Arizona Public Service Company
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March 18, 1983
ANPP 23294-ACR/WFQ

Mr. Edward L. Jordan, Director
Division of Emergency Preparedness and
Engineering Response
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: NRC IE Bulletin No. 81-03, Flow Blockage of Cooling Water to Safety Components by CORBICULA sp. (Asiatic Clam) and MYTILUS sp. (Mussel)
File: 83-055-026

Dear Mr. Jordan:

In reference to your letter to Mr. E. E. Van Brunt, Jr., dated December 10, 1982, concerning the above subject, we have reviewed the Palo Verde Nuclear Generating Station (PVNGS) design and have the following comments:

Question 1 (1) Provide complete description of monitoring efforts and inspection programs for determining the presence of CORBICULA sp.

Response: Based on information pertaining to the design and operation of the PVNGS Water Reclamation Facility, we have determined that infestation of the storage reservoir and the plant cooling water systems with CORBICULA sp. has been precluded. Therefore, no monitoring effort or inspection program to determine the presence of CORBICULA sp. has been or will be, initiated.

A. The PVNGS Water Reclamation Facility receives sewage effluent from the City of Tolleson and from the City of Phoenix by gravity and pump feed through a direct coupled pipeline. This effluent is not allowed to contact any natural or artificial water source(s) which may contain CORBICULA sp.

B. There are essentially five treatment steps applied to the treated sewage influent which individually and collectively work to exclude the propagation of CORBICULA sp. from the storage water reservoir. These steps are:

1. Trickling filter
2. Elevated pH primary sedimentation
3. Elevated but shock reduced pH
4. Chlorination and pH depression
5. Granular media filtration

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To the best of our knowledge, no power plant has ever experienced CORBICULA sp. following granular media filtration of the type installed at the PVNGS Water Reclamation Facility, providing the filtrate is not used for recreational purposes or that it does not contact any populations of CORBICULA sp.

C. The PVNGS storage water facility is not utilized for recreational activities, it and its effluent does not contact any populations of CORBICULA sp.

D. The two stage sewage water pretreatment clarification practiced at PVNGS Water Reclamation Facility should preclude proliferation of CORBICULAR sp. Due to the high pH value of the alkali treated sewage water coupled with the even higher pH value proximal to the settled sledge. The lowest pH value which would be predicted in the primary clarification stage is a pH of 11, while the lowest pH value predicted in the secondary clarification stage is a pH of 9.5. Any CORBICULA sp. larvae introduced to the storage reservoir would be incapable of growing to the adult stage as a result of this elevated pH. As a result, the adult organism will not develop, and the resulting associated debris will not be present in any PVNGS water systems.

Question 1 (4b) Additional information is necessary to clarify conclusion that utilization of sewage effluent as the cooling source removes possibility of intrusion; such as:

1) a description of the exact mechanism whereby Palo Verde is connected to the sewage effluent,

Response: See 1A above.

2) whether or not this effluent is exposed to any natural water systems which may have a resident CORBICULA sp. population,

Response: See 1A and 1C above.

3) what type of treatment is applied to the sewage water that would ensure removal of any CORBICULA sp. larvae or shell debris,

Response: See 1B and 1D above.

4) whether or not this effluent passes through any ponds or canals which may be susceptible to colonization.

Response: See 1A above.

As described in item 1; an environmental monitoring program has not and will not be undertaken. The sewage treatment process precludes infestation of the PVNGS water storage facility with CORBICULA sp. Further, it is not considered

necessary to inspect systems currently filled at PVNGS as the water utilized was obtained from deep wells on the PVNGS site.

If you have any further questions or require additional information, please contact us.

Very truly yours,

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

EEVBJr/WFQ/sp

cc: E. Licitra
Director, Office of Nuclear Reactor Regulation
Director, Office of Inspection and Enforcement
NRC Resident Inspector - PVNGS
U. S. Nuclear Regulatory Commission
Regional Administrator, Region V

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

Edwin E. Van Brunt, Jr.

Sworn to before me this 18th day of March, 1983.

David L. Graham

Notary Public

My Commission expires:

My Commission Expires May 19, 1986