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ACCESSION NBR:8109300356 DOC.DATE: 81/09/28 NOTARIZED: NO DOCKET #
FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528
STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529
STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
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RECIP.NAME RECIPIENT AFFILIATION
TEDESCO,R.L. Assistant Director for Licensing

SUBJECT: Forwards marked-up FSAR pages providing info requested by NRC.Response to Containment Sys Branch Question 480.13 will be provided upon completion of analysis.Revisions will be included in future FSAR amend.

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September 28, 1981
ANPP-19014 - JMA/KWG

Mr. R. L. Tedesco
Assistant Director for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation
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

Dear Mr. Tedesco:

Please find attached marked up FSAR pages providing information requested informally by your staff which will be included in a future amendment.

Our response to Containment Systems Branch Question No. 480.13 will not be available by the date earlier provided. We will respond at the earliest possible time the requested analysis is complete.

If you have any questions, please contact me.

Very truly yours,

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

EEVBjr/KWG/kjr
Attachments

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

B001
S/11

STATE OF ARIZONA)
) 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.

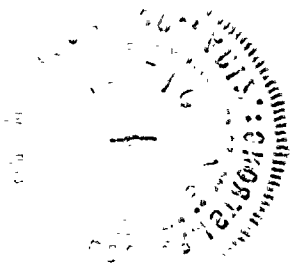
Edwin E. Van Brunt, Jr.

Sworn to before me this 28th day of September, 1981.

Connie Lou Armstrong
Notary Public

My Commission expires:

June 24, 1983



Item 1

The staff requested deletion of reference to ANSI Std. N45.4 and American Nat'l. Std. N274 because they have not completed review of these documents and inclusion could delay SER issuance.

Response

See attached PVNGS FSAR page 6.2.6-2

that leakage through the containment isolation barriers does not exceed design limits. However, during the period between the initiation of the containment inspection and the performance of a periodic Type A test, no repairs or adjustments are made so that the primary reactor containment can be tested for leakage in as close to the "as is" condition as practical.

Following the completion of local leakage rate testing, an integrated leakage rate test (Type A) is performed to determine that the total leakage from the containment does not exceed the maximum allowable leakage rate (La) at a calculated peak containment internal pressure of Pa, as defined in 10CFR50, Appendix J. Pertinent test data, including test pressures, test duration, and definitions of terms are presented in table 6.2.6-1. Acceptance criteria are given in chapter 16.

5 The Type A test may be of the short duration type per BN-TOP-1, ~~or may be conducted in accordance with ANSI Standard N45.4 as updated by American National Standard N274, Draft 2, Revision 3, November 15, 1978, Containment System Leakage Testing Requirements, using the Absolute Method~~. Measurements of containment atmosphere drybulb temperature, dewpoint temperature (water vapor pressure), and pressure are taken to calculate the leakage rate. A standard statistical analysis of the data is conducted using a linear least squares fit regression analysis to calculate the leakage rate and associated 95% confidence level (or maximum expected measurement system error). The calculated leakage rate and upper 95% confidence level are reported. The data acquisition system is described in table 6.2.6-2.

Prior to commencement of any Type A test, the pretest requirements described in 10CFR50, Appendix J are met.

Upon completion of the Type A test, a verification test is conducted to confirm the capability of the Type A data acquisition and reduction system to satisfactorily determine the calculated containment integrated leakage rate. The verification

Item 2

The staff requested inclusion of a caution statement in procedures to terminate containment spray. The caution was to inform operators that forced hydrogen mixing depended on operation of the containment spray system.

Response

See attached Revised PVNGS FSAR page 6.2.2-4

A discussion of the extent to which the CSS is required to be remote manually operated from the main control room and the extent of operator intervention in system operation is provided in CESSAR Appendix 6A, Sections 4.0 and 5.0.

A description of the qualification tests performed on system components is provided in CESSAR Sections 3.10 and 3.11. Environmental test conditions, as shown in CESSAR Figure 3.11A-1, are representative of post-accident conditions as described in section 6.2.1.

Fan systems for post-accident containment heat removal are not employed at PVNGS. Insert A.

The design features of the recirculation intake structures (sumps) comply with Regulatory Guide 1.82 and include the following features:

A. Two independent sumps and screens are provided, one for each safety-related train.

B. Physically separated sumps preclude simultaneous damage to both screens.

C. Sumps located in the lowest floor of the containment building, at elevation 80 ft-0 in., are protected by two screens, plus a trash rack. The sump screens are placed on a 3 in. high curb.

D. The floor level in the sump vicinity slopes toward local floor drains. In addition, to preclude surface waste from plugging the screens, a 3 in. curb is provided.

E. The 3 in. curb around the sumps also provides protection from surface drains. No drains from upper regions impinge on the screen assemblies.

Insert A to PVNGS FSAR Page 6.2.2-4

Procedures concerning termination of system operation contain statements to caution operators regarding assurance that adequate Hydrogen mixing has been accomplished and further forced circulation is not required.

Item 3

The staff indicated that the containment refueling purge isolation valves should be sealed closed except during operational modes 5 and 6.

Response

See attached revised PVNGS LLIR Page II.E.4.2-6.

6. Containment power access purge isolation valves satisfy the operability criteria set forth in Branch Technical Position CSB 6-4. Containment refueling purge isolation valves will be sealed closed except during operational modes 5 and 6. (Cold shutdown and refueling respectively, see CESSAR Section 16.1.1). 2

7. As stated in item 1 above, both the power access purge and the refueling purge isolate on high containment purge radioactivity.

Item 4

The staff requested confirmation that the SPRACO nozzles used in the PVNGS containment spray system were of the type utilized at the Waterford station.

Response

See attached revised PVNGS FSAR Page 6.2.2-7.

Metallic, reflective-type insulation is attached to the piping and components as two half-segments with quick release latches or by expansion-type metal bands.

Non-metallic insulation on non-reactor coolant pressure boundary components is limited to use where space limitations prevent use of reflective insulation, e.g. pipe stops and pipe restraints on the normal chilled water system piping. Non-metallic insulation (mineral wool) is enclosed in stainless steel sheet and bonded to the component.

6.2.2.3 Design Evaluation

A. The CSS is designed to rapidly reduce the containment pressure and temperature following a LOCA or MSLB. Figures 6.2.1-1 through 6.2.1-6 show the effect of containment spray in event of these accidents. Plan and elevation drawings of the containment showing expected spray coverage are provided in figures 6.5-4 through 6.5-9.

A discussion of containment sprayed volume and spray overlap is provided in section 6.5.2.2. A discussion of the system's heat removal effectiveness is found in CESSAR Appendix 6A, Section 2.1.2.

(A description of the SPRACO Company 1713A nozzle test program to determine drop size spectrum and mean drop size is discussed in CESSAR Appendix 6B, Section 3.2.3

INSERT B

Analysis of the NPSH of the recirculation pumps in accordance with Regulatory Guide 1.1 is provided in section 6.3 (the same analysis as for high pressure safety injection (HPSI) pumps). Pump data is tabulated in CESSAR Appendix 6A, Section 3.3.

Insert B to FSAR Page 6.2.2-7

A detailed description of the SPRACO nozzle parameters was earlier submitted to the NRC on the Waterford Steam Electric Station, Unit No. 3, docket No. 50-382.)