Pacific Gas and Electric Company

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PG&E Letter DCL-03-149
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
Response to NRC Request for Additional Information Regarding License Amendment Request 03-05, Revision of Technical Specification (TS) 3.7.10, "Control Room Ventilation System (CRVS)," TS 3.7.12, "Auxiliary Building Ventilation System (ABVS)," TS 3.7.13, "Fuel Handling Building Ventilation System (FHBVS)," and TS 5.5.11, "Ventilation Filter Testing Program (VFTP)"

Dear Commissioners and Staff:

On April 2, 2003, in PG&E Letter DCL-03-034, PG&E submitted License Amendment Request (LAR) 03-05, Revision of Technical Specification (TS) 3.7.10, "Control Room Ventilation System (CRVS)," TS 3.7.12, "Auxiliary Building Ventilation System (ABVS)," TS 3.7.13, "Fuel Handling Building Ventilation System (FHBVS)," and TS 5.5.11, "Ventilation Filter Testing Program (VFTP)." On August 8, 2003, in PG&E Letter DCL-03-095, PG&E provided a supplement to the LAR that corrected the results of the fuel handling accident analysis provided in letter DCL-03-034.

On September 17 and October 1, 2003, the NRC identified additional information required to complete their review of LAR 03-05. PG&E's responses to the staff's questions are provided in Enclosure 1.

This additional information does not affect the results of the technical evaluation and no significant hazards consideration determination previously transmitted in PG&E Letter DCL-03-034.

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

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Sincerely,

Lawrence F. Womack
Vice President Nuclear Services - Diablo Canyon

dxs4
Enclosures
cc: Edgar Bailey, DHS
Bruce S. Mallett
David L. Proulx
Diablo Distribution
cc/encl: Girija S. Shukla

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of PACIFIC GAS AND ELECTRIC COMPANY	)	Docket No. 50-275 Facility Operating License No. DPR-80
Diablo Canyon Power Plant Units 1 and 2	)	Docket No. 50-323 Facility Operating License No. DPR-82

AFFIDAVIT

Lawrence F. Womack, of lawful age, first being duly sworn upon oath says that he is Vice President Nuclear Services - Diablo Canyon; that he has executed this response to the NRC request for additional information on License Amendment Request 03-05 on behalf of said company with full power and authority to do so; that he is familiar with the content thereof; and that the facts stated therein are true and correct to the best of his knowledge, information, and belief.

Lawrence F. Womack
Vice President Nuclear Services – Diablo Canyon

Subscribed and sworn to before me this 13th day of November 2003.
County of San Luis Obispo
State of California

Notary Public

CHUCK MACKEY
Commission # 1397547
Notary Public - California
San Luis Obispo County
My Comm. Expires Feb 1, 2007

Response to NRC Request for Additional Information Regarding License Amendment Request 03-05, Revision of Technical Specification (TS) 3.7.10, "Control Room Ventilation System (CRVS)," TS 3.7.12, "Auxiliary Building Ventilation System (ABVS)," TS 3.7.13, "Fuel Handling Building Ventilation System (FHBVS)," and TS 5.5.11, "Ventilation Filter Testing Program (VFTP)"

NRC Question 1

Provide a statement as to whether the analysis completed in support of this LAR partially implemented the alternative source term methodology provided in Regulatory Guide (RG) 1.183, "Alternative Radiological Source Terms For Evaluating Design Basis Accidents At Nuclear Power Reactors."

PG&E Response

The control room and offsite dose analysis performed in support of this License Amendment Request (LAR) is a partial implementation of the alternate source term methodology as outlined in RG 1.183. This implementation is identified on page 10 of the LAR submitted in DCL-03-034 and additional discussion on its implementation is provided on pages 12 through 14. RG 1.183 is also discussed in Section 5.2.3, "Approved Methodologies," in DCL-03-034.

NRC Question 2

Please discuss changes in the dispersion coefficients used in the fuel handling building fuel handling accident analysis performed in support of LAR 03-05 as compared to those used in support of the approved License Amendments 155/155 for the containment fuel handling accident (FHA).

PG&E Response

The offsite dose (exclusion area boundary (EAB) and low population zone (LPZ)) χ/Q values used for a fuel handling accident (FHA) inside containment, which was provided in support of the approved License Amendments 155/155, are based on a release from the plant vent (located on the containment structure) and should not be utilized for a release directly from the fuel handling building (FHB). The revised FHA in the FHB evaluates a direct release from the building and does not credit any use of the plant vent. As a result, the differences of consequence are the release point distance to the offsite receptor, and the building geometry.

The design basis offsite dose χ/Q values for the FHA in the FHB were developed in accordance with the methodology in RG 1.4. Revised values for these χ/Qs were derived using RG 1.4 methodology and the implementation guidance provided in RG 1.145.

Using RG 1.145, Figures 1 and 2, for Pasquill Type F conditions and distance of 720 m, the χ/Q for the EAB was determined to be 9.9E-4 sec/m^3.

The χ/Q for the LPZ for two hours immediately following an accident for a ground level release was determined using the same method. The χ/Q for the LPZ was determined to be 2.6E-5 sec/m^3

NRC Question 3

Please provide the flow and volume used for modeling the control room ventilation system in the Fuel Handling Building FHA.

PG&E Response

The following information was used in the modeling of the CRVS:

- The control room volume (both units) is 170,000 cu ft.
- The licensing basis CRVS unfiltered inlet and exhaust flow rates are equal at 2110 cfm.
- No filtration of the inlet flow was assumed.
- No filtered recirculation was assumed.

NRC Question 4

Provide the activities released as a result of the FHA in the fuel handling building (FHB) and the assumptions used in determining these activities and the release to the environment.

PG&E Response

The activities released in the FHA are based on the following assumptions:

- The postulated accident occurs 100 hours after reactor shutdown. Radiological decay and daughter product build-up were taken into consideration during this period in the development of the source terms,
- 264 fuel rods in a single assembly are damaged,
- All of the gap activity in the damaged rods is released (10 percent of the total noble gases other than Kr-85, 30 percent of the Kr-85, and 10 percent of the total radioactive iodine),
- 105 percent full power operation (3580 Mw thermal) was assumed immediately preceding shutdown,
- Radial peaking factor of 1.65,
- The source term is a composite of source terms calculated for 3.5 percent enrichment and 4.5 percent enrichment,
- The iodine gap inventory is composed of inorganic species (99.75 percent) and organic species (0.25 percent), and

- The free FHB volume above the SFP is 435,000 cu ft. Effectively all activity escapes from the FHB over a two-hour period following the postulated accident. The FHB exhaust flow rate is conservatively assumed to be 40,000 cfm.

The potential activity inventory is summarized in the following table:

Isotope	Composite Source Term (Ci/assembly at shutdown)	Activity at 100 Hours After Shutdown (Ci at 100 hrs)	Pool Activity(Ci at 100 hrs)	FHB Activity Based on DF200 for Iodines (Ci at 100 hrs)
I-131	5.057E+05	3.625E+05	5.9813E+04	299.0625
I-132	7.283E+05	3.042E+05	5.0193E+04	250.965
I-133	1.032E+06	3.783E+04	6.2420E+03	31.21
I-134	1.165E+06	0	0	0
I-135	9.611E+05	2.689E+01	4.4369E+00	0.0222
Kr-83m	8.196E+04	9.554E-08	1.5764E-08	1.5764E-08
Kr-85m	1.901E+05	3.679E-02	0.0060704	0.0060704
Kr-85	6.353E+03	6.350E+03	3143.25	3143.25
Kr-87	3.828E+05	0	0	0
Kr-88	5.416E+05	1.350E-05	2.2275E-06	2.2275E-06
Kr-89	6.855E+05	0	0	0
Xe-131m	5.661E+03	5.469E+03	902.385	902.385
Xe-133m	3.187E+04	1.306E+04	2154.9	2154.9
Xe-133	9.993E+05	6.914E+05	114081	114081
Xe-135m	2.021E+05	4.264E+00	0.70356	0.70356
Xe-135	2.886E+05	1.327E+03	218.955	218.955
Xe-137	9.140E+05	0	0	0
Xe-138	9.477E+05	0	0	0

Where:

Pool activity at 100 hours = $(A_{100})^{Pool} = A_{100} \times 1.65 \times$ release fraction
= $A_{100} \times 1.65 \times 0.1$ for iodine and noble gases except Kr-85

and

= $A_{100} \times 1.65 \times 0.3$ for Kr-85

FHB activity at 100 hours = $(A_{100})^{Pool} / 200$ for iodine

NRC Question 5

To the Diablo Canyon technical specifications, the licensee proposes to add the Note to LCO 3.7.10 in the Westinghouse Improved Standard Technical Specifications, Revision -2 (ISTS) and to include condition B under 3.7.10 Actions. This note allows opening of the control room pressure boundary on an intermittent basis and under administrative controls. Condition B calls for restoration of the control room boundary within 24 hours of the intentional or unintentional inoperability of the control room pressure boundary. The Note and condition B derive from TSTF-287. TSTF-287 envisioned that any licensee intending to add this Note and adopt Condition B commit to BASES language which was agreed upon by the NRC staff and the TSTF and which appears in the associated ISTS Bases. Is there a reason that the TS BASES provided in the LAR for "Information Only" do not include the expected commitment language, including the reference to GDC 19? Compensatory measures should have some fundamental technical basis, and for the control room, GDC 19 is the standard for the fundamental technical basis we find acceptable. Without the language in the BASES which mirrors that of TSTF-287, the licensee's submittal is inadequate and, therefore, unacceptable.

PG&E Response

PG&E will revise the TS Bases for Condition B of LCO 3.7.10 to agree with the language, including the reference to GDC-19, in NUREG 1431, Revision 2. A revised TS Bases page, superseding that provided in DCL-03-034 is attached.

BASES (continued)

ACTIONS

The ACTIONS are modified by a NOTE that states that ACTIONS apply simultaneously to both units. The CRVS is common to both units.

A.1

When one CRVS train is inoperable, action must be taken to restore OPERABLE status within 7 days. In this Condition, the remaining OPERABLE CRVS train is adequate to perform the control room protection function. However, the overall reliability is reduced because a single failure in the OPERABLE CRVS train could result in loss of CRVS function. The 7 day Completion Time is based on the low probability of a DBA occurring during this time period, and ability of the remaining train to provide the required capability.

B.1

If the control room boundary is inoperable in MODE 1, 2, 3, or 4, the CRVS trains cannot perform their intended functions. Action must be taken to restore an OPERABLE control room boundary within 24 hours. During the period that the control room boundary is inoperable, appropriate compensatory measures (consistent with the intent of GDC-19) should be utilized to protect control room operators from potential hazards such as radioactive contamination, toxic chemicals, smoke, temperature and relative humidity, and physical security. Preplanned measures should be available to address these concerns for intentional and unintentional entry into the Condition. The 24-hour Completion Time is reasonable based on the low probability of a DBA occurring during this time period, and the use of compensatory measures. The 24-hour Completion Time is a typical reasonable time to diagnose, plan and possibly repair, and test most problems with the control room boundary.

~~B~~C.1 and C~~B~~.2

In MODE 1, 2, 3, or 4, if the inoperable CRVS train cannot be restored to OPERABLE status within the required Completion Time, the unit must be placed in a MODE that minimizes accident risk. To achieve this status, the unit must be placed in at least MODE 3 within 6 hours, and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D~~G~~.1.1, D~~G~~.1.2, D~~G~~.2.1, and D~~G~~.2.2

In MODE 5 or 6, or during movement of irradiated fuel assemblies, if the inoperable CRVS train cannot be restored to OPERABLE status within the required Completion Time, action must be taken to immediately place the OPERABLE CRVS train in the pressurization mode. This action ensures that the remaining train is OPERABLE, that no failures preventing automatic actuation will occur, and that any active failure would be readily detected. If only one CRVS train is