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 STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Public 05000530  
 STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Public 05000531  
 AUTH. NAME: AUTHOR AFFILIATION  
 BISCHOFF, C.A. Arizona Public Service Co.  
 BISCHOFF, C.A. Snell & Wilmer  
 RECIP. NAME: RECIPIENT AFFILIATION  
 HOURIHAN, P.L. Affiliation Unknown

SUBJECT: Second set of interrogatories & requests for production of documents directed to intervenor Hourihan. Certificate of Svc encl.

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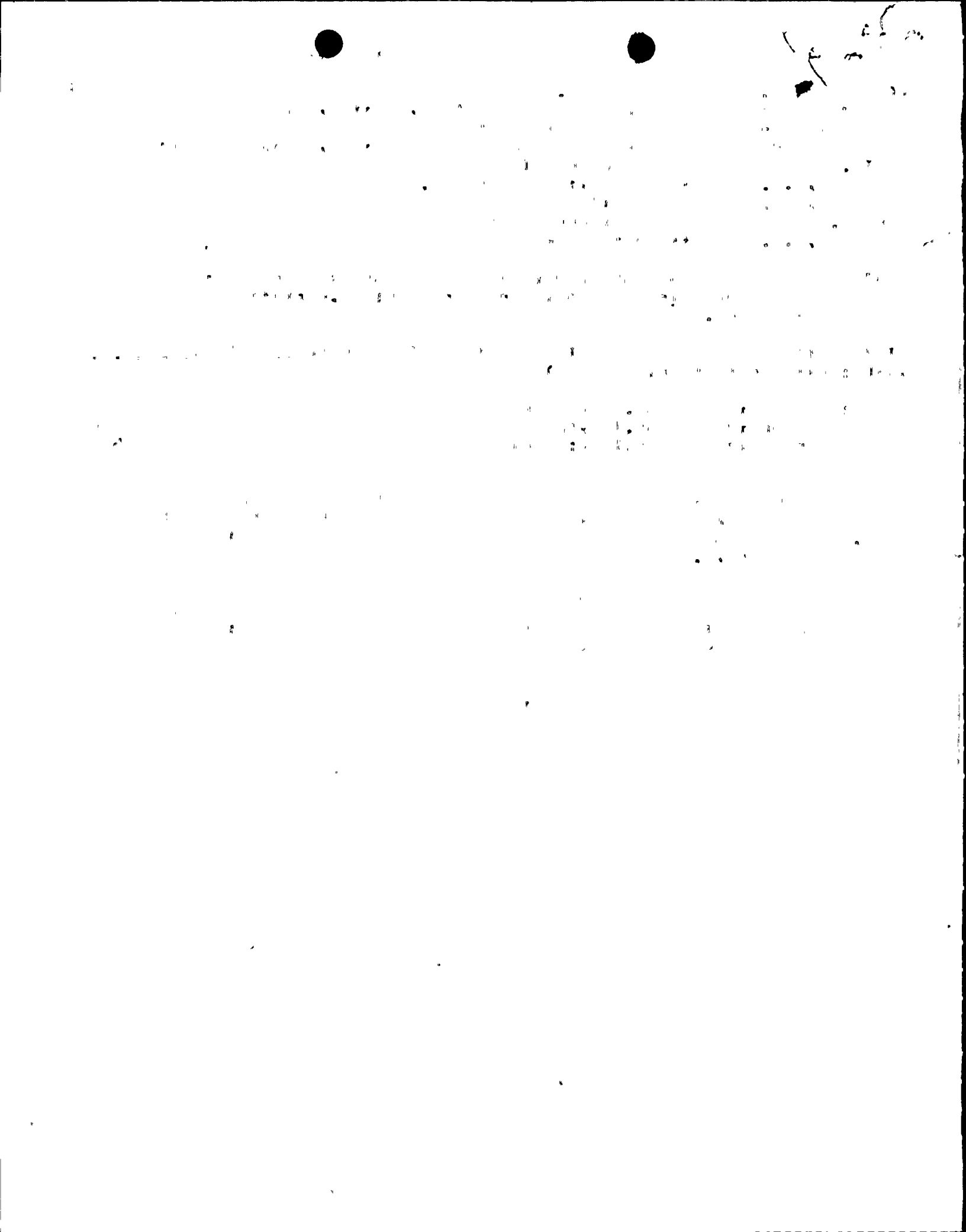
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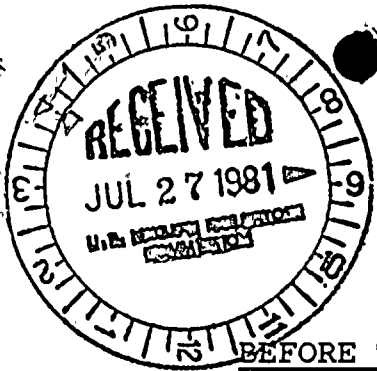
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	OELD, BLANTON	1 1	OCC	1 1
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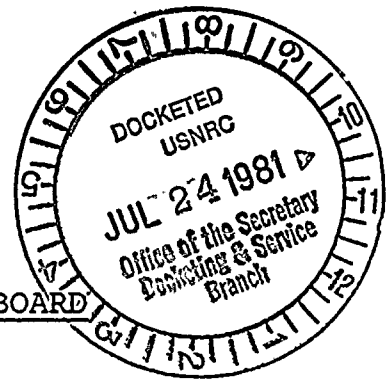
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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION



BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of  
ARIZONA PUBLIC SERVICE  
COMPANY, et al.

Dockets Nos. STN 50-528  
STN 50-529  
STN 50-530

Palo Verde Nuclear Generating  
Station, Units 1, 2 and 3

7/21/81

JOINT APPLICANTS' SECOND SET OF  
INTERROGATORIES AND REQUESTS FOR  
PRODUCTION OF DOCUMENTS TO INTERVENOR

Pursuant to 10 CFR §§ 2.740b-2.741, and the understanding between Joint Applicants and Intervenor, Joint Applicants hereby propound the following Interrogatories and Requests for Production of Documents to Intervenor.

I

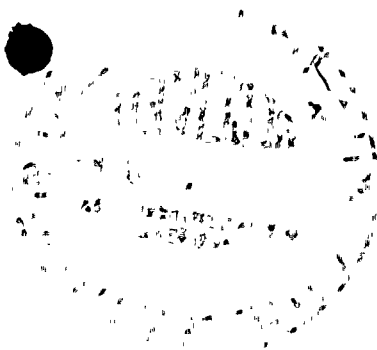
INSTRUCTIONS

1. Each Interrogatory must be answered separately and fully in writing under oath or affirmation by the person or persons making them no later than August 20, 1981, 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, her attorney, investigators,

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agents, employees or other representatives of Intervenor and her attorney.

3. Where an individual Interrogatory calls for an answer which involves more than one part, each part of the answer should be clearly set out so that it is understandable.

4. These Interrogatories are intended as continuing Interrogatories, requiring you to supplement your answers pursuant to 10 CFR § 2.740(e).

## II

### DEFINITIONS

1. "First Set of Interrogatories" shall mean "Joint Applicants' First Set of Interrogatories and Requests for Production of Documents to Intervenor," dated May 22, 1981.

2. "Intervenor's Answers" refers to "Intervenor's Answers to Applicants' First Set of Interrogatories," dated June 26, 1981.

3. "Intervenor's Answer to Interrogatory No." refers to the Answer to the identified Interrogatory as found in Intervenor's Answers to Applicants' First Set of Interrogatories, dated June 26, 1981.

4. "Stipulation" shall mean "Stipulation of Parties Regarding Contentions and Discovery," dated December 12, 1980.

100

III

INTERROGATORIES

GENERAL

1. (a) Has Intervenor admitted each statement in Joint Applicants' Request for Admissions by Intervenor dated May 22, 1981?

(b) If the answer to Interrogatory No. 1(a) is no, identify each statement in Joint Applicants' Request for Admissions by Intervenor which Intervenor does not admit.

2. For each statement identified in Interrogatory No. 1(b), give the following information:

(a) The portion of the statement which is not admitted..

(b) The basis of Intervenor's disagreement with the statement.

CONTENTION NO. 1

3. Is the term "transfer factors" as used in the Stipulation at Paragraph 1.a of the Explanation to Contention No. 1 intended by Intervenor to have the same meaning as the term " $f_i$ " as given in the formula at page 3 of Intervenor's Answers.

4. If the answer to Interrogatory No. 3 is yes, identify where in Regulatory Guide 1.109 such transfer factors are presented.





5. If the answer to Interrogatory No. 3 is no, does the formula quoted at page 3 of Intervenor's Answers contain a term or terms which are "transfer factors" as used in the Stipulation at Paragraph 1.a of the Explanation to Contention No. 1?

6. If the answer to Interrogatory No. 5 is yes, please identify the term or terms and identify where in Regulatory Guide 1.109 such transfer factors are presented.

7. With reference to Paragraph 1.a of the Explanation to Contention No. 1, identify, by specific references to Regulatory Guide 1.109, those "transfer factors" in Regulatory Guide 1.109 currently known to Intervenor or currently claimed by Intervenor to be "lower than or at the low end of the values expressed in the scientific literature."

8. For each transfer factor identified in the answer to Interrogatory No. 7, identify the references in the scientific literature which support your claim.

9. For each transfer factor identified in response to Interrogatory No. 7, specify the value which you consider acceptable for use in predicting nuclide transfer to humans. Explain the basis for your answer.

10. With reference to the statement in Intervenor's Answer to Interrogatory No. 6 that "there is no assurance that pre-operational meteorological conditions will mirror those during operation," identify the degree and probability of variation from the five-year pre-operational



baseline meteorological conditions Intervenor would expect during operation. Identify what portion of the "under-estimate [of] dose equivalents to the populations by factors ranging from 10 to 10,000 per Unit" (refer to Stipulation, Appendix A, at page A-1) would be attributable to such variation.

11. With reference to Interrogatory No. 10, is it Intervenor's position that such variation will always result in an underestimate of dose? If your answer is yes, please provide the scientific basis for your position.

12. With reference to Intervenor's Answer to Interrogatory No. 6, identify the information in Regulatory Guide 1.109 for predicting individual doses from various routine reactor emissions which is currently known to Intervenor or currently claimed by Intervenor to be based on "educated calculations and speculative assumptions."

13. With reference to Intervenor's Answer to Interrogatory No. 6, identify the "parameters that determine dose from routine reactor emissions" which Intervenor currently claims "can only be estimated absent site-specific values."

14. With reference to Intervenor's Answer to Interrogatory No. 8, explain the basis for such answer as to such "other data" which is currently known to Intervenor or currently claimed by Intervenor to be inaccurate.

15. With reference to Intervenor's Answer to Interrogatory No. 8, as to "other data" currently known to



Intervenor or currently claimed by Intervenor to be inaccurate, specify the values for such "other data" which you consider to be acceptable for use in calculating dose equivalents to the population. Explain the basis for your answer.

16. With reference to the statement in Intervenor's Answer to Interrogatory No. 11 that "transport [sic] factors" are listed in Regulatory Guide 1.109 "only for stable elements," is it Intervenor's position that transfer factors given for stable elements (e.g., cesium) are not appropriate for specific radioisotopes of those elements (e.g., Cs-134 and/or Cs-137)?

17. If the answer to Interrogatory No. 16 is yes, explain the basis for your answer and provide references to the scientific literature which support such position.

18. With reference to the statement in Intervenor's Interrogatory No. 13 that "the use of a ground-level release model will tend to concentrate gaseous effluent releases in a smaller area nearer the plant, when in reality, such releases from the elevated stacks will disperse over wider areas which may be farther from the plant," is it Intervenor's position that such dispersion of effluents over a wider area will result in concentrations of gaseous effluents in air and vegetation which are higher than those resulting from the assumed ground-level releases?

19. If the answer to Interrogatory No. 18 is yes, please explain the basis for your answer and provide refer-



ences to the scientific literature which support such position.

20. With reference to the statement in Intervenor's Answer to Interrogatory No. 15 that "the most conservative analyses . . . would use models which most accurately reflect reality," is it Intervenor's position that "the most conservative analyses" should not produce results which are overestimates of those expected in reality?

21. With reference to Intervenor's Answer to Interrogatory No. 15 wherein Intervenor refers to a formula in Regulatory Guide 1.109 for calculations of dose from releases of noble gases "from free-standing stacks more than 80 meters high," is it Intervenor's understanding that noble gases are released at PVNGS from a "free-standing stack more than 80 meters high"?

22. If the answer to Interrogatory No. 21 is yes, explain the basis for your understanding.

23. Is your Contention No. 1 based in whole or in part on any type of study, calculation, or analysis performed subsequent to the filing of Contention No. 1 wherein an elevated release model was used? If so:

(a) Describe the nature of the study, calculation, or analysis and describe any documents which discuss or describe the study, calculation, or analysis.

(b) Who performed the study, calculation, or analysis?





(c) Describe in detail the information that was studied, calculated, or analyzed.

(d) What were the results of each study, calculation, or analysis?

CONTENTION NO. 6B

24. Define the term "capacity factor" as used in Intervenor's Answer to Interrogatory No. 40.

25. With reference to Intervenor's Answer to Interrogatory No. 40, describe the "evidence" of a "degradation of CE capacity factors due to steam generator tube denting and leaks," and explain how such evidence contributes to establishing that large reactors manufactured by Combustion Engineering will experience a greater frequency of transients that require "scram" initiation. Provide specific references for such evidence.

26. With reference to Intervenor's Answer to Interrogatory No. 40, identify those factors which Intervenor believes will contribute to a greater frequency of transients that require "scram" initiation or response for large reactors.

27. For each factor identified in the answer to Interrogatory No. 26, explain the basis for your answer.

CONTENTION NO. 7

28. With reference to Intervenor's Answer to Interrogatory No. 53, identify each situation currently known



to Intervenor in which a state regulatory commission concluded that the expenses associated with decommissioning a nuclear power reactor were imprudently incurred.

29. Is it your position that the methodology used by Joint Applicants in estimating decommissioning costs as described in the reports by S. M. Stoller Corporation entitled "Estimated Costs for Decommissioning One of the Palo Verde Nuclear Generating Plants" and "Update of Estimated Costs for Decommissioning One of the Palo Verde Nuclear Generating Station (PVNGS) Units," dated 1975 and October 3, 1979, respectively (copies of these reports have been provided to Intervenor), is inadequate?

30. If the answer to Interrogatory No. 29 is yes, explain in detail what aspect or aspects of the methodology used by Joint Applicants are inadequate. Explain the basis for your answer.

31. State what you consider to be a reasonable estimate of the decommissioning costs for PVNGS. Explain in detail the basis for such estimate.

32. Is the answer to Interrogatory No. 31 based upon any type of study, calculation, or analysis? If so:

(a) Describe the nature of the study, calculation, or analysis and identify any documents which discuss the study, calculation, or analysis.

(b) Who performed the study, calculation, or analysis?



(c) Describe in detail the information that was studied, calculated or analyzed.

(d) What were the results of each study, calculation, or analysis.

33. With reference to Intervenor's Answer to Interrogatory No. 45, provide specific references, including page numbers as appropriate, for the cost estimate presented before the Pennsylvania Public Utility Commission concerning TMI Unit 1 and for the study prepared by Northeast Utilities on decommissioning costs for Millstone Unit 3.

34. With reference to Intervenor's Answer to Interrogatory No. 45, is it Intervenor's position that costs associated with "surveillance and light maintenance" will be incurred where the method of decommissioning used is immediate dismantlement?

35. If your answer to Interrogatory No. 34 is yes, explain the basis for your answer.

CONTENTION NO. 8

36. With reference to Intervenor's Answer to Interrogatory No. 58, explain in detail how the ambient air temperature and the cement temperature are obtained from the slump measured in a concrete slump test.

37. With reference to Intervenor's Answer to Interrogatory No. 59, explain in detail how the "amount of water and air in the premixed cement" are obtained from the slump measured in a concrete slump test.



38. With reference to Intervenor's Answer to Interrogatory No. 61, describe in detail the relationship between the slump measured in a concrete slump test and the ability of the concrete to meet its designed strength specifications.

WITNESSES

39. As respects your answers to Joint Applicants' First Set of Interrogatories and to Interrogatory Nos. 1 through 38 herein, please state:

(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 Joint Applicants' First Set of Interrogatories and to Interrogatory Nos. 1 through 38 herein, 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 Interrogatory Nos. 1 through 38. If so, state:

(i) the date(s) of each such report;  
(ii) the name and address of the custodian of each such report.

40. 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.

(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.

#### DOCUMENTS AND EXHIBITS

41. For each of Interrogatory Nos. 1 through 38, is your answer based upon one or more documents? If so:

(a) Identify each such document on which your answer is based.

(b) Identify the information in each document on which your answer is based.

(c) Explain how such information provides a basis for your answer.

42. 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.

43. With reference to the exhibits listed in the answer to Interrogatory No. 42, 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.



IV

REQUESTS FOR PRODUCTION OF DOCUMENTS

1. Produce all documents identified in response to Interrogatory No. 41.
2. Produce all exhibits identified in response to Interrogatory No. 42.
3. Produce all studies, calculations or analyses identified in response to Interrogatory Nos. 23 and 32.
4. Produce all documents upon which your expert witnesses will rely in formulating opinion testimony.
5. The documents produced pursuant to paragraphs 1-4 above should be made available for inspection and copying as follows:

DATE: August 20, 1981  
TIME: 10:00 A.M.  
LOCATION: Snell & Wilmer  
3100 Valley Bank Center  
Phoenix, Arizona 85073

RESPECTFULLY SUBMITTED this 21st day of July, 1981.

SNELL & WILMER

By Charles A. Bischoff  
ARTHUR C. GEHR  
CHARLES A. BISCHOFF  
3100 Valley Bank Center  
Phoenix, Arizona 85073  
Attorneys for Joint Applicants



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

I hereby certify that copies of "Joint Applicants' Second Set of Interrogatories and Requests for Production of Documents to Intervenor" have been served upon the following listed persons by deposit in the United States mail, properly addressed and with postage prepaid, this 21st day of July, 1981.

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






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

Robert M. Lazo, Esq.  
Chairman, 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, Tennessee 37830

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

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

  
Charles A. Bischoff

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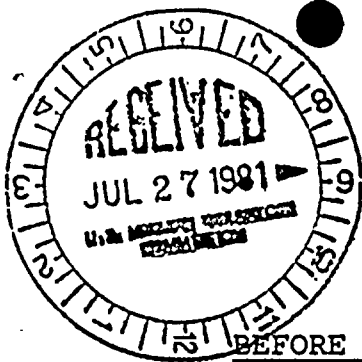
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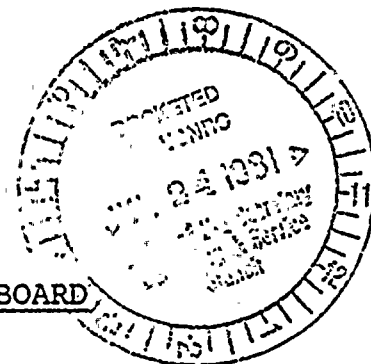
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UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD



In the Matter of  
ARIZONA PUBLIC SERVICE  
COMPANY, et al.

# Palo Verde Nuclear Generating Station, Units 1, 2 and 3

Dockets Nos. STN 50-528  
STN 50-529  
STN 50-530

7/21/51

JOINT APPLICANTS' SECOND SET OF  
INTERROGATORIES AND REQUESTS FOR  
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Pursuant to 10 CFR §§ 2.740b-2.741, and the understanding between Joint Applicants and Intervenor, Joint Applicants hereby propound the following Interrogatories and Requests for Production of Documents to Intervenor.

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## INSTRUCTIONS

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4. "Stipulation" shall mean "Stipulation of Parties Regarding Contentions and Discovery," dated December 12, 1980.





### III

#### INTERROGATORIES

##### GENERAL

1. (a) Has Intervenor admitted each statement in Joint Applicants' Request for Admissions by Intervenor dated May 22, 1981?

(b) If the answer to Interrogatory No. 1(a) is no, identify each statement in Joint Applicants' Request for Admissions by Intervenor which Intervenor does not admit.

2. For each statement identified in Interrogatory No. 1(b), give the following information:

(a) The portion of the statement which is not admitted.

(b) The basis of Intervenor's disagreement with the statement.

##### CONTENTION NO. 1

3. Is the term "transfer factors" as used in the Stipulation at Paragraph 1.a of the Explanation to Contention No. 1 intended by Intervenor to have the same meaning as the term " $f_i$ " as given in the formula at page 3 of Intervenor's Answers.

4. If the answer to Interrogatory No. 3 is yes, identify where in Regulatory Guide 1.109 such transfer factors are presented.



5. If the answer to Interrogatory No. 3 is no, does the formula quoted at page 3 of Intervenor's Answers contain a term or terms which are "transfer factors" as used in the Stipulation at Paragraph 1.a of the Explanation to Contention No. 1?

6. If the answer to Interrogatory No. 5 is yes, please identify the term or terms and identify where in Regulatory Guide 1.109 such transfer factors are presented.

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10. With reference to the statement in Intervenor's Answer to Interrogatory No. 6 that "there is no assurance that pre-operational meteorological conditions will mirror those during operation," identify the degree and probability of variation from the five-year pre-operational



baseline meteorological conditions Intervenor would expect during operation. Identify what portion of the "underestimate [of] dose equivalents to the populations by factors ranging from 10 to 10,000 per Unit" (refer to Stipulation, Appendix A, at page A-1) would be attributable to such variation.

11. With reference to Interrogatory No. 10, is it Intervenor's position that such variation will always result in an underestimate of dose? If your answer is yes, please provide the scientific basis for your position.

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(c) Describe in detail the information that was studied, calculated, or analyzed.

(d) What were the results of each study, calculation, or analysis?

CONTENTION NO. 6B

24. Define the term "capacity factor" as used in Intervenor's Answer to Interrogatory No. 40.

25. With reference to Intervenor's Answer to Interrogatory No. 40, describe the "evidence" of a "degradation of CE capacity factors due to steam generator tube denting and leaks," and explain how such evidence contributes to establishing that large reactors manufactured by Combustion Engineering will experience a greater frequency of transients that require "scram" initiation. Provide specific references for such evidence.

26. With reference to Intervenor's Answer to Interrogatory No. 40, identify those factors which Intervenor believes will contribute to a greater frequency of transients that require "scram" initiation or response for large reactors.

27. For each factor identified in the answer to Interrogatory No. 26, explain the basis for your answer.

CONTENTION NO. 7

28. With reference to Intervenor's Answer to Interrogatory No. 53, identify each situation currently known



to Intervenor in which a state regulatory commission concluded that the expenses associated with decommissioning a nuclear power reactor were imprudently incurred.

29. Is it your position that the methodology used by Joint Applicants in estimating decommissioning costs as described in the reports by S. M. Stoller Corporation entitled "Estimated Costs for Decommissioning One of the Palo Verde Nuclear Generating Plants" and "Update of Estimated Costs for Decommissioning One of the Palo Verde Nuclear Generating Station (PVNGS) Units," dated 1975 and October 3, 1979, respectively (copies of these reports have been provided to Intervenor), is inadequate?

30. If the answer to Interrogatory No. 29 is yes, explain in detail what aspect or aspects of the methodology used by Joint Applicants are inadequate. Explain the basis for your answer.

31. State what you consider to be a reasonable estimate of the decommissioning costs for PVNGS. Explain in detail the basis for such estimate.

32. Is the answer to Interrogatory No. 31 based upon any type of study, calculation, or analysis? If so:

(a) Describe the nature of the study, calculation, or analysis and identify any documents which discuss the study, calculation, or analysis.

(b) Who performed the study, calculation, or analysis?



(c) Describe in detail the information that was studied, calculated or analyzed.

(d) What were the results of each study, calculation, or analysis.

33. With reference to Intervenor's Answer to Interrogatory No. 45, provide specific references, including page numbers as appropriate, for the cost estimate presented before the Pennsylvania Public Utility Commission concerning TMI Unit 1 and for the study prepared by Northeast Utilities on decommissioning costs for Millstone Unit 3.

34. With reference to Intervenor's Answer to Interrogatory No. 45, is it Intervenor's position that costs associated with "surveillance and light maintenance" will be incurred where the method of decommissioning used is immediate dismantlement?

35. If your answer to Interrogatory No. 34 is yes, explain the basis for your answer.

CONTENTION NO. 8

36. With reference to Intervenor's Answer to Interrogatory No. 58, explain in detail how the ambient air temperature and the cement temperature are obtained from the slump measured in a concrete slump test.

37. With reference to Intervenor's Answer to Interrogatory No. 59, explain in detail how the "amount of water and air in the premixed cement" are obtained from the slump measured in a concrete slump test.





38. With reference to Intervenor's Answer to Interrogatory No. 61, describe in detail the relationship between the slump measured in a concrete slump test and the ability of the concrete to meet its designed strength specifications.

WITNESSES

39. As respects your answers to Joint Applicants' First Set of Interrogatories and to Interrogatory Nos. 1 through 38 herein, please state:

(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 Joint Applicants' First Set of Interrogatories and to Interrogatory Nos. 1 through 38 herein, 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 Interrogatory Nos. 1 through 38. If so, state:

- (i) the date(s) of each such report;
- (ii) the name and address of the custodian of each such report.

40. 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.

(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.

DOCUMENTS AND EXHIBITS

41. For each of Interrogatory Nos. 1 through 38, is your answer based upon one or more documents? If so:

(a) Identify each such document on which your answer is based.

(b) Identify the information in each document on which your answer is based.

(c) Explain how such information provides a basis for your answer.

42. 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.

43. With reference to the exhibits listed in the answer to Interrogatory No. 42, 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.



IV

REQUESTS FOR PRODUCTION OF DOCUMENTS

1. Produce all documents identified in response to Interrogatory No. 41.
2. Produce all exhibits identified in response to Interrogatory No. 42.
3. Produce all studies, calculations or analyses identified in response to Interrogatory Nos. 23 and 32.
4. Produce all documents upon which your expert witnesses will rely in formulating opinion testimony.
5. The documents produced pursuant to paragraphs 1-4 above should be made available for inspection and copying as follows:


DATE: August 20, 1981

TIME: 10:00 A.M.

LOCATION: Snell & Wilmer  
3100 Valley Bank Center  
Phoenix, Arizona 85073

RESPECTFULLY SUBMITTED this 21st day of July, 1981.

SNELL & WILMER

By   
ARTHUR C. GEHR  
CHARLES A. BISCHOFF  
3100 Valley Bank Center  
Phoenix, Arizona 85073  
Attorneys for Joint Applicants





UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

CERTIFICATE OF SERVICE

I hereby certify that copies of "Joint Applicants' Second Set of Interrogatories and Requests for Production of Documents to Intervenor" have been served upon the following listed persons by deposit in the United States mail, properly addressed and with postage prepaid, this 21st day of July, 1981.

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

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

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

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



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

Robert M. Lazo, Esq.  
Chairman, 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, Tennessee 37830

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

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

  
Charles A. Bischoff



# REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publ 05000529  
 STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publ 05000530  
 AUTH. NAME:    AUTHOR AFFILIATION  
 BISCHOFF, C.A.    Arizona Public Service. Co.  
 BISCHOFF, C.A.    Snell & Wilmer  
 RECIP. NAME:    RECIPIENT AFFILIATION  
 HOURIHAN, P.L.    Affiliation Unknown.

SUBJECT: Second set of interrogatories & requests for production of documents directed to intervenor Hourihan. Certificate of Svc encl.

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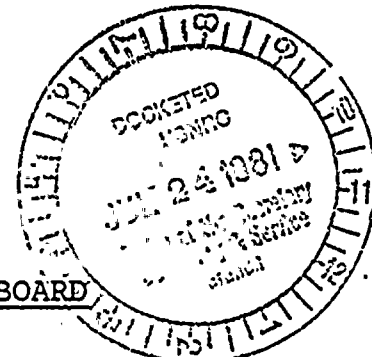
NOTES: Standardized Plant. 1 cy: C. Grimes    05000528  
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26





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 1, 2 and 3 )  
 )

Dockets Nos. STN 50-528  
STN 50-529  
STN 50-530

7/21/81

JOINT APPLICANTS' SECOND SET OF  
INTERROGATORIES AND REQUESTS FOR  
PRODUCTION OF DOCUMENTS TO INTERVENOR

Pursuant to 10 CFR §§ 2.740b-2.741, and the understanding between Joint Applicants and Intervenor, Joint Applicants hereby propound the following Interrogatories and Requests for Production of Documents to Intervenor.

I

INSTRUCTIONS

1. Each Interrogatory must be answered separately and fully in writing under oath or affirmation by the person or persons making them no later than August 20, 1981, 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, her attorney, investigators,

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agents, employees or other representatives of Intervenor and her attorney.

3. Where an individual Interrogatory calls for an answer which involves more than one part, each part of the answer should be clearly set out so that it is understandable.

4. These Interrogatories are intended as continuing Interrogatories, requiring you to supplement your answers pursuant to 10 CFR § 2.740(e).

## II

### DEFINITIONS

1. "First Set of Interrogatories" shall mean "Joint Applicants' First Set of Interrogatories and Requests for Production of Documents to Intervenor," dated May 22, 1981.

2. "Intervenor's Answers" refers to "Intervenor's Answers to Applicants' First Set of Interrogatories," dated June 26, 1981.

3. "Intervenor's Answer to Interrogatory No." refers to the Answer to the identified Interrogatory as found in Intervenor's Answers to Applicants' First Set of Interrogatories, dated June 26, 1981.

4. "Stipulation" shall mean "Stipulation of Parties Regarding Contentions and Discovery," dated December 12, 1980.



### III

#### INTERROGATORIES

##### GENERAL

1. (a) Has Intervenor admitted each statement in Joint Applicants' Request for Admissions by Intervenor dated May 22, 1981?

(b) If the answer to Interrogatory No. 1(a) is no, identify each statement in Joint Applicants' Request for Admissions by Intervenor which Intervenor does not admit.

2. For each statement identified in Interrogatory No. 1(b), give the following information:

(a) The portion of the statement which is not admitted.

(b) The basis of Intervenor's disagreement with the statement.

##### CONTENTION NO. 1

3. Is the term "transfer factors" as used in the Stipulation at Paragraph 1.a of the Explanation to Contention No. 1 intended by Intervenor to have the same meaning as the term " $f_i$ " as given in the formula at page 3 of Intervenor's Answers.

4. If the answer to Interrogatory No. 3 is yes, identify where in Regulatory Guide 1.109 such transfer factors are presented.



5. If the answer to Interrogatory No. 3 is no, does the formula quoted at page 3 of Intervenor's Answers contain a term or terms which are "transfer factors" as used in the Stipulation at Paragraph 1.a of the Explanation to Contention No. 1?

6. If the answer to Interrogatory No. 5 is yes, please identify the term or terms and identify where in Regulatory Guide 1.109 such transfer factors are presented.

7. With reference to Paragraph 1.a of the Explanation to Contention No. 1, identify, by specific references to Regulatory Guide 1.109, those "transfer factors" in Regulatory Guide 1.109 currently known to Intervenor or currently claimed by Intervenor to be "lower than or at the low end of the values expressed in the scientific literature."

8. For each transfer factor identified in the answer to Interrogatory No. 7, identify the references in the scientific literature which support your claim.

9. For each transfer factor identified in response to Interrogatory No. 7, specify the value which you consider acceptable for use in predicting nuclide transfer to humans. Explain the basis for your answer.

10. With reference to the statement in Intervenor's Answer to Interrogatory No. 6 that "there is no assurance that pre-operational meteorological conditions will mirror those during operation," identify the degree and probability of variation from the five-year pre-operational



baseline meteorological conditions Intervenor would expect during operation. Identify what portion of the "underestimate [of] dose equivalents to the populations by factors ranging from 10 to 10,000 per Unit" (refer to Stipulation, Appendix A, at page A-1) would be attributable to such variation.

11. With reference to Interrogatory No. 10, is it Intervenor's position that such variation will always result in an underestimate of dose? If your answer is yes, please provide the scientific basis for your position.

12. With reference to Intervenor's Answer to Interrogatory No. 6, identify the information in Regulatory Guide 1.109 for predicting individual doses from various routine reactor emissions which is currently known to Intervenor or currently claimed by Intervenor to be based on "educated calculations and speculative assumptions."

13. With reference to Intervenor's Answer to Interrogatory No. 6, identify the "parameters that determine dose from routine reactor emissions" which Intervenor currently claims "can only be estimated absent site-specific values."

14. With reference to Intervenor's Answer to Interrogatory No. 8, explain the basis for such answer as to such "other data" which is currently known to Intervenor or currently claimed by Intervenor to be inaccurate.

15. With reference to Intervenor's Answer to Interrogatory No. 8, as to "other data" currently known to





Intervenor or currently claimed by Intervenor to be inaccurate, specify the values for such "other data" which you consider to be acceptable for use in calculating dose equivalents to the population. Explain the basis for your answer.

16. With reference to the statement in Intervenor's Answer to Interrogatory No. 11 that "transport [sic] factors" are listed in Regulatory Guide 1.109 "only for stable elements," is it Intervenor's position that transfer factors given for stable elements (e.g., cesium) are not appropriate for specific radioisotopes of those elements (e.g., Cs-134 and/or Cs-137)?

17. If the answer to Interrogatory No. 16 is yes, explain the basis for your answer and provide references to the scientific literature which support such position.

18. With reference to the statement in Intervenor's Interrogatory No. 13 that "the use of a ground-level release model will tend to concentrate gaseous effluent releases in a smaller area nearer the plant, when in reality, such releases from the elevated stacks will disperse over wider areas which may be farther from the plant," is it Intervenor's position that such dispersion of effluents over a wider area will result in concentrations of gaseous effluents in air and vegetation which are higher than those resulting from the assumed ground-level releases?

19. If the answer to Interrogatory No. 18 is yes, please explain the basis for your answer and provide refer-



ences to the scientific literature which support such position.

20. With reference to the statement in Intervenor's Answer to Interrogatory No. 15 that "the most conservative analyses . . . would use models which most accurately reflect reality," is it Intervenor's position that "the most conservative analyses" should not produce results which are overestimates of those expected in reality?

21. With reference to Intervenor's Answer to Interrogatory No. 15 wherein Intervenor refers to a formula in Regulatory Guide 1.109 for calculations of dose from releases of noble gases "from free-standing stacks more than 80 meters high," is it Intervenor's understanding that noble gases are released at PVNGS from a "free-standing stack more than 80 meters high"?

22. If the answer to Interrogatory No. 21 is yes, explain the basis for your understanding.

23. Is your Contention No. 1 based in whole or in part on any type of study, calculation, or analysis performed subsequent to the filing of Contention No. 1 wherein an elevated release model was used? If so:

(a) Describe the nature of the study, calculation, or analysis and describe any documents which discuss or describe the study, calculation, or analysis.

(b) Who performed the study, calculation, or analysis?



(c) Describe in detail the information that was studied, calculated, or analyzed.

(d) What were the results of each study, calculation, or analysis?

CONTENTION NO. 6B

24. Define the term "capacity factor" as used in Intervenor's Answer to Interrogatory No. 40.

25. With reference to Intervenor's Answer to Interrogatory No. 40, describe the "evidence" of a "degradation of CE capacity factors due to steam generator tube denting and leaks," and explain how such evidence contributes to establishing that large reactors manufactured by Combustion Engineering will experience a greater frequency of transients that require "scram" initiation. Provide specific references for such evidence.

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27. For each factor identified in the answer to Interrogatory No. 26, explain the basis for your answer.

CONTENTION NO. 7

28. With reference to Intervenor's Answer to Interrogatory No. 53, identify each situation currently known



to Intervenor in which a state regulatory commission concluded that the expenses associated with decommissioning a nuclear power reactor were imprudently incurred.

29. Is it your position that the methodology used by Joint Applicants in estimating decommissioning costs as described in the reports by S. M. Stoller Corporation entitled "Estimated Costs for Decommissioning One of the Palo Verde Nuclear Generating Plants" and "Update of Estimated Costs for Decommissioning One of the Palo Verde Nuclear Generating Station (PVNGS) Units," dated 1975 and October 3, 1979, respectively (copies of these reports have been provided to Intervenor), is inadequate?

30. If the answer to Interrogatory No. 29 is yes, explain in detail what aspect or aspects of the methodology used by Joint Applicants are inadequate. Explain the basis for your answer.

31. State what you consider to be a reasonable estimate of the decommissioning costs for PVNGS. Explain in detail the basis for such estimate.

32. Is the answer to Interrogatory No. 31 based upon any type of study, calculation, or analysis? If so:

(a) Describe the nature of the study, calculation, or analysis and identify any documents which discuss the study, calculation, or analysis.

(b) Who performed the study, calculation, or analysis?





(c) Describe in detail the information that was studied, calculated or analyzed.

(d) What were the results of each study, calculation, or analysis.

33. With reference to Intervenor's Answer to Interrogatory No. 45, provide specific references, including page numbers as appropriate, for the cost estimate presented before the Pennsylvania Public Utility Commission concerning TMI Unit 1 and for the study prepared by Northeast Utilities on decommissioning costs for Millstone Unit 3.

34. With reference to Intervenor's Answer to Interrogatory No. 45, is it Intervenor's position that costs associated with "surveillance and light maintenance" will be incurred where the method of decommissioning used is immediate dismantlement?

35. If your answer to Interrogatory No. 34 is yes, explain the basis for your answer.

CONTENTION NO. 8

36. With reference to Intervenor's Answer to Interrogatory No. 58, explain in detail how the ambient air temperature and the cement temperature are obtained from the slump measured in a concrete slump test.

37. With reference to Intervenor's Answer to Interrogatory No. 59, explain in detail how the "amount of water and air in the premixed cement" are obtained from the slump measured in a concrete slump test.



38. With reference to Intervenor's Answer to Interrogatory No. 61, describe in detail the relationship between the slump measured in a concrete slump test and the ability of the concrete to meet its designed strength specifications.

WITNESSES

39. As respects your answers to Joint Applicants' First Set of Interrogatories and to Interrogatory Nos. 1 through 38 herein, please state:

(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.

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(c) Whether such witness will base his opinion:

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(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 Joint Applicants' First Set of Interrogatories and to Interrogatory Nos. 1 through 38 herein, 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 Interrogatory Nos. 1 through 38. If so, state:

- (i) the date(s) of each such report;
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40. 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.

(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.

DOCUMENTS AND EXHIBITS

41. For each of Interrogatory Nos. 1 through 38, is your answer based upon one or more documents? If so:

(a) Identify each such document on which your answer is based.

(b) Identify the information in each document on which your answer is based.

(c) Explain how such information provides a basis for your answer.

42. 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.

43. With reference to the exhibits listed in the answer to Interrogatory No. 42, 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.





IV

REQUESTS FOR PRODUCTION OF DOCUMENTS

1. Produce all documents identified in response to Interrogatory No. 41.
2. Produce all exhibits identified in response to Interrogatory No. 42.
3. Produce all studies, calculations or analyses identified in response to Interrogatory Nos. 23 and 32.
4. Produce all documents upon which your expert witnesses will rely in formulating opinion testimony.
5. The documents produced pursuant to paragraphs 1-4 above should be made available for inspection and copying as follows:

DATE: August 20, 1981


TIME: 10:00 A.M.

LOCATION: Snell & Wilmer  
3100 Valley Bank Center  
Phoenix, Arizona 85073

RESPECTFULLY SUBMITTED this 21st day of July, 1981.

SNELL & WILMER

BY

  
ARTHUR C. GEHR  
CHARLES A. BISCHOFF  
3100 Valley Bank Center  
Phoenix, Arizona 85073  
Attorneys for Joint Applicants

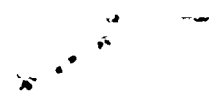


In the Matter of

ARIZONA PUBLIC SERVICE  
COMPANY, et al.

Palo Verde Nuclear Generating  
Station, Units 1, 2 and 3

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



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Charles A. Bischoff

