

Congress of the United States
House of Representatives
Washington, DC 20515-0549

June 11, 2019

The Honorable Kristine Svinicki
Chairwoman
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Dear Chairman Svinicki,

I write to follow up on my letter to you dated April 15, 2019, calling for a full-time inspector to be assigned to the San Onofre Nuclear Generating Station (SONGS). The letter, sent nearly two months ago, was signed by both of California's Senators and five Members of Congress whose constituents are directly impacted by your oversight responsibilities at SONGS. We have yet to receive a written response from you or any other Nuclear Regulatory Commission (NRC) official. This lack of response is particularly concerning in light of the Commission's May 21, 2019, determination allowing Southern California Edison and Holtec International to resume spent fuel loading.

On June 7, 2019, the House Oversight Committee held a hearing that I participated in examining federal spent nuclear fuel policies and safety at SONGS. NRC Region IV Administrator Scott Morris testified on behalf of the Commission. During the hearing, Administrator Morris confirmed that the following facts about occurrences at SONGS over the last year:

- The August 2018 "near-miss" incident at SONGS was caused by deficiencies in Southern California Edison's training, equipment, procedures, and oversight.
- Southern California Edison's staff at SONGS were not properly trained, certified, and supervised.
- Southern California Edison failed to formally report the August 2018 "near-miss" incident within the timeframe required by the NRC.
- A similar event had previously taken place at SONGS, but Southern California Edison did not take corrective action to ensure such an event would not happen again.
- The August 2018 "near-miss" and reporting deficiencies led to the NRC assessing Southern California Edison with a Level II violation.
- It is not common for NRC licensees to receive Level II violations.
- Southern California Edison inspected only eight of the 29 canisters that have been downloaded into the independent spent fuel storage installation (ISFSI) at SONGS.

Administrator Morris's testimony further illustrated the extraordinary record of non-compliance at SONGS. Southern California Edison's violation stemming from its failure to report the August 2019 "near-miss" in a timely manner demonstrates that the Commission cannot rely on its licensee to self-report. As such, periodic inspections are inadequate to provide local communities the level of safety and transparency that they deserve. With this in mind, I reiterate my call for a

full-time inspector to verify that all spent fuel loading activities at SONGS comply with NRC safety requirements.

Additionally, I was disappointed to learn that Southern California Edison and the NRC visually assessed only eight of the 29 loaded canisters at SONGS. The facility's location presents unique environmental threats and elevated hazard to canister integrity, including seismic activity and corrosive ocean air. Southern California Edison has informed me that it costed approximately \$400,000 in total for the eight visual inspections. The cost of additional inspections is a small price to pay for greater certainty about canister conditions, especially given the \$4.7 billion price tag for the decommissioning of SONGS.¹ I urge you to immediately require the visual inspection of the remaining 21 canisters.

Please provide a response to this letter no later than June 24, 2019. Thank you.

Sincerely,

A handwritten signature in blue ink that reads "Mike Levin". The signature is fluid and cursive, with a long horizontal stroke at the end.

MIKE LEVIN
Member of Congress

¹ Sforza, Teri. 30 April 2018. "How much should it cost to pay for San Onofre nuclear plant's shutdown? Here's how you can weigh in." *The Orange County Register*.

CC: Scott Morris, Administrator, Region IV, U.S. Nuclear Regulatory Commission

Congress of the United States
House of Representatives
 Washington, DC 20515-0549

June 21, 2019

The Honorable Kristine Svinicki
 Chairwoman
 U.S. Nuclear Regulatory Commission
 Washington, DC 20555-0001

Dear Chairman Svinicki,

Thank you for agreeing to meet with me in the coming weeks regarding the San Onofre Nuclear Generating Station (SONGS), located in my Congressional district. I look forward to a thorough discussion of the Nuclear Regulatory Commission's (NRC) decisions regarding safety at SONGS. While I am sure that our conversation will be valuable, it is my understanding that Southern California Edison (SCE) may plan to resume the loading of spent fuel canisters prior to our meeting. With this in mind, I feel it is important that I voice my concern with the NRC's repeated decisions that fail to maximize safety and transparency at SONGS.

The NRC's mission statement clearly affirms that the Commission has a responsibility to provide "adequate protection of public health and safety."¹ As I look back at recent incidents at SONGS, I see a record that demands greater NRC intervention. That record includes the following:

- Falsified fire safety recordkeeping.²
- Failed backup power systems.³
- Backlash against employees who reported poor safety practices.⁴
- An NRC review that found SCE's corrective actions had "not resulted in sustained and measurable improvement" of human performance onsite.⁵
- Unexpected degradation of new steam generators, an incident that was incorrectly dismissed as minor.⁶
- A radioactive leak that resulted in the shutdown of a reactor.⁷
- The discovery of loose bolts in spent fuel canisters.⁸

¹ About NRC. *U.S. Nuclear Regulatory Commission*. <https://www.nrc.gov/about-nrc.html>.

² Woodall, Bernie. 14 Jan. 2008. "So. Calif. nuclear plant worker faked fire checks." *Reuters*.

³ Douglass, Elizabeth. 31 July 2008. "San Onofre under scrutiny." *Los Angeles Times*.

⁴ Sisson, Paul. 17 Nov. 2008. "SAN ONOFRE: Workers allege retaliation for raising safety concern." *San Diego Union-Tribune*.

⁵ Bermudez, Esmerelda. 5 Feb. 2012. "San Onofre nuclear power plant incidents draw attention." *Los Angeles Times*.

⁶ Sewell, Abby and Ken Bensinger. 13 July 2013. "How San Onofre's new steam generators sealed nuclear plant's fate." *Los Angeles Times*.

⁷ Bermudez, Esmerelda. 5 Feb. 2012. "San Onofre nuclear power plant incidents draw attention." *Los Angeles Times*.

⁸ Sforza, Terry. 29 Mar. 2018. "Here's how the bolt on the container of nuclear waste at San Onofre may have been shaken loose." *Orange County Register*.

- A “near-miss” incident that could have resulted in the 18-foot drop of a spent fuel canister.⁹

These incidents still loom large in the consciousness of my constituents who live near SONGS. They hear about how the most recent “near-miss” was caused by deficiencies in SCE’s training, equipment, procedures, and oversight, and they see how the incident fits into a larger pattern of behavior.

I would like to be able to tell my constituents that they should be comforted to know that the NRC is genuinely committed to protecting their safety. However, a review of your recent record fails to provide that comfort. After you found SCE had committed a Level II violation, a violation level that NRC Region IV Administrator Scott Morris called “uncommon,” you only assessed a \$116,000 civil penalty on a company with assets totaling more than \$56 billion.¹⁰ In response to unplanned scratching on the surface of the spent fuel canisters at SONGS, you required SCE to visually inspect only eight of the 29 loaded canisters onsite, despite the minimal incremental cost of additional inspections.¹¹ Finally, you have decided it is unnecessary to assign a full-time inspector to SONGS while being aware of the dubious record at the site and knowing how such an action would help to rebuild the public trust.

Further, your justification for refusing to assign a full-time inspector to SONGS does not seem to account for the unique loading campaign that SCE intends to conduct. In your June 17, 2019, letter to me, you state that canister loading activities “are usually limited in duration.” However, NRC Region IV staff has confirmed that SCE will be carrying out an ongoing, accelerated decommissioning that is significantly different than the process by which most utilities transfer spent fuel. NRC Region IV staff has acknowledged that the accelerated decommissioning presents unique challenges and can be more difficult than a standard decommissioning.¹²

Given the noteworthy nature of the spent fuel transfer campaign at SONGS, I urge you to assign an inspector to SONGS at all times that fuel transfer activities are taking place. Please respond to the following questions related this proposed inspection regime:

- Do you have the statutory authority to assign an inspector to SONGS at all times that fuel transfer activities are taking place? If you do not, please describe the authorities you would need in order to do so.
- Do you have funding available to assign an inspector to SONGS at all times that that fuel transfer activities are taking place? If you do not, please provide the estimated cost of this inspection regime.

⁹ Nikolewski, Rob. 10 Aug. 2018. “Incident with waste canister at San Onofre nuclear plant prompts additional training measures.” *San Diego Union Tribune*.

¹⁰ 2018 Annual Report. *Edison International*.

¹¹ <https://www.edison.com/content/dam/eix/documents/investors/corporate-governance/eix-sce-2018-annual-report.pdf>

¹² NRC Region IV Phone Call with Congressional Staff. 31 May 2019.

¹² Ibid.

Each incident at SONGS listed in this letter was thought to be the last after they became public. You have a responsibility to take every action available to minimize the chance of future incidents. I would be incredibly disappointed if history repeats itself.

I look forward to further discussion at our meeting.

Sincerely,

A handwritten signature in blue ink that reads "Mike Levin". The signature is fluid and cursive, with a long horizontal stroke at the end.

MIKE LEVIN
Member of Congress



CHAIRMAN

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

July 16, 2019

The Honorable Mike Levin
United States House of Representatives
Washington, DC 20515

Dear Congressman Levin:

On behalf of the U.S. Nuclear Regulatory Commission (NRC), I am responding to your letters of June 11 and June 21, 2019, expressing concerns related to the San Onofre Nuclear Generating Station (SONGS).

I very much appreciated the opportunity to meet with you on July 11th to discuss in greater detail your concerns. I agree with you on the importance of accountability to ensure the safety of the people in the communities surrounding SONGS, and am committed to continued communications with you on this issue.

As I mentioned during our conversation, I am confident that the NRC's inspection plan for the SONGS decommissioning process is the most effective approach to ensure the safe decommissioning of the site. We have extensive experience and a proven record with performing inspections at decommissioning sites, and the NRC's inspectors who perform this function are experts with extensive experience in this area. In addition, I want to assure you that we will not hesitate to devote the inspection resources necessary to ensure the safe decommissioning of SONGS.

Thank you again for your time and the opportunity to discuss the NRC's inspection and oversight of these activities. Please feel free to contact me or have your staff contact Eugene Dacus, Director of the Office of Congressional Affairs, at 301-415-1776 if you have additional questions or need more information.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kristine L. Svinicki", is written over a light blue horizontal line.

Kristine L. Svinicki

EXHIBIT 16



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

August 17, 2018

MEMORANDUM TO: Eric J. Simpson, CHP, Health Physicist
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

W. Chris Smith, Reactor Inspector
Engineering Branch 1
Division of Reactor Safety

Marlone X. Davis, Transportation & Storage Safety Inspector
Inspections & Operations Branch
Division of Spent Fuel Management

THROUGH: Janine F. Katanic, PhD, CHP, Chief /RA/ LLH for
Fuel Cycle and Decommissioning Branch
Division of Nuclear Materials Safety

FROM: Troy W. Pruett, Director /RA/
Division of Nuclear Materials Safety

SUBJECT: INSPECTION CHARTER TO EVALUATE THE NEAR-MISS LOAD
DROP EVENT AT SAN ONOFRE NUCLEAR GENERATING
STATION

A special inspection has been chartered to review the licensee's follow-up investigation, causal evaluation, and planned corrective actions regarding the near-miss drop event involving a loaded spent fuel storage canister at the San Onofre Nuclear Generating Station (SONGS) Independent Spent Fuel Storage Installation (ISFSI) on Friday, August 3, 2018. (License Nos. NPF-10 and NPF-15, Docket Nos. 50-361, 50-362 and 72-41).

CONTACT: Janine F. Katanic, PhD, CHP, FCDB/DNMS
(817) 200-1151

BACKGROUND AND BASIS

On Friday, August 3, 2018, at approximately 1:30 pm (PST), SONGS was engaged in operations involving movement of a loaded spent fuel storage canister into its underground ISFSI storage vault (HI-STORM UMAX storage system). As the loaded spent fuel canister was being lowered into the storage vault using lifting and rigging equipment, the licensee's personnel failed to notice that the canister was misaligned and was not being properly lowered. The licensee continued to lower the rigging and lifting equipment until it believed that the canister had been fully lowered to the bottom of the storage vault. However, a radiation protection technician identified elevated radiation readings that were not consistent with a fully lowered canister. The licensee then identified that the loaded spent fuel canister was hung up on a metal flange near the top of the storage vault, preventing it from being lowered, and that the rigging and lifting equipment was slack and no longer bearing the load of the canister.

In this circumstance, with the important to safety (ITS) rigging and lifting equipment completely down in the lowest position, the ITS equipment was disabled from performing its designed safety function of holding and controlling the loaded canister from a potential canister drop condition. The licensee reported that the canister was resting on a metal flange within the storage vault. It was estimated that the canister could have experienced an approximately 17-18 foot drop into the storage vault if the canister had slipped off the metal flange or if the metal flange failed. This load drop accident is not a condition analyzed in the dry fuel storage system's Final Safety Analysis Report (FSAR).

In response to the discovery that the canister was not fully lowered, the licensee took immediate actions to restore control of the load to the rigging and lifting devices. The estimated time the canister was in an unanalyzed credible drop condition was approximately 45 minutes to 1 hour in duration. The licensee regained control of the load, repositioned the canister, and lowered the canister into the storage vault. The licensee halted all dry fuel storage movement operations in order to fully investigate the incident and develop corrective actions to prevent a recurrence. In addition, the licensee has shared the operational experience with another site with a similar dry fuel storage system.

Region IV became aware of the SONGS "near-miss" incident on Monday, August 6, 2018, when the licensee provided a courtesy notification and described it as a "near-miss" or "near-hit" event. The reporting requirements of the incident are still being evaluated by the Region and discussed with the licensee.

On August 7 and 16, 2018, Region IV and NMSS representatives participated in conference calls with licensee representatives in order to gather additional facts regarding the circumstances of the incident and the licensee's investigation. Region IV is evaluating the information provided by the licensee and is coordinating with the Division of Spent Fuel Management, NMSS.

The NRC is chartering this special inspection pursuant to Management Directive 8.3, "NRC Incident Investigation Program," and NRC Inspection Manual Chapter 0309, "Reactive Inspection Decision Basis for Reactors."

The purpose of the inspection is to investigate the occurrence; interview personnel; observe equipment; and review relevant documentation, including the results of the licensee's investigation and causal analysis, and development and implementation of actions to prevent

recurrence. The licensee has committed to not resume fuel loading operations until after this special inspection and associated reviews are complete. Once the licensee has confirmed its plans to resume fuel loading operations, inspectors will also observe the loading operations to ensure that the corrective actions are adequate. These observations may be conducted as part of this special inspection or as an independent inspection activity, as directed by regional management.

SCOPE

The inspection should seek to address the following items at a minimum:

1. Identify and review all pertinent records, documents, and procedures related to the licensee's downloading operations at the ISFSI pad including but not limited to: worker training and qualifications; rigging equipment qualification, testing, and preventative maintenance; and lifting equipment qualification, testing, and preventative maintenance. Evaluate the adequacy of the above noted procedures, worker training and equipment testing and preparation.
2. Evaluate the adequacy of the loading procedure(s) with respect to verification of MPC movement, centering the MPC over the ISFSI vault, lowering the MPC, and positioning the MPC within the ISFSI vault. Interviews with personnel involved in the ISFSI loading operations should be conducted to evaluate licensee and contractor communications between crane/VCT operators, rigging and spotting staff, cask loading supervisors, radiation protection staff, and licensee oversight personnel. Evaluate the adequacy of pre-job briefings that may have taken place prior to fuel loading operations.
3. Review and evaluate the licensee's immediate corrective actions taken after the event for adequacy of notifications to the licensee and safety assessments performed immediately following the event. Review the licensee's inspection documentation and/or analysis to determine whether the vault's divider shell experienced any damage that would inhibit the component from performing its designed safety function.
4. Based on the review of procedures and interviews of personnel involved with loading operations, evaluate the adequacy of procedure adherence.
5. Interview personnel associated with the event to develop a timeline to ensure the licensee's investigation contained all necessary information to identify all contributing factors and develop adequate corrective actions.
6. Review the licensee's root cause investigation results, to determine whether the review thoroughly identified all contributing factors and that final corrective actions will be adequate to prevent reoccurrence. Evaluate whether prior operational experience relating to complications or issues associated with canister downloading operations was identified and considered as part of the licensee's root cause investigation and corrective action development.
7. Review the licensee's planned actions that will address the point loading condition that was experienced by the affected canister. If applicable, review the licensee's analysis that demonstrated the canister will continue to perform as designed for continued storage OR review licensee's inspection plan to safely remove or lift the canister from the vault to support inspection of the bottom of the canister to demonstrate the canister did not

receive any damage that would inhibit the component from continuing to perform as designed.

8. Investigate the licensee's procedures for reportability to the NRC and determine if the licensee made the correct decision regarding notifications made to the NRC for this event.
9. As directed by regional management, observe resumption of fuel loading operations to verify that corrective actions were effective in addressing deficiencies that contributed to the event. This should include evaluation of procedure and/or equipment enhancements; review or observation of training and briefings provided to riggers, crane operators, spotters and observers, supervisors and other personnel involved in fuel loading operations.
10. Determine if the inspection should be elevated to an AIT and promptly notify regional management of any recommendation to escalate the special inspection to an AIT.

GUIDANCE

The NRC is chartering this special inspection pursuant to Management Directive 8.3, "NRC Incident Investigation Program," and NRC Manual Chapter 0309, "Reactive Inspection Decision Basis for Reactors." The Manual Chapter and Management Directive identify Inspection Procedure 93812, "Special Inspection," for specific use in reviewing events. Planned Dates of Inspection are September 10-14, 2018.

This inspection should emphasize fact-finding in its review of the circumstances surrounding the near-miss canister drop event. Safety concerns identified that are not directly related to near-miss drop event should be reported to NRC management for appropriate action.

Daily briefings with NRC management should occur to discuss the team's progress and preliminary observations.

In accordance with Manual Chapter 0610, a report documenting the results of the inspection should be issued within 30-45 days of the completion of the inspection.

This Charter may be modified should NRC inspectors find significant new information that warrants review. Should you have any questions concerning this charter, please contact Janine F. Katanic at 817-200-1151.

INSPECTION CHARTER TO EVALUATE THE NEAR-MISS LOAD DROP EVENT AT SAN
ONOFRE NUCLEAR GENERATING STATION – DATED AUGUST 17, 2018

DISTRIBUTION:

KKennedy, ORA
SMorris, ORA
TPruett, DNMS
LHowell, DNMS
JKatanic, DNMS
LBrookhart, DNMS
MLayton, NMSS
ARivera-Varona, NMSS
VDricks, ORA
BMaier, ORA
CLipa, DNMS/RIII
JTrapp, DNMS/RI
TInverso, OEDO
AMoreno, OCA
JWeil, OCA

ADAMS ACCESSION NUMBER: **ML18229A203**

☒ SUNSI Review

ADAMS:

☐ Non-Publicly Available

☒ Non-Sensitive

Keyword:

By: LLH

☒ Yes ☐ No

☒ Publicly Available

☐ Sensitive

NRC-002

OFFICE	DNMS:FCDB	DNMS:DD	DNMS:D
NAME	JFKatanic	LLHowell	TWPruett
SIGNATURE	/RA/ LLH for	/RA/	/RA/
DATE	8/17/18	8/17/18	8/17/18

OFFICAL RECORD COPY

EXHIBIT 17



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

March 25, 2019

EA-18-155

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

SUBJECT: NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY -
\$116,000 AND NRC SPECIAL INSPECTION REPORT 050-00206/2018-005,
050-00361/2018-005, 050-00362/2018-005, 072-00041/2018-001

Mr. Bauder:

This letter refers to the special inspection conducted on September 10-14, 2018, at your facility in San Clemente, California. The inspection was conducted in response to the misalignment of a loaded spent fuel storage canister as it was being downloaded into the storage vault at the San Onofre Nuclear Generating Station (SONGS) on August 3, 2018. A final exit briefing was conducted telephonically with Mr. Thomas Palmisano and members of your staff on November 1, 2018, and the details regarding two apparent violations were provided in the subject inspection report dated November 28, 2018, NRC's Agencywide Documents Access and Management System (ADAMS) Accession ML18332A357. An errata to this inspection report was issued on December 19, 2018, ADAMS Accession ML18341A172.

In the letter transmitting the inspection report, we provided you with the opportunity to address the apparent violations identified in the report by either attending a predecisional enforcement conference (PEC) or requesting alternative dispute resolution (ADR). On December 10, 2018, SONGS staff informed the NRC that they requested a PEC. On January 24, 2019, a public PEC was conducted in the Region IV office with you and members of your staff to discuss the apparent violations, their significance, their root causes, and your corrective actions.

Based on the information developed during the inspection and the information that you provided during the PEC, the NRC has determined that two violations of NRC requirements occurred. The violations are cited in Enclosure 1, Notice of Violation and Proposed Imposition of Civil Penalty (Notice), and the circumstances surrounding them are described in the subject inspection report. Violation A involved the failure to ensure that important-to-safety equipment was available to provide redundant drop protection features for a loaded spent fuel canister during downloading operations. Violation B involved the failure to make a timely notification to the NRC Headquarters Operations Center for the August 3, 2018, disabling of important-to-safety equipment.

The NRC considers that Violation A could have resulted in a significant safety consequence because an important-to-safety feature was disabled during a spent fuel canister downloading operation. Therefore, this violation has been categorized in accordance with the NRC Enforcement Policy at Severity Level II. The NRC considers that Violation B impacted the NRC's ability to perform its regulatory oversight function. Therefore, this violation has been categorized in accordance with the NRC Enforcement Policy at Severity Level III.

Because Violation A was associated with a Severity Level II violation, the NRC considered whether credit was warranted for *Identification* and *Corrective Action* in accordance with the civil penalty assessment process in Section 2.3.4 of the NRC Enforcement Policy. The NRC determined that *Identification* credit was not warranted because Violation A was identified through a self-revealing event.

Your corrective actions included: (1) a revised corrective action program that encompasses all dry cask storage operations at SONGS with a defined threshold for problem identification and entry; (2) additional staff training and resources to implement Southern California Edison Company's (SCE's) revised and more intrusive contractor oversight of dry cask storage operations; (3) additional equipment to provide load indications and visual indications for defense-in-depth to prevent a future disabling of important-to-safety downloader slings during spent fuel canister downloading operations; (4) a revised SONGS-specific training program for all dry cask storage workers to ensure that workers understand and know how to perform their assigned roles and responsibilities; (5) revised procedures that provide qualitative and quantitative means to ensure that important steps for dry cask storage operations have been accomplished; and (6) a commitment to enhance future management and executive management oversight through the above programs, policies, and procedures.

During the NRC's follow-up inspections, several weaknesses were identified by the inspection team related to the above-noted corrective actions. The three most significant weaknesses included failures to: (1) establish measures to ensure appropriate quality standards were specified in design documents for the new load monitoring equipment used in the downloading process; (2) ensure that newly-installed load monitoring equipment conformed to the procurement documents; and (3) conduct spent fuel handling operations within established design basis seismic criteria when moving loaded transfer casks from the site's spent fuel buildings to the independent spent fuel storage installation.

In addition, SCE's corrective actions did not adequately address a change to the design and performance requirements for certain structures, systems, and components described in the Holtec UMAX Final Safety Analysis Report (FSAR). At the time of the August 3, 2018, incident, the version of the Holtec UMAX FSAR in effect (i.e., Revision 4) stated that "there is no risk of scratching or gouging" on a canister during downloading operations into the UMAX vault. Following the special inspection, the FSAR was revised to allow scratches on the canisters during downloading operations. Southern California Edison Company used the Title 10 of the *Code of Federal Regulations* (10 CFR) 72.48 process to implement the FSAR change. The NRC determined that SCE's calculations and evaluation did not contain an adequate basis to support the change to the FSAR. As a result, SCE initiated corrective actions to reperform the 10 CFR 72.48 evaluation. The NRC will review SCE's subsequent evaluation to determine if the FSAR design change to allow scratches is acceptable.

Based on the overall assessment of SCE's corrective actions, the NRC has concluded that *Corrective Action* credit is not warranted for Violation A.

Since neither *Identification* credit nor *Corrective Action* credit are warranted for Violation A, the NRC Enforcement Policy provides for a civil penalty that is twice the base civil penalty amount of \$58,000 for a total of \$116,000.

Because Violation B was associated with a Severity Level III violation and your facility has not been the subject of an escalated enforcement action within the last 2 years, the NRC considered whether credit was warranted for *Corrective Action* in accordance with the civil penalty assessment process in Section 2.3.4 of the NRC Enforcement Policy. Your corrective actions included: (1) making the required notification to the NRC; (2) providing training to shift managers on the NRC reporting requirements; (3) revising your reporting procedures; and (4) establishing biennial refresher training on reportability. We have determined that these actions are sufficiently comprehensive and appropriate. Therefore, the NRC determined that *Corrective Action* credit was warranted, which would not result in a civil penalty for this Severity Level III violation.

Given the above, to emphasize the importance of identification and comprehensive correction of violations, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice of Violation and Proposed Imposition of Civil Penalty (Notice) in the amount of \$116,000 for the Severity Level II violation (Violation A). In addition, issuance of this Notice constitutes escalated enforcement action that may subject you to increased inspection effort.

If you disagree with this enforcement sanction, you may deny the violation, as described in the Notice, or you may request ADR with the NRC in an attempt to resolve this issue. Alternative dispute resolution is a general term encompassing various techniques for resolving conflicts using a neutral third party. The technique that the NRC employs is mediation. Mediation is a voluntary informal process in which a trained neutral mediator works with parties to help them reach resolution. If the parties agree to use ADR, they select a mutually agreeable neutral mediator who has no stake in the outcome and no power to make decisions. Mediation gives parties an opportunity to discuss issues, clear up misunderstandings, be creative, find areas of agreement, and reach a final resolution of the issues. Additional information concerning the NRC's ADR program can be found in Enclosure 3 and at <http://www.nrc.gov/about-nrc/regulatory/enforcement/adr.html>.

The Institute on Conflict Resolution at Cornell University facilitates the NRC's program as a neutral third party. If you are interested in pursuing this issue through the ADR program, please contact: (1) the Institute on Conflict Resolution at 877-733-9415, and (2) Dr. Janine F. Katanic at 817-200-1151 within 10 days of the date of this letter. You may also contact the Institute on Conflict Resolution for additional information about ADR. Your submitted signed agreement to mediate using the NRC's ADR program will stay the 30-day time period for payment of the civil penalties and the required written response, as identified in the enclosed Notice, until the ADR process is completed.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. In particular, you should address actions you have taken or plan to take to improve your corrective actions. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice and Procedure," a copy of this letter, its enclosures, and your response will be made available electronically for public inspection in the NRC Public Document Room and from the NRC's ADAMS, accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the public without redaction. The NRC also includes significant enforcement actions on its Web site at <http://www.nrc.gov/reading-rm/doc-collections/enforcement/actions>.

If you have any questions concerning this matter, please contact Dr. Janine F. Katanic of my staff at 817-200-1151.

Sincerely,



Scott A. Morris
Regional Administrator

Docket Nos. 50-206; 50-361; 50-362; 72-041
License Nos. DPR-13; NPF-10; NPF-15

Enclosures:

1. Notice of Violation and Proposed Imposition
of Civil Penalty
2. NUREG/BR-0254, Payment Methods
3. NUREG/BR-0317, Enforcement Alternate
Dispute Resolution Program

NOTICE OF VIOLATION
AND
PROPOSED IMPOSITION OF CIVIL PENALTY

Southern California Edison Company
San Clemente, California

Docket Nos. 050-00206, 050-00361,
050-00362, 072-00041
License Nos. DPR-13; NPF-10; NPF-15
EA-18-155

During an NRC inspection conducted September 10-14, 2018, two violations of NRC requirements were identified that were considered for escalated enforcement. (Note: three other Severity Level IV violations were identified and documented in the NRC special inspection report.) In accordance with the NRC Enforcement Policy, the NRC proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violations and associated civil penalty are set forth below:

I. Violation Assessed a Civil Penalty

- A. 10 CFR 72.212(b)(3) requires, in part, that each cask used by the general licensee conforms to the terms, conditions, and specifications of a Certificate of Compliance listed in 10 CFR 72.214. 10 CFR 72.214 includes a list of all the approved spent fuel storage casks that can be utilized under the conditions specified in a specific Certificate of Compliance, including Amendment 2 of Certificate of Compliance 072-01040. Certificate of Compliance 072-01040, Amendment 2, Condition 4, "HEAVY LOADS REQUIREMENTS," requires, in part, that lifting operations outside of structures governed by 10 CFR Part 50 must be in accordance with Technical Specifications, Appendix A, Section 5.2.

Technical Specifications, Appendix A, Section 5.2.c.3 requires, in part, that the transfer cask, when loaded with spent fuel, may be lifted and carried at any height during multi-purpose canister transfer operations provided the lifting equipment is designed with redundant drop protection features which prevent uncontrolled lowering of the load.

Contrary to the above, on August 3, 2018, the licensee failed to ensure that the redundant drop protection features were available to prevent uncontrolled lowering of the load during multi-purpose canister transfer operations. Specifically, the licensee inadvertently disabled the redundant important-to-safety downloading slings while lowering canister 29 into the storage vault. During the approximately 45-minute time-frame, the canister rested on a shield ring unsupported by the redundant downloading slings at approximately 18 feet above the fully seated position. This failure to maintain redundant drop protection placed canister 29 in an unanalyzed condition because the postulated drop of a loaded spent fuel canister is not analyzed in the final safety analysis report.

This is a Severity Level II violation (NRC Enforcement Policy Section 6.3.b.2).
Civil Penalty - \$116,000 (EA-18-155)

II. Violation Not Assessed a Civil Penalty

- B. 10 CFR 72.75(d)(1) requires, in part, that each licensee shall notify the NRC within 24 hours after the discovery of an event involving spent fuel in which important-to-safety equipment is disabled or fails to function as designed when: (i) the equipment is required by Certificate of Compliance to be available and operable to mitigate the consequences of an accident; and (ii) no redundant equipment was available and operable to perform the required safety function.

Contrary to the above, from August 6 to September 14, 2018, the licensee failed to notify the NRC within the required time period after the discovery of an event involving spent fuel in which important-to-safety equipment was disabled or failed to function as designed when: (i) the equipment was required by Certificate of Compliance to be available and operable to mitigate the consequences of an accident; and (ii) no redundant equipment was available and operable to perform the required safety function.

Specifically, the licensee failed to notify the NRC within the required time period after an event that occurred on August 3, 2018, in which the licensee inadvertently disabled the redundant important-to-safety downloading slings while lowering spent fuel canister 29 into the storage vault, which resulted in the canister resting on a shield ring unsupported by the redundant downloading slings at approximately 18 feet above the fully seated position for approximately 45 minutes. These slings are required by Certificate of Compliance 072-01040, Amendment 2, Condition 4, and Technical Specification 5.2.c.3 to be available and operable during canister transfer operations, and no redundant equipment was available and operable to perform the required safety function.

This is a Severity Level III violation (NRC Enforcement Policy Section 6.9.c.2).

Pursuant to the provisions of 10 CFR 2.201, Southern California Edison Company (SCE) is hereby required to submit a written statement or explanation to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, with a copy to the Document Control Desk, Washington, DC 20555-0001, and the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV within 30 days of the date of this Notice of Violation and Proposed Imposition of Civil Penalty (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation; EA-18-155" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level; (2) the corrective steps that have been taken and the results achieved; (3) the corrective steps that will be taken; and (4) the date when full compliance will be achieved.

Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, the NRC may issue an order or a Demand for Information requiring you to explain why your license should not be modified, suspended, or revoked or why the NRC should not take other action as may be proper. Consideration may be given to extending the response time for good cause shown. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.

You may pay the civil penalty proposed above, in accordance with NUREG/BR-0254 (Enclosure 2) and by submitting to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, a statement indicating when and by what method payment was made, or may

protest imposition of the civil penalty in whole or in part, by a written answer addressed to the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, within 30 days of the date of this Notice.

Should SCE fail to answer within 30 days of the date of this Notice, the NRC will issue an order imposing the civil penalty. Should SCE elect to file an answer in accordance with 10 CFR 2.205 protesting the civil penalty, in whole or in part, such answer should be clearly marked as an "Answer to a Notice of Violation; EA-18-155" and may: (1) deny the violations listed in this Notice, in whole or in part; (2) demonstrate extenuating circumstances; (3) show error in this Notice; or (4) show other reasons why the penalty should not be imposed. In addition to protesting the civil penalty in whole or in part, such answer may request remission or mitigation of the penalty.

In requesting mitigation of the proposed penalty, the response should address the factors in Section 2.3.4 of the Enforcement Policy. Any written answer addressing these factors pursuant to 10 CFR 2.205, should be set forth separately from the statement or explanation provided pursuant to 10 CFR 2.201, but may incorporate parts of the 10 CFR 2.201 reply by specific reference (e.g., citing page and paragraph numbers) to avoid repetition. Your attention is directed to the other provisions of 10 CFR 2.205, regarding the procedure for imposing a civil penalty.

Upon failure to pay any civil penalty which subsequently has been determined in accordance with the applicable provisions of 10 CFR 2.205 to be due, this matter may be referred to the Attorney General, and the penalty, unless compromised, remitted, or mitigated, may be collected by civil action pursuant to Section 234c of the Act, 42 U.S.C. 2282c.

The responses noted above, i.e., Reply to Notice of Violation, Statement as to payment of civil penalty, and Answer to a Notice of Violation, should be addressed to: Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, with a copy to the Document Control Desk, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001 and the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 1600 E. Lamar Blvd., Arlington, TX 76011-4511. Your response will be made available electronically for public inspection in the NRC Public Document Room or in the NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, it should not include any personal privacy or proprietary information so that it can be made available to the public without redaction.

If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request that such material is withheld from public disclosure, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information).

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 25th day of March 2019.

QUESTIONS?

If you have questions, please visit <https://www.nrc.gov> and search for "License Fees."

Questions may also be directed to the NRC Accounts Receivable Help Desk by e-mail at FEES.Resource@nrc.gov, by phone at (301) 415-7554, or by writing to the address below:

U.S. NUCLEAR REGULATORY COMMISSION
OCFO/DOC/ARB
Mail Stop T9-E10
Washington, DC 20555-0001



Payment Methods

ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
OCFO/DOC/ARB
Mail Stop T-9-E10
Washington, DC 20555-0001
PH (301) 415-7554



NUREG/BR-0254, Rev. 8
February 2018



www.nrc.gov

Estimated burden per response to comply with this voluntary collection request: 10 minutes. This brochure provides information about available payment methods. Forward comments about to burden estimate to the Records Management Branch (76-F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0190), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

NRC accepts the methods described below.

PAYMENT BY AUTOMATED CLEARINGHOUSE

To pay by Automated Clearinghouse / Electronic Data Interchange (ACH/EDI), provide a copy of NRC Form 628 to your financial institution. You may obtain a copy of NRC Form 628 by calling the NRC Accounts Receivable Help Desk at (301) 415-7554.

PAYMENT BY CREDIT CARD

The NRC is currently accepts credit card payments of up to \$24,999.99. For payment by credit card, go to Pay.gov, search for "U.S. Nuclear Regulatory Commission Fees" and enter the required information.

You may also mail or fax NRC

Form 629 following the directions on the form. To obtain a copy of NRC

Form 629 go to <http://www.nrc.gov>

and search for "NRC Form 629" or call the NRC Accounts Receivable Help Desk at (301) 415-7554.



PAYMENT BY FEDWIRE DEPOSIT SYSTEM

The NRC can receive funds through the U.S. Department of the Treasury (Treasury) Fedwire Deposit System. The basic wire message format below complies with the Federal Reserve Board's standard structured third-party format for all electronic funds transfer (EFT) messages.

See the sample EFT message to Treasury below. Each numbered field is described below.

1	2	3	4	5	6	7	8	9	10
TO 021030004		FROM		REF		AMOUNT			
ORDERING BANK AND RELATED DATA									
TREAS NYC/CTR									
BNF=/AC-31000001 081=									

- RECEIVER-DFI#** – Treasury's routing number for deposit messages is 021030004.
- TYPE-SUBTYPE-CD** – The sending bank will provide the type and subtype code.
- SENDER-DFI#** – The sending bank will provide this number.
- SENDER-REF#** – The sending bank will insert this 16-character reference number at its discretion.
- AMOUNT** – The transfer amount must be punctuated with commas and decimal point; use of the "\$" is optional. The depositor will provide this item.
- SENDER-DFI-NAME** – The Federal Reserve Bank will automatically insert this information.
- RECEIVER-DFI-NAME** – Treasury's name for deposit messages is "TREAS NYC". The sending bank will enter this name.
- PRODUCT CODE** – A product code of "CTR" for customer transfer should be the first item in the receiver text field. Other values may be entered, if appropriate, using the American Bankers Association's options. A slash must be entered after the product code.
- AGENCY LOCATION CODE (ALC)** – THIS ITEM IS OF CRITICAL IMPORTANCE. IT MUST APPEAR ON THE FUNDS TRANSFER DEPOSIT MESSAGE IN THE PRECISE MANNER AS STATED TO ALLOW FOR THE AUTOMATED PROCESSING AND CLASSIFICATION OF THE FUNDS TRANSFER MESSAGE TO THE AGENCY LOCATION CODE OF THE APPROPRIATE AGENCY. The ALC identification sequence can, if necessary, begin on one line and end on the next line; however, the field tag "BNF=" must be on one line and cannot contain any spaces. The NRC's 8-digit ALC is: BNF=/AC-31000001
- THIRD-PARTY INFORMATION** – The Originator to Beneficiary Information (OBI) field tag "OBI=" signifies the beginning of the free-form third-party text. All other identifying information intended to enable the NRC to identify the deposit—for example, NRC annual fee invoice number, description of fee, 10 CFR 171 annual fee, and licensee name—should be placed in this field.

The optimum format for fields 7, 8, 9, and 10 using an 8-digit ALC is as follows:

TREAS NYC/CTR/BNF=/AC-31000001 081=

The optimum format, shown above, will allow 219 character positions of information following the "OBI=" indicator.

If the licensee's bank is not a member of the Federal Reserve System, the nonmember bank must transfer the necessary information and funds to a member bank, which then must transfer the information and funds to the local Federal Reserve Bank.

For a transfer of funds from local Federal Reserve Banks to be recorded on the same day, the transfer must be received at the New York Federal Reserve Bank by 4 p.m. EST. Otherwise, the deposit will be recorded on the next workday.

PAYMENT BY CHECK

Checks should be made payable to the U.S. Nuclear Regulatory Commission with the invoice number, Enforcement Action number, or other information that identifies the payment, written on the check. Mail the check to the following address:

U.S. Nuclear Regulatory Commission
U.S. Bank
P.O. Box 979051
St. Louis, MO 63197-9000

FedEx or overnight mailings must be delivered to the following address:

U.S. Nuclear Regulatory Commission
U.S. Bank Government Lockbox
SL-MO-C2GL
1005 Convention Plaza
St. Louis, MO 63101

TAXPAYER IDENTIFICATION NUMBER

You must file your Taxpayer Identification Number (TIN) with the NRC. Use NRC Form 531 to provide your TIN. You may obtain NRC Form 531 from the NRC Web site at <http://www.nrc.gov> by searching for "NRC Form 531" or by calling the NRC Accounts Receivable Help Desk at (301) 415-7554.

Mediation Location and Duration

The parties usually hold the mediation at or near one of the NRC's offices. However, the parties may agree on any alternate location. Mediation sessions are usually no longer than 1 day. In some cases, the mediation may take longer with the mutual consent of the parties.

The NRC Mediation Team

The responsible NRC senior manager (i.e., Office Director, Regional Administrator, or his or her designee) will serve as the principal negotiator for the NRC in cases that involve wrongdoing and technical issues. When a case involves discrimination, the Director of the Office of Enforcement will serve as the principal negotiator. The other members of the NRC mediation team typically include an enforcement specialist, an attorney, and a staff representative who is familiar with any technical issues under discussion.

The Confirmatory Order

A CO is a legally binding document that includes the terms of the AIP. The NRC will issue a CO only with the prior written consent of the other party and with a waiver of the right to a hearing. After the entity or the individual has completed the terms of the CO, the NRC will verify that the terms of the CO have been satisfied in a timely manner. Because the CO is legally binding, failing to comply with its terms exposes the entity or individual to additional enforcement action.

Although the substance of the mediation session remains confidential, the details of the settlement will normally be made public via a press release and the publication of the CO in the *Federal Register*.

Timeliness Goals

The timely resolution of issues is one of the goals of the enforcement ADR program. Accordingly, the NRC expects timely progress of a case at each stage of the mediation process. In cases where the parties achieve settlement, the NRC expects to issue a CO within 90 calendar days of the date of the agency's letter offering the ADR option to the other party.

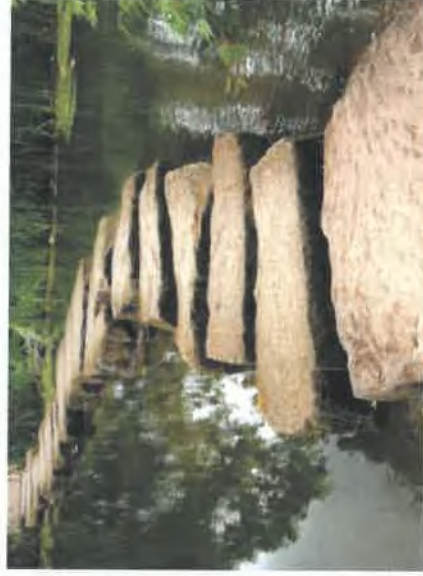
Additional Sources of Information

More information about the NRC's ADR program is available from the following:

- Cornell University's Scheinman Institute on Conflict Resolution
Toll-Free Number: (877) 733-9415

- The NRC's ADR Program Manager in the Office of Enforcement
Toll-Free Number: (800) 368-5642 or (301) 287-9527

- The NRC enforcement ADR program on the agency's Web site at www.nrc.gov/about-nrc/regulatory/enforcement/adr.html



NUREG/BR-0317 Rev. 2
May 2018

Enforcement Alternative Dispute Resolution Program

ENCLOSURE 3

The Program

The U.S. Nuclear Regulatory Commission's (NRC's) enforcement alternative dispute resolution (ADR) program, formerly referred to as "post-investigation ADR," provides an amicable process for resolving enforcement matters. It is intended to produce more timely and effective outcomes for the NRC and an entity (e.g., an NRC licensee, certificate holder, or contractor of an NRC licensee or certificate holder) or an individual who is subject to an enforcement action, through mediation.

The NRC established the post-investigation ADR program in 2004. In 2015, the NRC expanded its scope to include certain types of enforcement cases that do not involve an investigation. Accordingly, the name of this program was changed from "post-investigation ADR" to "enforcement ADR."

Enforcement ADR includes two distinct case types: (1) discrimination cases or other wrongdoing and, (2) nonwillful (traditional) enforcement cases with the potential for civil penalties (not including violations associated with findings assessed through the Reactor Oversight Process). For discrimination cases or other wrongdoing, mediation is used after the completion of an investigation by the NRC Office of Investigations.

As long as the enforcement matter is within the scope of the program, the NRC normally offers enforcement ADR at each of the following stages of the enforcement process: (1) before an initial enforcement action, (2) after the initial enforcement action is taken, typically upon issuance of a notice of violation, and (3) when a civil penalty is imposed but before a hearing request.

Mediation is an informal process in which a trained and experienced mediator works with the parties to help them reach a resolution. The parties are the NRC and the entity or individual in the mediation. The mediator focuses the attention of the parties on their needs and interests rather than on their stated positions. Mediation gives the parties an opportunity to discuss issues, clear up misunderstandings, identify creative ways to address issues, find areas of agreement, and resolve their dispute.

Participation in the program is entirely voluntary. The NRC and the entity or the individual may withdraw from the mediation process at any time.

The Program Administrator

The NRC has a contract with the Cornell University Scheinman Institute on Conflict Resolution (Cornell) to serve as the program administrator for the enforcement ADR program. Cornell manages the logistics associated with enforcement ADR, including working with the parties to select a mediator from Cornell's roster of mediators. Cornell uses a network of independent and experienced mediators who help the parties find areas of agreement and settle their dispute.

The Mediator

The mediator is an experienced neutral individual who is mutually selected by the parties. He or she has no stake in the outcome of the mediation or any power to make decisions that may bind either party. The role of the mediator is to facilitate communication between the parties and to provide an environment where the parties can address their differences. The mediator uses consensus-building skills and knowledge of negotiation to help the parties find ways to overcome any misunderstandings and find areas of agreement. The mediator does not act as legal counsel or provide legal advice. Each party should consult an attorney for legal advice as appropriate.

The Mediation Process

Historically, most enforcement ADR mediations have occurred at the first stage of the enforcement process (i.e., before an initial enforcement action). In those cases, the NRC presents the entity or the individual with the opportunity to engage in mediation with the agency before it makes an enforcement decision. If the entity or the individual elects ADR, Cornell will help the NRC and the entity or the individual, jointly select a mediator. After selecting a mediator, the parties, in coordination with the mediator, set a date and place for the mediation. Typically,

the mediator holds a premediation teleconference with the parties to discuss logistics or any special needs.

During the mediation, the mediator will give the parties an opportunity to discuss their views on the issue. Often, the mediator will meet privately with each party to develop a clear understanding of the party's perspective and explore and assess options. Although the mediator does not have any power to make decisions that may bind either party, he or she may ask questions intended to help the parties assess the merits of their positions, help them converse in a respectful atmosphere, and identify potential settlement options.

If the parties reach a settlement agreement during the mediation session, they will typically document the terms of their agreement in writing by developing an agreement in principle (AIP) document. The AIP is not enforceable by either party against the other, but it is the basis on which the NRC drafts a confirmatory order (CO). The CO is a legally binding document used to confirm the commitments made in the AIP. However, if the parties do not reach a settlement agreement, the traditional enforcement process resumes—that is, the enforcement process continues as it would have if the parties had not engaged in ADR.

Confidentiality

Although the terms of an ADR settlement become publicly available through the issuance of the CO, with certain exceptions, the substance of the discussions during the mediation session is confidential. The mediator is prohibited from discussing the mediation proceedings, testifying on anyone's behalf concerning the mediation, or submitting a report on the substance of the discussions.

Cost

The NRC and the entity or individual, equally share the fees and travel expenses of the mediator and any meeting room fees. However, each party is responsible for its own expenses, such as travel, lodging, and legal representation.

**NOTICE OF VIOLATION AND PROPOSED IMPOSITION OF CIVIL PENALTY - \$116,000
AND NRC SPECIAL INSPECTION REPORT 050-00206/2018-005, 050-00361/2018-005,
050-00362/2018-005, 072-00041/2018-001 DATED - MARCH 25, 2019**

DISTRIBUTION:

RidsOeMailCenter Resource;	RidsNmssOd Resource;	RidsOgcMailCenter Resource;
RidsSecyMailCenter Resource;	RidsOcaMailCenter Resource;	RidsOigMailCenter Resource;
RidsEdoMailCenter Resource;	EDO_Managers;	RidsOcoMailCenter Resource;
RidsOiMailCenter Resource;	RidsRgn1MailCenter Resource;	RidsRgn3MailCenter Resource;
SMorris, RA	BMaier, ORA	GWilson, OE
MShaffer, DRA	MHerrera, DRMA	FPeduzzi, OE
TPruett, DNMS	MVasquez, ORA	NHilton, OE
LHowell, DNMS	JKramer, ORA	SWoods, OE
JThompson, DNMS	CAldredge, ORA	LSreenivas, OE
JKatanic, DNMS	JWeaver, ORA	RErickson, DNMS
VDricks, ORA	JPeralta, OE	JCook, DNMS
DCylkowski, ORA	AMoreno, CA	SHoliday, NMSS
RSun, NMSS	JWeil, CA	MBurgess, NMSS
R4_DNMS_ADMIN	R4DNMS_FCDB	MMcCoppin, OEDO
KMorgan-Butler, OEDO		

S:\RAS\ACES\ENFORCEMENT\EA CASES - OPEN\SONGS EA-18-155 canister\Final Action\NOVCP_EA-18-155_SONGS.docx

ADAMS ACCESSION NUMBER: ML19080A208

☒ SUNSI Review:

ADAMS:

☐ Non-Publicly Available

☒ Non-Sensitive

Keyword:

By: JGK

☒ Yes ☐ No

☒ Publicly Available

☐ Sensitive

OFFICE	SES:ACES	HP:FCDB	SHP:FCDB	BC:FCDB	TL:ACES	RC
NAME	JKramer	ESimpson	LBrookhart	JKatanic	GVasquez	DCylkowski
SIGNATURE	/RA/	/RA/	/RA/	/RA/	/RA/	/RA/
DATE	02/22/19	02/27/19	02/26/19	02/27/19	03/04/19	02/28/19
OFFICE	D:DNMS	D:OE	DD:DSFM	OGC	RA	
NAME	TPruett	GWilson	CRegan	MSimon	SMorris	
SIGNATURE	/RA/	/RA/ E	/RA/ E	/RA/ E	/RA/	
DATE	03/5/19	03/14/19	03/12/19	03/13/19	03/21/19	

OFFICIAL RECORD COPY

EXHIBIT 18

SAN ONOFRE DECOMMISSIONING
COMMUNITY ENGAGEMENT PANEL MEETING
STATE OF CALIFORNIA, COUNTY OF ORANGE

TRANSCRIPT OF VIDEOTAPED PROCEEDINGS
LAGUNA HILLS, CALIFORNIA
THURSDAY, MARCH 22ND, 2018

Reported by:
Katherine Magner
CSR No. 14083
Job No. 2846039

1 COMMUNITY ENGAGEMENT PANEL MEMBERS :
2 DR. DAVID G. VICTOR
CEP CHAIRMAN

3 JERRY KERN
4 CEP SECRETARY
5 DAN STETSON
VICE CHAIRMAN

6 BILL HORN
7 SAN DIEGO COUNTY SUPERVISOR
(Not Present)

8 TOM CAUGHLAN
9 CAMP PENDLETON

10 MARNI MAGDA
11 SIERRA CLUB, ANGELES CHAPTER
12 TED QUINN
AMERICAN NUCLEAR SOCIETY

13 STEVE SWARTZ
14 CITY OF SAN CLEMENTE
15 GARRY BROWN
ORANGE COUNTY COASTKEEPER

16 MARTHA MCNICHOLAS
17 CAPISTRANO UNIFIED SCHOOL DISTRICT
18 CAPTAIN MEL VERNON
SAN LUIS REY BAND OF MISSION INDIANS

19 SERGIO FARIAS
20 MAYOR, SAN JUAN CAPISTRANO
21 DONNA BOSTON
ORANGE COUNTY SHERIFF'S DEPARTMENT

22 TOM PALMISANO
23 VICE PRESIDENT, DECOMMISSION
CHIEF NUCLEAR OFFICER AT SONGS

24 RICH HAYDEN
25 CALIFORNIA STATE PARKS

1 them you need to tell me how you're going to remediate
2 this, and they came back and said we want to go back to
3 the older design.

4 CHAIRMAN DR. VICTOR: People are going to want
5 to know about these four canisters. Why not take eight 19:05:32
6 or ten days and move them back into the pool, and unload
7 them and reload them? Help us understand. I know, it's
8 early days.

9 MR. PALMISANO: Sure.

10 CHAIRMAN DR. VICTOR: Help us understand what 19:05:45
11 the logic process is going to be there.

12 MR. PALMISANO: Yeah. And let me just --
13 because I faced this issue back in the mid '90s at the
14 Palisades Nuclear Plant with a loaded canister that had a
15 potential weld defect and got into this very discussion. 19:05:58

16 So nobody has unloaded a commercial canister,
17 either a bolted cask or a welded cask or canister. Okay.
18 It is possible. What you would do is basically have a
19 mechanism, either to do it in a fuel pool or do it in a
20 dry transfer facility. It's possible either way. 19:06:15

21 You would take the canister back in. And the
22 first thing you would do is reconnect the valves and find
23 a way to purge the helium and refill its hole with water.
24 Okay.

25 The biggest technical issue that we've looked at 19:06:29

1 in the industry over the many years -- not just related
2 to SONGS -- is the thermal transient to actually
3 reintroduce water into a -- let's say a canister with hot
4 fuel, 200-300 degrees C. And the thermal transient that
5 you put the fuel through. Okay. 19:06:44

6 So once you get it reflooded, cooled down, you
7 would then put that similar machine on, grind out the
8 weld, take the lid off. That's just the mechanics.
9 That's certainly doable.

10 The real challenge as we would understand it 19:06:54
11 today, and nobody has had to do it yet, is the reflood.
12 Certainly, technically possible. What I would tell you
13 is just I was back in Washington with the NRC last week,
14 if you were just to brainstorm, this would probably be a
15 two- to three-year project to develop the techniques, 19:07:09
16 pile up the techniques. The NRC would want to have
17 explicit approval on this because of the radiological
18 hazards.

19 CHAIRMAN DR. VICTOR: To the workers?

20 MR. PALMISANO: Well, to the workers, yeah. 19:07:20

21 So when you think about this, you have a
22 canister that has intact fuel rods inside of a sealed
23 canister. This pin problem doesn't affect the canister
24 itself. Okay. So you've got that condition.

25 You've got to weigh that condition -- if this 19:07:34

EXHIBIT 19

Application No.: 18-03-XXX
Exhibit No.: SCE-03
Witnesses: Jose L. Perez
Nicholas Capik



SOUTHERN CALIFORNIA
EDISON[®]

An *EDISON INTERNATIONAL*[®] Company

(U 338-E)

***Testimony On The 2017 Decommissioning Cost
Estimate for SONGS 2&3***

PUBLIC VERSION

Before the

Public Utilities Commission of the State of California

Rosemead, California
March 15, 2018

SCE-03: Testimony On The 2017 Decommissioning Cost Estimate for SONGS 2&3

Table Of Contents

	Section	Page	Witness
I.	INTRODUCTION	1	J. Perez
II.	SUMMARY OF 2017 SONGS 2&3 DECOMMISSIONING COST ESTIMATE.....	2	
	A. Methodology and Description.....	2	
	B. 2017 DCE Assumptions.....	4	
	C. Contingency	5	
III.	INDEPENDENT REVIEW OF 2017 SONGS 2&3 DCE.....	9	N. Capik
	A. Introduction.....	9	
	B. ABZ Background And Experience	9	
	C. ABZ Independent Review.....	10	
	1. Scope.....	10	
	2. Review Process	10	
	D. ABZ Findings.....	11	
	1. Key Facts And Assumptions.....	11	
	2. Scope.....	11	
	3. Schedule	11	
	4. Risk Mitigation	12	
	E. Conclusion	12	
IV.	RECONCILIATION OF THE 2017 DCE TO THE 2014 DCE.....	13	J. Perez
	A. Overview.....	13	
	B. Distributed Projects.....	14	
	1. ISFSI & Fuel Transfer Operations	14	
	2. Final Site Restoration.....	16	

SCE-03: Testimony On The 2017 Decommissioning Cost Estimate for SONGS 2&3

Table Of Contents (Continued)

	Section	Page	Witness
3.	ISFSI Aging Management	16	
4.	Decontamination, Demolition, and Disposal	17	
5.	Substructure Removal	21	
6.	Other Distributed Projects.....	21	
7.	Greater Than Class C (GTCC) Waste Storage	28	
8.	Plant Easement/Lease Renewals.....	29	
9.	Offshore Conduits Removal	31	
10.	ISFSI Demolition	31	
11.	Completed Projects	31	
C.	Undistributed Activities	33	
1.	Contracted Services	33	
2.	Service Level Agreements/A&G	36	
3.	DGC Staffing	37	
4.	Labor-Staffing.....	38	
5.	All Other Non-Labor.....	38	
V.	CONCLUSION.....	47	
Appendix A Witness Qualifications			
Appendix B Decommissioning Cost Estimate - Confidential			
Appendix C Reconciliation - Confidential			
Appendix D Declaration of Todd R. Adler Regarding the Confidentiality of Certain Data			
Appendix E SONGS Mesa Lease and Station Easement Boundaries			

SCE-03: Testimony On The 2017 Decommissioning Cost Estimate for SONGS 2&3

List Of Tables

Table	Page
Table II-1 Contingency Factors Applied in 2017 DCE	8
Table IV-2 Reconciliation of 2017 DCE to 2014 DCE (100% Share, Millions of 2014 \$)	14
Table IV-3 2017 SONGS 2&3 DCE Decontamination, Demolition, and Disposal Costs (100% Share, Millions of 2014 \$).....	20
Table IV-4 Reconciliation of 2017 DCE to 2014 DCE Other Distributed Projects (100% Share, Millions of 2014 \$)	24
Table IV-5 Reconciliation of 2017 DCE to 2014 DCE Completed Projects (100% Share, Millions of 2014 \$)	33
Table IV-6 Contracted Services (100% Share, Millions of 2014 \$).....	34
Table IV-7 Reconciliation of 2017 DCE to 2014 DCE All Other Non-Labor (100% Share, Millions of 2014 \$)	42

1 I.

2 **INTRODUCTION**

3 The purpose of this testimony is to demonstrate the reasonableness of the 2017
4 Decommissioning Cost Estimate for San Onofre Nuclear Generating Station Unit Nos. 2&3 (2017
5 SONGS 2&3 DCE). The 2017 DCE estimates that the total cost to decommission SONGS 2&3 will be
6 \$4,479 million (100% share, 2014 \$), an increase of approximately 1.5% over the 2014 SONGS 2&3
7 DCE. The Commission-approved 2014 DCE estimated that the total cost to decommission SONGS 2&3
8 would be \$4,411 million (100% share, 2014 dollars).

9 Chapter II of this testimony provides a summary of the 2017 DCE. Chapter III provides
10 testimony from ABZ Incorporated (ABZ), a third-party consultant who performed an independent
11 review of the 2017 DCE. Chapter IV provides a detailed reconciliation of the 2017 DCE to the 2014
12 DCE. Chapter V concludes SCE's testimony.

II.

SUMMARY OF 2017 SONGS 2&3 DECOMMISSIONING COST ESTIMATE

A. Methodology and Description

SCE and the other SONGS participants¹ began accumulating funds for the eventual decommissioning of SONGS 2&3 early in the units' operating lives. Because the units were licensed to operate for several decades,² decommissioning fund accumulations were based on conceptual cost estimates.³ These conceptual DCEs were developed by third-party vendors using proprietary estimating algorithms consistent with recognized industry guidelines such as AIF/NESP-036, "Guideline for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates" and the Department of Energy (DOE) Decommissioning Handbook.⁴ These estimates were updated periodically to reflect changes in regulations, technology, and economics; additions and deletions to the nuclear facilities;

¹ San Diego Gas & Electric Company and the City of Riverside own 20% and 1.79% shares of SONGS 2&3, respectively. On December 29, 2006, SCE acquired the City of Anaheim's ownership share of SONGS 2&3. Under the Anaheim Settlement Agreement adopted by the Commission in D.06-11-025, however, the City of Anaheim retained a pro-rata share of the SONGS 2&3 decommissioning obligation as shown approximately in the table below:

Decommissioning Obligation		
	SONGS 2	SONGS 3
SCE	75.7363%	75.7475%
SDG&E	20.0000%	20.0000%
Anaheim	2.4737%	2.4625%
Riverside	1.7900%	1.7900%
	100.00%	100.00%

² On March 9, 2000, the U.S. Nuclear Regulatory Commission issued Amendment No. 166 to Facility Operating License No. NPF-10 and Amendment No. 157 to Facility Operating License No. NPF-15 for San Onofre Nuclear Generating Station (SONGS) Units 2 and 3, respectively. These amendments revised the expiration dates of the SONGS 2 and SONGS 3 operating licenses from October 18, 2013, to February 16, 2022 and November 15, 2022, respectively.

³ In this context, "conceptual" means that the decommissioning cost estimates were developed based on Unit Cost Factors coupled with the Critical Path Method, using the best-available current information, for projects that were not expected to commence until several years or decades into the future. These "conceptual" cost estimates were not intended to be executable decommissioning project plans or schedules.

⁴ See Decommissioning Cost Estimate for SONGS 2&3 Prepared for SCE by ABZ Incorporated, dated December 14, 2012, page 5. From 2001 to 2013, SCE utilized ABZ, Incorporated to develop the decommissioning cost estimates for SONGS 2&3. Prior to 2001, SCE utilized TLG Services, Incorporated to develop the decommissioning cost estimates for SONGS 1 and for SONGS 2&3.

1 updated site radiological assumptions; lessons-learned from other nuclear decommissioning projects;
2 and other related information necessary to complete accurate cost estimates.

3 On July 22, 2013, after SCE announced its decision to permanently retire SONGS 2&3, SCE
4 notified the Commission that it intended to prepare a new DCE for SONGS 2&3 after the development
5 of a site-specific decommissioning plan.⁵ SCE informed the Commission that this new estimate would
6 be included in the Post Shutdown Decommissioning Activities Report (PSDAR) that SCE was required
7 to submit to the NRC.⁶

8 SCE retained the consortium of EnergySolutions and Chicago Bridge & Iron Company (ES/CBI)
9 to develop the 2014 SONGS 2&3 DCE, which included the total estimated cost for the decommissioning
10 project. SCE and SDG&E submitted the 2014 DCE to the Commission in Application (A.) 14-12-007.
11 The Commission adopted the 2014 SONGS 2&3 DCE in Decision (D.) 16-04-019.

12 As required by the California Nuclear Facilities Decommissioning Act of 1985⁷
13 (Decommissioning Act), SCE is required to periodically update the SONGS 2&3 DCE. Therefore, in
14 2017, SCE engaged The Kenrich Group (Kenrich)⁸ to prepare the 2017 SONGS 2&3 DCE. This DCE is
15 consistent with the guidance provided in NRC Regulatory Guide 1.202, “Standard Format and content of
16 Decommissioning Cost Estimates for Nuclear Power Reactors.” The 2017 DCE presents the total
17 estimated project cost, including recorded costs to date, to allow for comparisons to the 2014 DCE.
18 That is, the 2017 DCE includes recorded costs from project inception through September 30, 2017, and
19 estimated costs from October 1, 2017 through assumed project completion in 2051. The 2017 DCE
20 estimates that the total cost to decommission SONGS 2&3 will be \$4,479 million (100% share, 2014 \$).
21 The 2017 DCE uses the same Work Breakdown Structure (WBS) that was used in the 2014 DCE, and
22 includes the following new and updated information:

- 23 • The pricing for the contract awarded to Holtec International, Inc., (Holtec) for the
24 Independent Spent Fuel Storage Installation (ISFSI) expansion and the transfer of spent fuel
25 from the SONGS 2&3 spent fuel pools to the ISFSI;

⁵ A.12-12-013, Exhibit SCE-06, page 1.

⁶ *Id.*

⁷ Pub. Utilities Code § 8321 et. seq.

⁸ See Exhibit SCE-01, pages 17-18.

- The pricing for the contract awarded to SONGS Decommissioning *Solutions* (SDS) for the decontamination and dismantlement (D&D) of SONGS 2&3, and the removal and disposal of radiological, hazardous, and non-hazardous waste;
- Recorded costs through September 30, 2017;
- Revised DOE spent fuel acceptance date to reflect DOE's continued failure to perform its contractual obligations to pick up fuel from commercial nuclear reactors during the four years since the 2014 DCE was completed;
- Revised environmental review costs and approval dates based on the current permitting strategy and the requirements of the California State Lands Commission (CSLC), the California Coastal Commission (CCC), and the U.S. Department of the Navy (Navy);
- Revised project execution strategy, including the deferral of the start of substructure removal until 2046;
- Updated undistributed cost projections based on historical recorded costs and revised projections;
- Updated ISFSI demolition costs to reflect the final design of the Holtec ISFSI; and
- Other project costs not previously identified.

Significant components of the 2017 DCE are now based on competitively bid contracts, as well as three additional years of experience managing a decommissioning plant and overseeing decommissioning personnel. Where new information was not available, Kenrich worked with third-party consultants and SCE personnel to validate and refine the cost and schedule assumptions for 2017 SONGS 2&3 DCE.

B. 2017 DCE Assumptions

The 2017 DCE includes the following assumptions that have not changed from the 2014 SONGS 2&3 DCE:

- SONGS 2&3 will be decommissioned using the prompt DECON decommissioning methodology;
- All fuel assemblies will be transferred from the SONGS 2&3 spent fuel pools to the ISFSI by mid-2019;

- A dry transfer facility will not be necessary to transfer the spent fuel canisters to DOE transport canisters;
- Decommissioning will be performed by a decommissioning general contractor (DGC) with oversight by the SONGS Participants;
- SONGS 2&3 major D&D activities will be completed by the end of 2028;
- All onshore substructures and offshore conduits will be removed; and
- ISFSI decommissioning, NRC license termination, and site lease termination will be completed by the end of 2051.

In addition, the 2017 DCE is based on the following updated assumptions:

- SONGS 2&3 D&D will commence in January 2019 based on expected completion dates of environmental reviews and approvals; and
- The DOE will commence accepting spent fuel from U.S. commercial nuclear facilities in 2028, which results in the DOE removing the last spent fuel from the SONGS ISFSI in 2049.

C. Contingency

Contingency is applied to cost estimates to account for unknown or unplanned occurrences during the performance of a project. “Contingency” is defined in the American Association of Cost Engineers *Project and Cost Engineers’ Handbook* as, “specific provision for unforeseeable elements of cost within the defined project scope; particularly important where previous experience relating to estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur.” The consensus in the industry literature, including sources from the DOE⁹ and the Association for the Advancement of Cost Engineering International,¹⁰ is that a contingency factor for cost estimates in this stage of development should fall within a range of 15% to 30%.

In its decision for the 2005 Nuclear Decommissioning Cost Triennial Proceeding (NDCTP), the Commission ordered the Utilities (SCE, SDG&E, and PG&E) to serve testimony in the next NDCTP

⁹ Chapter 11 of U.S. Department of Energy (DOE) Decommissioning Implementation Guide DOE, G 430.1-1, March 28, 1997.

¹⁰ Association for the Advancement of Cost Engineering International, Recommended Practice No. 18R-97, at page 2 of 9.

1 that demonstrates they have made all reasonable efforts to conservatively establish an appropriate
2 contingency factor for inclusion in the decommissioning revenue requirements.¹¹

3 To comply with this Commission order, in the 2009 NDCTP,¹² which occurred at a time when
4 the Utilities still believed that decommissioning would not begin until decades in the future, PG&E
5 prepared a paper titled, *Technical Position Paper for Establishing an Appropriate Contingency Factor*
6 *for Inclusion in the Decommissioning Revenue Requirements*. Based on industry and regulatory
7 documents, the position paper concluded that it is appropriate to add a 25% contingency factor to
8 estimated decommissioning costs because it provides reasonable assurance for unforeseen
9 circumstances¹³ that could increase decommissioning costs, and should not be reduced or eliminated
10 simply because foreseeable costs are low. In that proceeding, SCE agreed based on its own independent
11 research that the 25% contingency factor was conservative and appropriate.¹⁴ Consistent with this
12 assumption, each of the DCEs submitted by the Utilities in that proceeding contained a 25% contingency
13 factor. The Commission found that each such DCE was reasonable.¹⁵

14 Later, an Independent Review Panel (Panel) examined the definition and role of contingency
15 factors in DCEs.¹⁶ The Panel identified that DCEs should consider four types of risk or uncertainty,
16 including: (1) performance risk; (2) scope risk; (3) regulatory risk; and (4) financial risk.¹⁷ The Panel
17 found that the DCEs prepared by third-party vendors on behalf of the Utilities typically only addressed
18 performance risks by including 17%-22% contingency, and that the Utilities' adjustments to target their
19 DCEs' overall contingency to 25% was intended to capture all risks, and was consistent with the

¹¹ D.07-01-003, Ordering Paragraph 8.

¹² A.09-04-007 and A.09-04-009.

¹³ For example, some activities in the remaining decommissioning work are less familiar activities in the industry. To terminate the easement with the Navy, SCE may be required to perform extensive site restoration work that is unique to the SONGS site.

¹⁴ D.10-07-047, page 23.

¹⁵ *Id.*, Conclusions of Law 4, 5, 6, 7, 13, and 14. Also see D.11-07-003 at page 25.

¹⁶ Report on Nuclear Decommissioning, February 28, 2011, For The California Public Utilities Commission, Prepared by Nicholas Capik, Geoffrey Griffiths, and Bruce Lacy, at pages 40-42.

¹⁷ *Id.*, at page 40. Financial risk is typically addressed through conservative assumptions for cost escalation and fund earnings rates.

1 contingency value normally used by the NRC.¹⁸ The Commission also approved SCE's
2 decommissioning cost estimates in the 2012 NDCTP and SCE's 2014 SONGS 2&3 DCE, each of which
3 also included a 25% contingency factor.¹⁹

4 In the 2017 SONGS 2&3 DCE, SCE did not apply contingency to the \$1,156 million (100%
5 share, 2014 \$) of SONGS 2&3 decommissioning costs that were recorded between June 2013 and
6 September 2017. For work scopes that have been contracted or are well defined in the 2017 DCE, SCE
7 applied lower contingency factors. Kenrich and knowledgeable SCE personnel reviewed each DCE line
8 item, giving consideration to the technical complexity, contracting status, estimating approach, and
9 timing of each work scope, and applied an appropriate contingency factor. For decommissioning
10 activities in the 2017 DCE that will not be performed until decades in the future when their scopes
11 become better defined, SCE applied a 25% contingency factor as approved by the Commission in the
12 past several NDCTPs.

¹⁸ *Id.*, see Footnote 37.

¹⁹ See D.14-12-082 at page 38, Findings of Fact 13, and Conclusions of Law 17, 22, 23, and 24; and D.16-04-019 Conclusion of Law 1.

Table II-1 below identifies the range of contingency factors utilized for each 2017 DCE cost category:

Table II-1
Contingency Factors Applied in 2017 DCE

2017 DCE Category	Contingency Factor
Recorded Costs Through September 2017	0%
Service Level Agreements	10%
Undistributed Labor	10%
ISFSI & Fuel Transfer Operations	10%
Undistributed Non-Labor	15%
ISFSI Aging Management	20%
Plant Easement/Lease Renewals	20%
Other Projects	15-20%
GTCC Waste Storage	25%
Offshore Conduit Removal	25%
Substructure Removal	25%
ISFSI Demolition	25%
Final Site Restoration	25%

The composite contingency factor included in the 2017 DCE is approximately 15% of the base costs.

1 III.

2 **INDEPENDENT REVIEW OF 2017 SONGS 2&3 DCE**

3 **A. Introduction**

4 This testimony describes ABZ, Incorporated's (ABZ) independent review of the 2017 San
5 Onofre Nuclear Generating Station (SONGS) Units 2 and 3 Decommissioning Cost Estimate (DCE),
6 and the conclusions reached by ABZ in that review.

7 Nick Capik was the project manager and principal author of the ABZ review of the 2017
8 SONGS 2&3 DCE. In this testimony, he describes the scope of ABZ's review and the conclusions
9 reached during that review.

10 **B. ABZ Background And Experience**

11 ABZ was founded in 1986 to provide consulting and engineering services to the nuclear power
12 industry. ABZ supports nuclear decommissioning projects in a number of ways including cost
13 estimating, licensing, project management, due diligence, and litigation. ABZ has been engaged from
14 conceptual design of decommissioning through implementation and site restoration.

15 ABZ has also prepared or reviewed 43 decommissioning cost estimates covering 63 nuclear
16 plants. This includes preparing DCEs for SONGS 2 & 3 from 2001 through 2014. These SONGS cost
17 estimates were accepted by the California Public Utilities Commission (CPUC) as reasonable and
18 formed the basis for ratemaking for decommissioning collections. In addition, I participated as the ABZ
19 representative in an Independent Review Panel established by the CPUC to examine decommissioning
20 cost issues as part of Decision (D.) 10-07-047. As part of this work, ABZ evaluated the 2008
21 SONGS 2&3 DCE in comparison to Pacific Gas and Electric's Diablo Canyon estimate, the Palo Verde
22 Nuclear Generating Station estimate, and the estimates for four other similar nuclear power plant sites.
23 Significant areas of focus included cost and financial assumptions, waste management approaches, state
24 requirements for site restoration, severance costs, and use of actual industry performance and cost data.

25 In addition to cost estimating, ABZ has performed direct oversight of decommissioning activities
26 for several nuclear power plant decommissioning projects, including Zion, Trojan, and Shoreham. ABZ

1 staff has provided additional support for decommissioning at Connecticut Yankee, Maine Yankee,
2 Yankee Rowe, Fort St. Vrain, Millstone, and others.

3 ABZ has participated in litigation associated with decommissioning in several venues, including
4 the U.S. Court of Claims, U.S. Tax Court, and State proceedings. Finally, ABZ has performed due
5 diligence reviews of decommissioning plans, efforts, and costs as part of two nuclear plant sales.

6 **C. ABZ Independent Review**

7 **1. Scope**

8 ABZ performed an independent review of the 2017 SONGS 2&3 DCE. This review was
9 conducted in several phases as the DCE was being developed such that responses to ABZ comments and
10 questions could be evaluated and incorporated into the final DCE. ABZ's review focused on key
11 assumptions, scope and cost of decommissioning projects, project schedules, and undistributed costs,
12 including staffing, and contingency.

13 **2. Review Process**

14 ABZ reviewed the draft DCE and supporting information over a seven-month period in
15 2017. ABZ performed distinct reviews at 60 percent complete, 90 percent complete, and just prior to
16 issuance of the final DCE. ABZ's intent was to assess the reasonableness of the DCE assumptions,
17 project scopes, costs, and schedule. ABZ provided comments addressing the scope of the estimate
18 compared to previous SONGS estimates and industry experience, estimated costs, work completed to
19 date, and assumptions used in preparing the estimate.

20 ABZ started by reviewing the key assumptions of the DCE for reasonableness. ABZ
21 evaluated these assumptions in light of similar assumptions made at other decommissioning projects.

22 ABZ then evaluated the projects included in the DCE to ensure that the collective scope
23 of activities was sufficient to terminate the NRC license and restore the SONGS site. ABZ evaluated the
24 costs of these projects against previous estimates and with comparable industry costs. In parallel with
25 its review of projects, ABZ evaluated the schedule for these projects to ensure that sufficient time was
26 allocated for successful performance, and to evaluate the ability to adjust the planned schedule to
27 accommodate potential delays.

1 Separate from its review of decommissioning projects, ABZ evaluated undistributed costs
2 in the DCE, including both staff costs as well as non-staff costs to ensure that all such costs were
3 included and that the estimated costs were reasonable.

4 Finally, ABZ reviewed the contingency included in the DCE and the basis used to
5 allocate contingency. ABZ evaluated the change in contingency from previous DCEs as well as the
6 basis for such changes.

7 **D. ABZ Findings**

8 **1. Key Facts And Assumptions**

9 The 2017 SONGS 2&3 DCE contains a number of key facts and assumptions. ABZ
10 reviewed these key facts and assumptions and concluded that the facts represent known conditions and
11 that the assumptions are reasonable.

12 **2. Scope**

13 The SONGS DCE includes two major fixed-price contracts that cover a large portion of
14 the work to remediate radiological hazards and reduce the footprint of the NRC license to that required
15 to store spent fuel, and to transfer spent fuel on-site to a dry storage facility. Beyond these two major
16 contracts, the DCE includes continued management of spent fuel until accepted by DOE, demolition of
17 uncontaminated structures, and restoration of the site. ABZ reviewed this scope of work against
18 previous SONGS DCEs including the 2014 DCE performed by EnergySolutions as well as previous
19 ABZ estimates.

20 ABZ verified that the 2017 DCE included all identified activities needed to terminate the
21 NRC operating license and restore the site consistent with the end-state assumptions.

22 **3. Schedule**

23 ABZ reviewed the schedule for decommissioning activities, identified critical path
24 activities, and ability to manage delays in performance of major activities. ABZ compared this schedule
25 to previous SONGS schedules and evaluated the proposed activity lengths to relative to recent
26 decommissioning projects. ABZ concluded that the schedule allowed adequate time to complete
27 required activities.

1 **4. Risk Mitigation**

2 ABZ reviewed both the contingency included in the 2017 SONGS 2&3 DCE as well as
3 the schedule to determine whether and how uncertainties could be accommodated without an increase in
4 project cost or duration. ABZ concluded that the schedule provided sufficient flexibility to allow for a
5 delay in completing critical path activities while still maintaining the overall project schedule and
6 keeping costs within the estimate total. Further, ABZ evaluated the overall contingency compared to the
7 current state of the SONGS decommissioning project and concludes that the contingency is reasonable
8 for the current project state.

9 **E. Conclusion**

10 ABZ concludes that the scope of the 2017 SONGS DCE is sufficient to terminate the NRC
11 license and restore the site; that the projected schedule allows sufficient time for completion of all
12 required activities; that the cost is reasonable for performance of those activities; and that sufficient risk
13 mitigation has been included.

1 IV.

2 **RECONCILIATION OF THE 2017 DCE TO THE 2014 DCE**

3 **A. Overview**

4 In D.16-04-019, the Commission found reasonable the 2014 SONGS 2&3 DCE of
5 \$4,411 million (100% level, 2014 \$). The 2017 SONGS 2&3 DCE estimates the total cost to
6 decommission SONGS 2&3 will be \$4,479 million (100% share, 2014 \$). There are several variances
7 between the 2014 and 2017 DCEs that net to small 1.5% increase in the 2017 DCE, as shown in Table
8 IV-2 below.²⁰ At a high level, the increase is due to new scope not included in the 2014 DCE including
9 ISFSI Aging Management Project and GTCC waste storage; the remaining variances essentially net to a
10 zero change.

²⁰ Appendix C provides a table which shows the differences between Table 2 of the 2017 SONGS 2&3 DCE and this Table IV-2. SCE made these changes to be able to provide better description of the activities and variances.

Table IV-2
Reconciliation of 2017 DCE to 2014 DCE
(100% Share, Millions of 2014 \$)

Description		2017 DCE Total (2014 \$)	2014 DCE Total (2014 \$)	Variance
1	Distributed Projects			
2	ISFSI & Fuel Transfer Operations	\$ 270.2	\$ 405.1	\$ (134.9)
3	Final Site Restoration	6.9	57.4	(50.5)
4	ISFSI Aging Management	36.5	-	36.5
5	Decontamination, Demolition, and Disposal	██████	1,208.2	██████
6	Substructure Removal	273.0	303.8	(30.8)
7	Other Projects	99.6	72.9	26.7
8	GTCC Waste Storage	26.6	-	26.6
9	Plant Easement/Lease Renewals	27.1	1.4	25.7
10	Offshore Conduit Removal	91.6	96.0	(4.4)
11	ISFSI Demolition	19.2	21.1	(1.9)
12	Completed Projects	123.3	98.1	25.2
13	Distributed Subtotal	\$ ██████	\$ 2,264.0	\$ ██████
14				
15	Undistributed Activities			
16	Contracted Services	\$ 225.2	\$ 34.6	\$ 190.6
17	Service Level Agreements	168.2	-	168.2
18	DGC Staffing	██████	423.6	██████
19	Labor-Staffing	986.2	1,029.4	(43.2)
20	All Other Non-Labor	623.6	659.6	(36.0)
21	Undistributed Subtotal	\$ ██████	\$ 2,147.2	\$ ██████
22				
23	Total	\$ 4,478.6	\$ 4,411.2	\$ 67.4

B. Distributed Projects

1. ISFSI & Fuel Transfer Operations

SCE retained Holtec as the vendor to construct sufficient additional dry spent fuel storage capacity for the fuel currently stored in the SONGS 2&3 spent fuel pools, and to transfer the fuel to dry storage. Holtec's ISFSI & Fuel Transfer Operations work scope includes the following activities:

- Design and license a seismically designed dry storage system for the 2,668 fuel assemblies that remain in the SONGS 2&3 spent fuel pools
- Excavate and install the foundation base mat
- Fabricate, transport, and install the 75 vertical canister enclosure containers (CECs)

- Install a perimeter form surrounding the CECs and backfill with concrete
- Install a protected area security perimeter around the new ISFSI
- Fabricate and transport 75 multi-purpose canisters (MPCs) and seal lids, two shielded transfer casks, canister sealing equipment, and cask transfer equipment to the SONGS site
- Re-certify the spent fuel pool cranes to ensure safe lifting of the fully loaded MPCs and transfer casks
- Perform dry-run testing of fuel loading, canister sealing, and canister drying in the spent fuel pools
- Perform dry-run testing of fully loaded MPCs/transfer casks from the SONGS 2&3 spent fuel pools to the ISFSI
- Load each MPC with up to 37 spent fuel assemblies and install MPC lid and drain line
- Remove each fully loaded MPC/transfer cask from spent fuel pool, decontaminate, weld MPC lid and leak test, dehydrate MPC interior and fill with helium, weld vent and drain ports and closure ring
- Transfer each fully loaded MPC/transfer cask from the spent fuel pool to the ISFSI
- Lower each MPC from the transfer cask into its CEC
- Install the closure lid on each CEC
- Construct stand-alone ISFSI security building

Based on SCE's contract with Holtec,²¹ the cost to complete the ISFSI and Fuel Transfer Operations project is estimated in the 2017 DCE to be \$270.2 million²² (100% share, 2014 \$). In the 2014 DCE, SCE estimated that the cost to expand the SONGS ISFSI and transfer all remaining fuel from the SONGS 2&3 spent fuel pools to the ISFSI was \$405.1 million (100% share, 2014 \$). Thus, the 2017 DCE reflects a decrease of \$134.9 million. This decrease is attributable to the lower cost of the

²¹ SCE selected Holtec after a competitive procurement process.

²² See 2017 DCE, Appendix C, Table 2, line 37.

competitively bid Holtec contract relative to the 2014 DCE. Because SCE negotiated a substantial reduction relative to the previously estimated ISFSI and Fuel Transfer Operations costs, the Commission should find that the estimated cost is reasonable.

2. Final Site Restoration

The 2017 DCE includes the following scope for Final Site Restoration: (1) remove railroad tracks, gunite slope protection, site access roads, and parking lots; (2) perform final site grading and re-vegetation; and (3) perform any other work required by the Navy real estate authorization, which is expected to include end state requirements for the SONGS site.

The estimated cost for Final Site Restoration work in the 2017 DCE is \$6.9 million²³ (100% share, 2014 \$). The estimated cost for Final Site Restoration in the 2014 DCE was \$57.4 million (100% share, 2014 \$). This resulted in a cost decrease of \$50.5 million (100% share, 2014 \$). This cost decrease occurred because SCE consolidated two previously planned dewatering campaigns that would have been separated by nearly two decades into a single campaign that will occur near the end of the decommissioning schedule after SCE will have secured the final real estate authorization from the Navy and will know the Navy's final site restoration requirements. Final site restoration is a necessary part of the decommissioning process, and therefore, the Commission should find that these estimated costs are reasonable.

3. ISFSI Aging Management

The ISFSI Aging Management Program (AMP) project was established to develop inspection and maintenance programs for both the Areva and Holtec spent fuel dry storage systems.²⁴ The project also includes the cost to renew the NRC Certificates of Compliance (CoCs) for the storage systems. Areva and Holtec currently hold 20-year CoCs for their spent fuel dry storage systems used at SONGS. The Areva and Holtec CoCs will expire in 2023 and 2035, respectively. Under 10 C.F.R. § 72.240, the CoC holder may apply for renewal of the CoC for a term not to exceed 40 years. The CoC renewal applications must include Safety Analysis Reports (SARs) that provide descriptions of the

²³ See 2017 DCE, Appendix C, Table 2, line 251.

²⁴ In September 2014, NEI 14-03 [Revision 0], *Guidance for Operations-Based Aging Management of Dry Cask Storage* was issued.

AMPs and time-limited aging analyses demonstrating that the structures, systems, and components important to safety will continue to perform their intended functions for the requested period of extended operation.

The estimated cost for the ISFSI Aging Management Program in the 2017 DCE is \$36.5 million²⁵ (100% share, 2014 \$). The 2014 DCE did not include a specific line item for the ISFSI Aging Management Program. This resulted in a cost increase of \$36.5 million (100% share, 2014 \$).

As discussed above, these costs include initial cask testing, inspection equipment and licensing costs for dry cask CoC renewals and SAR updates for the Holtec and Areva AMPs.²⁶ These estimated costs are necessary to renew NRC required CoCs and therefore should be deemed reasonable by the Commission.

4. Decontamination, Demolition, and Disposal

The Decontamination, Demolition, and Disposal cost category includes many activities that will be performed by the DGC. As such, the pricing of these activities is primarily based on the executed SDS contract, which was achieved through a competitive procurement process that included multiple experienced contractors.²⁷ The work included in this category encompasses the removal and disposal of the necessary structures, systems, and components, as well as the removal of radiological and non-radiological contaminants necessary to meet the approved license termination plan. This category has been subdivided into the following major projects, consistent with the Milestone Framework:

- Initial D&D Activities – includes modifying the units’ containment access to support future decommissioning activities; removing the missile shields and reactor heads; constructing an electrical ring bus for the site; and executing the necessary waste disposal contracts
- Reactor Vessel Internals (RVI) Segmentation and Disposal – includes designing and procuring the necessary RVI segmentation equipment; testing the specially

²⁵ See 2017 DCE, Appendix C, Table 2, line 163.

²⁶ SCE will also incur undistributed non-labor costs for the ISFSI Aging Management Program for periodic maintenance and inspections of the spent fuel dry storage systems. Those costs are discussed in Section IV.C.5 below.

²⁷ See Exhibit SCE-05 for additional information regarding the DGC selection process.

engineered equipment and installing the equipment within containment; performing RVI segmentation; packaging GTCC waste; and disposing non-GTCC waste

- Spent Fuel Systems and Equipment Removal and Disposal – includes removing the spent fuel pool racks; installing a water processing system; and draining the spent fuel pools
- Steam Generator Removal and Disposal – includes removing the steam generators (two per unit); and segmenting, packaging, and disposing of the steam generators
- Non-Essential Systems Removal and Disposal – includes removing systems in multiple maintenance buildings, administration buildings, and warehouse buildings; and removing injection systems, condenser tubes, and auxiliary transformers
- Large Components Removal and Disposal – includes removing and disposing of reactor vessel insulation; and segmenting, packaging, and disposing of the reactor vessels, pressurizers, and turbine gantry cranes
- Initial Plant Buildings Demolition and Disposal – includes procuring building demolition equipment; and then demolishing the auxiliary control/radwaste building, full flow condensate polishing demineralizer and turbine buildings, emergency diesel generator buildings; transformer pads, administration/warehouse/shop (AWS) building, and numerous other support structures
- Buildings Decontamination – includes removing the remaining radioactive materials embedded within the concrete and steel surfaces, walls, and floors of the buildings in the SONGS radiological control area; and performing decontamination verification surveys to validate the effectiveness of the decontamination work performed
- Final Plant Buildings Demolition and Disposal – includes demolishing the buildings in the central area of the plant, (i.e., the fuel handling and penetration buildings); and removing the protective area pavement

- Offshore Conduits Diffusers and Risers Removal – includes preparing hydro-geological analysis; and removing specified vertical diffusers and risers from the two offshore intake conduits and the two offshore discharge conduits
- Containment Buildings Demolition and Disposal – includes de-tensioning and removing the containment building post-tensioning cables; and demolishing the containment and safety equipment buildings
- Site Backfill, Compaction, etc. – following the demolition of structures, systems, and components, backfilling and compacting the site to a specified grade to meet the interim end-state
- Final Site Radiological Survey and NRC License Termination (for Partial Site Release of SONGS 2&3 Site) – includes performing the final radiological site status survey in accordance with NRC guidelines; and developing and supporting the License Termination Plan
- Waste Taxes (pass-through)²⁸ – per the DGC contract, the SONGS Participants are responsible to pay the DGC for the actual waste taxes and fees invoiced to SDS based on the actual waste disposed

The estimated costs for Decontamination, Demolition, and Disposal activities are shown in Table IV-3 below:

²⁸ These costs are not included in the SDS contract, but have been estimated in the 2017 DCE. In the 2014 DCE, applicable waste taxes were included with the estimated costs for each distributed project.

Table IV-3
2017 SONGS 2&3 DCE
Decontamination, Demolition, and Disposal Costs
(100% Share, Millions of 2014 \$)

		2017 DCE
Description		Total (2014 \$)
1	Decontamination, Demolition, and Disposal	
2	Initial D&D Activities	\$ [REDACTED]
3	Reactor Vessel Internals Segmentation and Disposal	[REDACTED]
4	Spent Fuel Systems/Equipment Removal and Disposal	[REDACTED]
5	Steam Generator Removal and Disposal	[REDACTED]
6	Non-Essential Systems Removal and Disposal	[REDACTED]
7	Large Components Removal and Disposal	[REDACTED]
8	Initial Plant Buildings Demolition and Disposal	[REDACTED]
9	Building Decontamination	[REDACTED]
10	Final Plant Buildings Demolition and Disposal	[REDACTED]
11	Offshore Conduit Diffusers/Risers Removal	[REDACTED]
12	Containment Buildings Demolition and Disposal	[REDACTED]
13	Site Backfill, Compaction, etc.	[REDACTED]
14	Final Site Radiological Survey and NRC License Termination	[REDACTED]
15	Waste Taxes (pass-through)	[REDACTED]
16	Decontamination, Demolition, and Disposal Total	\$ [REDACTED]

In the 2017 DCE, the estimated cost for Decontamination, Demolition, and Dismantling activities is \$ [REDACTED]²⁹ (100% share, 2014 \$). In the 2014 DCE, the estimated cost for these activities was \$1,208.2 million (100% share, 2014 \$), resulting in an increase of \$ [REDACTED]³⁰. The primary reason for the increased cost is the addition of activities expected to be performed that are currently outside the scope of the SDS contract. [REDACTED]

²⁹ See 2017 DCE, Appendix C, Table 2, lines 8 and 50, 57, 66, 70, 75, 86, 108, 121, 130, 132, 134, 144, 149, and 153.

³⁰ SCE is not providing a line-by-line comparison and variance analysis of DGC contract values to the 2014 DCE, because such an analysis would not provide meaningful information given how the DGC contract values were determined. The SDS contract reflects negotiated terms and conditions regarding the contract pricing and timing of payments agreed to between SCE and SDS. The SDS contract also assumes a grouping and sequencing of work different than assumed in the 2014 DCE. Although a line-by-line variance analysis is not possible given these issues, SCE is able to compare the total costs of the scope included in the SDS contract to the same scope of work included in the DCE.