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PG&E Letter DCL-12-076

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

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

Response to NRC Second Request for Additional Information regarding PG&E  
Letter DCL-11-059, "License Amendment Request 11-04, Revision to Technical  
Specification (TS) 3.6.6, 'Containment Spray and Cooling Systems,' TS 3.7.5,  
'Auxiliary Feedwater (AFW) System,' TS 3.8.1, 'AC Sources - Operating,' TS 3.8.9,  
'Distribution Systems - Operating,' and TS Example 1.3-3"

Reference: 1. PG&E Letter DCL-11-059, "License Amendment Request 11-04,  
Revision to Technical Specification (TS) 3.6.6, 'Containment Spray  
and Cooling Systems,' TS 3.7.5, 'Auxiliary Feedwater (AFW)  
System,' TS 3.8.1, 'AC Sources - Operating,' TS 3.8.9, 'Distribution  
Systems - Operating,' and TS Example 1.3-3," dated June 1, 2011

In Reference 1, Pacific Gas and Electric Company (PG&E) submitted a license  
amendment request to revise Technical Specification (TS) 3.6.6, "Containment  
Spray and Cooling Systems," TS 3.7.5, "Auxiliary Feedwater (AFW) System," TS  
3.8.1, "AC Sources - Operating," TS 3.8.9, "Distribution Systems - Operating," and  
TS Example 1.3-3.

The NRC Staff provided a request for additional information (RAI) via e-mail, dated  
June 20, 2012. The Enclosure to this letter provides PG&E's response to the NRC  
RAI.

A revised regulatory commitment is specified in response to NRC question 13 in the  
enclosure. This is a clarification of the previous commitment.

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



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

Executed on August 6, 2012.

Sincerely,

A handwritten signature in blue ink, appearing to read 'James M. Welsch'.

James M. Welsch  
*Interim Site Vice President*

Mjrm/4557/50329767

Enclosure

cc: Diablo Distribution

cc/enc: Gonzalo L. Perez, California Dept of Public Health  
Elmo E. Collins, NRC Region IV  
Michael S. Peck, NRC Senior Resident Inspector  
Joseph M. Sebrosky, NRR Project Manager

PG&E Response to NRC Second Request for Additional Information regarding PG&E Letter DCL-11-059, "License Amendment Request 11-04, Revision to Technical Specification (TS) 3.6.6, 'Containment Spray and Cooling Systems,' TS 3.7.5, 'Auxiliary Feedwater (AFW) System,' TS 3.8.1, 'AC Sources - Operating,' TS 3.8.9, 'Distribution Systems - Operating,' and TS Example 1.3-3."

**NRC Question 1:**

*Are there any changes to, additions to, or deletions of operator actions proposed in the License Amendment Request (LAR), other than those listed below?*

- a. Manual operation of one or more Level Control Valves (LCVs) after the loss of Auxiliary Feedwater (AFW) automatic operation.*
- b. Operator action to provide pump run-out protection if in manual control.*
- c. Manual action by the plant operator to terminate flow from the Turbine- driven Auxiliary Feedpump to a depressurized steam generator.*

**PG&E Response:**

The actions in NRC question 1 describe the operator actions associated with manual control of AFW as described in Pacific Gas and Electric Company (PG&E) Letter DCL-11-059 (Reference 1). No changes to, additions to, or deletions of operator actions are required. The operator actions for manual control of AFW are not new actions for Diablo Canyon Power Plant (DCPP) operators. Plant procedures provide instruction for manual control of AFW LCVs. As discussed on page 7 of Enclosure 1 Reference 1, the AFW system is designed for manual operator control. The manual action listed above in 1c to terminate the turbine-driven auxiliary feedpump flow to a faulted (depressurized) steam generator (SG) is already a time critical operator action (TCOA) that has been validated and is re-validated periodically.

The addition of new TS 3.7.5 Condition B, Required Action B.1, "Place affected AFW level control valve(s) in manual control with valve demand full open," is consistent with existing plant procedures. Operator action to provide pump run-out protection is not required to mitigate any design basis accidents, but the designated manual control is being implemented as a prudent action.

**NRC Question 2:**

*If yes, describe the additional actions, changes, or deletions, and identify the associated TSTF and the scenario in which the action is required.*

**PG&E Response:**

Not applicable. See response to NRC Question 1.

**NRC Question 3:**

*Are there any changes to, additions to, or deletions of procedure steps required to support the LAR?*

**PG&E Response:**

Manual control of AFW has always been included in PG&E procedures and practices. The AFW system is designed for manual operator control and the procedural steps for manual control of AFW LCVs are already included in plant procedures.

Operating procedures OP O-2, "Operation of Process Hand Controllers" and OP AP-5, "Malfunction of Eagle 21 Protection or Control Channel" were identified and will be revised to reflect the following regulatory commitment via update to the procedures and procedure commitment database as provided in Reference 1: "If AFW LCV control is placed in manual alignment due to a failure of automatic control, PG&E will assign an operator for manual operation."

PG&E is revising the above regulatory commitment originally provided in Reference 1 to:

"If steam generator level control is placed in manual alignment due to a failure of automatic control, PG&E will assign a dedicated operator for manual operation."

Adding "dedicated" is a clarification consistent with the original intent of the regulatory commitment in Reference 1.

A review of open procedure change requests associated with procedures for manual AFW control identified recommended enhancements to procedure OP O-2, "Operation of Process Hand Controllers," which will be reviewed for inclusion in the changes discussed above required to capture the commitment. The enhancements would provide additional guidance for placing the hand controller back in auto and more specific instruction for providing manual runout protection of the pumps. As discussed in response to NRC question 1, operator action to provide pump runout protection is not required to mitigate any design basis accidents but the designated manual control is being implemented as a prudent action.

**NRC Question 4:**

*Are there any changes to, additions to, or deletions from training required to support the LAR?*

**PG&E Response:**

No changes to, additions to, or deletions from training are required to support the operator actions described in the LAR.

The procedure changes discussed above in response to NRC question 3 will be provided to the training department for evaluation of any training changes needed. Likewise, upon receiving a license amendment to revise the TS, the training department would review to determine any impacts on training.

**NRC Question 5:**

*Are there any changes to, additions to, or deletions to the simulator required to support the LAR?*

**PG&E Response:**

No changes to, additions to, or deletions to the simulator are required to support the LAR.

**NRC Question 6:**

*Are any modifications to the Main Control Room or alternate shutdown panel required to support the LAR?*

**PG&E Response:**

No modifications to the Main Control Room or hot shutdown panel are required to support the LAR.

**NRC Question 7:**

*What cues (alarms, annunciators, indications) alert operators that action is required?*

**PG&E Response:**

As discussed on page 2 of Enclosure 1 of PG&E Letter DCL-12-017 (Reference 2), a "trouble" status light and a "Channel Set Failure" annunciator would alert operators that a fatal diagnostic detection occurred on Eagle 21 upon a rack lockup.

During Unit 1 Refueling Outage 17, a median signal select was added to Unit 1 to address the Eagle-21 rack lockup vulnerability. The controls use a median signal select (of the three narrow range SG levels per SG) and now require two narrow range level failures to impact a LCV. Single narrow range SG level control failures do not impact motor driven AFW (MDAFW) LCV controls on Unit 1. Two failures will also cause the LCV to fail to manual and an annunciator now alarms to give the operator warning that

an AFW LCV has failed to manual. The same changes are scheduled to be made during Unit 2 Refueling Outage 17.

In addition, if SG level is out of normal range (for any reason), it would be indicated and would generate an alarm in the control room.

**NRC Question 8:**

*What instrumentation will be used by operators to control processes of interest within the required band of operation?*

**PG&E Response:**

In the control room, SG pressure, SG narrow range level, SG wide range level, AFW flow, MDAFW pump discharge pressure, and motor amps all provide feedback to operators for control of AFW. A lamicoid installed on the apron between the motor current indications for the MDAFW pumps provides values for motor current at recirculation, full load, and maximum amps as a cue to throttle the LCVs depending on pump amperage.

At the hot shutdown panel, SG pressure, SG wide range level, AFW flow, and pump discharge pressure all provide feedback to operators for control of AFW.

**NRC Question 9:**

*How will operators know when actions identified in your response to Question 1 are no longer needed?*

**PG&E Response:**

The actions for manual control of AFW (NRC question 1a and 1b) are directly associated with TS 3.7.5 Condition B, Required Action B.1 and will no longer be needed when the AFW LCV automatic control has been restored to OPERABLE, which would occur after completion of maintenance and post maintenance testing.

The manual action by the plant operator to terminate flow from the Turbine- driven Auxiliary Feedpump (NRC question 1c) to a depressurized steam generator is a TCOA that would be concluded upon completion of the action.

No additional actions were identified in response to NRC question 1.

**NRC Question 10:**

*How were the actions that were identified as supporting the LAR confirmed as feasible, reliable, and timely? If a proceduralized verification and validation (V&V) program was used, provide the procedure number, title, and a short description of the procedure.*

**PG&E Response:**

As discussed in PG&E response to NRC questions 1 and 3, the AFW system is designed for manual operator control. The proposed changes to the TS for actions to take when automatic AFW level control is inoperable will not require any changes to, additions to, or deletions of operator actions, modifications to the simulator, modification to the control room, or modification to the hot shutdown panel. Procedural changes are discussed in response to NRC question 3. The TCOA discussed in response to NRC question 1c has been and is periodically revalidated in accordance with DCPP procedure OP1.ID2, "Time Critical Operator Action."

Procedure OP1.ID2 provides a method to communicate to the DCPP operations organization any engineering assumptions, specifications or conclusions, which require completion of certain required operator actions to satisfy an engineering requirement, to obtain DCPP operations organization agreement that the engineering requirement is reasonable and achievable, and give high confidence that plant personnel can successfully accomplish the TCOAs. OP1.ID2 is also used to document periodic revalidation of credited action times and verify that any changes to the plant or to procedures or protocols do not invalidate credited action times.

**NRC Question 11:**

*Will the Safety Parameter Display System be affected by the LAR?*

**PG&E Response:**

The Safety Parameter Display System will not be affected by the LAR.

**NRC Question 12:**

*Was a Human Reliability Analysis done in support of the LAR? If yes, what insights were applied to make the operators more likely to succeed, and to make errors more easily recovered?*

**PG&E Response:**

No. The actions for manual control of AFW LCVs are not new actions and no new human reliability analysis was done for the LAR.

**NRC Question 13:**

*Mention is made in the LAR of assigning an operator to monitor and control AFW when the system is in manual control. Explain how this "assignment" will affect the operators' normal duties; e.g., will the operator be "dedicated" to manual operation of AFW with no other duties? Or will the operator be required to perform his other duties while focusing on AFW control?*

**PG&E Response:**

Two normal operating procedures were identified that will be revised to reflect the regulatory commitment provided in Reference 1 as clarified in the response above to NRC question 3.

The assigned operator will be dedicated to manual operation of AFW with no other duties.

**NRC Question 14:**

*Will operator roles change during design basis accidents as a result of assigning an operator to manually control AFW?*

**PG&E Response:**

As discussed above in response to NRC question 13, an additional operator beyond that required for minimum staff will be dedicated to manual operation of AFW with no other duties if AFW automatic LCV control is inoperable. Operator roles will not be changed during design basis accidents. If a dedicated operator is not available for AFW manual control while in proposed TS 3.7.5 Condition B, the associated AFW train would be declared inoperable.

**NRC Question 15:**

*In FSAR Section 15.4.3.2.1, SGTR Margin to Overfill (MTO) Analysis, the licensee identifies that the limiting single failure is a failure of an AFW control valve to close. No discussion of the event was provided in the June 1, 2011, submittal. The licensee proposes to replace automatic actions with manual actions for the AFW FCVs in the event of a card failure. The licensee proposes to position the AFW FCV full open. In a full open position and no automatic throttling close, there may be an adverse affect associated with the evaluation of a SGTR MTO with the other AFW FCV going open being the limiting single failure. The staff requests the licensee evaluate the proposed conditions of a card failure, in conjunction with the limiting single failure of an AFW FCV control valve to close and demonstrate adequate margin to steam generator overfill still exists. Identify operator actions and times for this condition.*

**PG&E Response:**

LAR 11-04 only evaluated those design basis events that require minimum AFW flow for decay heat removal since this is the only credited safety function that could potentially be adversely impacted due to the loss of automatic operation for the MDAFW LCVs. The turbine-driven AFW (TDAFW) LCVs are not impacted by this LCO condition since they have no automatic control functions and are always in manual control and initially set to 100 percent open. The FSAR safety analyses do not credit the automatic throttling of the MDAFW LCVs to reduce flow for events where maximum AFW flow is more limiting. Since the steam generator tube rupture (SGTR) MTO



Analysis is limiting based on assuming maximum AFW flow to the ruptured SG, the analysis already assumes the TDAFW LCV is full open and there is a limiting single failure of the MDAFW control valve to close on the ruptured SG. The SGTR MTO analysis also assumes minimum AFW flow to the intact SGs since this maximizes the AFW flow to the ruptured SG. Therefore, the proposed conditions in LAR 11-04 in conjunction with any subsequent failure of an AFW LCV feeding an intact SG could only reduce the net AFW flow into the ruptured SG and make the event less limiting. The proposed conditions do not impact or change the manual operator actions credited for the SGTR MTO analysis. The analysis already assumes the operators terminate AFW flow to the ruptured SG by manually isolating the TDAFW pump LCV and manually securing the MDAFW pump feeding the ruptured SG in response to failed open MDAFW pump LCV.

In summary, the changes proposed in LAR 11-04 do not adversely impact any SGTR MTO analysis assumptions which remain conservatively bounding.

#### **REFERENCES:**

1. PG&E Letter DCL-11-059, "License Amendment Request 11-04, Revision to Technical Specification (TS) 3.6.6, 'Containment Spray and Cooling Systems,' TS 3.7.5, 'Auxiliary Feedwater (AFW) System,' TS 3.8.1, 'AC Sources - Operating,' TS 3.8.9, 'Distribution Systems - Operating,' and TS Example 1.3-3," dated June 1, 2011
2. PG&E Letter DCL-12-017, "Response to NRC Request for Additional Information regarding PG&E Letter DCL-11-059, License Amendment Request 11-04, Revision to Technical Specification (TS) 3.6.6, 'Containment Spray and Cooling Systems,' TS 3.7.5, 'Auxiliary Feedwater (AFW) System,' TS 3.8.1, 'AC Sources - Operating,' TS 3.8.9, 'Distribution Systems - Operating,' and TS Example 1.3-3," dated February 6, 2012