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February 11, 1994

WALTER C. MARSH  
MANAGER OF NUCLEAR REGULATORY AFFAIRS

TELEPHONE  
(714) 454-4400

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

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362  
Response to NRC Bulletin 90-01, Supplement 1  
San Onofre Nuclear Generating Station  
Units 2 and 3

- Reference: 1. NRC Bulletin 90-01, Supplement 1 dated December 22, 1992;  
Subject: Loss of Fill-Oil in Transmitters Manufactured by  
Rosemount.
2. Response to NRC Bulletin 90-01 from Walter C. Marsh (SCE),  
to U.S. Nuclear Regulatory Commission, Dated March 4, 1993.

NRC Bulletin 90-01, Supplement 1, "Loss of Fill-Oil in Transmitters Manufactured by Rosemount," was issued to inform addressees of activities taken by the NRC staff and the industry in evaluating Rosemount transmitters and to request licensees to take actions to resolve this issue. On March 4, 1993, SCE responded to the bulletin and outlined our actions in response to the bulletin (Reference 2). We also committed to issue a procedure for enhanced monitoring by November 19, 1993. This letter is to update our actions and to notify you that the enhanced monitoring procedure was issued on November 5, 1993. The enhanced monitoring procedure applies only to the Rosemount transmitter models identified in NRC Bulletin 90-01, Supplement 1.

Edison will monitor the wide range pressurizer pressure transmitters on a refueling cycle interval. This is consistent with Bulletin 90-01, Supplement 1, "Requested Actions, Operating Reactors" 1.a. Should this interval exceed 24 months, NRC concurrence will be obtained prior to exceeding the 24 month interval allowed by the bulletin.

The justification for monitoring the four wide range pressurizer pressure transmitters on a refueling interval is attached.

Additionally, we've provided more detail concerning the low safety significance associated with the refueling interval monitoring frequency of the two Rosemount low range pressurizer pressure transmitters, as discussed between Mel Fields (NRC SONGS 2&3 Project Manager) and Scott Medling (SCE Licensing Manager), et. al. on 10/20/93.

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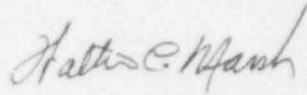
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If you need additional information, please let me know.

Sincerely,

A handwritten signature in cursive script, appearing to read "Walter C. Marsh".

cc: K. E. Perkins, Jr., Acting Regional Administrator, NRC Region V  
J. A. Sloan, NRC Senior Resident Inspector, San Onofre Units 2 & 3  
M. B. Fields, NRC Project Manager, San Onofre Units 2 and 3

ENCLOSURE 1

REFUELING INTERVAL ENHANCED SURVEILLANCE PROGRAM JUSTIFICATION

## Enclosure 1

### Refueling Interval Enhanced Surveillance Program Justification

This attachment provides the justification for monitoring the wide range pressurizer pressure transmitters on a refueling interval basis. NRC concurrence will be obtained prior to exceeding the 24-month interval allowed by NRC Bulletin 90-01, Supplement 1.

NRC Bulletin 90-01, Supplement 1, Operating Reactors 1.a. says, in part:

At their discretion, licensees may monitor using an enhanced surveillance program at least once every refueling cycle, but not exceeding 24 months, transmitters in this category if the appropriate psi-month threshold criterion recommended by Rosemount has been reached, and the monitoring interval is justified based upon transmitter performance in service and its specific safety function. The justification should show that a sufficiently high level of reliability for the function is provided by the redundancy or diversity of applicable instrumentation and control systems, commensurate with the importance of the function, when considered in conjunction with the overall performance of the reactor protection trip system, ESF actuation systems, or ATWS system. Provide to the NRC a copy of the licensee justification to extend the enhanced surveillance program beyond the monthly test interval for transmitters that have reached the appropriate psi-month threshold criterion recommended by Rosemount.

The pressurizer wide range pressure transmitters have all passed the psi-month threshold criterion recommended by Rosemount. Table 1 lists the transmitters that will be on the refueling interval enhanced surveillance schedule and their associated psi-month data.

The refueling interval monitoring frequency update is justified based upon transmitter performance to date. These transmitters have reached maturity without any evidence of degradation or loss of fill-oil. Since the transmitters have reached maturity, full confidence in the reliability of these transmitters has been restored.

These transmitters provide wide range pressurizer pressure indication, input to the sub-cooling margin monitor, low pressure trip input to the Reactor Protection System (RPS) and a safety injection signal to the Engineered Safety Features Actuation System (ESFAS).

A high level of reliability for these functions is demonstrated by the wide range pressure transmitters having reached the psi-month threshold criterion recommended by Rosemount. In addition, although complete redundancy is not provided, a high degree of redundancy and diversity exists for the functions provided by the wide range transmitters.

The Core Protection Calculators, which receive their pressurizer pressure inputs from non-Rosemount transmitters, will initiate a reactor trip under low

pressurizer pressure conditions at full power. High containment pressure, which also utilizes input from non-Rosemount transmitters, will generate a safety injection actuation signal for events resulting in containment pressure increasing above the high containment pressure setpoint.

Alternate indication of pressurizer pressure would normally be available. Narrow range pressurizer pressure (1500 to 2500 psia) indication is provided by four safety related and two non-safety related, non-Rosemount instrument loops. Low range pressurizer pressure (0 to 750 psia) indication is provided by four safety related, environmentally qualified transmitters which provide input to non-safety related display devices. Two of these four loops use Rosemount transmitters.

There are four narrow range Rosemount 1154 transmitters used as pressurizer pressure inputs to the ATWS Diverse Scram System (DSS). These four ATWS/DSS transmitters and associated instrumentation loops are completely independent of all other plant pressurizer pressure instrumentation.

Subcooling can be manually determined using the available pressurizer pressure and reactor coolant temperature indication. In addition to subcooled margin, there are alternate means of determining the onset of inadequate core cooling available in the control room such as core exit thermocouples, reactor vessel level and pressurizer level.

TABLE 1

PRESSURIZER WIDE RANGE PRESSURE TRANSMITTERS  
PSI-MONTH DATA UP TO 12/6/93

TRANSMITTER	PSI-MONTHS
2PT0102-1	186,750
2PT0102-2	186,750
2PT0102-3	186,750
2PT0102-4	186,750
3PT0102-1	175,950
3PT0102-2	175,950
3PT0102-3	175,950
3PT0102-4	78,525

ENCLOSURE 2

SAFETY DISCUSSION,

LOW RANGE PRESSURIZER PRESSURE TRANSMITTER MONITORING FREQUENCY

## Enclosure 2

### Safety Discussion,

#### Low Range Pressurizer Pressure Transmitter Monitoring Frequency

On 10/20/93 a phone discussion was held between the NRC and SCE. The participants were as follows.

Mel Fields (NRC)  
Ms. Spalding (NRC)  
E. Scott Medling (SCE)  
Jack Rainsberry (SCE)  
Lloyd Pentecost (SCE)  
Jacques Vandenbroek (SCE)

Mr. Fields requested more information concerning the safety significance of monitoring the two Rosemount low range pressurizer pressure transmitters on a refueling interval frequency.

#### Background

There are four pressurizer pressure low range transmitters per unit. Two of these transmitters are Rosemount "Category 1b" transmitters and two are Foxboro transmitters. The calibrated range for these transmitters is 0 to 750 psia, but they are exposed to full Reactor Coolant System pressure (2250 psig) during normal Mode 1 and Mode 2 operation.

Since the transmitters are beyond their indicating range during normal operation, NRC Bulletin 90-01 monthly monitoring cannot readily be performed while the unit is operating.

#### Safety Significance

Monitoring the two Rosemount transmitters on a refueling interval basis provides no reduction in safety because:

##### Redundancy

Two of the four transmitters are manufactured by Foxboro and are not subject to the same failure mode as the Rosemount transmitters.

##### Transmitter Maturity

The two Rosemount pressurizer pressure low range transmitters are mature and therefore have a significantly lower failure rate.

##### Application

They provide interlock/permissive signals and alarm functions on the Shutdown Cooling Suction Isolation Valves and Safety Injection Tank Outlet

Isolation Valves during normal plant pressurization and depressurization. The interlocks to the shutdown cooling system can be defeated if necessary.

#### Conclusion

Monitoring the two Rosemount "Category 1b" pressurizer pressure low range pressure transmitters on a refueling interval basis will not cause a reduction in safety. These transmitters have demonstrated their reliability in that they have exceeded the psi-month criteria established in NRC Bulletin 90-01.