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September 8, 1983

Director, Office of Nuclear Reactor Regulation
Attention: Mr. D. M. Crutchfield, Chief
Operating Reactors Branch No. 5
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket No. 50-206
Conformance to Guidelines of BTP CSB 6-4, Rev. 1
Containment Purging During Normal Operation
San Onofre Nuclear Generating Station
Unit 1

Your letter of February 17, 1982 forwarded requests to provide information related to the subject topic. Item 2 of Enclosure 3 of that letter specifically requested "...a discussion of the provisions to insure that isolation valve closure for the 6-inch vent system will not be prevented by debris which could potentially become entrained in the escaping air and steam. Installation of debris screens is one acceptable method of accomplishing this function." Upon inspection of the San Onofre Unit 1 containment vent system it has been determined that there are sufficient provisions inherent to the design and construction of this system which provide adequate assurance that potential debris resulting from a Loss of Coolant Accident (LOCA) or Main Steam Line Break (MSLB) will not prevent valve closure. These provisions include the relative location of the valves inside containment, the venting direction of the valves, and the piping design of the system. Discussions regarding these provisions are provided in more detail below. In addition, San Onofre has developed a series of "housekeeping" procedures that delegate responsibility for station housekeeping and cleanness control. As discussed below, these procedures provide additional support to our position that further provisions to ensure valve closure are not necessary.

The requirements defined by the housekeeping procedures include delineating housekeeping zones which establish the degree of cleanness required for that particular area, establishing environmental controls, and establishing foreign material exclusion controls. In specific reference to the containment purge and vent valves, a procedure for foreign material exclusion will be used when maintenance activities are performed on these valves. This procedure is designed to create a temporary, more restrictive zone during maintenance operations to prohibit the entry of debris which is

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large enough to prevent a valve from performing its intended safety function. This temporary foreign material exclusion zone is established and monitored by Quality Control personnel to assure cleanness controls.

The function and configuration of the valves on the sphere vent line are briefly explained below. This information provides additional clarification and justification of the adequacy of the isolation function for these valves.

On high sphere pressure (i.e., over 2 psig), high radiation, or remote manual operation, the solenoid valves controlling CV-10, 40 and 116 will deenergize and close these isolation valves. The closed position of these valves will secure exhaust of the containment atmosphere from the sphere and thereby maintain containment isolation following a LOCA or MSLB. CV-40 and 116 are located inside the containment sphere between the sphere wall and the secondary shield wall. CV-10 is located outside the containment sphere approximately two feet above ground level.

CV-40 is a pneumatic diaphragm actuated 3-way control valve and is installed in the instrument air exhaust vent header. Under normal operating conditions, CV-40 opens to allow instrument air exhaust to be discharged into the ventilation system and out the plant stack. The ventilation aspect of this 3-way control valve allows venting in a vertically downward direction. This configuration infers that the postulated scenario of debris entering this valve in a vertically upward direction is a low probability incident. Furthermore, this line is maintained at a net positive pressure. This would infer that escaping air and steam from a MSLB or LOCA would not exit the containment via this pathway.

CV-116 is a pneumatic operated butterfly valve designed to allow inside containment pressure to stabilize with the pressure outside containment. This valve vents away from the major volume of the containment atmosphere along the containment sphere wall. It is located outside the secondary shield wall in a remote area of containment approximately 7 feet from the containment sphere wall. This location and the venting direction provide isolation from any direct exposure to the main steam lines and the primary reactor coolant lines in the event that either of these lines should rupture. It should be noted that one section of one of the main steam lines passes in the vicinity (approximately 20 to 25 feet) of this isolation valve. In the event of a main steam line break in this section of the line, it is apparent that the venting direction of the valve will provide little or no isolation from steam entering the system because of the amount of suction generated in the line caused by the initial differential pressures involved. We consider the probability of a break in this section of the line to be significantly low and, therefore, this event should not be a factor in evaluating the isolation provisions of this system.

CV-40 and 116 are located in the southwest sector of the containment sphere approximately 27 feet above the sphere floor. This elevation is high enough to well exceed the flood level postulated by a loss of primary coolant accident. This configuration eliminates the possibility of floating debris entering this system.

CV-10, located outside containment, acts as a redundant isolation valve for CV-40 and 116. The design and operation of this valve is essentially the same as CV-116. There are six right-angle bends in the

containment sphere vent line between CV-116 and CV-10. This configuration provides assurance that, in the unlikely event particles of debris of sufficient size to prevent a valve from proper closure enter this line, there will be insufficient momentum to permeate to the outside isolation valve.

In the evaluation of the existing containment isolation provisions for the six-inch vent system, several factors should be carefully considered. The design, construction and configuration of the valves on this system act as physical barriers which, in the event of an accident, would provide the necessary isolation and assurance of proper valve closure. Furthermore, housekeeping controls will be implemented during maintenance activities on these valves in compliance with procedures which have been developed on this subject. The containment ventilation system inherently utilizes a series of provisions which, together, alleviate the probability of debris-induced valve failure. We contend that this series of provisions will ensure valve closure in the event of a LOCA or MSLB scenario and that no additional isolation provisions are necessary.

If you require any additional information in this regard, please contact me.

Very truly yours,

R W Krieger

R. W. Krieger
Supervising Engineer,
San Onofre Unit 1 Licensing