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

June 26, 2012

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

SUBJECT: MEETING SUMMARY FOR AUGMENTED INSPECTION TEAM EXIT MEETING WITH SOUTHERN CALIFORNIA EDISON COMPANY

Dear Mr. Dietrich:

On June 18, 2012, NRC personnel met with representatives of Southern California Edison at the San Juan Capistrano Community Center Community Hall, located in San Juan Capistrano, California to present the Augmented Inspection Team exit issues and observations.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Gregory Werner, Chief
Plant Support Branch 2
Division of Reactor Safety

Docket Nos. 0500050361, 0500050362
License Nos. NPF-10, NPF-15

Enclosure:
1. NRC Presentation
2. Southern California Edison Presentation

Electronic Distribution for SONGS

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6/20/2012	6/21/12	6/26/12		6/26/2012

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San Onofre Nuclear Generating Station Augmented Inspection Team Public Exit Meeting

U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Nuclear Regulatory Commission - Region IV
June 18, 2012

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Purpose of Today's Meeting

- Present the Status of the Augmented Inspection
- Discuss Activities Going Forward
- Answer Questions from the Audience

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Agenda

- Introduction
- Augmented Inspection Team Decision
- Augmented Inspection Team Charter
- NRC Discussion on Augmented Inspection Status
- Licensee Response to AIT Status
- Path Forward
- NRC Closing Remarks
- Question and Answer Session

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NRC Representatives

- Elmo Collins, Regional Administrator, Region IV
- Thomas Blount, Acting Director, Division Reactor Safety
- Greg Werner, Branch Chief , AIT Team Lead
- Greg Warnick, Senior Resident Inspector

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NRC Representatives (Cont)

- Michele Evans, Director, Division of Operating Reactor Licensing
- Ryan Lantz, Branch Chief, Region IV
- Victor Dricks, Senior Public Affairs Officer, Region IV
- John Reynoso, Resident Inspector, AIT Team Member
- Emmett Murphy, Senior Materials Engineer, Office of Nuclear Reactor Regulation, AIT Team Member
- Carl Thurston, Reactor Systems Engineer, Office of Research, AIT Team Member
- Joel Rivera-Ortiz, Senior Reactor Inspector, Region II, AIT Team Member
- Michael Bloodgood, Operations Engineer, Region IV

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SONGS Representatives

- Peter Dietrich, Senior Vice President and Chief Nuclear Officer, SONGS, SCE
- Douglas Bauder, Vice President and Station Manager, SONGS, SCE
- Thomas Palmisano, Vice President of Nuclear Engineering, Projects and Site Support, SONGS, SCE

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NRC Opening Remarks

- Elmo Collins, Regional Administrator , Region IV
- Thomas Blount, Acting Director, Division of Reactor Safety

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Steam Generator Tube Leak

- Actual tube leak was of minor safety significance.
- Offsite radiation release was minimal.
- The plant operators responded properly and minimized the release.

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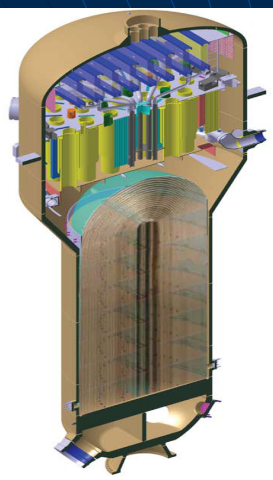

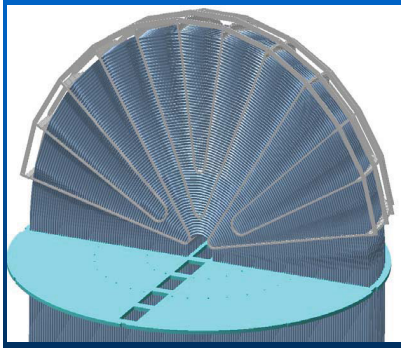

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AIT Decision

- Management Directive 8.3
  - Pre-Planning
  - Criteria
  - NRC Response

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AIT Charter

- Team Members – 7 inspectors/engineers from 5 NRC offices
- Key Objectives
- Additional information and observations provided by the resident inspectors

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AIT Issues and Observations

- Eight tubes failed pressure testing.
- SONGS used multiple independent consultants and S/G manufacturers.

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AIT Issues and Observations (cont)

- Mitsubishi's thermal/hydraulic computer simulation model did not accurately predict the behavior of the steam and water in the steam generators.
- Manufacturing differences between the steam generators contributed to the difference in tube degradation.

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AIT Follow-up Items

Ten items identified for follow-up:

1. Post trip/transient procedure
2. Evaluation and disposition of numerous Unit 3 loose parts monitor alarms
3. Retainer bar design not evaluated for vibration impacts
4. Evaluation of and control of Unit 3 divider plate repair
5. Unit 3 steam generator shipping requirements

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AIT Follow-up Items (cont)

6. Lack of tube bundle support for steam generators during shipment
7. Evaluation and disposition of shipping accelerometer data
8. 50.59 evaluation
9. Control of manufacturing differences
10. Adequacy of Mitsubishi's computer simulation model

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AIT Summary

- The NRC understands the steam generator thermal hydraulic conditions that resulted in the tube degradation.
- The thermal hydraulic conditions were not accurately predicted during design.
- Additional actions to fix and prevent any additional tube-to-tube degradation due to excessive vibration are being evaluated and developed. The NRC has additional inspections to perform.
- The NRC will take as much time as needed to ensure the safety of the public.

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SONGS Response

Peter Dietrich

Senior Vice President
and
Chief Nuclear Officer

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Path Forward – Key NRC Activities

- Continue review of steam generator tube wear
- Confirmatory Action Letter inspections
- Augmented Inspection followup inspection
- Additional public meetings
- NRC decision about the acceptability of the resumption of power operations
- Routine process to recommend improvements to the inspection program

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NRC Closing Remarks

Elmo Collins

Regional Administrator
Region IV

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15 Minute Break

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Questions and Answers

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Contacting the NRC

- Report an emergency
  - (301) 816-5100 (24/7 NRC Headquarter's Operation Center) (call collect)
- Report a safety concern:
  - (800) 695-7403 (Toll-free Safety Hotline)
  - Allegation@nrc.gov
- General information or questions
  - www.nrc.gov
- Victor Dricks, Public Affairs Officer, RIV
  - 817-200-1128
  - Victor.Dricks@nrc.gov

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SOUTHERN CALIFORNIA EDISON PRESENTATION

Steam Generator Recovery Update
Nuclear Safety in Action

June 18, 2012

Southern California Edison Commitment

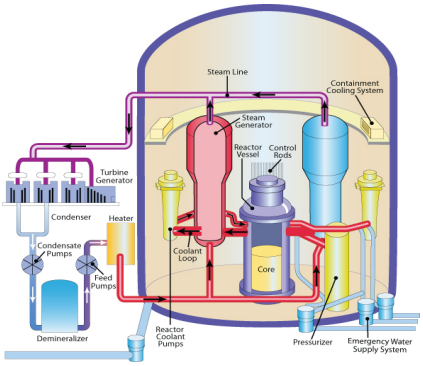
We operate San Onofre Nuclear Generating Station (SONGS) safely and reliably to the highest standards to protect the health and safety of the public and our employees

We will not restart either Unit 2 or Unit 3 until we and the NRC are satisfied it is safe to do

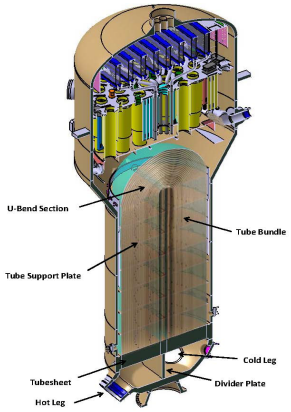
Current Status

- Unit 2 Status:
  - Shutdown on Jan. 9 for routine refueling and maintenance outage & reactor vessel head replacement
- Unit 3 Status:
  - Operators safely shutdown Unit 3 after steam generator tube leak identified on January 31
  - Shared learning with industry

Pressurized Water Reactor Layout



Steam Generator Cut-Away Elevation View



Actions Taken to Date

- Discovered unexpected tube-to-tube wear in limited portions of Unit 3 steam generators
- Deferred Unit 2 restart pending investigation
- Assembled team of experts to inform, assist and challenge
- Completed extensive tests and analysis on both units in all steam generators to support determining cause

Technical Expertise Supporting SCE

- Mitsubishi Heavy Industries
- AREVA
- Westinghouse
- B&W Canada
- MPR Associates
- EPRI
- Other industry personnel, recognized academics and specialized consultants

Cause of Unexpected Tube-to-Tube Wear

- Specific mechanism is Fluid Elastic Instability causing excessive tube vibration
  - Most excessive wear occurring in limited area of Unit 3 steam generators
- This is due to:
  - High steam flow velocities
  - Very dry steam
  - Inadequate tube support structure in the U bend region for the tubes experiencing the wear

Next Steps

- Follow up on Augmented Inspection Team's additional requests
- Implement our corrective actions
- Develop additional information as stated in Confirmatory Action Letter
- Continue work to develop intermediate and long term solutions
  - Will require extensive analysis, mock-ups and testing

There is no timeline on safety