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 STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Public 05000530

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 VAN BRUNT, E. E. Arizona Public Service Co.  
 RECIP. NAME: RECIPIENT AFFILIATION  
 TEDESCO, R. L. Assistant Director for Licensing

SUBJECT: Forwards response to QA Branch Question 260.62 transmitted  
 by NRC 810831 ltr. Response: supls & clarifies Table 3.2-1 of  
 FSAR re compliance of QA program w/NUREG-0737 items.

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September 4, 1981

ANPP-18861 - JMA/WFQ

Mr. R. L. Tedesco  
Assistant Director of Licensing  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555



Subject: Palo Verde Nuclear Generating Station.  
(PVNGS) Units 1, 2 and 3  
Docket Nos. STN-50-528/529/530  
File: 81-056-026; G.1.10

Reference: Letter from R. L. Tedesco, NRC, to E. E. Van Brunt, Jr.  
dated August 31, 1981, subject: Request for Additional  
Information - PVNGS (QA)

Dear Mr. Tedesco:

Attached please find our response to the NRC Quality Assurance Branch  
Question 260.62 transmitted by the reference letter.

Please contact me if you have any questions.

Very truly yours,

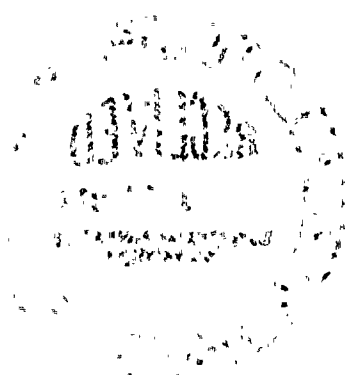
E. E. Van Brunt, Jr.  
APS Vice President,  
Nuclear Projects  
ANPP Project Director

EEVBJr/WFQ/av  
Attachment

cc: J. Spraul (NRC) (w/a)  
J. Kerrigan (w/a)  
P. Hourihan (w/a)  
A. C. Gehr (w/a)

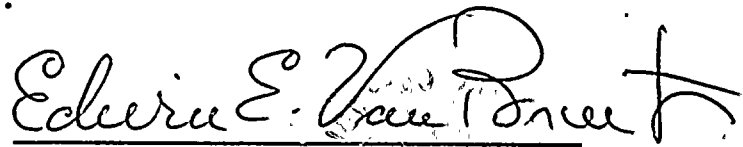
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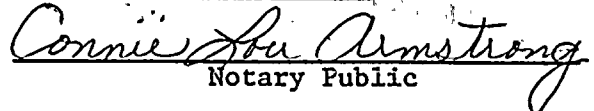
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                              ) ss.  
COUNTY OF MARICOPA)

I, Edwin E. Van Brunt, Jr., represent that I am Vice President Nuclear Projects of Arizona Public Service Company, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority so to do, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true.



Edwin E. Van Brunt, Jr.

Sworn to before me this 9<sup>th</sup> day of SEPTEMBER, 1981.

  
Notary Public

My Commission expires:

June 24, 1983



PALO VERDE

Request for Additional Information

NRC Question 260.62

Section 17.1.2.2 of the standard format (Regulatory Guide 1.70) requires the identification of safety-related structures, systems, and components controlled by the QA program. You are requested to supplement and clarify Table 3.2-1 of the Palo Verde FSAR in accordance with the following:

- a. The following items do not appear on FSAR Table 3.2-1. Add the appropriate items to the table and provide a commitment that the remaining items are subject to the pertinent requirements of the FSAR operational quality assurance program or justify not doing so.

1. Spent fuel pool liner.
2. Cask handling crane.
3. Fuel transfer carriage assembly.
4. Containment building polar crane.
5. CEA change platform.
6. Other special tools and lifting rigs, such as reactor vessel head gear.
7. Third auxiliary feedwater pump (motor driven) and its interconnecting piping and valves.
8. Reactor coolant pump auxiliary components required for lubrication and cooling of pump seals and thrust bearings.
9. Radiation monitoring (fixed and portable).
10. Radioactivity monitoring (fixed and portable).
11. Radioactivity sampling (air, surfaces, liquids).
12. Radioactive contamination measurement and analysis.
13. Personnel monitoring internal (e.g., whole body counter) and external (e.g., TLD system).
14. Instrument storage, calibration, and maintenance.
15. Decontamination (facilities, personnel, and equipment).
16. Respiratory protection, including testing.
17. Contamination control.
18. Radiation shielding (permanently installed).





19. Accident-related meteorological data collection equipment.
  20. Safety-related masonry walls (see IE Bulletin No. 80-11).
  21. Expendable and consumable items necessary for the functional performance of safety-related structures, systems, and components (i.e., weld rod, fuel oil, boric acid, snubber oil, etc.).
  22. Buried service water piping systems connected to the essential spray pond system.
  23. AC power systems (Class 1E)
    - a). Diesel generator packages including auxiliaries (e.g., governor, voltage regulator, excitation system).
    - b) Cable splices, connectors, and terminal blocks.
    - c) Conduit and cable trays and their supports containing Class 1E cables and those whose failure during a seismic event may damage other safety-related items.
    - d) Transformers.
    - e) Valve operators.
    - f) Protective relays and control panels.
  24. DC Power Systems (Class 1E)
    - a) Cables.
    - b) Conduit and cable trays and their supports containing Class 1E cables and those whose failure during a seismic event may damage other safety-related items.
  25. Steam generators.
  26. Containment pressure, hydrogen, and water level indication systems.
  27. Valve operators for safety-related valves.
  28. Containment sump and sump screen.
- b. Identify the safety-related instrumentation and control systems to the same scope and level of detail as provided in Chapter 7 of the FSAR (this can be done by footnote).
  - c. Enclosure 2 of NUREG-0737, "Clarification of TMI Action Plan Requirements" (November 1980) identified numerous items that are safety-related and appropriate for OL application and therefore should be on Table 3.2-1. These items are listed below. Add the appropriate items to Table 3.2-1 and



provide a commitment that the remaining items are (or will be) subject to the pertinent requirements of the FSAR operational QA program or justify not doing so.

NUREG-0737  
Enclosure 2  
Clarification Item

- |   |                   |
|---|-------------------|
| 1. Plant-safety-parameter display console.                                      | I.D.2             |
| 2. Reactor coolant system vents.  | II.B.1            |
| 3. Plant shielding.   | II.B.2            |
| 4. Post accident sampling capabilities.   | II.B.3            |
| 5. Valve position indication.   | II.D.3            |
| 6. Auxiliary feedwater system.  | II.E.1.1          |
| 7. Auxiliary feedwater system initiation and flow.                              | II.E.1:2          |
| 8. Emergency power for pressurizer heaters.                                     | II.E.3.1          |
| 9. Dedicated hydrogen penetrations.   | II.E.4.1          |
| 10. Containment isolation dependability.  | II.E.4.2          |
| 11. Accident monitoring instrumentation.  | II.F.1            |
| 12. Instrumentation for detection of inadequate core-cooling.                   | II.F.2            |
| 13. Power supply for pressurizer level indicators.                              | II.G.1            |
| 14. Automatic trip of reactor coolant pumps.                                    | II.K.3(5)         |
| 15. Power on pump seals.  | II.K.3(25)        |
| 16. Emergency plans (and related equipment).                                    | III.A.1.1/III.A.2 |
| 17. Equipment and other items associated with the emergency support facilities. | III.A.1.2         |
| 18. Inplant I <sub>2</sub> radiation monitoring.                                | III.D.3.3         |
| 19. Control-room habitability.  | III.D.3.4         |



RESPONSE

260.62a

- a.1, a.3, a.5, a.6, a.7 FSAR Table 3.2-1 identifies the quality classification applied to the design and construction of PVNGS structures, systems and components. Although the table identifies that the spent fuel pool liner, fuel transfer carriage assembly, CEA change platform, special tools and lifting rigs (such as reactor vessel head gear), and the third auxiliary (motor driven) feedwater pump and its interconnecting piping and valves are not safety related, the applicable operations phase activities of administrative control, operation, maintenance, inspection, etc., of these components are considered to be quality-related activities and as such are subject to the pertinent requirements of the operational quality assurance program.
- a.2 See revised table 3.2-1 (sheet 8 of 36)
- a.4 See revised table 3.2-1 (sheet 8 of 36)
- a.8 Reactor coolant pump auxiliary components required for lubrication and cooling of pump seals and thrust bearings are identified on table 3.2-1 (item #3, sheet 3 of 36, "piping and valves within seal water system") as a safety-related system.
- a.9-a.17 Radiation monitoring, radioactivity monitoring, radioactivity sampling, radioactive contamination measurement and analysis, personnel internal and external monitoring, instrument storage, calibration and maintenance, decontamination, respiratory protection, and contamination control are considered to be quality-related activities and as such are subject to the pertinent requirements of the operational quality assurance program.
- a.18 The permanently installed radiation shielding consists of the structural walls and floors which comprise each of the safety-related buildings (item 25, sheet 30 of 36).
- a.19 The accident-related meteorological data collection equipment is not safety-related; however, the operations phase activities of maintenance and calibration of this equipment are considered to be quality-related activities and as such are subject to the pertinent requirements of the operational quality assurance program.
- a.20 There are no safety-related masonry walls at PVNGS.
- a.21 Expendable and consumable items necessary for the functional performance of safety-related structures, systems and components are classified as safety-related items and as such are subject to the pertinent requirements of the operational quality assurance program.
- a.22 Buried service water piping systems connected to the essential spray pond system is identified on table 3.2-1 (item 10, sheet 9 of 36, Essential spray pond system - Piping to safety-related components; Valves to safety-related components) as a safety-related system.

- a.23
- a) The diesel generator package is identified on table 3.2-1 (item 17, sheet 23 of 36) as a safety-related system. The term "diesel generator package" includes the diesel generator and its auxiliaries (e.g., governor, voltage regulator, excitation system)
  - b) See revised table 3.2-1 (sheet 7 of 36)
  - c) See revised table 3.2-1 (sheet 7 of 36)
  - d) See revised table 3.2-1 (sheet 6 of 36)
  - e) Valve operators that are associated with safety-related valves which must perform a mechanical motion in order to shutdown the plant, maintain the plant in a safe shutdown condition, or mitigate the consequences of a postulated event are classified as safety-related and as such are subject to the pertinent requirements of the operational quality assurance program.
  - f) See revised table 3.2-1 (sheet 6 of 36)
- a.24
- a) See revised table 3.2-1 (sheet 7 of 36)
  - b) See revised table 3.2-1 (sheet 7 of 36)
- a.25
- The steam generators are identified on Table 3.2-1 (Item 2, Sheet 1 of 36), as a safety-related system.
- a.26
- The containment pressure, hydrogen and water level indication systems are safety-related systems and are covered by Item 7 of Table 3.2-1 (Sheet 5 of 36).
- a.27
- Refer to response for Item a.23(e).
- a.28
- See revised Table 3.2-1 (Sheet 4 of 36).

260.62 b

See revised table 3.2-1 (sheets 5, 6 and 36 of 36)

260.62 c

The PVNGS Lessons Learned Implementation Report (LLIR) describes the manner in which PVNGS will meet the requirements of NUREG 0737. As the design of these items progresses (in particular, items 2, 4, 5, 11, 12 and 17), these items will be identified in table 3.2-1 appropriately. Other items are discussed as follows:

C.3 Refer to response for item a.18

C.8 Identified on table 3.2-1 (item 8, sheet 6 of 36)

C.9 Identified on table 3.2-1 (item 25, sheet 30 of 36)

C.10 Identified on table 3.2-1 (various references- valves, I&C, etc.)

C.13 Identified on table 3.2-1 (item 8, sheet 6 of 36)

C.15 Identified on table 3.2-1 (item 8, sheet 6 of 36)



Table 3.2-1

## QUALITY CLASSIFICATION OF STRUCTURES, SYSTEMS AND COMPONENTS (Sheet 4 of 36)

4

Principal Components	Location	Principal Construction Codes and Standards	Seismic Category	PVNGS Quality Assurance Class	Regulatory Quality 1.26 Quality Group Classification	ANSI N18.2 Safety Class
Piping and valves	C,AB	III-2	I	Q	B	2
Safety injection tank test lines	C,AB	III-1(i)	I	Q	A(i)	1(i)
Reactor coolant pressure boundary	C	B31.1(t)	na	na	D	NNS
Safety injection tank nitrogen line from isolation valve	C	B31.1(t)	na	na	D	NNS
Relief piping from relief valves in containment	AB	III-3	I	Q	C	3
Relief piping from relief valves in auxiliary building	AB	III-3	I	Q	C	3
All other safety injection piping	C,AB	III-2	I	Q	B	2
Recirculation sump <sup>and sump</sup> screens	C	na	I	Q	na	na
Piping supports and hangers	C,AB	III-NF(n)	(h)	(h)	na	1,2,3 NNS
5. Containment spray system						
Containment spray pumps	AB	III-2	I	Q	B	2
Containment spray pump motors	AB	IEEE-323/334/344	I	Q	na	na
Spray chemical storage tank	AB	III-2	I	Q	B	2
Spray nozzles	C	III-2	I	Q	B	2
Piping, spray headers, and valves	C,AB	III-2	I	Q	B	2
Valves, containment isolation	C	III-2	I	Q	B	2
Piping, containment penetration	C	III-2	I	Q	B	2
Piping supports and hangers	C,AB	III-NF(n)	(h)	(h)	na	2,3 NNS
Spray chemical addition pumps	AB	III-2	I	Q	B	2
6. Containment building combustible gas control systems						
Piping, containment penetrations	C	III-2	I	Q	na	2
Valves, containment isolation	C,AB	III-2	I	Q	na	2
Hydrogen purge system						
Particulate filters	AB	na	na	na	na	na
High efficiency particulate air (HEPA) filters	AB	na	na	na	na	na

PVNGS FSAR

CLASSIFICATION OF STRUCTURES,  
COMPONENTS, AND SYSTEMS





Table 3.2-1

## QUALITY CLASSIFICATION OF STRUCTURES, SYSTEMS AND COMPONENTS (Sheet 5 of 36)

4

Principal Components	Location	Principal Construction Codes and Standards	Seismic Category	PVNGS Quality Assurance Class	Regulatory Guide 1.26 Quality Group Classification	ANSI N18.2 Safety Class
Charcoal filters	AB	na	na	na	na	na
Piping	AB	na	na	na	na	na
Valves	AB	na	na	na	na	na
Supports and hangers	AB	na	(h)	(h)	na	na
Hydrogen recombiners system						
Hydrogen recombiners	AB	III-2	I	Q	na	2
Piping	AB	III-2	I	Q	na	2
Valves	AB	III-2	I	Q	na	2
Supports and hangers	AB	III-NF(n)	(h)	(h)	na	2
Containment atmosphere sampling system						
Piping	AB	III-2	I	Q	na	NNS
Valves	AB	III-2	I	Q	na	NNS
Pumps	AB	III-2	I	Q	na	NNS
Supports and hangers	AB	III-NF(n)	(h)	(h)	na	NNS
7. Instrumentation and control systems						
Plant protection system (PPS)						
The PPS includes the electrical and mechanical devices and circuitry (from sensors to actuation device input terminals) involved in generating the signals associated with the two protective functions defined below:						
Reactor protective system (RPS)						
That portion of the PPS which generates signals that actuate reactor trip	C,CB	IEEE-279/ 344/323/ 379	I	Q (X)	na	na

PVNGS FSAR

CLASSIFICATION OF STRUCTURES,  
COMPONENTS, AND SYSTEMS



Table 3.2-1

## QUALITY CLASSIFICATION OF STRUCTURES, SYSTEMS AND COMPONENTS (Sheet 6 of 36)

4

Principal Components	Location	Principal Construction Codes and Standards	Seismic Category	PVNGS Quality Assurance Class	Regulatory Guide 1.26 Quality Group Classification	ANSI N18.2 Safety Class
Engineered safety features actuation system (ESFAS)  That portion of the PPS which generates signals that actuate engineered safety features	C,CB	IEEE-279/323/344/379	I	Q (X)	na	na
Safe shutdown systems  The safe shutdown systems include those systems required to secure and maintain the reactor in a safe shutdown condition.	C,AB,DG,CB	IEEE-279/323/344	I	Q (X)	na	na
All other systems required for safety	C,AB,DG,CB,RW	IEEE, 279/323/344	I	Q (X)	na	na
Control systems not required for safety	C,AB,DG,CB,RW	na	na	na	na	na
Control room panels (safety related)	CB	IEEE-279/323/344/420	I	Q	na	na
Control room panels (other)	CB	na	I(e)	Q(e)	na	na
Instrument valves and piping downstream of Quality Group B or C root valves (For safety-related instruments)						
Piping, tubing and fittings	All	III-2 or III-3	I	Q	B or C	2 or 3
Instrument Valves	All	B31.1	na	na	D	NNS
8. Electric systems						
Class IE ac equipment (includes associated transformers, protective relays, instrumentation and control devices)						
4.16 kV buses	CB	IEEE-308/323/344/420	I	Q	na	na
480V load centers	CB	IEEE-308/323/344/420	I	Q	na	na
480V motor control centers	AB,CB,DG	IEEE-308/323/344/420	I	Q	na	na

PVNGS FSAR

CLASSIFICATION OF STRUCTURES,  
COMPONENTS, AND SYSTEMS



May 1981

3.2-9

Amendment 4

Table 3.2-1

## QUALITY CLASSIFICATION OF STRUCTURES, SYSTEMS AND COMPONENTS (Sheet 7 of 36)

Principal Components	Location	Principal Construction Codes and Standards	Seismic Category	PVNGS Quality Assurance Class	Regulatory Guide 1.26 Quality Group Classification	ANSI N18.2 Safety Class
Class IE dc equipment						
125V station batteries and racks	CB	IEEE-308/323/344/450	I	Q	na	na
Battery chargers	CB	IEEE-308/323/344	I	Q	na	na
125V switchgear and distribution panels	CB	IEEE-308/323/344/420	I	Q	na	na
120V vital ac system equipment						
Static inverters	CB	IEEE-308/323/344	I	Q	na	na
120V distribution panels	CB	IEEE-308/323/344/420	I	Q	na	na
Electric cables for class IE system	CB	IEEE-308/323/344	I	Q	na	na
125V dc cables (including cable splices, connectors and terminal blocks)	OU, CB, AB, DG	IEEE-308/383/384/323	I	Q	na	na
5 kV power cables (including cable splices, connectors and terminal blocks)	OU, C, CB, AB	IEEE-308/383/384/323	I	Q	na	na
600V power cables (including cable splices, connectors and terminal blocks)	OU, C, CB, AB	IEEE-308/383/384/323	I	Q	na	na
Control and instrumentation cables (including cable splices, connectors and terminal blocks)	OU, C, CB, AB, DG	IEEE-308/383/384/323	I	Q	na	na
Conduit and cable trays and their supports containing class IE cables and those whose failure during a seismic event may damage other safety-related items	All	IEEE-308/323/344/323	I	Q	na	na
Miscellaneous class IE electrical system						
Containment building electrical penetration assemblies	C	IEEE-317/344/323	I	Q	na	na
Control Room ceiling structure for the emergency lighting system	CB	IEEE-344	I (e)	Q	na	na
Non-class IE electrical systems	All	na	na	na	na	na

PVNGS FSAR

CLASSIFICATION OF STRUCTURES,  
COMPONENTS, AND SYSTEMS



Table 3.2-1

## QUALITY CLASSIFICATION OF STRUCTURES, SYSTEMS AND COMPONENTS (Sheet 8 of 36)

4

Principal Components	Location	Principal Construction Codes and Standards	Seismic Category	PVNGS Quality Assurance Class	Regulatory Guide 1.26 Quality Group Classification	ANSI N18.2 Safety Class
9. Component and fuel handling equipment and fuel storage						
Fuel handling and storage equipment						
Refueling machine	C	na	I(e)	Q(e)	na	na
Spent fuel handling machine	FB	na	I(e)	Q(e)	na	na
Spent fuel pool	FB	(a)	I	Q	na	na
Spent fuel pool liner	FB	(a)	na	na	na	na
Spent fuel pool gates	FB	na	I	Q	na	na
Fuel transfer tube assembly blind flange	C	III-MC	I	Q	na	2
Fuel transfer tube housing (from liner plate to blind flange)	C	III-MC	I	Q	na	2
Fuel transfer tube housing (other)	FB	na	na	na	na	NNS
Bellows	C, FB	na	na	na	na	NNS
Fuel transfer valve	FB	na	na	na	na	NNS
Cask handling crane	FB	na	I na(e)	Q na(e)	na	na
New fuel elevator	FB	na	na(e)	na(e)	na	na
Fuel transfer carriage assembly	C, FB	na	na(e)	na(e)	na	na
Spent fuel storage racks	FB	na	I	Q	na	na
New fuel storage racks	FB	na	I	Q	na	na
New fuel handling crane	FB	na	I na(e)	Q na(e)	na	na
Component handling equipment						
Containment building polar crane	C	na	I na(e)	Q na(e)	na	na
CEA change platform	C, FB	na	na	na	na	na
Reactor vessel head lifting gear	C	na	na	na	na	na
Internals lifting gear	C	na	na	na	na	na
Fuel pool cooling and cleanup system						
Fuel pool pump motors	FB	IEEE-323/344/334	I	Q	na	na
Fuel pool pumps	FB	III-3	I	Q	C	3

PVNGS FSAR

CLASSIFICATION OF STRUCTURES,  
COMPONENTS, AND SYSTEMS





## Table 3.2-1

## QUALITY CLASSIFICATION OF STRUCTURES, SYSTEMS AND COMPONENTS (Sheet 36 of 36)

4

7. Letter of parentheses (continued)

- (s) The gas stripper is designed and constructed to Seismic Category I requirements; however, this portion of the CVCS is not required to be Seismic Category I by Regulatory Guide 1.29.
- (t) Process solenoid valves will be constructed in accordance with manufacturer's standards.
- (u) Since this system is not required to function during an SSE, the CHRS is designed to remain functional after an SSE but not during an SSE.
- (v) Designed to appropriate industry standards.
- (w) External to the diesel engine package.

~~(x) Seismic Category I applies to cable trays and supports.~~

(X) Refer to Section 7.0 for further delineation of the components which comprise this system.

