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August 9, 2007

PG&E Letter DCL-07-075

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

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
Supplement to License Amendment Request 07-01, "Revision to Technical Specifications to Support Steam Generator Replacement," and Response to Request For Additional Information

References: 1. PG&E Letter DCL-07-002, "License Amendment Request 07-01, Revision to Technical Specifications to Support Steam Generator Replacement," dated January 11, 2007

2. Technical Specification Task Force Technical Specification Change Traveler, TSTF-493, Revision 2, "Clarify Application of Setpoint Methodology for LSSS Functions," dated April 16, 2007

Dear Commissioners and Staff:

Pacific Gas and Electric Company (PG&E) submitted License Amendment Request (LAR) 07-01, "Revision to Technical Specifications to Support Steam Generator Replacement," in Reference 1. LAR 07-01 proposes to revise Technical Specification (TS) 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," to support replacement of the steam generators (SGs). This letter provides revised TS 3.3.2 Table Notes and revised TS 3.3.2 Bases based on Reference 2, provides response to an NRC request for additional information, and provides a revised Table containing the SG narrow range level uncertainty calculation inputs and results for the SG Water Level-High High nominal trip setpoint.

Reference 1 proposed new Notes (d) and (e) to be added to the Surveillance Requirements column of Diablo Canyon ESFAS Instrumentation Table 3.3.2-1 for Function 5.b, "Feedwater Isolation, SG Water Level-High High (P-14)." Notes (d) and (e) would provide additional requirements for the Table 3.3.2-1 Function 5.b channel setpoints. Reference 2, submitted by the industry TS Task Force, provides revised TS Table 3.3.2-1 Notes that supersede Notes (d) and (e) originally proposed in Reference 1. A description of the required changes to Notes (d) and (e), and an additional basis for Note (e) proposed in Reference 1 is contained in Enclosure 1.

A001
NRR

A revised marked-up TS page for Table 3.3.2-1, Page 3.3-31, is contained in Enclosure 2, and a revised retyped TS page 3.3-31 is contained in Enclosure 3. The revised marked-up and retyped TS Pages 3.3-31 supersede those previously provided in Enclosure 2 and Enclosure 3 of Reference 1, respectively.

Revised marked-up TS Bases pages for TS 3.3.2 consistent with Reference 2, are provided for information only in Enclosure 4. The revised TS Bases pages for TS 3.3.2 supersede those previously provided in Enclosure 4 of Reference 1. The TS Bases changes will be implemented pursuant to TS 5.5.14, "Technical Specifications Bases Control Program."

The NRC staff provided a request for additional information related to the information submitted in Reference 1 on March 2, 2007. The response to this request for additional information is contained in Enclosure 5.

The inputs and results of the calculation for the SG Water Level-High High nominal trip setpoint associated with TS 3.3.2, Table 3.3.2-1 ESFAS Function 5.b, were provided in Reference 1, Enclosure 8, Table 1. Several revisions to the SG narrow range level uncertainty calculation for the SG Water Level-High High nominal trip setpoint have been made that affect the results provided in Table 1. A revised Table 1 is provided in Enclosure 9 of this letter that supersedes Table 1 in Enclosure 8 of Reference 1 in its entirety. The description of the SG narrow range level uncertainty calculation input changes, the reason for the input changes, and the effect are described in Enclosure 6.

Enclosures 7 and 9 contain nonproprietary and proprietary information related to the revised ESFAS Function 5.b setpoints, respectively. Enclosure 9 contains information proprietary to Westinghouse Electric Company LLC (Westinghouse). Accordingly, Enclosure 8 includes a Westinghouse Authorization Letter, CAW-07-2312, an accompanying affidavit, a Proprietary Information Notice, and a Copyright Notice. The affidavit is signed by Westinghouse, the owner of the information. The affidavit sets forth the basis on which the Westinghouse proprietary information contained in Enclosure 9 may be withheld from public disclosure by the Commission, and it addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR 2.390 of the Commission's regulations. PG&E requests that the Westinghouse proprietary information be withheld from public disclosure in accordance with 10 CFR 2.390.

Correspondence with respect to the copyright or proprietary aspects of the application for withholding related to the Westinghouse proprietary information or the Westinghouse affidavit provided in Enclosure 8 should reference Westinghouse Letter CAW-07-2312, and be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania, 15230-0355.

The background Section 3.0 of Reference 1 stated that since the existing (Westinghouse Model 51) SGs and replacement Westinghouse Model Delta-54 SGs are similar, the SG replacement is being evaluated under 10 CFR 50.59. This statement was provided for background information only in order to define the scope of changes being requested for NRC approval by Reference 1. This statement was not part of the technical analysis supporting the requested changes. PG&E is not requesting the NRC to make a regulatory finding that the existing SGs are similar to the replacement SGs and is not requesting that the NRC rely on the statement that the SGs are similar as part of the review of the TS changes proposed in Reference 1.

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

PG&E makes no regulatory commitments (as defined by NEI 99-04) in this letter. This letter includes no revisions to existing regulatory commitments.

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

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

Executed on August 9, 2007.

Sincerely,

James R. Becker
Vice President - Diablo Canyon Operations and Station Director

kjse/4328
Enclosures
cc: Michael A. Brown
Bruce S. Mallett
Sandra Shewry, DHS
Diablo Distribution
cc/enc: Alan B. Wang, Project Manager NRR

Revised TS 3.3.2 Table 3.3.2-1 Notes (d) and (e) Based on TSTF-493, Revision 2, for License Amendment Request 07-01, "Revision to Technical Specifications to Support Steam Generator Replacement"

Pacific Gas and Electric Company (PG&E) Letter DCL-07-002, "License Amendment Request 07-01, Revision to Technical Specifications to Support Steam Generator Replacement," dated January 11, 2007, Enclosure 2, Inserts 1 and 2, proposed Notes (d) and (e) to be added to the Surveillance Requirements column of Diablo Canyon Power Plant (DCPP) Engineered Safety Feature Actuation System (ESFAS) Instrumentation Table 3.3.2-1 for Function 5.b "Feedwater Isolation, SG Water Level - High High (P-14)." Technical Specification (TS) Table 3.3.2-1, Notes (d) and (e), in PG&E Letter DCL-07-002, were based on Notes 1 and 2, respectively, contained in the letter, "Technical Specification For Addressing Issues Related To Setpoint Allowable Values," (AV) from Patrick Hiland, Chief of Reactor Operations Branch, to Mike Schoppman, Nuclear Energy Institute, dated September 7, 2005, as well as Notes 1 and 2 contained in the TS Task Force (TSTF) Standard TS Change Traveler, TSTF-493, Revision 1, "Clarify Application of Setpoint Methodology for LSSS Functions," dated October 2, 2006. Subsequent to the Hiland letter dated September 7, 2005, and TSTF-493, Revision 1, the TSTF has submitted Standard TS Change Traveler, TSTF-493, Revision 2, "Clarify Application of Setpoint Methodology for LSSS Functions," dated April 16, 2007, that provides revised Notes 1 and 2 to be used for TS Table 3.3.2-1 setpoints.

Note 1 contained in TSTF-493, Revision 2, is as follows:

> "If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service."

Note (d) for TS Table 3.3.2-1, contained in Insert 1 of Enclosure 2 of PG&E Letter DCL-07-002, which is equivalent to Note 1 contained in the Hiland letter dated September 7, 2005, and TSTF-493, Revision 1, is as follows:

> "If the as-found channel setpoint is conservative with respect to the Allowable Value but outside its predefined as-found acceptance criteria band, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. If the as-found instrument channel setpoint is not conservative with respect to the Allowable Value, the channel shall be declared inoperable. Footnote (a) does not apply to this function."

In order to provide consistency with Note 1 contained in TSTF-493, Revision 2, Note (d) for TS Table 3.3.2-1, will be revised to be as follows:

> "If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. Footnote (a) does not apply to this function."

The only difference between the Note (d) proposed above and Note 1 contained in TSTF-493, Revision 2, is the addition of the last sentence. This sentence is required to be added so that current Note (a) in TS Table 3.3.2-1 cannot supersede new Note (d). The addition of Note (d) will ensure that the channel is performing as expected prior to returning it to service when the channel's as-found value is conservative with respect to the AV but the setpoint is outside the as-found tolerance.

A revised marked-up TS page for Table 3.3.2-1, Page 3.3-31, is contained in Enclosure 2, and a revised retyped TS page 3.3-31 is contained in Enclosure 3. The revised marked-up and retyped TS Pages 3.3-31 supersede those previously provided in Enclosure 2 and Enclosure 3 of PG&E Letter DCL-07-002, respectively.

Note 2 contained in TSTF-493, Revision 2, is as follows:

> "The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the [Limiting Trip Setpoint (LTSP) or Nominal Trip Setpoint (NTSP)] at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the [LTSP or NTSP] are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures to confirm channel performance. The [Limiting Trip Setpoint or Nominal Trip Setpoint and the] methodologies used to determine the as-found and the as-left tolerances are specified in [a document controlled under 10 CFR 50.59]."

Note (e) for TS Table 3.3.2-1, contained in Insert 1 of Enclosure 2 of PG&E Letter DCL-07-002, which is equivalent to Note 2 contained in the Hiland letter dated September 7, 2005, and TSTF-493, Revision 1, is as follows:

> "The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures to confirm channel performance. The methodologies used to determine the as-found and the as-left tolerance are specified in the Equipment Control Guidelines. Footnote (a) does not apply to this function."

In order to provide consistency with Note 2 contained in TSTF-493, Revision 2, Note (e) for TS Table 3.3.2-1, will be revised to be as follows:

> "The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the

surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures to confirm channel performance. The methodologies used to determine the as-found and the as-left tolerances are specified in the Equipment Control Guidelines. Footnote (a) does not apply to this function."

The only difference between the Note (e) proposed above, and Note 2 contained in TSTF-493, Revision 2, is the addition of the last sentence that footnote (a) does not apply to this function. This last sentence is required to be added to Note (e) so that current Note (a) in TS Table 3.3.2-1 cannot supersede new Note (e) that is being added. The addition of Note (e) will ensure that the channel is performing as expected following the completion of the surveillance, and that when setpoints more conservative than the NTSP are used appropriate as-found and as-left tolerances are used in the Surveillance procedures to confirm channel performance.

Note (e) uses, "Nominal Trip Setpoint (NTSP)," from the bracketed portion of the first and second sentence of Note 2 of TSTF-493, Revision 2, because DCPP TS Table 3.3.2-1 contains the NTSP instead of the LTSP. Note (e) does not contain the text contained in the brackets in the third sentence of Note 2 of TSTF-493, Revision 2, which states, "[Limiting Trip Setpoint or Nominal Trip Setpoint and the]," because this text applies to plants that only contain the AVs in the TS 3.3.2 ESFAS Instrumentation Table. For plants that have the AVs and NTSP in the TS Function Table (referred to as multiple column format TS plants) such as DCPP, this bracketed text does not apply because the NTSP is already contained in TS Table 3.3.2-1, and NRC review and approval would be needed to revise the NTSP. Thus, for DCPP there is no need to also include the NTSP in a document controlled under 10 CFR 50.59. This is consistent with the guidance on the top of Page 2 in TSTF-493, Revision 2, that states, "Those plants that utilize the 'multiple column' format are not required to incorporate the NTSP value in the last sentence in Note 2 because any change to the value requires prior NRC review and the values cannot be changed by the licensee under 10 CFR 50.59. For plants that specify the [NTSP] or [LTSP] instead of the Allowable Value, the same restrictions apply and the identification of the [LTSP] or [NTSP] in the last sentence in Note 2 is not required."

Finally, the second to last sentence of Note (e) includes, "the Equipment Control Guidelines," (ECGs) for the bracketed part of the third sentence of Note 2 of TSTF-493, Revision 2, which states, "[a document controlled under 10 CFR 50.59]." The ECGs is a document controlled under 10 CFR 50.59, as identified in the first paragraph of page 10 of Enclosure 1 of PG&E Letter DCL-07-002. This was identified as part of Regulatory Commitment 3 to the NRC in Enclosure 5 of PG&E Letter DCL-07-002. Thus the proposed footnote (e) meets the requirements of TSTF-493, Revision 2, to provide in Note 2 the specific name of the document controlled under 10 CFR 50.59, that contains the methodologies used to determine the as-found and as-left tolerances.

Page 10 of Enclosure 1 of PG&E Letter DCL-07-002 states, "PG&E will develop the LTSP (safety analysis limit adjusted by the channel uncertainty) for ESFAS Function 5.b, and that the LTSP for this function will be included in the ECGs, which is a 10 CFR 50.59 controlled document." This was identified as Commitment 2 in Enclosure 5 of PG&E Letter DCL-07-002. Since DCPP uses the NTSP in TS Table 3.3.2-1, which is more conservative than the LTSP (the NTSP contains additional margin beyond the LTSP), there is no reason to also include the LTSP in the ECGs because the setpoint that is actually used is the NTSP contained in TS Table 3.3.2-1. Including the LTSP in the ECGs does not add any additional value. Therefore, the LTSP for ESFAS Function 5.b will not be included in the ECGs, and Commitment 2 in Enclosure 5 of PG&E Letter DCL-07-002 is deleted.

Revised marked-up TS Bases pages for TS 3.3.2 consistent with TSTF-493, Revision 2, are provided for information only in Enclosure 4. The revised TS Bases pages for TS 3.3.2 supersede those previously provided in Enclosure 4 of PG&E Letter DCL-07-002. The TS Bases changes will be implemented pursuant to TS 5.5.14, "Technical Specifications Bases Control Program."

Proposed Technical Specification Page 3.3-31 (marked-up)

Table 3.3.2-1 (page 5 of 7)
Engineered Safety feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL [a] TRIP SETPOINT
5. Feedwater Isolation (continued)						
b. SG Water Level-High High (P-14)	1,2[j]	3 per SG	J	SR 3.3.2.1 SR 3.3.2.5 (d)(e) SR 3.3.2.9 (d)(e) SR 3.3.2.10	≤ ~~75.2%~~ 90.2%	~~75%~~ 90.0%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
a. Manual	1,2,3	1 sw/pp	N	SR 3.3.2.13	NA	NA
b. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Not used						
d.1 SG Water Level-Low Low	1,2,3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 14.8%	15.0%

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.

(j) Except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve.

(d) ← Insert 1

(e) ← Insert 2

Technical Specification Inserts
Table 3.3.2-1

Insert 1

If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. Footnote (a) does not apply to this function.

Insert 2

The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures to confirm channel performance. The methodologies used to determine the as-found and the as-left tolerances are specified in the Equipment Control Guidelines. Footnote (a) does not apply to this function.

Proposed Technical Specification Page 3.3-31 (retyped)

Table 3.3.2-1 (page 5 of 7)
Engineered Safety feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL [(a)] TRIP SETPOINT
5. Feedwater Isolation (continued)						
b. SG Water Level-High High (P-14)	1,2[(j)]	3 per SG	J	SR 3.3.2.1 SR 3.3.2.5[(d)(e)] SR 3.3.2.9[(d)(e)] SR 3.3.2.10	≤ 90.2%	90.0%
c. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
a. Manual	1,2,3	1 sw/pp	N	SR 3.3.2.13	NA	NA
b. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	G	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Not used						
d.1 SG Water Level-Low Low	1,2,3	3 per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ 14.8%	15.0%

(continued)

(a) A channel is OPERABLE with an actual Trip Setpoint value outside its calibration tolerance band provided the Trip Setpoint value is conservative with respect to its associated Allowable Value and the channel is re-adjusted to within the established calibration tolerance band of the Nominal Trip Setpoint. A Trip Setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions.

(j) Except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve.

(d) If the as-found channel setpoint is outside its predefined as-found tolerance, then the channel shall be evaluated to verify that it is functioning as required before returning the channel to service. Footnote (a) does not apply to this function.

(e) The instrument channel setpoint shall be reset to a value that is within the as-left tolerance around the Nominal Trip Setpoint (NTSP) at the completion of the surveillance; otherwise, the channel shall be declared inoperable. Setpoints more conservative than the NTSP are acceptable provided that the as-found and as-left tolerances apply to the actual setpoint implemented in the Surveillance procedures to confirm channel performance. The methodologies used to determine the as-found and the as-left tolerances are specified in the Equipment Control Guidelines. Footnote (a) does not apply to this function.

Proposed Technical Specification 3.3.2 Bases Changes
(For Information Only)

B 3.3 INSTRUMENTATION

B 3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

BASES

BACKGROUND

The ESFAS initiates necessary safety systems, based on the values of selected unit parameters, to protect against violating core design limits and the Reactor Coolant System (RCS) pressure boundary, and to mitigate accidents.

Insert 1 →

The ESFAS instrumentation is segmented into three distinct but interconnected modules as identified below:

- Field transmitters or process sensors and instrumentation: provide a measurable electronic signal based on the physical characteristics of the parameter being measured;
- Signal processing equipment including digital protection system, field contacts, and protection channel sets: provide signal conditioning, bistable setpoint comparison, process algorithm actuation, compatible electrical signal output to protection system devices, and control board/control room/miscellaneous indications; and
- Solid State Protection System (SSPS) including input, logic, and output bays: initiates the proper unit shutdown or engineered safety feature (ESF) actuation in accordance with the defined logic and based on the bistable outputs from the signal process control and protection system. The residual heat removal pump trip or refueling water storage tank level-low signal is not processed by the SSPS. The associated relays are located in the residual heat removal pumps control system.

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. In many cases, field transmitters or sensors that input to the ESFAS are shared with the Reactor Trip System (RTS). In some cases, the same channels also provide control system inputs. To account for calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the Trip Setpoint and Allowable Values. The OPERABILITY of each transmitter or sensor can be evaluated when its "as found" calibration data are compared against its documented acceptance criteria.

(continued)

BASES

BACKGROUND (continued)

Trip Setpoints and Allowable Values

The Trip Setpoints are the nominal values at which the bistables are set. Any bistable is considered to be properly adjusted when the "as left" value is within the two-sided tolerance band for calibration accuracy.

The Trip Setpoints used in the bistables are based on the analytical limits stated in Reference 2. The selection of these Trip Setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those ESFAS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 5), the Trip Setpoints and Allowable Values specified in Table 3.3.2-1 in the accompanying LCO are conservatively adjusted with respect to the analytical limits. A detailed description of the methodology used to calculate the Trip Setpoints, including their explicit uncertainties, is provided in WCAP-11082, Rev. 6, "Westinghouse Setpoint Methodology for Protection Systems Diablo Canyon Units 1 & 2, 24 Month Fuel Cycle Evaluation," February 2003 (Ref. 12), calculation J-54 Rev 15 (Ref. 13) and calculation J-110 Rev 5 (Ref. 14). Interlock setpoints are nominal values provided in the PLS (Westinghouse Precautions Limitations and Setpoints) and their allowable values are calculated in Calculation J-110 Rev. 5 (Ref. 14). The actual nominal Trip Setpoint entered into the bistable is more conservative than that specified by the Allowable Value to account for Rack Drift and Rack Measuring and Test Equipment uncertainties. The calibration tolerance, after conversion, should correspond to the rack comparator setting accuracy defined in the latest setpoint study. One example of such a change in measurement error is drift during the surveillance interval. If the measured setpoint ~~does not exceed~~ is conservative with respect to the Allowable Value, the bistable is considered OPERABLE. Rack drift in excess of the Allowable Value exhibits the behavior that the rack has not met its allowance. Since there is a small statistical chance that this will happen, an infrequent excessive drift is expected. Rack or sensor drift in excess of the allowance that is more than occasional may be indicative of more serious problems and warrants further investigation.

Insert 2

Insert 3

Insert 4

Insert 5

(continued)

and in conjunction with the use of as-found and as-left tolerances

BASES

BACKGROUND

Trip Setpoints and Allowable Values (continued)

Setpoints in accordance with the Allowable Value ensure that the consequences of Design Basis Accidents (DBAs) will be acceptable, providing the unit is operated from within the LCOs at the onset of the DBA and the equipment functions as designed.

Insert 6

Certain channels can be tested on line to verify that the signal processing equipment and setpoint accuracy is within the specified allowance requirements for Reference 2. Once a designated channel is taken out of service for testing, a simulated signal is injected in place of the field instrument signal. The process equipment for the channel in test is then tested, verified, and calibrated. SRs for the channels are specified in the SR section.

The Trip Setpoints and Allowable Values listed in Table 3.3.2-1 are based on the methodology described in Reference 12, 13, and 14, which incorporates all of the known uncertainties applicable for each channel. The magnitudes of these uncertainties are factored into the determination of each Trip Setpoint. In the event a channel's setpoint is found nonconservative with respect to the specified Trip Setpoint, but more conservative than the Allowable Value, the setpoint must be adjusted consistent with the Trip Setpoint value. When a channel's Trip Setpoint is nonconservative with respect to the Allowable Value, declare the channel inoperable and apply the applicable ACTION statement until the channel is returned to OPERABLE status with its Setpoint adjusted consistent with the Trip Setpoint value. All field sensors and signal processing equipment for these channels are assumed to operate within the allowances of these uncertainty magnitudes.

The ESFAS Trip Setpoints may be administratively redefined in the conservative direction for several reasons including startup, testing, process error accountability, or even a conservative response for equipment malfunction or inoperability. ESFAS functions are not historically redefined at the beginning of each cycle for purposes of startup or testing as several reactor Trip functions are. However, calibration to within the defined calibration tolerance of an administratively redefined, conservative Trip Setpoint is acceptable. Redefinition at full power conditions for these functions is expected and acceptable.

(continued)

BASES

BACKGROUND

Solid State Protection System (continued)

The SLAVE RELAY TEST interval is 24 months. The test frequency is based on relay reliability assessments presented in WCAP-13878, "Reliability Assessment of Potter and Brumfield MDR Series Relays," WCAP-13900, "Extension of Slave Relay Surveillance Test Intervals," and WCAP-14117, "Reliability Assessment of Potter and Brumfield MDR Series Relay." These reliability assessments are relay specific and apply only to Potter and Brumfield MDR series relays which are the only relays used in the ESF actuation system. Note that for normally energized applications, the relays may have to be replaced periodically in accordance with the guidance given in WCAP-13878 for MDR relays.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

Each of the analyzed accidents can be detected by one or more ESFAS Functions. One of the ESFAS Functions is the primary actuation signal for that accident. An ESFAS Function may be the primary actuation signal for more than one type of accident. An ESFAS Function may also be a secondary, or backup, actuation signal for one or more other accidents. Functions such as manual initiation, not specifically credited in the accident safety analysis, are qualitatively credited in the safety analysis and the NRC staff approved licensing basis for the unit. These Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. These Functions may also serve as backups to Functions that were credited in the accident analysis (Ref. 3).

Insert 7

Insert 8

The LCO requires all instrumentation performing an ESFAS Function to be OPERABLE. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

Insert 9

The LCO generally requires OPERABILITY of four or three channels in each instrumentation function and two channels in each logic and manual initiation function. The two-out-of-three and the two-out-of-four configurations allow one channel to be tripped, cut-out or bypassed during maintenance or testing without causing an ESFAS initiation. Two logic or manual initiation channels are required to ensure no single random failure disables the ESFAS.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.2

SR 3.3.2.2 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 92 days on a STAGGERED TEST BASIS, using the semiautomatic tester. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and that there is an intact voltage signal path to the master relay coils. The Frequency of every 92 days on a STAGGERED TEST BASIS is justified in Reference 18.

SR 3.3.2.3 - Not used

SR 3.3.2.4

SR 3.3.2.4 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 92 days on a STAGGERED TEST BASIS. The time allowed for the testing (4 hours) is justified in Reference 8. The frequency of 92 days on a STAGGERED TEST BASIS is justified in Reference 18.

SR 3.3.2.5

SR 3.3.2.5 is the performance of a COT.

conservative with respect to →

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. Setpoints must be found ~~within~~ the Allowable Values specified in Table 3.3.1-1.

The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology. The setpoint shall be left set consistent with the assumptions of the current unit specific setpoint methodology.

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of the surveillance interval extension analysis (Ref. 8) when applicable.

The Frequency of 184 days is justified in Reference 18.

Insert 10 →

(continued)

BASES

SURVEILLANCE REQUIREMENTS (*continued*)

SR 3.3.2.6

SR 3.3.2.6 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function, or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay. This test is performed every 24 months. The Frequency is adequate, based on operating experience, considering relay reliability and operating history data (Ref. 7)

SR 3.3.2.7 - Not used

SR 3.3.2.8

SR 3.3.2.8 is the performance of a TADOT. This test is a check of the Manual Actuation Functions (except AFW; see SR 3.3.2.13). It is performed every 24 months. Each Manual Actuation Function is tested up to, and including, the master relay coils. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). The Frequency is adequate, based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT for manual initiation Functions. The manual initiation Functions have no associated setpoints.

SR 3.3.2.9

SR 3.3.2.9 is the performance of a CHANNEL CALIBRATION.

A CHANNEL CALIBRATION is performed every 24 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as-found" values and the previous test "as-left" values must be consistent with the drift allowance used in the setpoint methodology.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.2.9 (continued)

Whenever an RTD is replaced in Function 6.d., the next required CHANNEL CALIBRATION of the RTDs is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.

The Frequency of 24 months is based on the assumption of an 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable.

Insert 11 →

SR 3.3.2.10

This SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. RESPONSE TIME testing acceptance criteria and the individual Functions requiring RESPONSE TIME Verification are included in ECG 38.2. Individual component response times are not modeled in the analyses. The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the Trip Setpoint value at the sensor, to the point at which the equipment in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position).

For channels that include dynamic transfer functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer functions set to one with the resulting measured response time compared to the appropriate FSAR response time. Alternately, the response time test can be performed with the time constants set to their nominal value provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: 1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), 2) inplace, onsite, or offsite (e.g., vendor) test measurements, or 3) utilizing vendor engineering specifications. WCAP-13632-P-A, revision 2, "elimination of Pressure sensor

(continued)

BASES

REFERENCES (continued)

9. WCAP-13878, "Reliability of Potter & Brumfield MDR Relays", June 1994.

10. WCAP-14117, "Reliability Assessment of Potter and Brumfield MDR Series Relays."

11. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996.

12. WCAP-11082, Revision 6, "Westinghouse Setpoint Methodology for Protection Systems, Diablo Canyon Units 1 and 2, 24 Month Fuel Cycle Evaluation," February 2003.

13. Calculation J-54, "Nominal Setpoint Calculation for Selected PLS Setpoints."

14. J-110, "24 Month Fuel Cycle Allowable Value Determination / Documentation and ITDP Uncertainty Sensitivity."

15. License Amendment 61/60, May 23, 1991.

16. WCAP-14036-P-A, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," October 1998.

17. WCAP-14333-P-A, Revision 1, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times," October 1998.

18. WCAP-15376-P-A, Revision 1, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," March 2003.

19. 10 CFR 50.55a(h), "Protection and Safety Systems."

Technical Specification Bases Inserts
Sections B 3.3.2

Insert 1

For Function 5.b in Technical Specification (TS) Table 3.3.2-1, this is achieved by specifying limiting safety system settings (LSSS) in terms of parameters directly monitored by the ESFAS, as well as specifying Limiting Conditions for Operations on other system parameters and equipment performance. The subset of LSSS that directly protect against violating the reactor core and Reactor Coolant System (RCS) pressure boundary safety limits (SL) during anticipated operational occurrences (AOOs) are referred to as SL-LSSS.

The next four paragraphs apply only to Function 5.b in TS Table 3.3.2-1.

Technical Specifications are required by 10 CFR 50.36 to contain SL-LSSS defined by the regulation as, "...settings for automatic protective devices...so chosen that automatic protective action will correct the abnormal situation before a Safety Limit (SL) is exceeded." The Analytical Limit is the limit of the process variable at which a safety action is initiated, as established by the safety analysis, to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the Analytical Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protective devices must be chosen to be more conservative than the Analytical Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur.

The Nominal Trip Setpoint (NTSP) is a predetermined setting for a protective device chosen to ensure automatic actuation prior to the process variable reaching the Analytical Limit, and thus ensuring that the SL would not be exceeded. As such, the NTSP accounts for uncertainties in setting the device (e.g., calibration), uncertainties in how the device might actually perform (e.g., repeatability), changes in the point of action of the device over time (e.g., drift during surveillance intervals), and any other factors which may influence its actual performance (e.g., harsh accident environments). In this manner, the NTSP ensures that SLs are not exceeded. As such, the NTSP meets the definition of an SL-LSSS (Ref. 19).

Technical Specifications contain values related to the OPERABILITY of equipment required for safe operation of the facility. OPERABLE is defined in Technical Specifications as "...being capable of performing its safety functions(s)." Use of the NTSP to define OPERABILITY in TS would be an overly restrictive requirement if it were applied as an OPERABILITY limit for the as-found value of a protective device setting during a surveillance. This would result in TS compliance problems as well as reports and corrective actions required by the rule which are not necessary to ensure safety. For example, an automatic protective device with a setting that has been found to be different from the NTSP due to some drift of the setting may still be OPERABLE since drift is to be expected. This expected drift would have been specifically

accounted for in the setpoint methodology for calculating the NTSP, and thus the automatic protective action would still have ensured that the SL would not be exceeded with the as-found setting of the protective device. Therefore, the device would still be OPERABLE since it would have performed its safety function, and the only corrective action required would be to reset the device to the NTSP to account for further drift during the next surveillance interval.

However, there is also some point beyond which the device would have not been able to perform its function due, for example, to greater than expected drift. The Allowable Value (AV) specified in Table 3.3.2-1 is the least conservative value of the as-found setpoint that channel can have when tested, such that a channel is OPERABLE if the as-found setpoint is conservative with respect to the AV during the CHANNEL OPERATIONAL TEST (COT). As such, the AV differs from the NTSP by an amount greater than or equal to the expected instrument channel uncertainties, such as drift, during the surveillance interval. In this manner, the actual setting of the device will ensure that an SL is not exceeded at any given point of time as long as the device has not drifted beyond that expected during the surveillance interval. Note that, although the channel is OPERABLE under these circumstances, the NTSP must be left adjusted to a value within the as-left tolerance, in accordance with uncertainty assumptions stated in the referenced setpoint methodology (as-left criteria), and confirmed to be operating within the statistical allowances of the uncertainty terms assigned (as-found criteria). If the actual setting of the device is found to be non-conservative with respect to the AV, the device would be considered inoperable. This requires corrective action including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required.

During AOOs, which are those events expected to occur one or more times during the unit life, the acceptable limits are:

1. The Departure from Nucleate Boiling Ratio (DNBR) shall be maintained above the Safety Limit (SL) value to prevent departure from nucleate boiling (DNB).

2. Fuel centerline melt shall not occur, and

3. The RCS pressure SL of 2750 psia shall not be exceeded.

Operation within the SLs of Specification 2.0, "Safety Limits (SLs)," also maintains the above values and assures that offsite dose will be within the 10 CFR 50 and 10 CFR 100 criteria during AOOs.

Accidents are events that are analyzed even though they are not expected to occur during the unit life. The acceptable limit during accidents is that offsite dose shall be maintained within an acceptable fraction of 10 CFR 100 limits. Different accident categories are allowed a different fraction of these limits, based on probability of occurrence. Meeting the acceptable consequences for that event is considered having

acceptable consequences for that event. However, these values and their associated NTSPs are not considered to be LSSS as defined in 10 CFR 50.36.

Insert 2

For Function 5.b in TS Table 3.3.2-1, a detailed description of the methodology used to calculate the Trip Setpoint, including its explicit uncertainty, is provided in WCAP-11082, Rev. (x) (Ref. 12), and Calculation J-110 Rev. (x) (Ref. 14), which incorporate all of the known uncertainties applicable to each channel.

Insert 3

For Function 5.b in TS Table 3.3.2-1, the magnitudes of these uncertainties are factored into the determination of the NTSP and corresponding AV.

Insert 4

For Function 5.b in TS Table 3.3.2-1, the AV serves as the Technical Specification OPERABILITY limit for purposes of the COT.

Insert 5

For Function 5.b in TS Table 3.3.2-1, note that, although a channel is OPERABLE under these circumstances, the setpoint must be left adjusted to within the established as-left criteria and confirmed to be operating within the statistical allowances of the uncertainty terms assigned.

Insert 6

For Function 5.b in Table 3.3.2-1, note that the AV is the least conservative value of the as-found setpoint that a channel can have during a periodic CHANNEL CALIBRATION or COT that requires trip setpoint verification.

Insert 7

For Function 5.b in TS Table 3.3.2-1, however, qualitatively credited or backup functions are not SL-LSSS for reactor fuel/cladding or RCS pressure boundary SLs.

Insert 8

For Function 5.b in TS Table 3.3.2-1, ESFAS Actuation setpoints that directly protect against violating the reactor core or RCS pressure boundary SLs during AOOs are SL-LSSS. The ESFAS interlocks allow ESFAS functions to be blocked for shutdown operations and automatically unblocked for the ESFAS function when the plant is started up. The ESFAS interlocks do not function as part of the automatic actuation

system and are not modeled in the safety analysis. Therefore, permissives and interlocks are not considered to be SL-LSSS.

Insert 9

For Function 5.b in Table 3.3.2-1, a channel is OPERABLE with an NTSP value outside its calibration tolerance band provided the trip setpoint as-found value is conservative with respect to its associated AV and provided the NTSP as-left value is adjusted to a value within the calibration tolerance band of the NTSP. A trip setpoint may be set more conservative than the NTSP as necessary in response to plant conditions.

Insert 10

The next two paragraphs apply only to Function 5.b, an SL-NSSS function, in TS Table 3.3.2-1.

SR 3.3.2.5 for Function 5.b is modified by two notes as identified in Table 3.3.2-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but conservative with respect to the AV. Evaluation of instrument performance will verify that the instrument will continue to behave in accordance with safety analysis assumptions. The purpose of the assessment is to ensure confidence in the instrument performance prior to returning the instrument to service. The performance of these channels will be evaluated under the Diablo Canyon Power Plant (DCPP) Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition for continued OPERABILITY. The second Note requires that the as-left setting for the instrument be returned to within the as-left tolerance of the NTSP. Where a setpoint more conservative than the NTSP is used in the plant surveillance procedures, the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the SL and/or Analytical Limit is maintained. If the as-left instrument setting cannot be returned to a setting within the as-left tolerance, then the instrument channel shall be declared inoperable.

The second Note also requires that the NTSP and the methodologies for calculating the as-left and the as-found tolerances be in the Equipment Control Guidelines (ECGs).

Insert 11

The next two paragraphs apply only to Function 5.b, an SL-NSSS function, in TS Table 3.3.2-1.

SR 3.3.2.9 for Function 5.b is modified by two notes as identified in Table 3.3.2-1. The first Note requires evaluation of channel performance for the condition where the as-found setting for the channel setpoint is outside its as-found tolerance but

conservative with respect to the AV. Evaluation of instrument performance will verify that the instrument will continue to behave in accordance with safety analysis assumptions. The purpose of the assessment is to ensure confidence in the instrument performance prior to returning the instrument to service. The performance of these channels will be evaluated under the DCPP Corrective Action Program. Entry into the Corrective Action Program will ensure required review and documentation of the condition for continued OPERABILITY. The second Note requires that the as-left setting for the instrument be returned to within the as-left tolerance of the NTSP. Where a setpoint more conservative than the NTSP is used in the plant surveillance procedures, the as-left and as-found tolerances, as applicable, will be applied to the surveillance procedure setpoint. This will ensure that sufficient margin to the SL and/or Analytical Limit is maintained. If the as-left instrument setting cannot be returned to a setting within the as-left tolerance, then the instrument channel shall be declared inoperable.

The second Note also requires that the NTSP and the methodologies for calculating the as-left and the as-found tolerances be in the ECGs.

Response to Request For Additional Information on License Amendment Request 07-01, "Revision to Technical Specifications to Support Steam Generator Replacement"

NRC Question dated March 2, 2007:

In the license amendment request (LAR), it is proposed to revise the Allowable Value (AV) and Nominal Trip Setpoint (NTSP) for SG Water Level-High High Function in TS [Technical Specification] Table 3.3.2-1, Engineered Safety Feature Actuation System Instrumentation, from ≤ 75.2% and ≤ 75.0% to ≤ 90.2% and ≤ 90.0%, respectively.

The LAR states in Enclosure 1, page 6, paragraph 4, "The NTSP can be equal to LTSP or be more conservative to provide margin."

The LAR states in Enclosure 1, page 10, paragraph 4, "The NTSP is the expected value for the trip and the as-left and as-found values are predefined tolerances, factored into the trip setpoint calculation, which may be less conservative than the NTSP. PG&E will develop the LTSP (SAL adjusted by channel uncertainty....)."

Furthermore, the LAR states in Enclosure 1, page 12, paragraph 1, "For DCPP [Diablo Canyon Power Plant], the AV is contained in the TS (defined as the least conservative as-found surveillance value) and defines the upper or lower limit for the instrument setting, beyond which the instrument is inoperable."

Clarify the relation between AV, NTSP and LTSP and how the as-left and as-found values are related to them.

PG&E Response:

As stated in the Pacific Gas and Electric Company (PG&E) Letter DCL-07-002, "License Amendment Request 07-01 Revision to Technical Specifications to Support Steam Generator Replacement," dated January 11, 2007, in Enclosure 1, page 10, fourth paragraph, the NTSPs are contained in TS Table 3.3.2-1, and are more conservative than the LTSP since they contain additional margin beyond the LTSP. As stated in the second paragraph of Section 3.4 of Enclosure 1 of Letter DCL-07-002, LTSPs are the limiting setting for the channel trip setpoints considering all credible instrument errors associated with the instrument channel, and are established as the limiting value to which a channel must be reset at the conclusion of periodic testing to ensure that the safety analysis limit (SAL) is not exceeded if a design basis event occurs before the next periodic surveillance. The LTSP does not contain any additional margin beyond the credible instrument errors that need to be considered, while the NTSP does contain additional margin. The use of the NTSP in TS Table 3.3.2-1, instead of the LTSP, provides some additional margin to the SAL since the NTSP is a value further away from the SAL than the LTSP. Since the NTSP is used in TS

Table 3.3.2-1, the as-found and as-left values are predefined tolerances calculated based on a range around the NTSP.

As stated in Enclosure 1 of PG&E Letter DCL-07-002, page 12, first paragraph, for DCPP, the AV is defined as the least conservative as-found surveillance value, and defines the upper or lower limit for the instrument setting beyond which the instrument is inoperable. The AV is the as-found tolerance in the direction of the SAL. Since DCPP uses the NTSP instead of the LSTP in TS Table 3.3.2-1, the AV is calculated based on the NTSP. The calculation of the AV considers the rack measurement and test equipment accuracy and the rack drift. For Function 5.b in ESFAS Table 3.3.2-1, the AV to two decimal places is 90.21 percent. The AV for Function 5.b proposed in PG&E Letter DCL-07-002 was conservatively rounded down to one decimal place (90.2 percent) to be consistent with the current TS value for Function 5.b that has one decimal place.

Revision to the Calculation for the SG Water Level-High High Nominal Trip Setpoint Supporting License Amendment Request 07-01, "Revision to Technical Specifications to Support Steam Generator Replacement"

Pacific Gas and Electric Company (PG&E) Letter DCL-07-002, "License Amendment Request 07-01, Revision to Technical Specifications to Support Steam Generator Replacement," dated January 11, 2007, provided the inputs and results of the steam generator (SG) narrow range level uncertainty calculation for the SG Water Level-High High nominal trip setpoint (NTSP) associated with the Technical Specification (TS) 3.3.2 Table 3.3.2-1 Engineered Safety Feature Actuation System (ESFAS) Function 5.b, "Feedwater Isolation on SG Water Level-High High (P-14)," in Table 1 contained in Enclosure 8. The SG narrow range level uncertainty calculation for the SG Water Level-High High NTSP has been revised, that affects the results provided in Table 1 in Enclosure 8 of PG&E Letter DCL-07-002. The calculation input changes, reason for the input changes, and effect of the changes are described below. A revised Table 1 is provided in Enclosure 9 of this letter that supersedes Table 1 in Enclosure 8 of PG&E Letter DCL-07-002 in its entirety.

The revision to the SG narrow range level uncertainty calculation for the SG Water Level-High High NTSP involved changes to several of the input parameters to the uncertainty calculation. The methodology used to perform the revised calculation is the same as the methodology used in PG&E Letter DCL-07-002, WCAP-11082, Revision 6, "Westinghouse Setpoint Methodology for Protection Systems, Diablo Canyon Units 1 & 2, 24 Month Fuel Cycle Evaluation," (Proprietary) dated February 2003. WCAP-11082 was submitted to the NRC in PG&E Letter DCL-03-111, "License Amendment Request 03-12, Revision to Technical Specifications 3.3.1, 'RTS Instrumentation,' and 3.3.2, 'ESFAS Instrumentation,'" dated September 12, 2003 and the NTSPs contained in the WCAP were approved by the NRC for Diablo Canyon Power Plant (DCPP) by Amendment No. 178 to Facility Operating License No. DPR-80, and Amendment No. 180 to Facility Operating License No. DPR 82, as provided in NRC letter "Issuance of Amendment Re: Revised Technical Specifications 3.3.1 'Reactor Trip System (RTS) Instrumentation' and 3.3.2, 'Engineered Safety Feature Actuation System (ESFAS) Instrumentation' (TAC Nos. MC0893 and MC0894)," dated December 2, 2004.

The SG narrow range level uncertainty calculation inputs for the fluid velocity, downcomer subcooling, intermediate deck plate differential pressure, dynamic losses, sensor pressure effects, sensor temperature effects, and sensor drift parameters have been revised from those provided in Table 1 in Enclosure 8 of PG&E Letter DCL-07-002. In addition, the maximum reliable indicated level and total allowance values have been revised to show two decimal places instead of one decimal place as previously provided in Enclosure 8 of Table 1 in PG&E Letter DCL-07-002. The calculation inputs that have a nonzero magnitude are provided to two decimal places. The revised calculation inputs are contained in Table 1 in Enclosure 9, and the changes to Table 1 from that provided in Enclosure 8 of Table 1 in PG&E Letter DCL-07-002, are

designated by revision bars. Table 1 in Enclosure 9 supersedes Table 1 in Enclosure 8 of PG&E Letter DCL-07-002 in its entirety.

Several of the parameters changed within the final round-off accuracy of the uncertainty calculation (0.1 percent span), and did not have a significant effect on the final uncertainty result. These parameters are fluid velocity, downcomer subcooling, and dynamic losses. The intermediate deck plate differential pressure term increased sufficiently to affect the final round-off accuracy, however, the magnitude changed less than 0.1 percent span. The changes in parameter magnitudes are due to revised plant operating condition limits, i.e., a full power vessel average temperature range of 565 degrees Fahrenheit to 577.6 degrees Fahrenheit, and a single full power SG feedwater temperature range of 425 degrees Fahrenheit to 435 degrees Fahrenheit. The previous SG narrow range level uncertainty calculation that determined these parameters was based on a single full power vessel average temperature of 577.6 degrees Fahrenheit and a full power SG feedwater temperature of 435 degrees Fahrenheit, which was consistent with the prior safety analyses. The evaluation of a vessel average temperature range and SG feedwater temperature range results in a conservative enveloping of the expected operating conditions and associated refinements to the above uncertainty calculation parameters.

The transmitter calibration span has been reduced via the application of a static pressure effect offset. The reduction in span affects the magnitude of the sensor pressure effect and sensor temperature effect parameters. However, the changes are considerably less than the round-off accuracy of the uncertainty calculation, and thus have no significant effect on the final uncertainty magnitude. A static pressure offset has been determined to be necessary by PG&E to address input limitations of the Eagle-21 process protection system. The sensor drift term was conservatively increased and bounds the vendor specified magnitude.

The overall effect of the revision of the SG narrow range level uncertainty calculation parameters results in an increase in the channel statistical allowance of less than 0.5 percent span, and a decrease in the margin to the total allowance of less than 0.5 percent span. The available margin is still significantly positive. Since significant positive margin is still available, the SG Water Level-High High NTSP of 90.0 percent span proposed in PG&E Letter DCL-07-002 remains valid and is not revised. The revision to the SG narrow range level uncertainty calculation has no effect on the Allowable Value (AV) of less than or equal to 90.2 percent span proposed in DCL-07-002.

In addition, after accounting for the vessel average temperature and feedwater temperature ranges as opposed to a single value, and the revised sensor drift magnitude for the SG Water Level-Low Low protection function uncertainty calculation, it was determined that positive margin is maintained. Therefore, the current TS 3.3.1, Table 3.3.1-1, Function 14.a, Reactor Trip on SG Water Level-Low Low, and TS 3.3.2, Table 3.3.2-1, Function 6.d.1, Auxiliary Feedwater actuation on SG Water Level-Low

Low NTSPs of 15.0 percent span remain valid and are not revised. The revised SG narrow range level uncertainty calculation for the SG Water Level-Low Low function has no effect on the current TS Table 3.3.1-1 and TS Table 3.3.2-1 AVs of greater than or equal to 14.8 percent span. With the revision to the SG narrow range level uncertainty calculation discussed above, the replacement SG control and protection uncertainties continue to be bounded by those assumed in the accident analyses and evaluations performed for the SG replacement.

Table 1

Feedwater Isolation SG Water Level-High High (P-14)

a,c

Process Pressure Variation	
Reference Leg Temperature	
Fluid Velocity	
Downcomer Subcooling	
Mid-deck Plate DP	
Intermediate Deck Plate DP	
Feedring DP	
Dynamic Losses	
Primary Element Accuracy	
Sensor Calibration Accuracy	
Sensor Reference Accuracy	
Sensor Measurement & Test Equipment Accuracy	
Sensor Pressure Effects	
Sensor Temperature Effects	
Sensor Drift	
Environmental Allowance	
Seismic Effects	
Systematic Pressure Effect	
Drift Bias	
Rack Calibration Accuracy	
Rack Measurement & Test Equipment Accuracy	
Rack Temperature Effect	
Rack Drift	
MRIL	
Total Allowance (TA)	
Channel Statistical Allowance (CSA)	
Margin	

Enclosure 8
PG&E Letter DCL-07-075

Westinghouse Authorization Letter, Accompanying Affidavit, Proprietary Information Notice, and a Copyright Notice for the Proprietary information Contained in Enclosure 9

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Our ref: CAW-07-2312
PGE-07-RSG-281

July 30, 2007

APPLICATION FOR WITHHOLDING PROPRIETARY INFORMATION FROM PUBLIC DISCLOSURE

Subject: "Table 1, Feedwater Isolation SG Water Level-High High (P-14)," (Proprietary) Contained in PG&E Supplement to License Amendment Request 07-01 and Application for Withholding Proprietary Information from Public Disclosure

The proprietary information for which withholding is being requested in the above-referenced report is further identified in Affidavit CAW-07-2312 signed by the owner of the proprietary information, Westinghouse Electric Company LLC. The affidavit, which accompanies this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and addresses with specificity the considerations listed in paragraph (b)(4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by Pacific Gas and Electric.

Correspondence with respect to the proprietary aspects of the application for withholding or the Westinghouse affidavit should reference this letter, CAW-07-2312, and should be addressed to J. A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

Very truly yours,

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Enclosures

cc: Jon Thompson (NRC)

CAW-07-2312

AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared J. A. Gresham, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:

J. A. Gresham, Manager
Regulatory Compliance and Plant Licensing

Sworn to and subscribed before
me this 30th day of July, 2007

Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Sharon L. Markle, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Jan. 29, 2011
Member, Pennsylvania Association of Notaries

(1) I am Manager, Regulatory Compliance and Plant Licensing, in Nuclear Services, Westinghouse Electric Company LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.

(2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.

(3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.

(4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.

(i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.

(ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, as follows:

(a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Westinghouse's competitors without license from Westinghouse constitutes a competitive economic advantage over other companies.

(b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.

(c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.

(d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Westinghouse, its customers or suppliers.

(e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.

(f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Westinghouse system which include the following:

(a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.

(b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.

(c) Use by our competitor would put Westinghouse at a competitive disadvantage by reducing his expenditure of resources at our expense.

(d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Westinghouse of a competitive advantage.

(e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.

(f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

(iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.

(iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.

(v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in "Table 1, Feedwater Isolation SG Water Level-High High (P-14)" (Proprietary) Contained in PG&E Supplement to License Amendment Request 07-01 for Diablo Canyon Units 1 and 2, being transmitted by Pacific Gas & Electric letter and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted for use by Westinghouse Electric Company LLC for Diablo Canyon Units 1 and 2 is expected to be applicable for other submittals in response to certain NRC requests for information on steam generator water level.

This information is part of that which will enable Westinghouse to:

(a) Provide information in support of a plant license submittal.

Further this information has substantial commercial value as follows:

(a) Westinghouse plans to sell the use of similar information to its customers for purposes of meeting NRC requirements for licensing documentation.

(b) Westinghouse can sell support and justification for the use of plant-specific steam generator water level calculations.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar calculations, evaluations, analyses and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

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In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

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