

December 4, 2000

Mr. Gregory M. Rueger
Senior Vice President, Generation and
Chief Nuclear Officer
Pacific Gas and Electric Company
Diablo Canyon Nuclear Power Plant
P. O. Box 3
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON NUCLEAR POWER PLANT, UNITS NO. 1 AND 2 - APPROVAL
FOR REVISION OF COMMITMENT REGARDING NUREG-0737 AND
REGULATORY GUIDE 1.97, REVISION 3, GUIDANCE FOR SOLUBLE BORON
CONCENTRATION MONITORING (TAC NOS. MA7708 AND MA7709)

Dear Mr. Rueger:

By letter dated December 12, 1999, as supplemented by letter dated October 18, 2000, Pacific Gas and Electric Company (PG&E) submitted a request to revise commitments to NUREG-0737, "Clarification of TMI Action Plan Requirements," and Regulatory Guide (RG) 1.97, Revision 3, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," for monitoring reactor coolant system (RCS) soluble boron concentration during and following an accident. Currently, PG&E utilizes the boron concentration monitoring system (BCMS) to implement RG 1.97 commitments. The proposed change will involve eliminating the use of the BCMS and utilizing the post-accident sampling system (PASS).

The staff has evaluated PG&E's request and concluded that eliminating BCMS and using only PASS is acceptable in meeting the guidance provided in RG 1.97, Revision 3. PG&E shall incorporate into the Final Safety Analysis Report Update the changes as described in the licensee's application dated December 12, 1999, as supplemented by letter dated October 18, 2000, and evaluated in the enclosed safety evaluation, in accordance with 10 CFR 50.71(e).

Sincerely,

/RA/

Girija S. Shukla, Project Manager
Project Directorate IV-2 & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-275
and 50-323

Enclosure: Safety Evaluation

cc w/encl: See next page

December 4, 2000

Mr. Gregory M. Rueger
Senior Vice President and General Manager
Pacific Gas and Electric Company
Diablo Canyon Nuclear Power Plant
P. O. Box 3
Avila Beach, CA 93424

SUBJECT: DIABLO CANYON NUCLEAR POWER PLANT, UNITS NO. 1 AND 2 - APPROVAL
FOR REVISION OF COMMITMENT REGARDING NUREG-0737 AND
REGULATORY GUIDE 1.97, REVISION 3, GUIDANCE FOR SOLUBLE BORON
CONCENTRATION MONITORING (TAC NOS. MA7708 AND MA7709)

Dear Mr. Rueger:

By letter dated December 12, 1999, as supplemented by letter dated October 18, 2000, Pacific Gas and Electric Company (PG&E) submitted a request to revise commitments to NUREG-0737, "Clarification of TMI Action Plan Requirements," and Regulatory Guide (RG) 1.97, Revision 3, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," for monitoring reactor coolant system (RCS) soluble boron concentration during and following an accident. Currently, PG&E utilizes the boron concentration monitoring system (BCMS) to implement RG 1.97 commitments. The proposed change will involve eliminating the use of the BCMS and utilizing the post-accident sampling system (PASS).

The staff has evaluated PG&E's request and concluded that eliminating BCMS and using only PASS is acceptable in meeting the guidance provided in RG 1.97, Revision 3. PG&E shall incorporate into the Final Safety Analysis Report Update the changes as described in the licensee's application dated December 12, 1999, as supplemented by letter dated October 18, 2000, and evaluated in the enclosed safety evaluation, in accordance with 10 CFR 50.71(e).

Sincerely,

/RA/

Girija S. Shukla, Project Manager
Project Directorate IV-2 & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-275
and 50-323

Enclosure: Safety Evaluation

DISTRIBUTION:

PUBLIC
PDIV-2 Reading
SRichards
GShukla
EPeyton
RidsOgcMailCenter
RidsAcrcAcnwMailCenter
LSmith, Region IV
CLauron

Accession No. ML003773912

To receive a copy of this document, indicate "C" in the box							
OFFICE	PDIV-2/PM		PDIV-2/LA		EMCB		PDIV-2/SC
NAME	GShukla		EPeyton		WBateman		SDembek
DATE	12/1/00		12/1/00		12/1/00		12/4/00

OFFICIAL RECORD COPY

Diablo Canyon Power Plant, Units 1 and 2

cc:

NRC Resident Inspector
Diablo Canyon Nuclear Power Plant
c/o U.S. Nuclear Regulatory Commission
P.O. Box 369
Avila Beach, CA 93424

Dr. Richard Ferguson, Energy Chair
Sierra Club California
1100 11th Street, Suite 311
Sacramento, CA 95814

Ms. Nancy Culver
San Luis Obispo
Mothers for Peace
P.O. Box 164
Pismo Beach, CA 93448

Chairman
San Luis Obispo County Board of
Supervisors
Room 370
County Government Center
San Luis Obispo, CA 93408

Mr. Truman Burns
Mr. Robert Kinoshian
California Public Utilities Commission
505 Van Ness, Room 4102
San Francisco, CA 94102

Mr. Steve Hsu
Radiologic Health Branch
State Department of Health Services
P.O. Box 942732
Sacramento, CA 94327-7320

Diablo Canyon Independent Safety
Committee
ATTN: Robert R. Wellington, Esq.
Legal Counsel
857 Cass Street, Suite D
Monterey, CA 93940

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Harris Tower & Pavilion
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Christopher J. Warner, Esq.
Pacific Gas & Electric Company
Post Office Box 7442
San Francisco, CA 94120

Mr. David H. Oatley, Vice President
Diablo Canyon Operations and
Plant Manager
Diablo Canyon Nuclear Power Plant
P.O. Box 3
Avila Beach, CA 93424

Telegram-Tribune
ATTN: Managing Editor
1321 Johnson Avenue
P.O. Box 112
San Luis Obispo, CA 93406

Mr. Ed Bailey, Radiation Program Director
Radiologic Health Branch
State Department of Health Services
P.O. Box 942732 (MS 178)
Sacramento, CA 94327-7320

Mr. Robert A. Laurie, Commissioner
California Energy Commission
1516 Ninth Street (MS 31)
Sacramento, CA 95814

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO THE CHANGE IN COMMITMENT TO
NUREG-0737 AND REGULATORY GUIDE 1.97, REVISION 3
PACIFIC GAS AND ELECTRIC COMPANY
DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2
DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By letter dated December 12, 1999, as supplemented by letter dated October 18, 2000, Pacific Gas and Electric Company (PG&E/licensee) submitted a request to revise commitments to NUREG-0737, "Clarification of TMI Action Plan Requirements," and Regulatory Guide (RG) 1.97, Revision 3, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident," for monitoring reactor coolant system (RCS) soluble boron concentration during and following an accident. Currently, the licensee utilizes the boron concentration monitoring system (BCMS) to implement the guidance provided in RG 1.97. The proposed change will involve abandoning the BCMS and utilizing the post-accident sampling system (PASS).

The guidance provided in both NUREG-0737 and RG 1.97, Revision 3, includes the capability of licensees to promptly obtain reactor coolant samples and containment atmosphere samples within 3 hours from the time a decision is made to take a sample. In addition, if the licensee chooses to use in-line monitoring for any sampling and analytical capability, backup sampling through grab samples shall be provided. This backup sampling shall be capable of providing at least one sample per week until the accident condition no longer exists.

2.0 PROPOSED CHANGES

The licensee proposes to eliminate the BCMS and rely solely on the PASS system to provide soluble boron concentration measurements during and after an accident. This proposed change is a modification in the licensee's previous commitments to use both BCMS and PASS to meet the guidance of NUREG-0737 and RG 1.97, Revision 3. In addition, this proposed change requires the removal of information regarding the BCMS found in the following portions of the Diablo Canyon Units 1 and 2 Final Safety Analysis Report (FSAR) Update:

- Section 7.7.1.0, "Boron Concentration Measurement System"
- Table 7.7-2, "Boron Concentration Measurement System Specifications"
- Figure 7.7-10, "Boron Concentration Measurement Unit"

- Figure 7.7-11, "Source/Detector Assembly"
- Figure 7.7-12, "Process Schematic for the Boron Concentration Measurement System"
- Figure 7.7-13, "Boron Concentration Measurement System - Linearity Curve Over Normal Plant Operating Range of Boron Concentrations"

3.0 BACKGROUND

NUREG-0737, Section II.B.3, "Post Accident Sampling," clarifies, in part, the licensee's responsibility to promptly obtain reactor coolant samples for boron concentration analyses during and after an accident. The combined time allotted for sampling and analysis should be three hours or less from the time that a decision is made to take a sample. In addition, if the licensee uses in-line monitoring, the licensee must provide backup sampling through grab samples and demonstrate capability of analyzing the samples.

Regulatory Guide 1.97, Revision 3, lists RCS soluble boron concentration as a reactivity control variable that provides information to indicate whether plant safety functions are being accomplished. The recommended range for this variable is from 0 to 6000 ppm.

Currently, the licensee has three methods for determining RCS boron concentration. For routine operations, the RCS soluble boron concentration is monitored through grab samples obtained from the primary sample Sink. These samples satisfy technical specification (TS) surveillance requirements by providing boron concentrations for operational needs in accordance with plant chemistry sampling procedures when in Modes 1 through 5 and every 72 hours when in Mode 6 unless the reactor is defueled. The grab samples are analyzed at an on site primary chemistry laboratory.

The BCMS is an advisory system that provides continuous, real-time boron concentration indication in the control room but does not provide any alarms. It provides information as to when additional verification analyses are warranted. It is not designed as an engineered safety features (ESF) system nor as a component of an ESF system. It is not part of a control element or control system, nor is it designed for this use. No credit is taken for this system in any accident analysis. In the event of an accident where RCS letdown is isolated, the BCMS is not relied upon for boron concentration measurements. In the event that letdown is isolated, the PASS system is relied upon for boron concentration measurements with a range of 0 to 6000 parts per million (ppm). This meets the recommended range for the instrument as stated in RG 1.97, Revision 3, for measuring soluble boron concentration during and after an accident. The BCMS has a range of 0 to 5000 parts per million. However, as stated in Supplemental Safety Evaluation Report (SSER) 31, the staff finds that the BCMS in conjunction with PASS is acceptable in complying with the recommendations of RG 1.97, Revision 3, for measuring soluble boron concentration.

The PASS system provides remote sampling from several RCS sample points which are not isolated during an accident and allow for personnel to obtain the necessary samples and analyses while limiting radiation exposure. Based on SSER 14, PASS meets all the requirements of NUREG-0737 including the capability to sample RCS boron concentration within one hour under accident conditions and has been found acceptable by the staff.

4.0 EVALUATION

The staff, in SSER 31, concluded that the combination of the BCMS and PASS instrumentation complies with the recommendations for measuring RCS soluble boron concentration. This combination of instrumentation to meet the guidance in RG 1.97, Revision 3, was justified based on the following factors:

- Range for the instrumentation; i.e., BCMS, is from 0 to 5000 ppm,
- RCS water source for BCMS is isolated for most accidents,
- PASS is used when RCS water source for BCMS is isolated, and
- PASS meets the recommended range of instrumentation of 0 to 6000 ppm.

Currently, the licensee has a grab sample system; i.e., primary sample sink, to obtain the required, routine RCS soluble boron concentrations during normal operations. The use of the continuous online indication provided by the BCMS is not necessary for normal operation or during and following an accident. Indications of RCS soluble boron concentration during and following an accident may be met through grab samples followed by lab analyses within the specified time limitations given in NUREG-0737 and RG 1.97, Revision 3.

Previously, the staff concluded, in SSER 14, that the licensee's post-accident sampling design meets all the recommendations of NUREG-0737. In addition, the staff concluded that the licensee's plans and actions for post accident sampling are as low as reasonably achievable (ALARA) and should enable post-accident sampling without excessive exposure.

Based on the discussion above, the staff finds that the PASS system alone provides adequate assurance that indication of soluble boron concentration during and following an accident is completed. In addition, the staff has determined that the proposed FSAR changes are appropriate for eliminating the BCMS. Therefore, the staff concludes that the elimination of the BCMS and the use of PASS to meet the guidance in RG 1.97 is acceptable and does not create a decreased level of safety.

5.0 CONCLUSION

Based on its evaluation, the staff finds that the elimination of the BCMS and the use of PASS to meet the guidance in RG 1.97 is acceptable and does not create a decreased level of safety. Therefore, the proposed changes to the FSAR Update are appropriate for the elimination of the BCMS.

Principal Contributor: C. Lauron

Date: December 4, 2000