

March 22, 2001

Mr. Harold B. Ray  
Executive Vice President  
Southern California Edison Company  
San Onofre Nuclear Generating Station  
P.O. Box 128  
San Clemente, CA 92674-0128

SUBJECT: SAFETY EVALUATION RE: GENERIC LETTER 95-07, "PRESSURE LOCKING AND THERMAL BINDING OF SAFETY-RELATED POWER-OPERATED GATE VALVES," SAN ONOFRE NUCLEAR GENERATING STATION, UNITS 2 AND 3 (TAC NOS. M93515 AND M93516)

Dear Mr. Ray:

On August 17, 1995, the NRC issued Generic Letter (GL) 95-07, "Pressure Locking and Thermal Binding of Safety-Related Power-Operated Gate Valves," to request that licensees take actions to ensure that safety-related power-operated gate valves that are susceptible to pressure locking or thermal binding are capable of performing their safety functions.

In a letter of February 13, 1996, you submitted your 180-day response to GL 95-07 for San Onofre Nuclear Generating Station, Units 2 and 3. In response to our request for additional information dated July 31, 1996, and June 15, 1999, and several telephone discussions with your staff, by letters dated September 3, 1996, July 21 and November 12, 1999, June 6, 2000, and February 28, 2001, you provided additional information.

We have reviewed your submittals including the additional information and determined that you have adequately addressed the actions requested in GL 95-07, as discussed in the enclosed safety evaluation. This completes our efforts on technical assignment control (TAC) Nos. M93515 and M93516 and the TACs are closed.

Sincerely,

**/RA/**

L. Raghavan, Senior Project Manager, Section 2  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-361 and 50-362

Enclosure: As stated

cc w/encls: See next page

Die Sachverhalte sind Gegenstand des § 36 Abs. 1 Nr. 1 S. 1 StGB und des § 36 Abs. 1 Nr. 2 S. 1 StGB.

Accession No.

ML010820141

PDIV-2 is a *Streptococcus* stage

(TAGANOST, NERVA SAMBRIEN)

NRR: 106

Office of the Registrar, University of the District of Columbia, Section 2

(\* See staff's SE ML010750115)

OFFICE	PDIV-2/PM	PDIV-D/LA	EMCB	PDIV-2/SC
NAME	L Raghavan:lcc	MMcallister	D Terao *	SDembek
DATE	3/21/01	3/21/01	03/18/01	3/22/01

OFFICIAL RECORD COPY



Enclosure

10 CFR Part 50  
those systems  
design and tes  
Criteria 1 and 4  
(10 CFR) Part 50 (Appendix  
Code of Federal Regulations  
101.11(b)(2)(i)-(j))

## REGULATORY REQUIREMENTS

many plants as  
operation. Op  
valve is subject  
(wedge and va  
Pressure locking

made to open  
gate valve that  
pressurized flu  
requirements r  
the valve bonn  
occurs in flexib  
require a thoro  
identification o  
that can rende  
Pressure locking

## INTRODUCTION

DOCKET NOS. 50-361 AND 50-362

SAN ONOFRE NUCLEAR C

THE CITY OF ANAHEIM, CALIFORNIA

THE CITY OF RIVERSIDE, CALIFORNIA

SAN DIEGO GAS AND ELECTRIC CO

SOUTHERN CALIFORNIA EDISON C

AND THERMA

LICENSEE RESPONSES

SAFETY

GL 95-07, and  
reviewed the s  
GL 95-07 beca  
2(3)HV9306, 2  
July 21, 1999,  
1999, describe  
locking or therm  
power-operate  
GL 95-07 requ

Scope of Licensee's R

### STAFF EVALUATION

information for  
2000, and Feb  
licensee provid  
additional infor  
(SONGS), Unif  
submitted its 1  
In a letter of Fe

compliance with  
10 CFR 50.109  
locking or therm  
corrective actio  
susceptibility e  
valves are or a  
to the NRC a s  
requested that  
functions unde  
susceptible val  
analyses and t  
valves that are  
operational cor  
licensee, withir  
functions withir  
susceptible to  
take certain ac  
Thermal Bindir  
On August 17,

safety function  
susceptible to  
XVI), licensees  
commitments,

the valve.  
 coefficient of friction of  
 the thrust required to c  
 did not confirm that th  
 validated the pressure  
 results and disagreed  
 pressure-locking cond  
 conservatively predict  
 methodology. The lice  
 valve and analysis of t  
 In its submittal dated ,

for the internal spring-  
 March 16, 2000, the M  
 side of the valve to 30  
 pressure locking by lin  
 The internal spring-loa  
 that each valve is equ  
 valves. One of the un  
 The design of WKM g

SDCS Bypass 2(1)HV9379 Pressure SI Su  
 SDCS Bypass 2(1)HV9378 Pressure SI Su  
 SDCS Bypass 2(1)HV9377 Pressure SI Su  
 SDCS from Reactor Coolant System  
 SDCS to Low Pressure Pump  
 Shutdown Cooling System (SDCS) to

following WKM gate v  
 gate valve thrust equa  
 The licensee develop

paragraphs.  
 problems. The  
 proposed corre  
 modes of plant  
 susceptible val  
 and take appro  
 GL 95-07 requ

## Corrective Actions

Testing and Su  
 motor-operated  
 operated valve  
 is closed for te  
 inoperable and  
 surveillance bu  
 Normally open

Environmental Laboratory  
locking tests sponsored by  
locking thrust and actuator  
The results of the calculations

Refueling Water Storage Tank to Containment Spray HV9376  
Containment Spray HV9377  
Containment Spray HV9378  
BAMU Pump to Containment Spray HV9379  
BAMU Tank to Containment Spray HV9380  
Boric Acid Makeup Tank to Containment Spray HV9381

Target Rock during pressure  
the thrust required to overcome  
A modified industry gate valve

WKM gate valves is an active  
NRC staff concludes that the  
upstream side of the valve  
Marotta poppet subassembly  
disassembled for maintenance  
2(3)HV9378, 2(3)HV9379  
loaded Marotta poppet  
July 21, 1999, the licensee  
conditions will not exist  
evaluation of seat leakage  
methodology for use in  
Although not agreeing

and not exposed to internal  
isolated from a high pressure  
from the high pressure  
long-term shutdown conditions  
valves are not required to  
are not opened until a  
approximately 1 hour time  
results for each valve,  
testing. An evaluation  
Category A active motion  
2(3)HV9379 are included  
The licensee stated that  
back to 1982 indicates  
initiate shutdown cooling  
a reactor shutdown or  
pressure-locking condition  
combination of operational  
locking methodology,  
Rather than attempting

licensee has a  
performing the  
licensee has ta  
susceptible to  
identify valves  
evaluations of  
On the basis o

#### CONCLUSION

valves are acceptable  
NRC staff concludes t  
susceptible to thermal  
licensee appear to pro  
prior to the fluid temper  
capability and procedu  
actuators were modifie  
magnitude of the therm  
susceptible to thermal  
and 2(3)HV8153, exce  
conditions for the shut  
occur below specific te  
susceptible to thermal  
GL 95-07 were evalua  
The licensee stated th

the licensee's action to  
40 percent. Until more  
calculated pressure lo  
performing their intenc  
assurance that double  
finds that the modified  
underestimated the th  
thrust equation trend  
Tests of Gate Valves.'  
documented in NURE