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VAN BRUNT,E.E. Arizona Nuclear Power Project (formerly Arizona Public Serv
RECIP.NAME RECIPIENT AFFILIATION
KNIGHTON,G.W. Office of Nuclear Reactor Regulation, Director

SUBJECT: Forwards response to 851002 request for addl info re post-accident sampling capabilities described in FSAR Table 9.3-3A & revised FSAR pages.Issue resolved.FSAR info will be included in FSAR update.

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Arizona Nuclear Power Project
P.O. BOX 52034 • PHOENIX, ARIZONA 85072-2034

October 24, 1985
ANPP-33818-EEVB/MAJ

Director of Nuclear Reactor Regulation
Attention: Mr. George W. Knighton, Project Director
PWR Project Directorate #7
Division of Pressurized Water Reactor Licensing - B
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Palo Verde Nuclear Generating Station
Units 1, 2, and 3
Post Accident Sampling System (PASS)
Docket Nos. STN-50-528 (License No. NPF-41)/529/530
File: 85-056-026

Reference: (1) Meeting between M. Ley, J. Wing, USNRC, and M. Jones, APS, dated October 2, 1985; Subject: Unit 2 Licensing Issue Concerning PASS.
(2) Letter from E. E. Van Brunt, Jr. (ANPP) to G. W. Knighton (NRC) dated September 26, 1985 (ANPP-33573). Subject: Post Accident Sampling System

Dear Mr. Knighton:

At the Reference (1) meeting, Mr. Jim Wing of your staff requested that we provide additional information concerning the post accident sampling capabilities described in FSAR Table 9.3-3A found on page 9 of 49 of Reference (2). Attachment 1 provides Mr. Wing's questions.

In response to the Attachment 1 questions, we are providing Attachments 2 and 3 for your review. Attachment 2 provides the responses to the questions and Attachment 3 provides revised FSAR pages from Reference (2).

Per the Reference (1) meeting, it is our understanding that by the submittal of this information we have resolved the staff's concerns and this issue is now considered resolved and closed. The revised FSAR information contained in Attachment 3 will be included in the FSAR update.

If you have any questions concerning this information, please contact Mr. William Quinn of my staff.

Very truly yours,

E E Van Brunt Jr/JH

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

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1/1

EEVB/MAJ/ds

Attachments

cc: A. C. Gehr (w/a)
E. Licitra (w/a)
R. Zimmerman (w/a)
M. Ley (w/a)
J. Wing (w/a)

STATE OF ARIZONA)
) ss.
COUNTY OF MARICOPA)

I, Jerry G. Haynes, represent that I am Vice President of Nuclear Production of Arizona Nuclear Power Project, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority to do so, 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 and correct.

Jerry G. Haynes

Jerry G. Haynes

Sworn to before me this 24 day of October, 1985.

Nora E. Meador

Notary Public

My Commission Expires:

My Commission Expires April 6, 1987

ATTACHMENT 1

NRC Questions

(1) Describe the analytical methods for the determination of boron, chloride, etc.

(2) Explain the following discrepancies in the chloride analysis:

Submittal	Range	Sensitivity	Accuracy	% Accuracy
Table 1, September 27, 1984				
Ion Chromatograph	0.02-100 ppm	0.02 ppm	+5 ppb	
Titrametric	0.05-100 ppm	0.05 ppm	±0.05 ppm	
Attachment 1, August 19, 1985; Table 9.3-3A, Sept. 26, 1985	0.02-20 ppm	0.02 ppm	(±5 ppm)	±25% Full Range

The accuracy ±5ppm within the parenthesis is my calculated number based on your data of ±25% at full range of 20 ppm.

Which method is now used for chloride analysis?
The ion chromatography or titrametric method?

(3) Page 34 of 49 in submittal dated September 26, 1985 and Attachment 1 in submittal dated August 19, 1985.

The detection sensitivity for radioisotopes is given as $5 \times 10^{-7} \mu ci/cc$. This must be a typo error.

$1 \; ci = 3.7 \times 10^{10}$ disintegrations/second

$1 \mu ci = 3.7 \times 10^{4}$ disintegrations/second

$5 \mu ci = 18.5 \times 10^{4}$ disintegrations/second

$5 \times 10^{-7} \mu \; ci = 18.5 \times 10^{-3}$ disintegrations/second

0303K/0013K

ATTACHMENT 2

RESPONSE TO QUESTION (1)

The analytical methods for post accident sample analysis are described in Attachment 3, Page 1 of 2. This Table will appear in the next FSAR update as FSAR Table 9.3-3A and supercedes the table previously submitted on page 9 of 49 of Reference (2).

RESPONSE TO QUESTION (2)

The analytical methodology for the determination of chloride concentration is ion.

The sensitivity of this methodology is 0.020 ppm and has an accuracy of ±25% of the entire analytical range. Simply stated, this means that the analytical results do not vary any more than ±25% of the observed value and is applicable to the entire analytical range.

EXAMPLE - A chloride analytical result is observed to be 0.16 ppm. The stated accuracy of this result is 0.16 ppm, ±0.04 ppm.

RESPONSE TO QUESTION (3)

FSAR Table 9.3-3A has been revised to indicate that the range for radioisotopic gas and liquid analysis is from 10 µci/ml to 10 ci/ml (dilution capability to 10 ci/ml). This analysis range meets R.G. 1.97, Revision 2. The method used for analysis is gamma spectral analysis.

Additionally, page 34 of 49, from Reference (2), has been revised to reflect the radioisotopic range of 10 µci/ml to 10 ci/ml. This revised page is included in Attachment 3 to this letter and supercedes page 34 of 49 in Reference (2).

ATTACHMENT 3

PASS SAMPLE ANALYSIS INFORMATION

ANALYSIS	METHOD	RANGE	SENS.	ACCURACY
pH	Potentiometric	1-13	1	$>5, <9$ ± 0.3 $<5, >9$ ± 0.5
Dissolved Hydrogen	Gas Chromatography	10-2000 cc/kg	10.	<50 cc/kg ± 5cc/kg >50 cc/kg $\pm 10\%$
Chloride Ion	Ion Chromatography	0.02-20 ppm	0.02 ppm	Across Full Range $\pm 25\%$
Boron	Automatic Potentiometric Titration	100-6000 ppm	100 ppm	± 50 ppm <1000 ppm $\pm 5\%$ >1000 ppm
Total Dis. Gas	Pressure Differential	11-2000 cc/kg	11 cc/kg	± 11 cc/kg
Radio-Isotope (Liquid)	Gamma Spectral Analysis	10 μCi/ml to 1.4 mCi (dilution capability to 10 Ci/ml)	10 μCi/ml	$\pm 15\%$ (utilizing calibration verification)
Gaseous Hydrogen	Gas Chromatography	0.1%-20%	0.1%	$\pm 25\%$
Gaseous Oxygen	Gas Chromatography	0.5%-20%	0.5%	$\pm 10\%$
Radio-Isotope (Gas)	Gamma Spectral Analysis	10 μCi/ml to 1.4 mCi (dilution capability to 10 Ci/ml)	10 μci/ml	$\pm 15\%$ (utilizing calibration verification)

ATTACHMENT 3

(9)(a) Provisions are included to measure a wide range of isotopes for both gases and liquids from 10 μci/ml to 10 ci/ml (dilution required to obtain 10 ci/ml). This range is consistent with R.G. 1.97, Rev. 02.

If background levels of radiation are too high in the sample analysis area to permit the analysis of the grab samples obtained, the sample can be transported to an unaffected PVNGS unit laboratory for analysis.

(b) Background levels of radiation in the sample analysis area of the hot lab are kept ALARA.

Grab samples can be taken with a shielded sample syringe and transported with a lead PIG.

Plant procedures identify the analyses requirements, measurement techniques and background level reduction methods, (e.g., sample dilution, transport and handling techniques).

The hot lab is provided with a ventilation system which will control the presence of airborne radioactivity.

(10) The post accident sample analysis capabilities are provided in FSAR Table 9.3-3A.