

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL: 50-361 San Onofre Nuclear Station, Unit 2, Southern Californ 05000361
 AUTH. NAME AUTHOR AFFILIATION
 RAY, H. B. Southern California Edison Co.
 RECIP. NAME RECIPIENT AFFILIATION
 MARTIN, J. B. Region 5, Ofc of the Director

SUBJECT: Submits summary of cause & correction of actuations of
 containment purge isolation sys (CPIS) & fuel handling
 isolation sys (FHIS), per 870921 telcon. Lists of CPIS & FHIS
 actuations since 870830 as of 870922 encl.

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HAROLD B. RAY
VICE PRESIDENT & SITE MANAGER
SAN ONOFRE

September 24, 1987

TELEPHONE
714-368-9470

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

Dear Mr. Martin:

Subject: Docket No. 50-361
San Onofre Nuclear Generating Station, Unit 2

In a telephone conversation on September 21, 1987, we discussed the unacceptably high number of Red Phone reports made by San Onofre, resulting from actuation of the Unit 2 Containment Purge Isolation System (CPIS) and Fuel Handling Isolation System (FHIS) during ongoing refueling operations. I indicated that I had taken action just prior to our conversation to make certain that the cause of these mostly spurious actuations was identified and corrected at the earliest possible time. Also, I indicated that I wanted to provide you with a summary of the facts, and the action taken, as soon as I was satisfied that they had been fully defined. The purpose of this letter is to provide that summary.

Attached for your information is a listing of 23 CPIS actuations and the 4 FHIS actuations which were reported between August 30 and September 22, 1987. You will note that all CPIS actuations involved containment high radiation monitor 2RT-7856. The apparent cause in most cases is electronic noise associated with operation of a pump or valve, electrical equipment testing, or welding operations. The causes and corrective actions for the FHIS actuations are noted in the attachment and will not be discussed further here.

As you may know, the setpoint of the CPIS detectors is lowered more than two decades prior to commencing refueling operations, and this greatly increases their sensitivity to electrical noise. However, even before the reduction in setpoint was made in preparation for the current refueling, 2RT-7856 had been the source of spurious CPIS actuation whenever Safety Injection Pumps were started on Train A. This problem was among the last of a series of similar problems with spurious actuation of Engineered Safety Features components at San Onofre Units 2 and 3 due to electrical noise. These problems have progressively been reduced by a combination of improved grounding and modifications to introduce time delays which eliminate excessive sensitivity to electrical noise.

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We intended to finally resolve the electrical noise problem with 2RT-7856 when Train A was removed from service during the current outage. For scheduling reasons, Train B and its associated monitor 2RT-7857 were removed from service first. We failed to appreciate the large increase in spurious actuations that would result when the setpoint of 2RT-7856 was lowered, until after Train B was out of service and we were relying on 2RT-7856 to support the ongoing work. When it became apparent that a large number of actuations was resulting from the combination of the lower setpoint and ongoing outage activities, we were not prepared to immediately correct the problem.

In summary, we made an error by planning to rely on a monitor that we intended to modify later in the outage. We knew that we were subject to spurious CPIS actuations due to the sensitivity of 2RT-7856 to electrical noise, however we misjudged the number which would occur. (Note: In prior outages, Train B and 2RT-7857 have been in service when lowered setpoint operation is required. Therefore, we had not previously experienced the problem with 2RT-7856 which developed on this occasion.) I conclude that we should have found a way to modify 2RT-7856 prior to relying on it to support refueling activities, rather than to accept a continuation of spurious CPIS actuations, regardless of their number.

Following our telephone conversation, further investigation inside containment, now that the monitor is removed from service, indicates that 2RT-7856 is improperly grounded. (This is an update of status provided earlier to Mr. Huey.) The reasons for this improper grounding, and the impact on any needed time delay modification, will be determined and reported in the LERs yet to be submitted.

I want to confirm that it is not our intent to allow a correctable condition to exist that results in Red Phone reports, regardless of the perceived low level of safety significance. In this case, we did not comply with that intent, and corrective action has been taken to prevent recurrence.

Finally, you may recall that, for a period last year we did not report these spurious actuations and that we subsequently agreed to follow the determination of your office that they should be reported. We note that our survey of current industry practice in this regard suggests that we may be essentially alone in reporting spurious actuation of these systems by identified electrical noise sources. Accordingly, we believe that the number of such reports made by San Onofre should not be compared with those from other plants with differing reporting requirements.

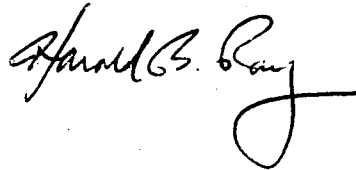
Mr. John B. Martin

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September 24, 1987

I will be pleased to discuss this matter further with you. If you have any questions or comments, or if you would like additional information, please let me know.

Sincerely,

A handwritten signature in cursive script, appearing to read "Harold B. Ray". The signature is written in dark ink and is positioned below the word "Sincerely,".

HBR:bam

Attachment

cc: David J. Fogarty

Kenneth P. Baskin

Mr. F. R. Huey, USNRC Senior Resident Inspector, SONGS

Containment Purge Isolation System (CPIS)
Actuations Since August 30, 1987
As of September 22, 1987

<u>Date</u>	<u>Time</u>	<u>LER</u>	<u>Device</u>	<u>Apparent Cause</u>
9-21-87	1542	2-87-15	2RT-7856	Spurious actuation caused by MOVATS Testing 2HV-0516 (Train A Isolation Valve RCDT to Waste Gas Sampling System). Main purge isolated.
9-20-87	0435	2-87-15	2RT-7856	Spurious actuation caused by MOVATS Testing 2HV-0516 (Train A Isolation Valve RCDT to Waste Gas Sampling System). Main purge previously secured.
9-20-87	0457	2-87-15	2RT-7856	Spurious actuation caused by MOVATS Testing 2HV-0516 (Train A Isolation Valve RCDT to Waste Gas Sampling System). Main purge isolated.
9-20-87	1450	2-87-15	2RT-7856	Spurious actuation caused by stroking 2HV-9330. Main purge isolated.
9-19-87	0220	2-87-19	2RT-7856	Valid CPIS (anticipated) caused by transporting radioactive (30 R/hr) filter past detector. Main purge isolated.
9-18-87	1820	2-87-15	2RT-7856	Spurious actuation caused by functional testing of Train A HPSI header valves. Main purge isolated. Core alterations in progress.
9-17-87	2047	2-87-15	2RT-7856	Spurious actuation caused by functional testing of Containment Spray Pump Breaker P-012 (Train A). Breaker in Test Position. Main purge isolated. Core alterations not in progress.

Containment Purge Isolation System (CPIS)
Actuations Since August 30, 1987
As of September 22, 1987

<u>Date</u>	<u>Time</u>	<u>LER</u>	<u>Device</u>	<u>Apparent Cause</u>
9-16-87	0230	2-87-15	2RT-7856	Spurious actuation caused by testing of Train A safety components. Purpose of testing or specific components unknown at this time. Main purge isolated. Core alterations in progress.
9-15-87	1240	2-87-15	2RT-7856	Spurious actuation caused by HPSI valve 2HV-9333 operated. Main purge isolated. Core Alterations in progress.
9-14-87	0845	2-87-15	2RT-7856	Spurious actuation caused by HPSI 17 start. Main purge isolated. Core Alterations not in progress.
9-14-87	2125	2-87-15	2RT-7856	Spurious actuation cause may be operation of CCW valves 2HV-6370 (Train A) and/or 2HV-6371 (Train A) for Emergency Cooler ME-339. Main purge isolated. Core Alterations in progress.
9-13-87	0310	2-87-15	2RT-7856	Spurious actuation caused by HPSI 17 start. Main purge isolated. Core Alterations not in progress.
9-11-87	0733	2-87-15	2RT-7856	Spurious actuation as discussed in note below. Main purge isolated. Cause also initiated spikes and alarm of "NI Channel 1 Rate of Change".
9-11-87	1010	2-87-15	2RT-7856	Same as 0733 entry
9-11-87	1052	2-87-15	2RT-7856	Same as 0733 entry
9-11-87	1411	2-87-15	2RT-7856	Same as 0733 entry

Containment Purge Isolation System (CPIS)
Actuations Since August 30, 1987
 As of September 22, 1987

<u>Date</u>	<u>Time</u>	<u>LER</u>	<u>Device</u>	<u>Apparent Cause</u>
9-11-87	1428	2-87-15	2RT-7856	Same as 0733 entry
		<u>Cause Note:</u>	CO log notes at 1431: "Discovered welding taking place in 9 Ft. Aux Bldg. cable spreading room. Stopped work in progress [welding], requested to speak with welder; spiking on startup rate indicators has stopped. Awaiting discussion to [check] times welder was working."	
9-10-87	0355	2-87-15	2RT-7856	Spurious actuation caused by Saltwater Cooling Pump 2P-307 start. Main purge isolation.
9-9-87	1635	2-87-15	2RT-7856	Spurious actuation caused by HPSI 17 start. Main purge already isolated at 1633 for surveillance testing.
9-6-87	2045	2-87-15	2RT-7856	Spurious actuation caused by operation of 2HV-9334. Main purge isolated.
9-5-87	0921	2-87-15	2RT-7856	Spurious actuation caused by unknown noise spike. Main purge isolated.
8-30-87	0458	2-87-11*	2RT-7856	Spurious actuation caused by starting HPSI 17 and opening valve 2HV-9324.
8-30-87	1423	2-87-11*	2RT-7856	Spurious actuation caused by LPSI 15 start.

* Submitted on 9/4, and reported a total of four actuations, two of them occurred prior to the outage.

Valid Fuel Handling Isolation System (FHIS)
Actuations Since August 30, 1987
As of September 22, 1987

<u>Date</u>	<u>Time</u>	<u>LER</u>	<u>Device</u>	<u>Apparent Cause</u>
9-15-87	1415	2-87-19	2RT-7822	Valid FHIS - I ₂ sample cartridge not changed out - Systems functioned as required.
9-4-87	2330	2-87-19	2RT-7822/ -7823	Valid FHIS - Pressurizer man way removed, gases transported to FH Bldg. via fuel transfer tube. Systems functioned as required.

Fuel Handling Isolation System (FHIS)
Actuations Due to Instrument Failures
Since August 30, 1987
As of September 22, 1987

<u>Date</u>	<u>Time</u>	<u>LER</u>	<u>Device</u>	<u>Apparent Cause</u>
9-20-87	0705	2-87-18	2RE-7823	FHIS Train B due to water in detector. Systems already isolated.
9-19-87	1544	2-87-18	2RT-7822	FHIS Train A due to water in detector. Systems already isolated.