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STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530
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TEDESCO,R.L. Assistant Director for Licensing

SUBJECT: Forwards clarification to original response to Question 282.2 re secondary water chemistry discussed in NRC 810717 ltr. Clarification will be included in future FSAR amend.

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August 6, 1981
ANPP-18599 - JMA/WFQ

Mr. R. L. Tedesco
Assistant Director for Licensing
Division of Licensing
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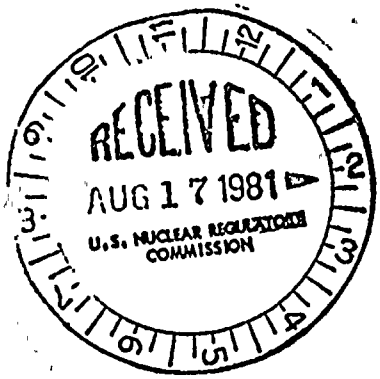
Washington, D.C. 20555



Subject: Palo Verde Nuclear Generating Station (PVNGS) Units 1, 2 and 3
Docket Nos. STN-50-528/529/530
File: 81-056-026; G.1.0
Reference:: Letter from R. L. Tedesco, NRC, to E. E. Van Brunt, July 17, 1981, Subject: Secondary Water Chemistry (NRC Question 282.2)

Dear Mr. Tedesco:

Attached are clarifications to our original response to parts 2.5 and 6 of NRC Question 282.2 as requested by Ms. Kerrigan and Mr. Turvolin (CEB) of the NRC staff.

Clarification regarding Part 1 of Question 282.2 (i.e., revision of CESSAR-F Table 10.3.4-1 will be handled on the CESSAR-F docket.

Our clarifications are shown as marked up copies of existing PVNGS FSAR pages and will be included in a future FSAR Amendment.

Very truly yours,

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

EEVBJR/WFQ/md
Attachment
cc: J. Kerrigan (w/a)
B.. Turvolin NRC (CEB) (w/a)
P. Hourihan (w/a)
A. Gehr (w/a)

Boo1
S
1/1

2. Procedures for measuring the values of critical parameters will reflect CE technical recommendations or exceptions will be technically justified in section 10.3.5. ← INSERT A

3. Process sampling points are listed in section 10.4.6.2.3.

4. Recording and management of secondary water chemistry data will be covered by administrative procedures. These procedures will include the following requirements:

   (a) The composition, quantities, and addition rates of additives shall be recorded initially and thereafter whenever a change is made.

   (b) The electrical conductivity and the pH of the bulk steam generator water and feedwater shall be measured continuously (with provision for alternate sampling methods in case of equipment failure). 4

   (c) Free hydroxide concentration and impurities (particularly chloride, ammonia and silica) in the steam generator water shall be measured at least three times per week.

   (d) The electrical conductivity and sodium ion concentration of the condensate is measured continuously.

5. Procedures will require prompt corrective action for out of specification or off control point secondary water chemistry conditions.

If the normal chemistry limits given in CESSAR Tables 10.3.4-1 or 10.3.4-2 cannot be maintained because of condenser leaks, prompt repair of these leaks will be required.

← INSERT B

Insert A - Page 10A-15

The following industry procedures reflect the most recent CE technical recommendations for measuring the respective parameters.

Parameter	Procedure
ph	ASTM, Part 31, Procedure D1293, Method B
Conductivity	ASTM, Part 31, Procedure D1125, Method B
Suspended Solids	Standard Methods, Procedure 208D or ASTM, Part 31, Procedure D1888
Silica	ASTM, Part 31, D859, Method B

Insert B - Page 10A-15

For those parameters of Table 10.3.4-1, the samples are taken from the steam generator blowdown and for Table 10.3.4-2, the samples are taken at the condenser outlet/condensate pump discharge and the high pressure feedwater heater number seven outlet. If measured values exceed the normal limits of tables 10.3.4-1 or 10.3.4-2, corrective action will be initiated immediately. If the condition causing the above normal values cannot be identified and/or controlled, and measured values exceed the abnormal limits, steps shall be taken to reduce measured values below abnormal limits or the plant shall be shut down within four hours.

6. An administrative procedure will specify responsibilities for interpretation of secondary water chemistry data, initiation of corrective action, maintaining secondary water chemistry conditions within specifications, and taking such action as is needed to correct out of specification or off control point conditions. The Chemistry Section staff is responsible for reviewing and analyzing data and provides technical advice to the Shift Supervisor on water chemistry matters. Procedures will provide guidance for correcting out of specification and off control point conditions and will require prompt action to correct out of specification conditions.

INSERT C

Procedures for secondary water chemistry control and monitoring will be available on site for NRC review 60 days prior to filling the secondary side of a steam generator. 4

The steam generator secondary water chemistry control program is described in section 10.3.5.1 which references CESSAR Section 10.3.4.1, which reflects CE's technical recommendations. Technical recommendations are met by the existing design. There are no significant deviations from NSSS steam generator chemistry recommendations.

Section 10.4.6.2.3 describes the method of continuously monitoring for indication of condenser leaks, which is to continuously monitor each section of the condenser hotwell, instead of monitoring condenser pump discharge.

Insert C:

The Shift Supervisor is responsible for initiating corrective action for out-of-specification chemical parameters. During off-normal hours, the Shift Supervisor is advised in these corrective actions by the Shift Chemistry Technician. During normal hours, the Unit Supervising Chemist is responsible for recommending corrective actions for out-of-specification chemical parameters. Chemistry data sheets and reports are reviewed on a routine basis by the Unit Supervising Chemist and periodically by the Chemistry Supervisor.