



Arizona Nuclear Power Project

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November 13, 1985
ANPP- 33988 -TDS/TPS

U. S. Nuclear Regulatory Commission
Region V
1450 Maria Lane - Suite 210
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Attention: Mr. D. F. Kirsch, Acting Director
Division of Reactor Safety and Projects

Subject: Final Report - DER 85-32
A 50.55(e) Reportable Condition Relating
to Building Interface Seismic Separation
File: 85-006-216; D.4.33.2

Reference: A) Telephone Conversation between A. Hon and T. Siegfried on
September 17, 1985
B) ANPP-33719, dated October 15, 1985 (Interim Report)
C) ANPP-33852, dated October 28, 1985 (Time Extension)

Dear Sir:

Attached is our final written report of the Reportable Deficiency under
10CFR50.55(e), referenced above. The 10CFR21 evaluation is also included
in this report.

Very truly yours,

EE Van Brunt Jr.

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/TPS/ldf
Attachment

cc: See Page Two

REGION V FILE

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Mr. D. F. Kirsch
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cc:

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U. S. Nuclear Regulatory Commission
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FINAL REPORT - DER 85-32

DEFICIENCY EVALUATION 50.55(e)

ARIZONA NUCLEAR POWER PROJECT (ANPP)

PVNGS UNITS 1, 2, 3

I. Description of Deficiency

DER 85-03 addressed seismic gaps between the containment liner plate and attachments thereto and the internal structures and their attachments. As an adjunct to this, Bechtel conducted a review of seismic gaps outside of the containment; viz., those between adjacent buildings and their attachments. During this review, it was discovered that in Units 2 and 3 several hundred locations exist where seismic separation has not been maintained between attachments to one building and any adjacent building and/or its attachments (Reference SCIP 667.0). This requirement is reflected on Civil/Structural drawings which require a six-inch gap between adjacent buildings. Note, when individual systems that span between buildings were designed, provisions were made to allow for the relative seismic displacement, however, provisions were not made to separate the systems from interfacing buildings and their attachments.

EVALUATION

A walkdown per SCIP 667.0 was performed to identify and evaluate all as-built conditions with less than a six inch separation between adjacent buildings or their attachments. Calculation 13-CC-ZC-293 has been initiated to determine the actual anticipated relative interfacing building motions and to evaluate the flexibilities of some of the systems which would interfere based upon as-built separation and the anticipated motion at that location. All but the following 3 as-built conditions have been found to be acceptable based upon one or more of the following:

- a. The as-built separation was greater than the anticipated relative motion.
- b. The system components which would interact are not required during or after the design basis seismic event.
- c. The system components which would interact have sufficient flexibility to accommodate this deflection without failure of the system.

1. Pipe Support/Steel Beam Interference (Units 1, 2, and 3)

The brace connection to a containment building embed for pipe support RD-259-H-003 is in contact with the top flange of a W12 x 65 structural steel wrap-around beam in the Auxiliary Building of Units 1, 2, and 3. This rigid pipe support component will force the beam to develop the required deflection at its flexible connection. It cannot be demonstrated that this connection will survive a design basis event.

Once this connection has failed, the beam will fall and drag down pipe support RD-259-H-00A which supports line RD-259-HCBA-1/2" on the containment side of its isolation valve and thus damage the line. This line is required to remain leak-tight, however leak-tight integrity cannot be

demonstrated under the conditions described above.

Other safety-related systems which have a high probability of being damaged from the failure of this beam are as follows:

1. Cables ESI28BC1RA and ESI28BC1KA
 2. Pipe SI-E-026-CCCA-2"
 3. Control Valves for pipeline SI-B-308-GCBC-24"
2. Pipe Support/Isolation Valve Interference (Unit 3)

At another isolated location in Unit 3, Auxiliary Building pipe support RD-259-H-00A is in contact with Containment Building isolation valve SI-V-463 on line SI-E-149-CCBB-2". This SI system is required for safe shutdown and it also cannot be demonstrated that it will remain functional during or after the design basis seismic event.

3. EER 85-SG-121 evaluated similar interference problems in Unit 1 with supports SG-174-H-00A and SG-174-H-00B and they will be modified to accomodate seismic differential movements.

The root cause of this deficiency is that various engineering disciplines were not made aware of the requirement, contained in Civil/Structural drawings, to maintain seismic separation between items attached to adjacent buildings. The 3 examples of seismic interference cited above would not (in the absence of any cautionary direction or procedure) normally be considered in the design/layout process.

It is believed that the investigations of DER 85-03 (relating to internal gaps) and DER 85-32 (covering external gaps) assure that all seismic interference problems have been identified and corrected.

In addition, a review for other design areas was completed to determine if there were similar circumstances where various engineering disciplines were not aware of cross-discipline requirements. One other area was noted which involves power cable conduit installation adjacent to hot process pipes. Appropriate detailed notes have been provided on the electrical drawings to assure adequate separation for these installations.

II. Analysis of Safety Implications

Based on the above evaluations, the conditions are reportable under the requirements of 10CFR50.55(e) and 10CFR21 since, if left uncorrected, they would represent a significant safety condition.

III. CORRECTIVE ACTION

Engineering Evaluation Request (EER) 85-ZZ-058 evaluated support 13-RD-259-H-003 in Unit 1 which was evaluated as having the potential

for failure. This support was repaired by W.O. No. 107597.

EER 85-SG-121 evaluated supports 13-SG-174-H-00A and 13-SG-174-H-00B in Unit 1. Repairs to these supports is scheduled to be made by November 11, 1985.

Non-Conformance Report (NCR) CX-5239 for Unit 2 was dispositioned on September 6, 1985, and NCR CX-5240 for Unit 3 was dispositioned on September 18, 1985. The dispositions state that these safety significant conditions described herein be eliminated by notching the pipe supports to allow relative building motion without interaction. Other interferences were reworked per the NCR's even though it was demonstrated that a safety significant condition did not exist at these locations, including the interference between pipe supports 2-GA-002-H-00M and 2-SG-174-H-00A and H-00B mentioned in the initial DER report (Reference calculations 13-CC-ZC-293 and 13-MC-SC-511).

SCIP 667.0 addresses conditions in Units 2 and 3 that existed prior to July 10, 1985.

To prevent recurrence and address the root cause Drawing Change Notices (DCN's) and Specification Change Notices (SCN's) have been issued as noted to address future installations.

<u>Discipline</u>	<u>Specification or Drawing Number</u>
Civil	13-C-00A-001/DCN 41
Electrical	13-E-ZAC-080/DCN 30
Controls	13-JM-702 para. 4.11/Rev. 3
Plant Design	13-PM-204/SCN 4010
	13-PM-205/SCN 4011
Mechanical	13-P-00C-001/DCN 2
	13-MM-650-164/BR 4
	13-MM-650-200/BR 3

A sample of the note added is:

BUILDING INTERFACES SEISMIC SEPARATION CRITERIA

All attachments to one building or structure shall maintain a six inch minimum gap with any interfacing building and its attachments. All installations made prior to July 10, 1985 have been evaluated by EER 85-ZZ-058 in Unit 1, and SCIP 667.0 in Units 2 and 3.