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FACIL:50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323
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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 94-003-01:on 940707,auxiliary bldg ventilation sys was outside design basis due to previous nonconservative ASTM testing performed.Util reviewed all of TS-related charcoal adsorber banks & determined bank was to tested.W/950208 ltr.

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Senior Vice President and
General Manager
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February 8, 1995

PG&E Letter DCL-95-029

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

Docket No. 50-323, OL-DPR-82
Diablo Canyon Unit 2
Licensee Event Report 2-94-003-01
Auxiliary Building Ventilation System Outside Design Basis Due to Previous Nonconservative ASTM Testing

Gentlemen:

Pursuant to 10 CFR 50.73 (a)(2)(ii)(B), PG&E is submitting the enclosed revision to Licensee Event Report 2-94-003-00 concerning a Unit 2 auxiliary building ventilation system charcoal adsorber bank that was outside its design basis. Previous testing that was performed in accordance with ASTM D-3803-1979 was determined to be nonconservative for charcoal banks that have been in service for a substantial period of time. This revision is being submitted to correct an editorial error in the event date block of the abstract page.

This event did not adversely affect the health and safety of the public.

Sincerely,

Gregory M. Rueger

cc: L. J. Callan
Melanie A. Miller
Kenneth E. Perkins
Michael D. Tschiltz
Diablo Distribution
INPO

Enclosure

DC2-94-TS-N033

6788S/DPS/2246

IE22

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Diablo Canyon Unit 2	0 5 0 0 0 3 2 3	1 OF 6

TITLE (4) Auxiliary Building Ventilation System Outside Design Basis Due to Previous Nonconservative ASTM Testing

EVENT DATE (5)			LER NUMBER (6)				REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MON	DAY	YR	YR	SEQUENTIAL NUMBER	REVISION NUMBER		MON	DAY	YR	FACILITY NAMES	DOCKET NUMBER (5)
07	07	94	94	- 0 0 3 -	0	1	02	08	95		0 5 0 0 0
											0 5 0 0 0

OPERATING MODE (9)	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR: (11)
1	X 10 CFR 50.73 (a)(2)(ii)(B)
POWER LEVEL (10): 1 0 0	OTHER -
	(Specify in Abstract below and in text, NRC Form 366A)

LICENSEE CONTACT FOR THIS LER (12)

	TELEPHONE NUMBER	
	AREA CODE	
David Sisk - Senior Regulatory Compliance Engineer	805	545-4420

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
[ ] YES (If yes, complete EXPECTED SUBMISSION DATE)	[X] NO				

ABSTRACT (16)

On July 7, 1994, with Unit 2 in Mode 1 (Power Operation) at 100 percent power, based on confirmatory results of a sample taken from the Unit 2 auxiliary building ventilation system (ABVS) charcoal adsorber bank prior to the bank being replaced on June 24, 1994, PG&E determined that the bank would not meet its design basis. The sample analysis was performed in accordance with ASTM D-3803-1989, "Standard Test Method for Nuclear Grade Activated Carbon." Another sample, taken from the same Unit 2 ABVS adsorber bank was tested in accordance with ASTM D-3803-1979 and met the Technical Specifications (TS) limits. On July 7, 1994, at 1245 PDT, a one-hour, non-emergency report was made for Unit 2 in accordance with 10 CFR 50.72(b)(1)(ii)(B) because Unit 2 had operated with its adsorber bank incapable of performing its required design function.

PG&E reviewed all of the TS-related charcoal adsorber banks and determined that the only bank not tested to the 1989 standard was the bank for the Unit 2 fuel handling building exhaust Fan E-5. Fan E-5 was declared inoperable pending results of an analysis of a charcoal sample.

The root cause for this event is that the previous testing performed in accordance with ASTM D-3803-1979 was determined to be nonconservative for charcoal banks that have been in service for a substantial period of time.

Since PG&E has adopted and tested to the more conservative 1989 standard, no additional corrective actions are deemed necessary.

I. Plant Conditions

Unit 2 was in Mode 1 (Power Operation) at 100 percent power.

II. Description of Problem

A. Summary

On July 7, 1994, with Unit 2 in Mode 1 (Power Operation) at 100 percent power, based on confirmatory results of a sample taken from the Unit 2 auxiliary building ventilation system (ABVS) (VF) charcoal adsorber bank (VF)(FLT) prior to the bank being replaced on June 24, 1994, PG&E determined that the bank would not meet its design basis. The sample analysis was performed in accordance with American Society for Testing and Materials (ASTM) D-3803, 1989 version (D-3803-1989), "Standard Test Method for Nuclear Grade Activated Carbon." Another sample, taken from the same Unit 2 ABVS adsorber bank was tested in accordance with ASTM D-3803-1979 and met the Technical Specifications (TS) limits. On July 7, 1994, at 1245 PDT, a one-hour, non-emergency report was made for Unit 2 in accordance with 10 CFR 50.72(b)(1)(ii)(B) because Unit 2 had operated with its adsorber bank incapable of performing its required design function.

PG&E reviewed all of the TS-related charcoal adsorber banks and determined that the only bank not tested to the 1989 standard was the bank (VG)(FLT) for the Unit 2 fuel handling building exhaust Fan E-5 (VG)(FAN). Fan E-5 was declared inoperable pending results of an analysis of a charcoal sample.

B. Background

TS 4.7.6.1b.2 and 4.7.6.1c. require after every 720 hours of charcoal adsorption that charcoal sample testing be performed in accordance with Regulatory Guide (RG) 1.52, "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants." This RG refers to Standard RDT 16-1T, "Nuclear Standard Gas-Phase Adsorbents for Trapping Radioactive Iodine and Iodine Compounds. " American National Standard N509-80 changed the standard for charcoal testing to American Society for Testing and Materials (ASTM) D-3803-1979.

ASTM D-3803-1989 superseded ASTM D-3803-1979 and is currently the recomm/ended standard to follow when performing charcoal sample testing. ASTM D-3803-1979 requires testing at 80 degrees Celsius. Since the adsorber bank would not experience such high temperature during an accident, ASTM D-3803-1989 requires that the ABVS adsorber bank be tested at 30 degrees Celsius. The change in temperature is significant since, when the charcoal sample is heated to high temperatures, it cleanses itself of pollutants and allows a larger surface area of activated carbon to become exposed again, therefore, giving a test reading that would indicate a greater organic iodine adsorption and a lower iodine penetration level.

Thus, the approximately 19-year old charcoal sample taken from the Unit 2 ABVS adsorber bank passed the charcoal sample testing standard using ASTM D-3803-1979, but the sample did not pass the more conservative ASTM D-3803-1989.

C. Event Description

On March 23, 1993, analysis results were received that stated that the Unit 2 FHB E-6 exhaust adsorber charcoal sample taken on February 27, 1993, failed the ASTM D-3803-1979 test. The sample taken had a penetration of 11.9 percent with an acceptable limit of 4.3 percent.

On March 24, 1993, the Unit 2 Fan E-6 charcoal was replaced. The new charcoal bank was then tested to the ASTM D-3803-1989 standard and passed with a 0.693 percent penetration with a 4.3 percent penetration being the TS acceptance criterion.

On March 26, 1993, during a Unit 2 refueling outage (2R5), the charcoal sample test from the Unit 2 ABVS adsorber bank was successfully performed using ASTM D-3803-1979.

Between January 25, 1994, and June 1, 1994, testing procedures were revised to require testing in accordance with ASTM D-3803-1989.

All Unit 1 TS-related charcoal adsorber banks were either replaced or tested to ASTM D-3803-1989 prior to completion of the 1R6 refueling outage.

On June 13, 1994, a charcoal sample from the Unit 2 ABVS charcoal adsorber bank was sent offsite for analysis.

On June 23, 1994, PG&E received the results of the charcoal sample test that indicated the adsorber bank was not capable of removing 94 percent of the iodine from the ABVS exhaust as required by TS 4.7.6.1c. On June 23, 1994, at 0639 PDT, the Unit 2 ABVS was declared inoperable, and TS 3.7.6.1 action statement a. was entered. The sample indicated approximately 37 percent organic iodine penetration. The offsite dose design basis assumes that the ABVS adsorber bank will allow no more than 30 percent penetration of organic iodine. Since the test results were outside the expected range, a second sample was sent for analysis to ensure that the previous sample results were valid. In addition, a sample was sent for testing in accordance with ASTM D-3803-1979.

On June 24, 1994, the ABVS adsorber bank was replaced.

On July 7, 1994, PG&E received the results of the June 24, 1994, charcoal sample analysis. The test using the ASTM D-3803-1989 standard indicated that the ABVS adsorber bank would allow approximately 33 percent penetration of organic iodine to

the atmosphere. However, results of a sample taken from the same Unit 2 ABVS charcoal bank and tested in accordance with the ASTM D-3803-1979 successfully passed the TS requirements with a 4 percent penetration. At 1155 PDT, PG&E determined that the 33 percent penetration of organic iodine constituted a condition outside of the design basis.

On July 7, 1994, at 1245 PDT, a one-hour, non-emergency report was made to the NRC in accordance with 10 CFR 50.72(b)(1)(ii)(B) for Unit 2 because Unit 2 had operated with its adsorber bank incapable of performing its required design function.

D. Inoperable Structures, Components, or Systems that Contributed to the Event

None.

E. Dates and Approximate Times for Major Occurrences

1.	March 26, 1993:	An 18-month surveillance was performed on the ABVS. The ASTM D-3803-1979 tests results indicate a 0.816 percent penetration (6.0 percent acceptance criterion).
2.	January 25, 1994 thru June 1, 1994:	Applicable surveillance test procedures were revised to reference the ASTM D-3803-1989 testing requirements.
3.	June 13, 1994:	The charcoal sample was pulled and sent offsite on 6/14 for analysis to meet TS 4.7.6.1.c.
4.	June 23, 1994:	The charcoal sample analysis results were received and indicated that the charcoal adsorber bank was outside TS limits.
5.	June 24, 1994:	The auxiliary building charcoal adsorber bank was replaced. Confirmatory charcoal samples were obtained from removed bank.
6.	July 7, 1994 at 1155 PDT:	Event Date: Confirmatory test results indicate the removed charcoal bank would not meet its design basis.
7.	July 7, 1994 at 1245 PDT:	A one-hour, non-emergency report was made to the NRC in accordance with 10 CFR 50.72 (b)(1)(ii)(B) for Unit 2.

F. Other Systems or Secondary Functions Affected

None.

G. Method of Discovery

During the review of routine charcoal analysis test results, system engineering personnel determined that the charcoal adsorber bank was outside its design basis.

H. Operator Actions

None.

I. Safety System Responses

None.

III. Cause of the Problem

A. Immediate Cause

During the review of routine charcoal analysis test results, system engineering personnel determined that the charcoal adsorber bank was outside its design basis.

B. Root Cause

Although not required by NRC, many utilities are now upgrading their testing to the more conservative ASTM D-3803-1989. The root cause for this event is the previous testing that was performed in accordance with ASTM D-3803-1979 was determined to be nonconservative for charcoal banks that have been in service for a substantial period of time.

IV. Analysis of the Event

The auxiliary building ventilation exhaust flow-path is constrained to discharge to the plant vent via a charcoal adsorber bank such that the amount of radiation exposure to the public from radioactive iodine does not exceed the radiation exposure limits set by 10 CFR 100.

Analysis of test sample results concluded that the ABVS adsorber bank would allow approximately 33 percent penetration of organic iodine to the atmosphere. The FSAR Update Chapter 15 accident analysis assumed 30 percent penetration resulting in offsite doses of 26.9 rem for the Exclusion Area Boundary (EAB) and 2.1 rem for the Low Population Zone (LPZ). Although the charcoal sample did not meet the iodine penetration criterion, it was determined that the adsorber efficiency would still have been sufficient to maintain offsite dose levels well below the 10 CFR 100 dose limit of 300 rem at the LPZ and

EAB. The 33 percent penetration efficiency would result in offsite doses of less than 10 percent of the 10 CFR 100 limits.

Therefore, if a significant radioactive material release had occurred in the auxiliary building, the ABVS adsorber bank would have been able to perform its required safety function. Thus, this event did not adversely affect the health and safety of the public.

V. Corrective Actions

A. Immediate Corrective Actions

PG&E reviewed all of the TS-related charcoal adsorber banks and determined that the only TS-related charcoal adsorber bank that had not been tested to ASTM D-3803-1989 was the Unit 2 FHB Fan E-5 charcoal adsorber bank.

B. Corrective Actions to Prevent Recurrence

1. The Unit 2 Fan E-5 charcoal adsorber bank was conservatively declared inoperable pending the results of tests performed on removed samples. On August 3, 1994, the Unit 2 FHB Fan E-5 charcoal bank was replaced with a new charcoal bank, and a sample was tested to ASTM D-3803-1989.

2. ASTM D-3803-1989 is a more conservative testing method than the previously used ASTM D-3803-1979 version for charcoal sampling analysis, therefore, there is no need for additional corrective actions.

VI. Additional Information

A. Failed Components

None.

B. Previous LERs on Similar Problems

None.