

**REVISION OF TECHNICAL SPECIFICATIONS 3/4.7.5, "CONTROL ROOM VENTILATION SYSTEM," 3/4.7.6, "AUXILIARY BUILDING SAFEGUARDS AIR FILTRATION SYSTEM," AND 3/4.9.12, "FUEL HANDLING BUILDING VENTILATION SYSTEM" - TESTING METHODOLOGIES FOR FILTERS**

**A. DESCRIPTION OF AMENDMENT REQUEST**

This License Amendment Request (LAR) proposes to change Technical Specifications (TS) 3/4.7.5, "Control Room Ventilation System;" 3/4.7.6, "Auxiliary Building Safeguards Air Filtration System;" 3/4.9.12, "Fuel Handling Building Ventilation System;" and the associated Bases. The specific changes are as follows:

1. TSs 4.7.5.1c.2), 4.7.5.1d., 4.7.6.1b.2), 4.7.6.1c., 4.9.12b.3), 4.9.12c., and the associated TS Bases would be revised to clarify the testing criteria of charcoal samples from the control room ventilation system, Auxiliary Building safeguards air filtration system, and Fuel Handling Building ventilation system charcoal adsorbers. This change would replace references to 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 Reactors," Revision 2, March 1978, for laboratory testing of charcoal samples with a reference to ASTM D 3803-1989.
2. TSs 4.7.5.1c.1), 4.7.6.1b.1), and 4.9.12b.2) would be revised to clarify that in-place penetration and bypass leakage testing be performed in accordance with ANSI N510-1980.

The proposed changes to the TS and Bases are noted in the marked-up copy of the applicable TS pages provided in Attachment B. The proposed TSs and Bases pages are provided in Attachment C.

**B. BACKGROUND**

TSs 3/4.7.5, 3/4.7.6, and 3/4.9.12 require that charcoal sample testing be performed in accordance with 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," Revision 2, March 1978. RG 1.52 refers to ANSI N509-1976, "Nuclear Power Plant Air Cleaning Units and Components," which refers to standard RDT M16-1T, "Gas-Phase Adsorbants for Trapping Iodine and Iodine Compounds." ANSI N509-1980 subsequently changed the standard for charcoal testing to ASTM D 3803-1979. ASTM D 3803-1979 was originally used for charcoal sample testing at Diablo Canyon Power Plant (DCPP). Due to problems with the test methodology



described in ASTM D 3803-1979, the NRC issued Information Notice 87-32, "Deficiencies in the Testing of Nuclear-Grade Activated Charcoal," dated July 10, 1987. In response to the deficiencies identified in ASTM D 3803-1979, the standard was revised and ASTM D 3803-1989 was issued.

As discussed in Licensee Event Reports 2-94-003, "Auxiliary Building Ventilation System Outside Design Basis Due to Previous Nonconservative ASTM Testing" and 2-94-005, "Fuel Handling Building Ventilation System Outside Design Basis Due to Previous Nonconservative ASTM Testing," following issuance of ASTM D 3803-1989, PG&E discussed the use of this standard with the NRC in 1994. Based on discussions with the NRC, it was determined that ASTM D 3803-1989 is the appropriate standard to use for charcoal sample testing.

PG&E performed a review of other TS references to RG 1.52, Revision 2, and identified that TSs 3/4.7.5, 3/4.7.6, and 3/4.9.12 reference RG 1.52 for visual inspection, di-octyl phthalate testing of HEPA filters, and halide testing of charcoal adsorbers. RG 1.52, Revision 2, references ANSI N510-1975 for visual inspection, di-octyl phthalate testing of high efficiency particulate air (HEPA) filters, and halide testing of charcoal adsorbers. PG&E applicable procedures reference ANSI N510-1980. PG&E determined that ANSI N510-1980 for visual inspection, di-octyl phthalate testing of HEPA filters, and halide testing of charcoal adsorbers meet the technical requirements of ANSI N510-1975.

### C. JUSTIFICATION

PG&E believes that testing per ASTM D 3803-1989 satisfies the requirements of TSs 3/4.7.5, 3/4.7.6, and 3/4.9.12 since ASTM D 3803-1989 is currently the NRC recommended standard to follow when performing charcoal sample testing. The new Standard Technical Specifications (STS) (NUREG-1431, Rev. 1) reference ASTM D 3803-1989 for laboratory filter testing. In addition, the new STS allow the referencing of plant specific standards that are used for other tests (e.g., visual inspection; in-place di-octyl phthalate testing of HEPA filters; and in-place halide testing of charcoal adsorbers). PG&E is in the process of converting to the new STSs as discussed in PG&E Letter DCL-95-275, dated December 19, 1995. PG&E was planning to directly reference ASTM D 3803-1989 as part of its STS conversion program. PG&E believes that other testing performed in accordance with ANSI N510-1980 satisfies the requirements of ANSI N510-1975. The proposed changes will clarify the testing standards to be used for filter testing.



## D. SAFETY EVALUATION

### Charcoal Testing

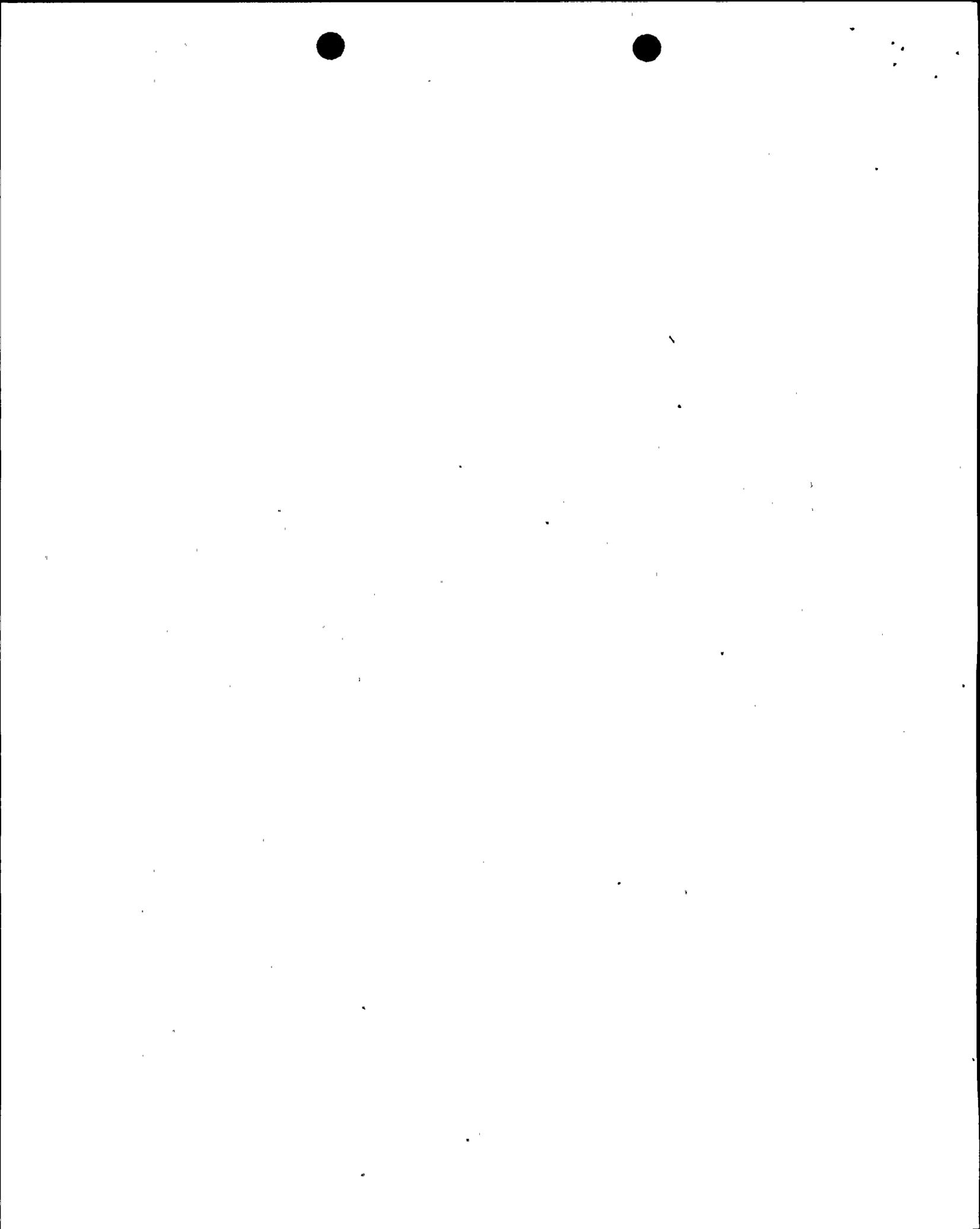
The charcoal adsorber banks provide iodide filtration for engineered safety features (ESF) ventilation systems. They are designed to reduce offsite dose and dose to the control room operators by removing radioactive iodide from the ventilation flow stream prior to exhausting to atmosphere or entry into the control room.

To verify that the charcoal adsorber banks are operable, periodic laboratory testing of the banks is required. ASTM D 3803-1989 provides adsorber bank performance results that are representative of the performance that would be expected following an accident. RG 1.52 requires testing of the charcoal sample in accordance with ANSI N509-1976. ANSI N509-1976 requires that charcoal samples be tested at 80 degrees Celsius. However, the adsorber bank would not experience that high a temperature during an accident. Higher test temperatures improve the efficiency of the charcoal in removing iodides; thus producing non-conservative results.

ASTM D 3803-1989 requires that the ESF ventilation systems adsorber bank be tested at 30 degrees Celsius. This temperature is more consistent with expected system accident temperatures. The lower test temperature decreases the chemical reaction rate between the adsorber bank and the radioactive iodide; therefore, the amount of iodide that penetrates the filter increases. This results in a more accurate representation of the charcoal adsorber's ability to retain radioactive iodide under realistic and conservative conditions.

Additionally, testing in accordance with RG 1.52 does not require that the charcoal sample be pre-equilibrated prior to introducing methyl iodide. Pre-equilibrating the charcoal sample, as required by ASTM D 3803-1989, potentially saturates the charcoal sample with water, reducing the effectiveness of the charcoal sample in removing iodides. Consequently, testing in accordance with ASTM D 3803-1989 is more conservative than the requirements of RG 1.52 and its referenced requirements.

Per ANSI N510-1989, Appendix B, the 30 degree Celsius and 95 percent relative humidity (RH) methyl iodide test is considered by the Idaho National Engineering Laboratory and the NRC to be the most reliable test method. ASTM D 3803-1989, Annex A5 also allows for testing of the charcoal for the operating conditions as required by the facility. For the control room ventilation system and the auxiliary building ventilation system, the humidity of the exhaust air is controlled to 70



percent RH maximum. Therefore, the charcoal samples are tested to 70 percent RH.

#### Other Testing

As previously mentioned, TSs also require that the filters be tested. These tests include: (1) visual inspection; (2) in-place di-octyl phthalate testing of HEPA filters; and (3) in-place halide testing of charcoal adsorbers. At DCP, these tests are currently performed in accordance with ANSI N510-1980.

A line by line review of ANSI N510-1980 and ANSI N510-1975 was performed to determine if the requirements of ANSI N510-1980 were more conservative than the requirements of ANSI N510-1975. The review identified minor variations in definitions between the standards. However, the minor variations do not impact the performance or conclusions of the test. Consequently, testing in accordance with ANSI N510-1980 satisfies the requirements of both ANSI N510-1980 and ANSI N510-1975.

#### Conclusion

Testing in accordance with ASTM D 3803-1989 and ANSI N510-1980 instead of RG 1.52 provides more conservative results in that they more closely simulate accident conditions for the filters. Consequently, PG&E believes that the proposed changes will not adversely impact the health and safety of the public.

#### E. NO SIGNIFICANT HAZARDS EVALUATION

PG&E has evaluated the no significant hazards considerations involved with the proposed amendment, focusing on the three 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 following evaluation is provided for the no significant hazards considerations.

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

The charcoal testing protocol changes will not affect system operation or performance, nor do they affect the probability of any event initiators. These changes do not affect any engineered safety features actuation setpoints or accident mitigation capabilities. The new charcoal adsorber sample laboratory testing protocol more accurately demonstrates the required performance of the adsorbers in the control room ventilation system and auxiliary building safeguards air filtration system following a design basis loss of coolant accident or in the fuel handling building ventilation system following a fuel handling accident outside containment. The decontamination efficiencies used in the offsite and control room dose analyses are not affected by these changes. Therefore, offsite and control room dose analyses are not affected by this change, and all offsite and control room doses will remain within the limits of 10 CFR 100 and 10 CFR 50, Appendix A, General Design Criterion (GDC) 19.

The requirements of ANSI N510-1980 encompass the requirements of ANSI N510-1975, which is referenced in Regulatory Guide (RG) 1.52, as it applies to testing at Diablo Canyon Power Plant (DCPP). Consequently, revising the Technical Specifications (TS) to reference ANSI N510-1980 will have no effect on filter testing.

The proposed changes are consistent with the new Standard Technical Specifications (NUREG-1431, Rev. 1).

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 changes to the charcoal sample testing protocol will not affect the method of operation of the system. The proposed changes only affect the testing parameters for the charcoal samples. No new or different accident scenarios, transient precursors, failure mechanisms, or limiting single failures will be introduced as a result of these changes.



The requirements of ANSI N510-1980 encompass the requirements of ANSI N510-1975, which is referenced in RG 1.52, as it applies to testing at DCP. Consequently, revising the TSs to reference ANSI N510-1980 will have no effect on filter testing.

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?*

The changes in charcoal sample testing protocol will not affect system performance or operation. The decontamination efficiencies used in the offsite and control room dose analyses are not affected by these changes. Therefore, offsite and control room dose analyses are not affected by this change, and all offsite and control room doses will remain within the limits of 10 CFR 100 and 10 CFR 50, Appendix A, GDC 19.

The requirements of ANSI N510-1980 encompass the requirements of ANSI N510-1975, which is referenced in RG 1.52, as it applies to testing at DCP. Consequently, revising the TSs to reference ANSI N510-1980 will have no effect on filter testing.

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

F. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Based on the above safety evaluation, PG&E concludes that the changes proposed by this LAR satisfy the no significant hazards consideration standards of 10 CFR 50.92(c), and accordingly a no significant hazards finding is justified.

G. ENVIRONMENTAL EVALUATION

PG&E has evaluated the proposed changes and determined 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 effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion 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.

