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50-323 Diablo Canyon Nuclear Power Plant, Unit 2, Pacific Ga 05000323
AUTH.NAME AUTHOR AFFILIATION
SHIFFER,J.D. Pacific Gas & Electric Co.
RECIP.NAME RECIPIENT AFFILIATION
KNIGHTON,G.W. Licensing Branch 3

SUBJECT: Forwards responses to Allegations 1659,1660,1661,1662 & 1663 re use of flammable matl.Responses resolve allegations.

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JAMES D. SHIFFER
VICE PRESIDENT
NUCLEAR POWER GENERATION

April 22, 1985

PGandE Letter No.: DCL-85-160

Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Docket No. 50-275, OL-DPR-80
Docket No. 50-323
Diablo Canyon Units 1 and 2
Response to Allegations 1659, 1660, 1661, 1662, and 1663

Dear Mr. Knighton:

Enclosed are PGandE's responses to the subject allegations. PGandE believes that this response resolves the allegations for both Units 1 and 2.

Kindly acknowledge receipt of this material on the enclosed copy of this letter and return it in the enclosed addressed envelope.

Sincerely,

for J. D. Shiffer

Enclosure

cc: R. T. Dodds
G. W. Knighton
H. E. Schierling
Service List
J. B. Martin

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ENCLOSURE

NRC Allegation 1659

It is alleged that:

Roof drain lines that penetrate walls above the false ceiling in the control room are wrapped with a flammable tape.

As indicated in the allegation, flammable tape is used in the false ceiling in the control room. However, as described below, the contribution to the control room fire loading from tape on the roof drain lines is insignificant. The acceptability of the control room combustible loading has previously been documented by the NRC in SSER 23.

The drain lines referenced in the allegation are wrapped with an asphalt-like insulation to prevent sweating and dripping of water from cold pipe surfaces. Based on a field inspection, there is approximately 180 feet of drain pipe in this area which is wrapped. This wrap represents approximately 1.25 pounds of material per 10 feet of pipe for a total control room inventory of approximately 22.5 pounds. The total heat load distribution of this tape to the fire area is approximately 386,000 Btu (68 Btu/ft^2) or a fire severity of approximately 0.05 minutes (3 seconds) based on the criteria presented in Table 6-8A of the NFPA Fire Protection Handbook, 14th edition.

The contribution of the combustible loading mentioned above to the total loading in the Control Room is insignificant. These types of minor combustible loads are typically not explicitly included in fire hazards analyses. Rather, these loads are implicitly accounted for in the conservative methodology used in these analyses for nuclear power plants. Based on the fire hazard analysis and the PGandE's Report on 10 CFR 50 Appendix R Review for Unit 1, dated July 15, 1983, the in-situ combustible loading in the Control Room Complex is approximately 29,420 Btu/ft^2 with an equivalent fire severity of approximately 22 minutes. The loading includes all significant combustibles in the area, both concentrated and distributed. Even if the tape's small combustible loading had not been implicitly accounted for in the conservative methodology used in the analyses, the added contribution to the fire severity from the tape (3 seconds) is insignificant to the total combustible loading.

NRC Allegation 1660

It is alleged that:

Access control and control room ventilation equipment rooms contain flammable canvas and vinyl elbow covers on piping and ductwork.

As indicated in the allegation, flammable canvas and vinyl elbow covers on piping and ductwork are used in the two control room ventilation equipment rooms (one for Unit 1 and one for Unit 2) and also in the access control ventilation equipment room. However, as described below, the contribution to the access control ventilation equipment room and the control room ventilation equipment rooms' fire loadings from canvas and vinyl elbow covers on piping and ductwork is insignificant. The acceptability of the access control ventilation equipment room and control room ventilation equipment room combustible loadings has previously been documented by the NRC in SSER 23.

The canvas and PVC elbow covers on piping and ductwork described in the allegation are designed to protect the underlying fiberglass insulation. The canvas covers are impregnated which a synthetic resin coating (brand name Foster 30-36 SEALFAS Coating) which retards flame spread. The canvas covering weighs approximately 6 oz. per square yard. The PVC elbow covers weigh approximately 2 oz. each.

Based on a field inspection, it was determined that there are 24 elbow covers in the access control ventilation equipment room and approximately 200 square feet of canvas covering in the access control ventilation equipment room which represents a heat load contribution of 95,100 Btu (423 Btu/ft^2).

In each control room ventilation equipment room, there are approximately 46 elbow covers and 1734 square feet of canvas covering for a heat load contribution of approximately 669,000 Btu (276 Btu/ft^2).

Based on the criteria presented in Table 6-8A of the NFPA Fire Protection Handbook 14th Edition, the above heat loading represents a fire severity of approximately 0.32 minutes (19 seconds) in the access control ventilation equipment room and 0.21 minutes (13 seconds) in each of the control room ventilation equipment rooms.

The contribution of the combustible loading to the total combustible loading in the access control ventilation equipmment norm and the control room ventilation equipment rooms is insignificant. These types of minor combustible loads are typically not explicitly included in fire hazards analyses. Rather, these loads are implicitly accounted for in the conservative methodology used in these analyses for nuclear power plants. Based on the fire hazard analysis and the PGandE's Report on 10 CFR 50 Appendix R Review for Unit 1, dated July 15, 1983, and for Unit 2, dated December 6, 1984, the in-situ combustible loading in the access control ventilation equipment room is approximately 4590 Btu/ft^2 with an equivalent fire severity of approximately 3.4 minutes. The combustible loading in each control room ventilation equipment room (part of the control room complex) is approximately 29,420 Btu/ft^2 with an equivalent fire severity of approximately 22 minutes. The loadings include all significant combustibles in the area, both concentrated and distributed. Even if the canvas and PVC elbow cover's small combustible loadings had not been implictly accounted for in the conservative methodology used in the analysis, the added contribution to the fire severity by the canvas and PVC elbow covers (19 seconds at most) is insignificant to the total combustible loading.

NRC Allegation 1661

It is alleged that:

The jumbo ducts in the 115' H area of Unit 1 shutdown panels contain flammable gasket material.

As indicated in the allegation, flammable gasket material is used in the jumbo ducts in the area of Unit 1 shutdown panel. However, as described below, the contribution to the shutdown panel area fire loading from duct work gasket material is insignificant. The acceptability of the shutdown panel area combustible loading has previously been documented by the NRC in SSER 23.

Although the Unit 1 shutdown panel itself is located on El. 100'-0", it is assumed that the alleger is referencing ductwork located near the ceiling above the shutdown panel. A walkdown of this ductwork was conducted between column lines J and H, and column lines 16 and 20. The ventilation duct joints in these areas contain a neoprene gasket sandwiched between metal duct flange faces. The resulting joint has an exposed gasket surface of less than 1/4 inch width. The total quantity of gasket material in the shutdown panel area is conservatively estimated at 20 lbs, for a total heat load of 220,000 Btu (80 Btu/ft^2). This represents a fire severity of approximately 0.06 minutes (4 seconds) based on the criteria presented in Table 6-8A of the NFPA Fire Protection Handbook, 14th edition.

The contribution of the combustible loading mentioned above to the total loading in the shutdown panel area is insignificant. These types of minor combustible loads are typically not explicitly included in fire hazards analyses. Rather, these loads are implicitly accounted for in the conservative methodology used in these analyses for nuclear power plants. Based on the fire hazard analysis and PGandE's Report on 10 CFR 50 Appendix R Review for Unit 1, dated July 15, 1983, the in-situ combustible loading in the shutdown panel area is approximately 25,167 Btu/ft^2 with an equivalent fire severity of approximately 19 minutes. The loading includes all significant combustibles in the area, both concentrated and distributed. Even if the gasket material's small combustible loadings had not been implictly accounted for in the conservative methodology used in the analysis, the added contribution to the fire severity by the gasket material (4 seconds) is insignificant to the total combustible loading.

NRC Allegation #1662

It is alleged that:

Insufficient room was available to install foam in penetrations used for the public address system cable.

The only penetrations that require installation of foam for the public address system cable are those that are located in walls identified as fire barriers. Contrary to the allegation, there was sufficient room for the proper installation of the foam in all of these penetrations located in fire barriers. Fire protection drawings 515562 through 515580 identifies all fire barriers for DCPP Units 1 and 2.

Each of the penetrations for the public address cable in a fire barrier has documentation which verifies that complete sealing of the penetration was accomplished by PGandE's General Construction Department, and that such work was inspected by quality control and accepted and maintained by PGandE's Nuclear Plant Operations Department in accordance with the appropriate surveillance procedure.

NRC Allegation #1663

It is alleged that:

Shrinkage of the sealing foam over a two to three year period was not considered in fire barrier design.

Contrary to the allegation, shrinkage of silicone foam that would be experienced over an extended period, such as three years or more, was considered in the fire barrier design. The physical characteristics of the silicone foam including shrinkage is well documented by the manufacturer and is the basis for the barrier design. This information supplied by the manufacturer considers shrinkage after the initial installation, in which the foam expands and contracts, as the ambient temperature changes. The contraction of the foam may cause physical changes, resulting in the formation of a concave surface on the face of the foam or a small gap between the foam and the penetration.

The percent of shrinkage is very small and usually does not affect the fire rating of the penetration. If, because of unusual circumstances, the gap or concave surface exceeds manufacturer's requirements, the penetration is repaired pursuant to manufacturer's instructions. An instance where the shrinkage exceeded manufacturers requirements was identified in MVR E-2824 in March 1984 and was appropriately dispositioned.

To ensure that penetrations meet the manufacturers' acceptance requirements and to verify the integrity of the fire barrier, periodic inspections are made in accordance with the Technical Specifications. Any silicone foam penetration seal that does not meet manufacturers' specifications is identified, repaired and re-inspected.