INTERNATIONAL CHAMBER OF COMMERCE
INTERNATIONAL COURT OF ARBITRATION

SOUTHERN CALIFORNIA EDISON COMPANY
AND EDISON MATERIAL SUPPLY LLC,

Claimants,

vs.

MITSUBISHI NUCLEAR ENERGY SYSTEMS, INC. AND
MITSUBISHI HEAVY INDUSTRIES, LTD.,

Respondents.

REQUEST FOR ARBITRATION

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TABLE OF CONTENTS

Page

I. INTRODUCTION 1

II. RELEVANT PARTIES 6

A. The SONGS Owners 6
B. Claimants 7
C. Respondents 8

III. AGREEMENT TO ARBITRATE AND GOVERNING LAW 8

IV. APPOINTMENT OF ARBITRATOR 9

V. NATURE AND CIRCUMSTANCES OF THE DISPUTE 10

A. The Steam Generator Replacement Project 10
B. The Failure Of The Mitsubishi RSGs 22
C. Efforts To Restore SONGS To Service 30
D. Premature Retirement Of SONGS 39

VI. CLAIMS 41

A. Breach Of Contract 41
B. Breach Of Warranty 44
C. Negligent Misrepresentation 45
D. Fraud 46
E. Rescission 48

VII. CONTRACTUAL LIMITS ON LIABILITY ARE NOT ENFORCEABLE HERE 49

VIII. REQUEST FOR INTERIM RELIEF 53

IX. RELIEF SOUGHT 53

REQUEST FOR ARBITRATION

Claimants Southern California Edison Company ("**SCE**") and Edison Material Supply LLC ("**EMS**," and with SCE, "**Edison**") hereby request arbitration against Mitsubishi Nuclear Energy Systems, Inc. ("**MNES**," as successor-in-interest to Mitsubishi Heavy Industries of America, Inc. ("**MHIA**")) and Mitsubishi Heavy Industries, Ltd. ("**MHI**," and, together with MNES and MHIA, "**Mitsubishi**"). SCE requests arbitration on behalf of itself and in its capacity as Operating Agent of the San Onofre Nuclear Generating Station ("**SONGS**"). SONGS is owned by SCE, San Diego Gas & Electric Co. ("**SDG&E**"), and the City of Riverside ("**Riverside**," and, together with SCE and SDG&E, the "**SONGS Owners**").[1]

I. INTRODUCTION

1. Edison contracted with Mitsubishi to supply new steam generators that should have extended the operating life of SONGS for decades, allowing it to continue to supply clean power to millions of California households and businesses. But Mitsubishi totally and fundamentally failed to deliver what it promised. Instead, it provided steam generators with critical defects that forced SONGS into premature retirement on June 7, 2013, causing billions of dollars in harm to the SONGS Owners.

2. Relying on Mitsubishi's repeated written and oral assurances of its technical expertise and state-of-the-art proprietary design tools, Edison retained Mitsubishi to design and

[1] SDG&E and Riverside have alleged claims against Mitsubishi in separate actions before the United States District Court for the Southern District of California. *See San Diego Gas & Electric Company vs. Mitsubishi Heavy Industries, Ltd.*, et al. (S.D. Cal. Case No. 13-cv-1726-BEN-KSC); *City of Riverside vs. Mitsubishi Heavy Industries, Ltd.*, et al. (S.D. Cal. Case No. 13-CV-1724-BEN-KSC) (together, the "Lawsuits"). SDG&E and Riverside assert that their respective claims should be adjudicated in the Lawsuits. Mitsubishi filed motions to stay the Lawsuits pending arbitration, which SDG&E and Riverside opposed and the Court has taken under submission. Pending the Court's rulings on the motions to stay, SDG&E and Riverside reserve all rights to recover all their respective losses through any claim or cause of action in any venue, forum or proceeding, including through this arbitration, consistent with the Court's ruling and their rights under applicable law.

build four Replacement Steam Generators ("**RSGs**") – massive components integral to the safe and reliable operation of the plant. Mitsubishi expressly promised to supply RSGs that would last 40 years with minimal wear, but the Mitsubishi RSGs experienced such extraordinary wear that one RSG leaked radioactive coolant after only 11 months of operation. SCE safely and rapidly shut down the affected Unit at SONGS to protect the health and safety of the public. Subsequent investigations revealed that all four RSGs had experienced multiple types of extreme vibration and wear, causing damage at an unprecedented pace and severity.

3. It is now clear that the defective RSGs resulted from problems embedded in Mitsubishi's design and manufacturing processes. According to the results of multiple investigations – by the Nuclear Regulatory Commission ("**NRC**"), SCE, and Mitsubishi itself – Mitsubishi's proprietary computer modeling codes were faulty to begin with and, additionally, Mitsubishi misused those codes when predicting the thermal-hydraulic conditions in the RSGs. Mitsubishi's errors led directly to its grossly underestimating these conditions: Fluid velocities inside the RSGs were up to four times greater than Mitsubishi had predicted, and the fraction of water in liquid form in the steam ("**void fraction**") was 10 times lower than predicted by Mitsubishi.

4. Fluid velocities and void fractions are key thermal-hydraulic conditions that affect tube vibration, and both were critical factors upon which Mitsubishi based its design. As a result of Mitsubishi's gross errors, the Mitsubishi design for the RSGs could not control tube vibration under the extreme conditions, so the RSG tubes collided with one another and with the RSG tube support structures, resulting in excessive wear that ultimately led to the premature retirement of SONGS. The tube vibration and resultant extraordinary wear are exactly what Mitsubishi promised would not occur when it bid to provide RSGs that would last 40 years.

5. Given the RSGs' extraordinary failure, SCE relied on Mitsubishi to fulfill its warranty obligations under the Contract[2] to remedy any defects in the RSGs "with due diligence and dispatch." (Contract § 1.8.4.) Any repair or replacement must correct the "root cause" of any defect, or Mitsubishi was required to demonstrate to Edison "that there [was] not a risk of the reoccurrence of such problem." (Contract § 1.17.1.3(c).) Despite these promises, however, for 16 months following the leak and resulting SONGS shutdown, Mitsubishi was completely unable even to propose, let alone implement, a repair that it could demonstrate was safe and effective in meeting warranty conditions, would satisfy NRC license requirements, and could be implemented in a reasonable time period.

6. Instead, Mitsubishi presented SCE with "conceptual" proposals that amounted to little more than brainstorming, which often rested on first-of-a-kind ideas without sufficient engineering analysis to support them. For example, Mitsubishi proposed inserting new anti-vibration bars ("**AVBs**") into the RSGs by having workers enter an 18-inch, highly radioactive space to maneuver five-foot AVBs into position between the tightly-bound tubes. But Mitsubishi offered no explanation of how this work could be done safely and effectively and provided no support to demonstrate that this repair would actually solve the problems with the RSGs. More fundamentally, Mitsubishi offered no reason to think that its "repair" effort would meaningfully address the thermal-hydraulic conditions that it admits were a root cause of the failed RSGs. Indeed, the only thing that was clear from Mitsubishi's nascent proposals was that

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[2] All references to the "Contract" are to the Conformed Specification for Design and Fabrication of the Replacement Steam Generators for Unit 2 and Unit 3, San Onofre Nuclear Generating Station (Specification SO23-617-01), Revision 4, between MHIA and EMS. The original terms of the agreement were memorialized in Revision 2, but the Parties subsequently agreed to two separate amendments to the agreement. Revision 4 was adopted through a Change Order dated November 9, 2010. Subsequent Change Orders refer to Revision 4 of the Contract.

any repair would not occur for at least a year (but more likely multiple years) and cost hundreds of millions of dollars – costs that Mitsubishi did not offer to pay.

7. The SONGS Owners were forced to incur enormous expense to keep SONGS in a state of readiness for Mitsubishi's repair or replacement, while at the same time spending tens of millions of dollars each month buying replacement power to serve their customers. In light of this expense, and given the critical role SONGS played in providing power and maintaining the stability of the electricity grid in California, Edison simultaneously pursued an interim solution: Working closely with Mitsubishi and independent experts, Edison set out to determine whether the Unit 2 RSGs, which evinced less advanced wear than the Unit 3 RSGs, could be safely operated at reduced power for shortened operating periods between inspections. In October 2012, after completing extensive investigations and plugging worn and other at-risk tubes, SCE submitted a plan to the NRC to operate Unit 2 at 70% power for an initial period of five months, more than a year short of a normal operating cycle. In May 2013, the NRC's Atomic Safety and Licensing Board determined that the proposal to restart Unit 2 (even at reduced power for a limited period) could not be approved without a new license amendment, which would involve significant additional time, effort, and expense.

8. As of June 2013 – 16 months after the tube leak forced the shutdown of SONGS – there was no telling when or if the plant would ever be restored to service. Mitsubishi still had not offered a viable repair plan, and the NRC had not permitted restart of either Unit, even at a level of power well below that which Mitsubishi promised the RSGs would support. Given the substantial uncertainty that existed as to any approval of restart by the NRC or viable repair to the RSGs, Edison had no reasonable choice but to retire SONGS prematurely to mitigate the harm to the SONGS Owners and ratepayers. Accordingly, on June 7, 2013, Edison announced

that SONGS would be permanently removed from service, decades short of the service period Mitsubishi promised and long before the anticipated end of the plant's useful life.

9. Claimants' investigation regarding Mitsubishi's misconduct is ongoing, and it has been hampered by Mitsubishi's refusal to honor its contractual obligation to allow Edison to review documents related to the work Mitsubishi performed on the RSGs. Nevertheless, there can be no dispute that Mitsubishi breached its promises to Edison. Mitsubishi expressly promised to control the very types of vibration and wear that put the RSGs out of service. In addition, Mitsubishi promised to provide Edison with RSGs that would last for 40 years, not a matter of months. Mitsubishi misrepresented its abilities to design and fabricate the SONGS RSGs and the capabilities of its proprietary predictive-modeling tools in order to obtain the Contract. Once it obtained the Contract, Mitsubishi breached numerous of its provisions, grossly failed to use due care in designing and fabricating the RSGs, and failed to meet the terms of the repair-or-replace warranty. Throughout the design, fabrication, and delivery of the RSGs, Mitsubishi continued to provide false assurances to Edison, rather than revealing its gross failures so that steps could be taken to avoid the harm that occurred here.

10. The SONGS Owners have suffered at least $4 billion in damages as a result of Mitsubishi's wrongdoing. Edison anticipates that Mitsubishi will claim that the Contract limits Mitsubishi's liability to $138 million, but Mitsubishi cannot shield itself from the consequences of its misconduct here: the Contract is governed by California law, and under California law, limitations on liability are not enforceable in these circumstances. As an initial matter, Edison agreed to the limited remedy provision in reliance on Mitsubishi's false representations about its ability to deliver RSGs that were safe, dependable, and licensable, and to remedy any defects "with dispatch." California law does not permit Mitsubishi to use the Contract to excuse

misrepresentations that induced Edison to agree to the Contract in the first place. Moreover, under Section 2719 of the California Commercial Code, limited remedies are not enforceable where those remedies have failed their essential purpose. Thus, Mitsubishi's total and fundamental failure to meet its obligations under the Contract voids any damages limitation. In the alternative, Mitsubishi's failures provide grounds for Edison to rescind the Contract (including the limitations on liability). Furthermore, the damages cap itself is subject to an express carve-out for damages that result from Mitsubishi's gross negligence, fraud, willful misconduct, or unlawful acts. Claimants are entitled to recover the full measure of the damages Mitsubishi caused.

11. The consequences of Mitsubishi's misconduct are extremely serious. Accordingly, Claimants are requesting arbitration against Mitsubishi in order to enforce their rights regarding Mitsubishi's failure to design and fabricate RSGs that were free of defects, and Mitsubishi's failure to repair or replace the RSGs once the embedded defects were discovered.

II. RELEVANT PARTIES

A. The SONGS Owners

12. SCE is a regulated public utility incorporated under the laws of the state of California, with its principal place of business in California. SCE provides electricity to more than 14 million people across more than 50,000 square miles of central, coastal, and southern California. SCE serves as the Operating Agent of SONGS.

13. SDG&E is a regulated public utility incorporated under the laws of the State of California in the business of generating, transmitting, and distributing electricity to approximately 3.4 million people located in San Diego and southern Orange counties.

14. Riverside is a California charter city and municipal corporation organized and existing under the laws of the State of California. Riverside, through its Public Utilities

Department, owns and operates an electrical generating, transmitting, and distribution system to provide electricity and other services to the approximately 304,000 residents and other customers within Riverside.

B. Claimants

15. SCE and EMS jointly initiate this action. SCE asserts claims individually and in its capacity as Operating Agent of SONGS. SCE and EMS are headquartered at 2244 Walnut Grove Avenue, Rosemead, California 91770.

16. EMS is a Delaware limited liability company and a wholly owned subsidiary of SCE with its principal place of business in California. EMS, as SCE's procurement agent, was the original signatory to the Contract at issue here, attached as Exhibit A to this Request for Arbitration. Through the End User Agreement attached as Exhibit B to this Request for Arbitration, EMS, SCE, and MHI agreed that SCE would "be bound by and also share in the benefits derived from" relevant sections of the Contract, including but not limited to Section 1.12 (Quality Control), Section 1.17 (Warranty), and Section 1.19 (Indemnity).

17. Claimants are represented in this proceeding by Peter A. Wald, Thomas J. Heiden, and Melanie M. Blunschi of Latham & Watkins LLP. All correspondence related to this matter should be directed to the following:

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C. Respondents

18. MHI and MNES are the Respondents. Pursuant to the assignment agreement attached as Exhibit C to this Request for Arbitration, MNES is the successor-in-interest to MHIA, which is a Delaware corporation and the original signatory to the Contract. MHI was also a signatory to the contract as parent guarantor of MHIA.

19. MNES is a Delaware corporation headquartered at 1001 19th Street North, Suite 2000, Arlington, Virginia 22209.

20. MHI is a Japanese corporation headquartered at 16-5 Konan 2-chome, Minato-ku, Tokyo, 108-8215, Japan.

21. Edison is informed and believes that Mitsubishi will be represented in this proceeding by John H. O'Neill, John R. Heisse, and Barbara L. Croutch of Pillsbury Winthrop Shaw Pittman LLP. Mitsubishi's counsel may be contacted at:

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III. AGREEMENT TO ARBITRATE AND GOVERNING LAW

22. Claimants have completed all prerequisites to initiating arbitration under the Contract. On July 18, 2013, in accordance with the dispute-resolution provisions of the Contract, Edison provided Mitsubishi with a formal Notice of Dispute. Mitsubishi provided its response

on August 16, 2013. The parties met and conferred on August 27, 2013 but were unable to resolve the dispute within the 90-day period set forth in the Contract. Accordingly, Claimants now request arbitration in accordance with the Contract terms.

23. Section 1.22.2.1 of the Contract provides that any dispute between Edison and Mitsubishi "shall be finally settled and resolved by arbitration in accordance with the ICC Rules, subject to such modifications of the ICC Rules as are set forth in [the Contract]."

24. Section 1.22.2.2 of the Contract provides that "[t]he number of arbitrators shall be three." Each party will appoint one arbitrator, with the third to be selected by the two party-appointed arbitrators.

25. Section 1.22.2.3 of the Contract provides that "[t]he arbitration proceeding shall be conducted in the City of San Francisco, California, United States of America in the English language; and all testimony or documentary evidence shall be submitted in English."

26. Section 1.32 of the Contract provides that "the [Contract] shall be interpreted, governed and construed under the laws of the State of California, as if executed and to be performed wholly within the State of California (regardless of the State of California's or any other jurisdiction's choice of law rules)."

IV. APPOINTMENT OF ARBITRATOR

27. Claimants appoint James W. Quinn as their selected arbitrator. Mr. Quinn may be contacted at:

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V. NATURE AND CIRCUMSTANCES OF THE DISPUTE

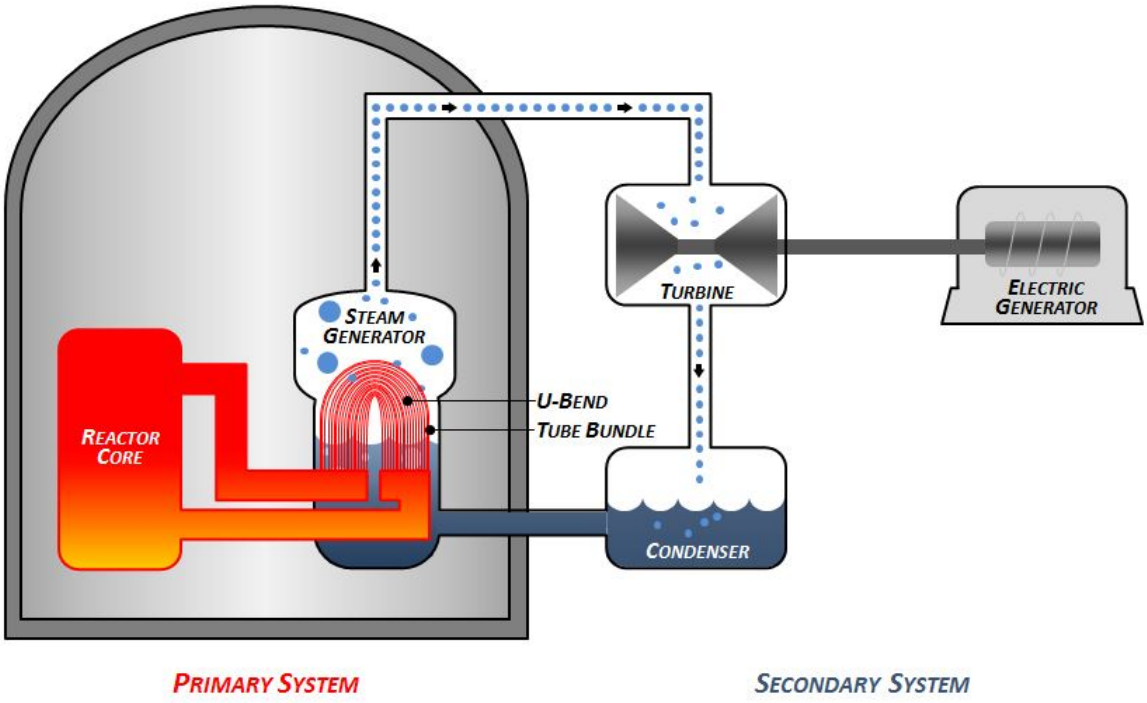
A. The Steam Generator Replacement Project

1. SONGS Steam Generators

28. SONGS consists of two "Units" – Unit 2 and Unit 3 – each of which is powered by a Pressurized Water Reactor ("PWR").[3] In a PWR, two main fluid systems work together to produce electric power: (1) the Reactor Coolant, or "primary," system and (2) the Main Steam, or "secondary," system. The primary system in each Unit contains a nuclear reactor that heats water to about 600 degrees Fahrenheit. The heated, radioactive water is circulated under pressure through thousands of metal alloy tubes inside two steam generators per Unit. The hot water heats the tubes, and the tubes transfer heat to non-radioactive water surrounding the tubes in the secondary system. That water, in turn, becomes high-pressure steam that flows up and through the tube bundle and then is piped into a steam-driven turbine-generator, where electricity is generated. Figure 1 on the following page generally illustrates the relationship between the two systems:

[3] SONGS Unit 1 was retired in 1992 after 25 years of operation.

Figure 1



29. The primary and secondary systems are separate, closed systems. The steam generator tubes form part of the "Reactor Coolant Pressure Boundary" and are a critical barrier between the radioactive primary system and the non-radioactive secondary system. It is extremely important that the primary and secondary systems remain separated, since a leak from the primary system to the secondary system presents the risk of a radioactive release to the environment: If a steam generator tube leak occurs, radioactive water from the primary system will escape into the secondary side, where it can then escape to the atmosphere. Additionally, if multiple tubes were to burst, damage to the nuclear fuel in the reactor core might occur, creating the potential for the release of radioactive material.

2. Edison's Efforts To Find An Expert To Design And Manufacture RSGs

30. By the early 2000s, after decades of service, the original SONGS steam generators were nearing the end of their useful lives as a result of tube wear and corrosion. In

accordance with industry practice, Edison had preventatively removed from service, or "plugged," those tubes that experienced the most advanced wear or extreme effects of corrosion. There are limits, however, to the number of tubes that may be plugged if a utility wishes to continue operation of the plant at full power. Estimates suggested that Unit 2 could reach its plugging limits by 2012, and that Unit 3 could reach its plugging limits a few years later. Given the significant time and effort necessary to replace steam generators in a nuclear power plant, in 2002, Edison began a "benchmarking" effort to meet with operators of other nuclear power facilities that had recently replaced their own steam generators and learn from their experiences. Edison used the information it acquired from visiting other plants to evaluate whether to replace its original steam generators, as well as to evaluate how best to draft the proposed technical specification for the RSGs, and how to select a vendor to design and fabricate the RSGs for SONGS.

31. Edison undertook these benchmarking steps because it is not a steam generator designer or manufacturer, and it does not have the expertise to design or manufacture nuclear steam generators. Therefore, Edison, like other operating utilities, sought to contract with a firm that was qualified to design and manufacture the RSGs. In or around spring 2002, Edison began meeting with companies from around the world to select a vendor to design and fabricate the RSGs. In December 2003, Edison issued a "request for proposal" for the design and fabrication of four RSGs for SONGS to six companies, including Mitsubishi.

32. Mitsubishi is one of a very limited number of American Society of Mechanical Engineers ("**ASME**") "N-stamp holders," meaning that its Quality Assurance program has been deemed sufficiently rigorous to ensure that it is qualified to design and manufacture steam generators for nuclear power facilities. [redacted]

[redacted]

3. Mitsubishi's Representations To Obtain The RSG Contract

33. Throughout the bidding process, Mitsubishi touted its technical expertise and assured Edison that Mitsubishi had the necessary experience and design and modeling tools to deliver safe and reliable RSGs. Of note, throughout the bidding process, Mitsubishi represented that its design would prevent the very types of vibration and tube wear that ultimately occurred in the RSGs. Edison reasonably believed Mitsubishi's repeated assurances that it was able to analyze the potential for damaging flow-induced vibration ("**FIV**"), including random vibration and a phenomenon of uncontrolled vibration called fluid elastic instability ("**FEI**"). If not adequately controlled, FIV can severely damage steam generator tubes, [redacted] Recognizing this historical problem, Mitsubishi expressly claimed that its RSG design would preclude all tube damage resulting from FIV.

34. Mitsubishi supported these promises by repeatedly and deliberately affirming to Edison that Mitsubishi had developed reliable technical solutions to prevent FIV. Edison relied on Mitsubishi's claim that Mitsubishi's decades of operating experience provided the expertise to prevent FIV and that its proprietary predictive modeling computer codes – which it had used to supply many dozens of other steam generators for nuclear plants around the world – were sufficient to predict any vibration concerns in the SONGS RSGs. [redacted]

[redacted] Instead, Mitsubishi promised to prevent all forms of FIV. Edison relied on Mitsubishi's claim that its analyses of steam generator conditions in general, and its use of its predictive model in particular, would lead to a state-of-the-art design, free of FIV.

35. In its Technical Proposal, Mitsubishi expressly represented that:

[redacted]

[redacted]

These representations were specific and unequivocal.

36. Edison received qualified bids from all six suppliers. The bids were evaluated on both technical and commercial proposed terms, with the technical factors weighted more heavily in recognition of the importance of designing and manufacturing safe, effective and licensable steam generators. In the initial bidding, multiple vendors' bids were judged to be technically on par with Mitsubishi's, but after a second round of "best and final" bids, Mitsubishi's proposal received the highest combined score. Mitsubishi was selected as the supplier based on the clear representations included in its bid proposal.

37. While Edison's request for proposal included a draft technical specification based on an industry sample specification and information acquired through its benchmarking efforts, Edison was not an expert in steam generator design. Therefore, Mitsubishi's input into the final specification was considered critical. Mitsubishi proposed numerous changes to the draft specification, and the technical specification was revised significantly in accordance with Mitsubishi's proposal. The parties' mutually agreed-upon technical specification was embodied in the Contract. Mitsubishi negotiated the Contract heavily, and ultimately approved and agreed to all of its terms.

38. Edison reasonably believed that it could rely on Mitsubishi's promises and its representations that it could design and fabricate RSGs that would operate safely for 40 years in accordance with the terms of the Contract. Specifically, in light of Mitsubishi's representations that its analyses, modeling, testing, and operating experience demonstrated that its design would not suffer damaging FIV, Edison reasonably believed it could rely on, and Edison did rely on, Mitsubishi's promise to prevent tube wear caused by FIV and to preclude the very type of leak that ultimately occurred at SONGS.

4. The RSG Contract Between Mitsubishi And Edison

39. In reliance on Mitsubishi's representations about its experience and abilities, Edison selected Mitsubishi to design and build the RSGs. In September 2004, MHIA and EMS entered into the RSG Contract, and MHI guaranteed MHIA's performance. Later, SCE obtained rights and obligations under the Contract through an End User Agreement executed by SCE, EMS, and MHI. MHIA assigned its rights and obligations under the Contract to MNES.

40. In exchange for the four RSGs supported by these promises, Edison agreed to pay Mitsubishi $138 million and "assume[d] no other expressed or implied responsibilities" beyond the discrete duties expressly assigned to it. (Contract § 3.2.1.) Mitsubishi, on the other hand, agreed to provide, among other things, all necessary management, supervision, engineering, design, fabrication, inspections and testing of the RSGs.

41. Additionally, Mitsubishi, through the Contract, committed to a number of specific duties and express warranties, including:

a. "The Supplier warrants that the Apparatus shall meet all the requirements of the Specification, including the Applicable Standards." (Contract § 1.17.)

b. "The Supplier warrants that the Apparatus shall be free from Defects." (Contract § 1.17.1.1.)

c. "The service life of the RSGs shall be 40 calendar years from the date of startup following their installation" and "[n]o RSG parts or components are allowed to require replacement during the stipulated RSG service life, unless specifically identified for routine replacement[.]" (Contract §§ 3.7.1.1-3.7.1.2.)

d. "The warranty period for discovery of Defects in an RSG Unit … [shall] commence upon Acceptance of the RSG Unit and continue for twenty (20) years unless this period is extended for an additional ten (10) year period" at Edison's option. (Contract § 1.17.1.2.)

e. Mitsubishi agreed that it will be "responsible for all costs and expenses associated with such repair or replacement [of any Defect discovered during the Warranty Period], including but not limited to (i) any necessary

adjustments, modifications, change of design, removal, repair, replacement or installation of the Apparatus, and (ii) all parts, materials, tools, equipment, transportation charges and labor as may be necessary for such repair or replacement[.]" (Contract § 1.17.1.3.)

f. "The Supplier warrants that the Apparatus shall meet the additional performance standards set forth in the following subsections of this Section 1.17.2." (Contract § 1.17.2.1.) Among these standards are the following:

(1) "[T]he tubes of each RSG shall be designed and fabricated such that they remain in service throughout the Warranty Period[.]" (Contract § 1.17.2.2.)

(2) "There will be no primary-to-secondary leakage due to Defects in any of the RSG Units for the duration of the Warranty Period." (Contract § 1.17.2.3.)

g. Mitsubishi guaranteed that its RSG design would meet all NRC regulations, including licensing requirements. (Contract §§ 3.5; 3.6.)

h. Mitsubishi promised that its RSGs would meet all applicable codes, standards or criteria, including the American Society of Mechanical Engineers' Boiler Pressure and Vessel Code Section III. (Contract §§ 1.1.1; 1.13.1; 3.4.1; 3.5; 3.9.6.1.)

i. "All RSG Work shall be performed in accordance with Supplier's [Quality Assurance] Program (approved by Edison), which complies with the provisions of 10 CFR 50, Appendix B." (Contract § 3.15.)

j. "The Supplier shall have the responsibility for the [Quality Assurance] activities necessary to implement the Work described in this Specification. All technical and quality requirements of this Specification shall be met and shall be imposed as applicable by the Supplier on all Supplier's Subcontractors furnishing hardware or services for the Work." (Contract § 2.8.1)

k. Mitsubishi confirmed that "[t]he RSG[s] shall be equipped with tube supports that adequately support the tube bundle and facilitate internal circulation," and the tube support design shall "[p]reclude tube damage due to wear caused by flow induced vibration (FIV)" and "[p]rovide the tube-to-tube support contact length such as to minimize tube wear." (Contract § 3.9.3.7.)

l. "The Supplier shall address flow-induced and turbulence-induced vibration of the tube supports to demonstrate that ... wear of the tubes will not occur.... The analysis shall account for reduced damping associated with fouling of the gaps between the tubes and tube supports.

Specifically, the Supplier shall demonstrate that its design will minimize vibration-induced tube wear or fatigue in the tube bend area of the tube bundle. " (Contract § 3.9.3.7.)

m. "Any Defect discovered during the Warranty Period, and damage to any other part of the Apparatus or other property resulting directly from such Defect, shall be repaired or replaced, in a mutually agreeable manner, by the Supplier at its sole expense with due diligence and dispatch[.]" (Contract § 1.17.1.3.)

42. A "Defect" is broadly defined in the Contract as:

> Work that (i) does not conform to the requirements of the Purchase Order, (ii) is not new as of the date of delivery or of uniform good quality as required pursuant to the Purchase Order, (iii) is not free from defects or deficiencies in design, application, materials, manufacture or workmanship, or that contain improper or inferior workmanship contrary to the requirements of the Purchase Order, or (iv) would adversely affect, contrary to the requirements of the Purchase Order, (a) the performance of the Apparatus under operating conditions consistent with those contemplated in the Purchase Order, (b) the continuous safe operation of the Apparatus during the Apparatus's design life, or (c) the structural integrity of the Apparatus and/or (v) are not suitable for the use as set forth in the Purchase Order; provided that (i) if Supplier fails to satisfy a Guaranteed Performance Level, such failure shall not be considered a Defect provided Supplier has paid the liquidated damages applicable to such Guaranteed Performance Level for such failure, and/or (ii) cosmetic changes in appearance over time shall not be considered a Defect. Anything to the contrary notwithstanding, the Parties agree that Work shall be considered to be defective if it does not conform to the Applicable Standards or Applicable Laws. (Contract § 1.2.13.)

43. "Work" likewise is broadly defined to include:

> The Apparatus, together with all engineering, analysis (including without limitation analysis of the impact of installation and use of the Apparatus on then-existing SONGS facilities), design, manufacturing, fabrication, assembly, inspection, testing, Documentation, Technical Services and all other obligations of the Supplier to be performed or furnished as required by the Purchase Order. (Contract § 1.2.59.)

44. The 40-year service life reflected in the Contract, combined with Mitsubishi's 20-year warranty obligations, was supposed to add decades to SONGS' operating life. The original operating license for SONGS Units 2 and 3 only extended until 2022, and the RSGs should have

provided SCE the option to apply for a renewal of the operating license through 2042. To date, the NRC has approved license renewal applications for dozens of nuclear power plants and has never denied the license renewal application of an operating nuclear power plant under the rules currently set forth in 10 C.F.R. Part 54.

5. The Design, Manufacturing, And Installation Of The RSGs

45. Although Mitsubishi bore sole responsibility for the design and manufacture of the RSGs, Edison nevertheless acted to protect the SONGS Owners' investment in this critical equipment and the generating plant itself, as would any prudent customer. Edison exercised diligent oversight of Mitsubishi's work throughout the design and fabrication of the RSGs, monitoring the progress of the work and engaging Mitsubishi in vigorous discussion about significant aspects of the RSGs' design and manufacture. While Edison is not a designer or fabricator of steam generators, it employs a knowledgeable engineering staff, and it had decades of experience operating and maintaining the original steam generators. Edison called on this knowledge and experience to create robust dialogue with Mitsubishi. Edison often challenged Mitsubishi's assumptions and asked Mitsubishi to justify its design choices.

46. While Section 1.11.8 of the Contract gave Edison the right to review and approve Mitsubishi's design efforts, under the dictates of the Contract, Mitsubishi alone was "obligat[ed] to independently verify and assure that the Work complie[d] with all of the requirements of the Purchase Order." A similar requirement was imposed by the NRC regulations applicable to Mitsubishi as the implementer of the NRC's Quality Assurance requirements specified in 10 C.F.R. Part 50, Appendix B and Section III of the ASME Boiler and Pressure Vessel Code.

47. At no point during the design or manufacturing process did Mitsubishi inform Edison that it could not meet the promises set out in the Contract. Nor did Mitsubishi tell Edison

that the steam generators would be susceptible to any type of destructive flow-induced vibration, much less that the steam generators would suffer fluid elastic instability or any other type of vibration that could cause tube-to-tube contact and excessive wear. Since the outages, Mitsubishi has attempted to shift blame to Edison by claiming that the Contract was too restrictive or Edison's oversight was too intrusive. If Mitsubishi thought any aspect of the Contract or Edison's oversight would lead to FIV and excessive tube wear, it never told Edison. On the contrary, Mitsubishi repeatedly assured Edison that its design would have no such problems and repeatedly confirmed that the RSGs would meet each and every contractual promise and warranty.

48. During design and manufacturing of the RSGs, Mitsubishi continued to tout its technical expertise and assure Edison that the RSG design would prevent tube vibration. For example:

a. In March 2005, Edison "asked MHI if they could design a U-bend with adequate vibration and wear margin based on [certain technical] values. MHI said yes."

b. Also in March 2005, Mitsubishi assured Edison that it recognized AVB "design [as] one of the most critical design issues in the SONGS RSG design" and that it was aware of recent experiences with "tube wear in the AVB design in large replacement steam generators." Given that, Mitsubishi further assured Edison that AVB design was "a very important area for design and fabrication which we will carefully address" and that it would "modify and improve" its AVB design from the design developed for smaller RSGs. Mitsubishi never suggested that it would not be able to meet the terms of the Contract regarding tube support and wear.





49. These statements were unequivocal and despite these representations, Mitsubishi embedded serious defects in the RSG design, which led to debilitating destructive tube wear. Again, contrary to Mitsubishi's current position, there was no exception made for in-plane FEI or any indication that it was unable to understand, account for, or control any particular type of FIV (including FEI).

50. The Unit 2 RSGs were delivered to SONGS in February 2009. Edison retained an outside vendor to remove the original steam generators and install the new ones. Installation of the Unit 2 RSGs began in September 2009, and Edison brought Unit 2 back online with the new Mitsubishi RSGs in April 2010. The Unit 3 RSGs arrived at SONGS in October 2010, installation began that same month, and Unit 3 was returned to service in February 2011.

B. The Failure Of The Mitsubishi RSGs

1. SONGS Unit 3 Experiences A Radioactive Leak

51. On January 31, 2012, a tube in one of the Unit 3 RSGs wore all the way through, causing a leak of radioactive coolant into the secondary side of the generator. Edison immediately commenced a rapid shutdown of Unit 3 to limit any potential radioactive release to the environment and notified the NRC of the leak. Unit 3 was removed from service the same day and safely cooled down and depressurized to stop the primary-to-secondary leak. At the time Unit 3 was removed from service, Unit 2 was already offline for a planned maintenance and

refueling outage scheduled to end in early March 2012. Edison began testing in Unit 3 to determine the causes of the leak.

52. Concurrent with these steps and consistent with its rights under the Contract, Edison promptly notified Mitsubishi of the problems at SONGS after Unit 3 was shut down. Edison requested that Mitsubishi fulfill its warranty obligations to investigate and repair or replace the faulty RSGs.

2. Investigations Reveal Excessive And Unprecedented Wear

53. Edison's preliminary inspection of Unit 3 revealed extreme wear on a large number of tubes. These results were especially troubling because the RSGs were brand new. Edison notified the NRC of the results of its tube inspections, and the NRC dispatched an Augmented Inspection Team to investigate the causes of the excessive tube wear and the related leak. Along with the NRC, Edison and Mitsubishi each commenced investigations to determine what had caused the leak in Unit 3 and whether Unit 2 was also experiencing excessive tube wear. Each of the separate investigations revealed four types of excessive tube wear in the SONGS RSGs: (1) tube-to-tube wear, in which tubes struck or rubbed against the tubes immediately adjacent to them, causing damage to both; (2) tube-to-AVB wear, in which tubes struck or rubbed against metal bars that were intended to help keep the tubes stable; (3) tube-to-TSP wear, in which tubes struck or rubbed against metal plates that also were intended to stabilize the tubes; and (4) tube-to-retainer bar wear, in which retainer bars struck or rubbed against the tubes. The investigations showed that the tube leak in Unit 3 primarily was the result of tube-to-tube wear. Indications of tube-to-tube wear were also observed in Unit 2.

54. While excessive wear from all four types of tube wear violated Mitsubishi's contractual obligations, especially given the very limited period of time that the Units operated, the occurrence of tube-to-tube wear in both Unit 2 and Unit 3 reflected an extraordinary failure

of Mitsubishi's design and fabrication: Claimants are not aware of tube-to-tube wear ever occurring in another operating U-bend design steam generator.

55. As part of its investigation, Edison conducted additional tests of the tubes in both Units to determine the extent of the wear and the scope of the problem. In Unit 2, investigators found 176 locations where tubes were worn through at least 20% of the tube's wall and another 1,914 locations that had worn through at least 10% of the tube's wall. Testing in Unit 3 revealed an astounding 2,519 locations that were worn through at least 20% of the tube wall and 3,622 additional indications of wear of at least 10%. To Claimants' knowledge, no other nuclear facility has *ever* observed these levels of wear within a first cycle of operation following installation of RSGs.

56. Edison also conducted in-situ (*i.e.*, in place, with the steam generator installed in the plant) pressure testing to determine the practical effects of the wear. Of 73 tubes tested in one of the RSGs in Unit 3, a total of eight tubes – more than 10% of the tubes tested – failed this test. These failures were not only extraordinary but also demonstrated a fundamental failure of Mitsubishi's design: for *even one* tube to fail pressure testing so soon after beginning operation would be extremely serious. To Claimants' knowledge, no other nuclear facility has *ever* experienced failure of multiple tubes during in-situ pressure testing, let alone experienced such failures after less than one cycle of operation following installation of RSGs.

57. Tubes with the greatest wear were permanently plugged to prevent further leaks or rupture. In Unit 2, 510 tubes were plugged. In Unit 3, 807 tubes were plugged, 4.1% of the total tube bundle. Thus, more than 1,300 tubes were plugged in the four RSGs at SONGS after less than a year (Unit 3) or less than two years (Unit 2) of service. To Claimants' knowledge, no

other nuclear facility has *ever* needed to plug so many tubes within a first cycle of operation following installation of RSGs.

58. Although the wear in the Unit 2 RSGs was less advanced than the wear in the Unit 3 RSGs, all four RSGs had identical designs, and many of the wear patterns in the Unit 2 RSGs were similar to those in Unit 3. In light of the extraordinary failures revealed by the Unit 3 testing, Edison determined, consistent with its responsibility for safe operation of SONGS, that it should wait to return Unit 2 to service until the mechanisms giving rise to these problems were definitively identified and a clear technical basis for the operation of Unit 2 – including a safe power level for that operation – was established.

3. Mitsubishi Grossly Under-Predicted Thermal-Hydraulic Conditions In The RSGs

59. The technical investigations concluded that the failure of the RSGs resulted from several fundamental design errors and from systemic problems associated with Mitsubishi's quality assurance procedures. The investigations revealed Mitsubishi's gross failures related to predicting thermal-hydraulic conditions in the RSGs. But that was just one example of its flawed design and quality assurance procedures. Mitsubishi scaled up and changed the design it had used with prior steam generators when designing the SONGS RSGs and did so without properly analyzing the effects of those changes. Moreover, in light of its changed RSG design, Mitsubishi failed to conduct appropriate testing, execute complete modeling and analyses, and adequately consider commercial operating experience throughout the industry.

60. For example, as one step in modeling and analyzing its changed RSG design, Mitsubishi elected to use its proprietary thermal-hydraulic code, Flow in Tube Bundle Three Dimensional Analysis, or "FIT-III," to predict thermal-hydraulic operating conditions. Mitsubishi provided Edison with documentation that purported to show that FIT-III was

benchmarked against other accepted thermal-hydraulic codes and had been used in many successful steam generator design projects in the past. Mitsubishi further represented that FIT-III had been validated for the SONGS design.

61. Claimants learned after the failures that there were errors in the FIT-III code and that Mitsubishi grossly under-predicted the thermal-hydraulic conditions in the RSGs, including maximum void fraction, or the fraction of vapor (as compared to the total volume of the steam/water mixture) in the steam. It is well known within the steam generator design industry that high void fraction can contribute to severe vibration and tube wear. Therefore, predicting this condition accurately is critical to achieving a stable design. Mitsubishi represented that the maximum void fraction in the RSGs would be lower than 0.95 (or 95% vapor, 5% liquid). After the SONGS Units were taken offline in 2012, Mitsubishi and others conducted modeling using ATHOS, another thermal-hydraulic modeling code commonly employed in the nuclear power industry. Unlike FIT-III, the ATHOS models indicated that the void fraction in the RSGs approached 0.996 (or 99.6% vapor, 0.4% liquid), which is an astounding difference of incredible magnitude from Mitsubishi's prediction. The practical effect of the error was enormous, as the actual fraction of water in liquid form – which is a critical component in providing damping of tube vibration in the RSGs – was more than 10 times lower than Mitsubishi's predicted value used in the SONGS RSG design.

62. Unbeknownst to Edison at the time, Mitsubishi's own experts questioned the validity of the FIT-III code, but Mitsubishi failed to take heed of their warnings. In a September 20, 2013 letter to Edison, the NRC revealed, "Mitsubishi hired consultants with expertise in designing large steam generators, but did not rigorously evaluate all concerns raised by the

consultants about use of FIT-III and specific results obtained from that thermal-hydraulic model."

63. After discovery of the unprecedented tube wear in the SONGS RSGs, SCE discovered that FIT-III had only been tested and proven valid for predicting void fractions up to 0.90 (*i.e.*, steam that is 90% vapor, 10% liquid). Therefore, even Mitsubishi's grossly under-predicted void fraction of 0.95 was well outside FIT-III's empirically-validated range. This fact should have triggered Mitsubishi to revalidate the software for higher void fraction predictions or to use another modeling code that was validated for void fractions greater than 0.90, but Mitsubishi never investigated or took action to determine the accuracy of FIT-III in the higher predicted range. In failing to do so, Mitsubishi breached its contractual obligation to verify that the FIT-III code was accurate and used appropriately, which set the stage for the total failure of its RSGs. Moreover, Mitsubishi did not disclose to Edison that FIT-III had not been validated for application in the design context of the SONGS RSG project.

64. In addition to showing that the void fraction was significantly higher than Mitsubishi predicted, the post-outage computer modeling through ATHOS and CAFCA4 (another code used to predict thermal-hydraulic conditions) determined that the speed at which the steam moved through the tube bundle ("fluid velocity") was up to four times greater than Mitsubishi had told Edison during the RSG design phase that it would be. Fluid velocity is also a key contributor to damaging tube vibration and wear in a steam generator.

65. The extreme thermal-hydraulic conditions in the operating RSGs – as opposed to the conditions that Mitsubishi predicted and used as its design basis – put Mitsubishi's design far outside both its prior experience and accepted industry operating experience. Mitsubishi failed to achieve sufficient design margins, as required by NRC and ASME codes.

66. These thermal-hydraulic conditions, coupled with a lack of adequate structural tube support, resulted in FIV, including FEI and other vibration mechanisms. These mechanisms in turn caused the four types of tube wear found in the failed RSGs, including the tube-to-tube wear that caused the tube to leak radioactive coolant in Unit 3. The NRC's Augmented Inspection Team concluded, among other things, that Mitsubishi's FIT-III modeling errors caused Mitsubishi to design the RSGs with inadequate tube supports and thermal-hydraulic conditions to preclude FEI.

67. Additionally, on September 20, 2013, the NRC issued a Notice of Nonconformance to Mitsubishi for "failure to ensure adequate design interface control between the MHI Steam Generator Design Section ['SGDS'] and the Takasago Research and Development Center related to the thermal hydraulic and vibration analyses used for aspects of the SONGS RSG design." This is a violation of NRC quality assurance regulations detailed at 10 C.F.R. Part 50, Appendix B. Because Mitsubishi's RSG design team did not adequately communicate with its software development division, the designers "failed to convert the wide gap flow velocity output results from the FIT-III analysis to narrow gap flow velocities needed as input for the FIVATS vibration analysis code." Moreover, the NRC found, "the FIT-III code program manual did not provide an explanation or definition of which velocity was provided as an output ... [and] the SGDS procurement specification for FIT-III analysis that was provided to Takasago failed to include a clear description of the requirements to output the narrow gap velocity defined in the ASME code." The designers admitted to the NRC that they mistakenly "thought the output of FIT-III was the narrow gap velocity." Perhaps most troubling, the NRC

observed that "[a]ll MHI designed triangular pitch steam generators up through SONGS (total of five nuclear power plants) used the incorrect gap velocities."[4]

4. Mitsubishi Designed And Manufactured The RSGs With Inadequate Tube Supports

68. Mitsubishi's failures also extended to the design and manufacture of the tube support structures in the RSGs. Specifically, and contrary to its repeated promises, Mitsubishi failed to design and fabricate the AVBs to ensure that damaging FIV, including FEI and other vibration mechanisms (and the resulting tube wear), did not occur. Importantly, Mitsubishi's failed design did not have sufficient vibration damping between the AVBs and tubes to prevent FEI.

5. Mitsubishi Failed To Analyze Its Retainer Bar Design

69. Mitsubishi used a similar retainer bar design for the SONGS RSGs that it had used for the much smaller steam generators it previously designed. Instead of conducting an independent analysis through testing, modeling and industry experience, Mitsubishi essentially scaled up its prior design without taking into consideration the impact of doing so. Mitsubishi essentially stretched the retainer bars, increasing their length and decreasing their diameter, but never evaluated the effects of these changes. In fact, the longer, thinner retainer bars had a different vibrational frequency than Mitsubishi's prior design. As a result, the SONGS retainer bars themselves were subject to FIV, resulting in excessive wear of adjacent steam generator tubes.

[4] Under the NRC's rules, a licensee bears ultimate responsibility for the work of its contractors. Thus, the NRC also issued certain findings against Edison, because Edison did not detect the problems associated with Mitsubishi's proprietary modeling codes. Edison recognizes its oversight responsibility and takes adherence to the NRC's rules and regulations seriously. Nonetheless, because Edison did not have the expertise to perform the computer modeling or to conduct a comprehensive analysis of Mitsubishi's codes, Edison properly relied on Mitsubishi, as the expert in steam generator design and an ASME N-stamp holder, to ensure that the RSGs were safe and reliable. Moreover, under the Contract which is at issue in this proceeding, Mitsubishi alone is responsible for ensuring that its codes were properly validated and yielded accurate results.

* * *

70. By failing to identify and correct the errors embedded in its computer models, failing to perform necessary and appropriate testing, failing to design effective tube supports, and failing to base its design on applicable prior operating experience, Mitsubishi failed to properly consider the cumulative effects of the design changes in its scaled-up RSG design. As a result of Mitsubishi's grossly inaccurate modeling of the thermal-hydraulic conditions, the RSGs in both Units suffered FEI and other vibration mechanisms that resulted in extensive and excessive tube wear at an unprecedented pace and severity. This is despite Mitsubishi's repeated assurances that there would be no FIV (including FEI and other vibration mechanisms) and no associated tube damage.

71. Claimants continue to investigate Mitsubishi's failure to accurately represent its experience and capabilities and to disclose problems with its design and fabrication of the RSGs. However, Claimants' investigation has been impeded by Mitsubishi's refusal to provide documents regarding its work on the RSG project, despite Edison's clear and unequivocal right under the Contract to access this information. Accordingly, Claimants reserve the right to assert further failures on Mitsubishi's part as additional information is obtained through further investigation and discovery in this proceeding.

C. Efforts To Restore SONGS To Service

72. Edison deployed two separate project teams in the effort to restore SONGS to service as efficiently and cost-effectively as possible. One team studied the possibility of a limited, conditional restart of Unit 2 at 70% power for a five-month operating interval (the "Return to Service Team"). Although a restart of only one Unit at reduced power fell far short of what Mitsubishi was obligated to provide, Edison was willing to pursue this option to mitigate its damages and to reduce the impact of the SONGS outages on the people of California. The other

team focused on working with Mitsubishi to develop permanent repair options (the "Long-Term Repair Team").

1. The Return to Service Team

73. Edison devoted considerable time and resources – and tens of millions of dollars per month – to facilitating and supporting the NRC's and Mitsubishi's investigations into the failed RSGs, as well as conducting investigations of its own. Recognizing that the leak of radioactive coolant raised nuclear safety and regulatory concerns, Edison notified the NRC that it would keep the SONGS RSGs – which were identical in design – out of service pending an investigation into the causes of the failures. After learning of the extreme wear found in Unit 3, on March 27, 2012, the NRC issued a Confirmatory Action Letter ("**CAL**") detailing the steps Edison agreed to take, and the standards it agreed to meet, to restore both Units at SONGS to service. Edison worked diligently to comply with the terms of the CAL and retained top industry experts to conduct Operational Assessments of the RSGs. The goal of these assessments was to evaluate the thermal-hydraulic conditions and existing wear to determine whether Unit 2 could be safely restarted and operated at reduced power for a shorter operating period.

74. In October 2012, Edison submitted a formal response to the NRC detailing its progress in complying with the terms of the CAL. Based on the Operational Assessments prepared by three industry-leading vendors, Edison sought permission to restart Unit 2 at 70% power for an abbreviated operating interval of five months.

2. The Long-Term Repair Team

75. Section 1.17.1.3 of the Contract provides that, "[a]ny Defect discovered during the Warranty Period, and damage to any other part of the Apparatus or other property resulting directly from such Defect, shall be repaired or replaced, in a mutually agreeable manner, by

[Mitsubishi] at its sole expense with due diligence and dispatch by repairing or replacing (as appropriate) any defective part and other portion of the Work affected by such Defect."

76. While the Contract does not define "due diligence and dispatch," its Default provisions are instructive in showing the parties' shared understanding of the reasonable length of time for the RSGs to suffer a defect. For example, Section 1.24.1(c) provides that, "Supplier shall be in default of its obligations under the Purchase Order if ... Supplier defaults in its observance or performance of any provision hereunder ... and such default is not corrected within a reasonable period of time (not to exceed thirty (30) days) after notice of such default, provided such thirty (30) day period may be extended with [Edison]'s consent, which consent may be granted or withheld in [Edison]'s sole discretion[.]" Thus, the parties seemed to believe that 30 days would be a reasonable period of time to correct any default of obligations under the Contract. That period could only be extended by Edison, acting in its sole discretion. Indeed, Edison did exercise its discretion here and extended the time for more than 15 months beyond the 30-day period allotted for Mitsubishi to correct its defaults – but to no avail. Mitsubishi failed to cure its default under the Contract by restoring the RSGs to service.

77. Of vital importance to the parties' dispute here, the Contract makes clear that any proposed remedy must correct the "root cause" of any defect or demonstrate to Edison "that there [was] *no risk of the reoccurrence* of such problem." (Contract § 1.17.3(c) (emphasis added).) Accordingly, Edison and Mitsubishi mutually developed a set of criteria to be used to evaluate any potential Mitsubishi repair proposal. To be considered viable, a proposed long-term repair plan had to meet at least the following criteria: (1) the repair must meet the warranty provisions of the Contract; (2) the repair must be validated; (3) the repair must be capable of safe implementation; (4) the repair must restore the RSGs to their 40-year operational life at 100%

power; and (5) the repair must be licensable by the NRC (collectively, the "Repair Criteria"). These Repair Criteria were consistent with the parties' expectation that the RSGs would provide safe, efficient and clean power to SONGS Owners' customers for the 40 years provided under the Contract.

78. As Edison continued to expend significant resources to restart Unit 2 at reduced power, it repeatedly urged Mitsubishi to meet its contractual obligations to bring SONGS permanently back online at full power. Yet Mitsubishi did not present any proposals for possible repair options for months after SONGS went offline. When it did, Mitsubishi's presentations merely included conceptual ideas, none of which would meet the Repair Criteria. As the months passed, Edison urged Mitsubishi to return with concrete proposals for a viable repair as quickly as possible.

79. On August 3, 2012, Mitsubishi provided Edison with a list of repair options but Mitsubishi's proposals continued to be broadly conceptual in nature, included unproven ideas for enhancing the support structures and stability of the tube bundles in the RSGs, and offered no explanation as to why Mitsubishi believed any of these options met the five Repair Criteria. Edison reiterated that it could not move forward on any repair proposal until a plan could be shown to have a high likelihood of meeting the Repair Criteria, *i.e.*, provide Edison with safe and reliable RSGs it could count on for 40 years while avoiding the harmful wear Mitsubishi originally promised would never occur. Edison additionally urged Mitsubishi to provide engineering support for its proposals and to recommend the repair option it believed would be most effective.

80. As part of this repair effort, in October 2012, the NRC conducted an inspection of Mitsubishi's facilities in Kobe, Japan to "evaluate[] if MHI's design, manufacturing, preparation,

and testing of the mock-up and testing of re-designed anti-vibration bars [met] the applicable requirements of Appendix B to 10 C.F.R. Part 50, 10 C.F.R. Part 21, and American Society of Mechanical Engineers Code Section III, 'Rules for Construction of Nuclear Facility Components.'" As a result of the inspection, the NRC issued a Notice of Nonconformance to Mitsubishi in November 2012, noting that "the implementation of [Mitsubishi's] quality assurance program failed to meet certain NRC requirements." For example, Mitsubishi "failed to ensure that the ... tubes ... used to construct the steam generator u-tube bundle mock-up, conformed to the procurement requirements."

3. Mitsubishi Recommends Tube Bundle Replacement

81. Throughout this process, Edison looked to Mitsubishi – as the designer of the RSGs, the ASME N-stamp holder, and the party with the contractual obligation to repair or replace the defective RSGs – to make a recommendation as to which of the potential repairs would be the best option and to support this recommendation with the requisite scientific and industry support. Given the seriousness and fundamental nature of the defects in the RSGs, it was critical that Mitsubishi meet its obligation to propose a repair which showed there was "not a risk of the reoccurrence" of the issues that gave rise to the radioactive leak. (Contract § 1.7.1.3.) On November 1, 2012, Edison reminded Mitsubishi that Edison was relying on Mitsubishi to provide its one best recommendation for a long-term repair. Three weeks later, on November 28, 2012, Edison again put the question to Mitsubishi directly, asking Mitsubishi to recommend a repair option that would solve the problems in the RSGs and restore them to their promised operating capability.

82. It was not until December 14, 2012, nearly a year after the RSGs had been removed from service, that Mitsubishi offered Edison additional information about its conceptual repair or replacement possibilities. Specifically, Mitsubishi presented three theoretical options to

Edison that Mitsubishi considered "technically viable": (1) insertion of thicker AVBs ("Type #1"), (2) replacement of the steam generator tube bundle (the "lower assembly") ("Type #3"), and (3) total replacement of the steam generators ("Type #4").[5] Mitsubishi's own estimated timetable for replacing the RSGs stretched as long as five or six years, not including the time that had already elapsed since the outages, the time required for installation, and the time required for NRC review and approval of the repair or replacement (or for any other intervening activities). Furthermore, as of December 14, 2012, all of the options were still in their nascent stages, and Mitsubishi still did not provide information demonstrating that any of the options met the Repair Criteria.

83. One week later, on December 21, 2012, Mitsubishi recommended the proposed Type #3 repair, which entailed replacement of the tube bundle after a complete redesign and reconfiguration of the tube array. [redacted] On December 27, 2012, Mitsubishi sent another letter further confirming that its December 21, 2012 letter represented its "technical recommendation for a mutually agreeable remedy."

84. Edison evaluated Mitsubishi's proposal, and while it appeared that the tube bundle replacement concept had the theoretical potential to address the extreme thermal-hydraulic conditions embedded in the failed RSGs – if Mitsubishi actually provided a design and

[5] Mitsubishi explored but did not propose a "Type #2" repair.

support for it – Mitsubishi did not provide a validated design for the replacement tube bundles or demonstrate that the new design would not simply recreate the extreme thermal-hydraulic conditions that the prior tube bundles experienced. Since the information Mitsubishi provided remained conceptual and untested (even though nearly a year had passed since the leak), Edison needed more information before it could commit to such an undertaking.

85. Edison continued to ask Mitsubishi to validate its proposal, and members of Edison's Long-Term Repair team met regularly with Mitsubishi personnel seeking additional information regarding the Type #3 repair. On January 8, 2013, Edison wrote to Mitsubishi confirming that it was willing to continue discussions around the Type #3 repair but pointed out that the proposed repair, even if viable, would not end the outages in both Units at SONGS until at least *seven years* after the leak. Given this timeline, Edison informed Mitsubishi that this proposal did not constitute a repair with "dispatch," as required under the Contract.

86. Edison further informed Mitsubishi that, given the severity of Mitsubishi's failures and the fundamental and debilitating defects embedded in the RSGs, the contractual limitations on liability were not applicable and that Mitsubishi was responsible for all costs required to bring the Units back online and for all damages sustained by the SONGS Owners and their customers. Despite its gross failures, however, Mitsubishi insisted that the Contract shielded it from liability for its errors and did not offer to replace the RSGs at its own expense.

4. Mitsubishi Switches Its Repair Recommendation

87. Mitsubishi never delivered a viable and implementable plan that would safely and reliably restore the RSGs to full power. Rather than standing by its recommendation of the Type #3 repair, or even providing any additional information to meet its obligation to establish that the Type #3 repair would actually remedy the defects, Mitsubishi turned its attention to blaming

Edison for Mitsubishi's own failures. In a January 22, 2013 letter, Mitsubishi accused one member of Edison's Long-Term Repair Team of expressing "clear disapproval" of the Type #1 repair option, based on his comment that "given the uniqueness of the problems at SONGS," a "field-proven" repair was needed. Mitsubishi went on to claim that it would have made a different technical recommendation if not for the Edison engineer's purported rejection of the Type #1 repair.

88. Edison had not abandoned the Type #1 idea or the work behind it and responded to Mitsubishi on February 11, 2013, by underscoring that Edison had never rejected *any* Mitsubishi repair option and renewing its request for information about the proposals sufficient to demonstrate that they were viable and would solve the underlying defects in the RSGs. It took months for Mitsubishi to provide Edison with any additional information regarding the Type #1 repair. While Mitsubishi continued to claim that the Type #1 repair option was "technically viable," it again failed to provide sufficient documentation to show that this option would meet the Repair Criteria. Indeed, Mitsubishi provided Edison only with limited documentation regarding Type #1: (1) a conceptual PowerPoint presentation on December 14, 2012, [redacted] Neither of these "packages" contained engineering analyses that could conceivably have been considered sufficient to allow Edison and third-party experts to determine whether the Type #1 repair could be implemented safely and could satisfy the requirements of the Contract.

89. Moreover, Mitsubishi's Type #1 proposal represented "first-of-a-kind" engineering, which risked introducing new and additional problems into the RSGs. These risks

include, among other things, new modes of tube bundle damage, increased vibration of the existing AVBs, deformation of tubes, ballooning of tubes, and additional tube-to-tube wear.

90. More importantly, the Type #1 repair did not address, much less correct, one of the fundamental problems with Mitsubishi's RSGs: the extreme thermal-hydraulic conditions that caused FIV to occur in the RSGs in the first place. In fact, inserting additional or thicker metal bars into the tightly constructed tube bundle that filled the interior of the steam generator would likely have exacerbated the thermal hydraulic conditions and potentially introduced new wear mechanisms. The Contract required that Mitsubishi correct the "root cause" of any defect or "demonstrate to the Edison Representative's satisfaction that there [was] not a risk of the reoccurrence of such problem." (Contract § 1.17.1.3(c).) Mitsubishi's proposal fell far short of this standard, as it offered insufficient detail to determine whether it could even be implemented safely or licensed, let alone whether it would permanently prevent FEI such that there would no longer be any risk of reoccurrence.

91. Mitsubishi's Type #1 repair proposal was never validated and lacked the sufficient testing, analysis and operational experience necessary to ensure it would safely restore the RSGs to 40 years of full power operation and avoid introducing additional, unacceptable risks.

92. Furthermore, to the best of Claimants' knowledge, the technology and tools necessary to effect such a repair are not yet in existence, and Mitsubishi never demonstrated how the repair could be implemented safely given the physical limitations of access to the tube bundle, the short period of time an individual could be exposed to radiation while working in the RSGs, and other related significant problems, not to mention the regulatory issues that would need to be addressed at the NRC.

93. Especially in light of Mitsubishi's gross failures in designing and fabricating the RSGs in the first place, Edison reasonably believed that Mitsubishi was obligated to provide a robust and detailed engineering basis that clearly demonstrated its conceptual proposals could be safely implemented and would actually work (*i.e.*, would meet the Repair Criteria) before Edison could reasonably commit to pursue any of these options.

94. Quite simply, Mitsubishi did not demonstrate that any of its repair or replacement proposals would meet the contract and Repair Criteria nor that any could be timely implemented, much less with "due diligence and dispatch."

D. Premature Retirement Of SONGS

95. By the spring of 2013, the NRC still had not taken action on SCE's proposal for interim operation of SONGS, *i.e.*, restarting Unit 2 at 70% for a five-month operating interval followed by further inspections of the Unit 2 RSGs. In May 2013, the NRC's Atomic Safety and Licensing Board ("**ASLB**") concluded that operating under such conditions was not supported by sufficient data and would require an amendment of the SONGS operating license. The ASLB's decision meant that extensive public hearings may have been necessary. Such hearings could take months or even years to complete, and might have needed to be completed prior to restart. Further, there was no guarantee that SCE would obtain permission to restart Unit 2 with the existing RSGs. In other words, the stop-gap measure of limited restart was no longer likely to occur in the short term.

96. Consequently, as of June 2013, there was considerable doubt as to whether SONGS could ever be restored to service, even at a level of power well below that which Mitsubishi promised the RSGs would be able to provide. There was no NRC timetable for a decision on the request for a limited restart of Unit 2, and despite numerous requests, Mitsubishi had not provided anything but "conceptual" proposals for repair, and these concepts additionally

failed even to address the design defects that caused the FIV and lacked sufficient detail to be considered viable solutions. There was no way to tell whether even a single Unit could ever be restarted – even temporarily and at reduced power – with the existing RSGs, and there was no qualified or actionable proposal on the table to repair all of the RSGs so that SONGS could operate at full power. Even if Mitsubishi had a plan that was ready to be implemented – which it did not – the repairs would have taken years.

97. Throughout the shutdown, SONGS produced no power, but Claimants were spending tens of millions of dollars every month to maintain SONGS so that it could potentially be restored to service someday. Edison was required to maintain a nearly full staff at SONGS to carry out necessary operations and maintenance duties so that the plant would be in suitable condition to return to service. Edison continued to have contractual obligations to third-party vendors for fuel and other necessary materials. Edison bore the ongoing costs of continued regulatory compliance with state and federal requirements, as well as the added costs of the ongoing inquiries into the failures of the RSGs at SONGS. At the same time, the SONGS Owners still had to serve their customers by purchasing power from alternate sources. All of these costs were open-ended and would continue to accrue, while month after month passed with Mitsubishi purporting to work toward a repair or replacement solution but failing to provide viable repair or replacement proposals.

98. With no prospect for SONGS to generate power in the near term, Edison concluded, as any responsible utility would, that it would not be reasonable to continue spending tens of millions of dollars a month for the speculative hope that Mitsubishi someday would be able to fulfill its obligation to repair or replace the RSGs. Accordingly, to mitigate Claimants' damages as well as the harm to SONGS ratepayers, Edison announced on June 7, 2013 that

SONGS would be permanently retired from service, long before the anticipated end of its useful life.

VI. CLAIMS

A. Breach Of Contract

99. Claimants incorporate by reference each and every allegation contained in paragraphs 1-98 inclusive, as though fully set forth herein.

100. Edison has performed its duties under the Contract with Mitsubishi. Mitsubishi, on the other hand, has failed to meet the terms of the Contract in numerous ways. By way of example, Mitsubishi:

a. failed to deliver four RSGs with a service life of 40 calendar years from the date of startup following their installation;

b. failed to provide RSGs that did not require part or component replacement for their full service life;

c. failed to deliver RSGs equipped with tube supports that adequately support the tube bundle, preclude tube damage due to wear caused by FIV, and minimize tube wear;

d. failed to adequately address flow-induced and turbulence-induced vibration of the tubes and tube supports;

e. failed to demonstrate accurately that excessive wear of the tubes would not occur;

f. failed to comply with all the applicable provisions of U.S. legal and professional codes;

g. failed to demonstrate accurately that its design would prevent excessive vibration-induced tube wear in the tube bend area of the tube bundle;

h. failed to design and fabricate the RSGs such that there would be no primary-to-secondary leakage under normal operating conditions; and

i. failed to satisfy the requirements in the contract, NRC regulations, and applicable engineering codes that it verify and check the correctness of its design.

101. Notwithstanding Mitsubishi's express assurances in the Contract and during subsequent meetings, presentations, and reports, the AVBs were not able to provide adequate tube support, the RSGs did experience damaging FIV, and (for Unit 3) this occurred after only 11 months of operation – more than 39 years short of the 40-year operating life set forth in the Contract. Unit 2 also experienced excessive tube wear after just 22 months in service, also far short of the promised 40-year operating life.

102. Mitsubishi also has breached a number of the additional warranties it made in the Contract. For instance, the RSGs:

a. do not conform to the requirements of the Purchase Order;

b. are not free from Defects or deficiencies in design, application, materials, manufacture or workmanship;

c. do not perform under operating conditions consistent with those contemplated in the Purchase Order;

d. failed to prevent primary-to-secondary leakage;

e. had to be taken off-line far short of the 20-year warranty and 40-year operating life due to excessive tube wear;

f. have compromised structural integrity;

g. are not suitable for use as set forth in the Purchase Order;

h. were not designed and fabricated such that the RSGs remained in service throughout the Warranty Period;

i. were not designed in accordance with the requirements of the ASME Boiler and Pressure Vessel Code Section III; and

j. are not licensable as required by the Purchase Order.

103. Each of these facts represents a violation of an express covenant in the contractual warranty. Furthermore, it is now apparent that Mitsubishi was unable or unwilling to meet its contractual warranty obligation to repair or replace the RSGs with "due diligence and dispatch" to a condition that satisfies the requirements set forth in the Contract.

104. Following the leak of radioactive coolant in Unit 3, the discovery of widespread and extraordinary tube wear in thousands of tubes among the four RSGs, and the subsequent revelation of the extreme thermal-hydraulic conditions in both Units, Edison was required to investigate and attempt to repair the problems with the RSGs, and Edison spent over $140 million on these efforts. As the Contract provides that Mitsubishi solely is responsible for expenses associated with warranty work, Edison invoiced Mitsubishi for expenses expressly covered by the warranty (a fraction of the expenses Edison has been forced to incur as a result of Mitsubishi's contractual breaches). Section 1.9.4 of the Contract requires Mitsubishi to pay these expenses within 30 days of invoice.

105. Edison sent its first invoice to Mitsubishi in September 2012, and it has regularly invoiced Mitsubishi since then. In addition, for its costs invoiced to date, Edison has provided Mitsubishi with several thousand pages of underlying accounting and other supporting records documenting the charges, far in excess of any requirement in the Contract. Edison employees also have spent hundreds of hours to date responding to Mitsubishi's requests for more information about Edison's efforts to assist Mitsubishi in investigating and repairing the RSGs, including creating specialized reports for Mitsubishi that otherwise would not exist. Yet Mitsubishi still refuses to acknowledge its responsibility to pay the invoices in full.

106. As noted above, Mitsubishi also has refused to comply with the audit rights afforded to Edison under the Contract. Section 1.9.6 of the Contract provides that Edison may "examine and copy" Mitsubishi's "books, accounts, relevant correspondence, specifications, time cards, drawings, designs, and other documentation, to the extent that these are related and relevant to the Work under the Purchase Order[.]" In January 2013, in an effort to better understand the causes of the damage as well as repair possibilities for the SONGS RSGs, Edison

requested that Mitsubishi provide relevant materials regarding the design, manufacture, and attempted repair of the RSGs. Mitsubishi rejected Edison's request and refused to reconsider it. To this day, Mitsubishi refuses to allow Edison access to the documentation Edison seeks regarding the RSGs.

107. As a result of Mitsubishi's multiple failures to perform its obligations under the Contract, Claimants have suffered damages of not less than $4 billion.

B. Breach Of Warranty

108. Claimants incorporate by reference each and every allegation contained in paragraphs 1-107 inclusive, as though fully set forth herein.

109. Mitsubishi made certain express warranties as to the quality, performance, and lifespan of the RSGs in the Contract.

110. Edison relied on Mitsubishi's express promises in entering the contract, in accepting delivery of the RSGs, in tendering payment to Mitsubishi, and in seeking and expending resources toward a viable repair after the RSGs were removed from service.

111. Mitsubishi failed to meet its promises regarding the RSGs, including but not limited to its warranties that the RSGs would conform to the requirements of the Purchase Order and perform under operating conditions consistent with those contemplated in the Purchase Order; would be free from Defects or deficiencies in design, application, materials, manufacture or workmanship; would be designed and fabricated such that the tubes remained in service throughout the Warranty Period; and would be licensable.

112. Mitsubishi further failed to meet its warranty that any Defects in the RSGs would be repaired or replaced with due diligence and dispatch.

113. As result of Mitsubishi's multiple failures to perform its warranty obligations, Claimants have suffered damages of not less than $4 billion.

114. Mitsubishi breached its implied covenant of good faith and fair dealing by, among other actions, refusing to grant Edison access to its documentation relating to the RSGs, requiring Edison to provide extensive and excessive documentation of its warranty-related expenditures, and refusing to reimburse Edison for these expenditures.

C. Negligent Misrepresentation

115. Claimants incorporate by reference each and every allegation contained in paragraphs 1-114 inclusive, as though fully set forth herein.

116. During the bidding process and prior to the Contract's formation, Mitsubishi made numerous representations to Edison that it possessed the correct engineering tools, methods, and solutions to analyze, account for and prevent FIV in the RSGs. In justifiable reliance on Mitsubishi's representations as to its own expertise and capabilities – which were unwarranted and untrue – Edison was induced to enter into the Contract, thereby foregoing the opportunity to contract with another RSG vendor that would have capably addressed the problem of FIV.

117. As detailed in Paragraph 33, throughout the bidding process, Mitsubishi repeatedly and deliberately affirmed to Edison that it had developed reliable technical solutions to FIV.

118. In addition to the statements from its Technical Proposal, Mitsubishi made similar statements on numerous occasions throughout the bidding phase, which led Edison to believe that Mitsubishi could adequately control and prevent damaging tube vibration and wear.

119. As Edison learned after the defects in the RSGs became apparent, Mitsubishi did not have the proper tools or expertise to analyze FIV or design and fabricate RSGs to prevent damaging FIV and the tube wear it caused. Not only were Mitsubishi's many representations untrue, Mitsubishi lacked reasonable grounds for making these assertions at the time it made them.

120. Mitsubishi's numerous misrepresentations were made directly to Edison during the benchmarking and bidding phases between 2002 and 2004, when Mitsubishi was actively

attempting to obtain Edison's business. Each of Mitsubishi's misrepresentations was made with the specific intent to induce Edison to enter into the Contract. In justifiable reliance on the many misrepresentations of Mitsubishi – an ASME N-stamp holder with decades of experience designing and fabricating dozens of steam generators – Edison chose Mitsubishi over other qualified bidders.

121. Prior to entering the Contract with Mitsubishi, Edison was considering numerous other vendors to design and manufacture the RSGs. After the Contract was formed and Mitsubishi had begun working on the RSG project, another vendor completed RSGs of a similar size to those at SONGS that did not fail as Mitsubishi's did. As a result of Mitsubishi's misrepresentations, Edison was induced to enter the Contract with Mitsubishi and thereby lost the opportunity to select a different company that could have properly designed and manufactured the RSGs.

122. The damages incurred by Claimants as a result of Mitsubishi's misrepresentations stem from Mitsubishi's breach of a legal duty before the Contract was executed. Accordingly, the provisions governing the limitation of liability under the Contract – which by law cannot absolve the misconduct that induced the Contract's formation – do not apply to Mitsubishi's pre-formation, tortious conduct. Accordingly, Claimants are entitled to all damages resulting from Mitsubishi's misrepresentations.

123. In justifiable reliance on Mitsubishi's unwarranted representations, Claimants suffered damages of not less than $4 billion.

D. Fraud

124. Claimants incorporate by reference each and every allegation contained in paragraphs 1-123 inclusive, as though fully set forth herein. Mitsubishi made false statements of material fact and failed to disclose material facts necessary to prevent its statements to Edison

from being misleading. Mitsubishi acted recklessly (or worse) and without regard for the truth in making these false, misleading, and/or incomplete statements, and Mitsubishi did so with the intent to induce Edison to rely upon its false and misleading statements.

125. As detailed in Paragraphs 31 and 36 above, prior to entering the Contract with Mitsubishi, Edison considered numerous other vendors to design and manufacture the RSGs. As a result of Mitsubishi's misrepresentations, Edison was induced to enter the Contract with Mitsubishi and thereby lost the opportunity to select a different company that could have properly designed and manufactured the RSGs.

126. As detailed in Paragraph 48 above, after formation of the Contract, Mitsubishi made numerous assurances to Edison that the RSG design was adequate to prevent damaging tube vibration. Mitsubishi also assured Edison that it was properly analyzing the thermal-hydraulic conditions in the RSGs, without disclosing that its proprietary modeling software contained embedded errors and Mitsubishi was using that software outside of its validated range. These and similar statements, which were made recklessly and without regard for their truth, led Edison to believe that Mitsubishi could and would adequately control and prevent damaging tube vibration and wear, and that Mitsubishi had designed and fabricated the RSGs in accordance with the Contract. As a result, Edison accepted and installed the RSGs, thereby losing the opportunity to reject the RSGs or to resolve any defects with the RSGs prior to installation in order to prevent the problems that occurred once the RSGs were put into service.

127. In justifiable reliance on Mitsubishi's false, misleading, and/or incomplete statements, which were made recklessly and without regard for their truth, Claimants have suffered damages of not less than $4 billion.

128. The damages incurred by Claimants as a result of Mitsubishi's misrepresentations stem from Mitsubishi's breach of a legal duty independent of the Contract. Accordingly, the provisions governing the limitation of liability under the Contract do not apply to Mitsubishi's fraud. Moreover, fraud constitutes an exception to the limitations on liability reflected in the Contract. Accordingly, Claimants are entitled to all damages resulting from Mitsubishi's misrepresentations.

E. Rescission

129. Claimants incorporate by reference each and every allegation contained in paragraphs 1-98 inclusive, as though fully set forth herein, and assert this claim for rescission as an alternative to their claims under the Contract.

130. Edison's decision to enter into the Contract was obtained through the misrepresentations of Mitsubishi.

131. Through its gross failures in designing and fabricating the RSGs in the first place, and its failure to present or implement any viable repair plan with diligence and dispatch, Mitsubishi has caused the consideration rendered to Edison under the Contract to fail.

132. The damage to the RSGs was so severe as to render them completely devoid of value, such that the consideration provided to Edison under the Contract has been rendered entirely void.

133. The foregoing failures of consideration, and Mitsubishi's procurement of Edison's consent to the Contract through misrepresentations each serve as a basis on which Claimants are entitled to rescission of the Contract.

134. In the alternative to Claimants' contractual claims, Claimants are entitled to restitution and to recover indirect, consequential, and other damages necessary to restore them to the position they would have occupied in the absence of the Contract.

VII. CONTRACTUAL LIMITS ON LIABILITY ARE NOT ENFORCEABLE HERE

135. At the time Edison and Mitsubishi negotiated the Contract, the parties agreed to limited remedies. Specifically, the parties agreed that Mitsubishi's liability would be capped at the purchase price of the RSGs – approximately $138 million – and that certain types of damages would not be available to either party, subject to certain contractual and statutory exceptions. Under California law, however, the limitations on liability are not enforceable in the circumstances that exist here. Furthermore, even if the damages cap set forth in the Contract were applicable here, the Contract's terms render it subject to express exceptions for damages resulting from Mitsubishi's gross negligence or unlawful acts, and these exceptions apply here.

136. The limitations on liability are void from the outset because Edison was induced to agree to them by Mitsubishi's misrepresentations regarding its ability to adequately analyze, control, and prevent damaging tube vibration and wear. Under California law, a party may not invoke a contractual limitation on liability to shield itself from the consequences of misrepresentations that induced the formation of a contract in the first place.

137. Edison never expected that even one RSG would suffer such an extraordinary failure, much less that all four would be permanently removed from service after less than two years of operation. Until SONGS, no nuclear plant had ever shut down permanently after no more than one a single cycle of operation due to steam generator tube wear. Edison understood that the remedy provisions in the Contract would be sufficient to effect a solution for any foreseeable failure on Mitsubishi's part.

138. Under Section 2719 of the California Commercial Code, where circumstances cause a limited remedy to "fail of its essential purpose," the buyer may recover any damages allowed under the Commercial Code without further restriction. The United States Court of Appeals for the Ninth Circuit has observed that "[a] limited repair remedy serves two main

purposes. First, it serves to shield the seller from liability during her attempt to make the goods conform. Second, it ensures that the buyer will receive goods conforming to the contract specifications *within a reasonable period of time*." *Milgard Tempering v. Selas Corp. of Am.*, 902 F.2d 703, 707 (9th Cir. 1990) (emphasis added). Whether or not a limited remedy has failed its essential purpose depends on whether enforcement of the limited remedy "operates to deprive either party of the substantial value of the bargain." Cal. Com. Code § 2719 Official Comments; *see also S.M. Wilson & Co. v. Smith Int'l, Inc.*, 587 F.2d 1363, 1375 (9th Cir. 1978). Where the seller is "either unwilling or unable to provide a system that work[s] as represented," the buyer has been deprived of the substantial benefit of its bargain. *RRX Indus., Inc. v. Lab-Con, Inc.*, 772 F.2d 543, 547 (9th Cir. 1985). Here, Mitsubishi unquestionably failed to deliver the benefit of its bargain: instead of RSGs that operated for 40 years, Edison received grossly defective goods that prematurely ended the life of SONGS.

139. Section 2719 of the Commercial Code also allows express waivers of consequential damages to be set aside in these circumstances. Under California law, which by the parties' agreement governs here, where the failure of a limited remedy is "total and fundamental" (*RRX Industries*, 772 F.2d at 547), or where a consequential damages limitation has become "oppressive by change of circumstances" (*Milgard*, 902 F.2d at 708), the injured party is entitled to consequential damages regardless of any waiver of such damages.[6] Courts have voided waivers of consequential damages for breaches far less severe than Mitsubishi's.

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[6] Section 2719(3) of the Commercial Code generally allows parties to negotiate waivers of consequential damages unless the exclusion is unconscionable. However, "Subsection (3) governs validity of a contract clause limiting consequential damages *in the first instance*." *RRX Indus.*, 772 F.2d at 547 n.4 (emphasis added). The Ninth Circuit has explained that "[u]nconscionability is irrelevant" when assessing enforcement of an otherwise valid limited damages provision *after* a breach. *Id.* (rejecting consequential damages waiver under Section (2) where product's failure was total and fundamental).

For example, in *Milgard*, the Ninth Circuit set aside the consequential damages exclusion on a finding that the seller's breach was "fundamental, but not total" because, while the product did perform, it never performed to the standards set forth in the contract. *Id.* at 709. In *RRX Industries*, the Ninth Circuit held that because the seller had been unable to repair its system for fifteen months, the district court "properly found the default of the seller so total and fundamental that its consequential damages limitation was expunged from the contract." 772 F.2d at 547. If the failure of these RSGs is not "total and fundamental," it is difficult to fathom a failure that would meet that standard.

140. The limitations on liability are further void under Section 1668 of the California Civil Code to the extent they purport to excuse Mitsubishi from the consequences of Mitsubishi's willful or negligent violations of law or fraud.[7] The NRC has cited Mitsubishi for nonconformance with NRC regulations, and Claimants are continuing to investigate whether Mitsubishi engaged in any other violations of law or engaged in fraud beyond the misconduct set forth here.

141. In the alternative, the limitations on liability are unenforceable because the Contract is subject to rescission under Section 1689 of the California Civil Code as a result of Mitsubishi's misrepresentations inducing the Contract's formation and the failure of consideration on Mitsubishi's part.[8]

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[7] Section 1668 of the California Civil Code provides, "[a]ll contracts which have for their object, directly or indirectly, to exempt any one from responsibility for his own fraud, or willful injury to the person or property of another, or violation of law, whether willful or negligent, are against the policy of the law."

[8] Section 1689(b) of the California Civil Code provides, in relevant part, that:

> A party to a contract may rescind the contract . . . [i]f the consent of the party rescinding, or of any party jointly contracting with him, was given by mistake, or obtained through duress, menace, fraud, or undue influence, exercised by or with the connivance of the party as to whom he rescinds, or of any other party to the

142. Finally, even if the damages cap were enforceable here, Section 1.21.2 of the Contract provides that it does not apply to "any loss or damage arising out of or connected with [Mitsubishi]'s gross negligence, fraud, willful misconduct or illegal or unlawful acts…." Mitsubishi's design errors represent an extreme departure from the ordinary standard of conduct in the nuclear power industry, and the NRC has cited Mitsubishi for its nonconformance with NRC regulations. Claimants are continuing to investigate the extent of Mitsubishi's gross negligence and unlawful acts. Based on Claimants' investigation to date, however, Mitsubishi:

a. Used design basis two-phase flow velocities that were up to four times less than actual operating velocities;

b. Used design basis void fractions that estimated the fraction of water in liquid form to be ten times greater than under actual operating conditions;

c. Employed the FIT-III code outside its validated range;

d. Did not benchmark FIT-III for the tube array configuration in the RSGs;

e. Used a design review process that failed to catch or correct its thermal-hydraulic and computer modeling errors;

f. Failed to consider the cumulative effects of the changes to its RSG design;

g. Designed supports that were inadequate for the actual operating thermal-hydraulic conditions;

h. Did not adequately calculate all critical velocities;

i. Did not control all modes of vibration;

j. Failed to perform appropriate testing and validation;

k. Failed to maintain a quality assurance program that met the applicable requirements of Appendix B to 10 C.F.R. Part 50, 10 C.F.R. Part 21, and American Society of Mechanical Engineers Code Section III; and

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contract jointly interested with such party[or] [i]f the consideration for the obligation of the rescinding party fails, in whole or in part, through the fault of the party as to whom he rescinds . . . ."

l. Failed to verify, as required by NRC regulations, and applicable engineering codes, that its computer model outputs and inputs were correct, resulting in gross underestimation of thermal hydraulic conditions in the RSGs.

VIII. REQUEST FOR INTERIM RELIEF

143. Claimants request that the Tribunal order Mitsubishi to immediately comply with the audit rights afforded to Edison under Section 1.9.6 of the Contract, which provides that Edison may "examine and copy" Mitsubishi's "books, accounts, relevant correspondence, specifications, time cards, drawings, designs, and other documentation, to the extent that these are related and relevant to the Work under the Purchase Order[.]" The SONGS Owners have a critical interest in having a complete and accurate record of exactly what went wrong with these RSGs and why.

IX. RELIEF SOUGHT

144. Claimants seek a declaration that Mitsubishi breached both the Contract and the warranties contained therein such that Claimants are entitled to damages in an amount not less than $4 billion, to be proven at arbitration.

145. Claimants seek a further declaration that the limited remedies set forth in the Contract failed of their essential purpose and are unenforceable in these circumstances under Section 2719 of the California Commercial Code. Claimants specifically seek a declaration that Mitsubishi's failures were so total and fundamental that any waiver of consequential or other damages is unenforceable.

146. Claimants seek a further declaration that Claimants are entitled to be defended, indemnified, and held harmless from and against any and all liability, damages, losses, claims, demands, actions, causes of action, and/or costs (including attorney's fees and expenses), arising from Mitsubishi's defective RSGs. An actual controversy exists between Claimants and

Mitsubishi regarding the scope of Mitsubishi's liability under the Contract. Such a declaration is necessary and proper at this time to administer final and complete relief, and to liquidate any chance of subsequent litigation between Claimants and any other individuals or entities.

147. Claimants seek the full measure of direct, indirect, consequential, incidental, and special damages to which they may be entitled under the California Commercial Code. As a result of Mitsubishi's breaches of contract and warranty, Claimants have suffered or are reasonably certain to suffer all of the following losses:

a. costs of the purchase and installation of the faulty RSGs;

b. costs incurred in reliance on the RSGs operating in accordance with the Contract, including capital additions to SONGS and unused nuclear fuel;

c. costs associated with the investigation of the causes and extent of damage to the RSGs, the efforts to restore Unit 2 to service at reduced power, and interim and permanent repair work;

d. increased operation, maintenance, and security costs, as well as generation portfolio effects attributable to the SONGS RSG outages;

e. costs of purchasing power to serve the SONGS Owners' customers who otherwise would have been served by SONGS;

f. lost revenue and/or profits;

g. costs of capacity and transmission upgrades, including efforts to support grid reliability, made necessary by the SONGS outages;

h. the lost value of SONGS;

i. costs related to NRC and CPUC proceedings triggered by the SONGS outage;

j. pre-judgment interest and interest on unpaid invoices for repair costs already billed to Mitsubishi at the California statutory rate of 10 percent per annum;

k. all costs of legal representation and assistance related to the enforcement of the Contract; and

l. any other direct, indirect, incidental, special, and consequential damages that may be demonstrated following further investigation, or as the arbitration Tribunal deems just.

148. Claimants seek damages for all injuries proximately caused by Mitsubishi's negligent and/or fraudulent misrepresentations, including:

a. costs of the purchase and installation of the faulty RSGs;

b. costs incurred in reliance on the RSGs operating in accordance with the Contract, including capital additions to SONGS and unused nuclear fuel;

c. costs associated with the investigation of the causes and extent of damage to the RSGs, the efforts to restore Unit 2 to service at reduced power, and interim and permanent repair work;

d. increased operation, maintenance, and security costs, as well as generation portfolio effects attributable to the SONGS RSG outages;

e. costs of purchasing power to serve the SONGS Owners' customers who otherwise would have been served by SONGS;

f. lost revenue and/or profits;

g. costs of capacity and transmission upgrades, including efforts to support grid reliability, made necessary by the SONGS outages;

h. the lost value of SONGS;

i. costs related to NRC and CPUC proceedings triggered by the SONGS outage;

j. pre-judgment interest and interest on unpaid invoices for repair costs already billed to Mitsubishi at the California statutory rate of 10 percent per annum;

k. all costs of legal representation and assistance related to the enforcement of the Contract; and

l. any other direct, indirect, incidental, special, and consequential damages that may be demonstrated following further investigation, or as the Tribunal deems just.

149. In the alternative to the relief set forth in Paragraphs 147-48, Claimants seek rescission of the Contract and restitution, including:

a. costs of the purchase and installation of the faulty RSGs;

b. costs incurred in reliance on the RSGs operating in accordance with the Contract, including capital additions to SONGS and unused nuclear fuel;

c. costs associated with the investigation of the damage to the RSGs and the causes of that damage, the efforts to restore Unit 2 to service at reduced power, and interim and permanent repair work;

d. increased operation, maintenance, and security costs and portfolio effects attributable to the SONGS outages;

e. costs related to NRC and CPUC proceedings triggered by the SONGS outage;

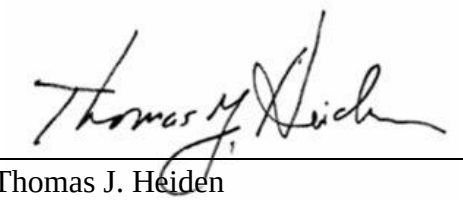
f. pre-judgment interest and interest on unpaid invoices for repair costs already billed to Mitsubishi at the California statutory rate of 10 percent per annum;

g. all costs of legal representation and assistance related to the enforcement of the Contract; and

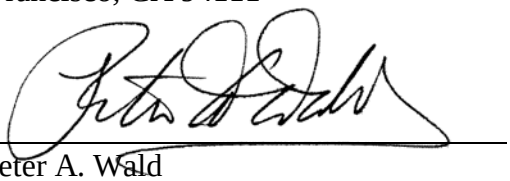
h. any other direct, indirect, incidental, special, and consequential damages that may be demonstrated following further investigation, or as the arbitration Tribunal deems just.

Dated: October 16, 2013

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