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 TOWNSEND, J.D.      Pacific Gas & Electric Co.  
 RECIP. NAME      RECIPIENT AFFILIATION  
 MARTIN, J.B.      Region 5 (Post 820201)

SUBJECT: Forwards suppl to 930503 request for NRC enforcement discretion re compliance w/TS 3/4.8.2, "Onsite Power Distribution." Actual testing completed & inverter 13A declared operable & returned to svc on 930503.

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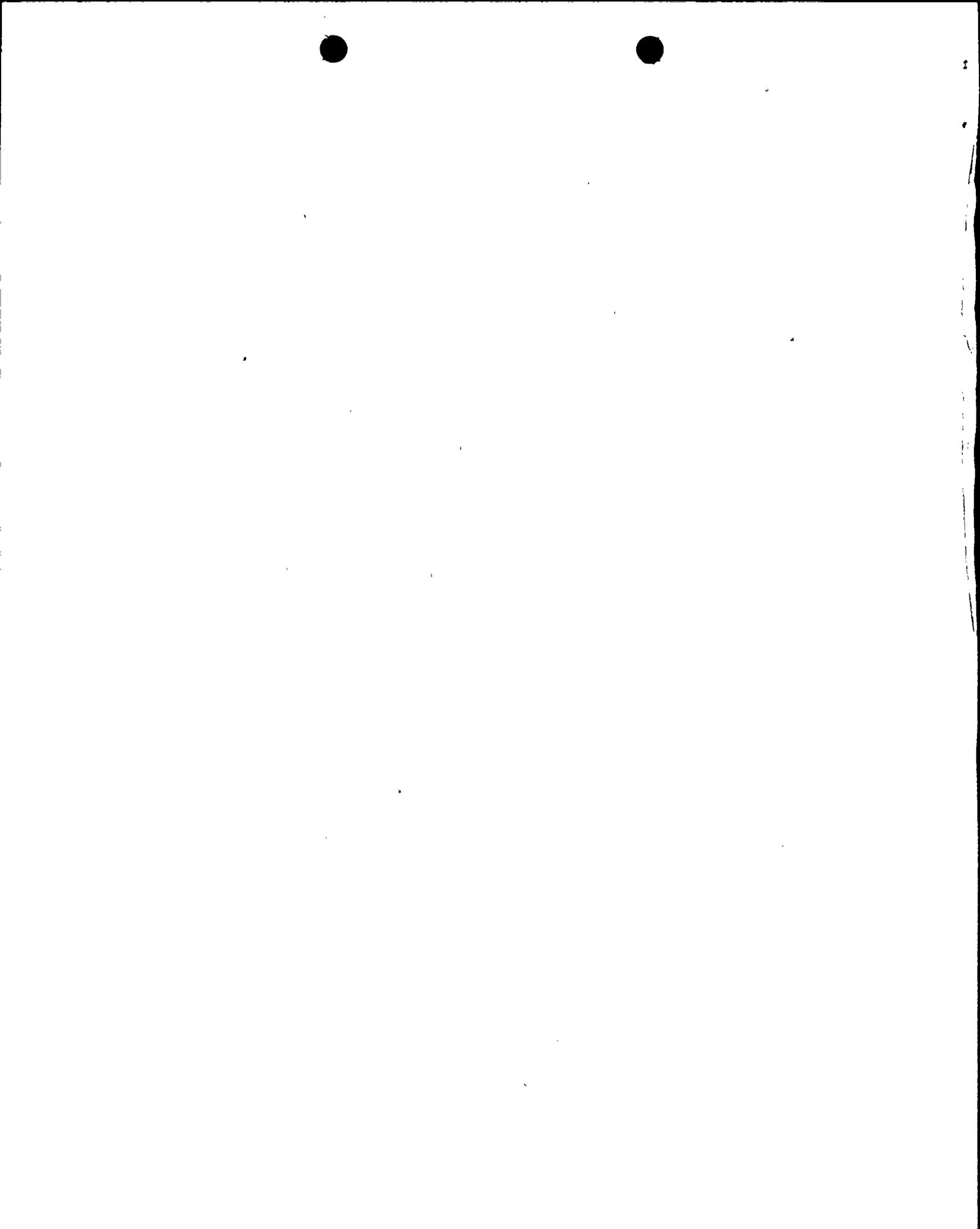
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John D. Townsend  
Vice President—Diablo Canyon  
Operations and Plant Manager

May 4, 1993

PG&E Letter No. DCL-93-110



John B. Martin, Regional Administrator  
U.S. Nuclear Regulatory Commission, Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, CA 94596-5368

Re: Docket No. 50-275, OL-DPR-80  
Diablo Canyon Unit 1  
Request for NRC Enforcement Discretion Regarding Compliance  
with Technical Specification 3/4.8.2, "Onsite Power Distribution"

Dear Mr. Martin:

Pursuant to 10 CFR Part 2, Appendix C (see also 58 FR 14308, dated March 17, 1993), on May 3, 1993, PG&E requested the NRC to exercise enforcement discretion regarding compliance with Technical Specification (TS) 3/4.8.2, "Onsite Power Distribution." The request was made by telephone and verbally granted by Region V to allow for continued operation of Unit 1 with Supplemental Inverter IY-13A out of service for completion of maintenance and post-maintenance testing longer than the 24 hours allowed in Action Statement e. of TS 3.8.2.1. This situation was unavoidable and could not have been anticipated by PG&E because of the time consuming efforts to locate and remedy the problem.

On May 2, 1993, at 1857 PDT, supplemental inverter IY-13A failed and TS 3.8.2.1 Action e. was entered. TS 3.8.2.1. Action e. requires that the supplemental vital instrument bus be reenergized from an alternate source within 2 hours and that the instrument bus be reenergized from its associated inverter within 24 hours. Corrective maintenance actions were then initiated to repair the inverter. These actions consisted of:

1. A determination that the inverter failed due to a blown fuse and bad silicon controlled rectifier (SCR). SCR #2 was determined to be shorted anode to cathode.
2. The blown fuse and SCRs #1 and #2 were replaced.
3. Attempts were made to reenergize the inverter. The fuse blew again and SRC #2 was found to be bad.
4. Because this was the second time SCR #2 failed, the problem was believed to be elsewhere in the circuit.

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May 4, 1993

5. Each component which could potentially have caused the failure was isolated and tested. The ferro-resonant transformer and snubber circuits were checked. The switch gate logic board and gate drive circuit boards were replaced due to a voltage difference between the SCR #1 and #2 gate drive signal.
6. Westinghouse was contacted for advice in troubleshooting the inverter.
7. Ultimately, the problem was determined to be caused by a shorted gate circuit of SCR #2. The blown fuse and SCR #2 were replaced a second time.
8. The inverter was reenergized and tested satisfactorily.

To complete the remaining maintenance and to conduct all testing following maintenance on IY-13A, PG&E requested that the NRC exercise enforcement discretion regarding compliance with Action Statement e. of TS 3.8.2.1 from May 3, 1993, at 1857 PDT until May 3, 1993, at 2257 PDT to avoid shutdown of Unit 1. The need for this extra out-of-service time was discussed in a telephone conversation with the DCPN NRC Senior Resident Inspector, Region V, and NRR personnel on May 3. Following review and approval for the request by the Plant Safety Review Committee, the Region verbally granted a 4-hour extension. In accordance with a commitment made in the telephone conversation, PG&E is documenting its request formally within 24 hours of the verbal granting of the request. The actual testing was completed and inverter 13A was declared operable at 2050 hours PDT on May 3, 1993, using approximately 1 hour and 53 minutes of the 4-hour extension.

The justification for the duration of the request, the compensatory measures, the safety evaluation for the request, including an evaluation of the safety significance and potential consequences of the proposed course of action, and an evaluation of the potential impact on the public health and safety and the environment, are enclosed.

Sincerely,

*David M. Millush for JDT*  
John D. Townsend

cc: Ann P. Hodgdon  
John B. Martin  
Mary H. Miller  
Sheri R. Peterson  
CPUC  
Diablo Distribution

Enclosure

6099S/85K/ALN/1073



## ENCLOSURE

**REQUEST FOR NRC ENFORCEMENT DISCRETION REGARDING  
COMPLIANCE WITH TECHNICAL SPECIFICATION 3/4.8.2,  
"ONSITE POWER DISTRIBUTION"****A. INTRODUCTION**

On May 2, 1993, at 1857 PDT, Supplemental Inverter IY-13A failed and Technical Specification (TS) 3.8.2.1 Action e. was entered. TS 3.8.2.1. Action e. requires that the supplemental vital instrument bus be reenergized from an alternate source within two hours and that the instrument bus be reenergized from its associated inverter within 24 hours. Corrective maintenance actions were then initiated to repair the inverter.

These actions consisted of:

1. A determination that the inverter failed due to a blown fuse and bad silicon controlled rectifier (SCR). SCR #2 was determined to be shorted anode to cathode.
2. The blown fuse and SCRs #1 and #2 were replaced.
3. Attempts were made to re-energize the inverter. The fuse blew again and SRC #2 was found to be bad.
4. Because this was the second time SCR #2 failed, the problem was believed to be elsewhere in the circuit.
5. Each component which could potentially have caused the failure was isolated and tested. The ferro-resonant transformer and snubber circuits were checked. The switch gate logic board and gate drive circuit boards were replaced due to a voltage difference between the SCR #1 and #2 gate drive signal.
6. Westinghouse was contacted for advice in troubleshooting the inverter.
7. Ultimately, the problem was determined to be caused by a shorted gate circuit of SCR #2. The blown fuse and SCR #2 were replaced a second time.
8. The inverter was reenergized and tested satisfactorily.

Although the problem appeared to be close to resolution toward the end of the 24 hours, it was still necessary to complete the final maintenance, adjust, and load test the inverter prior to declaring it operable. This effort could not be completed within the 24-hour Action Statement; therefore, enforcement discretion was requested to avoid a plant transient for a very short period of time until operability was restored.



**B. DESCRIPTION OF REQUEST FOR ENFORCEMENT DISCRETION**

Enforcement discretion was requested to allow continued operation of Unit 1 at full power for an additional 4 hours in excess of the 24 hours allowed in Action Statement e. of TS 3.8.2.1 in order to complete the maintenance and to perform post-maintenance testing of Supplemental Inverter IY-13A.

PG&E requested that this request be granted and be made effective at 1857 PDT on May 3, 1993, and end at 2257 PDT on May 3, 1993.

**C. BACKGROUND**

A brief description of the vital and supplemental A.C. busses and their associated inverters at Diablo Canyon Power Plant (DCPP) is as follows:

Vital instrument A.C. power is supplied by four 120 volt vital instrument A.C. busses and two 120 volt supplemental vital instrument A.C. busses, each energized from its associated inverter. The inverters are powered from one of three 125 volt D.C. battery busses, or from a vital 480 volt A.C. source through a transformer and rectifier. Each of the three 480 volt vital busses is connected to its associated 4160 volt vital bus.

All six inverters share one transformer voltage regulator as an additional backup power source. The transformer voltage regulator is fed from a 480 volt A.C. vital bus.

The two supplemental inverters (IY-11A and IY-13A) were added to the original design in 1983 to provide adequate capacity to accommodate loads associated with NUREG-0737 and other future additions. Their associated vital A.C. busses meet General Design Criterion 17 (GDC 17) and are consistent with NRC Regulatory Guide 1.6. Certain relevant design features include:

- Independence, redundancy, and testability (four vital and two supplemental inverters).
- Each of the six inverters is independently connected to its respective instrument distribution panel so that the loss of an inverter cannot affect more than one of the six distribution panels.
- In addition, each distribution panel can be manually switched to receive alternate backup power from a vital bus. The transfer breakers are mechanically interlocked to prevent paralleling the normal sources with the alternate backup source.
- Class 1E supplemental vital instrument A.C. distribution Panel 13A provides a reliable source of 120 volt power for the operation and control of important safety-related and nonsafety-related loads, but none of the most critical loads. Distribution Panel PY-13A does not provide power to reactor protection or to ESFAS with the exception of containment ventilation isolation (CVI) through RM-44. Therefore, there would be no safety hazard



in the short time the power supply was interrupted. A list of the connected loads is provided in Table 1.

The supplemental inverters have the same design features and TS requirements as the vital power inverters. License Amendment (LA) No: 7 for DCP Unit 1 License DPR-76, issued November 20, 1983, added the supplemental vital bus and inverter requirements to the Unit 1 TS (reference: License Amendment Request 82-09, dated December 29, 1982).

#### D. JUSTIFICATION

Approval of the request for enforcement discretion for the shutdown requirements of Action Statement e. of TS 3.8.2.1 allowed continued operation of Unit 1 for the period of time needed to complete the maintenance and perform the post-maintenance testing of IY-13A and place it back in service. At the time of the request being verbally granted, the maintenance activities were in the last stage of completion and testing of the inverter was being initiated. Therefore, PG&E has been taking all reasonable corrective actions and could not have avoided this request.

PG&E believes that the exercise of enforcement discretion for a 4-hour period was warranted to avoid unnecessary plant transients and to reduce both operational and shutdown risk since the course of action involved minimal or no safety impact and the exercise of discretion was consistent with the public health and safety.

#### E. COMPENSATORY MEASURES

As a compensatory measure for this enforcement discretion request for a 4-hour extension of the 24-hour Action Statement on IY-13A, Emergency Diesel Generator (EDG) 1-2 was run paralleled to the 4kV Bus G to carry the bus load (approximately 1000 kWe). This measure provided continuous vital 480 volt power to the backup regulating transformer that bypasses IY-13A. In case of a unit trip, or a loss of offsite power (LOOP), EDG 1-2 would have provided uninterrupted power to Bus G. After IY-13A was operable, EDG 1-2 was separated from the bus and shut down. This measure was continued for an additional 4 hours of IY-13A inoperability. EDG 1-2 was started shortly after the verbal approval of the 4-hour extension was received.

#### F. SAFETY EVALUATION

The following safety evaluation addresses the safety significance and potential consequences of the proposed course of action to allow Unit 1 operation with IY-13A inoperable for an additional 4 hours to complete maintenance and post-maintenance testing.

The inverters operate normally from the D.C. system. Inverter IY-13A is fed from Battery 1-3 and 480 volt vital Bus H. If the D.C. system is interrupted, the inverter will be supplied from the remaining A.C. source without interruption of the power to the load.



Each of the six inverters is independently connected to its respective instrument distribution panel so that the loss of an inverter cannot affect more than one of the six distribution panels.

In addition, a single 120 volt A.C. backup power source from vital Bus G can be manually switched to any one of the six vital busses. Each distribution panel can receive power from the 120 volt A.C. backup source under operator control. The transfer breakers are mechanically interlocked to prevent paralleling the inverters with the backup source.

PG&E installed the supplemental inverters and busses in accordance with the plant design requirements applicable to the vital inverters and busses. Qualification, electrical isolation, operation, maintenance, and surveillance of the vital and supplemental vital inverters and busses are identical. The supplemental inverters are currently supplying Class 1E and non-Class 1E electrical loads (see Table 1).

Table 1

Inverter IY-13A / Distribution Panel PY-13A

<u>ITEM</u>	<u>LOAD DESCRIPTION</u>
1	Monitor Light Box Monitor Light Box Auxiliary Relays Emergency Response Facility Data System (ERFDS) Remote Multiplexer Rack
2	Post-Accident Neutron Flux Instruments
3	ERFDS Multiplexers, Residual Heat Removal (RHR) Pump Motor Current Isolators
4	Fuel Handling Building Exhaust, Containment Exhaust, and Control Room Ventilation Radiation Monitoring System (RMS)
5	Radiation Monitor Rack A
6	Fire and Smoke Detector Panel
7	Nuclear Auxiliary Relay Rack A
8	Main Generator Relay Board
9	Engineered Safeguards Features (ESF) Equipment Room Temperature Monitor
10	Control Room Ventilation Isolation Auxiliary Relays - Unit 2 Back Up Source
11	Technical Support Center Safety Parameter System Computer



Distribution Panel PY-13A was switched to a Bus G power supply through a regulating transformer. This alternate power source is acceptable for continuing operation of the panel, however, Bus G is not an uninterruptible power source. In the event of a LOOP, Bus G would lose voltage and interrupt the power supply to Panel PY-13A. EDG 1-2 start would restore power to Bus G, which would then provide power to the panel. Since Panel 13A does not provide power to reactor safety or ESFAS with the exception of a CVI through RM-44, there would be no safety hazard in the short time the power supply was interrupted. However, the compensatory measure to start EDG 1-2 and parallel to Bus G eliminates the potential loss of voltage to Bus G even in the event of a LOOP during the additional 4 hours of enforcement discretion.

#### Probabilistic Risk Assessment

A Probabilistic Risk Assessment (PRA) of the safety significance of the 4-hour extension to the allowed outage time for IY-13A was performed using the Diablo Canyon PRA models developed for the Individual Plant Examination (IPE). The PRA assessment included the following conservatisms:

- The PRA assumed the entire instrument channel 13 was unavailable for 4 hours. This is a conservative assumption since Distribution Panel PY-13A was powered by its inverter, and Distribution Panel PY-13A was relying on the 120 volt A.C. backup power source.
- No credit in the PRA models was given for the starting of EDG 1-2. This is a conservative assumption since no credit was taken for the compensatory action of operating EDG 1-2 in parallel with Bus G.
- The PRA assumed other modeled components could be in maintenance. This is a conservative assumption since the other components modeled in the PRA were not in maintenance or being tested.

The PRA was used to assess the impact of the inoperable instrument channel on the ability of the plant to respond to the internal initiating events (or transients) modeled in the IPE. The initiating events included a loss of two instrument channels. The results, based on a very conservative analysis, indicate that the annual core damage frequency increases approximately 0.2%, assuming the entire 4-hour extension was used.

#### Conclusion

Based on the above evaluation and PRA, there is reasonable assurance that the health and safety of the public will not be adversely affected by the proposed 4-hour extension to the allowed outage time for Supplemental Inverter IY-13A.



**G. NO SIGNIFICANT HAZARDS EVALUATION**

PG&E has evaluated the no significant hazard considerations involved with the proposed enforcement discretion request, 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 consideration standards.

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

Supplemental distribution Panel PY-13A does not provide actuation power for use in reactor safety or ESFAS, with the exception of a CVI through RM-44. Further, the PY-13A function has not been interrupted during the additional 4-hour enforcement discretion, with power supplied from Bus G and backed up by compensatory measure of EDG 1-2 operation to assure uninterruptible power.

The PRA defined a core risk associated with the additional 4 hours action time that showed acceptably low consequences of core risk.

Therefore, the proposed request does 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?

Supplemental Inverter IY-13A does not provide power for use in reactor safety or ESFAS. Consequently, the power from this inverter does not initiate plant system operation that could involve new kinds of accidents.

Therefore, the proposed request does not create the possibility of a new or different kind of accident from any accident previously evaluated for DCCP.



3. Does the change involve a significant reduction in a margin of safety?

The IY-13A function is continuing during the additional 4-hour enforcement discretion, with power supplied from Bus G and backed up by operation of EDG 1-2 to assure uninterrupted power. As there is no interruption of the IY-13A function during the additional 4 hours and the PRA shows negligible increase in core risk, there is no impact in a margin of safety.

Therefore, the proposed request does not involve a significant reduction in a margin of safety.

H. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

In conclusion, based on the above safety evaluation, PG&E submits that the activities associated with this enforcement discretion request satisfies the significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a no significant hazards consideration finding is justified.

I. 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 effluent 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.



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