



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

October 9, 2015

LICENSEE: Pacific Gas and Electric Company

FACILITY: Diablo Canyon Power Plant, Unit Nos. 1 and 2

SUBJECT: SUMMARY OF AUGUST 25, 2015, TELECONFERENCE MEETING WITH PACIFIC GAS AND ELECTRIC COMPANY ON RISK-INFORMED TECHNICAL SPECIFICATION (TS) COMPLETION TIMES PER TECHNICAL SPECIFICATION TASK FORCE (TSTF)-505, REVISION 1, "PROVIDE RISK-INFORMED EXTENDED COMPLETION TIMES – RITSTF INITIATIVE 4b" FOR DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2 (CAC NOS. MF3240 AND MF3241)

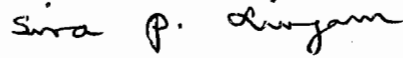
On August 25, 2015, a Category 1 teleconference public meeting was held between the U.S. Nuclear Regulatory Commission (NRC) and representatives of Pacific Gas and Electric Company (PG&E, the licensee) at NRC Headquarters, One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The purpose of the teleconference meeting was to discuss the license amendment request (LAR) submitted by PG&E on November 25, 2013, for the extended completion times per Technical Specification Task Force (TSTF) traveler TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," for Diablo Canyon Power Plant (DCPP), Unit Nos. 1 and 2 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13330A557). The meeting notice and agenda dated August 14, 2015, are available at ADAMS Accession No. ML15226A302. A list of attendees is provided in Enclosure 1.

The teleconference meeting was a publicly noticed teleconference meeting held to discuss NRC staff's requests for additional information (RAIs) transmitted to PG&E on June 29, 2015 (ADAMS Accession No. ML15180A388). The licensee's draft responses to NRC RAIs is provided in Enclosure 2, which were discussed mostly during the teleconference meeting. Highlights from this meeting include the following:

- Discussion of NRC RAI 1 related to reactor coolant pump (RCP) seals, and the licensee's proposed draft response to this RAI.
- Before NRC finishes its review of the LAR, the NRC would expect to receive the results of the Westinghouse SHIELD tests and analysis for the RCP seal issue.
- The licensee should provide the risk of the as-built, as-operated plant without credit for modifications that are not completed.
- The licensee is expected to use its peer-reviewed fire probabilistic risk assessment (PRA) for which it has submitted the associated PRA technical adequacy documentation.

Two members of the public were in attendance for the teleconference meeting and had no comments. Further, no public meeting feedback forms were submitted.

Please direct any inquiries to me at 301-415-1564 or at Siva.Lingam@nrc.gov.



Siva P. Lingam, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosures:

1. List of Attendees
2. Licensee's Draft Responses to NRC RAIs

cc w/encls: Distribution via Listserv

LIST OF ATTENDEES

AUGUST 25, 2015, TELECONFERENCE MEETING WITH

PACIFIC GAS AND ELECTRIC COMPANY

TSTF-505 LAR FOR DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-275 AND 50-323

<u>NAME</u>	<u>ORGANIZATION</u>
K. Schrader	Pacific Gas and Electric
M. Shephard	Pacific Gas and Electric
B. Harris	Pacific Gas and Electric
R. Grantom	Pacific Gas and Electric Consultant
A. Howe	Pacific Gas and Electric Consultant
M. Markley	Nuclear Regulatory Commission (NRC)
S. Rosenberg	NRC
A. Klein	NRC
K. Green	NRC
L. Fields	NRC
J. Evans	NRC
D. Gennardo	NRC
H. Barrett	NRC
C. Moulton	NRC
S. Lingam	NRC
Mr. Hoffman	Public Member
S. McCoy	Public Member (EPM)

ENCLOSURE 2

LICENSEE'S DRAFT RESPONSES TO NRC RAIs

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON POWER PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-275 AND 50-323

DRAFT

September 3, 2015

PG&E Letter DCL-15-XXX

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

10 CFR 50.90

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2

Response to NRC Request for Additional Information Regarding License
Amendment Request 13-02, "Revision to Technical Specifications to Adopt Risk
Informed Completion Times TSTF-505, Revision 1, Provide Risk-Informed Extended
Completion Times – RITSTF Initiative 4B"

Reference: 1. PG&E Letter DCL-13-106, License Amendment Request 13-02, Revision to Technical Specifications to Adopt Risk Informed Completion Times TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4B," dated November 25, 2013

Dear Commissioners and Staff:

In Reference 1, Pacific Gas and Electric Company (PG&E) submitted License Amendment Request (LAR) 13-02 that proposes an amendment that would modify Technical Specification (TS) requirements to permit the use of Risk Informed Completion Times in accordance with Technical Specifications Task Force-505, Revision 1, "Provide Risk-Informed Extended Completion Times - RITSTF Initiative 4b."

On June 29, 2015, the NRC staff requested additional information required to complete the review of LAR 13-02. PG&E's responses to the staff's questions are provided in the Enclosure.

This information does not affect the results of the technical evaluation or the no significant hazards consideration determination previously transmitted in Reference 1.

This communication contains revised commitments (as defined in NEI 99-04). The revised commitments are described in the Enclosure.

If you have any questions, or require additional information, please contact Hossein Hamzehee at (805) 545-4720.

I state under penalty of perjury that the foregoing is true and correct.

DRAFT

Executed on September 3, 2015.

Sincerely,

Barry S. Allen
Vice President, Nuclear Services

kjse/4328 50467285

Enclosure

cc: Diablo Distribution

cc/enc: Marc L. Dapas, NRC Region IV Administrator

Thomas R. Hipschman, NRC Senior Resident Inspector

Siva P. Lingam, NRR Project Manager

Gonzalo L. Perez, Branch Chief, California Dept of Public Health

PG&E Response to NRC Request for Additional Information Regarding License Amendment Request 13-02, "Revision to Technical Specifications to Adopt Risk Informed Completion Times TSTF-505, Revision 1, Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4B"

NRC Question 1:

By letter dated November 25, 2013 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML13330A557), as supplemented by letters dated February 5 and May 28, 2015 (ADAMS Accession Nos. ML15036A592 and ML15148A480, respectively), Pacific Gas and Electric Company (PG&E, the licensee) submitted a license amendment request (LAR) associated with Technical Specification Task Force (TSTF) traveler, TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times – RITSTF [Risk-Informed TSTF] Initiative 4b." The proposed LAR would, in part, modify selected Required Actions to permit extending the Completion Times in accordance with a new TS-required risk-informed completion time program. The U.S. Nuclear Regulatory Commission (NRC) staff has determined that additional information is needed for the staff to complete its review.

NRC approved Topical Report (TR) NEI 06-09, "Risk-Informed Technical Specifications Initiative 4b: Risk-Managed Technical Specification (RMTS) Guidelines," Revision 0-A (ADAMS Accession No. ML12286A322), includes the NRC Safety Evaluation (SE) for NEI 06-09 (ADAMS Accession No. ML071200238), which approved and provided limitations and conditions for use of the TR. Section 4.0, Item 6, of the NRC SE requires that the licensee provide the plant-specific total Core Damage Frequency (CDF) and Large Early Release Frequency (LERF) to confirm that these are less than $1E-4$ /year and $1E-5$ /year, respectively. This is consistent with the risk acceptance guidelines in Regulatory Guide (RG) 1.174 (ADAMS Accession No. ML100910006).

In Attachment 9 of the application, the licensee states that the Diablo Canyon Unit 1 CDF and LERF are $9.47E-05$ /year and $7.99E-06$ /year, respectively, and that the Unit 2 CDF and LERF are $9.06E-05$ /year and $8.83E-06$ /year, respectively. The licensee also notes that "these values reflect the anticipated configuration of the plant upon full implementation of [National Fire Protection Association] NFPA 805 and related plant modifications to resolve fire protection issues. At the time of implementation of the [Risk-Informed Completion Time] RICT Program, the [Probabilistic Risk Assessment] PRA model used will reflect the existing configuration of the plant."

Similarly, in Attachment 12 of the application, the licensee states: "In addition, the fire and internal events PRA models include credit for a committed plant modification (described in Reference 6) to install a passive shutdown seal for each of the reactor coolant pumps (RCPs). For RICT Program calculations, the PRA models will reflect

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

the actual configuration of the RCP seals.” The NRC staff understands that the RICT program will reflect the actual configuration of the plant; however, this does not address the total baseline risk before implementation of the RICT program.

The NRC staff notes that the reported CDF and LERF for Diablo Canyon are near the limits of the risk acceptance guidelines identified in NEI 06 09, Revision 0-A. The NRC staff also notes that RCP seal credit can significantly reduce both internal events and fire risk at Pressurized Water Reactors. Please provide the plant risk without credit for RCP seals, or any other credited NFPA 805 related modifications that are not completed at this time, and assess these values against the applicable risk acceptance guidelines. If the acceptance guidelines are not met, please identify what plant modifications would be necessary to meet RG 1.174 and propose a license condition to perform these modifications if RCP seal credit cannot be achieved. Also, please describe how RICT will be fully implemented after NFPA 805 (i.e., after completing the modifications, resolving concerns with RCP credit, and self-approval is allowed), such that the risk acceptance guidelines are met.

PG&E Response:

The current Diablo Canyon Power Plant (DCPP) PRA meets the RG 1.174 thresholds for total CDF and LERF with the model of record fire PRA. The fire PRA model of record (PRA model prior to NFPA 805 PRA model and NFPA 805 modifications) was developed as part of the Long Term Seismic Program and is currently used to support plant risk evaluations. Table 1 below provides the current model of record CDF and LERF values per reactor year (rx-yr) without crediting NFPA 805 modifications resulting from a quantification of the baseline average annual models, which include contributions from internal events (including internal flooding), model of record fire, and seismic hazards. Other external hazards are below accepted screening criteria and therefore do not contribute significantly to the totals.

Hazard	Unit 1		Unit 2	
	CDF (per rx-yr)	LERF (per rx-yr)	CDF (per rx-yr)	LERF (per rx-yr)
Internal Events	1.13E-05	1.70E-06	1.13E-05	1.70E-06
Internal Flooding	7.91E-06	2.93E-07	5.59E-06	2.14E-07
Seismic	2.62E-05	2.71E-06	2.62E-05	2.71E-06
Fire	1.17E-05	2.55E-07	1.17E-05	2.55E-07
Total	5.71E-05	4.96E-06	5.48E-05	4.88E-06

Diablo Canyon has developed an NFPA 805 fire PRA model for the transition to NFPA 805. Proposed NFPA 805 related plant modifications credited in the NFPA 805 fire PRA model include the Westinghouse Generation III passive thermal

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

shutdown Reactor Coolant Pump (RCP) seals, Electrical Raceway Fire Barrier System (ERFBS) cable wrapping and rerouting modifications, incipient detection installation in the Cable Spreading and Solid State Protection System (SSPS) rooms and Hot Shutdown Panel (HSDP) upgrade modifications. Table 2 below provides the CDF and LERF values with all these modifications credited resulting from a quantification of the baseline average annual models, which include contributions from internal events (including internal flooding), fire, and seismic hazards. Other external hazards are below accepted screening criteria and therefore have insignificant contributions to total risk values.

Hazard	Unit 1		Unit 2	
	CDF (per rx-yr)	LERF (per rx-yr)	CDF (per rx-yr)	LERF (per rx-yr)
Internal Events	8.66E-06**	1.66E-06	8.66E-06	1.66E-06
Internal Flooding	5.57E-06**	2.00E-07	3.49E-06	1.30E-07
Seismic	2.62E-05	2.71E-06	2.62E-05	2.71E-06
Fire	4.83E-05	2.45E-06	5.24E-05	2.17E-06
Total	8.87E-05	7.02E-06	9.08E-05	6.67E-06

*The NFPA 805 Fire PRA model is not currently finalized, but will be at the time of the submittal to respond to the third set of PRA questions on the NFPA 805 LAR.

**The Internal Events and Internal Flooding values have changed due to modeling the RCS shutdown seal modification.

Currently, there are measures implemented to reduce the plant fire risk without the NFPA 805 modifications complete. Administrative controls are instituted in the Cable Spreading Room and SSPS rooms until all of the NFPA 805 modifications are complete. No combustible storage area controls are procedurally implemented in these areas, which reduces the potential for a transient fire. Fire protection also reviews all hot work permits for these areas, which is required by procedure. Additionally, 10 CFR 50 Appendix R Operator Manual Actions (OMAs) are currently in place procedurally to mitigate loss of equipment from a fire, and will be maintained as recovery actions and as compensatory measures until installation of the NFPA 805 modifications. Most of these OMAs have not been credited in the NFPA 805 Fire PRA model.

The following sections describe how the future modifications will be addressed in the PRA model used to calculate the risk informed completion time (RICT).

Passive RCP Shutdown Seals

The PRA model used to calculate the RICT will credit the installed RCP shutdown seals. The passive RCP shutdown seals are scheduled to be installed in the fall 2015 outage for Unit 1 and the spring 2016 outage for Unit 2. A post installation test of the Westinghouse Generation III shutdown seal is planned in October 2015. If

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

the post installation test results do not meet acceptance criteria and credit cannot be achieved for the RCP shutdown seals, then PG&E will either (1) install alternate RCS shutdown seals and/or implement additional design modifications to address the RCP seal cooling and/or (2) update the fire PRA model to incorporate new accepted industry methodologies and data to lower the CDF and LERF to meet the RG 1.174 risk acceptance guidelines before the RICT Program is implemented.

Electrical Raceway Fire Barrier System (ERFBS)

Until the ERFBS cable wrapping and rerouting modifications are completed, anytime a RICT is in effect, welding and cutting activities will be prohibited in the following fire areas and continuous fire watches will be established until fire wrap and circuit rerouting modifications in these areas are implemented:

Unit 1, Fire Area 3-BB, Elevation 115
Unit 2, Fire Areas 5-B-4 and 6-B-4

The ERFBS cable wrapping and rerouting modifications are scheduled to be installed in the fall 2015 outage for Unit 1 and the spring 2016 outage for Unit 2. The PRA model used to calculate the RICT will take full credit for the ERFBS cable wrapping and rerouting modifications. These compensatory measures are determined to be acceptable to take full credit for the ERFBS modifications since a continuous fire watch would greatly reduce the frequency of a transient fire and whole room burnup, which are the major contributors of risk.

Incipient Detection

Until the incipient detection system installation is completed, anytime a RICT is in effect, a continuous fire watch will be stationed in the Cable Spreading and SSSPS rooms and will monitor six risk significant cabinets with portable incipient detectors on an hourly interval. The PRA model will only credit the incipient detection installation for a subset of the risk significant cabinets. No credit will be taken in the PRA model used to calculate the RICT for the cabinets that do not contribute significantly to risk. Thus, the portable incipient detection monitoring will be focused on those cabinets where incipient detection provides the greatest benefit in lowering risk. Incipient detection systems are scheduled to be installed in the spring 2017 outage for Unit 1 and the spring 2018 outage for Unit 2.

The approach of a continuous fire watch in the Cable Spreading and SSSPS rooms with hourly portable incipient detection monitoring is considered to be comprehensive and provides detection capabilities beyond the ability of just a fire watch. This approach will also emulate the actions and responses of the permanent incipient detection modification such that operations and maintenance activities will remain consistent before and after implementation of the modification. Procedures, training and preventative maintenance for the portable incipient detection monitoring equipment will be developed and implemented.

Hot Shutdown Panel Upgrade Modification (HSDP)

Originally circuit re-routing modifications were planned for Unit 2, however this has been replaced with the same HSDP modification as is being performed for Unit 1. Until the HSDP upgrade modification is completed and updated procedures are implemented, anytime a RICT is in effect a continuous fire watch will be stationed in the Cable Spreading room and the operations crew will be briefed every shift on the manual actions that are required for remote shutdown. The PRA model used to calculate the RICT will take full credit for the hot shutdown panel upgrade modification with these compensatory measures. The hot shutdown panel upgrade modification is scheduled to be installed in the spring 2017 outage for Unit 1 and the spring 2016 outage for Unit 2.

Most of the risk from control room abandonment originates from cable spreading room fires resulting in loss of control. Thus a continuous fire watch would significantly shorten the detection time of a fire and prevent the fire from propagating to a point that would cause control room abandonment.

The HSDP modification will add the above indications and functions to the HSDP, based on severe fires in the Cable Spreading Room and Control Room. A worst-case main control room abandonment scenario (both units are abandoned based on loss of habitability) would leave a minimum of two extra available operators (one per each unit) to assist in performing additional actions as described herein. Abandonment caused by loss of control restricted to one unit would allow for two additional operators to assist in the actions herein for the affected unit. The extra available staff provides basis for greater flexibility and reliability for operations.

Regulatory Guide 1.160, Revision 3 endorses NUMARC 93-01, Revision 4A. NUMARC 93-01, Revision 4A states that each plant is required to maintain a fire protection program, pursuant to 10 CFR 50.48 or Part 50, Appendix R and that these programs, as implemented through NRC guidance documents, directly address the risk management aspects of removal of fire detection equipment, fire suppression equipment, fire barriers and performance of maintenance activities with potential to cause a fire. No further quantitative analysis is required for this equipment out of service and full credit can be taken for the equipment for the appropriate compensatory measures. Accordingly until the NFPA 805 modifications are installed and can be credited in the fire PRA model, compensatory measures are proposed while a RICT is in effect with full credit being taken in the fire PRA model used to calculate the RICT.

Table 3 below provides the CDF and LERF values with the passive RCP shutdown seals, ERFBS modifications and HSDP upgrade modifications credited. Incipient detection is credited only in a subset of the risk significant cabinets that will have a compensatory measure of a continuous fire watch performing hourly portable incipient detection monitoring whenever a RICT is in effect. Incipient detection is credited in both trains of cabinets in the Unit 1 SSPS room and 6 sets of cabinets in

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

the Unit 1 Cable Spreading room; incipient detection is credited in both trains of cabinets in the Unit 2 SSPS room and 6 sets of cabinets in the Unit 2 Cable Spreading room. The CDF and LERF values are from a quantification of the baseline average annual models, which include contributions from internal events (including internal flooding), fire, and seismic hazards. Other external hazards are below accepted screening criteria and therefore do not contribute significantly to the totals.

Table 3: Total Baseline Average Annual CDF/ LERF NFPA 805 Fire PRA Model All Modifications Credited Except Incipient Detection for Subset of Cable Spreading Room Cabinets				
Hazard	Unit 1		Unit 2	
	CDF (per rx-yr)	LERF (per rx-yr)	CDF (per rx-yr)	LERF (per rx-yr)
Internal Events	8.66E-06	1.66E-06	8.66E-06	1.66E-06
Internal Flooding	5.57E-06	2.00E-07	3.49E-06	1.30E-07
Seismic	2.62E-05	2.71E-06	2.62E-05	2.71E-06
Fire	5.48E-05	2.73E-06	5.83E-05	2.45E-06
Total	9.52E-05	7.30E-06	9.67E-05	6.95E-06

If core damage frequency exceeds 1×10^{-4} / yr or large early release frequency exceeds 1×10^{-5} / yr with the NFPA 805 Fire PRA model and only taking credit for installed modifications, then PG&E will implement the Electrical Raceway Fire Barrier System, Hot Shutdown Panel, and Incipient Detection modifications as needed to obtain core damage frequency less than 1×10^{-4} / yr and large early release frequency less than 1×10^{-5} / yr. All required modifications will be installed, in order to complete the transition to full compliance with 10 CFR 50.48(c), prior to startup from the twentieth refueling outage for each Unit. Appropriate compensatory measures will be maintained in place until completion of these modifications.

The following will be proposed as a license condition in Attachment 1 to the Enclosure:

If core damage frequency exceeds 1×10^{-4} / yr or large early release frequency exceeds 1×10^{-5} / yr with the NFPA 805 Fire PRA model and only taking credit for installed modifications, the licensee shall implement the Electrical Raceway Fire Barrier System, Hot Shutdown Panel, and Incipient Detection modifications described in Table S-2 of Attachment S of Enclosure 1 of Pacific Gas and Electric letter dated June 26, 2013, and Enclosure 1 of Pacific Gas and Electric letter dated September 3, 2015, to complete the transition to full compliance with 10 CFR 50.48(c) prior to startup from the twentieth refueling outage for each Unit. The licensee shall maintain

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

appropriate compensatory measures in place until completion of these modifications.

NRC Question 2:

The NRC staff has determined that the proposed regulatory commitments in Attachment 4 of the application are necessary for implementation of the Diablo Canyon RICT program. Identify if any of the proposed regulatory commitments have already been addressed due to recent PRA model updates. Please propose a license condition with associated implementation items to address the remaining items listed in Attachment 4.

PG&E Response:

Attachment 4 of LAR 13-02 (PG&E Letter DCL-13-106 dated November 25, 2013) contained proposed regulatory commitments for implementation of the RICT Program. The current status of addressing these commitments is documented below along with an evaluation as to whether they need to be proposed as a license condition.

Commitment 1

Commitment 1 states:

Plant procedures will be developed to incorporate the following with regards to probabilistic risk assessment (PRA) model update process:

- Plant changes affecting systems, structures, and components within the scope of the configuration risk management program (CRMP) will be reviewed prior to implementation to identify if an interim update of the CRMP model or other interim administrative control for the Risk Informed Completion Time (RICT) Program is required; and,
- Discovered conditions affecting the CRMP model will be addressed in the corrective action program.

Commitment 1 has been addressed in applicable plant procedures. The Design Change Development procedure states that design changes which have the potential to impact the plant PRA should be coordinated with the PRA group so that the impact of the design change on plant risk can be evaluated, and if necessary, be incorporated into the PRA models. Accordingly, the PRA group is evaluating design changes and determining if an interim model update is required. The PRA Model Maintenance and Upgrades procedure states that changes that require an interim

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

revision should be entered into the corrective action program and tracked. Therefore this commitment does not need to be a license condition.

Commitment 2

Commitment 2 states:

The CRMP model used for the RICT Program will include logic for the pressurizer heaters to require at least one group of functional heaters in order to credit secondary heat removal prior to any application of the RICT Program for a RICT for Technical Specification (TS) 3.4.9.

Modeling has been added to the current PRA model of record to include logic that fails secondary heat removal when all four pressurizer heater are not PRA functional. This model of record is the CRMP model that will be utilized for the RICT Program. Therefore this item does not need to be a license condition.

Commitment 3

Commitment 3 states:

Shared systems and equipment between the two units will be identified in plant procedures used for establishing risk management actions when required by the RICT Program.

Draft RICT Program procedures for establishing risk management actions identify shared systems and equipment between the two units. Therefore this item does not need to be a license condition.

Commitment 4

Commitment 4 states:

The error in the PRA model related to not modeling shorter containment sump recirculation time window for small loss-of-coolant accidents (LOCAs) when the containment fan cooling system fails will be corrected in the CRMP model before the RICT Program is implemented.

Modeling has been added to the current PRA model of record to include logic that uses an increased human error probability for aligning cold leg recirculation when the containment fan coolers fail and containment spray is successful. This increased human error probability is based on the shorter containment sump recirculation time window, when the containment fan coolers fail, causing containment spray to be actuated and the refueling water storage tank inventory to be depleted more quickly. This increased human error probability will be assumed

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

for all internal flooding and fire initiating events in the CRMP model used to calculate the RICT since containment fan coolers are assumed to be failed. However, the baseline model used to calculate RICTs for internal flooding and fire initiating events will use the human error probability for aligning cold leg recirculation assuming the longer time window with containment fan coolers available. This is conservative and will result in a larger delta CDF and LERF value in the RICT calculations. Since this modeling has already been completed this item does not need to be a license condition.

Commitment 5

Commitment 5 states:

The emergency core cooling system charging pump recovery factor will not be credited in the RICT Program whenever an emergency core cooling system charging pump is made unavailable.

Logic has been added to the PRA model of record such that this emergency core cooling system charging pump recovery factor is set to 1.0 whenever an emergency core cooling system charging pump is made unavailable. This model of record is the CRMP model that will be utilized for the RICT Program. Therefore this item does not need to be a license condition.

Commitment 6

Commitment 6 states:

The 24-hour mission time will be applied to the emergency diesel generators and fuel oil transfer pumps in the RICT program whenever the offsite power 230 kV system is made unavailable.

Logic has been included in the software input that will be used to implement the RICT Program such that whenever the 230-kV system is made unavailable the 24-hour mission time will be applied to the emergency diesel generators and fuel oil transfer pumps. Therefore this item does not need to be a license condition.

Commitment 7

Commitment 7 states:

The Risk Informed Completion Time (RICT) Program will assume inoperability of the auxiliary saltwater (ASW) train if one or more vacuum breakers are nonfunctional.

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

Draft RICT Program procedures state that the RICT Program will assume inoperability of the Auxiliary Saltwater System train if one or more vacuum breakers are nonfunctional. Therefore this item does not need to be a license condition.

Commitment 8

Commitment 8 states:

At any time when a RICT is in effect, a continuous fire watch will be established in the Cable Spreading and Solid State Protection System (SSPS) rooms until incipient detection and hot shutdown panel modifications are implemented.

Based on the prior description (in response to RAI #1) of the compensatory actions to be taken while in a RICT prior to the Incipient Detection and Hot Shutdown panel modifications being implemented, the following will be proposed as a licensing condition in Attachment 1 to the Enclosure:

Prior to the Incipient Detection Panel modifications being implemented, any time a RICT is in effect, a continuous fire watch shall be established in the Cable Spreading and Solid State Protection rooms and cabinets with incipient detection credited in the PRA model used to calculate the RICT shall be routinely monitored hourly with portable incipient detectors.

Prior to the Hot Shutdown Panel modifications being implemented, any time a RICT is in effect, a continuous fire watch shall be established in the Cable Spreading rooms and Operations crews shall be briefed every shift on the manual actions required for remote shutdown.

Commitment 9

Commitment 9 states:

At any time when a RICT is in effect, welding and cutting activities will be prohibited in the following fire areas until fire wrap and circuit rerouting modifications in these areas are implemented:

- Unit 1, Fire Area 3-BB, Elevation 115
- Unit 2, Fire Area 5-B-4

Based on the prior description (in response to RAI #1) of the compensatory actions to be taken while in a RICT prior to the ERFBS modifications being implemented, the following will be proposed as a licensing condition for each Unit in Attachment 1 to the Enclosure:

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

Unit 1

Prior to the Electrical Raceway Fire Barrier System modifications being implemented, any time a RICT is in effect, welding and cutting activities shall be prohibited in Fire Area 3-BB, Elevation 115, and a continuous fire watch shall be established.

Unit 2

Prior to the Electrical Raceway Fire Barrier System modifications being implemented, any time a RICT is in effect, welding and cutting activities shall be prohibited in Fire Areas 5-B-4 and 6-B-4 and a continuous fire watch shall be established.

Commitment 10

Commitment 10 states:

The following peer review findings and observations, identified and discussed in Table A6-1, will be resolved prior to implementation of the RICT Program:

- AS-B3-01
- SC-A5-01
- SC-A5-02
- SC-B3-01
- SC-B3-02
- SY-A16-01
- SY-B10-01
- SY-B15-01
- HR-A1-01
- HR-C3-01
- HR-D3-01
- HR-G7-01
- DA-C1-01
- QU-C2-01

These peer review findings and observations have been addressed and resolved in the current PRA model of record, which will serve as the CRMP used for the RICT Program. Therefore this item does not need to be a license condition.

In summary, 8 of the 10 Regulatory Commitments contained in Attachment 4 of PG&E Letter DCL-13-106 are complete. Two of the Regulatory Commitments, related to compensatory measures to be implemented until NFPA-805 modifications are installed, are open and will be included in the proposed license conditions in Attachment 1 to the Enclosure of this letter. Therefore, the previous 10 Regulatory

Commitments contained in Attachment 4 of PG&E Letter DCL-13-106 are deleted since they are either complete or are replaced by license conditions.

NRC Question 3:

In Table A13-1 of the application, for the assumption regarding designation of certain "systems/components as guaranteed failures in the fire PRA model," the disposition for the RICT program states: "Those systems that are within the RICT Program and guaranteed failed in the fire model are assumed 100% successful in the baseline PRA model used to calculate the RICT." The staff interprets this statement to mean that the equipment is always considered available (i.e., "100% successful") in the model used to calculate the RICT. This could misrepresent risk insights as it may not account for the non-fire-induced (random) failure probabilities of these components. For example:

Attachment 12, Attributes of the Configuration Risk Management Program (CRMP) Model, Table A12-3 lists SSC functions not in TS that impact RICT calculations, including:

- Feed and bleed using emergency core cooling system (ECCS) pumps and power operated relief valves (PORVs)*
- Instrument air system*
- Main feedwater and condensate systems pumps and valves*

The response to NFPA Standard NFPA 805 PRA RAI 1(a) (ADAMS Accession No. ML14330A635) discussed the systems (i.e., 500kV back-feed, 12kV non-essential power, Anticipated Transient Without Scram Mitigating System Actuation Circuitry (AMSAC), Instrument Air, Feedwater and condensate systems, containment fan coolers, containment spray, and make up to refueling water storage tank from the fuel pool) that are assumed to be unavailable in the Fire PRA. The response also states: "The dependency of RCS-PCV-474 on the [Instrument Air System] IAS significantly impacts the reliability of the [Feed and Bleed] F&B function, especially in fire events."

Assuming that Instrument Air is always available may not accurately represent the plant configuration when entering a RICT and could lead to overestimating the RICT by allowing too much credit for the feed and bleed function.

It is unclear how these systems are being modeled in the internal events portion of the "baseline PRA model used to calculate the RICT." Assuming the equipment is always available in the model (i.e., "100% successful") used to calculate the RICT may not reflect the plant configuration at the time the RICT is entered and could misrepresent risk insights. Please elaborate on this disposition to more clearly explain how this will affect RICT calculations. Will any additional risk-model analyses be required for the associated systems/components based on this assumption?

DRAFT

Enclosure
PG&E Letter DCL-15-XXX

PG&E Response:

As stated in the LAR 13-02 Table A13-1, there are systems/components which are guaranteed failure in the fire PRA model. This introduces non-conservatism in the RICT calculation, since the baseline (zero-maintenance) configuration risk is over-estimated by always assuming these systems/components fail for any fire scenario. This reduces the calculated delta-risk and hence results in longer RICTs. In order to eliminate this non-conservatism in the RICT Program calculations, for the baseline zero-maintenance configuration, the fire-induced failure is not assumed. This maximizes the fire delta risk since the affected systems/components are always failed for fire scenarios for the actual plant configuration risk (which maximizes this risk calculation), but only failed due to random causes for the baseline zero-maintenance configuration (which minimizes this risk calculation); hence the difference in risk between the two cases is conservatively calculated for fire risk. Therefore, the maximum possible change in fire risk is always applied to any RICT calculation, regardless of the actual status of the guaranteed failure systems/components.

This assumption is applied to systems/components which are in the scope of the CRMP model and which are assumed to be guaranteed failure in the fire PRA model. The use of the phrase "100% successful" in Table A13-1 of the LAR was intended to convey that the affected system would not fail due to any fire impact in the baseline case; however, random failures are still assumed in the baseline zero-maintenance configuration. Note that this assumption of not failing the system due to fire effects in the baseline zero-maintenance configuration has no other impact except on the fire risk calculation.

DRAFT

Revisions to Facility Operating Licenses

Facility Operating License No. DPR-80

REMOVE
Appendix D page 3

INSERT
Appendix D page 3
Appendix D page 4

Facility Operating License No. DPR-82

REMOVE
Appendix D page 3

INSERT
Appendix D page 3
Appendix D page 4

Appendix D (Continued)

Amendment
Number

Additional Conditions

Implementation
Date

Following implementation, this condition will be performed as stated in the condition:

The first performance of SR 3.7.10.5, in accordance with Specification 5.5.19.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from February 3, 2005, the date of the most recent successful tracer gas test, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.

The first performance of the periodic assessment of CRE habitability, Specification 5.5.19.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from February 3, 2005, the date of the most recent successful tracer gas test, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

The first performance of the periodic measurement of CRE pressure, Specification 5.5.19.d, shall be within 24 months, plus the 182 days allowed by SR 3.0.2, as measured from February 3, 2005, the date of the most recent successful pressure measurement test, or within 182 days if not performed previously.

INSERT #1

DRAFT

Insert #1

XXX

This amendment authorizes the use of Risk Informed Completion Times (RICT) in accordance with Technical Specification Task Force TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times- RITSTF Initiative 4b".

If core damage frequency exceeds 1×10^{-4} / yr or large early release frequency exceeds 1×10^{-5} / yr with the NFPA 805 Fire PRA model and only taking credit for installed modifications, the licensee shall implement the Electrical Raceway Fire Barrier System, Hot Shutdown Panel, and Incipient Detection modifications described in Table S-2 of Attachment S of Enclosure 1 of Pacific Gas and Electric letter dated June 26, 2013, and Enclosure 1 of Pacific Gas and Electric letter dated September 3, 2015, to complete the transition to full compliance with 10 CFR 50.48(c) prior to startup from the twentieth refueling outage for each Unit. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

Prior to the Electrical Raceway Fire Barrier System modifications being implemented, any time a RICT is in effect, welding and cutting activities shall be prohibited in Fire Area 3-BB, Elevation 115, and a continuous fire watch shall be established.

Prior to the Hot Shutdown Panel modifications being implemented, any time a RICT is in effect, a continuous fire watch shall be established in the Cable Spreading rooms and Operations crews shall be briefed every shift on the manual actions required for remote shutdown.

Prior to the Incipient Detection Panel modifications being implemented, any time a RICT is in effect, a continuous fire watch shall be established in the Cable Spreading and Solid State Protection rooms and cabinets with incipient detection credited in the PRA model used to calculate the RICT shall be routinely

The amendment is effective as of the date of its issuance and the condition shall be implemented within 120 days of its issuance.

DRAFT

monitored hourly with portable incipient detectors.

Appendix D (Continued)

Amendment
Number

Additional Conditions

Implementation
Date

Following implementation, this condition will be performed as stated in the condition:

The first performance of SR 3.7.10.5, in accordance with Specification 5.5.19.c.(i), shall be within the specified Frequency of 6 years, plus the 18-month allowance of SR 3.0.2, as measured from February 3, 2005, the date of the most recent successful tracer gas test, or within the next 18 months if the time period since the most recent successful tracer gas test is greater than 6 years.

The first performance of the periodic assessment of CRE habitability, Specification 5.5.19.c.(ii), shall be within 3 years, plus the 9-month allowance of SR 3.0.2, as measured from February 3, 2005, the date of the most recent successful tracer gas test, or within the next 9 months if the time period since the most recent successful tracer gas test is greater than 3 years.

The first performance of the periodic measurement of CRE pressure, Specification 5.5.19.d, shall be within 24 months, plus the 182 days allowed by SR 3.0.2, as measured from February 3, 2005, the date of the most recent successful pressure measurement test, or within 182 days if not performed previously.

0
0
0

INSERT #2

DRAFT

Insert #2

XXX

This amendment authorizes the use of Risk Informed Completion Times (RICT) in accordance with Technical Specification Task Force TSTF-505, Revision 1, "Provide Risk-Informed Extended Completion Times- RITSTF Initiative 4b".

If core damage frequency exceeds 1×10^{-4} / yr or large early release frequency exceeds 1×10^{-5} / yr with the NFPA 805 Fire PRA model and only taking credit for installed modifications, the licensee shall implement the Electrical Raceway Fire Barrier System, Hot Shutdown Panel, and Incipient Detection modifications described in Table S-2 of Attachment S of Enclosure 1 of Pacific Gas and Electric letter dated June 26, 2013, and Enclosure 1 of Pacific Gas and Electric letter dated September 3, 2015, to complete the transition to full compliance with 10 CFR 50.48(c) prior to startup from the twentieth refueling outage for each Unit. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

Prior to the Electrical Raceway Fire Barrier System modifications being implemented, any time a RICT is in effect, welding and cutting activities shall be prohibited in Fire Areas 5-B-4 and 6-B-4 and a continuous fire watch shall be established.

Prior to the Hot Shutdown Panel modifications being implemented, any time a RICT is in effect, a continuous fire watch shall be established in the Cable Spreading rooms and Operations crews shall be briefed every shift on the manual actions required for remote shutdown.

Prior to the Incipient Detection Panel modifications being implemented, any time a RICT is in effect, a continuous fire watch shall be established in the Cable Spreading and Solid State Protection rooms and cabinets with incipient detection credited in the PRA model used to calculate the RICT shall be routinely

The amendment is effective as of the date of its issuance and the condition shall be implemented within 120 days of its issuance.

DRAFT

monitored hourly with portable incipient detectors.

Two members of the public were in attendance for the teleconference meeting and had no comments. Further, no public meeting feedback forms were submitted.

Please direct any inquiries to me at 301-415-1564 or at Siva.Lingam@nrc.gov.

/RA/

Siva P. Lingam, Project Manager
Plant Licensing Branch IV-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-275 and 50-323

Enclosures:

1. List of Attendees
2. Licensee's Draft Responses to NRC RAIs

cc w/encls: Distribution via Listserv

DISTRIBUTION:

PUBLIC	RidsNrrLAJBurkhardt Resource	JEvans, NRR/DRA/APLA
LPL4-1 Reading	RidsNrrPMDiabloCanyon Resource	DGennardo, NRR/DRA/APLA
RidsAcrsAcnw_MailCTR Resource	RidsNrrDraAfpb Resource	CMoulton, NRR/DRA/AFP
RidsNrrDraApla Resource	RidsRgn4MailCenter Resource	HBarrett, NRR/DRA/AFP
RidsNrrDorl Resource	CRosales-Cooper, EDO RIV	LFields, NRR/DRA/APLA
RidsNrrDorlLp4-1 Resource	KGreen, NRR/DORL	

ADAMS Accession Nos. Meeting Notice ML15226A302; Meeting Summary ML15279A422

OFFICE	NRR/DORL/LPL4-1/PM	NRR/DORL/LPL4-1/LA	NRR/DRA/APLA
NAME	SLingam	JBurkhardt	SRosenberg
DATE		10/6/15	10/8/15
OFFICE	NRR/DORL/LPL4-1/BC	NRR/DORL/LPL4-1/PM	
NAME	MMarkley	SLingam	
DATE	10/9/15	10/9/15	

OFFICIAL RECORD COPY