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RE: Docket Nos. STN-50-528/529/530 NRC Comments on the Construction-Phase Groundwater and Ecological Monitoring Programs for the Palo Verde Nuclear Generating Station

Dear Dr. Gilbert:

In your telephone conversation of May 10, 1976, you stated that the Staff had the following comments on the referenced monitoring programs:

- 1. The groundwater monitoring program should include sulfates in the list of chemical parameters to be monitored shown in Table 2.
- 2. The groundwater monitoring program should include additional monitoring points at the 910 foot contour near the northeast portion of the site and at the 890 foot contour near the southwest corner of the site.
- 3. The ecological monitoring program's description of a general ecological field survey under "Field Surveys" on page 3 is not specific nor sufficient information for staff
 review. A clarification of what is intended should include a listing or discussion of the parameters to be surveyed, the frequency of sampling and a brief description of the methods to be used.

We have discussed these comments with Dr. Ron Zussman, Argonne National Laboratory via telephone on May 14, 1976. Based upon these telephone conversations, we offer the following replies to your comments:

1. We will include sulfates in the water quality parameters to be analyzed.

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ANPP participants: Arizona Public Service Company • Tucson Gas & Electric Company • Salt River Project Arizona Electric Power Cooperative, Inc. • Public Service Company of New Mexico • El Paso Electric Company



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Dr. Robert A. Gilbert Project Manager ANPP-4517 May 17, 1976 Page 2

- 2. The suggestion for additional monitoring points is to ensure an adequate data base for comparison with water quality after PVNGS is operational. We propose to do this by sampling four additional, existing wells: two near the 910 foot contour just south of the storage reservoir location, and two wells near the 890 foot contour at the south and southwest part of the site. Water level has been measured in these wells previously, water quality samples will be taken within the next two months and again during the winter months to establish a data base. This procedure is agreeable to Dr. Zussman.
- 3. Our reply to this comment is enclosed as three additional pages to the Construction-Phase Ecological Monitoring Program submitted on April 5, 1976. Please substitute the enclosed pages 3, 4 and 5 for these pages of the existing program, and add Table 1 to the existing program, 10 copies of which are now in your possession.

Very truly yours,

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

EEVBJr/JRM:skc

Enclosures

cc: A. C. Gehr

B. Norton

W. M. Petro

Admin. Committee

W. H. Wilson w/enclosure

C. G. Mattsson w/enclosure

T. Hudgins w/enclosure

J. M. Allen



Construction-Phase Slogical Monitoring Program Page 3

FIELD SURVEYS

Ecological field surveys will be conducted in order to (1) provide ground verification of photo-interpretation studies, (2) identify ecological impacts which are imminent or which have occurred and can be mitigated, and (3) document the actual ecological impacts of construction activity. Table 1 lists the major characteristics to be analyzed, the frequency of observation, and explains the rationale for including the specific characteristics.

Also included in the survey will be a check on the condition of the salt monitoring study plots which have already been established. These fenced plots will remain as undisturbed as possible during construction activity. Due to the many environmental protection controls which APS has committed to, including constructing sediment basins to trap sediment from worksite run-off and implementing a comprehensive environmental control program (see below), no major ecological problems are anticipated.

The surveys will be made by trained plant and animal ecologists who are familiar with the desert ecosystem at PVNGS and with the construction plans, and by the Site Advisor for the General Environment (SAGE). Not included in Table 1 are the ecological characteristics to be evaluated with respect to the transmission and water pipeline corridors, or to the pre-operational monitoring studies noted in Table 6.3 of the FES. The latter program will become a part of the technical specification of the Operation License as stated in Section 6.1.3.3. of the FES.

AERIAL RECONNAISSANCE SURVEYS

In order to help document ecological impacts of construction and to obtain information useful in making mitigation suggestions, aerial photography (1" - 2,000') will be flown and interpreted before and after major construction activities, at least once per year. The aerial reconnaissance surveys will provide a regional overview of the impacts of construction activities on and near the PVNGS site.



Construction-Phase A. logical Monitoring Program Page 4

The photography will be interpreted immediately after it is developed and printed in order to aid in developing mitigation plans which will be responsive to actual environmental conditions at the site. The number of acres disturbed and levels of disturbance will be identified and evaluated.

CONSTRUCTION-PHASE ENVIRONMENTAL CONTROL PROGRAM

As required by the FES, Summary and Conclusions, Paragraph 7.b, a control program including written procedures and instructions to control all construction activities has been developed. It provides for periodic management audits to determine the adequacy of implementation of environmental requirements. Sufficient records to furnish evidence of compliance with all FES commitments will be maintained. Many of these control programs are ecological in nature; e.g., stockpiling topsoil, safe disposal of chemicals and wastewater, and recycling organic materials to the soil.

SALT MONITORING STUDY PLOTS

The FES requires the establishment of additional soil and biotic sampling stations which will not be disturbed by construction activities. These plots "are to be used as reference plots for future studies concerned with cooling-tower drift salt deposition", (page 6-5). Six plots have been established (see Figure 1). Descriptions of these plots are as follows:

Plot #1 - 100 meters x 100 meters. Creosotebush Cacti Hill and Bajada. Contains Barrel and Hedgehog Cacti.

- Plot #2 200 meters x 100 meters. Saltbush Plant merging into Creosotebush Plain. Contains a small wash.
- Plot #3 100 meters x 100 meters. Creosotebush Plain with Cholla and scattered Mesquite trees along a small wash.



- Plot #4 100 meters x 100 meters. Creosotebush Plain-Bajada with many Cacti including Cholla, Barrel and Hedgehog.
- Plot #5 100 meters x 100 meters. Mesquite Wash with Saltbush. Very dense, although recent fire has cleared out some undergrowth. Part of plot goes into adjacent old field.

Plot #6 - 100 meters x 100 meters. Creosotebush Cacti Hill with Hedgehog and Cholla.

The criteria used in selection of these plots were:

- a. Predicated salt isopleths of on-site solids ground deposition and total and annual mean airborne concentrations of dry salt particles from round multifan cooling towers, based on a 0.01% drift rate.
- b. Existing vegetation types.

A wide diversity of habitat types were selected which are not anticipated to be directly disturbed by construction activities. The three northern plots are expected to receive the heaviest salt deposition of up to 12 lbs/acre-year; and the three southern plots, only 2 lbs/acre-year.



TABLE 1



AT AND IN THE GENERAL REGION OF THE PVNGS SITE

Day-to-day observation of these items will be done by the Site Advisor for the General Environment and his staff. Semi-annual observations will be made by trained ecologists.

Observation

- Habitat Alteration, for example:
 - a. Status of existing drainage courses,
 particularly East and Winter's Wash and location of new drainage courses.
 - b. Amount and kind of habitat disturbed, including accumulative amount of habitat lost and any habitat lost due to construction equipment and vehicles outside of designated work areas.
 - c. Apparent amount of soil erosion.
 - d. New species habitat formation.
- Revegetation Practices -How and where they are being carried out.
- Presence of any rare, endangered, threatened, or state-protected fauna*.

Rationale

Habitat alteration will be the major detectable impact.

Alteration of East Wash course represents a major habitat modification.

According to FES, an upper limit of 2,500 acres is to be cleared at PVNGS.

Soil conservation practices can result in preventing the loss of valuable seed reserves and growth media and can prevent soil sedimentation.

Creation of new habitat, including shallow pools of water could result in the use of the site by new species. In certain cases, control measures are practical.

Properly carried out revegetation efforts can be an important mitigative action for the original vegetation lost.

In certain instances, for example with Gila monsters and desert tortoises, special mitigative measures can be developed to protect these species to insure that they are disturbed as little as possible.

*All state-protected plants on the PVNGS site will be transplanted or otherwise protected prior to construction.

