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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of
ARIZONA PUBLIC SERVICE
COMPANY, et al.
Palo Verde Nuclear Generating
Station, Units 4 & 5



FIRST SET OF INTERROGATORIES AND REQUESTS
FOR PRODUCTION OF DOCUMENTS FROM JOINT APPLICANTS
TO LARRY BARD

Under authority of 10 C.F.R. §§2.740b, 2.741,
Joint Applicants ARIZONA PUBLIC SERVICE COMPANY, et al.
hereby propound the following Interrogatories and Requests
for Production of Documents to Intervenor Larry Bard.

INSTRUCTIONS

1. Each Interrogatory must be answered separately and
fully in writing under oath or affirmation by the person or
persons making them within 14 days from the date of service,
and each document requested must be produced no later than
30 days after service of these Interrogatories and Requests
for Production.

2. All information is to be divulged which is in the
possession of Intervenor or any witnesses, investigators,
agents, or other representatives of Intervenor.

3. Where the terms "you", "your", or "Intervenor" are used, they are meant to include every individual who is a prospective witness to be called at hearings in this matter or any other individual acting through any of the Intervenor's authorized agents, employees, investigators, attorneys, or other representatives and those interrogatories should be answered by those respective persons or their duly authorized agents or representatives.

4. If any of the information sought is unknown to Intervenor or his agents, representatives, prospective witnesses, attorneys, or investigators, then, in addition to stating that fact, Joint Applicants demand that the name or other means of establishing the identity, present or last known residence, and the present or last known place of employment of each such person known or believed to have such information be set forth.

5. These Interrogatories shall be deemed continuing, so as to require additional answers if after answering such Interrogatories Intervenor obtains information upon the basis of which he knows a response was incorrect when made, or he knows that the response though correct when made is no longer true and the circumstances are such that a failure to amend the response is in substance a knowing concealment.

6. In his answer, Intervenor is to repeat each Interrogatory set forth herein and then set forth the answer thereto separately and fully. As to any Interrogatory, section or subsection of said Interrogatory that he refuses to answer for any reason, Intervenor is to separately state the grounds for any such refusal. Where a complete answer to a particular Interrogatory, section or subsection of said Interrogatory is not possible, such Interrogatory, section or subsection of said Interrogatory should be answered to the extent possible and a statement made indicating the reason for the partial answer.

INTERROGATORIES

General

1. State your full name.
2. State your educational background.
3. List each college or university you have attended and the dates of attendance.
4. List each major and minor course of study you have embarked upon at any college or university and your present major and minor, if applicable.
5. List each course you have taken in the fields of science, engineering, nuclear reactor safety, environment,

economics and the like, which are or may be related to the subject matter of this proceeding.

6. For each course listed in response to the preceding question, please state your final grade and the textbook(s) and other secondary sources, if any, used in each course and the authors thereof.

Contention 1

7. State each and every fact, in detail, upon which you base your contention that Joint Applicants have failed to show that adequate measures will be taken to prevent seepage into the perched water zone under the Palo Verde site. Identify and produce all studies and documents which support your answer.

8. Describe in detail the perched water zone, including its location, as you use it in Contention No. 1. Identify the source for your description.

9. Describe in detail your understanding of the design of the evaporation ponds at the Palo Verde site. Identify the source for your description.

10. Describe in detail the groundwater table as you use it in Contention No. 1. Identify the source for your answer.

11. Describe in detail your understanding of the measures contemplated by the Joint Applicants in order to prevent seepage into the perched water zone by contaminants leached from the evaporation ponds. Identify the source for your answer.

12. Describe in detail the physical mechanism by which contaminants would be leached from the evaporation ponds and seep into the perched water zone and from there to the groundwater table. Specify the time which would elapse for the contaminants to reach the groundwater table after they first enter the ponds. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

13. Identify each contaminant which you contend will be discharged to the evaporation ponds and for each one specify the annual quantity which will be so discharged based on operation of all five units. Identify the source for your answer.

14. Identify each contaminant which you contend will be leached from the evaporation ponds on the Palo Verde site

and which you contend will seep into the perched water zone and from there to the groundwater table. Identify the source for your answer.

15. For each contaminant identified in the response to Interrogatory No. 14, specify for each year from 1983 through 2020 the annual quantity of the contaminant which will seep into the perched water zone and from there to the groundwater table. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

16. Identify those measures described in response to Interrogatory No. 11 which you consider to be inadequate. Discuss in detail the basis for your contention that each such measure is inadequate. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

17. State specifically and in detail each and every measure of preventing seepage into the perched water zone and from there to the groundwater table of contaminants leached from the evaporation ponds which would be acceptable to you. Specify the cost involved with implementing each such measure. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

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18. Describe in detail your understanding of the solid waste disposal area on site. Identify the source for your answer.

19. Describe in detail your understanding of the measures contemplated by the Joint Applicants in order to prevent seepage into the perched water zone of solid waste materials buried on site. Identify the source for your answer.

20. Describe in detail the physical mechanism by which solid waste materials buried on site will seep into the perched water zone and from there to the groundwater table. Specify the time which would elapse for the solid wastes to reach the groundwater table after they are first buried on site. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

21. Identify each solid waste product which you contend will be buried on site and for each one specify the annual quantity which will be so buried based on operation of all five units. Identify the source for your answer.

22. Identify each solid waste product which you contend will seep into the perched water zone and from there to the groundwater table. Identify the source for your answer.

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23. For each solid waste product identified in the response to Interrogatory No. 22, specify for each year from 1983 through 2020 the annual quantity of the solid waste product which will seep into the perched water zone and from there to the groundwater table. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

24. Identify those measures described in response to Interrogatory No. 19 which you consider to be inadequate. Discuss in detail the basis for your contention that each such measure is inadequate. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

25. State specifically and in detail each and every measure of preventing seepage into the perched water zone and from there to the groundwater table of solid waste products buried in the waste disposal area which would be acceptable to you. Specify the cost involved with implementing each such measure. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

Contention 2

26. State each and every fact, in detail, upon which you base your contention that Joint Applicants have failed to

demonstrate that sufficient water will be available to cool Palo Verde Units 4 & 5 from the 91st Avenue Sewage Treatment Plant. Identify and produce all studies and documents which support your answer.

27. Describe in detail your understanding of the assumptions, and bases therefor, used by the Joint Applicants with regard to increases in population. Identify the source for your answer.

28. For each assumption listed in the answer to Interrogatory No. 27, state whether you consider the assumption to be realistic and if not describe in detail why you think it is unrealistic. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

29. Describe in detail your understanding of the assumptions, and bases therefor, used by the Joint Applicants with regard to increases in per capita water usage. Identify the source for your answer.

30. For each assumption listed in the answer to Interrogatory No. 29, state whether you consider the assumption to be realistic and if not describe in detail why you think it is unrealistic. Identify and produce all studies and

documents which you performed or relied upon in responding to this interrogatory.

31. State whether it is your understanding that the only wastewater effluent to which the Joint Applicants are entitled is that which is processed at the 91st Avenue Sewage Treatment Plant. Identify the source for your answer.

32. State your understanding respecting how much water is required on an annual basis for cooling Palo Verde Units 4 & 5. Identify the source for your answer. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

33. Provide population projections which you consider to be realistic for the Phoenix metropolitan area for each 10-year period through the year 2020. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

34. Provide per capita water usage projections which you consider to be realistic for each 10-year period through the year 2020. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

35. State how much wastewater effluent you believe will be available on an annual basis for cooling Palo Verde Units 4 & 5 from the 91st Avenue Sewage Treatment Plant through the year 2020. Identify the source for your answer. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

Contention 3

36. State each and every fact, in detail, upon which you base your contention that Joint Applicants have failed to evaluate adequately alternative sources of cooling water for Palo Verde Units 4 & 5. Identify and produce all studies and documents which support your answer.

37. Define the term "cost-benefit basis" as you use it in your contention. Identify the source of your definition.

38. Describe in detail the deficiencies which you consider to exist in Joint Applicants' analysis of the use of groundwater, irrigation and drainage water, and Central Arizona Project water as alternative sources of cooling water. Describe in detail, including a listing of the factors to be considered, the additional analysis required beyond that provided in Section 10.2 of the Palo Verde Units 4 & 5 Environmental Report, Construction Permit Stage, in order

for the evaluation of alternatives presented therein to be acceptable to you. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

39. State whether it is your position that the use of groundwater is a superior alternative to wastewater effluent for cooling Palo Verde Units 4 & 5. If such is your position, specify the benefits and costs associated with the use of groundwater compared to the use of wastewater effluent. State in detail where such groundwater is available in sufficient quantities to cool Palo Verde Units 4 and 5. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

40. Define the term "irrigation and drainage water" as used in your contention. Identify the source for your definition.

41. State whether it is your position that the use of irrigation and drainage water is a superior alternative to wastewater effluent for cooling Palo Verde Units 4 & 5. If such is your position, specify the benefits and costs associated with the use of irrigation and drainage water compared to the use of wastewater effluent. State in detail where such irrigation and drainage water is available in

sufficient quantities to cool Palo Verde Units 4 and 5. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

42. State whether it is your position that the use of Central Arizona Project water is a superior alternative to wastewater effluent for cooling Palo Verde Units 4 and 5. If such is your position, specify the benefits and costs associated with the use of Central Arizona Project water compared to the use of wastewater effluent. State whether it is your position that sufficient Central Arizona Project water is available to cool Palo Verde Units 4 & 5. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

Contention 4

43. State each and every fact, in detail, upon which you base your contention that Arizona Public Service Company (APS) has not demonstrated that it is financially qualified to design and construct Palo Verde Units 4 & 5. Identify and produce all studies and documents which support your answer.

44. State your estimate of the cost to design and construct Palo Verde Units 4 & 5. State the portion of this cost which will be paid for by APS. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

45. State each and every fact, in detail, upon which you base your contention that APS does not have adequate funds at present to pay for its portion of the cost to design and construct Palo Verde Units 4 & 5. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

46. State each and every fact, in detail, upon which you base your contention that APS has not demonstrated reasonable assurance of its ability to obtain the funds necessary to pay for its percentage interest in Palo Verde Units 4 & 5. Identify and produce all studies and documents which you performed or relied upon in responding to this interrogatory.

Witnesses

47. As respects your answers to Interrogatories Nos. 7 through 46, please state:

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(a) The name, occupation, address, and telephone number of each person who will be called as a witness to testify as to the facts set forth in those answers, identifying which facts each person will be testifying to.

(b) The field or science in which each such person is sufficiently schooled to enable them to express opinion evidence in this matter, if any.

(c) Whether such witness will base his opinion:

(i) in whole or in part upon facts acquired personally by that person in the course of an investigation or examination as to the facts; or

(ii) solely upon information provided that person by others.

(d) The qualifications of each such person that would render that person, if possible, as an expert witness.

(e) If any such witness has made a personal investigation or examination relating to any of the facts or bases set forth in the answers to Interro-

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gatories Nos. 7 through 46, state the date(s) and nature of each such investigation or examination.

(f) Each and every fact, and each and every document, photograph, report, item, or other tangible object supplied or made available to each such person.

(g) Whether each such person has rendered written reports, regarding facts, bases, or opinions as respects your contentions referred to in Interrogatories Nos. 7 through 46. If so, state:

(i) the date(s) of each such report;

(ii) the name and address of the custodian of each such report.

48. List each expert witness you will call to testify in this matter.

(a) If not previously given in answers to these interrogatories, give the occupation, address, telephone number, educational background and experience (as it may relate to each such person's field of expertise, if any) of each expert witness.

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(b) State the subject matter on which each such expert is expected to testify.

(c) State the facts to which each such expert is expected to testify.

(d) State each opinion, if any, which each such expert is expected to express in testimony.

(e) Give a detailed summary of the grounds for each opinion expressed by each such expert.

Exhibits

49. Identify, with specificity, each and every exhibit you intend to use in this matter. As to each such exhibit, state which facts, opinions, or contentions the exhibit supports, if any.

50. With reference to the exhibits listed in the preceding interrogatory, state the source and nature of the exhibit, i.e., whether said exhibit is documentary, a picture, or whatever; who prepared each exhibit; its date of preparation; and, who has custody of each exhibit.

DATED this 21st day of May, 1979.

SNELL & WILMER

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION



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ARIZONA PUBLIC SERVICE)
COMPANY, ET AL.)
Palo Verde Nuclear Generating)
Station, Units 4 & 5)

Docket Nos. STN 50-592
STN 50-593

CERTIFICATE OF SERVICE

I hereby certify that the foregoing document has been served upon the following listed persons by deposit in the United States mail, properly addressed and with postage prepaid.

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POOR ORIGINAL

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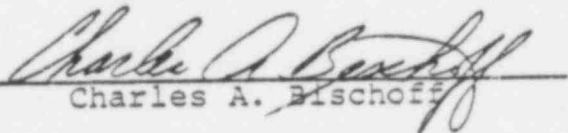
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Dated: May 21, 1979