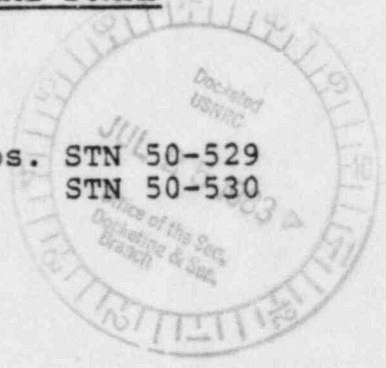
UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

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



MEMORANDUM IN SUPPORT OF
WEST VALLEY AGRICULTURAL PROTECTION COUNCIL, INC.'S
MOTION SEEKING A STAY

West Valley Agricultural Protection Council, Inc. ("West Valley") files this motion for a stay that is necessary to protect the integrity of the process established by the National Environmental Policy Act ("NEPA"), 42 U.S.C. 4321 et seq.

On July 11, 1983, the Atomic Safety and Licensing Board ("Board") assigned to the above-captioned matter rejected West Valley's motion that the Board declare the NEPA statements in this matter inadequate because of their failure to address an issue--salt drift deposition--that the Board itself had previously described as "both significant and a serious environmental issue" on which the record was "sparse." The Board based its decision on, among other things, an argument that an inadequate NEPA statement could be cured at a hearing. Such a decision strikes at the very integrity of the NEPA process. Taken to its logical conclusion, it implies that an agency never has to prepare a NEPA statement if it plans to hold a hearing on the issue. That position finds no support in law.

The consequence of the Board's decision is clear irreparable injury to the Plaintiff. The NEPA process is designed to insure that decision makers make intelligent and informed decisions. It requires careful impartial analysis by the NRC staff of environmental issues. If the decision below is allowed to stand, no such analysis will occur. Board members will evaluate environmental issues, not the NRC staff. The issue will be presented to the Board in an adversarial, rather than an impartial matter. West Valley will be asked to prepare the equivalent of its own NEPA statement--a task that no intervenor like West Valley has the resources to undertake.

West Valley, like all other petitioners, must be and is in the position to fully evaluate the adequacy of a complete NEPA statement. It is in no position, however, to write one on its own. The only way to cure the defect in the NEPA statement and to protect the integrity of the NEPA process is for this Appeal Board to declare the current NEPA analysis inadquate and to stay any hearing on West Valley's contentions until an adequate new or supplemental NEPA statement is prepared.

Factual Background

West Valley filed its petition to intervene on October 14, 1982. Its petition was accompanied by three extensive reports prepared by experts from the Massachusetts Institute of Technology, the John Hopkins Applied Physics Laboratory and the University of Maryland. Joint Applicants and the NRC submitted their responses on or by November 15, 1982. On December 30, 1982 the NRC agreed to grant West

Valley's petition to intervene with respect to Units 2 and 3 of the Palo Verde Nuclear Generating Station ("PVNGS"). In its opinion, the Board stated:

> The Board considers the salt deposition issue to be a significant and a serious environmental issue. Land suitable for farming is in short supply in Arizona. Thus, special public interest implications are involved. The spectre of possibly rendering unusable some of what little fertile land is available impels us to compile as comprehensive a record as possible to insure that this will not happen. . . The Board has previously noted that the record on salt deposition is sparse.

A copy of the Memorandum and Order is annexed as Exhibit A.

In its opinion granting intervention, the Board deferred decision on whether to admit West Valley's contentions relating to the inadequacy of the NEPA analysis prepared by the NRC. As a result, on February 2, 1983, Petitioner filed a motion requesting that the Board rule that the NEPA analysis was inadequate and in essence to continue any hearing until the NEPA analysis had been corrected. At oral argument, the NRC staff reported that they could not possibly complete the EIS and engage in a hearing in the 16 months remaining before the start of fuel loading. West Valley responded by arguing that was ridiculous. West Valley pointed out that the Joint Applicants had agreed to do a new study on the effects of agriculture on area crops, that the study would not be ready until November 1 (now the end of December) and that discovery on this most critical issue could not begin until that study was completed. On May 6, 1983 West Valley filed a supplemental motion seeking a decision and pointing out that interrogatory

answers filed by Joint Applicants strengthened its case that the issues involved in its contention had not been adequately addressed by the EIS.*/ A copy of its memorandum on that point is annexed as Exhibit B. Finally, on July 11, 1983, the NRC ruled against West Valley on three grounds:

1) it had no power to order the preparation of a new EIS;

2) it could not tell if the EIS was inadequate until a hearing had been held; and

3) any defects in the EIS could be cured by a hearing.

As described below, none of these grounds finds support in fact or law.

The Standards for Granting a Stay

NRC regulations provide that in determining to grant or deny an application for a stay, the Appeals Board will consider:

a) Whether the moving party has made a strong showing that it is likely to prevail on the merits;

b) Whether the party will be irreparably injured unless a stay is granted;

c) Whether the granting of a stay would harm other parties; and

d) Where the public interest lies.

10 C.F.R. §2.788(e).

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*/ Hereinafter Joint Applicants refer to the statements mandated by NEPA as either a "NEPA Statement" or an "EIS."

West Valley Is Likely to Prevail on the Merits

As previously stated, the Board in its decision granting West Valley's motion to intervene found that the issue of salt deposition by PVNGS was significant and that the record on this issue was sparse. In addition, in support of its NEPA motion, West Valley submitted experts reports, copies of which are annexed as Exhibit C, showing further inadequacy in the NEPA statements. The sum total of the Board's ruling and the experts reports submitted by petitioner is a record that establishes that the EIS did not adequately address the environmental issue which the Board found to be significant. Such a record cannot meet NEPA's requirement that an environmental statement "insure a fully informed and well considered decision." Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519, 558 (1978). See also, 10 C.F.R. §51.1(a).

Regulations of the Council on Environmental Quality ("CEQ") require supplementation of a final environmental statement if:

(i) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.

(ii) . . .when the agency determines that the purposes of the Act will be furthered by doing so.

40 C.F.R. 1502.9 (c)(i)(ii), (2) (1982) (emphasis added). CEQ's interpretation of NEPA is entitled to substantial deference. Andrus v. Sierra Club, 442 U.S. 347, 358 (1979).

Moreover, the NRC has expressly adopted the CEQ regulations for guidance. 10 C.F.R. §§51.5(b)(1), 51.23(d) (1982); see 40 C.F.R. 1500.3 (1982). Information concerning impacts of cooling tower operation on a major agricultural industry is, as the Board stated, "significant" and "relevant to environmental concerns" and therefore a basis for supplementation.

The cases on supplementation of environmental impact statements support this conclusion. For example, in Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017, 1024-25 (9th Cir. 1980), the Court concluded that new information showing that a geological fault potential posed a greater threat to safety of the dam than previously recognized triggered the supplementation requirement. Subsequent detailed seismic studies, however, demonstrated that the original EIS had in fact considered a sufficient range of earthquake damage and therefore cured the NEPA defect. And, new studies by the Federal Highway Administration bearing on a highway project were recently held "new and significant" information requiring supplementation of the agency's environmental impact statement. Stop H-3 Association v. Lewis, 538 F. Supp. 149, 170 (D. Haw. 1982).

West Valley has brought forward significant new information about a serious environmental issue--salt deposition on crops grown under desert conditions. Since neither the environmental statements nor reports address the issue, the Board should have declared the EIS inadequate and

should have required development of data whic can serve as the foundation for a satisfactory supplemental NEPA statement.

Should the necessary data prove to be unattainable or unduly time consuming to compile, the NRC could then prepare a worst case analysis. Council on Environmental Quality regulations expressly require that agencies conduct further studies or perform worst case analyses where there are gaps in relevant important information:

> If (1) the information relevant to adverse impacts is essential to a reasoned choice among alternatives and is not known and the overall costs of obtaining it are exorbitant or (2) the information relevant to adverse impacts is important to the decision and the means to obtain it are not known (e.g., the means for obtaining it are beyond the state of the art) the agency shall weigh the need for the action against the risk and severity of possible adverse impacts were the action to proceed in the face of uncertainty. If the agency proceeds, it shall include a worst case analysis and an indication of the probability or improbability of its occurrence.

40 C.F.R. §1502.22(b) (1982) (emphasis added). See also the comprehensive analysis of NEPA "worst case" requirements in Sierra Club v. Siegler, 495 F.2d 643 (5th Cir. 1983) and the analysis in North Slope Borough v. Andrus, 486 F. Supp. 332 (D.D.C. 1980), rev'd on other grounds, 642 F.2d 589, 605 (D.C. Cir. 1980).

The Board's Decision

None of the ground relied upon by the Board in denying West Valley's motion is compelling. First, the Board held that it had no power to order preparation of a new EIS. While West Valley does not argue with that analysis, it misses

the point--West Valley did not ask the Board to order the preparation of a new EIS. Instead, it asked the Board to exercise its traditional role of ruling on the adequacy of the EIS.

Review of the adequacy of environmental analysis is an important function of Licensing Board proceedings:

> A licensing board. . . is expected to evaluate independently and resolve the appropriate contentions of the various parties, to assure itself that the regulatory staff's review has been adequate, and to inquire further into areas where it may perceive problems or find a need for elaboration. If it finds itself not satisfied with the adequacy or completeness of the staff review, or of the evidence presented in support of the license application, it may, for example, reject the application, or may require further development of the record to support such application.

Public Service Company of New Hampshire, et al. (Seabrook Station, Units 1 and 2), CLI-77-8, 5 NRC 503, 526 (1977), quoting Consumers Power Company (Midland Plant, Units 1 and 2), ALAB-123, 6 AEC 331, 334. The Board, noted the Commission, serves as "a final check in the NRC NEPA process." Id.

Thus, the Board has the power to declare the EIS inadequate, and the Board has the power to delay a hearing until a new EIS is prepared.

Second, the Board argued it could not decide at this time if the EIS was adequate. However, the Board's ruling on West Valley's petition to intervene established the inadequacy of the EIS when it said the issue was a serious environmental issue which was only sparsely addressed in the record. This

ruling combined with West Valley's experts reports establishes without a doubt the inadequacy of the EIS.

Third, the Board stated that if there were defects in the EIS, they could be cured at the hearing. In so ruling, the Board confuses the role of a hearing in the NEPA process. In every case, a hearing which reviews the findings in an EIS will develop some new evidence relating to the environmental issues raised in the NEPA statement. The mere fact that such evidence has been developed does not mean that the EIS is inadequate. Here, however, we begin at a different point. Rather than having an adequate EIS which is being reviewed, we have an EIS which does not adequately address the issue which the Board found is environmentally significant. The Board's position that a hearing can cure an inadquate EIS, rather than supplement the facts contained in an adequate EIS, thus would create a loophole which would swallow the statute. In essence, one would never have to prepare a NEPA statement if a hearing were to follow. Such an interpretation destroys both the letter and spirit of NEPA.

Irreparable Injury

West Valley will be irreparably injured if this Appeal Board does not grant this motion. Unless an adequate NEPA analysis is prepared by the NRC staff, the issue of environmental concern will never be adequately addressed in the manner contemplated by statute. Rather than impartial analysis of the environmental issue by the NRC staff, environmental issues will be considered by a Board. Rather than the public

input provided by the NEPA process, the issue will be resolved by attorneys for the NRC staff without any public involvement, review or advice. Rather than full development of the issue, the issue will never be fully addressed since only the NRC staff has the resources to undertake the initial review required by NEPA.

West Valley recognizes that as an intervenor it has the responsibility to make its case if it believes that the EIS is inadequate. But neither under law nor regulations does West Valley have the responsibility to prepare its own EIS. If that were the standard, no public intervention would be possible in any of these proceedings. Therefore, we request this Appeal Board find that West Valley will be irreparably injured if the stay is not granted.

Harm to Other Parties

As previously indicated, it was West Valley's position that a NEPA analysis could have been prepared and a hearing held without delaying the opening of PVNGS Unit 2. Of course, a NEPA analysis would not have delayed the opening of Unit 3. From the time of the filing of West Valley's motion to intervene to the time of the fuel loading of Unit 2 almost two years will have elapsed. Thus, Joint Applicants and the NRC have been on notice for a sufficient amount of time to resolve this issue without delay. To the extent any delays result from their opposition to preforming their duties under Federal statutes and regulations, the delay has now become their fault and they are in no position to complain.

Public Interest

NEPA sets forth a clear policy upheld in hundreds of cases that the public interest requires the preparation by an agency of an adequate EIS before an agency can proceed with a project that has a significant effect on the human environment. There are no excuses under NEPA for the failure to produce this document.

Conclusion

For the foregoing reasons, the Appeal Board should grant West Valley's motion, declare the EIS invalid, and stay a hearing until West Valley's request to the Board filed simultaneously with this motion, for leave to appeal is decided and until a valid EIS is prepared.

Respectfully submitted,

Dated: _____

_____

Kenneth Berlin
2550 M Street, N.W.
Suite 500
Washington, D.C. 20037
(202)429-8501

Attorney for Petitioner
West Valley Agricultural
Protection Council, Inc.

EXHIBIT A

SERVED DEC 30 1982

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

DOCKETED USNRC

'82 DEC 30 P2:57

Before Administrative Judges:

Robert M. Lazo, Chairman
Dr. Richard F. Cole
Dr. A. Dixon Callihan

In the Matter of ARIZONA PUBLIC SERVICE COMPANY, ET AL. (Palo Verde Nuclear Generating Station, Units 1, 2 and 3 Operating License Proceeding)	Docket Nos. STN-50-528-OL STN-50-529-OL STN-50-530-OL December 30, 1982

MEMORANDUM AND ORDER

(Ruling on the Petition to Intervene of West Valley Agricultural Protection Council, Inc.)

INTRODUCTION

On July 11, 1980, the U. S. Nuclear Regulatory Commission published in the Federal Register a notice of opportunity for a hearing on the application for operating licenses for Palo Verde Nuclear Generating Station, Units 1, 2 and 3, 45 Fed. Reg. 46941, revised 45 Fed. Reg. 49732 (July 25, 1980). The notice permitted the filing of petitions for leave to intervene in the proceeding, and established August 11, 1980 as the deadline for filing such petitions. One petition for intervention was granted. Hearings were held during the weeks of April 26, May 25 and June 21, 1982 and the record was closed on June 25, 1982. Tr. 2710.

On October 14, 1982, West Valley Agricultural Protection Council, Inc. (West Valley) filed an untimely petition to intervene in this proceeding entitled "Petition to Intervene and Request for Preparation of Supplemental or Revised Environmental Impact Statement, Hearing and Other Relief." Applicants and Staff filed responses opposing intervention.[1/] The petition alleged that West Valley had recently discovered substantial new information that salt drift from the Palo Verde cooling towers, spray ponds and evaporation ponds will cause damage to the surrounding cropland. Memorandum of Law in Support of the Petition of West Valley Agricultural Protection Council, Inc. to Intervene in Licensing Proceedings at 1.

The questions before us are:

1) Whether West Valley has satisfied the standards for late intervention set forth in 10 CFR § 2.714(a)(1).

2) Whether West Valley has met the burden of establishing that the record should be reopened.

DISCUSSION

1. STANDARDS FOR LATE INTERVENTION

An untimely petition to intervene in a proceeding may be granted if it is found that a balancing of the following five factors set forth in 10 CFR 2.714(a)(1) favors intervention:

1/ Joint Applicants' Response To Petition To Intervene Of West Valley Agricultural Protection Council, Inc., November 9, 1982; Response Of The NRC Staff To West Valley's Petition For Intervention And Request To Reopen The Record, November 15, 1982.

(i) Good cause, if any, for failure to file on time.

(ii) The availability of other means whereby the petitioner's interest will be protected.

(iii) The extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record.

(iv) The extent to which the petitioner's interest will be represented by existing parties.

(v) The extent to which the petitioner's participation will broaden the issues or delay the proceeding.

A consideration of each of the five factors follows:

(i) Good Cause. The Staff asserts that good cause for a petitioner's untimely filing is the most important consideration in deciding whether to grant late intervention. Staff's Response at 11. A showing of good cause is only one of five factors to be balanced under 10 CFR 2.714 (a)(1). See Nuclear Fuel Services, Inc. (West Valley Reprocessing Plant) CLI-75-4, 1 NRC 273, 275 (1975). Failure to show good cause for late intervention is, in itself, not fatal to a petitioner's claim. When good cause is not shown, however, a demonstration that the other factors favor granting the petition must be particularly strong. Cincinnati Gas and Electric Company (William H. Zimmer Nuclear Station), LBP-80-14, 11 NRC 570, 575 (1980); Duke Power Company (Perkins Nuclear Station, Units 1, 2 and 3), ALAB-431, 6 NRC 460, 462 (1977); Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit 2), ALAB-384, 5 NRC 612, 615 (1977); Project Management Corporation (Clinch River Breeder Reactor Plant), ALAB-354, 4 NRC 383,

384 (1976); Virginia Electric and Power Company (North Anna Station, Units 1 and 2), ALAB-289, 2 NRC 395, 398 (1975).

West Valley puts forth three factors which it claims constitute good cause for the untimeliness of its petition: (1) It has recently acquired substantial new information on the effects which salt deposition from Palo Verde may have on local agriculture; (2) It relied on misleading information from the Staff; (3) The Staff failed to disclose material facts which, if known, may have prompted earlier intervention. Memorandum of Law in Support of the Petition of West Valley Agricultural Protection Council, Inc. To Intervene in Licensing Proceedings, October 14, 1982 at 7-9. These factors do not amount to a showing of good cause. The Final Environmental Statement on the application for construction permits (FES-CP) contained information on the effects of salt deposition caused by the Palo Verde Nuclear facility. See Staff Response at 3-6. Notice of the publication of the FES-CP was published in the Federal Register on February 23, 1976. 41 Fed. Reg. 8000. Section 3.6.2 of the FES-CP stated that:

> the staff's calculations suggest that the maximum depositions will be somewhat lower than those calculated by the applicant, but not to a significant extent....
>
> It is important when considering the results of such calculations, to realize that at the present state of the art, drift model predictions may differ by a factor of 10 with observed values. Thus, predicted values can serve only as indications, not rigorous determinations. FES-CP at 3-21, 3-25.

An Atomic Safety and Licensing Board authorized the issuance of construction permits for Palo Verde Units 1, 2 and 3 on May 24, 1976. Arizona Public Service Company (Palo Verde Units 1, 2 and 3), LBP-76-21, 3 NRC 662 (1976). Concerning salt drift, the Board found that:

> The degree of impact is presently not predictable.... The record supports a finding that these effects will be temporary and/or localized and are expected to be minimal." Id. at 686.
>
> Chemical deposition, principally salt from operation of the cooling towers, will occur on the site and to a lesser degree on the land surrounding the site and may alter salt sensitive flora and fauna. Id. at 695.

West Valley's claim that it "only recently received indications that salt deposition might pose a major threat to agriculture in the PVNGS area"[2/] is therefore without merit. Information on the effect of salt drift on agriculture was available even before construction permits were issued for the Palo Verde units.

West Valley recognizes that a claim that it relied on the NRC Staff to protect its interests is insufficient to constitute good cause for late intervention. A petitioner cannot sit back and observe the proceeding, and then intervene upon deciding that its interest is not being adequately protected by existing parties. South Carolina Electric and Gas Company (Virgil C. Summer Nuclear Station, Unit 1), LBP-81-11, 13 NRC 420, 423 Cf. Pacific Gas and Electric Company (Diablo Canyon Power Plant, Units 1 and 2), ALAB-583, 17 NRC 447, 448 (1980); Puget Sound Power and Light Company (Skagit Nuclear Power Project, Units

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2/ Memorandum at 8.

1 and 2), ALAB-559, 10 NRC 162, 172-173 (1979), vacated as moot CLI-80-34, 12 NRC 407 (1980); Duke Power Company (Cherokee Nuclear Station, Units 1, 2 and 3), ALAB-440, 6 NRC 640, 644 (1977). It must be established that Petitioners were furnished erroneous information on matters of basic fact and that it was reliance upon that information that prompted their own inaction. Puget Sound Power and Light Company (Skagit Nuclear Power Project, Units 1 and 2), ALAB-552, 10 NRC 1, 9 (1979). This showing has not been made. West Valley alleges that the Operating License Final Environmental Statement (FES-OL) specifically states that "the staff does not expect impacts from salt-drift deposition." Memorandum at 8. Since no citation has been furnished for this purported quote, we can only assume that the passage referred to is one of those which appear in Section 5.4.1 of the FES-OL:

> Although the effluents from the station's cooling towers will have atmospheric impacts (such as fogging due to the visible plume, wetting and salt deposition due to drift, visible plumes aloft) the staff believes that operation of these towers will produce no appreciable offsite impacts, and the impacts that may occur will be less than those predicted in the FES-CP (Section 5.3.2). This conclusion is based primarily on more recent observations of atmospheric impacts at power plants with mechanical-draft cooling towers (MDCTs) and on the changes in the location and design of the PVNGS towers (from rectangular to circular MDCTs)...
>
> Based on the above evaluations, the staff concludes that the change in design and in the location of the station's cooling towers will result in no appreciable offsite impacts due to fogging and will result in drift deposition rates that will be less than those predicted in the FES-CP.
>
> FES-OL at 5-8, 5-9

Identical information was first presented in the October, I981 Draft Environmental Statement for the Palo Verde operating licenses for Units 1, 2 and 3. It is consistent with the information presented in the FES-CP, which foresaw that the staff's calculations might find the maximum depositions to be somewhat lower than the applicant had predicted. FES-CP at 3-21. We therefore reject Petitioner's assertions that the Staff furnished misleading or clearly erroneous information or that they could not have previously known that salt depositions might have an effect on local agriculture. We conclude that Petitioner has not established good cause for late intervention.

(ii) The Availability of Other Means Whereby the Petitioner's Interest Will Be Protected. Applicants and Staff allege that West Valley's interests may be adequately protected by the availability of legal action for damages, trespass or private nuisance should salt emissions from Palo Verde cause damage to their crops and land. Applicants' Response at 23, Staff's Response at 19. We disagree. These purported remedies presuppose the doing of damage which could cost the members of West Valley their livelihood. Economic compensation for ruined crops may scarcely be considered an adequate remedy for continuous salt deposition. This solution could easily expose the members of West Valley to the prospect of multiple repetitive lawsuits, as well as rendering their land worthless. A successful suit for trespass or nuisance would require more burdensome and expensive modification than would identifying and, if necessary, remedying any problems before the Palo Verde units are

put into operation. We find that intervention in this proceeding is the only adequate means to protect West Valley's interest.

(iii) The Extent To Which the Petitioner's Participation May Reasonably Be Expected To Assist In Developing a Sound Record. The effect of salt deposition from Palo Verde has not been, and cannot be, precisely measured. As previously stated, the Board found at the construction permit stage that the degree of impact was not predictible. Palo Verde, 3 NRC at 686; see infra at 5. The Staff's FES-OL could do no more to improve on this fact than to state a belief based on observations of other plants and on the location and design of the Palo Verde cooling towers. FES-OL at 5-8, 5-9; see infra at 6. The Applicants admit that the operational Environmental Protection Plan is still in its formative stage, and that environmental technical specifications have not yet been drafted. Applicants' Response at 48. Applicants further state that "[i]f Petitioner or its consultants have any concerns respecting the scope or details of the program, there is ample time to bring them to the attention of the Applicants and/or the NRC staff. In any event, Applicants commit to faithfully consider any monitoring suggestions Petitioners may choose to offer at this time or any later date." Id. at 48-49.

West Valley has filed a lengthy petition containing the reports of three experts on the subject of salt deposition on agriculture.3/ It has indicated that these experts are available to

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3/ Dr. Edward Davis of the John Hopkins University Applied Physics Laboratory, Dr. Charles Mulchi of the University of Maryland Department of Agronomy and Dr. Michael Golay of the Massachusetts Institute of Technology Department of Nuclear Engineering.

testify. Memorandum at 12. Considering the acknowledged paucity of information on the consequences of salt drift from Palo Verde to the West Valley lands, and the fact that the operational Environmental Protection Plan has not yet been formulated, the testimony of these experts may make a valuable contribution to the record. We need not decide the merits of that testimony in order to admit Petitioner as a party. See Houston Lighting and Power Company (Allens Creek Nuclear Generating Station, Unit 1), 11 NRC 542, 549 (1980).

To reopen the record to examine West Valley's information would enable the Board to more carefully delineate the nature and extent of management's monitoring program, the possibility of its success, and its impact on agricultural crops. It would also enable us to determine whether technical modifications of at least Units 2 and 3 are feasible before they are ready to be put into operation.

The Board would prefer that salt deposition problems be identified and remedied before all three Palo Verde units are operating so that action under 10 CFR § 2.206 once the damage has been done, as Applicants suggest,[4/] may be avoided. It is therefore the Licensing Board's belief that the information offered by Petitioners may be of considerable value in developing the record.

(iv) The Extent To Which The Petitioner's Interest Will Be Represented By Existing Parties.

No other party to this proceeding advanced any contentions bearing upon the effects of salt deposition on agriculture. Therefore, Petitioner's interests have not been represented in this proceeding.

4/ See Applicant's Response at 49.

(v) The Extent To Which The Petitioner's Participation Will Broaden The Issues Or Delay The Proceeding.

The record in this proceeding was closed on June 25, 1982. Unit 1 is scheduled to go into operation in August, 1983[5/] Unit 2 in 1984 and Unit 3 in 1985.

The admission of West Valley as a party to this proceeding could potentially delay the operation of Unit 1. Recognizing this, West Valley suggests in its petition that since it is ultimately concerned with the total amount of salt deposition from the three Palo Verde Units, the NRC may require only limited modifications on Unit 1, if modification should be necessary, leaving the more complex modifications for Units 2 and 3. Memorandum at 14. Applicants seem to agree that this type of procedure would lessen the impact of delay, but discount such a possibility because "West Valley did not offer to exclude Unit 1 from any reopened proceeding." Applicants' Response at 31 n.12. Although West Valley did not make this offer, the Licensing Board may exercise its discretion in excluding Unit 1 from any reopened proceeding. The Board agrees with Staff and Applicants that to reopen the record on Unit 1 may well delay the proceeding past the projected date for fuel loading. Petitioner suggests, however, that "there are a variety of flexible technical solutions which would assure that each unit of PVNGS begins operation on schedule." Memorandum at 14. If we were to restrict a reopened proceeding to testimony on the amount of salt deposition from Units 2 and 3, while allowing Unit 1 to begin operation as scheduled, we

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5/ See Staff Response at 20.

could examine the Applicants' monitoring program and build a record on the technical aspects of salt deposition without delaying the operation of any Palo Verde Unit. In this way, the total amount of salt deposition may be reduced, if necessary, by modifying Units 2 and 3 only. This course of action would cure the delay factor.

2. BALANCING THE FIVE FACTORS

Petitioner West Valley has not met the heavy burden of proving good cause for late intervention. It has, however, stated contentions which have not previously been set forth by any party to this proceeding. It offers testimony from acknowledged experts on an issue which has not been finally resolved. West Valley's standing to bring these contentions, were they timely filed, would be undisputed. See Staff Response at 11 n.2. Salt deposition from the three Palo Verde units might potentially destroy the livelihood of West Valley's members.

The crucial factor in this balance is that of delay. Although West Valley has a strong interest in this proceeding, it must not be allowed to hold up the operation of Unit 1 without good cause. With respect to Unit 1, therefore, the balance of five factors weighs against the Petitioner.

This is not the case with Units 2 and 3. To permit Unit 1 to begin operation on schedule while reopening the record with respect to Units 2 and 3 should cause no delay whatsoever, while offering an opportunity for early examination and, if necessary, remediation of the problem of salt deposition. The Board finds, therefore, that although the reasons for petitioner's tardiness lack merit, the other factors specified in § 2.714(a) tip the balance in favor of reopening the record

to admit West Valley as a party with respect to Units 2 and 3. In reaching this result, the Board rules that Contention III is admissible for litigation. Contention III reads as follows:

> The salt deposition from the PVNGS will reduce the productivity of agricultural lands owned by West Valley members.

STANDARDS FOR REOPENING THE RECORD

Although we have ruled that the five factor balance weighs in favor of granting West Valley's untimely petition to intervene, the record in this proceeding was closed on June 25, 1982. West Valley, therefore, has the additional burden of proving that its motion to reopen the record to admit new testimony should be granted. The test for meeting this burden was stated in Pacific Gas and Electric Company (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-598, 11 NRC 876, 879 (1980) as follows:

> (1) Is the motion timely? (2) Does it address significant safety (or environmental) issues? (3) Might a different result have been reached had the newly profferred material been considered initially?

Cf. Kansas Gas and Electric Company (Wolf Creek Generating Station, Unit No. 1), ALAB-462, 7 NRC 320, 338 (1978); Vermont Yankee Nuclear Power Corporation (Vermont Yankee Nuclear Power Station), ALAB-138, 6 AEC 520, 523 (1973).[6/]

6/ At least one Licensing Board has expressed some doubt that these standards relate to situations in which reopening is requested on an issue which has not been previously heard. Cincinnati Gas and Electric Company (William T. Zimmer Nuclear Power Station, Unit 1), LBP-82-54, 16 NRC ___ (July 15, 1982), rev'd. on other grounds, CLI-82-20, 16 NRC ___ (July 20, 1982). Since we conclude that Petitioner has met the standards for reopening the record, we need not decide this issue. We do note, however, that the issue of salt deposition has not been previously litigated in this proceeding.

The Board considers the salt deposition issue to be both a significant and a serious environmental issue. Land suitable for farming is in short supply in Arizona. Thus, special public interest implications are involved. The spectre of possibly rendering unusable some of what little fertile land is available impels us to compile as comprehensive a record as possible to insure that this will not happen. While we would have wished to have Petitioner's information presented earlier in the proceeding, it was presented in advance of the issuance of the Initial Decision and well before the fuel loading date of any Palo Verde unit. In Vermont Yankee, id., a motion to reopen the record was denied where the reactor was already in operation when the motion was filed. As we discussed infra, reopening the record with regard to Units 2 and 3 only will cause no delay in the operation of Unit 1 and will perhaps ameliorate possible future problems.

The Board has previously noted that the record on salt deposition is sparse. Had further information been made available before the close of the hearing, we would have incorporated it into the record. Were it found that the amount of salt deposition to be produced could be harmful to area agriculture, as intervenors allege, a condition could have been written into the operating license requiring the salt monitoring program that Applicants have already committed themselves to implementing.7/ In consideration of the above, the Board feels that there is adequate cause to reopen the record to consider Petitioner's contentions.

7/ See Applicants' Response at 47.

ORDER

For the foregoing reasons and in consideration of the entire record in this matter, it is this 30th day of December, 1982

ORDERED

1) That the petition of West Valley Agricultural Protection Council, Inc., to intervene in this licensing proceeding is granted;

2) That the record in this proceeding is reopened for Units 2 and 3 but remains closed for Unit 1;

3) That the record will be reopened for the specific limited purpose of considering the salt deposition issue;

4) That Contention III of West Valley's petition is admitted as an issue in controversy for the reopened proceeding;

5) That the Board will schedule a prehearing conference to discuss the disposition of Petitioner's other contentions and the relief sought; and

6) That West Valley's November 18, 1982 "Supplemental Memorandum" in support of its petition to intervene is an unauthorized filing and accordingly has not been considered by the Board.

THE ATOMIC SAFETY AND
LICENSING BOARD

Robert M. Lazo.

Robert M. Lazo, Chairman
ADMINISTRATIVE JUDGE

Richard F. Cole

Dr. Richard F. Cole
ADMINISTRATIVE JUDGE

EXHIBIT B

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
(Palo Verde Nuclear Generating	)	50-530
Station, Units 2 and 3)	)	

WEST VALLEY ACRICULTURAL PROTECTION COUNCIL, INC.'S MEMORANDUM IN SUPPORT OF SUPPLEMENTAL MOTION FOR DECLARATION THAT NEPA ANALYSIS IS INADEQUATE AND FOR CONTINUANCE OF PROCEEDINGS

In the course of discovery in this proceeding, West Valley Agric ltural Protection Council, Inc. ("West Valley") has asked numerous interrogatories designed to elicit data concerning the amount and effects of salt deposition on crops grown in the vicinity of the Palo Verde Nuclear Generating Station ("PVNGS"). These interrogatories directly relate to West Valley's claim that the environmental analyses performed in connection with licensing P' 'GS fail to meet the requirements of the National Environmental Policy Act ("NEPA"), 42 U.S.C. 4331 et. seq. The recently received responses from Joint Applicants to West Valley's First Set of Interrogatories provide further reinforcement as to the limited analysis of salt drift and its impacts undertaken by Joint Applicants and the NRC Staff. The absence of additional data in the responses beyond the sparse analysis previously set forth in the Environmental Reports (ER) and Statements (EIS) is striking and highly relevant to the Board's decision on West Valley's pending Motion. West Valley therefore has submitted its Supplemental Motion to bring these further indicia of inadequate NEPA analysis to the Board's attention.

The following examples are representative of the unavailability of further illumination concerning salt drift from Joint Applicants' interrogatory answers:

West Valley's First Set of Interrogatories, Nos. 15 and 16, sought Joint Applicants' view as to the completeness of the environmental evaluation of salt drift quantity and deposition patterns and any citations to the Environmental Reports, Statements or the record demonstrating complete consideration of salt drift quantities and patterns. In answer (No. 16), Joint Applicants could identify only:

1) ER-CP, figure 3.3-1

2) ER-OL, figure 3.3-1*/

Then, in answer to an interrogatory asking for documents concerning choice of the "FOG" model to describe salt drift deposition patterns, Joint Applicants identified none (No. 22). Yet the ability of that model to predict salt drift deposition rates under PVNGS conditions plainly should have been addressed in any full environmental reports.

Interrogatory No. 29A requests information concerning Joint Applicants' monitoring program, including plans to monitor spray and evaporation pond salinities and salt particle emissions from the cooling towers and ponds. Joint Applicants responded:

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* The relevant portions of West Valley's First Set of Interrogatories and Joint Applicants' responses is attached as Exhibit 1.

"a:(ii) and (iii). There are no plans to monitor salinity of the spray ponds and evaporation ponds for the purpose of determining drift salinity.

b:(i),(ii) and (iii). There are no plans to implement a monitoring program to monitor drift mass or drift droplet size distribution or the size and quantity of salt particles emitted from the cooling towers, spray ponds or evaporation ponds" (emphasis added).

Interrogatories No. 33 and 35 ask whether Joint Applicants have considered or are considering water desalinization as a salt drift mitigation strategy. Joint Applicants responded that they had never considered such a strategy.

Similarly, in response to interrogatories No. 37 and 39, Joint Applicants state that they have not in the past considered nor are they at present considering blowdown treatment or water recirculation as salt drift mitigation strategies.

Development of careful maintenance programs is essential to continue satisfactory performance of drift elimination systems. Yet when asked to describe the maintenance plans for PVNGS (No. 47), Joint Applicants responded that they have no such plans as yet.

Interrogatory No. 51 asked for the identities of individuals connected with the project with knowledge of alternative cooling tower drift elimination systems. Joint Applicants state that no one with NUS, Bechtel, or even APS itself, has such knowledge, identifying only individuals at Marley, the cooling tower vendor.

The answer to Interrogatory No. 52 acknowledged that Joint Applicants had been involved in no studies of PVNGS area drift

salt tolerances before completion of the Environmental Statement--Operating License; Joint Applicants further acknowledge (in answer to Interrogatory No. 55) that their only information on such tolerances is set forth in the ER-CP, Section 5.4.2, and its accompanying reference No. 35.

These examples suggest that Joint Applicants have not and do not take the "serious environmental issue" (Memorandum and Order of December 30, 1982 at 13) seriously at all. Since the NRC staff has come forward with no additional data on salt deposition beyond that set forth in the ER and EIS, we can only assume there is nothing the Joint Applicants and NRC staff can add at this point to cure the EIS deficiencies. It appears that apart from the newly initiated Crop Study sponsored by Joint Applicants, no attempts have been made to identify and analyze salt drift amounts, patterns, and effects in any meaningful fashion.

West Valley therefore urges that the Board address the paucity of data on this important environmental issue by ruling that the NEPA analysis on PVNGS was inadequate and that these proceedings should be continued until those defects are remedied.

Respectfully submitted,

Dated: _____

_____

Kenneth Berlin
Attorney for Intervenor West
Valley Agricultural Protection
Council, Inc.
2550 M Street, N.W.
Washington, D. C. 20037
(202) 429-8811

EXHIBIT C

MEMORANDUM January 21, 1983

TO: Mr. Kenneth Berlin
Attorney for Petitioner, West Valley Agricultural Protection Council, Inc.

FROM: Dr. Edward A. Davis
Consultant

SUBJECT: Important Considerations in the Further Examination of the Salt Deposition Questions at the Palo Verde Nuclear Generating Station

As indicated in the petition, our examination of the Palo Verde application revealed several deficiencies in the environmental impact analysis of salt deposition to off-site croplands:

1. All sources of salt emission from the Palo Verde site were not properly identified;
2. The modeling of these sources was not complete;
3. The potential damage to crops grown at off-site locations was not carefully assessed.

As a result a closer look at salt deposition and its effects should be undertaken. The plan to do this should be carefully drawn. The following comments provide some points that should be considered.

An important understanding, and the driving force, in this effort should be the recognition that very little is known about the problem. In particular:

1. The salt drift characteristics of the proposed cooling towers (circular mechanical draft), spray ponds, and

evaporation ponds have not been studied under climatic conditions similar to those at Palo Verde.

2. Models that predict salt drift and deposition from these sources are inherently inaccurate and, without validating experience under Palo Verde conditions, cannot be expected to provide accurate predictions.

3. Damaging levels of salt deposition to crops growing under Palo Verde conditions have not been established.

Hence, only a proper combination of salt emission and deposition monitoring, simulated (mock-up) crop damage tests, and careful deposition modeling can accurately assess the potential for damage to crops by salt deposition near the Palo Verde site.

Monitoring Program

As maintained by the applicant, a monitoring program is the key to understanding the salt deposition problem. The program should have several elements. Among which are:

1. Measurement of airborne salt at selected locations around the Palo Verde site and extending to sufficient distances to establish salt level trends. The program should include pre-operational measurements to establish ambient baseline values. The program should be continued over several growing seasons spanning a wide variety of meteorological conditions.

2. Measurement of the salinity of the cooling tower basin water in conjunction with the airborne salt measurements.

This should be done regularly and recorded along with the plant operating conditions (load, etc.). Site meteorology should also be recorded (probably available every hour from the meteorological tower at the site). In addition, on several occasions under various operating conditions the drift rate of the cooling towers should be measured along with the flow rate and temperature of the tower emissions. Visible plumes should be photographed.

3. Observation of the evaporation ponds to determine if dry areas can be a source of wind-blown salt dust. As the ponds are used the extent to which dry salt deposits are formed should be observed. The erodability of the dry surfaces should be measured.

4. Performance of simulated (rock-up) salt deposition experiments on representative crops that are grown near the Palo Verde plant. These tests are most important in determining the threshold at which damage could occur. There is some reason to believe that low levels of salt deposition under the arid Palo Verde conditions could be more damaging than indicated by data collected on crops in more humid regions. The only way to determine this is to do the controlled rock-up experiments. The monitoring results alone are not very useful unless damage thresholds are known. Comparison of monitoring results with threshold values would indicate whether or

not the plant emissions are well below damaging levels. In addition the threshold data is essential in estimating the effect of bringing Unit No. 2 and 3 on-line, with or without additional control on salt emissions.

Analysis of Salt Deposition from Cooling Tower Drift

The cooling towers were the only source of saline drift analyzed by the applicant. The analysis had certain deficiencies as noted in our petition. The analysis should be refined by using appropriate tower performance parameters provided by the vendor and/or measured in the monitoring program. The model should be modified as needed and used to obtain careful estimates of salt deposition to properties around the Palo Verde site. In addition, the deposition results should be tabulated in a month-by-month format so that detailed comparison with growing seasons can be made.

Analysis of Salt Deposition from Evaporation Pond Blow-off

Evaporation ponds were not considered as a potential source of salt deposition by the applicant. As shown in our petition these could be a major source of salt. The design and operation of the evaporation ponds should be carefully analyzed to determine if they could become a source of wind-blown salt dust. The dynamics of the pond should be examined including input of cooling tower blow-down, seepage into the soil, evaporation into the atmosphere, etc. The fraction of the pond area that is dry as plant operation continues over years should be determined

along with the nature (erodability) of the dry surface and the means of dust control if salt blow-off should be a problem. Operating experience with ponds under similar climatic conditions should be located, if possible. The salt deposition to off-site locations should be modeled and the results tabulated on a month-by-month basis.

Analysis of Salt Deposition from Spray Pond Drift

Salt deposition resulting from spray pond use during unit shutdown was not analyzed by the applicant. The operating parameters of the spray ponds should be established, e.g., salinity levels, drift rate, etc. The deposition on off-site properties should then be estimated through careful modeling and the results tabulated on a month-by-month basis.

Recommendation for Correcting the
Deficiencies in the EIS for PVNGS

January 1983

Charles L. Mulchi, Ph.D.

1. A monitoring program to acquire baseline atmosphere salt concentrations and deposition rates on crops in the region near PVNGS should be started immediately. The program should use state of the art procedures and span the various seasons of the year, making sure the full range of environmental conditions are included. The program should continue after the initiation of Unit 1 operations and be expanded to include an assessment of salt emissions from all sources (cooling towers, evaporation ponds, spray system, etc.).

2. The section of the EIS concerning the modeling of salt emissions, transport and deposition in the region near PVNGS has to be revised. Several drift models should be compared using meterological data collected at PVNGS. The models selected should have been tested under field conditions in environments as similar to that at PVNGS as possible. If necessary, the relationships between atmospheric concentration and deposition rates and impaction on vegetation in desert environments should be researched to a greater degree. Worst case situations such as changes in the salinity of the tower make-up water, periods of high humidity and calm winds, etc., should be examined and reported for each tower. Also, all sources of salt emissions at PVNGS must be included. The ultimate fate of the millions

of pounds of salts to be emitted from the PVNGS each year must be fully known before one can attempt to assess the future impact on crops, etc.

3. Using the updated modeling results concerning salt deposition rates, impaction, etc. previously discussed, experiments simulating the impact on agricultural crops throughout the life cycle of the plants should be conducted. These studies should include all of the major crops currently grown in the region, especially cotton, alfalfa, melons, grapes, lettuce, carrots, etc. The studies should be conducted under environments similar to that near PVNGS using cultural practices typical for the area. The treatments should include irrigation with water having salinity rates comparable to that currently supplied by the Buckeye Irrigation Co. and farm wells plus increased levels of salts which will likely occur as high quality irrigation water availability decreases as Units 2 and 3 begin full operations. The foliar treatments should span the range of salt deposition rates projected for PVNGS plus a factor of 10 to cover for errors in modeling. The crops should be rated for salt tolerance and yields and quality information should be collected. This information will be vital to farmers having to make decisions concerning the selection of crops to be grown in the region impacted by PVNGS. (Note: It is preferred that these investigations be conducted in natural environments rather than in greenhouse or growth chambers because (a) yield and quality information on crop plants grown in artificial environments are

at best speculative, and (b) salt accumulation on leaves and wetting and drying action of brief rain events and morning dew formation, etc. will be difficult to simulate in artificial environments).

4. Cost analyses concerning the agricultural sector should be revised to include: (a) yield reduction associated with having to shift to higher saline irrigation water as high quality irrigation water from the City of Phoenix becomes less available after Units 2 and 3 become operational; (b) yield and quality reduction due to salt impact on vegetation; (c) cost of added irrigation to leach salts from soils associated with the shift to lower quality irrigation water; (d) loss of some farms which are currently operating in marginally high saline conditions; and (e) impact of water shortages on farms downstream on the Salt River below the Buckeye Irrigation District which currently use all of the surplus waste water not consumed by the Buckeye Irrigation Co.

5. Methods to reduce salt emissions and water consumption by PVNGS should be explained. Using the revised economic analysis from the agricultural section as a guide, the cost of various options for changes at PVNGS can be more properly addressed. Reduction in either or both of these parameters would greatly reduce the pending impact on agriculture. For example, shifts to dry cooling facilities would reduce the impact to zero for Units 2 and 3. Hopefully the impact from

Unit 1 will be minimal. In these considerations, it will be important to assume that agriculture will remain an important economic factor for the region for perhaps longer than the life of PVNGS. Some shifts in land use are going to happen irrespective of PVNGS; however, the region is too vast to assume a total shift from agriculture in the next several decades as some forecasters less familiar with the region have presumed. Since agriculture has been the primary economic factor in the region for generations, it must receive priority. If the cost of options to reduce water use and salt emission from Units 2 and 3 at PVNGS are too high to be economical for APS, perhaps APS should consider relocating Units 2 and 3 to other areas in the southwest where a more favorable economic climate exists.

Comments Regarding Topics Which Should Be Addressed in Preparation of a Supplementary Environmental Statement Regarding Salt-Drift- and Water-Consumption-Related Environmental Effects of Operation of the Palo Verde Nuclear Generating Station

by

Michael W. Golay
Consultant

prepared for
West Valley Agricultural Protection Council
Phoenix, AZ
February 17, 1983

Overview: The major environmental effects of concern are those associated with salt drift and water consumption at the PVNGS site. The following discussion focuses upon aspects of the PVNGS cooling system and its design which will cause environmental effects in these two categories and upon strategies for their mitigation. This discussion supplements that of the report "Examination of Salt-Drift- and Water-Consumption-Related Aspects of the Palo Verde Nuclear Generating Station," (Golay, 1982), which discusses the important sources of such effects and possible strategies for their mitigation. Rather, the discussion of this report consists of an outline of important issues which must be addressed in preparation of a comprehensive, accurate Environmental Statement concerning such effects. Effects of the cooling towers and spray pond at the PVNGS site are considered separately. The scope of this report is restricted to the sources of drift and water consumption associated with these cooling devices, possible alternatives and mitigation strategies, and off-site drift transport.

COOLING TOWER--RELATED ENVIRONMENTAL EFFECTS

Assessment of Environmental Effects

- Accurate measurement of the space- and droplet-size dependent drift liquid and salt mass fluxes is needed. Such measurements are needed for accurate characterization of the drift source created by a cooling tower, and for demonstration of proper performance of the cooling tower drift elimination system. It is very difficult to perform such measurements accurately. Consequently, it is necessary that the Environmental Statement (ES) address what is to be measured, where, how, when, why and how well in order to demonstrate a recognition of the purposes and limitations of such measurements and to show that efforts to minimize such limitations will be undertaken.

- Continuous monitoring over cooling tower life of drift emissions is essential for maintenance of environmental quality. Cooling tower conditions change over life, with the likely result that drift emissions will increase in time. The ES should recognize this fact and show how such increases will be detected and eliminated.

- Comprehensive verification of the models used to describe drift transport is essential to accurate environmental impact analysis. Models used for such work are often seriously inaccurate. To the degree that the PVNGS site meterology is different from that at sites at which such models are more commonly applied, the empirical information which they employ becomes increasingly less valid. These remarks apply equally to the models for plume behavior and to those for the motion and mass change of drift droplets within the plume and the atmosphere.

- Evaluation of drift releases and effects arising from sources outside the fill and due to off-design operation must be taken into account. Sources of such releases include drift from the hot water distribution system, and increased releases due to cooling tower deterioration, wind effects and other off-design meterological conditions.

- Evaluation of the costs to society of cooling tower water consumption, including examination of methods for correct assessment of the value of water must be performed as part of the PVNGS benefit-cost analysis which is required in an ES. Water consumption-reducing strategies such as those involving blowdown elimination through desalination and/or chemical treatment should also be addressed.

- Salt concentration-minimizing cooling system designs should be examined in the ES. This can be done by examining means of desalination of the recirculating water. Such concentration minimization would be valuable as a means of minimizing salt drift emissions routinely, and as a means of dealing with periods of unusually saline makeup water. It would also have the benefit of reducing blowdown flows.

Possible Cooling System Alternatives and Environmental Impact Mitigation Strategies

- Drift-minimizing cooling tower designs should be examined in the ES. Such designs include those employing very high efficiency drift eliminators, and low gas velocity cooling towers.

- Water consumption minimizing cooling tower designs should be examined in the ES. This is done by reoptimization of the tower, reflecting higher costs of water than those used in the basic design. To the degree that construction of the cooling towers has progressed to the point that a complete reoptimization would be meaningless, local reoptimization reflecting constraints imposed by completed cooling tower work should be performed.

- Alternative cooling technologies should be examined which may be used partly or completely as substitutes for the evaporative cooling towers currently planned for use at the PVNGS. The most attractive such alternative probably involves use of base-loaded dry cooling, employing either a conventional water cooling system or a binary fluid cooling system such as that based upon ammonia. In this mode, evaporative cooling could be used in combination with the dry cooling. The degree to which following this course has been foreclosed by prior construction of evaporative cooling towers may be substantial. However, if

the evaporative tower fill designs were reoptimized to reduce water consumption and drift releases, it is reasonable to expect that additional cooling capacity would be required at the site. If this capacity were to use dry cooling technology, and be used in a base-loaded mode, it could contribute maximally to reduction of the environmental effects of interest.

SPRAY POND-RELATED ENVIRONMENTAL EFFECTS

Assessment of Environmental Effects

- Accurate measurement of the space- and droplet size-dependent drift liquid and salt mass fluxes, as with cooling towers, is very difficult to perform in spray ponds. This is because the spray pond drift source is distributed over the entire pond, and has a complicated spatial structure, which can change significantly as the local weather changes. In addition to these factors, the difficulties associated with the technology for performing an accurate point measurement of the drift fluxes remain the same in this situation as in the cooling tower case. It is essential that an adequate ES examine how such measurements would be made, what their uncertainties would be and how such uncertainties would be taken into account in anaysis of spray pond-associated environmental effects.
- Knowledge of the spray pond drift source prior to the performance of such a measurement necessarily must be poor because of the paucity of the existing relevant literature and because of the sensitivity of spray pond drift releases to the details of the pond and spray geometries as well as weather. An ES concerning such drift effects must pay special attention to quantification of this uncertainty and its incorporation into any analysis of environmental effects.
- Plume rise, the drift source flux and subsequent off-site drift transport from spray ponds will be strongly influenced by the local weather and the spray pond heat load. It is essential that the environmental effects analysis of an ES recognize the importance of such influences and quantify both their effects and the uncertainties associated with

the estimates of such effects.

- Erosion of the dry salt beds and offsite transport of such salt which could occur when all spray pond water had evaporated must be analyzed in any ES. This will be difficult because the basic data needed for such an analysis are large unavailable and will be subject to significant uncertainties. Consequently, the estimation of these associated uncertainties will be of central importance to any environmental effects analysis which is performed.

Possible Spray Pond Alternatives and Environmental Impact Mitigation Strategies

- The major available means of mitigating spray pond environmental effects is reduction of the salinity of the water being sprayed into the air. This could be accomplished using a desalination system similar to that discussed previously in connection with cooling tower water desalination. The ES should address this and any other methods of reducing spray pond environmental effects (no other attractive candidates for this purpose come to mind).

- The main alternative to use of a spray pond as an ultimate heat sink is use of another type of ultimate heat sink. Of the available technologies, an emergency cooling evaporative cooling tower appears to be the most feasible to use. This judgement reflects both the experience in which such cooling towers have been used previously and the recognition that such towers would be environmentally preferable to spray ponds. Whether their use would be permitted under current nuclear safety regulations is unknown.

REFERENCES

M. Golay, "Examination of Salt-Drift- and Water-Consumption-Related Aspects of the Palo-Verde Nuclear Generating System," Report for the West Valley Agricultural Protection Council (September 1982).

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	
ARIZONA PUBLIC SERVICE COMPANY, et al.	)	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 Motion Seeking Stay of Decision Permitting Hearing to Proceed With Inadequate EIS and Memorandum in Support thereof have been served upon the following listed persons by deposit in the United States mail, properly addressed and with postage prepaid, this 22nd day of July 1983.

Alan S. Rosenthal, Chairman
Administrative Judge
Atomic Safety & Licensing
Appeal Board
U.S. Nuclear Regulatory Comm.
Washington, D.C. 20555

Howard A. Wilber, Member
Administrative Judge
Atomic Safety & Licensing
Appeal Board
Washington, D.C. 20555

Robert M. Lazo, Esq., Chairman
Administrative Judge
Atomic Safety & Licensing Board
U.S. Nuclear Regulatory Comm.
Washington, D.C. 20555

Dr. Richard F. Cole
Administrative Judge
Atomic Safety & Licensing Board
U.S. Nuclear Regulatory Comm.
Washington, D.C. 20555

Dr. Dixon Callihan
Administrative Judge
Union Carbide Corporation
P. O. Box Y
Oak Ridge, Tennessee 37830

Warren Platt, Esquire
Snell & Wilmer
3100 Valley Center
Phoenix, Arizona 85073

Docketing and Service Section
Office of the Secretary
U.S. Nuclear Regulatory Comm.
Washington, D.C. 20555

Lynne Bernabei, Esquire
Government Accountability Project
Institute for Policy Studies
1901 Q Street, N.W.
Washington, D.C. 20009

Rand L. Greenfield
Assistant Attorney General
P. O. Drawer 1508
Sante Fe, New Mexico 87504-1508

Arthur Gehr, Esquire
Snell & Wilmer
3100 Valley Center
Phoenix, Arizona 85073

Edwin J. Reis, Esquire
Office of the Exec. Legal Dir.
U.S. Nuclear Regulatory Comm.

Lee Scott Dewey, Esquire
Office of the Exec. Legal Dir.
U.S. Nuclear Regulatory Comm.
Washington, D.C. 20555

Dated: July 22, 1983

Geri L. Kelly
Secretary to:

Kenneth Berlin
Attorney at Law
2550 M Street, N.W.
Suite 500
Washington, D.C. 20037
(202) 429-8501

Attorney for Petitioner
West Valley Agricultural
Protection Council, Inc.