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USNRC

April 2, 1993

'93 APR -7 P4:59

Atomic Safety and Licensing Board
Administrative Judges
Charles Bechhoefer, Chairman
Jerry Kline
Frederick Shan
U.S. Nuclear Regulatory Commission
Washington, DC 20555

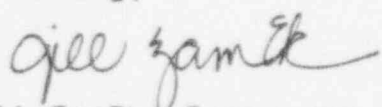
OFFICE OF SECRETARY
NATIONAL NUCLEAR SECURITY
ADMINISTRATION

Dear Sirs:

The San Luis Obispo Mothers for Peace informs you and those on the service list of actions that it has taken regarding information discovered concerning safety-related and non-safety-related cable degradation problems at the Diablo Canyon Nuclear Power Plant.

San Luis Obispo Mothers for Peace consultants at MHB Technical Associates, Greg Minor and Steven Sholly, have shared this information with the NRC. Their letter and documents are attached. A conference call took place this morning; the NRC is investigating this issue and will remain in contact with Greg Minor and Steven Sholly.

Sincerely,



Jill ZamEk, Treasurer
San Luis Obispo Mothers for Peace
P.O. Box 164
Pismo Beach, CA 93448

0503

MHB Technical Associates
Consultants on Energy & the Environment

VIA FEDERAL EXPRESS

1 April 1993

Dr. Ashok C. Thadani, Director
Division of Systems Technology
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
One White Flint North, Room 8 E1
11555 Rockville Pike
Rockville, Maryland 20852

Dear Dr. Thadani:

We tried to reach you today by telephone, but were unsuccessful. Accordingly, we are transmitting by Federal Express information for your evaluation and follow-up as appropriate concerning safety-related and non-safety-related cable degradation problems at the Diablo Canyon Nuclear Power Plant (DCNPP). This information was received partially from public sources and partially from our participation as technical consultants to San Luis Obispo Mothers for Peace in connection with the Diablo Canyon operating license amendment proceeding (construction period recapture).

The sequence of events involved in this issue starts initially with an electrical fire which occurred at Diablo Canyon on February 5, 1993. The fire involved a non-safety-related system. Specifically, an electrical fire occurred in the DCNPP Unit 1 cable spreading room as a result of an electrical ground in the No. 11 Circulating Water Pump. We believe that the pump was eventually restored to operability on or about February 10, 1993, and during the interim the plant operated at a reduced power level commensurate with the availability of a single operable Circulating Water Pump.

Subsequently, by way of a copy of the February 17, 1993, Region V "Morning Report", we became aware that Pacific Gas and Electric (PG&E) had pulled an unknown length of Unit 1, 12 kV circulating water pump cable that "*exhibited increasing ground fault indications*". According to the "Morning Report" entry:

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PDR ADOCK 05000275
G PDR

Approximately 200 ft. of the total 440 ft. of cable showed signs of insulator and ground conductor degradation. The licensee suspects that a fluid of unknown origin found in the associated conduit may be the cause of the failure. Initial licensee contact with the vendor (Okonite) indicates that the degradation is unprecedented and has not been seen by the industry previously. The licensee, the vendor, and a private licensee contractor are performing analysis on the cable. Results of analysis is expected to be complete by 2/27/93. The Region is monitoring licensee evaluations.

Subsequent to this information, we received (today) from San Luis Obispo Mothers for Peace an extract of information from a PG&E Onsite Safety Review Group (OSRG) November 1992 Monthly Report. The extract is enclosed with this letter. In short, the OSRG document indicates that there have been three occasions since 1989 (the most recent of which was apparently in November 1992) in which Auxiliary Salt Water (ASW) system 4.16 kV safety-related cable has failed, apparently due to submergence. PG&E apparently evaluated this situation and determined that it was not reportable, apparently due to the fact that the cable's design basis does not include submergence. We have searched the NRC's Bibliographic Retrieval System (BRS) public document computer system and can find no instance of PG&E reporting these failures dating back to October 1992.

The fact that the cable design basis does not include submergence seems to us to beg the issue. The facts apparently are that there have been three ASW cable failures due to a cause that PG&E does not fully understand in the last three years. The safety significance of the ASW system is not in dispute -- it is a safety-related system which serves as the functional link between safety-related decay heat removal systems and the ultimate heat sink (the Pacific Ocean). Furthermore, the Diablo Canyon IPE results indicate that without considering the cable degradation the ASW system is responsible for about 7% of the internal events severe accident frequency at Diablo Canyon.

Our concern is that the cable degradation is a new failure mode which is not reflected in the IPE, not reflected in the environmental qualification program, and not reflected in the maintenance/surveillance program, and which may make the plant more vulnerable to a severe accident. In addition, we are concerned about the attitude conveyed in PG&E's apparent decision that these potentially common-mode cable failures are not reportable to the NRC. Further, the PG&E document enclosed with this letter opines that the cable degradation has resulted from "repeated submergence over the past 20 years", (or since the 1970s) although the

plant has been in operating only since the mid-1980s. This implies a degradation of safety-related cable back to the period before an operating license was issued.

There are several questions about these matters which we believe need to be addressed quite rapidly:

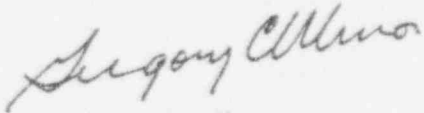
1. Was the NRC aware of the three ASW cable failures at Diablo Canyon prior to now?
2. Has PG&E reported the three ASW cable failures to the NRC, and, if so, by what means?
3. If not, does the NRC agree with PG&E's reportability evaluation?
4. Is the 2/5/93 Circulating Water System fire related to submergence-induced cable degradation?
5. Is the 12 kV Circulating Water System cable degradation noted by PG&E in February 1993 related to the 4.16 kV ASW cable degradation discovered by PG&E in 1989-1992?
6. What assurance is there that the ASW system is and will remain operable given the observed pattern of cable degradation due to submergence?
7. What is the cause (or causes) of the submergence, and is the submergence the cause of the degradation, a contributing factor to the degradation, or merely a coincidence?
8. Do PG&E and the NRC understand the nature of the degradation mechanism sufficiently to preclude it from occurring in the future?
9. Have PG&E and/or the NRC conducted inspections of the ASW and CWS cabling (and any other cabling potentially subject to this failure mechanism) to evaluate the status of the cable?

We would appreciate the opportunity to discuss this matter with you. We bring this matter to your attention as a result of our obligation to promptly report safety concerns to the NRC, and we believe that the situation described herein is

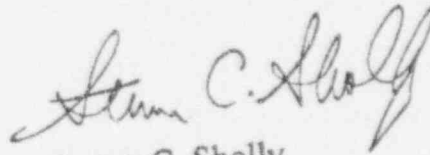
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sufficiently serious that NRC should give it very prompt attention. If you have any questions, please do not hesitate to contact us at the letterhead address and telephone/fax numbers.

Sincerely,



Gregory C. Minor
Vice-President
MHB Technical Associates



Steven C. Sholly
Senior Consultant
MHB Technical Associates

Enclosures:

1. PG&E OSRG Monthly Report extract, November 1992.
2. NRC Daily Status Report, Diablo Canyon, Event 25029.
3. NRC Region V Morning Report, 2/17/93, page 3.

PACIFIC GAS & ELECTRIC COMPANY
DIABLO CANYON POWER PLANT

Onsite Safety Review Group (OSRG)
November 1992 Monthly Report

SUMMARY

The following items summarize the OSRG's observations and concerns from the November meetings. A more detailed description follows and all items that were reviewed are listed in Attachment 1.

1. The recent failure of a 4kV auxiliary saltwater pump motor feeder cable is the third of this type in the past three years.
2. Seismic restraints for monorail hoists, designed to prevent interactions with nearby safety related equipment, are not always being installed after use.
3. Two OSRG concerns from the October monthly report related to the Operability Evaluation (OE 92-20) on CFDUs were resolved in November.

DESCRIPTION

The following items were discussed by the OSRG. Generally, where concerns exist, they have been discussed with the appropriate TRG Chairman or responsible department head and an AR has been initiated, if applicable.

1. NCR DC1-92-EM-N054: Hi-Pot (test) on ASW PP Motor 1-2 4kV Cable Failed.

CONCERN: A recent failure of the ASW 1-2 feeder cable is the third DCCP documented failure of this type in the past three years. The OSRG has concerns regarding reportability (i.e., outside design basis since the 40 year cable life potentially is invalidated) and regarding the lack of documentation for the acceptability of potentially degraded cable. NOTE: There are twelve total ASW pump cables, both units inclusive; two have experienced failures.

RESOLUTION: Design basis reportability was mentioned by Regulatory Compliance during a TRG meeting. The OSRG member asked the TRG to address this issue at its next meeting. Preliminary indication is that the condition is not reportable. The cable design basis does not include submergence, the probable root cause. The OSRG will continue to track this concern.

The concern regarding lack of documentation for the acceptability of the potentially degraded condition was presented to the TRG by the attending OSRG member. An AE to AR A0283880 will track the NCR Safety Analysis update to address this issue.

The OSRG consensus is that the cable is not rated for long term submergence, and therefore, the cable is not failing to meet submergence requirements (i.e., not outside design basis). However, degradation of the cables, due to submergence, is a potential unreviewed safety question. (The cable is not designed for submergence but is being exposed to this condition.) The Safety Analysis requested above by the OSRG should address this concern.

DISCUSSION: The first failure of a hi-pot test on this type of cable was in October 1989 on ASW PP 2-2. The second failure was in May 1992 on the Bus 14E feeder. All three insulation failures were experienced in the vicinity of the first circuit pull box just outside the turbine building. This is the low point in a long horizontal run of cable just west of the turbine building. The fact that water has been documented in these pull boxes, and the fact that the most recent failure occurred approximately 3 days after a rain shower (water found in ASW PP 1-2 associated pull box, 2 ft. above cable elevation), leads to a strong preliminary conclusion that the cable has been degraded due to repeated submergence over the past 20 years.

2. Walkdown of Plant-Mounted Monorail Hoists, per OSRG Open Item 92-02 (Items to Monitor for IR5 Outage), to Assure Seismic Clips Were Reinstalled.

CONCERN: Seismic restraints for monorail hoists, designed to prevent interactions with nearby safety related equipment, are not being installed after use in all cases. Controls to assure that plant-mounted trolleys and hoists are secured are not consistently implemented. Mechanical Maintenance has placed steps in applicable work orders, at the OSRG's request. Recently, Electrical Maintenance has been found to have the same problem.

RESOLUTION: The OSRG initiated AR A0286084 recently on a missing hoist seismic stop above Centrifugal Charging Pump (CCP) 1-1. An AE was issued to request a seismic interaction analysis of this condition and another AE was issued to request modification of electrical work orders to include steps to secure hoists and seismic stops. Work order C0107374 was initiated to reinstall the missing stop and re-stencil the monorail. This issue will be followed via the AR and the OSRG's Open Item 92-02.

DISCUSSION: In 1991 the OSRG issued AR A0235110 requesting that Mechanical Maintenance establish procedural guidance to ensure applicable work orders contained steps to secure monorail hoists. Riggers who use such equipment are in the Mechanical Maintenance section. Mechanical Maintenance responded by stating that instructions would be added to RT work orders and planners would be directed to add instructions to CM work orders.

Attachment 1
Onsite Safety Review Group
November 1992 Monthly Report

1. Nonconformances

The OSRG either attended TRGs for the following NCRs or, if the TRG was not attended, reviewed the completed NCR package. Specific critique comments have been provided to the responsible Chairman and/or ARs have been initiated, if applicable.

DC1-92-EH-H054: HI-Pot (test) on ASW PP Motor 1-2 4kV Cable Failed.
(OSRG Surveillance 92-055.kwr)

2. Regulatory Correspondence

NRC letter to PG&E, Notice of Violation, NRC Inspection Report No. 92-16, dated July 7, 1992, Chron192621.

PG&E letter to NRC, Reply to Notice of Violation in NRC Inspection Report No. 92-17, PG&E Letter No. DCL-92-161, dated July 20, 1992, Chron193142.

PG&E letter to NRC, Response to Generic Letter 92-01, Revision 1, Reactor Vessel Structural Integrity, PG&E Letter No. DCL-92-150, dated June 30, 1992, Chron192218.

3. Miscellaneous Items

- a) Walkdown of plant-mounted monorail hoists, per OSRG Open Item 92-02 (Items to Monitor for IRS Outage), to assure seismic stops were reinstalled. (OSRG Surveillance 92-052.rcs)
- b) TES evaluation of CFCU imbalance due to fan blade deformation. (OSRG Surveillance 92-054.bal)
- c) OE 92-20, Rev. 1: OE for Unit 2 CFCUs with Cracked Backdraft Damper Blades.
- d) DCP N-47225: Cycle 6 Core/SG Tube Plugging

POWER REACTOR		EVENT NUMBER: 25029	
FACILITY: DIABLO CANYON		REGION: 5	NOTIFICATION DATE: 02/06/93
UNIT: [1] [] []		STATE: CA	NOTIFICATION TIME: 00:56 [ET]
RX TYPE: [1] W-4-LP, [2] W-4-LP			EVENT DATE: 02/05/93
NRC NOTIFIED BY: GOELZER			EVENT TIME: 21:06 [PST]
HQ OPS OFFICER: DICK JOLLIFFE			LAST UPDATE DATE: 02/06/93
EMERGENCY CLASS: UNUSUAL EVENT		NOTIFICATIONS	
10 CFR SECTION:		FRANK WENSLAWSKI	RDO
AAEC 50.72(a)(1)(i) EMERGENCY DECLARED		JAMES RICHARDSON	EO
		STINEDURF	FEMA
UNIT	SCRAM CODE	RX CRIT	INIT PWR
1	N	Y	100
			POWER OPERATION
			46
			POWER OPERATION

EVENT TEXT

- ELECTRICAL FIRE IN 12 KV CABLE SPREADING ROOM LASTING LESS THAN 10 MIN -

AN ELECTRICAL FIRE OCCURRED IN THE UNIT 1 12 KV CABLE SPREADING ROOM DUE TO AN ELECTRICAL GROUND IN 1 OF 2 CIRC WATER PUMP MOTORS (#11). LICENSEE REDUCED POWER TO 46% TO REMOVE #11 CIRC WATER PUMP FROM SERVICE. (CIRC WATER PUMP IS NOT A TECH SPEC ITEM).

LICENSEE CALLED THE CALIFORNIA DEPARTMENT OF FORESTRY TO ASSIST IN FIGHTING THE FIRE. THE FIRE LASTED LESS THAN 10 MINUTES AND IS PRESENTLY OUT. SMOKE HAS BEEN CLEARED FROM THE ROOM. THERE WERE NO PERSONNEL INJURIES.

LICENSEE IS MAKING AN ENTRY INTO THE ROOM TO DETERMINE THE CAUSE AND EXTENT OF DAMAGE.

DURING THE POWER REDUCTION, THE DIGITAL ROD POSITION INDICATIONS DID NOT FOLLOW THE CONTROL ROD INDICATORS AS CONTROL RODS WERE INSERTED INTO THE CORE. LICENSEE DECLARED CONTROL BANK 'D' (9 CONTROL RODS) INOPERABLE.

TECH SPEC 3.1.3.1 REQUIRES LICENSEE TO RESTORE CONTROL BANK 'D' TO OPERABLE STATUS WITHIN 72 HOURS OR TO PLACE UNIT 1 IN AT LEAST HOT SHUTDOWN MODE WITHIN THE FOLLOWING 6 HOURS. I & C TECHNICIANS ARE INVESTIGATING THE CAUSE AND DETERMINING CORRECTIVE ACTIONS.

LICENSEE NOTIFIED STATE AND LOCAL OFFICIALS AND THE NRC RESIDENT INSPECTOR AND WILL ISSUE A PRESS RELEASE.

* * * UPDATE AT 0216 BY GOELZER ENTERED BY HOO JOLLIFFE * * *

AT 2232 (PST) ON 02/05/93, LICENSEE TERMINATED THE UNUSUAL EVENT.

LICENSEE DETERMINED THAT THE ELECTRICAL GROUND IN #11 CIRC WATER PUMP MOTOR CAUSED THE LOAD BANK IN THE 12 KV CABLE SPREADING ROOM TO OVERHEAT BURNING PAINT, DIRT, AND DUST IN THE ROOM. THERE WAS NO ACTUAL FLAME; ONLY SMOKE IN THE ROOM CAUSED THE FIRE ALARM. NO EQUIPMENT IN THE ROOM WAS DAMAGED.

LICENSEE NOTIFIED STATE AND LOCAL OFFICIALS AND THE NRC RESIDENT INSPECTOR OF THE TERMINATION OF THE UNUSUAL EVENT. HOO NOTIFIED R500 WENSLAWSKI, NRR ED RICHARDSON, FEMA STINEDURF.

FEBRUARY 17, 1993

Licensee/Facility:

Pacific Gas & Electric Co
Diablo Canyon 1
Avila Beach, California
Docket: 50-275
PWR/W-4-LP

Notification:

MR Number 5-93-0010
Date 02/17/93
TELEPHONE CALL FROM RI

Subject CIRCULATING WATER PUMP POWER CABLE DEGRADATION-UPDATE TO
EVENT REPORT NUMBER 25029

Reportable Event Number N/A

Discussion:

THE TWELVE KV CIRCULATING WATER PUMP CABLE THAT EXHIBITED INCREASING GROUND FAULT INDICATIONS WAS DEENERGIZED AND PULLED FROM ITS UNDERGROUND CONDUIT APPROXIMATELY 200 FT. OF THE TOTAL 440 FT. OF CABLE SHOWED SIGNS OF INSULATOR AND GROUND CONDUCTOR DEGRADATION. THE LICENSEE SUSPECTS THAT A FLUID OF UNKNOWN ORIGIN FOUND IN THE ASSOCIATED CONDUIT MAY BE THE CAUSE OF THE FAILURE. INITIAL LICENSEE CONTACT WITH THE VENDOR (OKONITE) INDICATES THAT THE DEGRADATION IS UNPRECEDENTED AND HAS NOT BEEN SEEN BY THE INDUSTRY PREVIOUSLY. THE LICENSEE, THE VENDOR AND A PRIVATE LICENSEE CONTRACTOR ARE PERFORMING ANALYSIS ON THE CABLE. RESULTS OF ANALYSIS IS EXPECTED TO BE COMPLETE BY 2/27/93. THE REGION IS MONITORING LICENSEE EVALUATIONS. UNIT 1 HAS RESUMED FULL POWER OPERATIONS.

Regional Action:

N/A

Contact: W. Ang

(510)975-0310

FILED
NRC

'93 APR -7 P4:55

Certificate of Service

I hereby certify that copies of the foregoing Intervenor San Luis Obispo Mothers for Peace ("SLOMFP") Motion for Leave to File Additional Discovery Re: Okonite Cables with Bonded Jackets; Intervenor SLOMFP Supplemental Interrogatories Related to SLOMFP First Set of Written Interrogatories and Requests for the Production of Documents to Pacific Gas and Electric Company; Intervenor SLOMFP Supplemental Interrogatories Related to SLOMFP First Set of Written Interrogatories and Requests for the Production of Documents to the NRC Staff Re: Okonite Cables with Bonded Jackets; Letter dated 2/2/93 and attachments from SLOMFP to the Atomic Safety and Licensing Board have been served upon the following persons by U.S. mail, first class.

Office of Commission Appellate
Adjudication
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Administrative Judge
Jerry Kline
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Ann P. Hodgdon, Esq.
Office of the General Counsel
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Joseph B. Knotts, Jr., Esq.
Winston & Strawn
1400 L Street, N.W.
Washington, DC 20005

Adjudicatory File
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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Diablo Canyon Independent Safety Committee
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Monterey, CA 93940

Administrative Judge
Charles Bechhoefer, Chairman
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Administrative Judge
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Atomic Safety and Licensing Board
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Washington, DC 20555

Christopher Warner, Esq.
Richard Locke, Esq.
Pacific Gas and Electric Co.
77 Beale Street
San Francisco, CA 94106

Dated April 2, 1993, San Luis Obispo County, CA
Jill ZamEk

