UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ARIZONA PUBLIC SERVICE COMPANY, et al.	)	Docket Nos. STN 50-528 STN 50-529 STN 50-530
	)	
(Palo Verde Nuclear Generating Station, Units 1, 2 and 3)	)	
	)	

AFFIDAVIT OF E. E. VAN BRUNT, JR.
ON INTERVENOR'S MOTION FOR ORDER REQUIRING
ADMISSION AND PRODUCTION OF DOCUMENTS
WITHIN TEN DAYS

STATE OF ARIZONA)
) ss.
County of Maricopa)

I, E. E. Van Brunt, Jr., upon my oath state as follows:

1. I am employed by Arizona Public Service Company as Vice President, Nuclear Projects Management, and ANPP Project Director.

2. In such capacity I am responsible for the engineering, design, construction and quality assurance for the Palo Verde Nuclear Generating Station ("PVNGS").

3. This affidavit is made with reference to intervenor Patricia Lee Hourihan's ("Intervenor") Motion for Order Requiring Admission and Production of Documents Within Ten Days, dated April 7, 1982, wherein Intervenor seeks, in part, an order requiring Arizona Public Service Company ("APS") to admit the

genuineness of a document, attached to Intervenor's motion, entitled "Arizona Nuclear Power Project, Palo Verde Nuclear Generating Staion, Use of Effluent at Palo Verde" and dated November 17, 1977 (hereinafter referred to as "Effluent Document").

4. I have reviewed the Effluent Document and recognize it as a document prepared under my supervision and control during or about November, 1977.

5. The Effluent Document is a written copy of an oral presentation which I made at a public meeting on November 17, 1977, before the 208 Plan Committee of the Maricopa Association of Governments, also known as "MAG." This committee was charged with the responsibilities of evaluating a number of alternate plans for wastewater management in the greater Phoenix metropolitan area pursuant to Section 208 of the Water Pollution Control Act Amendments of 1972 and recommending to MAG a preferred plan. In this connection, I was invited to the meeting to inform the committee respecting the effluent requirements not only for Palo Verde Units 1, 2 and 3, but Palo Verde Units 4 and 5 as well.

6. In the course of such presentation, as shown on pages 6, 7 and 8 of the Effluent Document, I stated that our best estimate of the effluent requirements of each of the Palo Verde units was about 21,000 acre-feet per year. This estimate is the same as the estimates (21,350 acre-feet/year/unit) used in the environmental analyses performed for the construction of Palo

Verde Units 4 and 5[1/] and for the operation of Palo Verde Units 1, 2 and 3[2/] and for the MAG-208 plan adopted in 1979[3/]. In fact, one of the primary purposes in making the estimate was to permit an evaluation of the environmental impacts resulting from the use of effluent for condenser cooling, including analyses of the effects of diversion of effluent from the Salt and Gila Rivers, the quantities of drift and the effects of cooling tower operations and other related environmental concerns. In light of such purposes, i.e., environmental analyses, it was appropriate to utilize average daily ambient temperatures and humidity levels in developing the estimate (see PVNGS Units 1, 2 and 3 Environmental Report, Table 3.4-3), because the analysis is directed to an evaluation of plant operation over its lifetime. It was also appropriate for such purpose to assume for the analysis a unit operating capacity factor of 95% throughout the year (except an allowance for one-month refueling outages), since that assumption would permit a conservative analysis of environmental impacts

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1/ Palo Verde Nuclear Generating Station Units 4 and 5, Environmental Report - Construction Permit Stage, Section 3.3.1.

2/ Palo Verde Nuclear Generating Station Units 1, 2 and 3, Environmental Report - Operating License Stage, Section 5.6.1.1.

3/ U.S. Environmental Protection Agency, Final Environmental Impact Statement, Maricopa Association of Governments Point Source Metro Phoenix 208 Wastewater Management Plan, page 2-45 (July, 1979).

by months[4/] assuming virtually maximum usage of effluent in each month (e.g., effects of maximum monthly diversions or maximum drift with monthly or seasonal deviations in atmospheric conditions).

7. The assumption and use of a 95% capacity factor, while conservative for purposes of analyses of environmental impacts, would not be considered to be conservative for other purposes. Thus, for example, in its economic cost-benefit evaluation of Palo Verde, the NRC Staff changed from a 95% capacity factor to a 60% capacity factor.

8. Similarly, as I tried to make clear in my presentation to the MAG-208 committee, assumptions to be used in arriving at conservative contractual commitments should be based on estimated peak requirements under adverse conditions. Thus, in determining conservative contractual commitments, it is appropriate to assume that each unit at Palo Verde is operating at its maximum design power capability, and not at a 95% power level. This means that instead of assuming a power level of 3610 MWt, (which is 95% of the requested authorized level of 3800 MWt), it is prudent for contractual purposes to assume that each unit is operating at its maximum design power level of 4100 MWt. This approach would increase the effluent requirement by about 13.5% ((4100 MWt - 3610 MWt) ÷ 3610 MWt). In addition, instead of using average

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4/ See U.S. Nuclear Regulatory Commission, Draft Environmental Statement related to the construction of Palo Verde Nuclear Generating Station Units 4 and 5, Table 5.1, page 5-2 (April 1979).

daily ambient temperature and humidity levels, it is prudent for contractual purposes to assume maximum temperature and minimum humidity levels for the worst month.

9. As set forth at Table 1, page 5-2, of the Draft Environmental Statement for Palo Verde Units 4 and 5, the total consumptive water losses from the cooling tower system for one unit operating at 95% power level under average atmospheric conditions during the month of June amount to 16,259 gal./min., or 2180 acre-feet for the entire month. If, as discussed in paragraph 8 above, allowances are made for (a) adverse atmospheric conditions for the month of June and (b) a peak power level of 4100 MWt, the resulting effluent requirement is about 2600 acre-feet per month per unit, or 93,600 acre-feet per year for three units.

10. Based on the foregoing considerations, and as documented at page 7 of the Effluent Document, in my presentation to the MAG-208 Committee I stated that "in the average adverse summer months we expect our effluent requirements to peak at about 2600 A-F/unit. . . . Thus, we see a need to secure commitments for about 93,600 A-F/year for three units at Palo Verde and 156,000 A-F/year for five units." (Emphasis added.)

11. As I further stated to the MAG-208 Committee, as documented at pages 7 and 8 of the Effluent Document, "I want to stress that irrespective of the contract amounts, actual consumption will be approximately 63,000 A-F for three units and 105,000 A-F for five units."

12. There is, to my knowledge, no "engineering report" or other document on which the statements made at page 7 of the Effluent Document and quoted in paragraph 10 hereof are based. Rather, the figures quoted in those statements relating to desired contractual commitments, namely 2600 acre-feet/unit/month, or 93,000 acre-feet/year for three units, were derived by making the allowances referred to in paragraph 8 hereof to the expected effluent consumption for the month of June of 2180 acre-feet/unit.

Edwin E. Van Brunt

E. E. Van Brunt, Jr.

Subscribed and sworn to before me this 19 day of April, 1982.

Robert K Wall

Notary Public

My commission expires:

Oct 2 1982

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(Palo Verde Nuclear	)	STN 50-530
Generating Station,	)	
Units 1, 2 and 3)	)	
	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of "Joint Applicants' Response to Intervenor's Motion for Order Requiring Admission and Production of Documents Within Ten Days" have been served upon the following listed persons by deposit in the United States mail, properly addressed and with postage prepaid, this 19th day of April, 1982.

Docketing and Service Section
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Chairman, Maricopa County Board of Supervisors
111 South Third Avenue
Phoenix, AZ 85004

Atomic Safety and Licensing Appeal Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Atomic Safety and Licensing Board Panel
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Robert M. Lazo, Esq.
Chairman, Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Richard F. Cole
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dr. Dixon Callahan
Union Carbide Corporation
P.O. Box Y
Oak Ridge, TN 37830

Lee Scott Dewey, Esq.
Office of the Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Edwin J. Reis, Esq.
Office of the Executive Legal Director
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Rand L. Greenfield, Esq.
Assistant Attorney General
P.O. Drawer 1508
Santa Fe, NM 87504

Ms. Patricia Lee Hourihan
6413 S. 26th Street
Phoenix, AZ 85040

Charles A. Bischoff