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ACCESSION NBR:8807120444 DOC.DATE: 88/07/06 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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SUBJECT: Forwards addl info re proposed Tech Specs change revising
Surveillance Requirement 4.5.2.h.

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161-01155-EEVB/BJA
July 6, 1988

Docket Nos. STN 50-528/529/530

Document Control Desk
U. S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

- References: (1) Letter from E. A. Licitra, NRC, to E. E. Van Brunt, Jr., ANPP, dated May 3, 1988. Subject: Proposed Technical Specification Change, LPSI Flow Requirements for Palo Verde.
- (2) Letter from E. E. Van Brunt, Jr., ANPP, to USNRC Document Control Desk dated March 16, 1988 (161-00890-EEVB/BJA). Subject: Proposed Technical Specification Change - LPSI Flow Requirements.

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2 and 3
LPSI Flow Requirements
File: 88-A-056-026; 88-F-005-419.05

By Reference (2), we submitted a proposed change to the Palo Verde Technical Specifications. The proposed change will revise Surveillance Requirement 4.5.2.h concerning the Low Pressure Safety Injection (LPSI) subsystem. Specifically, the proposed revision will change the total injection loop flow from 4900 ± 100 gpm to 4800 ± 200 gpm. Additionally, the injection leg maximum deviation will be changed from 100 gpm to 200 gpm.

Your preliminary review of the requested change is documented in Reference (1). In Reference (1), you stated that the change request did not provide sufficient justification to allow you to complete your evaluation of the proposed change. Additionally, you stated that the request needs to address whether the proposed reduction in flow rate affects the assumptions used in the ECCS analysis of record.

In response to your preliminary evaluation, we have prepared additional information on this subject. The additional information is provided in the attachment to this letter. This information supplements that which we have provided previously in Reference (2) and the information responds to your request that we address the ECCS analysis assumptions.

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Document Control Desk
Page 2

161-01155-EEVB/BJA
July 6, 1988

If you have any additional questions on this matter, please call
Mr. A. C. Rogers at (602) 371-4041.

Very truly yours,

A handwritten signature in black ink, appearing to read "E. E. Van Brunt, Jr.", with a stylized, cursive script.

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

EEVB/BJA/dlm
Attachment

cc: G. W. Knighton, (all w/a)
M. J. Davis
T. J. Polich
J. B. Martin
A. C. Gehr

ATTACHMENT

ADDITIONAL INFORMATION ON PROPOSED TECHNICAL SPECIFICATION CHANGE

The large break LOCA analysis of record was provided in a letter dated October 3, 1985. This ECCS analysis was for the limiting large break LOCA (i.e., double ended guillotine break of a RCP discharge line) and is valid for cycles 1 and 2 at PVNGS.

For the analysis of record, a LPSI flow rate of approximately 4214 gpm was assumed. Note that this flow rate is for a single LPSI pump injecting into a depressurized (i.e., 0 psig) Reactor Coolant System (RCS). The current Technical Specification flow requirements are conservatively higher than the assumed flowrates. The Technical Specification required flow accounts for factors such as instrument inaccuracy and pump degradation.

The proposed Technical Specification change will incorporate the following changes to Surveillance Requirement 4.5.2.h for the LPSI subsystem:

- i) The total injection flow for each injection loop is changed from 4900 ± 100 gpm to 4800 ± 200 gpm. The change lowers the nominal flowrate by 100 gpm and increases the flow tolerance to ± 200 gpm.
- ii) The tolerance for the individual injection leg flow balances is changed from 100 gpm to 200 gpm (i.e., the flowrate for each injection leg of an injection loop shall be within 200 gpm of each other).

When these changes and the normal conservatisms are accounted for, a safety analysis assumed flowrate of 3744 gpm results. Again, this flowrate is for a single LPSI pump, injecting into a depressurized RCS.

The net result of the proposed changes is a reduction of 470 gpm in the assumed value. However, the conclusions from the ECCS analysis of record remain valid when the reduced LSPI flow rates are assumed. The adequacy of the combined safety injection flow can be evaluated. The acceptance criteria for the evaluation is that the total safety injection flow must be capable of maintaining a full reactor vessel downcomer annulus following discharge of the Safety Injection Tanks (SITs). Any flow in excess of that required to maintain a full downcomer annulus is assumed to be spillage and is not required to assure adequate core cooling. The amount of safety injection flow required to maintain a full downcomer annulus has been calculated and is shown in Figure 1. Also shown in Figure 1 are the total safety injection flows assuming: 1) the existing Technical Specification flow requirements, and 2) the proposed LSPI flow requirements.

The effect of the proposed change is to reduce the amount spillage assumed in the analysis. The reactor vessel downcomer annulus is kept full. Therefore, the conclusions from the analysis of record remain valid.



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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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SAFETY INJECTION FLOW. LB/SEC x 1000

Figure 1



