

50.55(e) Report

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ANPP-23440-BSK/RQT

U. S. Nuclear Regulatory Commission  
Region V  
Creskide Oaks Office Park  
1450 Maria Lane - Suite 210  
Walnut Creek, CA 94596-5368

Attention: Mr. D. M. Sternberg, Chief  
Reactor Projects Branch 1

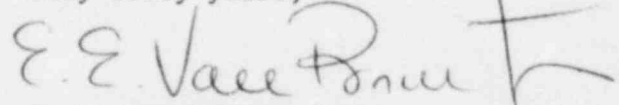
Subject: Final Report Revision 1 - DER 81-35  
A 50.55(e) Report Relating to Leaks in Temporary Water Lines  
Disturbing Backfill Under Units 1 and 2 Auxiliary and Control  
Buildings  
File: 83-029-026; D.4.33.2

Reference: A) Telephone Conversation between Bob Dodds and G. Duckworth  
on October 7, 1982  
B) ANPP-19405 dated November 5, 1981 (Interim Report)  
C) ANPP-20150 dated February 11, 1982 (Time Extension)  
D) ANPP-21011 dated May 20, 1982 (Final Report)

Dear Sir:

Enclosed is revision one of the subject Deficiency Evaluation Report  
under the requirements of 10CFR50.55(e). This revision provides  
additional information for units 1 and 2.

Very truly yours,



E. E. Van Brunt, Jr.  
APS Vice President,  
Nuclear Projects  
ANPP Project Director

EEVB/RQT:wp  
Attachment

cc: See Attached Page 2

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U. S. Nuclear Regulatory Commission

Page Two

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cc: Richard DeYoung, Director  
Office of Inspection and Enforcement  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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FINAL REPORT, REVISION 1 - DER 81-35  
DEFICIENCY EVALUATION 50.55(e)  
ARIZONA PUBLIC SERVICE COMPANY (APS)  
PVNGS UNITS 1 AND 2

I. Description of Deficiency

Several temporary water lines in Units 1 and 2 are buried under a portion of the Auxiliary Building(s), and four of the lines developed leaks. As a result of the leaks, two to three cubic yards of soil washed into the space between the Auxiliary Building and the Control Building in each of the Units 1 and 2. Upon discovery, the leaking lines were immediately taken out of service, due to concern that the transport of soil may have affected the foundation conditions of the Auxiliary Building(s).

During preparation of the cone penetrometer test holes for grouting, standing water was observed in some of the holes of each of the Units 1 and 2. The quantities of water observed in the holes of Unit 2 were significantly less than that in Unit 1. This situation has been investigated and the results of that investigation are summarized herein.

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II. Analysis of Safety Implications

The conditions described herein are considered Reportable under the requirements of 10CFR50.55(e) because, were they to have remained uncorrected (water not shut off), they could have adversely affected the safety of the plant, and they required extensive evaluation to establish the adequacy of the structures to perform their intended safety function.

Two of the leaks (one in each unit) could be considered large leaks and were detected in the normal course of events. The other leaks were considered small leaks and could have escaped detection, but did not have sufficient force to transport significant quantities of soil. The possibility of a leak large enough to impact foundation conditions but remain undetected is evaluated as extremely remote; the site work was engineered to eliminate the possibility of a subterranean channel developing or permitting any large quantity of soil washing out.

The results of the investigations have shown that the leaks and the two to three cubic yards of soil removed from each of the Units 1 and 2 have not had significant impact on the Auxiliary Building foundation(s). It was also determined, by calculations, that the Auxiliary Building can safely withstand a complete loss of soil support under a conservatively estimated area of the basemat in the vicinity where the leakage occurred.

As described in the attached summaries, the standing water observed in the Unit 1 and Unit 2 test holes subsequent to the initial investigation program was due to rainwater. The presence of the water will not affect the grouting program since the grout will displace the rainwater. If any water seeps into this area in the future, it will not affect the structure as demonstrated by the Auxiliary Building analysis.

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III. Corrective Action

The following actions have been implemented to prevent recurrence:

1. All temporary water, air and gas lines within the area of concern have been taken out of service for Units 1 and 2.
2. The abandoned pipelines will be completely grouted, and exploratory holes penetrating the soil in the area of concern will be sealed with grout in accordance with Grout Procedure 81-35.

SUMMARY OF UNIT 1  
STANDING WATER INVESTIGATION

The PVC tubes which were intended to be used for grouting the cone penetrometer test (CPT) holes were removed. This resulted in the sluffing of adjacent soil into the holes. During the cleaning out of the holes for tube reinsertion, the presence of standing water was observed.

An immediate effort was made to determine the source of the water. The following measures were taken:

All construction utilities were traced to verify that they have been terminated and abandoned.

Since Startup flushing water which contains hydrazine was present in the Control Building sumps and drain piping, five water samples were taken from the CPT holes and analyzed for hydrazine. The test results, which are shown in the attached test reports are indicative that no detectable hydrazine was present.

To further verify the integrity of the sumps and piping, all permanent plant piping related to the Control Building sumps and drains have been pressure tested pneumatically to verify their integrity. Sumps themselves were hydro-tested. The tests verified integrity of the sumps.

Investigation included consideration of all permanent plant lines in the vicinity of concern. This investigation concluded that these lines, because of location and elevation, could not contribute to the water leak problem. Test records are on file that indicate acceptability.

Condensate from a temporary HVAC unit was observed flowing into the west dead space. This condensate was collected and disposed elsewhere.

Permanent plant downspouts from roof scuppers in many locations were observed to discharge proximal to the network of 6" seismic gaps separating the powerblock structures, including the areas along the Corridor Building where the cover plate separates the Auxiliary Building/Control Building interface. Elephant trunk lines have been installed at all potential sources to route the rainwater elsewhere.

Rainfall data has been tabulated and found to be chronologically associated with the detection of influx of water in the CPT holes. A slow but gradual lowering of the water level has been observed between occasions of precipitation.

Based on the information collected, it is concluded that the source of water is surface runoff from the downspouts to the seismic gaps between buildings which becomes perched on the lean concrete mudmat located partially beneath the dead space. Since rerouting the downspouts, the amount of water collecting in the holes has been reduced. It is expected that final finish grading and paving along with completed roof drainage systems will prevent the rainwater from entering this area.

## SUMMARY OF UNIT 2

### STANDING WATER INVESTIGATION

The PVC tubes which were intended to be used for grouting the cone penetrometer test (CPT) holes were removed. This resulted in the sluffing of adjacent soil into the holes. During the cleaning out of the holes for tube reinsertion, the presence of standing water was observed.

An immediate effort was made to determine the source of the water. The following measures were taken:

All construction utilities were traced to verify that they have been terminated and abandoned.

To further verify the integrity of the sumps and piping, all permanent plant piping related to the Control Building sumps and drains have been pressure tested pneumatically to verify their integrity. Sumps themselves were hydro-tested. The tests verified integrity of the sumps.

Investigation included consideration of all permanent plant lines in the vicinity of concern. This investigation concluded that these lines, because of location and elevation, could not contribute to the water leak problem. Test records are on file that indicate acceptability.

Permanent plant downspouts from roof scuppers in many locations were observed to discharge proximal to the network of 6" seismic gaps separating the powerblock structures, including the areas along the Corridor Building where the cover plate separates the Auxiliary Building/Control Building interface. Elephant trunk lines have been installed at all potential sources to route the rainwater elsewhere.

Rainfall data has been tabulated and found to be chronologically associated with the detection of influx of water in the CPT holes. A slow but gradual lowering of the water level has been observed between occasions of precipitation.

Based on the information collected, it is concluded that the source of water is surface runoff from the downspouts to the seismic gaps between buildings which becomes perched on the lean concrete mudmat located partially beneath the dead space. Since rerouting downspouts and roof scuppers, the incidence of rainfall has not significantly affected water level in the dead space. It is expected that final finish grading and paving along with completed roof drainage systems will prevent the rainwater from entering this area.