

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

DOCKETED
USNRC

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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In the Matter of)
ARIZONA PUBLIC SERVICE)
COMPANY, et al.,)
(Palo Verde Nuclear)
Generating Station, Units 1,)
2 and 3))

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

PETITIONER WEST VALLEY AGRICULTURAL PROTECTION
COUNCIL, INC.'S RESPONSE TO NRC STAFF'S
FIRST SET OF INTERROGATORIES

Petitioner West Valley Agricultural Protection Council, Inc. (Petitioner), hereby answers, to the extent not objected to, "NRC Staff's First Set of Interrogatories to West Valley Agricultural Protection Council, Inc." (Interrogatories). In so answering, Petitioner reserves all its objections, not set forth specifically in response to each interrogatory, as to the relevance or materiality of these interrogatories or any part thereof.

The answers to these Interrogatories are based on the best information presently available to Petitioner. Petitioner reserves the right to supplement or amend these answers.

General Objections

Petitioner asserts and incorporates by reference the following general objections to the Interrogatories in each of its responses as though they were set out in full in each response:

DS03

1. Petitioner objects to interrogatories or portions of interrogatories which seek the disclosure of privileged communications or attorney work product.

2. Petitioner objects to interrogatories or portions of interrogatories which seek specific information on the identities and farming activities of West Valley members as overbroad and irrelevant. Such information would be relevant principally to the question of Petitioner's standing. However, the Licensing Board has already noted that Petitioner's standing to participate in this proceeding cannot be disputed. Licensing Board Memorandum and Order of December 30, 1982 at 11. Moreover, Petitioner does not intend to call any West Valley members as witnesses at the hearing scheduled in this matter.

The potential damage that the Palo Verde Nuclear Generating Station can cause must be measured by looking at all agricultural land in the vicinity of the PVNGS, not just the land owned by West Valley members. Information about area farming activities, including all relevant information concerning the crops and acreage of West Valley members, is available in public documents maintained by the State of Arizona and federal agencies and by the farm bureau. Petitioner is currently compiling this information and will make it available to Joint Applicants as soon as it is compiled. As soon as Petitioner identifies the individuals it intends to call as witnesses to verify that information, it will notify Joint Applicants.

3. Petitioner objects to the length of the time period covered in the Interrogatories, which extends beyond any relevant

time period and would require the compilation of answers having no relevance or probative value to the issues in this action.

4. Petitioner generally objects to these Interrogatories as burdensome and oppressive.

5. Petitioner objects to repeating the cross-references from the Contentions contained in the Petition to the factual analysis in its experts' reports since this cross-referencing is done in the affidavit of Kenneth Berlin submitted by Petitioner in support of its Motion to Intervene.

6. Petitioner objects to answering questions about the Contentions listed in the Petition since by stipulation of the parties, those contentions are no longer included in this proceeding.

Definitions

1. As used herein, PVNGS refers to the Palo Verde Nuclear Generating Station.

2. As used herein, Joint Applicants refers to the Arizona Public Service Company and all other entities with an ownership interest in the PVNGS.

3. As used herein, ER-CP refers to the Final Environment Report - Construction Permit prepared for the PVNGS.

4. As used herein, ER-OL refers to the Environmental Report - Operating License prepared for the PVNGS.

5. As used herein, EIS-CP refers to the Final Environmental Statement - Construction Permit prepared for the PVNGS.

6. As used herein, EIS-OL refers to the Final Environmental Statement - Operating License prepared for the PVNGS.

7. As used herein, the Golay Report refers to the report prepared for Petitioner by Professor Michael Golay and attached to the Petitioner's Motion to Intervene in this proceeding.

8. As used herein, the Mulchi Report refers to the report prepared for Petitioner by Professor Charles Mulchi and attached to Petitioner's Motion to Intervene in this proceeding.

9. As used herein, the Davis Report refers to the report prepared for Petitioner by Professor Edward Davis and attached to Petitioner's Motion to Intervene in this proceeding.

10. As used herein, Joint Applicants' Interrogatories refers to Joint Applicants' First Set of Interrogatories to West Valley Agricultural Protection Council, Inc.

Answers and Specific Objections

1. Identify all documentary or other material that you intend to use during this proceeding to support West Valley's Contention(s) and that you may offer as exhibits on these contentions or refer to during your cross-examination of witnesses.

ANSWER: Petitioner is unable to identify at this time all documentary or other material supporting its contentions that it intends to use during this proceeding and may offer as exhibits or refer to during cross-examination.

2. (a) Upon what person or persons do you rely to substantiate in whole or in part West Valley's contention(s)?

(b) Provide the address and education and professional qualifications of any persons named in your response to 2(a) above.

(c) Identify which of the above persons or any other persons you may call as witnesses and identify which portions of each West Valley Contention(s) that each such person will support.

ANSWER: (a) See Petitioner's Response to Joint Applicants' Interrogatories. (Nos. 193 and 199.)

(b) See 2(a) above.

(c) See 2(a) above. Petitioner is unable at this time to identify the precise role each of its experts will play at the hearing.

3. In Section I.B.(iii) of West Valley's intervention petition, it is inferred that the salt deposition increases after six years of operation at the Chalk Point Power Plant were due to cooling tower deterioration. Set out the complete basis on which such statement was made including all technical studies of their occurrence. Provide data from the Chalk Point Plant on changes in power level, intake water salinity, and meteorological conditions. Set out all other factors which West Valley or its consultants believe may have also influenced salt deposition increases at the Chalk Point Plant, and any change in those factors.

ANSWER: See Petitioner's Response to Joint Applicants' Interrogatories (Nos. 42-47.) See also Golay Report and Mulchi Report and references to the Chalk Point studies cited herein.

4. Section I.C.(vi) of West Valley's intervention Petition asserts that the FOG model would be underpredicting the true salt deposition by a factor between ten and seventy. Explain the basis for this statement, including all computations made by West Valley or its consultant in support of the statement. Does the fact that no measurements of salt deposition has been made in a desert climate for circular mechanical draft cooling towers affect your answer? Explain the basis for this conclusion.

ANSWER: See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 48-50 and Nos. 74-76.)

5. In Appendix II.A (P. 14) of Dr. Davis' September 28, 1982 Report attached to West Valley's Petition to Intervenor, he contends that "typical" values of erodibility and high wind speeds are used. Explain how these "typical" values were arrived at and provide the data from which these values were obtained. Also provide the basis for the inherent assumption that these ponds are always dry. Also provide the basis for assuming that drift droplet distributions from the cooling towers can be used for evaporation pond silt. Set out drift droplet distribution and size from evaporation ponds you maintain will be caused by PVNGS, and all calculations and other reasoning leading to such conclusions.

ANSWER: (a) See Petitioner's Response to Joint Applicant's Interrogatories. (No. 178.)

(b) The basis for the assumption that the ponds are always dry is found in ER-CP §3.6.2 and the draft EIS-CP §3.6.5.

(c) This is based on assumed values. See Davis reference C. Cowherd, Jr., C.M. Maxwell, and D.W. Nelson, "Quantification of Dust Entrainment from Paved Roadways," Midwest Research Institute for U.S. Environmental Protection Agency, EPA-450/3-77-027, July 1977.

(d) See Davis Report.

6. Based upon West Valley's presumption that considerable damage may be done to farm land by the operation of Palo Verde cooling towers, evaporation ponds and spray ponds, provide the relative effect (by percentage of overall salt deposition) of each of these facilities upon farms within ten miles of the Palo Verde facility.

ANSWER: See Petitioner's Response to Joint Applicants' Interrogatories (No. 5) and the Davis and Mulchi Reports.

7. In Section III.A.(i) of West Valley's Petition to Intervene it is asserted that the PVNGS region has a history of a large number of small rain events during the summer and these rain events are frequently of such low intensity that it is unlikely that they would remove salts accumulated on crop leaves. a) Explain the basis for the conclusion that it is unlikely rain events would remove salts accumulated on crop leaves and provide all relevant data thereto. b) List all rains, their amount and their duration in the area that might be affected by salt deposition from PVNGS from January 1, 1978, to date. Set out how these matters were determined.

ANSWER: (a) See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 122-124.)

(b) See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (No. 120.) Detailed information is not in Petitioner's possession, but is available in public records. If and when Petitioner compiles the information requested in this Interrogatory, it will make it available to the NRC Staff.

8. In Section III.A.(iii) of West Valley's Petition to Intervention, it is suggested that the very dry environment at PVNGS would create problems similar to those observed at Chalk Point during a drought year. Provide the reasoning and calculations on which the basis for this suggestion is based. Account for the fact that crops near PVNGS are irrigated and the relative humidities are quite different between the two locations, even during drought conditions in the Chalk Point vicinity.

ANSWER: See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 71, 73, 122, 131, 142 and 143.) The Petitioner does not understand the portion of the interrogatory concerning the relative humidities between the two locations, and therefore cannot respond to this portion of the question.

9. Provide the basis, including data, for Dr. Mulchi's statement (p. 15 of Report attached to West Valley Petition) that the Pittsburgh Generating Station experiences climatic conditions which are similar to those at PVNGS and that the damage to native plants near the Pittsburgh Station is expected to show similarities to the cultivated crop damage near PVNGS.

ANSWER: See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (No. 154.) Professor Mulchi's statements are based on personal observation at the site.

10. Provide the basis supporting the claim in West Valley's proposed Contention III.A(ii) in its Intervention Petition that climatic conditions in the PVNGS vicinity are such that deposited salts are dissolved, move, and collect along leaf margins resulting in leaf necrosis. Specify each crop to which this will happen, location of crop by farm, direction, and distance to PVNGS cooling towers, and the amount of acreage of each crop.

ANSWER: (a) See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 131, 133, 135, 137, 157 and 160.)

(b) See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 4 and 5.)

11. In proposed Contention III.B. in West Valley's Intervention Petition, it is stated that the expected salt deposition levels in the areas of PVNGS are likely to cause injury to crops. Identify farm areas having irrigated cotton and other crops grown near PVNGS, expected to be damaged by salt drift. Provide the following for each farm:

(a) location (distance in miles and compass direction) of all cropland, hay and pasture land within 10 miles of the PVNGS cooling towers;

(b) crop, hay and pasture acreage to include amount and type of each crop on each farm identified in (a) for 1978, 1979, 1980, 1981 and 1982.

(c) as to each crop, identify the percentage of crops on each farm which will be 1) lost or, 2) adversely affected and the value connected to such loss or adverse affect by crop and farm.

(d) Set out by farm the profit or loss realized from each of the crops it is claimed would be affected by salt deposition for each year from 1978 through 1982.

ANSWER: (a) and (b) See General Objection 2 to Joint Applicants' Interrogatories. As indicated in that objection, the requested information is available in public records and Petitioner currently does not have this information in its records. Petitioner will make summaries of this information available to the NRC Staff as soon as it is compiled.

(c) See also Petitioner's Response to Joint Applicants' First Set of Interrogatories (No. 163.) Petitioner will supplement this answer after it has an opportunity to review the results of Joint Applicants' crop study and to conduct associated discovery.

(d) Petitioner objects to this interrogatory on the grounds set forth in General Objection 2 and on the grounds that it seeks confidential business information that is not likely to lead to the discovery of relevant or admissible evidence.

12. Regarding West Valley's proposed Contention III.B.(ii), what levels of aerial salt deposition would result in leaf damage and lowered production in cotton plants? Provide all supportive data including studies, computations, and reasoning demonstrating the cause-effect relationship between aerial salt

deposition and reduced cotton production and production of cotton with poor quality fibers.

ANSWER: See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 157-162.) As indicated in those responses, the Petitioner does not possess specific information concerning the levels of aerial salt deposition that would lower production in cotton plants.

13. Identify power plant site(s) in the eastern U.S. referred to in West Valley Proposed Contention C(i) where harm was noted to plants at salt deposition levels of 2-4 lbs/acre/wk. What plants showed injury at these deposition levels? Provide complete citations to all documents supporting your response.

ANSWER: See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 150-153.) See also the Mulchi Report.

14. Provide the basis for concluding in proposed Contention C(ii) of the West Valley Petition to Intervene that salt deposition will be 2-4 lbs/acre/wk near PVNGS. Identify and set out the deposition model, and all other calculations and reasoning used to arrive at these values. Identify 1) acreage, type and location (compass direction and distance from PVNGS cooling towers) of all agricultural land subjected to salt depositions of 2-4 lbs/acre/wk, and 2) the estimated total yearly salt deposition per acre.

ANSWER: The relevant information is derived from the salt deposition model utilized by Professor Davis, a tape of which

Petitioner has turned over to the NUS Corporation. See also response to Joint Applicant's Interrogatories No. 5.

15. In the report attached to the West Valley Petition to Intervene authored by Dr. Mulchi entitled, "Review of the Environmental Impact of the Palo Verde Station on Agriculture", the suggestion is made that salts deposited on leaves will be dissolved in dew and water droplets from low intensity rainfall events. In the case of dew formation set out whether the potential for leaf damage would occur on a regular or irregular interval assuming dew formation is an important factor in leaf damage to agricultural crops. If available, provide the following data:

- (a) normal time and duration of dew formation for a typical day during the growing season;
- (b) days of dew formation per month during the growing season (March through September) for a typical year.
- (c) days on which leaf damage would occur by time of year during a typical year.
- (d) the extent of leaf damage to be so caused by area and crop.

ANSWER: See Petitioner's response to Joint Applicant's First Set of Interrogatories (No. 131.) See also Mulchi Report.

- (a) This information is not presently available to Petitioner.
- (b) This information is not presently available to Petitioner.
- (c) This information is not presently available to Petitioner.

(d) This information is not presently available to Petitioner.

16. Provide a complete reference (to include author, title, date and publisher) to the study referred to in Proposed Contention I.A(i) of West Valley's Intervention Petition. Does the sampling method utilized by the vendor routinely overestimate or underestimate the drift ration? What is the mean error?

ANSWER: See Affidavit of Kenneth Berlin attached to Petition to Intervene for a complete reference to the studies. See also references cited in the study and in Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 42 and 131.) For further details see Golay Report and Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 28, 29, and 30.)

17. Provide a complete reference (to include author, title, date and publisher) to the report of the Chalk Point studies referred to in Proposed Contention I.A.(iii) of West Valley's Intervention Petition. What were the measured tower salinity levels? How frequently did they occur? How were salinity levels stated in the "tower's design features?"

ANSWER: See Affidavit of Kenneth Berlin attached to Petition to Intervene for a complete reference to the report. See also back up studies cited in that report. See Mulchi Report for details.

18. As referred to in Proposed Contention I.D.(i) of West Valley's Intervention Petition, provide your estimates of cooling water salinity along with your method of calculation.

ANSWER: See Petitioner's Response to Joint Applicants' Interrogatories. (Nos. 77 and 79.) The Petitioner has not made independent estimates of cooling water salinity.

19. Describe what records the Buckeye Irrigation Company has regarding water quality referred to in West Valley's Proposed Contention I.D.(ii). Describe how Buckeye's water sampling program was conducted to include a description of where the samples are collected, how frequently the samples are collected and what analyses are performed on the samples. List the salt content versus frequency of occurrence as they are reflected in Buckeye's records.

ANSWER: Petitioner objects on the grounds that the Buckeye Irrigation Company records are not in the Petitioner's possession. See also answer to Joint Applicants' Interrogatories. (No. 80.)

20. List and describe the sources of West Valley's information for the allegation in Contention I.D.(iv) regarding the 49 wells. Describe how this indicates a shift from Phoenix sewage effluent. Are these wells to be used to provide water to PVNGS? If so, to what extent? Are these water supply or monitoring wells?

ANSWER: It was Petitioner's understanding at the time it filed the Petition that Joint Applicants had received approval to proceed with the 49 wells. Joint Applicants have submitted an Affidavit purporting to show that Petitioner's understanding was incorrect. Petitioner, therefore, will be unable to determine if its initial understanding was correct until discovery is complete.

21. Identify the source and furnish a list of the "figures available to West Valley" regarding blow-off from the evaporation pond referred to in West Valley Contention I.E.(i).

ANSWER: The relevant information is identified in the Davis Report.

22. Provide the basis for the statement in West Valley proposed Contention I.F.(ii) regarding the refueling interval experience at "most other similar stations." Identify the stations where it is alleged that refueling intervals are longer and provide the refueling interval for each.

ANSWER: See Petitioner's Response to Joint Applicants' First Set of Interrogatories. (Nos. 95 and 97.)

Preparation - The following individuals helped prepare answers to the indicated interrogatories.

Davis - Nos. 2, 4, 5, 6, 8, 14, 21.

Golay - Nos. 2, 3, 4, 16, 22.

Mulchi - Nos. 2, 3, 4, 6, 7, 8, 9, 10, 12, 13, 15, 17, 18.

Dated: April 19, 1983
Washington, D.C.

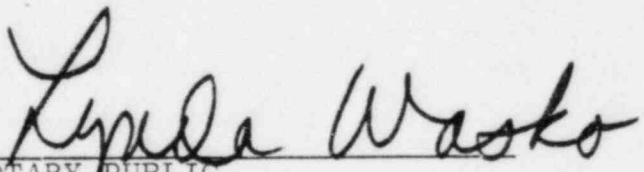
By _____
Kenneth Berlin
Attorney for Petitioner
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Washington, D.C. 20037
(202) 429-8501

Washington, D.C.):

I, KENNETH BERLIN, being duly sworn, depose and say that I am Counsel for Petitioner in the referenced action; that I have read the foregoing answers to Interrogatories; that the information contained therein was gathered under my supervision; that said answers are based on information provided by Petitioner's experts; and that they are true to the best of my knowledge and to the best of the knowledge of the persons who helped in their compilation.

KENNETH BERLIN

SUBSCRIBED AND SWORN to before me this 19th day of April, 1983.



NOTARY PUBLIC
4-19-83

My commission expires:

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

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

CERTIFICATE OF SERVICE

I hereby certify that copies of the attached Petitioner West Valley Agricultural Protection Council, Inc.'s Response to NRC Staff's First Set of Interrogatories, dated April 19, 1983, have been served upon the following listed persons by deposit in the United States mail, properly addressed and with postage prepaid.

Robert M. Lazo, Esq., Chairman
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U.S. Nuclear Regulatory Comm.
Washington, D.C. 20555

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