

50-275/323-OLA-2 I-MFR-64A
8/19/93

8/19/93 Dulie Fagan Repts.
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PACIFIC GAS & ELECTRIC COMPANY
DIABLO CANYON POWER PLANT

Onsite Safety Review Group (OSRG)
December 1992 Monthly Report

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SUMMARY

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

1. A recent NCR on Diesel Fuel Oil piping corrosion did not adequately address two earlier ARs from February 1990 that identified the same problem. The NCR does not address the need for corrective actions for past failures to identify and resolve this problem.
2. There is an apparent inconsistency between administrative procedures governing reportability of seismic hazards that are corrected on the spot.
3. In response to a Nuclear Safety Oversight Committee (NSOC) request, the OSRG examined current operability evaluations for potential interrelationships. Such interrelations could impact accident analyses.
4. A failure of the speed reference input to the Unit 2 main turbine digital-electrohydraulic controls (DEHC) occurred on 8/31/91. A year later, an NCR resulted, in part, due to the same problem in Unit 1. However, after this second occurrence, the investigation and testing was a major effort. The thoroughness and determination of the TRG members involved in this effort were noteworthy.
5. The NRC suggested possible similarities between a heavy loads rigging incident and an earlier incident. Because DCPD took exception to this, any lessons to be learned may not be recognized.

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 DC2-92-TN-N028: Corrosion of Auxiliary Salt Water (ASW) Annubar Piping and Diesel Fuel Oil (DFO) Piping

CONCERN: The NCR did not adequately address two February 1990 ARs which identified DFO piping corrosion. Although an NCR action item provided for an investigation of the details associated with these ARs, the NCR does not provide corrective actions to address this failure of the problem resolution process to preclude subsequent DFO (and, possibly, ASW) piping and pipe support corrosion.

RESOLUTION: The OSRG's concerns were discussed with the TRG chairman. The need for additional corrective actions to address these concerns will be discussed in an early January 1993 TRG for this NCR. Additionally, this NCR will be included in OSRG OI 89-14 regarding ineffective corrective actions, and in OI 89-25 regarding ARs with improper QE determinations.

DISCUSSION: On 6/18/92, a hole about one and one-half inches in diameter was found in the annubar piping for ASW train 2-2. Corrosion was also noted in the annubar piping of the other ASW trains. Subsequent inspections of other piping in the Unit 2 west buttress pipe trench on 6/21/92 revealed corrosion of the two cardox lines and DFO train 0-1 piping.

On 7/2/92, ultrasonic testing of the DFO train 0-1 piping revealed one location that was below the minimum wall thickness requirement. An Engineering evaluation revealed that the DFO piping would still have performed its intended function. A voluntary LER (1-92-006-01) was submitted for the DFO piping degradation.

The TRG root cause for the DFO and ASW piping degradation was general corrosion due to breakdown of the coal tar coating. This exposed the piping to standing water and the saltwater/air environment. Standing water seeping through the coating resulted in piping corrosion, especially at the air/water interface. As the iron oxide formed and expanded, the coal tar coating was further degraded, and the corrosion spread. The standing water in the trench was due to inadequate drainage, caused by flow blockage by pipe supports and external debris.

Contributory causes identified by the TRG were: 1) inadequate surveillance and inspection procedures which did not provide instruction for identification of corrosion, and 2) inadequate initial application and maintenance of the coal tar coating on the underside of the DFO and ASW piping.

The TRG corrective actions include the development and implementation of a program to inspect and repair or replace the remaining areas of corrosion on DFO and cardox piping and supports. The program will also include improvements in the surveillance program, the protective coatings, and drainage of the pipe trench. Additionally, standing water in the trench will be minimized as part of this program. To address the generic plant concern of corrosion, a task force was formed. It will develop and implement a comprehensive program for actual or potential corrosion problems in other safety related piping.

NUCLEAR REGULATORY COMMISSION

Docket No. 50-275-OLA Official Ex. No. MFP 64A
I. Waste of PACIFIC GAS and ELECTRIC CO

Staff _____ IDENTIFIED

As with _____ RECEIVED

Inspected _____ REJECTED _____

Contractor Ann Riley & Assoc's DATE 8-19-93

Other _____ Witness _____

Reporter Dellie Feigel _____

The dispositioning of the 1990 ARs resulted in repairs to the affected corrosion areas. Also, an increase was made in the frequency of the DFO system leak inspection surveillance (STP M-91). However, STP M-91 (as noted in one NCR contributory cause) did not specifically address corrosion problems, nor did the STP require inspection of all DFO transfer piping or the coated ASW piping in the Unit 2 west buttress pipe trench. A QE was not initiated for either of the ARs, nor was NECS requested to evaluate the significance of corrosion on coated piping. Thus, the previous corrective actions were ineffective.

2. Administrative Procedure (AP) C-10S1: Seismically Induced System Interaction Program (SISIP) Review of Housekeeping Activities

CONCERN: An NRC Resident Inspector revealed an apparent inconsistency between administrative procedures. The one governing reporting of seismic hazards disagrees with those governing problem resolution and operability evaluations.

RESOLUTION: Action Request A0288854 was initiated by the OSRG and routed to Quality Control. It details the apparent inconsistency between AP C-10S1 and procedures C-12 and C-29 (Problem Resolution and Operability Evaluations, respectively). The Quality Control section is responsible for C-10S1 and its revision.

DISCUSSION: When a SISIP problem is found, it may be corrected on the spot. The applicable procedure for plant housekeeping activities is AP C-10S1. This procedure allows problems to go undocumented and unanalyzed in such cases. The basis is that the equipment remains operable and the problem is discovered and corrected so quickly that any potential inoperability is momentary. DCP's position is that any potential operability concern begins at the time of discovery. However, this SISIP policy appears to be in conflict with APs C-12 (Problem Resolution) and C-29 (Operability Evaluations). Both procedures require an AR to be written and the past operability and reportability to be evaluated. Such conditions may require reporting to the NRC, even if easily remedied. SISIP hazards may place the plant in an unanalyzed condition, and possibly outside of the design basis. Discussions on this matter are continuing.

3. AR A0283432, AE-9: Interrelationships Between Operability Evaluations (OEs)

CONCERN: The OSRG raised a concern that multiple OEs could create conditions adverse to nuclear safety in unrecognized ways.

RESOLUTION: The NSOC requested that the OSRG look into potential interrelationships between current OEs. An OSRG member reviewed the current OEs and categorized their effects on FSAR Chapter 15 Condition III and IV events.

DISCUSSION: OE interrelationships could affect the FSAR Chapter 15 accidents in ways that are not anticipated. Therefore, the OSRG developed a matrix of accident categories, and listed which OEs had a role in their mitigation. The OEs also were examined on a plant system basis and for potential interrelationships between compensatory actions.

It was found that there is a potential interrelationship between OEs 91-13, 92-02 and 92-05. Per 91-13, operator confirmation of proper Control Room Ventilation System (CRVS) booster fan operation is required. OEs 91-13, 92-02 and 92-05 take credit for control room monitoring of accident mitigating conditions. This makes control room habitability extremely important. Therefore, the OSRG recommends that permanent corrective actions be implemented for automatic booster fan failure indication or redundant booster fan operation. This should be done on an expedited basis (reference NCR DCU-92-EH-N014).

Additionally, it was found that there is a potential interrelationship between OEs 92-15 and 92-16. OE 92-16 impacts the backup fire water suppression system which supplies plant fire water, including the plant sprinkler system. OE 92-15 addresses potential fire concerns due to the use of "Thermo-Lag" in several plant locations and takes credit for the presence of sprinklers as a mitigating factor. The OSRG recommends consideration be given to establishing more frequent fire watches, for as long as the backup fire water suppression system is impaired. Affected areas are the containment penetration areas (listed with fire durations of 17 and 11 minutes respectively for U1 and U2). It is recommended also that credit be taken for continuous occupancy in the access control area (listed with a fire duration of 32 minutes).

4. NCR DC1-92-TI-N042: Manual Reactor Trip Due to RCS Cooldown Caused by Excessive Steam Leakage.

OBSERVATION: The investigation and testing of the DEHC\P2000 to determine the cause of the turbine overspeed event was a major, labor intensive effort. The thoroughness and determination of the TRG members involved in this effort was noteworthy.

CONCERN: A failure of the Unit 2 DEHC speed reference to reset to zero occurred after 2R4 on 8/31/91 (reference AR A0240578). The subject NCR resulted, in part, due to the same problem in Unit 1. A more complete evaluation of the 8/31/91 event may have identified the generic and safety implications, resulted in effective corrective action, and precluded the 9/12/92 turbine overspeed and manual reactor trip.

RESOLUTION: A recent trend has been noted in NCRs which address events that have occurred previously. The OSRG's evaluation of this generic concern (reference OSRG Surveillance 92-061) will be documented in the January 1993 OSRG Monthly Report.

DISCUSSION: On 9/12/92, during a normal shutdown for 1R5, a manual reactor trip was initiated from Mode 2 due to a recriticality concern. This concern arose from an RCS overcooling transient. The overcooling transient was initiated by inadvertent admission of steam to the main turbine. This resulted in turbine overspeed, and necessitated a manual turbine trip. RCS cooldown continued due to stop valve trip pilot valve steam flow to the condenser (an expected condition).

The auto stop oil pressure switch PS-22 input to DEHC apparently failed following the initial manual turbine trip. This resulted in the DEHC/P2000 continuing to receive an 1800 RPM speed reference signal (rather than a zero speed input). The DEHC integrated up to a full flow demand signal to the governor valves following the turbine trip.

When the turbine was relatched (to close the stop valve trip pilot valves to limit RCS cooldown), the DEHC/P2000 demanded all governor valves to fully open. GV-4 was isolated previously due to operational problems and did not open. GV-1 opened when the turbine was latched, but GV-2 and GV-3 did not open due to low EH fluid pressure. The lead 3 stop valve also opened. This was due to leakage past this valve via its bypass valve (even though its trip pilot valve was closed). Several minutes later, when GV-1 EH fluid was isolated to close GV-1, EH pressure recovered sufficiently to allow GV-3 to open. With GV-3 and its associated stop valve open, steam was admitted to the main turbine resulting in overspeed.

The TRG postulated that the speed reference signal failed to reset to zero following the initial manual turbine trip because of a failure of PS-22 to "drop out." There was galvanic-induced corrosion and sticking of the switch plunger (steel) to the switch case (aluminum).

The TRG also postulated that the failure of the GVs to all open upon turbine latch was due to low EH fluid system pressure and system pressure fluctuations. These problems were caused by excessive EH fluid leakage through GV-2, two intercept valves, general system leakage, and the Moog valves dumping maximum EH fluid flow (due to the 1800 RPM reference signal demanding the governor valves to be full open). Additionally, the low and high pressure EH fluid lines to GV-3 were found to be reversed. This resulted in pressure fluctuations in the EH fluid system and low EH fluid pressure at GV-2.

Since it has the highest EH fluid pressure, only GV-1 opened upon turbine relatch. When GV-1 was isolated from EH fluid to close the valve, EH fluid system pressure recovered sufficiently at GV-3 to allow it to open. Since the reversal of EH lines to GV-3 lowered EH pressure to GV-2 (which normally has a relatively lower EH fluid pressure than the other GVs), its dump valve could not seat. This further contributed to EH fluid leakage, and therefore, GV-2 could not open.

5. NCR DCO-92-MM-NO34: Rigging of Shipping Cask (NOV)

CONCERN: Because the plant took exception to the NRC's suggestion that there might be parallels between this incident and the earlier loss of offsite power on Unit 1, any lessons to be learned may not be recognized. Both incidents involved mechanical maintenance personnel using cranes and rigging heavy loads.

RESOLUTION: The OSRG will look for future evidence of human errors in the control of heavy loads and rigging via OSRG Open Item (OI) 92-05. QC continues to audit such activities.

DISCUSSION: An NRC inspector noted that a rigger was using undersized chainfalls to level and lower a lid onto a radwaste container. The NRC issued a Level IV NOV to DCP. In the NOV, the NRC indicated that they thought there might be underlying commonality in this incident and an earlier loss of offsite power event on Unit 1.

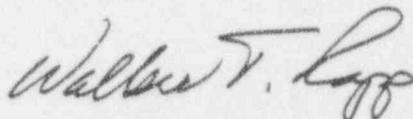
In the NOV response, PG&E took exception to the NRC contention that there might be any commonality in the two events. The PG&E response went to great detail to point out all the differences between the two incidents. The OSRG reviewer felt that better use may have been made of the concern if reaction had been more constructive. It would have been more useful to ask what could be learned from the two events rather than defend against such an observation. (There might have been a generic problem with attitude or level of comprehension, etc., among the people involved with cranes and rigging).

During the OSRG meetings for this month, the Chairman or his alternate was present and a quorum was established and maintained. Detailed information on any item included in this report can be obtained by reviewing the referenced document or by contacting the OSRG.

The OSRG continues to monitor Plant activities by conducting Plant tours and surveillances, reviewing the daily Shift Foreman/Control Operator's logs, all significant Action Requests/Quality Evaluations and by attending appropriate Plant TRG, PSRC, Staff, NRC Exit and Scheduling meetings. In addition, DCNs are screened and those having a significant potential impact upon operations are identified for a more thorough review.

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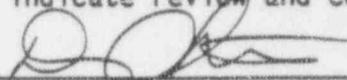
Any questions on the above items should be directed to the OSRG Chairman.



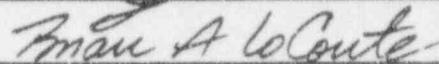
WALKER T. RAPP
Chairman, OSRG

The signatures below indicate review and concurrence.

D. D. Christensen



B. A. LoConte



K. W. Riches



P. G. Sarafian



D. A. Taggart



Attachment 1
Onsite Safety Review Group
December 1992 Monthly Report

1. Nonconformances

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

DC2-92-TN-N028: Corrosion of Auxiliary Salt Water (ASW) Annubar Piping and Diesel Fuel Oil (DFO) Piping. (OSRG Surveillance 92-057.ddc)

DC2-92-OP-N029: Sulfuric Acid Spill. (OSRG Surveillance 92-029.pgs)

DC0-92-MM-N034: Rigging of Shipping Cask (NOV Received). (OSRG Surveillance 92-028.pgs)

DC1-92-TI-N042: Manual Reactor Trip Due to RCS Cooldown Caused by Excessive Steam Leakage. (OSRG Surveillance 92-058.ddc)

2. Licensee Event Reports

<u>LER #</u>	<u>Event Date</u>	<u>Description</u>
1-92-006-01	07/02/92	Diesel Fuel Oil Transfer System Degradation Due to General Corrosion. (NCR DC2-92-TN-N028)

3. Miscellaneous Items

- a) OE 92-14 R1, ASW System With Identified Leak and Corrosion on 2-2 Annubar Pipe and Corrosion on 1-1 Annubar Pipe.
- b) AR A0286084: Hoist Stop Missing.
- c) AR A0283432 - AE01: Review of Component Classifications.
- d) AR A0283432 - AE09: Summary of OE Trending and Evaluation.

4. OSRG Open Items

OPENED

092-05: Human Errors in Rigging Heavy Loads. ✓