CATEGORY 2

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9705290117 DOC.DATE: 97/05/14 NOTARIZED: YES DOCKET #
FACIL:50-275 Diablo Canyon Nuclear Power Plant, Unit 1, Pacific Ga 05000275
50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323
AUTH.NAME AUTHOR AFFILIATION
RUEGER,G.M. Pacific Gas & Electric Co.
RECIP.NAME RECIPIENT AFFILIATION
Document Control Branch (Document Control Desk)

See Proposed Change to Tech Specs

SUBJECT: Forwards LAR 97-07 to Licenses DPR-80 & DPR-82,revising TS to support extended fuel cycles to 24 months.

DISTRIBUTION CODE: A001D COPIES RECEIVED:LTR 1 ENCL 1 SIZE: 2+99
TITLE: OR Submittal: General Distribution

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD4-2 LA	1	1	PD4-2 PD	1	1
	BLOOM,S	1	1			
INTERNAL:	ACRS	1	1	FILE CENTER 01	1	1
	NRR/DE/ECGB/A	1	1	NRR/DE/EMCB	1	1
	NRR/DRCH/HICB	1	1	NRR/DSSA/SPLB	1	1
	NRR/DSSA/SRXB	1	1	NUDOCS-ABSTRACT	1	1
	OGC/HDS3	1	0			
EXTERNAL:	NOAC	1	1	NRC PDR	1	1

Redistributed due to Incorrect dist. Code. Fiche OK.

C A T E G O R Y 2 D O C U M E N T

NOTE TO ALL "RIDS" RECIPIENTS:
PLEASE HELP US TO REDUCE WASTE. TO HAVE YOUR NAME OR ORGANIZATION REMOVED FROM DISTRIBUTION LISTS OR REDUCE THE NUMBER OF COPIES RECEIVED BY YOU OR YOUR ORGANIZATION, CONTACT THE DOCUMENT CONTROL DESK (DCD) ON EXTENSION 415-2083

TOTAL NUMBER OF COPIES REQUIRED: LTTR 14 ENCL 13

Pacific Gas and Electric Company

245 Market Street, Room 937-N9B
San Francisco, CA 94105
Mailing Address
Mail Code N9B
P.O. Box 770000
San Francisco, CA 94177
415/973-4684 Fax 415/973-2313

Gregory M. Rueger
Senior Vice President and
General Manager
Nuclear Power Generation

May 14, 1997

PG&E Letter DCL-97-090

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Docket No. 50-275, OL-DPR-80
Docket No. 50-323, OL-DPR-82
Diablo Canyon Units 1 and 2
License Amendment Request 97-07
Revision of Technical Specifications to Support
Extended Fuel Cycles to 24 Months: Submittal No. 5

Dear Commissioners and Staff:

Enclosed is an application for amendment to Facility Operating License Nos. DPR-80 and DPR-82, for Diablo Canyon Power Plant (DCPP) Units 1 and 2, respectively. This license amendment request (LAR) is the fifth in a series to support the conversion of DCPP Units 1 and 2 from the current 18-month operating cycles to 24-month operating cycles.

This LAR proposes to change the surveillance frequency for several Technical Specifications (TS) from at least once every 18 months to at least once per refueling interval (nominally 24 months). The requested changes include extensions to the surveillance intervals for (1) reactor coolant system total flow rate, (2) instrumentation for radiation monitoring, (3) instrumentation and controls for remote shutdown, (4) instrumentation for accident monitoring, and (5) several miscellaneous TS. The surveillance extensions use the frequency notation approved in License Amendments 118 and 116, dated April 14, 1997, for Units 1 and 2, respectively.

A012/1

The changes proposed in this LAR were evaluated in accordance with the guidance provided in Generic Letter 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," and are part of the overall changes necessary to support implementation of the 24-month operating cycles at DCPP.

This LAR is composed of one enclosure with four attachments. Attachment A provides an overview of the affected TS, a discussion of their relationship to previously submitted LARs, a summary of the safety evaluations and no significant hazards determinations for the proposed changes, and an environmental evaluation. Attachment A also discusses proposed changes to commitments made previously in response to NRC Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," and its Supplement 1. Attachment B provides marked-up TS. Attachment C provides the proposed new TS pages. Attachment D provides the item-specific safety and no significant hazards evaluations for each of the proposed TS changes.

PG&E requests that the TS changes requested in this LAR be effective upon issuance of the license amendment, with the provision that PG&E implement the changes within 90 days.

Sincerely,

Gregory M. Rueger

c: Edgar Bailey, DHS
Steven D. Bloom
Ellis W. Merschoff
Kenneth E. Perkins
Michael D. Tschiltz
Diablo Distribution

Enclosure

ALN/2057

CONTENTS

ATTACHMENT A

REVISION OF SURVEILLANCE INTERVALS FOR VARIOUS TECHNICAL SPECIFICATIONS TO SUPPORT EXTENDED FUEL CYCLES SUBMITTAL NO. 5

A. DESCRIPTION OF AMENDMENT REQUEST

This license amendment request (LAR) is the fifth in a series to support the first extended fuel cycle at Diablo Canyon Power Plant (DCPP) Units 1 and 2.

This LAR proposes to extend the surveillance intervals for 37 Technical Specifications (TS) requirements and three TS Bases. The TS requirements include two for reactor coolant system (RCS) flow rate, one for the engineered safety features actuation system (ESFAS) instrumentation, two for radiation monitoring instrumentation, nine for remote shutdown instrumentation and controls, 19 for accident monitoring instrumentation, two for RCS power-operated relief valves (PORVs), and two for RCS leakage detection systems.

These changes were evaluated in accordance with the guidance provided in Generic Letter (GL) 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," and are part of those necessary to support implementation of extended fuel cycles at DCPP.

As part of the first LAR in support of 24-month fuel cycles (LAR 96-04, PG&E Letter DCL-96-052, dated February 14, 1996), PG&E proposed a new frequency notation for 24-month surveillance intervals, which was approved in NRC License Amendments 118/116 for Units 1 and 2, respectively, dated April 14, 1997. This new notation is "R24, REFUELING INTERVAL," with a frequency of "at least once per 24 months," and is used in this LAR. The notation "R24" was proposed for usage in the TS tables to differentiate those surveillances that would be extended from those that have not been evaluated or do not warrant extension. Therefore, the surveillance frequency for the specified surveillances would be extended from "R," defined as at least once per 18 months, to "R24," defined as at least once per 24 months.

This LAR considers two methods to establish a basis for surveillance extension. The first method used to establish a basis for surveillance extension is generally based on the drift analysis performed for LAR 96-10 (PG&E Letter DCL-96-213, dated December 9, 1996). LAR 96-10 presented a revised setpoint methodology based on drift evaluation and monitoring for the instrumentation channels.

WCAP-11082, Revision 5, "Westinghouse Setpoint Methodology for Protection Systems, Diablo Canyon Units 1 and 2, 24-Month Fuel Cycle Evaluation," provided detailed information. The calibration extensions for instrumentation associated with both plant protective setpoints and plant control systems necessary for safe shutdown were supported by WCAP-11594, Revision 2, "Westinghouse Improved Thermal Design Procedure Instrument Uncertainty Methodology, Diablo Canyon Units 1 and 2, 24-Month Fuel Cycle Evaluation." Details of the drift methodology were supported by WCAP-14646, Revision 1, "Instrumentation Calibration and Drift Evaluation Process for Diablo Canyon Units 1 and 2, 24-Month Fuel Cycle Evaluation." These WCAPs were submitted to the NRC in support of LAR 96-10 by PG&E Letter DCL-96-214, dated January 31, 1997, and their methodologies are consistent. For this LAR, in some cases the results of the WCAPs are used, and in some cases PG&E performed calculations using the WCAP methodology.

Similar to LAR 96-10, this LAR considers instrument drift and, therefore, this LAR addresses the items in Enclosure 2 of GL 91-04. However, unlike LAR 96-10, this LAR additionally considers extension of surveillance intervals for instrumentation used for safe shutdown; accordingly, this LAR also addresses Issue 5 of GL 91-04, Enclosure 2, regarding safe shutdown instrumentation.

The second method used to establish a basis for surveillance extension is based on a review of Diablo Canyon instrument calibration results, operating, surveillance, and maintenance histories, and also, where applicable, on a review of industry operating experience. The TS evaluated for extension using this second method address the items in Enclosure 1 of GL 91-04. This is the same method used in LARs 96-04, 96-09 (PG&E Letter DCL-96-129, dated May 31, 1996), and 97-01 (PG&E Letter DCL-97-021, dated February 14, 1997).

The frequencies for the following 37 TS surveillance requirements would be changed to at least once per 24 months. Items are numbered in the order of their appearance in the TS.

Item	Technical Specification
1.	TS 4.2.3.4, Power Distribution Limits, RCS Total Flow Rate Indication
2.	TS 4.2.3.5, Power Distribution Limits, RCS Total Flow Rate Measurement
3.	TS 4.3.2.1, Table 4.3-2, line 3.c.4), Engineered Safety Features Actuation System Instrumentation Surveillance Requirements, Containment Ventilation Isolation, Containment Ventilation Exhaust Radiation - High (RM-44A and 44B)

4. TS 4.3.3.1, Table 4.3-3, line 3.a.3), Radiation Monitoring Instrumentation for Plant Operations Surveillance Requirements, Gaseous Activity, Containment Ventilation Isolation (RM-44A or 44B)

5. TS 4.3.3.1, Table 4.3-3, line 3.b.1), Radiation Monitoring Instrumentation for Plant Operations Surveillance Requirements, Particulate Activity, Containment Ventilation Isolation (RM-44A or 44B)

6. TS 4.3.3.5.1, Table 4.3-6, line 2, Remote Shutdown Monitoring Instrumentation Surveillance Requirements, Pressurizer Pressure

7. TS 4.3.3.5.1, Table 4.3-6, line 3, Remote Shutdown Monitoring Instrumentation Surveillance Requirements, Pressurizer Level

8. TS 4.3.3.5.1, Table 4.3-6, line 4, Remote Shutdown Monitoring Instrumentation Surveillance Requirements, Steam Generator Wide Range Water Level

9. TS 4.3.3.5.1, Table 4.3-6, line 5, Remote Shutdown Monitoring Instrumentation Surveillance Requirements, Steam Generator Pressure

10. TS 4.3.3.5.1, Table 4.3-6, line 6, Remote Shutdown Monitoring Instrumentation Surveillance Requirements, Condensate Storage Tank Water Level

11. TS 4.3.3.5.1, Table 4.3-6, line 7, Remote Shutdown Monitoring Instrumentation Surveillance Requirements, Auxiliary Feedwater Flow

12. TS 4.3.3.5.1, Table 4.3-6, line 8, Remote Shutdown Monitoring Instrumentation Surveillance Requirements, Charging Flow

13. TS 4.3.3.5.1, Table 4.3-6, line 9, Remote Shutdown Monitoring Instrumentation Surveillance Requirements, RCS Loop 1 Temperature Indication

14. TS 4.3.3.5.2, Remote Shutdown Instrumentation and Controls, Control Circuit and Control Transfer Switches

15. TS 4.3.3.6, Table 4.3-7, line 1, Accident Monitoring Instrumentation, Containment Pressure

16. TS 4.3.3.6, Table 4.3-7, line 2, Accident Monitoring Instrumentation, Reactor Coolant Outlet Temperature - T_{hot} (Wide Range)

17. TS 4.3.3.6, Table 4.3-7, line 3, Accident Monitoring Instrumentation, Reactor Coolant Inlet Temperature - T_{cold} (Wide Range)

18. TS 4.3.3.6, Table 4.3-7, line 4, Accident Monitoring Instrumentation, Reactor Coolant Pressure - Wide Range

19. TS 4.3.3.6, Table 4.3-7, line 5, Accident Monitoring Instrumentation, Pressurizer Water Level

20. TS 4.3.3.6, Table 4.3-7, line 6, Accident Monitoring Instrumentation, Steam Line Pressure

21. TS 4.3.3.6, Table 4.3-7, line 7, Accident Monitoring Instrumentation, Steam Generator Water Level - Narrow Range

22. TS 4.3.3.6, Table 4.3-7, line 8, Accident Monitoring Instrumentation, Refueling Water Storage Tank Water Level

23. TS 4.3.3.6, Table 4.3-7, line 9, Accident Monitoring Instrumentation, Containment Reactor Cavity Sump Level - Wide Range

24. TS 4.3.3.6, Table 4.3-7, line 10, Accident Monitoring Instrumentation, Containment Recirculation Sump Level - Narrow Range

25. TS 4.3.3.6, Table 4.3-7, line 11, Accident Monitoring Instrumentation, Auxiliary Feedwater Flow Rate

26. TS 4.3.3.6, Table 4.3-7, line 12, Accident Monitoring Instrumentation, Reactor Coolant System Subcooling Margin Monitor

27. TS 4.3.3.6, Table 4.3-7, line 13, Accident Monitoring Instrumentation, PORV Position Indicator

28. TS 4.3.3.6, Table 4.3-7, line 14, Accident Monitoring Instrumentation, PORV Block Valve Position Indicator

29. TS 4.3.3.6, Table 4.3-7, line 15, Accident Monitoring Instrumentation, Safety Valve Position Indicator

30. TS 4.3.3.6, Table 4.3-7, line 16, Accident Monitoring Instrumentation, In Core Thermocouples

31. TS 4.3.3.6, Table 4.3-7, line 17, Accident Monitoring Instrumentation, Main Steam Line Radiation Monitor (RM-71, 72, 73, 74)

32. TS 4.3.3.6, Table 4.3-7, line 18, Accident Monitoring Instrumentation, Containment Area Radiation Monitor - High Range (RM-30, 31)

33. TS 4.3.3.6, Table 4.3-7, line 20, Accident Monitoring Instrumentation, Reactor Vessel Level Indication System

34. TS 4.4.4.1b., Reactor Coolant System, Relief Valves, PORV Actuation Instrumentation

35. TS 4.4.9.3.1b., Reactor Coolant System, Overpressure Protection Systems, Class 1 PORV Actuation Channel

36. TS 4.4.6.1b., Reactor Coolant System, Leakage Detection Systems, Containment Structure Sumps and Reactor Cavity Sump Level and Flow Monitoring System

37. TS 4.4.6.1c., Reactor Coolant System, Leakage Detection Systems, Containment Fan Cooler Collection Monitoring System

Three TS Bases revisions are provided to support the extension of the surveillance intervals and support the above TS changes as indicated:

38. TS Bases for Items 6 through 13, TS 4.3.3.5.1, "Remote Shutdown Instrumentation"

39. TS Bases for Item 14, TS 4.3.3.5.2, "Remote Shutdown Instrumentation"

40. TS Bases for Item 35, TS 4.4.9.3.1b., "Low Temperature Overpressure Protection"

The following administrative change would remove a duplicate line of information from the TS:

41. TS 4.3.3.1, Table 4.3-3, line 3.a.3), Radiation Monitoring Instrumentation for Plant Operations Surveillance Requirements, Gaseous Activity, Containment Ventilation Isolation (RM-44A or 44B)

Changes to the TS requirements and associated bases are noted in the marked-up pages of the affected TS, as provided in Attachment B. The proposed new TS pages are provided in Attachment C. The item-specific safety evaluations and the no significant hazards evaluations for the proposed TS changes are provided in Attachment D.

NRC Bulletin 90-01, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount"

Extension of certain of the surveillances for this LAR, as well as for certain surveillances from LAR 96-10, will constitute a modification to several commitments made by PG&E in response to Supplement 1 of NRC Bulletin 90-01. PG&E Letter DCL-93-061, dated March 8, 1993, responded to Supplement 1, and DCL-93-282, dated December 10, 1993, provided additional information. The changes in commitments are as follows:

- For Rosemount Models 1153 Series B and D, and Model 1154 transmitters with a normal operating pressure greater than 1500 psi and are installed in RPS, ESFAS, or ATWS (Bulletin 90-01 Supplement Action 1a), PG&E committed to monitor channels monthly in an Enhanced Monitoring Program and review transmitter calibration data on a refueling cycle basis. This commitment was based on a nominal 18-month refueling cycle. Following transition to a 24-month refueling cycle, the channels would continue to be monitored monthly, but the review of calibration data would be extended, possibly to the maximum 30 months.

- For subject Rosemount transmitters with a normal operating pressure greater than 1500 psi, and are in safety-related applications other than RPS, ESFAS, or ATWS (Bulletin 90-01 Supplement Action 1b), PG&E noted that there were two transmitters in this category. PG&E stated that these transmitters would be monitored on a refueling cycle basis based on their reliability in service conditions and because they were not part of redundant channels, could not easily be added to the computer trending program, were used only for post-accident monitoring, and other means were available for obtaining the same information. Following transition to a 24-month refueling cycle, the channels would continue to be monitored on a refueling cycle basis, but the review of calibration data would be extended, possibly to the maximum 30 months.

- For subject Rosemount transmitters with a normal operating pressure greater than 500 psi, but less than or equal to 1500 psi, and are installed in RPS, ESFAS, or ATWS (Bulletin 90-01 Supplement Action 1c), PG&E committed to review calibration data every refueling cycle. Likewise, for subject Rosemount transmitters with a normal operating pressure greater than 500 psi, but less than or equal to 1500 psi, and are installed in safety-related systems other than RPS, ESFAS, or ATWS (Bulletin 90-01 Supplement Action 1d), PG&E committed to review calibration data every refueling cycle, not to exceed 24 months. Following transition to a 24-month refueling cycle, the channels would continue to be monitored monthly, but the review of calibration data would be extended, possibly to the maximum 30 months.

In summary, the change to these commitments is the extension of the refueling outage basis from a nominal 18 months to a nominal 24 months. PG&E believes

that a high degree of confidence for detecting any fill-oil loss will be maintained. This conclusion is based on implementation of other commitments made in response to Bulletin 90-01, including (1) having informed all personnel involved with operation, calibration, time response testing, or replacement of Rosemount transmitters of the fill-oil loss failure mechanism, (2) the methods for detecting this failure, and (3) the actions to be taken if a fill-oil loss is suspected. Operations personnel were advised of the potential problems with Rosemount transmitters and the symptoms associated with fill-oil loss. Also, I&C engineers and technicians were trained to identify symptoms during performance of routine calibration and testing activities that are indicative of loss of fill-oil in Rosemount transmitters.

B. BACKGROUND

Much of this LAR focuses on instrument calibration and relies on information submitted in earlier LARs on this subject, as well as on drift analyses of affected instruments. The historical data of maintenance, surveillance, and calibration results were evaluated to support the LAR requests. In addition, industry experience and vendor recommendations were considered as a basis for assumed drift values in cases where there were insufficient DCPP instrument calibration data to establish a statistically significant sample for drift. The calibrations reflect instrument maintenance and operating experience in that the instruments are continuously operated, and maintenance is typically performed as required by the TS, the equipment qualification program, or in response to an as-found or as-left out-of-tolerance condition.

Drift and uncertainty analyses were performed by Westinghouse and PG&E in support of this LAR. The PG&E analyses are documented in the appropriate design calculation files for the affected instrumentation. As explained further in the Safety Evaluation section below, the Westinghouse analyses are documented in WCAP-11594, Revision 2, WCAP-11082, Revision 5, WCAP-14646, Revision 1, and WCAP-14040, Revision 2, "Methodology Used to Develop Cold Overpressure Mitigating System Setpoints and RCS Heatup and Cooldown Limit Curves." WCAP-14040, Revision 2, was previously submitted to the NRC by PG&E Letter DCL-94-180, dated August 17, 1994, in support of LAR 94-09, "Revision of Technical Specifications 3/4.4.9.1, Figures 3.4-2 and 3.4-3, 3/4.1.2.2, 3/4.1.2.4, 3/4.1.3, 3/4.4.1.4.1, 3/4.4.9.3, and 3/4.5.3 - RCS Pressure/Temperature Limits and LTOP Actuation Pressure and Enable Temperature."

C. TECHNICAL SPECIFICATION PAGES AFFECTED BY PREVIOUSLY SUBMITTED LARS

Three of the TS pages included in this LAR are affected by previously submitted LARs. Each of the pending TS changes were evaluated with respect to this LAR and found not to conflict. Table 1 identifies the TS pages, previous LARs, and submittal dates. Issuance of license amendments for the LARs listed in the table may require submittal of revised TS pages for this LAR.

TABLE 1: TS PAGES AFFECTED BY PREVIOUS LARs	
TS PAGE	LAR
3/4 2-17	None
3/4 3-33	96-10, Extended Fuel Cycles, December 9, 1996 97-01, Extended Fuel Cycles, February 14, 1997
3/4 3-39	None
3/4 3-47	None
3/4 3-49	None
3/4 3-53	None
3/4 4-10a	97-01, Extended Fuel Cycles, February 14, 1997
3/4 4-18	None
3/4 4-36	None
B 3/4 3-3c	None
B 3/4 3-3d	95-07, Relocation of Selected TS, October 4, 1995
B 3/4 4-16	None

Instrumentation Section TS Page 3/4 3-33, Table 4.3-2, is proposed to be revised by the third (LAR 96-10) and fourth (LAR 97-01) 24-month extended fuel cycle LARs. These previous LARs proposed to extend a channel calibration and several slave relay tests. Neither of these two LARs are impacted by the proposed radiation monitor channel calibration interval extension in this LAR.

Power-operated relief valve TS Page 3/4 4-10a is proposed to be revised by the fourth 24-month extended fuel cycle LAR. LAR 97-01 included a change to revise TS 4.4.4.1a, for PORV operability surveillance frequency, from at least once per 18 months to at least once per 24-month refueling interval. Due to the existing format of the TS, that revision necessitated a corresponding administrative change to TS 4.4.4.1b, which was also proposed in LAR 97-01. The administrative change was necessary to maintain the surveillance requirement in TS 4.4.4.1b., for calibration of the PORV actuation instrumentation, at the current 18-month interval pending completion of associated drift analyses. The analyses have now been completed, and revision to change the TS 4.4.4.1b. calibration interval to at least once per 24-month refueling interval is being requested as Item 34 in this LAR.

Accident monitoring TS Bases page B 3/4 3-3d is proposed to be revised by LAR 95-07 (PG&E Letter DCL-95-222, dated October 4, 1995) to delete TS 3/4.3.3.7, "Chlorine Detection Systems," which is not impacted by the proposed surveillance extension proposed in this LAR.

D. JUSTIFICATION

The changes proposed in this LAR are required to support implementation of extended cycles at DCPP. As noted in the previous 24-month LARs, PG&E has conducted detailed studies to evaluate the feasibility of increasing the length of fuel cycles for DCPP Units 1 and 2 to 24 months. Based on the results of these studies, PG&E concluded that 24-month fuel cycles are feasible and desirable for DCPP. The primary benefits of extended cycles will be fewer refuelings, improved outage scheduling, and reduced personnel dose and radwaste.

The proposed surveillance interval increases have been evaluated in accordance with the guidance of GL 91-04 and are similar to changes recently approved for Westinghouse plants Indian Point 2 and 3.

E. Safety Evaluation

Overview

Safety evaluations for each of the proposed surveillance interval changes are provided in Attachment D, grouped by TS section and function. The evaluations have been performed in accordance with the guidance of GL 91-04. Where applicable, historical plant operation, maintenance, and surveillance data have been evaluated and shown to support each proposed surveillance increase. The assumptions in the plant licensing basis are not invalidated by performing these surveillances at the bounding interval limit (24 months plus 25 percent allowance, or a maximum of 30 months). There are also other tests that are normally performed at power that provide assurance of continued equipment operability during routine operation. In all cases, PG&E concluded that the proposed TS changes will not adversely affect the health and safety of the public.

Drift Evaluation

This LAR is based on analyses that are reported in WCAP-11594, Revision 2, WCAP-14646, Revision 1, and other specific analyses, which are discussed in the individual safety evaluations for each item in Attachment D. As noted in LAR 96-10, the methodologies used in the WCAPs and the other supporting analyses are consistent with the guidance of GL 91-04. Similar methodologies were used in WCAP-11082, Revision 5.

The PG&E methodology for the analysis of drift was described in LAR 96-10. The methodology follows the guidance of GL 91-04 in that it uses the analysis of instrument calibration data, when sufficient data are available, to determine statistically based drift. The data are examined for mechanistic outliers (instrument failures or data transcription errors) and statistically significant outliers. The correlation of drift magnitude with time is used to check for drift time dependency. From the final drift data a statistical tolerance interval for drift is calculated. The statistically determined drift is combined by square-root-sum-of-squares (SRSS) with other appropriate errors when the instrument uncertainty is calculated.

Graded Approach

One aspect of the PG&E methodology which was not applicable to the previous LARs, and was not previously described, is the use of a graded approach in the analysis of drift.

PG&E has implemented a graded approach in the analysis of drift that uses a 95 percent probability and 95 percent confidence level (hereafter referred to as a 95/95 criterion) for automatic protection systems (reactor protection system and engineered safety feature actuation system (ESFAS)), and a 95 percent probability and 75 percent confidence level (hereafter referred to as a 95/75 criterion) for remote shutdown and post-accident indications. The methodology of WCAPs 11594, 14646, and 11082 results in values of protection setpoints and instrument uncertainties that are determined at a 95/95 criterion. PG&E and Westinghouse analyses that support surveillance extension for items associated with post-accident, hot shutdown panel, and other indications are performed at a 95/75 criterion. This 95/75 criterion is consistent with the relative importance to safety of the post-accident and remote shutdown indications. A graded approach 95/75 criterion was used in support of the Indian Point Unit 3 24-month fuel cycle LARs, and was reviewed and found to be acceptable in an NRC Safety Evaluation Report for Indian Point Unit 3 dated September 24, 1996.

The 95/75 criterion that is applied to the analysis of plant indications is consistent with the approach used in the Instrument Society of America (ISA) Draft Technical Paper ISA-dTR67.04.09, "Graded Approaches to Setpoint Determination." PG&E has incorporated this graded approach to the analysis of uncertainty in the DCPP design control document for instruments.

LTOP Setpoint Methodology

The LTOP setpoints at DCPP for the current 18-month fuel cycles were not previously required to account for random instrument uncertainties, in accordance with prior Westinghouse methodology. However, using the guidance of GL 91-04,

PG&E determined that it would be appropriate and conservative to account for these uncertainties.

The revision to the PORV LTOP Bases uses information from the NRC-approved WCAP-14040, Revision 2. Revision 2 of WCAP-14040 incorporates recommendations made by the NRC in a letter dated October 16, 1995, regarding use of uncertainty analysis in determining the PORV setpoint, which also endorsed this WCAP.

Surveillance Extensions on the Basis of Operating Experience

For several of the proposed surveillance extensions, PG&E has relied on historical plant maintenance and surveillance data. Diablo Canyon instrument calibration results, operating, surveillance, and maintenance histories, as well as in some cases industry operating experience, were reviewed to establish a basis for surveillance extension. The instruments are continuously operated, and maintenance is typically performed only as required by the TS, the equipment qualification program, or in response to an as-found out-of-tolerance condition.

Comparison of PG&E Evaluation to the Criteria of GL 91-04

The following discussion provides a comparison of the evaluation of the proposed changes with the specific quoted guidance contained in GL 91-04, Enclosure 2.

1. "*Confirm that instrument drift as determined by as-found and as-left calibration data from surveillance and maintenance records has not, except on rare occasions, exceeded acceptable limits for a calibration interval.*"

   As in the case of LAR 96-10, the surveillance and maintenance histories for the items of this LAR have been reviewed. The surveillance history for the instruments results in calibration data which reflected that instrument drift was beyond acceptable limits only on rare occasions except for two parameters, the reactor vessel level indication system (RVLIS) and pressurizer level indication.

   Design changes have been implemented in RVLIS to enhance its calibration process, and they provide a basis for an expectation of improvement in RVLIS instrument drift characteristics in the future.

   The pressurizer level parameter was addressed in LAR 96-10 for its reactor protection function. Since the preparation of that LAR, additional drift data have become available (these were outage data taken subsequent to the work performed in support of the WCAPs for LAR 96-10), and a revised pressurizer level transmitter drift has been developed, using the 95/75 criterion, for the indication function. This drift has been evaluated and found

to support the effective use of the pressurizer water level indication for normal and post-accident conditions.

The specific parameters are discussed in the individual safety evaluations provided in Attachment D.

2. "*Confirm that the values of drift for each instrument type (make, model, and range) and application have been determined with a high probability and a high degree of confidence. Provide a summary of the methodology and assumptions used to determine the rate of instrument drift with time based upon historical plant calibration data.*"

   As described in WCAP-14646, PG&E used a process developed by Westinghouse to analyze instrument drift for the 24-month fuel cycle. Some of the drift values used in the supporting analyses for the remote shutdown and post-accident monitoring items of this LAR are taken from WCAP-14646. The drift values taken from WCAP-14646 for items in this LAR have not been changed from the 95/95 criterion applicable to protection systems. Other drift values calculated for this LAR use the 95/75 criterion.

3. "*Confirm that the magnitude of instrument drift has been determined with a high probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type (make, model number, and range) and application that performs a safety function. Provide a list of the channels by TS section that identifies these instrument applications.*"

   This item is addressed by the discussion of the Westinghouse methodology in LAR 96-10 and the description of PG&E's graded approach as discussed earlier in this section. This methodology considers the probability and confidence, consistent with the graded approach of the analysis, for the instrument drift associated with the potential maximum 30-month calibration interval. The list of the affected instrument channels are indicated by TS section in Part A of this attachment.

4. "*Confirm that a comparison of the projected instrument drift errors has been made with the values of drift used in the setpoint analysis. If this results in revised setpoints to accommodate larger drift errors, provide proposed TS changes to update trip setpoints. If the drift errors result in a revised safety analysis to support existing setpoints, provide a summary of the updated analysis conclusions to confirm that safety limits and safety analysis assumptions are not exceeded.*"

   This guidance of the GL affects three items (Items 3, 4, and 5) of this LAR. The items involve surveillances associated with containment ventilation isolation (CVI). The setpoint for these radiation monitors are controlled by an

administrative program. No changes were required in these setpoints to support a 24-month channel calibration frequency. The values of drift used in the analyses applicable to accident monitoring or remote shutdown indications will be incorporated into emergency operating procedures or abnormal operating procedures, as they apply to operator action setpoints. Attachment D provides the detailed safety evaluations for these Items.

5. "*Confirm that the projected instrument errors caused by drift are acceptable for control of plant parameters to effect a safe shutdown with the associated instrumentation.*"

The plant parameters of pressurizer pressure, pressurizer level, steam generator (SG) level, SG pressure, and RCS temperature are controlled to effect a safe shutdown (to Mode 3, Hot Standby) from inside and outside the control room. The uncertainties of both the control room and remote indications of these parameters have been determined to be satisfactory, including the consideration of the projected drift of an extended cycle. The uncertainty of the control room or remote indication is statistically dependent with the uncertainty in the automatic control systems for these parameters because the sensors for these parameters are, in most cases, input to both the indication and control functions.

The uncertainty in the control system functions have been analyzed to 95/95 criterion and found to be acceptable. The effect of instrument errors and any increased drift on the RCS temperature (T_{ave}) and pressurizer pressure control systems is analyzed in WCAP-11594. These analyses include the effects of the increased drift on both the plant indication and control of T_{ave} and pressurizer pressure. The control uncertainties for these parameters are bounded by the existing control uncertainties assumed in the plant design basis. See the Safety Evaluation for Items 34 and 35 in Attachment D for a detailed evaluation of the pressurizer pressure control uncertainty.

The SG narrow range (used inside the control room) and pressurizer water level control systems have also been analyzed using the drift values of WCAP-14646 (to 95/95 criterion). The normal SG water level transmitter drift for the 24-month fuel cycle is bounded by the current drift value. SG water level control allows the water level to be controlled within the normal operating band. The TS limit for SG water level is that it be greater than or equal to 15 percent span (TS 4.4.1.2.2). The control system error is well within the difference between the control point and the TS limit. Therefore, the SG level control system was determined to not be significantly affected by the extended cycle and the SG level instruments are acceptable for both indication and control.

The pressurizer level control system uncertainty (analyzed to 95/95 criterion) for the 24-month fuel cycle was found to permit proper level control and adequately support the operation of RCS pressure control by assuring a bubble in the pressurizer. The pressurizer level control is programmed based on T_{ave} with a minimum level of 22 percent level span at hot zero power and a maximum level of 60 percent level span. At full power, the DCPP TS limit for pressurizer level is less than or equal to 90 percent span (less than or equal to 1600 cubic feet of water, TS 3.4.3). The control system error is less than the difference between the control point and the TS limits and is acceptable. Therefore, the pressurizer level control system was determined to not be significantly affected by the extended cycle and the pressurizer level instruments are acceptable for both indication and control.

Independent of the pressurizer water level control system, the pressurizer heaters are protected from burnout by a heater power cutoff at low level. This heater cutoff setpoint was analyzed to 95/75 criterion and was found to adequately protect the heaters from burnout from low pressurizer level.

The uncertainty of the steam line pressure control system was not specifically analyzed. The pressure sensor drift was discussed in LAR 96-10 and increased only slightly for the extended cycle. The uncertainty of the control room and the remote steam line pressure indicators, considering the effect on drift of an extended cycle, was found to meet the uncertainty requirement of the FSAR Update Table 7.5-3, "Control Room Indicators and/or Recorders Available to the Operator to Monitor Significant Plant Parameters During Normal Operation." Therefore, the steam pressure control system was judged to not be significantly affected by the extended cycle and the steam line pressure instruments are acceptable for both indication and control.

In summary, PG&E has confirmed that the instrument errors caused by drift do not affect the capability to achieve safe shutdown from inside or outside the control room.

6. "*Confirm that all conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant surveillance procedures for channel checks, channel functional tests, and channel calibrations.*"

PG&E used DCPP plant procedures and tests as input to the 24-month fuel cycle evaluation. PG&E will confirm, for items in this LAR, that instrument drift and other errors, as well as assumptions of the analyses supporting the proposed surveillance extensions, are consistent with the acceptance criteria included in plant surveillance procedures. This review will include channel checks, channel functional tests, the calibration of channels for which

surveillance intervals are being increased, and emergency operating procedures as appropriate.

7. "*Provide a summary description of the program for monitoring and assessing the effects of increased calibration surveillance intervals on instrument drift and its effect on safety.*"

   A discussion of the PG&E drift monitoring program was provided in LAR 96-10. The items of this LAR that involve instrument drift will be included in the program.

F. No Significant Hazards Evaluation

PG&E has evaluated the no significant hazards considerations involved with the proposed changes pursuant to the standards set forth in 10 CFR 50.92(c) as quoted below:

> "*The Commission may make a final determination, pursuant to the procedures in paragraph 50.91, that a proposed amendment to an operating license for a facility licensed under paragraph 50.21(b) or paragraph 50.22 or a testing facility involves no significant hazards considerations, if operation of the facility in accordance with the proposed amendment would not:*
>
> *(1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or*
>
> *(2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or*
>
> *(3) Involve a significant reduction in a margin of safety.*"

The no significant hazards evaluations for each of the proposed TS changes are provided in Attachment D, according to TS section. The proposed changes include surveillance interval increases from 18 to 24 months for 37 TS items. The following summarizes the no significant hazards considerations for all of the proposed TS changes.

1. *Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?*

   The proposed TS surveillance interval increases do not alter the intent or method by which the inspections, tests, or verifications are conducted, do not alter the way any structure, system, or component functions, and do not change the manner in which the plant is operated. The surveillance,

maintenance, and operating histories indicate that the equipment will continue to perform satisfactorily with longer surveillance intervals. Few surveillance and maintenance problems were identified. No problems have recurred, or are expected to recur, following identification of root causes and implementation of corrective actions.

There was one time-related degradation mechanism identified that could significantly degrade the performance of the evaluated equipment during normal plant operation. Accumulation of corrosion products and debris in the containment fan cooler unit (CFCU) monitoring system drain lines could affect the use of the CFCU drains as a backup to the containment gaseous monitor for RCS leak detection. Primarily because CFCU drain line cleaning has been instituted to reduce deposit buildup, and also because the CFCU monitoring systems are used as backup and they are redundant by a factor of five, it was evaluated that this time-related mechanism will not significantly degrade the leak detection performance of the CFCUs. See Attachment D for a detailed evaluation of the CFCU leak detection function.

All other potential time-related degradation mechanisms have insignificant effects in the period of interest (24 months plus 25 percent allowance, or a maximum of 30 months). Instrument drift and uncertainty analyses show that, while slight increases in instrument drift can occur over a longer period, such increases are minimal and remain within specified instrument accuracy and calibration allowable values. In cases (pressurizer water level and RVLIS) where greater than expected instrument drift has been found, design and procedural changes have been implemented to improve the calibration process and instrument performance. Based on the past performance of the equipment, the probability or consequences of accidents previously evaluated would not be significantly affected by the proposed surveillance interval increases.

The changes to commitments related to Bulletin 90-01 are supported by the conclusions above, and otherwise do not alter the intent or method by which the associated functions are tested, do not alter the way any structure, system, or component functions, and do not change the manner in which the plant is operated.

The administrative changes to the Bases sections and to remove a duplicate line do not alter the frequency, intent, or method by which the associated functions are tested, do not alter the way any structure, system, or component functions, and do not change the manner in which the plant is operated.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. *Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?*

The surveillance and maintenance histories indicate that the equipment will continue to effectively perform its design function over the longer operating cycles. Additionally, the increased surveillance intervals do not result in any physical modifications, affect safety function performance or the manner in which the plant is operated, or alter the intent or method by which surveillance tests are performed. No problems have reoccurred following identification of root causes and implementation of corrective actions. Almost all identified potential time-related degradations, including instrument drift, have insignificant effects in the period of interest.

The deposit buildup in the CFCU drain lines is time-related. This was evaluated to not be significant to the leak detection function because the CFCUs have a redundancy factor of five (any one of the five CFCUs can be used for the leak detection function) and because the CFCU drain lines will be cleaned each refueling outage. The proposed surveillance interval increases would not affect the type or possibility of accidents.

The changes to commitments related to Bulletin 90-01 are supported by the conclusions above, and otherwise do not result in any physical modifications, affect safety function performance or the manner in which the plant is operated, or alter the intent or method by which surveillance tests are performed.

The administrative change to the Bases sections and to remove a duplicate line do not result in any physical modifications, affect safety function performance, or alter the frequency, intent, or method by which surveillance tests are performed.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. *Does the change involve a significant reduction in a margin of safety?*

Evaluation of historical surveillance and maintenance data indicates that there have been few problems experienced with the evaluated equipment. There are no indications that potential problems would be cycle-length dependent, with the exception of the CFCU leak detection function, or that potential degradation would be significant for the period of interest and, therefore, increasing the surveillance interval will have negligible impact on safety. The accumulation of corrosion products and debris in the CFCU drain lines is cycle-length dependent, but has been evaluated to have

insignificant effect on its leak detection function. There is no safety analysis impact since these changes will have no effect on any safety limit, protection system setpoint, or limiting condition for operation, and there are no hardware changes that would impact existing safety analysis acceptance criteria. Safety margins are not significantly impacted by surveillance intervals or by the slight increases in instrument drift that may occur during the extended interval.

The changes to commitments related to Bulletin 90-01 are supported by the conclusions above, and otherwise will have no effect on any safety limit, protection system setpoint, or limiting condition for operation, and there are no hardware changes that would impact existing safety analysis acceptance criteria.

The administrative change to the Bases sections and to remove a duplicate line will have no effect on any safety limit, protection system setpoint, or limiting condition for operation, and there are no hardware changes that would impact existing safety analysis acceptance criteria.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

G. No Significant Hazards Determination

Based on the above safety evaluation and the evaluations provided in Attachment D, PG&E concludes that the activities associated with this LAR satisfy the no significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a no significant hazards finding is justified.

H. Environmental Evaluation

PG&E has evaluated the proposed changes and determined that the changes do not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical restriction set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed changes is not required.