

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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| In the Matter of |) | |
| SACRAMENTO MUNICIPAL UTILITY |) | Docket No. 50-312 |
| DISTRICT |) | |
| (Rancho Seco Nuclear Generating |) | |
| Station) |) | |

EXEMPTION

I.

Sacramento Municipal Utility District (the licensee) is the holder of Facility Operating License No. DPR-54 which authorizes the operation of the Rancho Seco Nuclear Generating Station (the facility) at steady-state power levels not in excess of 2772 megawatts thermal. The facility is a pressurized water reactor (PWR) located at the licensee's site in Sacramento County, California. The license provides, among other things, that it is subject to all rules, regulations and Orders of the Nuclear Regulatory Commission (the Commission) now or hereafter in affect.

II.

On November 19, 1980, the Commission published a revised Section 10 CFR 50.48 and a new Appendix R to 10 CFR 50 regarding fire protection features of nuclear power plants (45 FR 76602). The revised Section 50.48 and Appendix R became effective on February 17, 1981. Section III of Appendix R contains fifteen subsections, lettered A through O, each of which specifies requirements for a particular aspect of the fire protection features at a nuclear power plant. One of those fifteen subsections, III.G, is the subject of this Exemption.

Subsection III.G specifies detailed requirements for fire protection of the equipment used for safe shutdown by means of separation and barriers (III.G.2). If the requirements for separation and barriers could not be met in an area, alternative safe shutdown capability, independent of that area and equipment in that area, was required (III.G.3).

By letters dated March 17, 1981, and May 28, 1982, Sacramento Municipal Utility District requested the following exemptions:

1. Exemption from the requirements on Subsection III.G.2 of Appendix R to the extent that it requires an automatic fire suppression system to be installed in the following areas of the Auxiliary Building:

- (a) Train A High Pressure Injection Pump Room
- (b) Makeup Pump Room
- (c) Corridor to Elevation 47 Feet
- (d) West Containment Valve Area

2. Exemption from the requirements of Subsection III.G.2 of Appendix R to the extent that it requires a one-hour fire barrier to be installed in the following areas of the Auxiliary Building:

- (a) Train A High Pressure Injection Pump Room
- (b) Makeup Pump Room

III.

We have reviewed the licensee's exemption requests and our evaluation of these requests is as follows:

1. Auxiliary Building - Train A High Pressure Injection Pump Room and Makeup Pump Room

Each room contains a portion of a copper pipe cross-tie between the two nuclear service raw water systems. The cross-tie piping provides cooling water to both high pressure injection pumps and the makeup pump depending on how the pumps are aligned. Fire damage to the silver brazed joints in the cross-tie piping would result in the loss of cooling water to the above mentioned pumps. Existing fire protection in each room consists of an automatic smoke detection system which alarms locally and in the control room, and one inch of calcium silicate insulation installed on the cross-tie piping to serve as a fire barrier.

The combustibles consist of 20 gallons of lube oil in each room contained in the high pressure injection and makeup pumps. The lube oil comprises a fuel load of 8500 BTU/sq. ft. for each room which, if totally consumed, would correspond to a fire severity equivalent to about 6.5 minutes on the ASTM E-119 standard time temperature curve.

By letter dated May 28, 1982, the licensee provided test data to show that the one-inch calcium silicate insulation is a 30-minute fire rated barrier. We have reviewed the test data and agree with the licensee's findings.

The objective of the fire protection program is to ensure that at least one means of achieving safe shutdown conditions will remain available during and after a postulated fire in any area of the plant. In these rooms, the objective is to provide adequate cooling water to the high pressure injection pumps and makeup pump. This can be achieved if a fire would not melt the silver brazed joints.

In our survey of each room, we found the amount of in-situ combustibles to be low. A combination of passive (calcium silicate insulation) and active (automatic fire detection system) protection had been installed. In addition, the water inside the piping serves as a heat sink to further protect the silver brazed joints.

We find that existing fire protection provides reasonable assurance that the silver brazed joints will not fail as a result of a postulated exposure fire, including one which considers the in-situ fuel load, in addition to the anticipated transient combustibles consisting of 20 gallons of lube oil needed for an oil change. Therefore, we find the existing level of protection provided for safe shutdown systems provides an equivalent level of safety as required by Subsection III.G.2 of Appendix R.

The installation of an automatic fire suppression system and one-hour barriers in these areas would not appreciably enhance fire safety above that already provided. Therefore, the exemption requested by the licensee should be granted.

2. Auxiliary Building - Corridor to Elevation 47 Feet

The area serves as a corridor between elevations 30 feet and 47 feet in the Auxiliary Building. The area is separated from other plant areas by three-hour fire rated barriers. Fire protection is provided by ionization smoke detectors, standpipe hose stations and portable fire extinguishers.

The combustible in the area is cable insulation. The cable insulation in the area comprises a fuel load of 9,500 BTU/sq. ft. which, if totally consumed, would correspond to a fire severity of about seven minutes on the ASTM E-119 standard time temperature curve.

The cables in the area are installed in horizontal cable trays approximately 15 feet above the floor level. Redundant safe shutdown cabling in the area is installed in separate cable trays separated by five feet. One train of the safe shutdown cables has been wrapped with a one-hour fire rated barrier.

Subsection III.G.2 of Appendix R would require the installation of an automatic suppression system in addition to the fire detectors and one-hour fire rated barrier that are already installed. The primary purpose of the automatic suppression system is to extinguish exposure fires.

In our survey of the area, we found the amount of in-situ combustibles to be low. The fuel, in the form of cable insulation, is installed in open horizontal cable trays located 15 feet above the floor level and five feet below the ceiling. We find this arrangement of in-situ combustibles to be such that they are not susceptible to ignition from postulated exposure fires. A combination of passive (one-hour fire rated barrier) and active (fire detection system) protection has been provided to assure safe shutdown capability. The licensee provided an evaluation showing that the integrity of the barrier would not be challenged by heat flux produced by postulated transient combustible exposure fires, e.g. 20 gallons of lube oil. We find the licensee's evaluation reasonable.

We find that the existing active and passive protection provided for the safe shutdown cabling without the installation of an automatic suppression system will provide reasonable assurance that one train of safe shutdown cables will be free of fire damage and, therefore, provides an equivalent level of safety as required by Subsection III.G.2 of Appendix R.

Therefore, the installation of an automatic fire suppression system in this area would not appreciably enhance fire safety above that already provided and, the exemption requested by the licensee should be granted.

3. Auxiliary Building - West Containment Valve Area

The area is separated from the remainder of the plant by three-hour fire rated barriers. The fire protection consists of ionization smoke detectors, standpipe hose stations and portable fire extinguishers.

The combustible in the area is cable insulation. The cables in the area comprise a fuel load of approximately 4,500 BTU/sq. ft. which, if totally consumed, would correspond to a fire severity of about 3.5 minutes on the ASTM E-119 standard time temperature curve. The cables in the area are installed in horizontal cable trays approximately 18 feet above the floor level and five feet below the ceiling. One train of cables has been wrapped with a one-hour fire rated barrier.

Subsection III.G.2 of Appendix R would require the installation of an automatic suppression system in addition to the already installed fire detectors and one-hour fire rated barrier. The primary purpose of the automatic suppression system is to extinguish exposure fires.

In our survey of the area, we found the amount of in-situ combustibles to be low. The fuel, in the form of cable insulation, is installed in open horizontal cable trays located 18 feet above the floor level and five feet below the ceiling. We find this arrangement of in-situ combustibles to be such that they are not susceptible to ignition from postulated exposure fires. A combination of passive (one-hour fire rated barrier) and active (fire detection system) protection has been provided to assure shutdown capability. The licensee provided an evaluation showing that the integrity of the one-hour barrier would not be challenged by heat flux produced by postulated transient combustible exposure fires, e.g. 20 gallons of lube oil. We find the licensee's evaluation reasonable.

We find that the existing active and passive protection provided for the safe shutdown cabling without the installation of an automatic suppression system will provide reasonable assurance that one train of safe shutdown cables will be free of fire damage and, therefore, provides an equivalent level of safety as required by Subsection III.G.2 of Appendix R.

Since the installation of an automatic fire suppression system in this area would not appreciably enhance fire safety above that already provided, the exemption requested by the licensee should be granted.

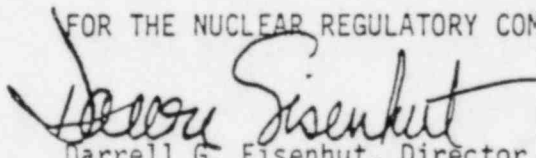
IV.

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, an exemption is authorized by law and will not endanger life or property or common defense and security and is otherwise in the public interest and hereby grants an exemption from the requirements of Subsection III.G.2 of Appendix R to 10 CFR 50 to the extent that it requires:

1. An automatic Fire Suppression System to be installed in the following areas of the Auxiliary Building:
 - (a) Train A High Pressure Injection Pump Room
 - (b) Makeup Pump Room
 - (c) Corridor to Elevation 47 Feet
 - (d) Wes. Containment Valve Area
2. One-hour fire barriers to be installed in the following areas of the Auxiliary Building:
 - (a) Train A High Pressure Injection Pump Room
 - (b) Makeup Pump Room

The Commission has determined that the granting of this Exemption will not result in any significant environmental impact and that pursuant to 10 CFR 51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with this action.

FOR THE NUCLEAR REGULATORY COMMISSION



Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Dated at Bethesda, Maryland
this 10th day of January 1983.