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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

AUG 2 2 1979

Docket No.: 50-311
Applicant: Public Service Electric & Gas
Facility: Salem Unit 2
SUBJECT: SUMMARY OF MEETING TO DISCUSS THE SALEM UNIT 2 RESPONSE TO IE BULLETIN 79-02

On August 17, 1979, the NRC staff met in Bethesda, Maryland, with representatives of Public Service Electric & Gas to discuss the Salem Unit 2 response to IE Bulletin 79-02, "Pipe Support Base Plate Designs Using Concrete Expansion Anchor Bolts." A list of meeting attendees is attached.

For purposes of responding to this bulletin, PSE&G has joined an owner's group which has contracted with Teledyne to perform certain generic testing of various anchor bolts. During this meeting PSE&G described how it was using the results of the generic Teledyne testing for the specific anchor bolts in use at Salem Unit 2. Additionally, PSE&G described the status of the analyses and tests being performed by itself on the anchor bolts installed at Salem Unit 2.

Approximately 10,000 anchor bolts are used in Salem Unit 2 of which approximately 3,000 are on safety related systems. Of these safety related anchor bolts, 1,295 are associated with 362 baseplates, nearly all of which are floor mounted. The remaining safety related anchor bolts are used to connect structural steel directly to walls and ceilings. All anchor bolts used in Salem Unit 2 are of the wedge type, specifically, Hilti Quik-Bolts.

PSE&G stated that the original anchor bolt design criteria specified a minimum factor of safety of four against pullout and assumed baseplate rigidity. During its reevaluation of anchor bolt adequacy, PSE&G is using analytical tools developed by Teledyne to account for baseplate flexibility. To date, 136 baseplates have been analyzed with 9 requiring modification. Also, the applicant is using an elliptical shear-tension interaction curve with a minimum factor of safety of four against manufacturer's specified ultimate bolt capacities.

Prior to the issuance of IE Bulletin 79-02, PSE&G verified the correct embedment depth of most of the 10,000 anchor bolts in Salem Unit 2 and corrected the few which were deficient. Due to some installation practices used by PSE&G, the verification of embedment depth for floor mounted anchor bolts is impractical. Therefore, for a sample of these floor mounted supports, PSE&G is performing hydraulic pull tests to demonstrate a factor of safety of four against pullout. PSE&G anticipates approximately 60-90 of these pull tests will be necessary to demonstrate a 95/95 confidence level for each safety

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related piping system. To date, 27 supports have been pulled with 26 passing. One support was considered a failure due to excessive deflection (0.008 inch) although it did not pull from the floor. Completion of the remaining pull tests is scheduled for September 30, 1979.

The NRC staff stated the following positions to PSE&G:

(1) The intent of IE Bulletin 79-02 is to cover anchor bolts other than only those associated with baseplates, such as the anchor bolts used to attach structural steel to walls and ceilings.

(2) PSE&G should determine the extent and configuration of these safety related wall and ceiling mounted anchor bolts and provide this information to the NRC.

(3) PSE&G should propose and implement for the wall and ceiling mounted anchor bolts a testing program to satisfy the bulletin provisions and to include verification on a sampling basis that the wedges have been properly set.

(4) At this time, it is not necessary for PSE&G to demonstrate any specific value of preload on its anchor bolts other than what is necessary to correctly set the wedge. This is a continuing generic issue whose resolution depends upon additional experimental work.

Randal M. Stephens
Mechanical Engineering Branch
Division of Systems Safety

Enclosure: List of Attendees

NRC Mtg. with PSE&G: Salem 2 Response to IE 79-02 8/17/79

Attendees

Name	Affiliation
Randal M. Stephens	MEB/DSS/NRC
Hans Ashar	OSD/NRC
Lowell E. Tripp	NRC/IE Region I
Kenneth Bass	PSE&G
Alfred Dambra	PSE&G
Harold Walker	ACRS
Kelvin T. Brown	MEB/DSS/NRC
Howard J. Wong	NRC:IE-HQ
Robert W. Skwarek	PSE&G/Salem Unit 2/Licensing