

## UNDERSIZED SAFETY RELATED HVAC DAMPER ACTUATORS

San Onofre Nuclear Generating Station, Units 2 and 3

### Introduction

This report is submitted pursuant to 10CFR50.55(e). It describes actuator sizing deficiencies and corrective actions required for fifteen safety related HVAC damper actuators. The subject actuators have yet to be installed at the San Onofre Units 2 and 3 jobsite.

### Background

By letter dated April 19, 1979, Edison confirmed notification to the NRC concerning deficiencies in the actuator sizing for certain safety related HVAC dampers. The damper actuators in question are safety related electric and pneumatic damper actuators provided by Johnson Controls to University Mechanical (UMEC), the San Onofre Units 2 and 3 onsite HVAC contractor. Based on field measured torque values in excess of actuator torque capabilities, a review of actuator sizing was conducted on all Johnson Controls provided safety related damper actuators. As a result of this review, fifteen electric or pneumatic safety related damper actuators were identified as requiring replacement or rework in order to meet their intended safety function.

### Discussion

The following discussion is responsive to 10CFR50.55(e)(3).

### Description of Deficiency

Table 1 describes the fifteen deficient damper actuators, the system in which they are located and the required modification that will be made in order to correct the undersized condition.

### Cause of Deficiency

The design basis torque selection relationship as developed from actual tests by Air Balance, the damper manufacturer, was not properly utilized by UMEC and Johnson Controls in proper sizing and procurement of the subject actuators.

7905310426

UNDERSIZED SAFETY RELATED HVAC DAMPER ACTUATORS  
San Onofre Nuclear Generating Station, Units 2 and 3

Analysis of Safety Implications

Potential failure of these actuators to perform their intended safety function could result in improper isolation and clean up of the fuel handling building or improper isolation, clean up and cooling of the control room complex following their design basis events.

Corrective Action

Corrective action to be taken on specific damper actuators is indicated in Table 1.

Appropriate drawing changes will be issued for design changes indicated in Table 1 by July 15, 1979. Field rework and procurement of the new actuators is presently in progress and will be completed consistent with the existing project startup system schedule.

Conclusions

A complete evaluation of all Johnson Controls supplied HVAC damper actuators has been completed. As a result of this evaluation, fifteen safety related damper actuators have been identified as requiring rework or replacement. This rework or replacement is in progress and will be completed consistent with the existing project startup schedule.

TABLE 1

## UNDERSIZED SAFETY RELATED HVAC DAMPER ACTUATORS

<u>Damper Tag Number</u>	<u>HVAC System</u>	<u>P&amp;ID</u>	<u>Existing Design</u>	<u>Corrective Action</u>
HV 9702 HV 9703 HV 9711 HV 9712	Isolation dampers for control room normal HVAC system	40173	Pneumatic	Install a larger pneumatic actuator for each damper (approximately twice the present torque value)
3HV 9845 3HV 9847	Isolation dampers for Fuel Handling Building normal HVAC system	40177	Pneumatic	UMEC will rework the installed dampers to bring their required torque value to within the range of the existing actuator (the torque values measured to open and close the dampers are excessive and out of proportion in comparison with other dampers of the same size)
2HV 9738 3HV 9738 HV 9778	Control Room Emergency Air Conditioning System	40173 (1)	Electric	Install a Pneumatic actuator with higher torque capacity and change failure mode from "as is" to "fail open"
2HV 9719 A 3HV 9719 A	Isolation dampers for control room cabinet area normal HVAC system	40173 (1)	Electric	Install a pneumatic actuator with higher torque capacity and change failure mode from "as is" to "fail closed"
2HV 9850 3HV 9850 2HV 9851 3HV 9851	Fuel Handling Building post accident clean up system	40177 (1)	Electric	Install a pneumatic actuator with higher torque capacity - failure mode remains "fail open"

(1) Drawing to be revised to reflect design changes