UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 87 TO FACILITY OPERATING LICENSE NO. DPR-80

AND AMENDMENT NO. 86 TO FACILITY OPERATING LICENSE NO. DPR-82

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-275 AND 50-323

1.0 INTRODUCTION

By letter of July 6, 1993, as supplemented December 29, 1993, Pacific Gas and Electric Company (or the licensee) submitted a request for changes to the Technical Specifications (TS). The proposed amendments would revise TS 3/4.3.2, "Engineered Safety Features Actuation System Instrumentation," Table 4.3-2, "Engineered Safety Features Actuation System Instrumentation Surveillance Requirements," to add Table Notation 3. The notation would relax the slave relay test frequency from quarterly to at least once per 18 months during refueling or extended cold shutdowns. The affected slave relays cause isolation of the charging and letdown portions of the chemical and volume control system (CVCS), and actuate charging pump suction valves associated with volume control tank (VCT) and refueling water storage tank (RWST) isolation.

The supplemental letter dated December 29, 1993, provided clarifying information and revised the effective date of the amendments and did not affect the initial Federal Register Notice and proposed no significant hazards consideration.

2.0 EVALUATION

The solid state protection system (SSPS) is designed to actuate plant Engineered Safety Feature (ESF) components when it receives the appropriate input signals. The SSPS consists of two redundant, electrically independent trains. Non-redundant ESF components can be actuated by either SSPS train. Redundant ESF components are arranged so that one SSPS train actuates one of the components, and the other SSPS train actuates the other component.

ESF components are actuated by slave relays in the SSPS. The slave relays are actuated by master relays, which are actuated by the logic circuits of the SSPS. Each slave relay actuates multiple ESF components. Actuation of four particular slave relays currently results in the actuation of ten valves in the charging and letdown portions of the CVCS, as well as additional ESF components. The ten CVCS valves are actuated by either a safety injection

(SI) signal or a Phase A containment isolation signal. A Phase A containment isolation signal is generated as a subset of any SI signal. The ten CVCS valves of concern perform the following functions:

CVCS-8149A/B/C: These three valves are parallel letdown orifice isolation valves. Letdown flow rate during normal operation is regulated by opening one or two of these valves. These valves serve as containment isolation valves and will close upon receipt of a Phase A containment isolation signal. They will also automatically isolate a high energy line break outside containment upstream of the letdown heat exchanger due to high heat exchanger room temperature.

CVCS-8152: This valve is the letdown isolation valve outside containment. It is located downstream of the letdown orifice stop valves. This valve closes upon receipt of a Phase A containment isolation signal.

CVCS-LCV-112B/C: These two valves are VCT isolation valves in series. The valves are located between the VCT and the suction of the charging pumps. The valves close on an SI signal to isolate the VCT from the suction of the charging pumps when the suction of the charging pumps is automatically realigned to the RWST.

SI-8805A/B: These two valves are parallel valves that open on an SI signal. They provide a flowpath from the RWST to the suction of the charging pumps for emergency core cooling.

CVCS-8107/8108: These two valves are isolation valves in series that isolate the normal charging line upon receipt of an SI signal to assure that all water discharged from the RWST via the charging pumps is directed through the emergency core cooling flow path.

To support a relaxation in the test frequency, the licensee will implement a design change to move the 10 CVCS valves to spare slave relays. Phase A slave relay K612A will actuate valves CVCS-8149A/B/C. Phase A slave relay K614B will actuate CVCS-8152. SI slave relay K615A will actuate CVCS-8107, CVCS-LCV-112B, and SI-8805A. SI slave relay K615B will actuate CVCS-8108, CVCS-LCV-112C, and SI-8805B.

The licensee tests the SSPS as part of the ESF Actuation System (ESFAS) surveillance. The actuation logic test verifies the reactor trip and ESF logic signal output given simulated input signals to the SSPS. A master relay test energizes each master relay and verifies the continuity of the circuit through each slave relay coil associated with the particular master relay. Slave relay coil continuity is demonstrated by a reduced voltage test signal, which is sufficient to light a test lamp, but not sufficient to cause actuation of the slave relay. Finally, a slave relay test is performed that

actuates each slave relay. Each slave relay is actuated via a test switch that applies normal voltage to the associated slave relay. The slave relay is then verified operable through a continuity check or actuation of associated testable components.

The proposed changes to the TS would require that Phase A slave relays K612A and K614B, and SI slave relays K615A and K615B, which will actuate only the subject 10 CVCS valves, be tested once every 18 months during refueling or an extended cold shutdown. The master relay test, which verifies the continuity of the slave relay coil, will remain at its current monthly staggered test frequency.

The licensee claims that test data and operating experience have shown that the charging and letdown lines experience thermal transients as a result of the containment isolation test. In order to avoid these transients, the licensee proposes that the quarterly tests be revised so that the valves are not stroked.

In addition, the licensee has experienced reactivity and hydraulic transients during quarterly SSPS testing of the ten CVCS valves. In order to test the charging pump suction realignment from the VCT to the RWST, normal letdown is isolated and charging flow is reduced to the minimum flow required to maintain a stable supply to the RCP seals. Excess letdown is placed in service to control pressurizer level. The slave relay is actuated, causing the suction valve realignment. Even though the operators are instructed to immediately restore the valves to normal configuration upon completion of the test, a significant amount of RWST water with a nominal boron concentration of 2300 parts per million (PPM) is injected into the RCS through the RCP seals. The resulting transients in average reactor coolant temperature are common, particularly at the end of core life. Additionally, restoration of normal letdown following testing causes hydraulic transients, including actuation of letdown line relief valves.

The slave relays proposed for the relaxed test frequency are identical in design to other slave relays in the SSPS. Since only 6.25 percent of the total number of slave relays are proposed for the relaxed test frequency, there is a high level of confidence that if a failure due to a generic design defect or application were present, it would be discovered during the quarterly tests of the other slave relays. Additionally, the continuity of the slave relay coils will continue to be verified monthly during SSPS master relay testing.

The licensee also proposes to delete the list of effective TS pages added to the license. The list of effective TS pages has proven to be an unnecessary administrative burden that adds no value to the TS. This change is an administrative change and, therefore, is acceptable.

Based on the above, the staff finds the proposed TS amendment acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the California State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (58 FR 43929). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: January 31, 1994