (TS) 5.5.2.15, "Containment Leakage Rate Testing Program," to allow a one-time extension of the ten-year period of the performance-based leakage rate testing program for Type A tests as prescribed by NEI 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J." The ten-year interval between integrated leakage rate tests is to be extended to 15 years from the previous integrated leakage rate test.

State of California
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Frances M. Thurber

Notary Public

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Enclosure 2

PCN 554, Supplement 1

Licensee Evaluation

PCN-554, Supplement 1

LICENSEE'S EVALUATION

1.0 DESCRIPTION

PCN 554 proposes to revise Technical Specifications (TS) 5.5.2.15, "Containment Leakage Rate Testing Program" for San Onofre Nuclear Generating Station (SONGS) Units 2 and 3. PCN 554 proposes a one-time extension of the current interval between the Type A tests from 10 to 15 years. The change reflects a one-time deferral of the next Type A Containment Integrated Leak Rate Test (ILRT) to no later than March 30, 2010 (Unit 2) and September 9, 2010 (Unit 3).

This supplement to PCN 554 provides an alternative estimation of the change in risk associated with extending the Type A integrated leak rate test interval beyond the current 10 years required by 10 CFR 50, Appendix J, Option B at the San Onofre Nuclear Generating Station for both Unit 2 and Unit 3. Specifically, this supplement to PCN 554 includes a new risk impact assessment report (Enclosure 3, Reference 17) that utilizes the methodology identified by the Nuclear Energy Institute (NEI) (Reference 19). A completed assessment of the proposed change is documented in the original submittal of PCN 554 (Reference 20) and serves as a basis for the report included in this supplement. The evaluation found in Reference 21 is consistent with similar assessments performed for the Indian Point 3 (IP3) plant, which was approved by the NRC (References 10 and 11), and for the Crystal River 3 (CR3) plant (Reference 12).

In addition to the NEI-based evaluation, the report (Enclosure 3, Reference 17) also documents the performance of sensitivity studies related to the selection and application of dose estimates utilized in the calculation of risk parameters. Specific evaluations are performed to address evacuation and the selection of Class 6, 7, and 8 dose terms.

2.0 PROPOSED CHANGE

Technical Specification Section 5.5.2.15 currently requires the following:

> A program shall be established to implement the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September 1995.

Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," (Reference 1) endorses NEI 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," dated July 26, 1995 (Reference 2) and prepared by the Nuclear Energy Institute (NEI). NEI 94-01 provides methods acceptable to the NRC staff for complying with the provisions of Option B as described in Regulatory Guide 1.163. NEI 94-01 includes the criterion that Option B Type A testing be performed at a frequency of once per 10 years.

This proposed change in the current licensing basis is a one-time extension of the test interval from 10 years to 15 years. The approved one-time deferral of the integrated leakage rate test would be incorporated into Technical Specification 5.5.2.15 as follows:

Unit 2

"...as modified by the following exception:

NEI 94-01 - 1995, Section 9.2.3: The first Type A Test performed after the March 31, 1995 Type A Test shall be performed no later than March 30, 2010"

Unit 3

"...as modified by the following exception:

NEI 94-01 - 1995, Section 9.2.3: The first Type A Test performed after the September 10, 1995 Type A Test shall be performed no later than September 9, 2010"

In summary the proposed change will revise TS 5.5.2.15 entitled Containment Leakage Rate Testing Program to allow a one-time deferral of the Type A Containment Integrated Leak Rate Test (ILRT) to no later than March 30, 2010, for Unit 2 and September 9, 2010, for Unit 3. This proposed change is based on and has been evaluated using the risk informed guidance in Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis" (Reference 3).

3.0 BACKGROUND

Containment leakage tests are performed to verify that Containment leakage is maintained below the acceptable limits stated in Technical Specification 5.5.2.15. The leakage tests ensure the public health and safety in the case of a design basis accident that would release radioactivity to the containment.

The leakage testing program consists of the following types of periodic tests: (1) Type A Test - measures the overall integrity of the containment system, (2) Type B Test - measures leakage rates across pressure retaining or leakage limiting boundaries other than valves, and (3) Type C Test - measures containment isolation valve leakage rates. This request does not modify the existing Appendix J Type B and Type C testing programs nor does it change the Appendix J Type A, Type B, or Type C Test methods. The change is a one-time exception to the Type A Test frequency.

This request represents a cost beneficial licensing change. The integrated leak rate test imposes significant expense on the station while the safety benefit of performing it at 10 years, versus 15 years, is minimal. Cost savings have been conservatively estimated per Unit for the fourteenth refueling outage at about $400,000 for actually performing the test and eliminating power replacement cost at about $38,900 per hour for each hour of critical path outage time (the number of critical path hours is variable).

4.0 TECHNICAL ANALYSIS

The proposed changes have been evaluated to determine that current regulations and applicable requirements continue to be met, that adequate defense-in-depth and sufficient safety margins are maintained, and that any increases in core damage frequency (CDF) and large early release frequency (LERF) are small and consistent with the acceptance criteria in Regulatory

Guide 1.174, "An Approach for Using Probabilistic Risk Assessment In Risk-Informed Decisions On Plant-Specific Changes to the Licensing Basis," July 1998, (Reference 3).

4.1 Traditional Engineering Considerations

In San Onofre Nuclear Generating Station (SONGS) License Amendment No. 144 (Unit 2) and Amendment No. 135 (Unit 3) (Reference 7), Southern California Edison (SCE) committed to testing as required by 10 CFR 50, Appendix J, Option B, and in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995.

The adoption of the Option B performance-based containment leakage rate testing program did not alter the basic method by which Appendix J leakage rate testing is performed, but it did alter the frequency of measuring primary containment leakage in Type A, B, and C tests. Frequency is based upon an evaluation which looks at the "as found" leakage history to determine the frequency for leakage testing which provides assurance that leakage limits will be maintained.

The allowed frequency for testing was based upon a generic evaluation documented in NUREG-1493 (Reference 8). NUREG-1493 made the following observations with regard to decreasing the test frequency:

Reducing the Type A (ILRT) testing frequency to one per twenty years was found to lead to an imperceptible increase in risk. The estimated increase in risk is small because ILRTs identify only a few potential leakage paths that cannot be identified by Type B and C testing, and the leaks that have been found by Type A tests have been only marginally above the existing requirements. Given the insensitivity of risk to containment leakage rate, and the small fraction of leakage detected solely by Type A testing, increasing the interval between ILRT testing had minimal impact on public risk.

The surveillance frequency for Type A testing in NEI 94-01 is once per 10 years based on an acceptable performance history (i.e., two consecutive periodic Type A tests at least 24 months apart where the calculated performance leakage rate was less than 1.0 La) and consideration of the performance factors in NEI 94-01, Section 11.3. Based on the last two consecutive ILRT Type A tests (Unit 2 - March 31, 1995 and October 25, 1991; Unit 3 - September 10, 1995 and March 9, 1992), the current interval for SONGS is once every 10 years for both Units.

A Type A test can detect containment leakage due to a loss of structural capability. All other sources of containment leakage detected in a Type A test analysis can be detected by the Type B and C tests.

4.1.1 Inspections

4.1.1.1 IWE/ IWL Inservice Inspection (ISI) Activities

As required by 10 CFR 50.55a(b)(2)(vi), Inservice Inspection of the SONGS Unit-2 and Unit-3 containment buildings is conducted in accordance with the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Section XI, 1992 Edition with the 1992 Addenda, as modified and supplemented by 10 CFR 50.55a(b)(2)(viii) and 10 CFR 50.55a(b)(2)(ix). The initial 120-month inspection interval for the Containment ISI began September 9, 1998, and will end on September 8, 2008.

Successive 120-month intervals will comply with 10CFR 50.55a(g)(4)(ii). Subsection IWE provides the requirements for the inservice inspection of Class MC and Metallic Liners of Class CC Components; Subsection IWL provides requirements for Class CC Concrete Components of Light Water Cooled Plants. SCE requested and received approval of the following relief requests.

1) Relief Request No. RR-E-2-03, Seals and Gaskets of Class MC pressure retaining components, Examination Category E-D, Item numbers E5.10 and E5.20 of IWE-2500, " Examination and Pressure Test Requirements", Table IWE-2500-1.

2) Relief Request No. RR-E-2-04, All Class MC, Subarticle IWE-2200(g), preservice examination requirements of reapplied or coated containment.

3) Relief Request No. RR-E-2-05, All Class MC, Subarticle IWE-2500(b) visual examinations per Table IWE-2500-1 of painted or coated containment components prior to removal of paint or coatings.

4) Relief Request No. RR-E-2-06, All Class MC, paragraphs IWE-2420(b) and IWE-2420(c) successive examination requirements for components found acceptable for continued service.

5) Relief Request No. RR-E-2-07, Class MC pressure retaining bolting, Table IWE-2500-1, Examination Category E-G, Pressure Retaining Bolting, Item 8.20

6) Relief Request No. RR-E-2-08, All components subject to the requirements for ISI of Class CC Concrete Components, Examination Category L-A, Concrete, Item L.1.11 as applicable to IWL-2310, Visual Examination and Personnel Qualification and IWA-2210, Visual Examinations.

In accordance with IWE-1240, Surface Areas Requiring Augmented Examination, SONGS Unit-2 has identified three locations, and Unit-3 has identified two locations on the steel liner exposed to substantial traffic due to scaffolding material during refueling outage. Liner plate thicknesses at these locations were ultrasonically examined during refueling outage (RFO) 11 in November 2000 and RFO-13 in February 2004 for Unit-2, and RFO-11 in January 2001 and RFO-13 in September of 2004 for Unit-3. Measured thicknesses were greater than design required thickness in all the locations and no other degradation of liner plate noted. Liner wall thickness at these locations will be ultrasonically examined in future refueling outages as specified in Table IWE-2500-1, Category E-C, Item No. E4.12. Next scheduled examinations are for Unit-2 RFO-15 (October 2007), Unit-3 RFO-15 (October 2008). Refueling outage dates are tentative and may be subject to change due to plant operating conditions.

As stated above, SCE requested and received approval for relief request RR-E-2-03, Seals and Gaskets of Class MC pressure retaining components, Examination Category E-D, Item numbers E5.10 and E5.20 of Table IWE-2500-1. Relief request RR-E-2-03 allowed the leak-tightness of the seal and gaskets to be tested in accordance with 10 CFR 50, Appendix J in lieu of Code required visual examination VT-3.

There is no separately scheduled ISI on any seal or gasket that is Type B tested per Option B of Appendix J of 10 CFR 50. Type B testing is performed on electrical penetrations, fuel transfer blind flange and fuel transfer bellows, equipment hatch, and the airlocks. Though the frequency can be as long as 10 years, the electrical penetrations are typically tested at 60 month interval; the fuel transfer flange, fuel transfer bellow, and equipment hatch every refueling outage (about every 20 months), and the airlocks every 30 months. Should the penetrations be repaired or adjusted or opened, post maintenance testing is the Type B test and /or door seal test to assure proper operation. For example, the equipment hatch used for access to primary containment is Type B tested prior to being opened during outages. After the hatch is closed, the Type B test is conducted to assure that leakage is less than the administrative limit.

NRC Information Notice 92-20, "Inadequate Local Leak Rate Testing" discussed the inadequate local leak rate testing of two-ply stainless steel bellows. SCE has evaluated this notice and concluded that it is not applicable to SONGS (Reference 9). The SCE evaluation (Reference 9) was submitted to the NRC by letter dated December 2, 2004, (Reference 18).

SCE will perform the following examinations as specified in the ISI program.

i) General visual examination of containment surfaces per Category E-A, Item No. E1.11, every period (once in 40 months) of the 10-year ISI interval as required per 10 CFR 50.55a(b)(2)(ix)(E). Next scheduled examinations are for Unit-2 RFO-15 (October 2007), Unit-3 RFO-15 (October 2008).

ii) Visual VT-3 of the containment surfaces per Examination Category E-A, Item No. E1.12 at the end of 10 year ISI interval. Next scheduled examinations are for Unit-2 RFO-15 (October 2007), Unit-3 RFO-15 (October 2008)

iii) Visual VT-3 of the containment surface vent system per Examination Category E-A, Item No. E1.20 at the end of 10 year ISI interval. Next scheduled examinations are Unit-2 RFO-15 (October 2007), Unit-3 RFO-15 (October 2008)

iv) Ultrasonic examination to verify minimum wall thickness of containment surfaces requiring augmented examination per Category E-C, Item No. E4.12, every period (once in 40 months) of the 10 year ISI interval. Next scheduled examinations are for Unit-2 RFO-15 (October 2007), Unit-3 RFO-15 (October 2008).

v) Visual VT-3 examination on Moisture Barriers per Examination Category E-D, Item No. E5.30 of Table IWE-2500-1. Next scheduled examinations are for Unit-2 RFO-15 (October 2007), Unit-3 RFO-15 (October 2008).

iv) Visual VT-1 examination on Bolted Connections Examination per Category E-G, Item No. E8.10 of Table IWE-2500-1. Next scheduled examinations are for Unit-2 RFO-15 (October 2007), Unit-3 RFO-15 (October 2008).

SCE completed first interval, first and second period inspections for Unit-2 in November 2000 and February 2004, and first interval, first and second period inspections for Unit-3 in January 2001 and September of 2004 with acceptable results. The ASME Code Section XI IWE and IWL containment inspections provide a high degree of assurance that any degradation of the containment structure is identified and corrected before a containment leakage path is introduced.

In summary, the general visual examination of containment surfaces every period, Visual VT-3 examination of the containment surfaces at the end of the ISI interval, Visual VT-3 of the containment surface vent system at the end of the ISI interval, Ultrasonic examination to verify minimum wall thickness of containment surfaces requiring augmented examination, Visual VT-3 on Moisture Barrier, Visual VT-1 on Bolted Connections, and the Appendix J, Option B, Type B test provide reasonable assurance the integrity of the containment pressure boundary is maintained during the extended Type A test frequency.

4.1.1.2 Maintenance Rule Monitoring to support ILRT

The condition of the Containment Building structure is monitored under the maintenance rule program to ensure that maintenance is effective and the structure is capable of performing its intended functions. SONGS procedure SO123-XXIV-20.2, "Maintenance Rule For Structures," was implemented to meet the requirements of 10CFR50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," for the Containment Buildings.

The first Maintenance Rule inspections were completed in RFO-9 (12/1996 – 03/1997, documented in SONGS Calculation C-501-01.01 for Unit 2, and 05-06/1997, Calculation C-501-02.01 for Unit 3) and established the baseline for future Maintenance Rule inspections. Two inspections for each Unit have been performed since the baseline: RFO-10 (01-02/1999, Calculation C-501-01.02) and RFO-12 (05-07/2002, Calculation C-501-01.03) for Unit 2; RFO-10 (03-05/1999, Calculation C-501-02.02) and RFO-12 (01-03/2003, Calculation C-501-02.03) for Unit 3. Evaluations of inspection results have concluded that the containment structure for both Units continue to meet their design bases. Subsequent inspections have found no adverse trending in the containment structure. Minor degraded conditions have been identified but the degraded conditions do not affect the structural integrity of the containment structures. The degraded conditions are described and evaluated in Section 8.4 of the SONGS Maintenance Rule calculations. The conditions of the containment liner and coating are good. Equipment supports, HVAC ducts and electrical raceways are also in good condition.

The Maintenance Rule inspections are scheduled for Unit 2 RFO-16 (October 2009), Unit 3 RFO-16 (October 2010). However, the containment liner coating inspection is conducted every refueling outage as part of the SONGS response (Reference 15) to Generic Letter 98-04 (Reference 16).

4.1.1.3 Containment Visual Inspection

As required by NEI 94-01 (Reference 2) and R.G. 1.163, part C.3 (Reference 1), visual examinations are performed of accessible interior and exterior surfaces of the containment system for structural deterioration. These examinations are currently performed prior to the Type A test and during two other refueling outages when the ILRT is on a 10 year interval. Upon implementation of the one-time deferral, the visual examination will be performed approximately every other refueling outage and prior to the 15 year Type A test.

4.1.2 Previous Integrated Leakage Rate Test Results Inspections

Previous Type A tests confirmed that the SONGS reactor containment structure has leakage well under acceptance limits and represents minimal risk to increased leakage. The risk is minimized by continued Type B and Type C testing for direct communication with containment atmosphere. Also, the Inservice Inspection (ISI) program and maintenance rule monitoring provide confidence in containment integrity.

The commercial operation dates for Unit 2 and Unit 3 are August 18, 1983 and April 1, 1984 respectively. Since then, SONGS has performed three operational Type A tests for Unit 2 and Unit 3. The results are well within the leakage limit and were previously provided with Amendment Applications 224 and 208, submitted on June 30, 2004 (Reference 20).

The testing history and structural capability of the containment have established that SONGS has had acceptable containment leakage rates, that the structural integrity of containment is assured, and that there is negligible impact in extending the Type A test interval on a one-time basis.

4.1.3 Plant Operational Performance

During power operation, instrument air leaks from air-operated valves inside containment pressurize the containment building. Containment pressure and conditions approaching the limits allowed by the Technical Specifications are monitored. Because it is routinely necessary to reduce the increase in the building internal pressure by periodic operation of the containment pressure relief, a large pre-existing leak would make it unnecessary to periodically operate the containment pressure relief (referred to as venting containment at SONGS.) This change in operating pattern would be noticed by plant operators.

Although not as significant as pressure resulting from a Design Basis Accident, the fact that the containment can be pressurized by leakage from air-operated valves provides a degree of assurance of containment structural integrity (i.e., no large leak paths in the containment structure). This feature is a complement to the various inspection requirements of the containment structure.

4.2 Evaluation of Risk Impact

4.2.1 PRA Approach

10 CFR 50, Appendix J allows individual plants to extend Type A surveillance testing requirements and to provide for performance-based leak testing. The San Onofre Nuclear Generating Station Probabilistic Risk Assessment, Evaluation of Risk Significance of ILRT Extension Based on the NEI Approach, Revision 0, April 2005 (Reference 17) documents a risk-based evaluation of the proposed change of the integrated leak rate test (ILRT) interval for the San Onofre Nuclear Generating Station (SONGS). The proposed change would impact testing associated with the current surveillance tests for Type A leakage testing. No change to Type B or Type C testing is proposed at this time.

This evaluation for SONGS utilizes the guidelines set forth in NEI 94-01 (Reference 2), the methodology used in EPRI TR-104285 (Reference 13), NUREG-1493 (Reference 8). The NEI guidance also considers the submittals generated by other utilities. The assessment contained in this supplement utilizes the method set forth and utilizes metrics presented in the NEI interim guidance (Reference 19) supported by the metrics identified in the June 30, 2004, submittal of PCN 554 (Reference 20). The regulatory guidance on the use of probabilistic risk assessment (PRA) findings in support of a licensee request to a plant's licensing basis, RG 1.174 (Reference 3) is also utilized.

This calculation evaluates the risk associated with various ILRT intervals as follows:

- 3 years – Interval based on the original requirements of 3 tests per 10 years.
- 10 years – This is the current test interval required for SONGS.
- 15 years – Proposed extended test interval, similar to IP3 request.

To provide an analysis consistent with the June 30, 2004 submittal (Reference 20), this analysis utilizes the SONGS PRA results utilized in the SONGS Probabilistic Risk Impact Assessment (Reference 21).

The release category and person-rem information is based on the analysis provided in Appendices B and C of Reference 21.

4.2.1 Summary of Risk Results/Conclusions

The specific results are summarized in Table 1 below. The Type A contribution to LERF is defined as the contribution from Class 3b.

Table 1
Summary of Risk Impact on Extending Type A ILRT Test Frequency

	Risk Impact for 3-years (baseline)	Risk Impact for 10-years (current requirement)	Risk Impact for 15-years
Total integrated risk (person-rem/yr)	35.459	35.462	35.465
Type A testing risk (person-rem/yr)	0.001	0.005	0.007
% total risk (Type A / total)	0.004%	0.014%	0.021%
Type A LERF (Class 3b) (per year)	1.40E-8	4.65E-8	6.98E-8
Changes due to extension from 10 years (current)			
Δ Risk from current (Person-rem/yr)			2.26E-3
% Increase from current (Δ Risk / Total Risk)			0.006%
Δ LERF from current (per year)			2.33E-8
Δ CCFP from current			0.455%
Changes due to extension from 3 years (baseline)			
Δ Risk from baseline (Person-rem/yr)			5.42E-3
% Increase from baseline (Δ Risk / Total Risk)			0.015%
Δ LERF from baseline (per year)			5.58E-8
Δ CCFP from baseline			1.093%

The results are discussed below:

- The person-rem/year increase in risk contribution from extending the ILRT test frequency from the current once-per-ten-year interval to once-per-fifteen years is 0.002 person-rem/year.

- The risk increase in LERF from extending the ILRT test frequency from the current once-per-10-year interval to once-per-15 years is 2.33E-8/yr.

- The change in conditional containment failure probability (CCFP) from the current once-per-10-year interval to once-per-15 years is 0.455%.

- The change in Type A test frequency from once-per-ten-years to once-per-fifteen-years increases the risk impact on the total integrated plant risk by only 0.006%. Also, the change in Type A test frequency from the original three-per-ten-years to once-per-fifteen-years increases the risk only 0.015%. Therefore, the risk impact when compared to other severe accident risks is negligible.

- Reg. Guide 1.174 provides guidance for determining the risk impact of plant-specific changes to the licensing basis. Reg. Guide 1.174 defines very small changes in risk as resulting in increases of core damage frequency (CDF) below 10^{-6}/yr and increases in LERF below 10^{-7}/yr. Since the ILRT does not impact CDF, the relevant criterion is LERF. The increase in LERF resulting from a change in the Type A ILRT test interval from a once-per-ten-years to a once per-fifteen-years is 2.33E-8. Guidance in Reg. Guide 1.174 defines very small changes in LERF as below 10^{-7}/yr, increasing the ILRT interval from 10 to 15 years is therefore considered non-risk significant and the results support this determination. In addition, the change in LERF resulting from a change in the Type A ILRT test interval from a three-per-ten-years to a once per-fifteen-years is 5.58E-8/yr, is also below the guidance.

- R.G. 1.174 also encourages the use of risk analysis techniques to help ensure and show that the proposed change is consistent with the defense-in-depth philosophy. Consistency with defense-in-depth philosophy is maintained by demonstrating that the balance is preserved among prevention of core damage, prevention of containment failure, and consequence mitigation. The change in conditional containment failure probability was estimated to be 0.455% for the proposed change and 1.093% for the cumulative change of going from a test interval of 3 in 10 years to 1 in 15 years. These changes are small and demonstrate that the defense-in-depth philosophy is maintained.

The SONGS analysis demonstrates that the change in plant risk is small as a result of this proposed extension of ILRT testing. The change in LERF, defined in the analysis for both the baseline and the current cases, is within the acceptance criterion.

Additionally, two sensitivity exercises are included the Evaluation of Risk Significance of ILRT Extension Based on the NEI Approach (Enclosure 3, Reference 17). The first examines the risk impact of the ILRT extension when external events are included and the second examines how different assumptions related to evacuation and Class 6, 7 and 8 population dose could impact the baseline analysis results.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

Southern California Edison (SCE) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10CFR50.92, "Issuance of amendment," as discussed below:

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   The proposed revision to Technical Specifications adds a one time extension to the current interval for Type A testing (10CFR50, Appendix J, Option B, Integrated Leak Rate Testing). The current test interval of 10 years, based on past performance, would be extended on a one time basis to 15 years from the last Type A test. The proposed extension to Type A testing does not involve a significant increase in the consequences of an accident since research documented in NUREG-1493, "Performance-Based Containment System Leakage Testing Requirements," September 1995, has found that, generically, very few potential containment leakage paths are not identified by Type B and C tests. The NUREG concluded that reducing the Type A testing frequency to one per twenty years was found to lead to an imperceptible increase in risk. A high degree of assurance is provided through testing and inspection that the containment will not degrade in a manner detectable only by Type A testing. The last Type A tests show leakage to be below acceptance criteria, indicating a leak tight containment. Inspections required by the American Society of Mechanical Engineers (ASME) Code Section XI (Subsections IWE and IWL) and maintenance rule monitoring (10CFR50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants) are performed in order to identify indications of containment degradation that could affect that leak tightness. Type B and C testing required by Technical Specifications will identify any containment opening such as valves that would otherwise be detected by the Type A tests. These factors show that a Type A test extension will not represent a significant increase in the consequences of an accident.

   Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The proposed revision to Technical Specifications adds a one time extension to the current interval for Type A testing (10CFR50, Appendix J, Option B, Integrated Leak Rate Testing). The current test interval of 10 years, based on past performance, would be extended on a one time basis to 15 years from the last Type A test. The proposed extension to Type A testing cannot create the possibility of a new or different type of accident since there are no physical changes being made to the plant and there are no changes to the operation of the plant that could introduce a

new failure mode creating an accident or affecting the mitigation of an accident. Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3. Do the proposed changes involve a significant reduction in a margin of safety?

   Response: No

   The proposed revision to Technical Specifications adds a one time extension to the current interval for Type A testing (10CFR50, Appendix J, Option B, Integrated Leak Rate Testing). The current test interval of 10 years, based on past performance, would be extended on a one time basis to 15 years from the last Type A test. The proposed extension to Type A testing will not significantly reduce the margin of safety. The NUREG 1493, "Performance-Based Containment System Leakage Testing Requirements," September 1995, generic study of the effects of extending containment leakage testing found that a 20 year extension in Type A leakage testing resulted in an imperceptible increase in risk to the public. NUREG 1493 found that, generically, the design containment leakage rate contributes about 0.1 percent to the individual risk and that the decrease in Type A testing frequency would have a minimal affect on this risk since 95% of the potential leakage paths are detected by Type C testing. Regular inspections required by the American Society of Mechanical Engineers (ASME) Code Section XI (Subsections IWE and IWL) and maintenance rule monitoring (10CFR50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants) will further reduce the risk of a containment leakage path going undetected.

   Therefore the proposed change does not involve a reduction in a margin of safety.

   Based on the above evaluations, SCE concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10CFR50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

10 CFR 50.54(o) - "Primary reactor containments for water cooled power reactors, other than facilities for which the certifications required under 50.82(a)(1) have been submitted, shall be subject to the requirements set forth in appendix J to this part."

10 CFR 50, Appendix A, General Design Criteria (GDC) 52 - "Capability for containment leakage rate testing. The reactor containment and other equipment which may be subjected to containment test conditions shall be designed so that periodic integrated leakage rate testing can be conducted at containment design pressure."

GDC 53 - "Provisions for containment testing and inspection. The reactor containment shall be designed to permit (1) appropriate periodic inspection of all important areas, such as penetrations, (2) an appropriate surveillance program, and (3) periodic testing at containment design pressure of the leak tightness of penetrations which have resilient seals and expansion bellows."

GDC 54 - "Piping systems penetrating containment. Piping systems penetrating primary reactor containment shall be provided with leak detection, isolation, and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. Such piping systems shall be designed with a capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits."

10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Option B, "Performance-Based Requirements."

Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," September 1995.

NUREG-1493, "Performance-Based Containment Leak-Test Program," September 1995.

Analysis

The Containment Building, Containment penetrations, and Containment isolation barriers are designed to permit periodic leakage rate testing as required by General Design Criteria (GDC) 52, 53, and 54 of Title 10 Code of Federal Regulations, Part 50, Appendix A.

10 CFR 50 Appendix J, was revised, effective October 26, 1995, to allow licensees to choose containment leakage testing under Option A "Prescriptive Requirements" or Option B "Performance-Based Requirements." In License Amendment No. 144 (Unit 2) and Amendment No. 135 (Unit 3) (Reference 7), SCE committed to testing as required by 10 CFR 50, Appendix J, Option B, and in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program, dated September, 1995." Regulatory Guide 1.163 specifies a method acceptable to the NRC for complying with Option B by approving the use of Nuclear Energy Institute (NEI) 94-01 and ANSI/ANS-56.8-1994 (Reference 14) subject to several regulatory positions in the guide.

Exceptions to the requirements of RG 1.163, are allowed by 10 CFR 50, Appendix J, Option B, Section V.B, "Implementation," which states,

"The Regulatory Guide or other implementing document used by a licensee, or applicant for an operating license, to develop a performance based leakage-testing program must be included, by general reference, in the plant technical specifications. The submittal for technical specification revisions must contain justification, including supporting analyses, if the licensee chooses to deviate from methods approved by the Commission and endorsed in a regulatory guide."

Therefore, this application does not require an exemption to Option B.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

Southern California Edison (SCE) has determined that the proposed amendment would change requirements with respect to the installation or use of a facility component located within the restricted area, as defined in 10CFR20, or would change an inspection or surveillance requirement. SCE has evaluated the proposed changes and has determined that the changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amount of effluent that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10CFR51.22 (c)(9). Therefore, pursuant to 10CFR51.22 (b), an environmental assessment of the proposed change is not required.

7.0 REFERENCES

1. NRC Regulatory Guide (RG) 1.163, "Performance-Based Containment Leak-Test Program," September 1995.

2. NEI 94-01, "Nuclear Energy Institute Industry Guideline For Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, July 26, 1995.

3. NRC Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licensing Basis," July 1998.

4. Not used.

5. Not used.

6. Not used.

7. San Onofre Nuclear Generating Station, Issuance of License Amendments 144/135 re: Use of new Containment Leakage Rate Testing Program as required by 10 CFR 50, Appendix J, Option B for SONGS Units 2 and 3 (TAC NOS. MA1778 and MA1779), dated November 6, 1998.

8. NUREG-1493, "Performance-Based Containment Leak-Test Program," Final Report, September 1995.

9. SONGS Independent Safety Engineering Group Operating Experience Evaluation, Subject, " NRC Information Notice 92-20, Inadequate Local Leak Rate Testing," dated June 22, 1992.

10. Indian Point 3 Nuclear Power Plant, "Supplemental Information Regarding Proposed Change to Section 6.14 of the Administrative Section of the Technical Specifications", Entergy, IPN-01-007, January 18, 2001.

11. Indian Point Nuclear Generating Unit No. 3 - Issuance of Amendment Re: Frequency of Performance-Based Leakage Rate Testing (TAC NO. MB0178), United States Nuclear Regulatory Commission, April 17, 2001.

12. Evaluation of Risk Significance of ILRT Extension, Revision 2, Florida Power Corporation, F-01-0001, June 2001, attached to a letter from Dale E. Young (Crystal River) to the Document Control Desk (NRC) dated June 20, 2001; Subject: Crystal River - Unit 3 - License Amendment Request # 267, Revision 2, Supplemental Risk-Informed Information in Support of License Amendment Request # 267.

13. Electric Power Research Institute, TR-104285, Gisclon, J. M., et al, "Risk Impact Assessment of Revised Containment Leak Rate Testing Intervals," August 1994.

14. American National Standard ANSI/ANS-56.8-1994, "Containment System Leakage Testing Requirements."

15. SCE Letter dated November 12, 1998 from A. E. Scherer to the NRC; Subject," NRC Generic Letter 98-04: Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment. San Onofre Nuclear Generating Stations Units 2 and 3."

16. NRC Generic Letter 98-04 dated July 14, 1998 - Potential for Degradation of the Emergency Core Cooling System and the Containment Spray System After a Loss-of-Coolant Accident Because of Construction and Protective Coating Deficiencies and Foreign Material in Containment.

17. San Onofre Nuclear Generating Station Probabilistic Risk Assessment, Evaluation of Risk Significance of ILRT Extension Based on the NEI Approach, Revision 0, April 2005

18. Letter from A. E. Scherer (SCE) to the U.S. Nuclear Regulatory Commission dated December 2, 2004; Subject: Docket Nos. 50-361 and 50-362, Supporting Information Regarding Amendment Application Nos. 224 and 208, Proposed Change Number (PCN) 554, Technical Specification (TS) 5.5.2.15, Containment Leakage Rate Testing Program, San Onofre Nuclear Generating Stations Units 2 and 3.

19. Haugh, J., et al, "Interim Guidance for Performing Risk Impact Assessments in Support of One-Time Extensions for Containment Integrated Leakage Rate Test Surveillance Intervals," Revision 4, Nuclear Energy Institute (NEI), November 2001.

20. Letter from D. E. Nunn (SCE) to the U. S. Nuclear Regulatory Commission dated June 30, 2004; Subject: Docket Nos. 50-361 and 50-362 Amendment Application Nos. 224 and 208, Proposed Change Number (PCN) 554, Technical Specification (TS) 5.5.2.15, Containment Leakage Rate Testing Program, San Onofre Nuclear Generating Stations Units 2 and 3.

21. Miller, J., "San Onofre Nuclear Generating Station Probabilistic Risk Assessment Evaluation of Risk Significance of ILRT Extension," Revision 0, Ricky Summitt Consulting (RSC), Inc., RSC04-02, March 2004.