SOUTHERN CALIFORNIA
EDISON
An EDISON INTERNATIONAL Company

Dwight E. Nunn
Vice President

February 18, 1997

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

Gentlemen:

Subject: **Docket Nos. 50-362**
Engineered Safety Features Response Time Testing Proposed
Technical Specification Change Number 480
San Onofre Nuclear Generating Station, Unit 3

Reference: February 16, 1997 letter from R. W. Krieger (Edison) to William H. Bateman (NRC), Subject: Request for Enforcement Discretion, Engineered Safety Features Response Time Testing, San Onofre Nuclear Generating Station, Unit 3

Enclosed is Amendment Application Number 152 to Facility Operating License NPF-15, for the San Onofre Nuclear Generating Station (SONGS), Unit 3. The Amendment Application consists of Proposed Technical Specification Change Number 480 (PCN-480). This is a request for an exigent Technical Specification Change as a followup to the Request for Enforcement Discretion referenced above.

The proposed change is requested to defer implementation of Surveillance Requirement (SR) 3.3.5.6 of Technical Specification (TS) 3.3.5, "Engineered Safety Features Actuation System (ESFAS) Instrumentation" for 30 subgroup relays until the next refueling outage on San Onofre Unit 3. The need for this request results from an error in implementation of this SR.This SR was believed to be satisfied by a surveillance which included a bounding allowance for the subgroup relays, in lieu of actually testing these relays.

This change is not being requested for Unit 2 because Unit 2 is currently shutdown for a refueling outage. The ESFAS subgroup relays in Unit 2 will be tested in accordance with SR 3.3.5.6 prior to return to Mode 4.

The Southern California Edison Company requests this amendment be issued as an exigent TS change, effective as of its date of issuance. The exigent circumstances for this TS amendment request exist because it would avoid an undesirable transient associated with an unnecessary plant shutdown and thus minimize potential safety consequences and operational risks associated with such action. In the event of a planned or unplanned shutdown of Unit 3, prior to the Cycle 9 refueling outage, testing in accordance with SR 3.3.5.6 will be completed prior to increasing in Modes from that shutdown.

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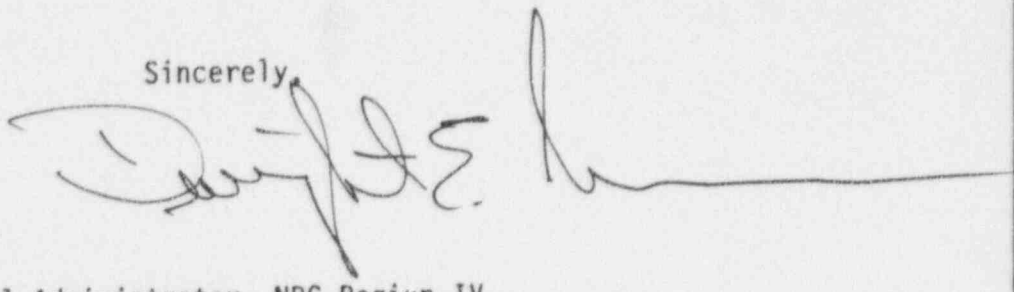
If you would like additional information regarding this Amendment Application, please let me know.

Sincerely,



Enclosure

cc: L. J. Callan, Regional Administrator, NRC Region IV
K. E. Perkins, Jr., Director, Walnut Creek Field Office, NRC Region IV
J. A. Sloan, NRC Senior Resident Inspector, San Onofre Units 2 & 3
M. B. Fields, NRC Project Manager, San Onofre Units 2 and 3

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. for a Class 103 License to Acquire, Possess, and Use a Utilization Facility as Part of Unit No. 3 of the San Onofre Nuclear Generating Station	))))))	Docket No. 50-362 Amendment Application No 152.

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No 152. This amendment application consists of Proposed Technical Specification Change No. 480 to Facility Operating License NPF-15. Proposed Technical Specification Change No. 480 is a request to revise TS 3.3.5, "Engineered Safety Features Actuation System (EFSAS) Instrumentation." The proposed change defers implementation of Surveillance Requirement 3.3.5.6, "Verify ESF RESPONSE TIME is within limits" until the Unit 3, Cycle 9 refueling outage.

Subscribed on this 18th day of February, 1997.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: Dwight E. Nunn

Dwight E. Nunn

Vice President

State of California
County of San Diego
On 2/18/97 before me, Mariane Sanchez, personally appeared Dwight E. Nunn, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

MARIANE SANCHEZ
COMM. # 1033763
Notary Public — California
ORANGE COUNTY
My Comm. Expires OCT 14, 1998

Signature Mariane Sanchez

DESCRIPTION AND SAFETY ANALYSIS
OF PROPOSED CHANGE 480

This is a request for an exigent Technical Specification (TS) change to revise Surveillance Requirement (SR) 3.3.5.6 of TS 3.3.5, "Engineered Safety Features Actuation System (ESFAS) Instrumentation" for San Onofre Nuclear Generating Station (SONGS), Unit 3.

Existing SONGS Specification:

Unit 3: See Attachment "A"

Proposed SONGS Specification:

Unit 3: See Attachment "B"

The following Note will be added to SR 3.3.5.6:

> Verification of the RESPONSE TIME of the subgroup relays is not applicable until return to Mode 4 from the Unit 3 Cycle 9 refueling outage with the additional commitments made in the February 18, 1997 Edison letter. The safety justification for not performing this testing is also included in the February 18, 1997 letter.

Description of Changes

SUMMARY

The proposed change is requested to defer implementation of Surveillance Requirement (SR) 3.3.5.6 of TS 3.3.5, "Engineered Safety Features Actuation System (ESFAS) Instrumentation" until the Unit 3, Cycle 9 refueling outage for the 30 subgroup relays in the Engineered Safety Features Actuation System (ESFAS) listed in Attachment C. In the event of a planned or unplanned shutdown of Unit 3, prior to the Cycle 9 refueling outage, testing of these 30 relays in accordance with SR 3.3.5.6 will be completed prior to increasing in Modes from that shutdown.

DISCUSSION

On February 14, 1997, Southern California Edison (Edison) recognized that the existing Unit 3 surveillances of record did not fully satisfy SR 3.3.5.6. The SR requires verification that the ESF Response Time is within limits, which requires that the response time of the subgroup relays be measured. Although it may be possible to perform this test with the Unit in Mode 1 for the 30 subgroup relays listed in Attachment C, it would involve testing these relays inside the ESF cabinets using temporary jumpers and power supplies for safety significant components (main steam isolation valves, feedwater valves, reactor coolant pump bleedoff, instrument air, and component cooling water), as well as defeating the safety function of these relays during testing. Performance of this testing in Mode 1 would involve more risk of inadvertent actuation of ESF equipment and trip of the Unit.

After reviewing existing documentation, however, Edison believes that the subgroup relays are fully functional and capable of performing their intended safety functions, as demonstrated by satisfactory performance during other surveillance testing, the margin available for relay operation, and the recent maintenance history of the relays.

System Description

The subgroup relays are part of the Engineered Safety Features (ESF) systems. The safety-related instrumentation and controls of the ESF systems include the ESFAS, which consists of the electrical and mechanical devices and circuitry (from sensors to actuation device input terminals) involved in generating those signals that actuate the required ESF systems, and the arrangement of components that perform protective actions after receiving a signal from either the ESFAS or the operator.

The ESFAS includes sensors to monitor selected safety significant parameters. The following actuation signals are generated by the ESFAS when the monitored variables reach the levels that are indicative of conditions which require protective action:

- Safety Injection System
- Recirculation (Containment Emergency Sump) Containment Spray
- Containment Isolation
- Emergency Feedwater
- Containment Cooling

The signals from the ESFAS actuate the ESF equipment. For the above actuation systems, two-out-of-four coincidence of like initiating trip signals from four independent measurement channels is required to actuate the ESF system.

The response time of the ESF systems may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. At San Onofre the total response time has been determined by sequentially adding the response times determined for separate segments of the ESF systems. Response times have been measured during each surveillance from the sensor/transmitter to the subgroup relay and from the subgroup relay until the ESF equipment is capable of performing its safety function. However, instead of being measured during each surveillance, a bounding time response allowance was used for the subgroup relays based on measurements and an engineering evaluation performed in 1983. The bounding time was based on testing completed from a large sample of relays tabulated by relay type.

Three standard deviations were applied to the average of the relay times and the result was conservatively rounded up to 0.300 seconds.

Subgroup Relays

The subgroup relays are Potter & Brumfield Motor Driven Relays. These relays utilize a coil to rotate a shaft which causes the contacts to open and close. Although earlier versions of these relays have had a history of performance problems, these issues have been addressed and resolved as discussed below.

During a Unit 2 integrated ESF test in November, 1987, one subgroup relay did not function properly. Examination of the relay revealed the presence of contamination and corrosion products in the motor housing. These materials were present on and around the bearing surfaces and in bushing to shaft spaces where the buildup of material caused the relay to mechanically jam.

The failure mode was found to be predominately one of relay binding due to "out-gassing" of corrosive material in the insulating varnish of the relay coil. The out-gassed material would condense on the internal surfaces of the relay, such as the shaft and shaft bearing surface, causing corrosion and binding. The primary driving force for the problem was excess heat (temperature) generated by coil voltages 10% or more above nominal operating voltage.

Edison and other utilities worked with Potter & Brumfield to correct all the problems experienced. The changes included using an epoxy coil coating instead of varnish to eliminate chlorine, replacement of the brass spacers with stainless steel for enhanced corrosion resistance, tolerance changes to alleviate shaft binding, and replacement of the coil PVC insulating sleeves and neoprene grommets in the motor base with inert materials to eliminate these sources of corrosive out-gassing materials.

Revision controlled drawings were instituted with the vendor guaranteeing no changes to subgroup relays purchased by San Onofre without Edison approval. Unique part numbers were assigned to further track changes and subsequent replacement of existing subgroup relays. On-site Quality Control inspection and testing was used to "qualify" the vendor for the new design subgroup relays.

The subgroup relays in ESF systems with varnish coils were replaced in the 1989 to 1993 time frame.

Justification of Operability

Edison has completed a number of activities including 1) an assessment of the total time sequence for the individual ESF subgroup relays, 2) initial Unit 2 relay testing, 3) a maintenance history search for relay reliability, and 4) an evaluation of recent channel test results.

The tables in Attachment D provide the individual relay and component timing data for both Units 2 and 3 Trains A and B ESF equipment. The information in the tables was pulled from plant records on February 14 - 17, 1997 and is the best available information. The tables list the individual relays, the associated valve or pump that is actuated, timing data for the trains, the technical specification limit for the component, and allowable "margin" to the limit. Note that the table shows a "zero" time for the subgroup relays. This "zero" time is shown so that the allowable margin column effectively shows the time available to accomodate the actual response time for these relays.

As shown in the attached tables, there are 118 subgroup relays in the ESF relay cabinets. Edison has further evaluated each relay and actuated component. Of these 118 relays, 99 are required to be response time tested to comply with SR 3.3.5.6. As a result of the integrated ESF testing, response time data is credited for 10 of these relays. Of the remaining 89 relays, 59 can be response time tested on line. The remaining 30 relays cannot be response time tested

on-line without rendering their associated equipment inoperable and incapable of performing their safety functions. These 30 relays close valves that are required to be open while the plant is operating in systems such as main steam isolation, main feedwater, reactor coolant pump bleedoff, component cooling water noncritical loop, and instrument air.

In response to this missed surveillance, Edison placed a Mode 4 restraint on the Unit 2 refueling outage, and a complete retest was immediately initiated and has been completed of all the ESFAS subgroup relays addressed by SR 3.3.5.6. Additionally, response time testing was initiated on the Unit 3 ESFAS subgroup relays that can be tested on line. Response time data collected on subgroup relays tested on Unit 2 shows time responses in the range of 0.032 seconds to 0.119 seconds. This testing includes a sample of over 100 relays. Response time data collected on Unit 3 subgroup relays (currently, response time testing on 52 of 59 relays has been completed on line) shows time response in the range of 0.029 seconds to 0.115 seconds. These results are an improvement over data obtained in 1983 for the previous version subgroup relays and support the bounding time response allowance of 0.300 seconds used for the subgroup relays.

A maintenance history search for ESF subgroup relay failures was completed. This search found no failure on either San Onofre unit since the 1989-1993 time period after the relays were replaced.

In addition, all ESF trains have successfully passed the following surveillance tests:

1. Channel Functional Test(SR 3.3.5.2, SR 3.3.5.3, SR 3.3.5.7, SR 3.3.6.1, and SR 3.3.6.3)

2. Channel Calibration Test (SR 3.3.5.4 and SR 3.3.5.5)

3. Subgroup Relay Test (SR 3.3.6.2)

The ESF trains have satisfied the above surveillance test acceptance criteria, which provides assurance that the ESF trains are operable.

In summary, Edison is confident that the Unit 3 ESF trains remain operable and that the time response of the subgroup relays is within the assumed allowance of 0.300 seconds because:

1. There is sufficient available margin for subgroup relays that are not currently timed (see Attachment D tables),

2. Results of Unit 2 subgroup relay testing conducted on February 14 - 17, 1997 demonstrated that the timing of the subgroup relays was consistent with and bounded by the 1983 assessment,

3. There is no history of ESF subgroup relay failure since the 1989-1993 time period.

4. Surveillance requirements for ESF Channel Functional Tests, ESF Channel Calibration Tests, and ESF Subgroup Relay Tests have been satisfied.

In addition, based on the current tests of record for the Unit 3 integrated ESF test per SR 3.8.1.19, 10 subgroup relays plus actuated components were demonstrated to be well within their overall response time requirement.

Probabilistic Risk Assessment

The core damage and significant radioactive release risk impact of continued Unit 3 operation without performing the subject ESF surveillance testing has been determined negligible. Since the engineering assessment concludes that the overall ESF response time remains within allowable design margins, no events modeled in the San Onofre Units 2 and 3 living probabilistic risk assessment are impacted. The impact on core damage risk from a forced unit shutdown to perform the subject surveillance test is estimated to be 1E-6, which is non-negligible. Therefore, the safest course of action is to remain at power and conduct the surveillance testing during the next outage.

This proposed change is requested to defer implementation of SR 3.3.5.6 until the next refueling outage on Unit 3 for 30 ESFAS subgroup relays. This proposed change will preclude the need to shut down Unit 3 before the refueling outage for the sole purpose of performing this SR. The start of the Unit 3 Cycle 9 refueling outage is currently anticipated for April 12, 1997.

SAFETY ANALYSIS

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any one of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change would defer completion of Surveillance Requirement (SR) 3.3.5.6 of Technical Specification (TS) 3.3.5 for 30 Emergency Safety Feature Actuation System (ESFAS) subgroup relays until the Unit 3, Cycle 9 refueling outage.

Operation of the facility would remain unchanged as a result of the proposed change and no assumptions or results of any accident analyses are affected. Based on other surveillance testing, the response time margin available for these subgroup relays, results of response time testing on Unit 2 relays, and the history of no failures since the 1989 to 1993 time period, the capability of these ESFAS subgroup relays to perform their specified safety function has been demonstrated and they are operable.

Therefore, the proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response:No

The proposed change would defer completion of SR 3.3.5.6 of TS 3.3.5 for 30 ESFAS subgroup relays until the Unit 3, Cycle 9 refueling outage.

Operation of the facility would remain unchanged as a result of the proposed change. No equipment change or operating procedure change is being made. Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response:No

The proposed change would defer completion of SR 3.3.5.6 of TS 3.3.5 for 30 ESFAS subgroup relays until the Unit 3, Cycle 9 refueling outage. Based on other surveillance testing, the response time margin available for these subgroup relays, and results of testing on Unit 2 relays, the capability of these ESFAS subgroup relays to perform their specified safety function has been demonstrated and they are operable. Therefore, this proposed change does not involve a significant reduction in a margin of safety.

Safety and Significant Hazards Determination

Based on the above Safety Analysis, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10 CFR 50.92 and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change. Moreover, because this proposed change does not involve a significant hazards consideration, it will also not result in a condition which significantly alters the impact of the station on the environment as described in the NRC Final Environmental Statement.