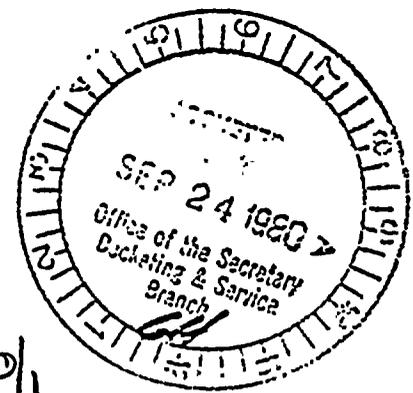


UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Richard S. Salzman, Chairman  
Dr. John H. Buck  
Thomas S. Moore



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SEP 24 1980

Docket Nos. 50-387 4 1980  
50-388

In the Matter of )  
PENNSYLVANIA POWER & LIGHT COMPANY AND )  
ALLEGHENY ELECTRIC COOPERATIVE, INC. )  
(Susquehanna Steam Electric Station, )  
Units 1 and 2) )

Dr. Judith H. Johnsrud and Dr. Chauncey Kepford,  
State College, Pennsylvania, for Environmental  
Coalition on Nuclear Power, intervenor.

Messrs. Jay E. Silberg and Matias F. Travieso-Diaz,  
Washington, D. C., for Pennsylvania Power &  
Light Company and Allegheny Electric Cooperative,  
Inc., applicants.

Mr. James M. Cutchin, IV, for the Nuclear Regula-  
tory Commission staff.

DECISION

September 23, 1980

(ALAB-613)

1. Background. This matter is before us on referral by the Commission. The Licensing Board is considering applications for licenses to operate the nuclear-powered Susquehanna electric generating plants. The Environmental Coalition on Nuclear Power

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(the "Coalition") has intervened in the proceeding and opposes granting the licenses to the Pennsylvania Power & Light Company and the Allegheny Electric Cooperative, the applicants. The Coalition is represented by two of its officers, Drs. Chauncey Kepford and Judith H. Johnsrud. One or both of those individuals are also participants in other Commission evidentiary proceedings now in progress.<sup>1/</sup>

On March 15, 1980 the Coalition petitioned the Commission directly. It alleged that the Licensing Board had refused to stop the applicants from using the discovery process as a means of harrassment. The petition asked in essence that the Commission (a) halt the proceeding pending review of the discovery abuses; (b) clarify aspects of the discovery rules and decide issues under them; (c) replace the present Licensing Board with one including a Commissioner; and (d) stay the proceeding until the staff completes its Final Safety Evaluation Report and the Coalition has had sufficient time to review it. On May 16th the Commission referred the petition to us for appropriate action. CLI-80-17, 11 NRC 678.

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<sup>1/</sup> See, e.g., Metropolitan Edison Co. (Three Mile Island, Unit No. 1), LBP-80-17, 11 NRC 893 (1980) (restart proceeding); Three Mile Island, Unit No. 2, ALAB-525, 9 NRC 111 (1979) (aircraft crash probability); Philadelphia Electric Co. (Peach Bottom Station, Units 2 and 3), et al., ALAB-562, 10 NRC 437 (1979) (radon proceeding).

The Licensing Board had continued to rule on discovery matters in the interim and some of its rulings modified the Coalition's discovery obligations. We accordingly inquired on May 23rd whether the Coalition's complaints had now been alleviated. ALAB-593, 11 NRC 761. The applicants and the staff replied affirmatively but the petitioner disagreed. It insists that (except for one matter rendered moot by the passage of time) it still needs the relief it requested, including "six months of additional time for unimpeded preparation." We therefore turn to the petition.

2. Grounds for review. The Rules of Practice give us discretionary authority to review a licensing board's "interlocutory" rulings, i.e., those disposing of less than an entire cause. 10 C.F.R. §§2.718(i), 2.730(f) and 2.785(b)(1). That authority, however, is reserved for exceptional and important issues. Questions about the proper scope of discovery are normally not of that genre. These matters are particularly within a trial board's competence and appellate review of such rulings is usually best conducted at the end of the case.<sup>2/</sup>

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<sup>2/</sup> See, The Toledo Edison Co. (Davis-Besse & Perry), ALAB-560, 10 NRC 265, 286-87, fn. 59 (1979); Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-438, 6 NRC 638 (1977); Long Island Lighting Co. (Jamesport Station, Units 1 and 2), ALAB-318, 3 NRC 186 (1976); The Toledo Edison Co. (Davis-Besse Station, Unit 1), ALAB-314, 3 NRC 98 (1976).

The Coalition's petition, however, alleges matters more serious than run-of-the-mill discovery disputes. Petitioner claims that the applicants and staff have abused the discovery procedures in order to block its effective participation if not to drive it from the litigation. That charge is coupled with an allegation that the Licensing Board has abetted the scheme. The Coalition's allegations, if substantiated, would call into question the integrity of Commission licensing proceedings. These circumstances give us cause to look more fully into the situation. We do so in the exercise of our certification jurisdiction.<sup>3/</sup>

## II.

1. Introduction. Even a brief review of the papers makes it apparent that an understanding -- or misunderstanding -- of NRC discovery practice lies at the heart of this controversy. Discovery is the descriptive term for procedures available to help litigants learn the nature of an adversary's case in advance of trial. Without recounting the development of the process chapter and verse, it is sufficient for this case to note that an important reason for allowing discovery is to

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<sup>3/</sup> See, Public Service Electric and Gas Co. (Salem Station, Unit 1), ALAB-588, 11 NRC 533, 536 (1980); Puget Sound Power and Light Co. (Skagit Project, Units 1 and 2), ALAB-572, 10 NRC 693, 695 fn. 5 (1979), and cases there cited.

eliminate, insofar as possible, the element of surprise in modern litigation. The underlying concept is to shorten the actual trial, with its attendant expense and inconvenience for all concerned, while increasing the parties' ability to develop a complete record for decisional purposes. The Supreme Court explained in Hickman v. Taylor that

[t]he various instruments of discovery now serve (1) as a device, along with the pre-trial hearing under Rule 16, to narrow and clarify the basic issues between the parties, and (2) as a device for ascertaining the facts, or information as to the existence or whereabouts of facts, relative to those issues. Thus civil trials in the federal courts no longer need be carried on in the dark. The way is now clear, consistent with recognized privileges, for the parties to obtain the fullest possible knowledge of the issues and facts before trial. 4/

Stated another way, "[i]n modern administrative and legal practice, pretrial discovery is liberally granted to enable the parties to ascertain the facts in complex litigation, refine the issues, and prepare adequately for a more expeditious hearing or trial." 5/

The various instruments of discovery include requests for admissions of fact; demands that documents be produced for

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4/ 329 U.S. 495, 501 (1947); accord, United States v. Procter & Gamble Company, 356 U.S. 677 (1958); Miner v. Atlas, 363 U.S. 641 (1960).

5/ Pacific Gas and Electric Co. (Stanislaus Project), LBP-78-20, 7 NRC 1038, 1040 (1978)..

inspection and copying; depositions on oral examination; and "interrogatories." 10 C.F.R. §2.740(a). The last are simply written questions calling for sworn written answers. 10 C.F.R. §2.740b. All discovery requests must be relevant to the subject matter of the proceeding; that is, they may "relate only to those matters in controversy which have been identified by the [Licensing Board following a special] prehearing conference." 10 C.F.R. §2.740(b)(1).

The NRC rules governing discovery from parties other than the staff are modelled on the Federal Rules of Civil Procedure.<sup>6/</sup> Like their judicial counterparts, they attempt to minimize involvement by the trial board; once the time for discovery begins the board's leave is not needed to proceed. It is only in the event of an objection to a discovery request or a failure of proper compliance that a "motion to compel discovery" is necessary. 10 C.F.R. §2.740(f).

It is not proper for a party to ignore a discovery request. Interrogatories, for example, must either be answered or objected to in the time allowed. 10 C.F.R. §2.740b(b). Objections may be accompanied by a motion for a "protective order"

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<sup>6/</sup> 10 C.F.R. Part 2, App. A, SIV(c) (1980 Ed. at 105); Commonwealth Edison Co. (Zion Station, Units 1 & 2), ALAB-196, 7 AEC 457, 460 (1974); Boston Edison Co. (Pilgrim Station, Unit 2), LBP-75-30, 1 NRC 579, 581 (1975); Allied General Nuclear Services (Barnwell Station), LBP-77-13, 5 NRC 489 (1977).

to modify or eliminate the obligation to respond, but the movant must establish "good cause" for issuing such an order. 10 C.F.R. §2.740(c). And as in judicial practice, general objections do not provide that cause. Challenges to interrogatories must be

specific enough so that the [tribunal] can understand in what way the interrogatories are claimed to be objectionable. General objections, such as the objection that the interrogatories will require the party to conduct research and compile data, or that they are unreasonably burdensome, oppressive, or vexatious, or that they seek information that is as easily available to the interrogating as to the interrogated party, or that they would cause annoyance, expense, and oppression to the objecting party without serving any purpose relevant to the action, or that they are duplicative of material already discovered through depositions, or that they are irrelevant and immaterial, or that they call for opinions and conclusions, are insufficient. 7/

Discovery against the staff is on a different footing. With limited exceptions, Commission regulations make staff documents that are relevant to licensing proceedings routinely available in the NRC Public Document Room. 10 C.F.R. §2.790(a). The contemplation is that these "should reasonably disclose the basis for the staff's position," 8/ thereby reducing any need for formal discovery. Reflective of that policy, the Rules of Practice

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7/ 4A Moore's Federal Practice (1980 ed.) ¶33.27 (at pp. 33-151 and 33-152) (citations omitted); and see 10 C.F.R. §2.740b(b); Pilgrim, supra, LBP-75-30, 1 NRC at 583 ff.

8/ NRC "Statement of General Policy and Procedure: Conduct of Proceedings for the Issuance of Construction Permits and Operating Licenses \* \* \*," 10 C.F.R. Part 2, App. A, §IV(d).

limit documentary discovery against the staff to items not reasonably obtainable from other sources, 10 C.F.R. §2.744; require a showing of "exceptional circumstances" to depose staff personnel, 10 C.F.R. §§2.720(h) and 2.740a(j); and allow interrogatories addressed to the staff only "where the information is necessary to a proper decision in the case and not obtainable elsewhere."<sup>9/</sup> See 10 C.F.R. §2.720(h)(2)(ii). In addition, the licensing board's advance permission is needed to depose staff members or to require the staff to answer written interrogatories. Ibid.

2. The proceeding below. Notice of opportunity for a public hearing on the applicants' request for an operating license was published on August 9, 1978. 43 Fed. Reg. 35406. The Coalition and others petitioned for such a hearing and sought leave to intervene.<sup>10/</sup> On January 15, 1979 the Coalition amended its petition to clarify its assertions of interest and standing. That amendment also set forth twelve contentions

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<sup>9/</sup> Ibid.

<sup>10/</sup> The other petitioners were Colleen Marsh et al.; Susquehanna Environmental Advocates (SEA); and Citizens Against Nuclear Danger (CAND). In addition, the Radiation Protection Bureau of the Pennsylvania Environmental Resources Department sought intervention under 10 C.F.R. §2.715(c) as the representative of an "interested state."

the Coalition sought to have litigated. These ranged in subject matter from the health effects of the uranium fuel cycle to design deficiencies in the facility's nuclear steam supply system and are reprinted in full in Appendix A, infra, p. 43.

As 10 C.F.R. §2.751a requires, the Licensing Board held a prehearing conference to consider the intervention petitions and the contentions. The Board's March 6, 1979, "Special Prehearing Conference Order" reflects its determinations: The Coalition and three other petitioners were admitted as parties, certain contentions were rejected as beyond the Board's jurisdiction, duplicative contentions were combined, and others were rephrased for the sake of clarity. The Board accepted in all some eighteen contentions (not counting subparts) -- including ten of the Coalition's twelve<sup>11/</sup> -- and ordered a public hearing held to consider them. LBP-79-6, 9 NRC 291 (1979).

3. The contentions. Of the contentions admitted, eight involved environmental issues, eight raised safety questions, and two were mixed. As the Licensing Board characterized and numbered them (Coalition-sponsored contentions are underscored),

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<sup>11/</sup> The two Coalition contentions not accepted involved halting construction pending archeological investigations (rejected for being submitted too late as a practical matter) and a general objection to the use of the "single failure" criterion in the plant's design (rejected under 10 C.F.R. §2.758 as an impermissible challenge to Commission regulations). See 9 NRC at 323.

the environmental contentions related to (1) effects of the uranium fuel cycle; (2) effects of low-level radiation and other discharges from the facility; (3) adequacy of uranium supply; (4) need for power; <sup>12/</sup> (14) generating capacity of the facility; (16) cooling tower discharges; (17) transmission lines; and (18) herbicides.

The safety contentions concerned (5) the models used to calculate low-level radiation doses; (6) evacuation; (7) and (8) unresolved generic safety issues; <sup>13/</sup> (10) transportation of spent fuel; (11) storage of radioactive wastes; (12) and (13) other safety contentions raised by another intervenor.

Contentions raising both environmental and safety issues were (9) decommissioning; and (15) occupational exposures to radiation. The contentions that the Board accepted appear in Appendix B, infra, p. 57.

Two other rulings in that March 6th order are important here. First, the Licensing Board denied as beyond its authority the Coalition's request to have a Commissioner serve as a Board member. Second, the Board set a schedule for conducting

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<sup>12/</sup> As accepted by the Board, this included two of the Coalition's contentions.

<sup>13/</sup> As accepted by the Board, these encompassed issues raised in one of the Coalition's contentions.

the hearing. This authorized (among other things) the immediate commencement of discovery and fixed May 25th as the "last day for submission of first-round discovery requests," with responses due June 29, 1979. 9 NRC at 327-29.

4. The first round of discovery.

(a) Requests. The staff, the applicants and the Coalition all made timely requests for discovery.<sup>14/</sup> The staff sought the Coalition's answers to a number of interrogatories directed to the ten contentions the Coalition had sponsored, together with two "general interrogatories" asking for the identity of its proposed expert witnesses and for information about their expertise, planned testimony, and supporting documentary evidence. The staff's "First Round" of interrogatories to the Coalition appears in Appendix C, infra, p. 70 .

The applicants also served interrogatories on the Coalition. These were similar in form to the staff's. They consisted of about 150 specific questions directed to admitted contentions and "general interrogatories" seeking the evidentiary basis for the Coalition's answers, together with a "followup"

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<sup>14/</sup> Requests by or to other parties are not relevant to the matter now before us.

interrogatory about expert witnesses. The applicants' interrogatories, unlike the staff's, covered all the admitted contentions and identical sets were served on all intervenors. The applicants' "First Set" of interrogatories appears in Appendix D, infra p. 86.

The Coalition's discovery demands of the staff and of the applicants included not only interrogatories but also requests for large numbers of documents, including transcripts of Commission meetings, "all correspondence" on certain topics, and reports on the accident at Three Mile Island. The Coalition's "First Round Discovery Requests" appear in Appendix E, infra, p. 116.

(b) Responses. On June 29th, the Coalition provided eight pages of responses to the staff's first round of interrogatories but answered none of the applicants'. Instead, calling them "extraordinarily burdensome, oppressive and utterly pointless," it sought a protective order. As grounds for that relief, the Coalition pointed to the number of interrogatories applicants had served and calculated that it had been asked to supply "up to a total of 2700 separate answers." Stating that it had neither the time or the resources to respond, the Coalition contended that applicants' interrogatories amounted to deliberate

and unnecessary harrassment and asked to be excused from responding to any of them.

On the other hand, the applicants responded to most of the Coalition's discovery demands by mailing it some of the requested documents and by making others available for inspection and copying at their counsel's office in Allentown, Pennsylvania. The applicants objected to two of the Coalition's discovery requests as seeking information irrelevant to the matters in controversy or unrelated to the Coalition's contentions.

The staff answered the Coalition's discovery demands with a letter dated June 27, 1979. In it, the staff asserted that the Coalition had not complied with the rules governing discovery from the staff (see pp. 7-8, supra) and therefore that it need not respond to those demands. The staff letter went on, however, to inform the Coalition that the documents and information sought were available for inspection and copying in the NRC Public Document Room (PDR) in Washington (or in Harrisburg, Pennsylvania, for information involving the Three Mile Island facility). Any NRC documents not there, the letter represented, would be made available at staff counsel's office in Bethesda, together with any relevant non-NRC documents that the Commission possessed, provided that the Coalition specified the ones it could not locate in the public document rooms. The letter also told the

Coalition that many of the reports it had requested were contained in published documents and explained where these could be purchased. Finally, the staff objected specifically to a few of the Coalition's discovery demands.

(c) Motions to compel discovery. The staff complained that the Coalition's answers were evasive, incomplete, dilatory and unresponsive, and moved on July 13th for an order directing that intervenor to supplement its interrogatory responses and putting it on notice of the consequences of not doing so. Three days later the applicants moved to compel answers to their interrogatories on the ground that the Coalition's blanket objection to them was unjustified. The applicants denied that their interrogatories were unduly numerous and insisted that they sought relevant and necessary information. Their motion papers acknowledged instances where Coalition answers to staff interrogatories had furnished some of the information applicants also sought and withdrew four interrogatories for that reason.

(d) The Licensing Board's rulings. In an August 24th order explaining its actions, the Board ruled on the various discovery motions. It denied the Coalition's motion for a protective order, on the ground that a general objection to all applicants' interrogatories was legally insufficient basis for

such relief, and granted the other parties' motions to compel discovery. The Board gave the Coalition two more weeks either (1) to answer the applicants' interrogatories and supplement its earlier responses to the staff or (2) to file specific "reasons why each discovery request [was] objectionable to it."

(5) Further proceedings. As we detail in the margin below,<sup>15/</sup> despite the Board's orders the Coalition persisted in its refusal

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<sup>15/</sup> Following the Licensing Board's order of August 24, 1979, the Coalition on September 10th served a "Second Round" of discovery requests on the staff. Although this sought an additional document and more transcripts, it was largely a belated objection to the staff's "first round" responses. The Coalition complained about the staff's making documents available for inspection and copying in the NRC Public Document Rooms rather than mailing them to it without charge. The Coalition stressed that it was participating in the proceeding "as a public service." Because its representatives lived more than 125 miles from either PDR, they could neither afford to travel to Washington nor to purchase the documents, all of which were asserted to be necessary to the Coalition's participation.

Staff counsel responded with a second letter (dated September 13, 1979) reiterating its position (see p. 13, supra) and adding that furnishing the materials without charge was against Commission policy. The Coalition moved on September 24th to compel the staff to do so. The staff responded on October 15th stating that the Coalition had not complied with the rules of discovery against the staff and, in any event, that those rules only called for making the documents available for inspection and copying, as had been done.

The Coalition responded on September 17th to the Licensing Board's August 24th order compelling it to make discovery. Protesting that order as requiring "detailed and repetitive responses to unreasonable, burdensome, and unduly oppressive numbers of Interrogatories from the [applicant and staff]," it renewed its request for a protective order. It contended  
(FOOTNOTE CONTINUED ON NEXT PAGE)

to answer the applicants' interrogatories, reiterating that their large number made responding unduly burdensome. The Coalition, on the other hand, asked the Board to order the staff to mail free copies of all the documents it had demanded to its representatives, asserting that it could afford neither to purchase those

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15/ (FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

that lack of counsel, funds and access to documents and transcripts hindered its ability to provide answers within the established deadlines. (Response, pp. 1-3.) It also sought to excuse its lack of responses to the applicants' and staff's filings with the explanation that "personal responsibilities" and "prior commitments" had caused its representatives to be absent from Pennsylvania for most of July and August. In support of its request for a protective order, the Coalition set forth specific objections to the staff's interrogatories and supplemented one of its earlier responses. However, it continued to decline either to answer or to object specifically to the applicants' interrogatories, once again characterizing them as "extraordinarily burdensome," and asking the Board either to reduce them to a "rational and defensible number" or to allow a full year -- until September 15, 1980 -- for the Coalition to answer. (Id. at p. 12.)

Both the staff (on October 9, 1979) and the applicants (on October 12, 1979) moved to dismiss the Coalition from the proceeding for failure to make discovery as ordered. The staff, however, favored giving the Coalition an additional fourteen days to respond properly. The applicants did not oppose that idea, but doubted that a third opportunity was warranted. Both movants also asked the Board to dismiss contentions raised solely by the Coalition. Intervenor responded by accusing the staff of "relentless burdensome harrassment" and objecting to "the enormity and viciousness of the Applicants' demands." ECNP Response to Staff Motions, filed October 13, 1979, p. 4; ECNP Response to Applicants' Motion, filed October 22, 1979, pp. 1-2.

The Licensing Board ruled on October 30th. LBP-79-31, 10 NRC 597. After detailing the numerous additional filings (FOOTNOTE CONTINUED ON NEXT PAGE)

documents nor to send its representatives to the Public Document Rooms to inspect and copy them.

The applicants and staff then moved to dismiss the Coalition from the proceeding and to strike its contentions for failure to make discovery. In a series of rulings explaining its actions,

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15/ (FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

made in the course of what it terms the parties' "procedural skirmishing," the Board observed that the discovery process was not working in this proceeding. Despite its conclusion that there might be grounds to dismiss the Coalition, the Board decided that strict construction of discovery rules was inappropriate and that "dismissal of any of the intervenors or their contentions . . . would not be warranted." 10 NRC at 602. The Board instead lightened the Coalition's obligations by postponing discovery on health and safety issues until the end of the environmental phase of the hearing and by excusing all intervenors from answering interrogatories except on their own contentions. These measures left the Coalition obligated to make discovery on only five contentions.

The Board acknowledged that by making documents available in the public document rooms, the staff had responded to the Coalition's discovery requests "in accord with NRC rules." 10 NRC at 605. Nevertheless, in an effort to assist the Coalition, the Board urged the staff to give that intervenor documents where possible and to take other steps to make them available locally; for example, at the Pennsylvania State University Library in the town of State College, where both the Coalition's representatives reside. (The Reactor site is some one hundred miles to the east in Salem Township, Luzerne County, Pennsylvania; the local PDR is in Wilkes-Barre.) Acting on the Board's suggestion, staff counsel forwarded extra copies of sixteen documents to the Coalition on November 15, 1979 and of five additional documents on November 26, 1979. Finally, the Board granted all parties an extension until December 14, 1979 to respond to outstanding discovery requests.

On November 19, 1979 the Coalition protested the Board's latest discovery order, again complaining that the outstanding discovery requests were unreasonable and alleging (FOOTNOTE CONTINUED ON NEXT PAGE)

the Licensing Board denied that relief. Instead, the Board allowed the Coalition to limit its responses to those discovery demands related to its own environmental contentions and deferred the Coalition's obligation to answer interrogatories on its health and safety contentions (including those involving

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15/ (FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

that the Board had demonstrated an "unswerving bias and total inability to conduct a fair hearing." Contending that the Board's order forced it to choose between (1) dropping out of all other NRC proceedings in order to answer interrogatories in this one or (2) ignoring the Board's order in this case in order to keep up with the others, the Coalition once more moved for a protective order and for reconsideration of the Board's decision. It also asked the Board to certify the Coalition's discovery complaints to the Commission, including a request that the Licensing Board be disbanded for "gross incompetence" and reconstituted with a Commissioner as a member.

Both the applicants and staff opposed the Coalition's motion for the reasons given in the Licensing Board's October 30th decision (LBP-79-31, 10 NRC 597); the staff also opposed the request for certification.

The Licensing Board denied all of the Coalition's requests on December 6, 1979. It found them to be "disrespectful in tone, inaccurate and misleading in content, and frivolous in all respects." However, because the staff's Final Environmental Statement had been delayed, the Board extended the period for discovery responses, this time until January 18, 1980. Noting that the October 30th order had granted the Coalition "considerable relief" from outstanding discovery obligations, the Board questioned the intervenor's "ability to contribute to the substantive resolution of the issues it [had] raised" and suggested that "perhaps the organization [had] spread itself too thin and should not be attempting to participate in [so many] proceedings at once." (Order, pp. 5-6.)

On January 18th, "with strong protest," the Coalition answered applicants' interrogatories on the five contentions (FOOTNOTE CONTINUED ON NEXT PAGE)

combined environmental and safety issues) until after the environmental hearings. LBP-79-31, 10 NRC 597 (1979); Order of December 6, 1979 (unpublished); Order Setting Prehearing Conference (published at 45 Fed. Reg. 13239 (February 28, 1980)). As a result, the Coalition was left to answer interrogatories on five (rather than eighteen) contentions<sup>16/</sup> and its time for doing so was in effect extended at this point from early September 1979 to mid-January 1980.

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15/ (FOOTNOTE CONTINUED FROM PREVIOUS PAGE) specified in the Board's order, which it termed "unjust in the extreme." The applicants, countering that the Coalition had either not answered or inadequately answered many interrogatories, moved on February 4th to compel further answers and to prohibit the Coalition from litigating three of its contentions. The Coalition then requested a protective order on February 19, 1980 to guard against "further requirements to reanswer," contending that it had responded adequately and in good faith.

The staff also believed that the Coalition's discovery responses were deficient and on February 25, 1980 supported the applicants' motion to exclude it from introducing direct testimony, but opposed the effort to prohibit the intervenor from cross-examining.

In view of the severity of the proposed sanctions, the Licensing Board scheduled a prehearing conference on March 20, 1980 to consider them. Order Setting Prehearing Conference, dated February 22, 1980 (published at 45 Fed. Reg. 13239 (February 28, 1980)). Before that argument was held, the Coalition filed its March 15th request to the Commission. It is this request that was referred to us for resolution and with which this opinion deals (see p. 2, supra).

16/ As explained in fn. 12, supra, Board-accepted contention 4 on need for power subsumed two of the Coalition's contentions dealing with that issue; its remaining discovery obligations concerned six contentions as originally submitted or five as designated in the Board's order of March 6, 1979. (LBP-79-6, 9 NRC 291.)

In passing on the Coalition's requests, the Licensing Board acknowledged that by making documents available in the PDR's the staff had complied with Commission rules. Nevertheless, the Board encouraged the staff to send the Coalition free copies if possible. The Board also asked the staff to make other materials available to intervenor's representatives in State College, Pennsylvania -- where they reside -- rather than in the local PDR that had been established in Wilkes-Barre, near the facility site, some 100 miles to the east. (The staff complied with the Board's request, if not entirely to the Coalition's satisfaction.)

The Coalition then answered some of the interrogatories as ordered (albeit with "strong protest"). Both the applicants and staff deemed those partial answers inadequate. Once more they moved to compel fuller answers or for sanctions; the Coalition in turn asked for a protective order excusing it from responding further. The Licensing Board's call for a prehearing conference on those motions triggered the Coalition's petition (now before us) to the Commission (see p. 2, supra).

The Board below thereafter denied the sanction requests, specified which of the Coalition's interrogatory answers were adequate, and allowed that intervenor until May 1, 1980, to supplement those that were not. LBP-80-13, 11 NRC 559 (1980). The Coalition filed additional answers on that date and more on May 20th; neither the applicants nor the staff touched on the adequacy of those answers in the subsequent briefs we called for in ALAB-593, supra, 11 NRC at 763.

III

We perceive three main themes in the Coalition's complaint: First, that the applicant unfairly asked it to answer "excessively large numbers of interrogatories"; second, that the Licensing Board failed to protect it from that "abuse" of the discovery process; and, third, that as "public-interest" litigants they were unfairly disadvantaged by the Commission's discovery rules. We discuss each in turn.

1. The number of interrogatories.

(a) The Rules of Practice (like the Federal Rules on which they are based) set no limit on the number of interrogatories parties may ask one another, provided that they relate to the issues in controversy. 10 C.F.R. §2.740(b)(1). The Coalition's petition does not argue that the interrogatories it objected to are irrelevant; it complains of their number. The Coalition asserts that its "mere dozen contentions" were unfairly met with "fully 2,700" interrogatories from the applicants.<sup>17/</sup>

The Coalition's complaint can neither be accepted nor rejected on the basis of those two figures. It is, to be sure, literally true that the Coalition submitted twelve contentions

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<sup>17/</sup> Coalition's "Request to the NRC Commissioners," dated March 14, 1980, at 6.

(of which the Board admitted ten). But a single contention can cover many subjects for inquiry; such is the case with the Coalition's. For example, the intervenor's first contention (rephrased and shortened by the Board) concerns the effect on human health of the uranium fuel cycle and appears in the margin below.<sup>18/</sup> Even a cursory reading suggests ten legitimate subjects for inquiry subsumed in it;

i.e., (1) the quantity of radon releases attributable to fabricating fuel for the plant; (2) how that quantity was assessed; (3) the health effects attributable to it; (4) how those effects influence the NEPA cost-benefit balance; (5) the other isotopes released in the fabrication process; (6) the quantities of those isotopes; (7) their health effects;

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"1. The quantity of radon-222 which will be released during the fuel cycle required for the Susquehanna facility has not been, but should be, adequately assessed. The radiological health effects of this radon should be estimated and these estimates factored into the cost-benefit balance for the operation of the plant.

The radiological health effects of all isotopes other than radon-222 which will be released during the fuel cycle required for the Susquehanna plant have been misrepresented and underestimated. In particular, the health effects of each long-lived isotope which will be released from the fuel cycle for Susquehanna should be reassessed. The appropriately determined effects must be factored into the cost-benefit balance for the operation of the plant." 9 NRC at 298.

The longer form of the contention as initially submitted appears in Appendix A, infra, at p. 43.

(8) and (9) how and by whom those effects have been misrepresented; and (10) how those effects influence the cost-benefit balance.

The radiological health and safety contentions are similarly multi-layered. For example, the Coalition asserts the existence of "numerous design deficiencies" in the plant's nuclear steam supply system that render the facility unsafe to operate.<sup>19/</sup> Even as rephrased and shortened by the Board for purposes of litigation, the contention has four subparts and each raises one or more serious allegations.<sup>20/</sup>

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<sup>19/</sup> See App. A, infra, pp. 53-56.

<sup>20/</sup> "7. The nuclear steam supply system of Susquehanna 1 and 2 contains numerous generic design deficiencies, some of which may never be resolvable, and which, when reviewed together, render a picture of an unsafe unclear installation which may never be safe enough to operate. Specifically:

a. The pressure suppression containment structure may not be constructed with sufficient strength to withstand the dynamic forces realized during blowdown.

b. The cracking of stainless steel piping in BWR coolant water environments due to stress corrosion has yet to be prevented or avoided.

c. BWR core spray nozzles occasionally crack, a problem which reduces their effectiveness.

d. The ability of Susquehanna to survive anticipated transients without scram (ATWS) remains to be demonstrated. In this regard, reliance on probabilistic numbers, as  $10^{-7}$  per year, is unwise and unsafe."

This multiple structure typifies all the Coalition's contentions. (See Appendix A, infra.) This is no criticism; safety questions involving nuclear power generation can have many facets. Our point is that the Coalition's references to its "mere dozen" contentions understates the number and complexity of matters it raised. Without attempting to quantify those matters precisely, it is fair to conclude that the Coalition's figure is low by at least a factor of five.

We stress again that there is nothing wrong with raising a great many issues. But the courts have long recognized that parties are entitled to discover all matters not privileged that tend to support or negate the allegations in the pleadings, or which are reasonably calculated to reveal such matters.<sup>21/</sup> It is therefore against the number and nature of the issues actually raised, not a count of formal contentions, that the reasonableness of applicants' discovery requests must be balanced. And that number is, as noted, substantially greater than the Coalition's petition indicates.

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<sup>21/</sup> Where discovery requests "are relevant directly to the issues raised by the pleadings they cannot be attacked." Sandee Mfg. Co. v. Rohm & Haas Co., 24 F.R.D. 53, 57 (N.D. Ill., 1959); Browning King Co. v. Browning King & Co., 5 F.R.D. 386, 387 (E.D. Pa., 1946); accord, Kainz v. Anheuser-Busch, Inc., 15 F.R.D. 242 (N.D. Ill., 1954); DuBois Brewing Co. v. United States, 34 F.R.D. 126, 127 (W.D. Pa., 1963).

(b) The applicants did not submit 2,700 separate interrogatories. Rather, they served a set of questions divided into sections corresponding to the contentions. The Coalition terms these the "basic" interrogatories. Coupled with them were four "general interrogatories" designed to elicit the foundation for the answers given to the basic interrogatories. The 2,700 figure is the Coalition's computation; its June 29, 1979 response to applicants' interrogatories explains the derivation of that figure: "The [Applicants'] basic questionnaire has about 150 questions and parts thereof. . . \* \* \* [T]he insidious nature of the problem lies in the four 'general interrogatories,' composed of a total of eighteen parts, and the Applicants ask that each of the 150 questions also be answered with respect to the eighteen 'general interrogatories.' This would require up to a total of 2,700 separate answers." (150 multiplied by 18).

(i) Turning first to the "basic" questions, it is apparent that the Coalition counted its contentions by one method and the applicants' interrogatories by another. Each contention was one unit regardless of the number of issues it raised; the interrogatories, however, were broken down into constituent parts for purposes of enumeration. The Coalition's assertion that the applicants had asked 150 "basic" interrogatories about

its "mere twelve" contentions rests on this basis.

An "apples and oranges" approach of that sort is not very enlightening. A different picture emerges if one compares like and like; e.g., the number of contentions against the number of basic interrogatories -- 12 vs. 18, or the approximate number of issues raised by the former against the individual questions in the latter -- 60 v. 150. But the fairest test is to compare the contentions themselves with the corresponding "basic" interrogatories; i.e., Appendix A with Appendix D. We have done so and are satisfied that the basic interrogatories relate to the matters in controversy and are not unreasonable in number. <sup>22/</sup>  
(By our count they average roughly ten per contention.)

(ii) This brings us to the heart of the Coalition's dissatisfaction over the number of contentions -- the four "insidious" general interrogatories (reprinted in the margin below). <sup>23/</sup>

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22/ This does mean that all 150 were flawless. We do not reach that question because the Coalition filed no specific objections to any of them.

23/ Applicants' full set of interrogatories appears in Appendix D, infra, pp. 86 ff. The following are their four "general interrogatories."

1. 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.

Here again, the Coalition's use of statistics is questionable. It is simply not the case that all four general interrogatories

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23/ (FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

2. Is your answer 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 or describe the study, calculation, or analysis.
  - b. Who performed the study, calculation, or analysis?
  - c. When and where was the study, calculation, or analysis performed?
  - d. Describe in detail the information that was studied, calculated, or analyzed.
  - e. What were the results of each study, calculation, or analysis?
  - f. Explain how such study, calculation, or analysis provides a basis for your answer.
3. Is your answer based upon research? If so:
  - a. Describe all such research and identify each document discussing or describing such research.
  - b. When and where was the research conducted?
  - c. By whom was the research conducted?
  - d. Explain how such research provides a basis for your answer.
4. Is your answer based upon conversations, consultations, correspondence or any other type of communications with one or more individuals? If so:
  - a. Identify by name and address each such individual.
  - b. State the educational and professional background of each such individual, including occupation and institutional affiliations.
  - c. Describe the nature of each communication with each such individual, when it occurred, and identify all other individuals involved.
  - d. Describe the information received from each such individual and explain how it provides a basis for your answer.

(FOOTNOTE CONTINUED ON NEXT PAGE)

apply to each basic interrogatory, as the Coalition's total of 2,700 questions assumes. (See p. 25, supra.) Whether none, one, two, or all four apply depends on whether an interrogatory answer was based on (1) documents, (2) studies, (3) research, (4) private communications with others, or (5) some combination of those sources. We cannot ourselves quantify the total number of responses called for because we do not know the basis for the Coalition's assertions. But it is safe to observe that far fewer than 2,700 answers were necessary. This appears to be confirmed by the responses the Coalition finally supplied to applicants' interrogatories in its filings on January 18th, May 1st, and May 20th of this year.

The use of general interrogatories is a common discovery practice and the staff also used the technique. See Appendix C, infra, at p. 71. Questions of this nature are designed to uncover the foundation for answers given to interrogatories seeking substantive information. The Rules of Practice expressly sanction discovery into the claims of an opposing party and specifically allow questions concerning such things as "the existence, description, nature, custody, condition, and location of any books,

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23/ (FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

e. Identify each letter, memorandum, tape, note or other record related to each conversation, correspondence, or other communication with such individual.

\*The applicants' definition of "documents" is omitted; it appears in Appendix D at p. 113, infra.

documents, or other tangible things and the identity and location of persons having knowledge of any discoverable matter." 10 C.F.R. §2.740(b)(1).

We do not suggest that answering the applicants' interrogatories was a simple task. But the assertion that it "would take months of full time work" to respond<sup>24/</sup> cannot be credited at face value. The Board below explained to the Coalition more than a year ago that:

In responding to discovery requests, a party is not required to engage in extensive independent research. It need only reveal information in its possession or control (although it may be required to perform some investigation to determine what information it actually possesses). Assuming truthfulness of the statement, lack of knowledge is always an adequate response.<sup>25/</sup>

Moreover, the interrogatories in large part inquired into the Coalition's own case. It is therefore not surprising that the Licensing Board gave a cool reception to a blanket refusal to answer even one of them on the grounds of "undue burden." Judicial tribunals have long recognized that the party being interrogated would have to gather such information before trial in any event; the only burden imposed is to advance that com-

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<sup>24/</sup> Coalition's "Answers to First Round Applicant Interrogatories," dated June 29, 1979, at 2.

<sup>25/</sup> Memorandum and Order on Scheduling and Discovery Motions (August 24, 1979) at 8 (unpublished).

pilation to an earlier stage.<sup>26/</sup>

The general lack of sympathy to claims of this kind stems from the nature of modern judicial and administrative litigation. "Pleadings" and "contentions" no longer describe in voluminous detail everything the parties expect to prove and how they plan to go about doing so. Rather, they provide general notice of the issues. It is left to the parties to narrow those issues through use of various discovery devices so that evidence need be produced at the hearing only on matters actually controverted. This is why curtailing discovery tends to lengthen the trial -- with a corresponding increase in expense and inconvenience for all who must take part.<sup>27/</sup>

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26/ "If the interrogatories are relevant, the fact that they involve work, research and expense is not sufficient to render them objectionable [where] much of the information is in the possession or knowledge of the [parties to whom they are directed] and must be compiled in their own preparation for trial." United States v. NYSCO Laboratories, Inc., 26 F.R.D. 159, 161-62 (E.D.N.Y. 1960). "First, the mere fact that interrogatories are lengthy, or that the [party] will be put to some trouble and expense in preparing the requested answers is not alone sufficient to warrant the granting of a protective order. Secondly, the [party] has not made specific objections to particular interrogatories; a general request for a protective order is not sufficient." Flood v. Margis, 64 F.R.D. 59, 61 (E.D. Wis. 1974) (citations omitted); accord, Flour Mills of America v. Pace, 75 F.R.D. 676 (E.D. Okla. 1977); Kainz v. Anheuser-Busch, Inc., 15 F.R.D. 242, 252 (N.D. Ill. 1954); Wright & Miller, Federal Practice and Procedure (Civil -- 1970 ed.), §2174 and authorities cited. See also, Moore's Federal Practice, op. cit. supra, p. 7.

27/ See, generally, Wright & Miller, Federal Practice and Procedure (Civil -- 1970 ed.), §2001 et seq.

In this case, the Coalition's pleadings put in issue a substantial number of significant matters. Applicants were aware that this intervenor and -- perhaps more importantly -- its representatives are not strangers to NRC proceedings.<sup>28/</sup> The latter, though not trained lawyers or engineers, are experienced participants in Commission hearings. Both hold doctorates in scientific disciplines and they either are now or were once members of university faculties. We can find no fault in these circumstances with filing interrogatories designed to probe thoroughly the basis of the Coalition's case; it would have been imprudent not to have done so. The assertion that applicants' interrogatories were filed simply for harrassment is not well taken; they reflect the number and complexity of the issues raised, not an abuse of the discovery process.

2. The Licensing Board's discovery rulings.

The gravamen of the Coalition's second complaint is that the Licensing Board was not evenhanded in ruling on discovery requests. The Coalition's petition (p. 2) alleges that the Board below "totally ignored the Intervenor's requests for clarification as well as for reasonable protection and relief," while "acquiesc[ing in] virtually every demand by Applicant and Staff and deny[ing] virtually every request by the various intervenors."

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<sup>28/</sup> See the Coalition's September 17, 1979 Response (p. 10) to the Order to Compel Discovery.

The record does not sustain those allegations. The fact that the Board did not grant the Coalition all the relief it wanted does not perforce mean that its requests were improperly ignored. For reasons we have already explained, the Board correctly rejected intervenor's attempt to avoid answering any of the applicants' interrogatories.<sup>29/</sup> But the Board did ease substantially the Coalition's discovery burden. For example, its October 30, 1979 discovery order relieved that intervenor of the need to respond to interrogatories except on its own contentions. That order also postponed all discovery on health and safety contentions until after the environmental hearings.<sup>30/</sup> Those two steps alone reduced the Coalition's discovery obligations by two thirds, if not more. Moreover, this relief was granted not on the Coalition's initiative but the Board's. And the same order gave the Coalition another six weeks (until December 14, 1979) to answer the interrogatories.<sup>31/</sup>

The Coalition is no more correct in its assertion that the Board unhesitatingly acceded to all the applicants' and staff's discovery requests. On the contrary, those parties' key demands were regularly denied. Their efforts

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<sup>29/</sup> See pp. 21-31, supra.

<sup>30/</sup> LBP-79-31, supra, 10 NRC at 604-05.

<sup>31/</sup> Id. at 606.

to have the Coalition dismissed from the proceeding and its contentions disregarded because of its failure to make proper discovery were rebuffed repeatedly by the Board below.<sup>32/</sup> Even a cursory reading of the Licensing Board's October discovery memorandum, reveals its keen appreciation of a volunteer intervenor's plight.<sup>33/</sup> If one thing stands out, it is the Board's sympathetic endeavors to assist the Coalition and the other intervenors to the limits of its authority.<sup>34/</sup> Accordingly,

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<sup>32/</sup> See, e.g., LBP-79-31, supra, 10 NRC at 602; and the discussion in fn. 15, supra.

<sup>33/</sup> For example, the Board noted that "we have clearly been apprised of the tremendous burden, both financial, and in terms of time, which participation in a proceeding like this entails. Despite the neutrality of the Commission's discovery rules in their application to various parties, the effect of these rules is to impose vastly varying burdens on volunteer participants, on the one hand, and Applicants or governmental participants, on the other, whose efforts are funded by ratepayers or through taxes." 10 NRC at 603.

<sup>34/</sup> Thus the Board wrote that "we are aware that at least one of the intervenors here -- [the Coalition] -- is actively participating in other on-going licensing proceedings, including that involving TMI-2. It appears that imposition of extensive discovery obligations in the near future on ECNP, at least, would seriously compromise that party's ability to contribute to the resolution of issues not only in this proceeding but in several others. We are aware, of course, of the Appeal Board's recent declaration -- made with respect to at least one of the very same persons who is representing ECNP in this proceeding -- that 'any individual undertaking to play an active role in several proceedings which are moving forward simultaneously is apt to find it necessary from time to time to expend extra effort to meet the prescribed schedules in each case.' Philadelphia Electric Company (Peach Bottom Atomic Power Station, Units 2 and 3), et al., ALAB-566, 10 NRC 527, 530 (October 11, 1979).

though the rules called for staff documents to be made available for inspection and copying only in the Public Document Rooms, and despite the Coalition's failure to follow the rules for discovery against the staff, and notwithstanding the Commission policy then extant against financing intervenors,<sup>35/</sup> the Board urged the staff to make "as much effort as possible \* \* \* to assist the intervenors in obtaining the relevant information they seek to develop their positions to the fullest possible extent." Indeed, it went so far as to suggest ways this could be done, e.g., by lending documents and transcripts to intervenor's representatives, giving them extra copies unneeded by the staff, and setting up an additional local Public Document Room in State College, Pennsylvania -- where the Coalition's representatives reside -- some 100 miles distant from the plant site.<sup>36/</sup>

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34/ (FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

But that does not mean that a Board cannot, or should not, take into account obligations imposed by other proceedings in establishing its own schedules. We are doing so here to the extent we believe that modification of our previously established schedules will have no effect on our ability to bring this proceeding to a timely conclusion." 10 NRC at 604.

35/ See, Financial Assistance to Participants in Commission Proceedings, CLI-76-23, 4 NRC 494 (1976).

36/ "As for the Staff, the position it has taken requiring the various intervenors to go to the Washington Public Document Room, or the local Public Document Room, to view certain documents, or alternatively to purchase them, is also in accord with NRC rules. 10 C.F.R. 2.740(f)(3); 2.744; 2.790. But following the strict letter of those rules appears to impose unnecessary burdens on the intervenors. In our Special Prehearing Conference Order, we urged the Staff to arrange for the intervenors to be able to utilize the transcripts of this proceeding normally placed  
(FOOTNOTE CONTINUED ON NEXT PAGE)

To be sure, the Board's patience was tested when the Coalition, in lieu of answering the remaining interrogatories, used the extra time allowed it for that purpose instead to file a pleading attacking the Board's integrity, complaining that it had been given only "hollow" relief, and renewing its demand to be excused from making discovery on grounds twice previously rejected.<sup>37/</sup> The Board's reaction was firm but judicious: it pointed out errors in the intervenor's position, explained once again why the relief it sought was unwarranted, cautioned it against the use of intemperate language -- and found cause to

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36/ (FOOTNOTE CONTINUED FROM PREVIOUS PAGE)

in the local Public Document Room for temporary periods away from that location. LBP-79-6, 9 NRC at 328. Apparently that result has not been achieved. The Staff has, however, arranged for an additional copy of the transcripts to be placed in the Pennsylvania State University Library. It also temporarily loaned one of its own copies to ECNP. Although we commend the Staff for these latest actions, we would urge it to continue to attempt to arrange for temporary, short-term intervenor use outside the document room of documents in the local Public Document Room. We also are urging the Staff to take certain other actions, as hereinafter described. We would hope that, consistent with NRC rules, as much effort as possible could be made to assist the intervenors in obtaining the relevant information they seek to develop their positions to the fullest possible extent." 10 NRC at 605.

37/ Among other things, the Coalition referred to the Board's rulings as a "hollow and empty gesture." It accused the Board of joining the applicants and staff in "creating a vicious precedent" for better-financed parties to force intervenors from the proceeding, and allowing an "inquisition-like" proceeding. Coalition Response of November 19, 1979 at pp. 7, 10.

extend the Coalition's time to answer the interrogatories to January 18, 1980.<sup>38/</sup> And when, after the Coalition finally answered some of the interrogatories, the other parties moved for sanctions on the ground that those answers were not adequate, the Board did not rush to grant that relief. Instead, it scheduled a prehearing conference in order to deal with the problem in a face-to-face meeting rather than on the papers alone. (At this point the Coalition sought to bring its complaints to the Commission.) When the Board eventually ruled on those motions, it once again refrained from dismissing the Coalition or expunging its contentions, but allowed that intervenor yet more time to supplement its interrogatory answers. In the end, the Board gave the Coalition until May 1980 to answer interrogatories filed in May 1979. LBP-80-13, supra, 11 NRC 559.

What emerges from the farrago of motions, objections, and rulings is a different picture than the one the Coalition paints. It reveals an intervenor laboring under a serious misconception of the nature and purpose of discovery and of its rights and responsibilities as a litigant. For example, the Coalition repeatedly insisted that its rights were improperly abridged because the parties did not mail its representatives all the documents

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<sup>38/</sup> Order of December 6, 1979 (unpublished).

it demanded.<sup>39/</sup> But the Commission's rules, like the corresponding Federal Rules, simply do not impose that requirement. A demand for documents is satisfied before the Commission as in court by producing them for inspection and copying.<sup>40/</sup>

The Coalition also appears to consider discovery a means by which an applicant can shift its burden of proof to an intervenor.<sup>41/</sup> The Licensing Board had correctly explained to the intervenor, however, that the applicant needs discovery to prepare for trial:

The Applicants in particular carry an unrelieved burden of proof in Commission proceedings. Unless they can effectively inquire into the position of the intervenors, discharging that burden may be impossible. To permit a party to make skeletal contentions, keep the bases for them secret, then require its adversaries to meet any conceivable thrust at hearing would be patently unfair, and inconsistent with a sound record.<sup>42/</sup>

In that same order the Board stressed that "[a] party may not insist upon his right to ask questions of other parties, while at the same time disclaiming any obligation to respond

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<sup>39/</sup> See, e.g., Coalition's Response of October 13, 1979 at 3.

<sup>40/</sup> 10 C.F.R. §§2.741, 2.744, and 2.790; Rule 34, Federal Rules of Civil Procedure.

<sup>41/</sup> See, e.g., the Coalition's "Request to the NRC Commissioners" of March 14, 1980 at 8.

<sup>42/</sup> Memorandum and Order of August 24, 1979 (unpublished) at 6, quoting from Northern States Power Co. (Tyrone Energy Park, Unit 1), LBP-77-37, 5 NRC 1298, 1300-01 (1977) (citation omitted).

to questions from those other parties."<sup>43/</sup>

Regrettably those lessons did not take hold, for that is what eventuated here. We have examined every one of the Licensing Board's discovery rulings carefully. The Board neither abused nor countenanced the abuse of intervenor's rights. Rather, its actions exemplify a steady, patient course designed to move the proceeding along without allowing potentially important issues either to slip by the wayside or to lose active supporters in the hearing. If the Board favored one side over the other on occasion, it was not the Coalition that had cause to complain.

3. The Coalition and the discovery rules.

The Coalition's filings evidence a belief that a "public interest" litigant with limited finances may disregard key provisions of the Rules of Practice. Simply as a matter of fairness, a licensing board may not waive the discovery rules for one side and not the other. To be sure, participation in Commission proceedings can be burdensome and time-consuming -- as can be any complex litigation. But neither the Rules of Practice in general nor the discovery rules in particular were the root cause of the Coalition's unsatisfactory responses to legitimate

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<sup>43/</sup> Id. at 10, quoting from Offshore Power Systems (Floating Nuclear Plants), LBP-75-67, 2 NRC 813, 816-17 (1975).

discovery requests. There are other public interest litigants in this proceeding;<sup>44/</sup> by and large they succeeded in responding after the Board explained to them what making discovery called for.

The Coalition's difficulties are of different origin. First, the organization and its representatives have undertaken to participate in four separate Commission evidentiary proceedings running simultaneously: the Three Mile Island Unit 1 Restart proceeding; the evidentiary proceeding on radon releases; the Three Mile Island Unit 2 case involving aircraft crash probabilities; and this one.<sup>45/</sup> Even experienced lawyers with ample resources behind them would be hard put to manage that load. It therefore comes as no surprise that intervenor's "lay" representatives are having difficulty doing it. Their participation has been similarly deficient in at least one other of those proceedings. Most of the Coalition's contentions were dismissed for failure to make discovery in Metropolitan Edison Co. (Three Mile Island Station, Unit No. 1), LBP-80-17, 11 NRC 893 (1980) (Restart).

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<sup>44/</sup> See fn. 10, supra.

<sup>45/</sup> See fn. 1, supra.

But it is not only that the Coalition has taken on more cases than it can handle. Its papers also evidence a failure to understand basic discovery tenets. A litigant may not make serious allegations against another party and then refuse to reveal whether those allegations have any basis. This, however, is what the Coalition attempted to do. For example, it responded to a motion to compel discovery with the assertion that

[T]he issues raised in contention are matters about which the Applicant and Staff should be well prepared already, if the license is to issue, regardless of whether or not the Intervenor can supplement their initial responses to interrogatories. In an Operating License proceeding, it is the business of the Applicant to prove it is entitled to a license. It is the responsibility of an Applicant to take whatever preparatory measures it deems appropriate to justify its claim that it should be granted a license. The Intervenor is not a paid consultant of the Applicant. If this Applicant cannot prepare its case without the assistance of these Intervenor, then certainly the license should not issue.

Similarly, the taxpayers have gone to great expense to provide the Commission with ample Staff resources to evaluate whether or not the Applicant is entitled to a license. The taxpayers are not paying these Intervenor to prepare the Staff for its role in this proceeding. Further, even if the Commission were to grant these Intervenor financial assistance as requested, the role of the Intervenor in the licensing proceeding is to provide a check and balance to try to ensure that the public health and safety are protected. By no means, under

any circumstances, is it the responsibility of these or any other intervenors to assist the Staff and Applicant in preparation for this proceeding.<sup>46/</sup>

The Coalition's understanding of an intervenor's role is simply wrong. To be sure, the license applicant carries the ultimate burden of proof.<sup>47/</sup> But intervenors also bear evidentiary responsibilities. In a ruling that has received explicit Supreme Court approval, the Commission has stressed that an intervenor must come forward with evidence "sufficient to require reasonable minds to inquire further" to insure that its contentions are explored at the hearing.<sup>48/</sup> Obviously, interrogatories designed to discover what (if any) evidence underlies an intervenor's own contentions are not out of order. The record before us indicates that the Coalition's failure to answer them is not principally attributable to a lack of resources. Rather, its refusal to respond stemmed in larger measure from its erroneous ideas about an intervenor's role and obligations in NRC proceedings -- and the fact that its representatives took on far more cases than they could reasonably handle.

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<sup>46/</sup> Coalition Response of September 17, 1979, p. 7.

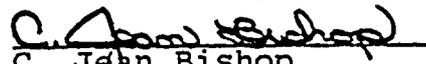
<sup>47/</sup> Consumers Power Co. (Midland Plant, Units 1 and 2), ALAB-283, 2 NRC 11, 17-18 (1975), on reconsideration, ALAB-315, 3 NRC 101 (1976).

<sup>48/</sup> Consumers Power Co. (Midland Plant, Units 1 and 2), CLI-74-5, 7 AEC 19, 30-32 and fn. 27 (1974), reversed sub nom. Aeschliman v. NRC, 547 F.2d 622, 628 (D.C. Cir. 1976), reversed and remanded sub nom. Vermont Yankee Nuclear Power Corp. v. NRC, 435 U. S. 519, 553-54 (1978).

In sum, the Coalition's complaints are not substantiated by the record and the relief it seeks must be denied.<sup>49/</sup>

It is so ORDERED.

FOR THE APPEAL BOARD

  
C. Jean Bishop  
Secretary to the  
Appeal Board

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49/ We have not considered the Coalition's request to place a Commissioner on this Licensing Board. That relief is beyond our power, 10 C.F.R. §2.721, and in any event is obviously a decision for the Commission itself.

On July 25th of this year the Commission amended the Rules of Practice to afford parties (other than the applicant) to licensing proceedings a hearing transcript and certain copying services without charge. 40 Fed. Reg. 49535. This is not the relief the Coalition seeks here.

APPENDIX A

Statement of Contentions and Their Bases (Filed by the Environmental Coalition on Nuclear Power on January 15, 1979).

1. Petitioners contend that the analysis of the effects of the uranium fuel cycle on human health from the beginning to the very end of the fuel cycle, have been seriously misrepresented and underestimated. In particular, the health consequences of the long-lived isotopes (long compared with plant lifetimes) have yet to be considered for the "full detoxification period" of each and every long-lived isotope released, or caused to be released to the environment, by the operation of Susquehanna (See NRDC v. NRC, 547 F.2d 633, 639 at n. 12). Isotopes such as Tc-99, Se-79, I-129, Cs-135, and the alpha-particle emitters have, to date, eluded full environmental analysis by those responsible for such analysis.

2. Petitioners contend that the cost-benefit analysis performed by the Staff and Applicant is wholly falsified. This cost-benefit analysis does not represent an analysis "conducted fully and in good faith" (See Calvert Cliffs' Coordinating Committee v. USAEC, D.C. Cir., 1971, slip opinion, p. 11). Instead, the analysis conducted was designed to arbitrarily reduce environmental and health costs while simultaneously inflating alleged benefits. In particular,

radiation exposure from various isotopes, both short and long-lived, is compared with various background sources of radiation exposure. Yet no justification has thus far been advanced for comparing any cost attributable solely to the operation of Susquehanna with costs attributable to background radiation sources which exist independently of the Susquehanna reactors. In addition, this comparison of radiation attributable to Susquehanna with background radiation distorts completely the cost-benefit analysis of Susquehanna because the benefit side of the analysis receives no such comparison. No comparison of the energy generated by Susquehanna is made, for example, with the solar energy incident on the United States. Further, the analysis is faulty because it neglects completely the health costs due to all of the long-lived radioactive isotopes released, or caused to be released, to the environment by the operation of Susquehanna. After all, "The Commission's prime area of concern in the licensing context . . . is public health and safety" (Vermont Yankee v. NRDC, U.S. slip opinion, p. 28, 1978).

3. Petitioners assert that known and assured reserves of uranium are insufficient to supply the lifetime fuel required for Susquehanna 1 and 2 in a growing nuclear economy. The

historic growth rate for nuclear generated electricity, a measure of uranium consumption, is about 32% annually, for the years 1961 through 1977. Even if this growth rate drops more than in half to 15%, all of the estimated reserves of uranium will have been consumed prior to the end of the thirty year life of Susquehanna 1 and 2. As a result, much higher fuel prices will result, and environmental damage will increase greatly with the mining of ever lower grade ores. The problems of disposal of mill tailings, now deemed trivial by some, will rapidly mount. Yet no environmental impact assessment has been made of the interrelated fuel supply-mill tailings problems as uranium is consumed, as these problems pertain to the entire operational lifetime of Susquehanna.

4. Petitioners contend that there is no need for Susquehanna. The information supplied by the Applicant shows that, with very modest increases in electrical energy conservation efforts, all of the need for Susquehanna 1 and 2 will disappear completely. Applicant's Environmental Report (ER, p. 1.1-2) gives load growth ranges. Table 1.1-15 of the ER shows that at the Very Low Growth rate scenario, the entire output of Susquehanna 1 and 2 will be available for sale outside the service area of the Applicant as the units come on line. The conservation programs suggested by the

Applicant are not designed to encourage either meaningful energy conservation or efficient energy use. Instead, these programs are aimed at encouraging continued electrical energy usage, regardless of whether electricity is the most efficient form of energy for the job at hand or not. The Applicant has not considered the alternative to Susquehanna, as required by NEPA, of more strict energy conservation measures. For example, there is no comparison of cost for upgrading the thermal insulation in existing residences and commercial buildings in the service area of the Applicant with the cost to complete the Susquehanna plant. The discussion of the Applicant's anticipated load growth is based on increased use of electricity for space heat in residences and commercial establishments, together with the continued practice of over-use of electric lighting, both for indoor use and for advertising and display.

In addition, the Applicant presents no discussion of the negative impact of increased electrification of industrial operations (through "modernization," to become more "efficient") upon employment. This impact is readily seen by comparing the number of workers needed to achieve a given output of an "inefficient" plant with the employees needed in a modern,

efficient, mechanized plant to achieve the same output. The Applicant thus grossly underestimates the unemployment created by the Applicant in its service area.

5. Petitioners contend that the models used to calculate individual and population doses are inaccurate and obsolete. These deficiencies are compounded by the arbitrary selection of data for the purpose of underestimating radiation doses. In particular, the milk transfer coefficient for iodine has been underestimated (See Health Physics, 35, p. 413-16, 1978). In addition, these models use factors which convert alpha-particle dose in rads to rems which are far too low (See Health Physics, 34, p. 353-60, 1978), and which underestimate the radiation effect, on a per rad basis, for the very low energy beta and gamma radiations, as from H-3 and C-14 (See Health Physics, 34, p. 433-8, 1978). Furthermore, the entire set of radiation standards is based primarily on the data from Hiroshima and Nagasaki, where the doses received by survivors were essentially instantaneous. For radiation effects from the entire uranium fuel cycle, as will be caused by the operation of Susquehanna 1 and 2, the doses received both by workers and by members of the public will be low doses delivered at, in general, low dose rates. The bomb blast data have no demonstrable

relevance to this chronic, low dose situation. See Health Physics, 33, p. 369-85, 1977, and British Journal of Cancer, 37, p. 448-51, 1978.

6. Petitioners contend that the analysis of alternatives, as required by NEPA and the Commission's rules, is woefully inadequate and incomplete. This analysis does not consider serious efforts at energy conservation, end use efficiencies, or what have come to be known as "Second Law Efficiencies." In addition, no discussion has been presented concerning the health benefits of energy conservation in conjunction with the conservation alternative to Susquehanna. There has also been no comparison of the health costs attributable to the operation of Susquehanna with those of not operating Susquehanna. Only with these types of comparison can the true health cost of Susquehanna be evaluated.

Solar energy in any of its various forms is not considered as an alternative to Susquehanna. By ignoring this commonly used alternative energy source, the Applicant is hoping to prevent home use of solar heating and hot water applications. Further encouragement of reliance on expensive electrically operated mechanical heating and cooling devices, like heat

pumps, in the name of energy conservation, seems to defeat not only energy conservation, but also the development of solar energy. The primary beneficiary of this defiance of NEPA is the Applicant.

7. Petitioners contend that emergency response and evacuation planning by the Applicant, the Director and Staff of the Office of Radiological Health of the Pennsylvania Department of Environmental Resources, the State and County Civil Defense Agencies, and others responsible for protection of the health and safety of the public in the event of a radiological emergency affecting the population beyond the site boundary of Susquehanna is not complete and sufficient to assure prompt notification and evacuation of all areas in which persons may be exposed to radiation doses in excess of those permitted by existing radiation exposure standards for the general public and Protective Action Guides. The recent Planning Basis Report of the NRC and Environmental Protection Agency (NUREG-0396/EPA 520/1-78-016, December, 1978, p: 5) notes that "more specific guidance with respect to accidents whose consequences would be more severe than the design basis accidents explicitly considered in the licensing process [is] appropriate."

In view of the Nuclear Regulatory Commission's expressed reservations about the reliability and validity of the probability estimates in the Reactor Safety Study, WASH-1400 (See, e.g., NUREG/CR-0400 and NUREG-0396/EPA 520/1-78-016, pp. I-6 through I-10, including notes at pp. I-8 and I-9; see also transcript of the December 21, 1978, and subsequent NRC Commissioners' meetings and Commissioners' draft policy statements on WASH-1400), and in view of the explicit limitation of the validity of the Reactor Safety Study's analyses through the year 1980, prior to the operational lifetime of Susquehanna 1 and 2, Petitioners contend that no probability analysis exists to justify the Applicant's and Staff's failure to address the full consequences to the plant and to the genetic and somatic health and the safety of the public and the full long-term costs of property damage of the design basis accident (including sensitivity analyses) and of accidents more severe than the design basis accident. Petitioners contend that no operating license for Susquehanna 1 and 2 should issue until the Applicant, Commonwealth, Luzerne County, Salem Township officials and any others sharing responsibility for public health and safety have prepared and tested -- with drills that include participation of all of

of the potentially affected public -- emergency preparedness and evacuation plans for the design basis accident and for worst-case (Class 9) accidents. Risk analysis is incomplete and inadequate to comply with NEPA and the Commission's mandate under the Atomic Energy Act of 1954, as amended, in the absence of full analysis of both the probability and consequences of worst-case accidents. The existing studies of disaster response are inadequate to demonstrate, in the absence of tests involving those who would be affected, the capability of emergency response and evacuation plans to provide the protection required for the public.

Two serious contradictions additionally inhibit the effective performance of the duties of the two parties having major responsibility for emergency notification of the public and for the protection of the public health in the event of a radiological emergency. First, the Applicant, through various public relations efforts and the communications media, has sought to convince those residing in the vicinity of Susquehanna that the plant poses no significant threat to the public health and safety, but has offered no verifiable foundation for such claims beyond the now-repudiated Reactor Safety Study. The Applicant is the initial source of information -- and the only source of data -- pertaining to the severity and scope of the

radiological hazard following an accident at Susquehanna. In the early stages of an accident, the Applicant may be unable or unwilling to ascertain that an offsite radiation hazard exists or will exist, and may be expected to avoid advising other responsible authorities and the public as long as the utility officials believe that emergency evacuation -- detrimental to the utility company's interests -- is not absolutely essential. Furthermore, the Applicant, having impressed upon the public the safety of its nuclear reactors and the alleged extremely low probability of a catastrophic accident, or other responsible officials may be unable to convince endangered residents of the necessity of emergency actions and evacuation.

A second contradiction inhibiting adequate emergency response lies in statements made by the Director of the Pennsylvania Office of Radiological Health, Mr. Thomas M. Gerusky. He has stated at a public meeting that his staff would not be able to respond at all hours to an accident at a nuclear facility. He has also, by affidavit, denied having made such a statement. Furthermore, the Office of Radiological Health has been unsuccessful in obtaining the amount of funding required to provide adequate qualified

staff and equipment to be able to expand its capability to monitor and to respond to a radiation emergency situation at Susquehanna.

8. Petitioners contend that routine, or occasional, use of environmentally persistent or inadequately tested herbicides to maintain clearance of transmission line rights-of-way is a somatic, teratogenic, and potentially mutagenic threat to the health and safety of persons living near or traversing these areas.

9. The archeological investigation of the Applicant's upland site for the Susquehanna Station, hastily chosen following the 1972 flood caused by Hurricane Agnes, was incomplete and inadequate to determine the status of cultural antiquities in advance of the commencement of construction. Completion of archeological investigation in compliance with state and federal law governing protection of antiquities should precede further construction at the site. Petitioners believe the Board should require an independent review of the Applicant's archeological studies.

10. Petitioners assert that the Nuclear Steam Supply System (NSSS) of Susquehanna 1 and 2 contains numerous design

deficiencies, some of which may never be resolvable, and which, when viewed together, render a picture of an unsafe nuclear installation which may never be safe enough to operate. The pressure suppression containment structure may not be constructed with sufficient strength to withstand the dynamic forces realized during blowdown. The reactor pressure vessel may not survive the thermal shock of cool ECCS water after blowdown without cracking. The cracking of stainless steel piping in BWR coolant water environments due to stress corrosion has yet to be prevented or avoided. BWR core spray nozzles occasionally crack, a problem which reduces their effectiveness. The ability of Susquehanna to survive Anticipated Transient Without Scram (ATWS, see WASH-1270) remains to be demonstrated. For this ATWS issue, reliance on probabilistic numbers, as  $10^{-7}$  per year, is unwise and unsafe. Overpressurization of the pressure vessel is a serious safety problem, especially in view of the underhanded and wholly inadequate method used to ensure that the ASME stamp was to be applied to nuclear pressure vessels. (See Proceedings of the Annual Winter Meeting, ASME, November 17-22, 1974, New York, N. Y., paper by A.J. Ackerman.) Numerous problems remain with the adequacy of electrical cable penetrations of the containment structure. The reduced capability of

Susquehanna to scram at the end of the fuel cycle due to control rod poison depletion aggravates all of the above problems, such that when all of these, and certainly others such as containment steel liner buckling problems that have not been specifically addressed here, are combined, the conclusion of an inadequate and obsolete design is obvious. (See, for general reference materials, NUREG-0138, NUREG-0153, among others.)

11. Petitioners contend that excessive reliance on "single failure" events (i.e., see FSAR 6.3.2.5) leads to a false sense of security and certainty, especially when it is known that multiple failures occur (See testimony of Dr. David Okrent, ACRS, before the California Legislative Committee on Energy and Diminishing Resources, October 29, 1975, p. 11. See also Joint Committee on Atomic Energy, U.S. Congress, Hearings entitled "Browns Ferry Nuclear Plant Fire, vol. 1, September 16, 1975,).

12. Petitioners contend, when taken together and factored into lifetime monetary full cost determinations for Susquehanna, that plant decommissioning and ultimate dismantling and site decontamination, interim spent fuel storage and subsequent disposal, radioactive waste management and disposal at all

stages of the nuclear fuel cycle, and health costs for the full period of toxicity of radioactive materials attributable to the operation of Susquehanna will render this nuclear facility economically non-competitive with virtually any of the many alternative sources of energy or with conservation. Absent national policy determinations, federal legislation, and administrative agency regulation of these issues, Petitioners contend that no operating license should issue for Susquehanna 1 and 2.

APPENDIX B

Contentions Accepted by the Licensing Board in its March 6, 1979 Order (LBP-79-6, 9 NRC 291).

1. Health effects of the uranium fuel cycle (ECNP 1, 2).

The quantity of radon-222 which will be released during the fuel cycle required for the Susquehanna facility has not been, but should be, adequately assessed. The radiological health effects of this radon should be estimated and these estimates factored into the cost-benefit balance for the operation of the plant.

The radiological health effects of all isotopes other than radon-222 which will be released during the fuel cycle required for the Susquehanna plant have been misrepresented and underestimated. In particular, the health effects of each long-lived isotope which will be released from the fuel cycle for Susquehanna should be reassessed. The appropriately determined effects must be factored into the cost-benefit balance for the operation of the plant.

2. Health Effects of Low-level Radiation and other discharges from the facility (ECNP 2).

The residual risk of low-level radiation which will result from the release from the facility of radionuclides, and particularly from the release of cesium-137 and cobalt-60,

into the Susquehanna River, and the health effects of chloride discharged into the river, have not been, but must be, adequately assessed and factored into the NEPA cost-benefit balance before the plant is allowed to go into operation.

3. Uranium supply (ECNP 3).

Known and assured reserves of uranium are insufficient to supply the lifetime fuel required for Susquehanna 1 and 2 in a growing economy. Neither the ER nor the FSAR discusses the adequacy of such fuel supply. The historic growth rate for nuclear generated electricity, a measure of uranium consumption, is about 32% annually, for the years 1961 through 1977. Even if this growth rate drops more than in half to 15%, all of the estimated reserves of uranium will have been consumed prior to the end of the thirty year life of Susquehanna 1 and 2. Higher fuel prices will result, as is evidenced by the approximate 400% price rise in the price of uranium fuel in the last 6 years. In addition, much uranium for the facility will have to be imported. These costs, when added to other costs, will tip the cost-benefit balance against operation of the facility.

4. Need for power (ECNP 4, 6).

The Susquehanna facility (or, at least, Unit 2 thereof) is not needed; and, as a result, the cost-benefit is tilted against authorization of operating licenses (or, at least, a license for Unit 2), for the following reasons:

a. Information supplied in the Applicants' ER shows that, at the Very Low growth rate scenario, the entire output of both Units will be available for sale outside the service area of the Applicants as the Units come on line (ER, Table 1.1-15).

b. The electric capacity of the lead Applicant in 1977 was 40% greater than customer needs and demands from existing facilities. Latest projections of energy use and requirements during the next 30 years for the Applicants' service area, the period equal to the projected plants' "useful life," show that the Applicants can meet the needs of their customers through existing facilities and sources.

c. The National Energy Program contemplates that steps be followed in order to achieve a lowered growth rate in electrical demand of less than 2% annually. Yet there has been no demonstration that the effects of conservation

efforts designed to achieve that goal have been factored into the analysis of need for this facility. The conservation programs suggested by the Applicants are not designed to encourage either meaningful energy conservation or efficient energy use. Instead, these programs are aimed at encouraging continued electrical energy usage, regardless of whether electricity is the most efficient form of energy for the job at hand or not. One such example is the Applicants' encouragement of reliance on expensive electrically operated mechanical heating and cooling devices, like heat pumps, in the name of energy conservation. As another example, there has been no comparison of the cost of upgrading the thermal insulation in existing residences and commercial buildings in the service area of the Applicants with the cost (environmental and economic) of operating the Susquehanna facilities. Furthermore, there has been no discussion, in connection with energy conservation, of end use efficiencies or what have come to be known as "Second Law Efficiencies," or of the health benefits of energy conservation.

d. Solar energy in any of its various forms has not been considered as an alternative to Susquehanna. By ignoring this commonly used alternative energy source,

the Applicants are hoping to prevent home use of solar heating and hot water applications and to encourage use of electricity.

5. Models used to calculate low-level radiation doses (ECNP 5).

Certain models used by the Applicants to calculate individual and population radiation doses are inaccurate and obsolete. The deficiencies are compounded by the arbitrary selection of data from inappropriate sources for the purpose of formulating these models. Specifically:

- a. the milk transfer coefficient for iodine has been underestimated (see Health Physics, 35, pp. 413-16, 1978);
- b. the models use factors which convert alpha particle dose in rads to rems which are far too low (see Health Physics, 34, pp. 353-60, 1978):
- c. the models use factors which underestimate the radiation effect, on a per rad basis, for the very low energy beta and gama radiations, as from H-3 and C-14 (see Health Physics, 34, pp. 433-38, 1978).

6. Evacuation (ECNP 7).

The emergency plan proposed by the Applicants is not sufficient to assure prompt notification and evacuation of all areas in which persons may be exposed to radiation doses in excess of those permitted by existing radiation exposure standards for the general public and Protective Action Guides. Specifically:

- a. The plan fails to account adequately for narrow roads and adverse weather conditions in the vicinity of the site.
- b. There is considerable question of the ability of Pennsylvania's Office of Radiological Health to fulfill its assigned functions in the event of an emergency. The Director of that Office stated at a public meeting that his staff would not be able to respond at all hours to an accident at a nuclear facility. He has also, by affidavit, denied having made such a statement. This question must be resolved. Furthermore, the Office has been unsuccessful in obtaining the amount of funding required to provide adequate qualified staff and equipment to be able to expand its capability to monitor and respond to a radiation emergency situation at Susquehanna.

- c. The plan includes insufficient information with respect to either the training of or the adequacy of radiation-hazard safeguards to protect local emergency units which may be required to participate in emergency evacuation procedures or which may be required to deal with on-site situations. The plan does not state whether the public or the utility will provide the training in protection and procedure required by local emergency units to coordinate a safe, systematic evacuation.

7-8. Unresolved generic safety issues (ECNP 10).

The Nuclear Steam Supply System of Susquehanna 1 and 2 contains numerous generic design deficiencies, some of which may never be resolvable, and which, when reviewed together, render a picture of an unsafe nuclear installation which may never be safe enough to operate.

Specifically:

- (a) The pressure suppression containment structure may not be constructed with sufficient strength to withstand the dynamic forces realized during blowdown.

- (b) The cracking of stainless steel piping in BWR coolant water environments due to stress corrosion has yet to be prevented or avoided.
- (c) BWR core spray nozzles occasionally crack, a problem which reduces their effectiveness.
- (d) The ability of Susquehanna to survive Anticipated Transients Without Scram (ATWS) remains to be demonstrated. In this regard, reliance on probabilistic numbers, as  $10^{-7}$  per year, is unwise and unsafe.

The Applicants have not adequately demonstrated compliance with the Standard Review Plan, §5.3.3, "Reactor Vessel Integrity," part II.6. As a result, the reactor pressure vessel may not survive the thermal shock of cool ECCS water after blowdown without cracking.

9. Decommissioning (ECNP 12).

The Applicants have underestimated both the health costs and the monetary costs of decommissioning the Susquehanna facility. The monetary cost estimates are derived from an industry-sponsored study which is obviously biased, with cost estimates far below what the actual cost of decommissioning will be. Such cost

will at least be equal to the cost of construction. Further, the statement by the Applicants that it is "generally agreed" that the decommissioning of a large nuclear power facility poses no new occupational or environmental hazards is erroneous. There are serious radiation hazards, particularly for workers.

As a result:

- a. these costs, when added to other monetary and health costs of the facility and the nuclear fuel cycle, tilt the cost-benefit balance against authorizing operation of the facility;
- b. the Applicants are not financially qualified to assume the monetary costs of decommissioning.

10. Transportation of Spent Fuel.

Notwithstanding the requirements of 10 C.F.R. Part 50, Appendix A, Criterion 4, structures, systems, and components important to safety have not been adequately protected against the effects of rail accidents on site, including those involving shipments of spent fuel. A significant accident has already occurred, and the rail line is not adequately designed to assure that such accidents will not occur in the future, with a potential impact on safety structures, systems or components.

11. Storage of Radioactive Wastes.

The proposed project creates an unreasonable risk of harm to the health and safety of petitioners and their private property, and violates the Commission's standards for protection against radiation in 10 C.F.R. §§20.1 and 20.105(a), in that the Applicants have failed to provide adequately for safe on-site storage, for periods of up to 10 to 15 years, of spent fuel and low-level radioactive wastes.

12-13 Other Safety-related contentions of Ms. Marsh.

The proposed project creates an unreasonable risk of harm to the health and safety of petitioners and their private property, and violates the Commission's standards for protection against radiation in 10 C.F.R. §§20.1 and 20.105(a), in that the design fails to solve the problem of flow-induced vibration in the core, thereby creating in-vessel sparger failure.

Applicants have failed to respond adequately to and comply with NRC's Notice of Violation issued by letter of May 10, 1978, stemming from an inspection of the facility on March 20-23, 1978, involving preliminary alignment of safety related core isolation tolerance exceeding 0.002 inches established by field engineer supervisor.

14. Capacity factors.

The facility's cost-benefit balance as set forth by the Applicants overstates the benefits of the facility since it utilizes over-optimistic capacity factors. The facility will not be capable of producing the amount of electricity predicted by the Applicants, so that its benefits will be less than predicted and the cost-benefit balance adversely affected.

15. Occupational Exposures.

The ER and FSAR are inadequate in that they do not detail the health effects caused by the exposure to radiation of maintenance workers and workers working on Unit 2 of the station while Unit 1 is in operation. These health effects are such that, when added to other costs, the cost-benefit balance will be tipped against the facility. In addition, the occupational radiation exposures are not "as low as is reasonably achievable," as required by 10 C.F.R. §20.1(c). Under this standard, there need be no exposure of workers working on Unit 2 while Unit 1 is in operation, since Unit 1 should not begin operation until construction is completed on Unit 2.

16. Cooling-Tower Discharge.

Seventy million gallons of radioactive evaporated water to be vented daily from the Susquehanna facility's cooling towers will pose an economic threat to the dairy industry in the Eastern-Central area of Pennsylvania. This threat has not been properly evaluated.

17. Transmission lines.

The Applicants' plans for transmitting electricity generated by the Susquehanna facility utilize ultra-high voltage (UHV) transmission lines, which produce noise pollution, cause electrical shock from flashovers, create television and radio interference, create strong electrostatic and electromagnetic fields that adversely affect living organisms along the UHV transmission right-of-way and beyond, and generate dangerous levels of ozone that will cause more injury to vegetation than any other pollutant and can also have harmful effects on human health. For that reason, the Applicants should be barred from transmitting electricity from the facility, if and when it becomes operational, over UHV lines and should be required to use lines in the range of 138,000-230,000 volts maximum. Alternatively, the Applicants should be required to place the UHV lines underground, using compressed gas as an insulator.

18. Herbicides (ECNP 8).

Routine or occasional use of environmentally persistent or inadequately tested herbicides (particularly 2, 4, 5-T) to maintain clearance of transmission line rights-of-way as proposed by the Applicants, poses a somatic, abortifacient, teratogenic, and potentially mutagenic threat to the health and safety of persons living near or traversing these areas. This is evidenced by the "emergency suspension" action taken on March 1, 1979, by the Environmental Protection Agency against 2, 4, 5-T. If this suspension remains in effect, there will have been no environmental evaluation of the means to be used by the Applicants to maintain the clearance of transmission line rights-of-way.

APPENDIX C

NRC STAFF'S FIRST ROUND DISCOVERY REQUESTS  
OF THE ENVIRONMENTAL COALITION ON NUCLEAR POWER (ECNP)  
(Filed May 21, 1979)

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As allowed by 10 CFR 2.740b of the Commissions regulations and the Licensing Board's Special Prehearing Conference Order dated March 6, 1979, the NRC Staff requests that ECNP answer the interrogatories set forth below. <sup>1/</sup> As required by 10 CFR 2.740b(b), each interrogatory shall be answered separately and fully, in writing and under oath or affirmation, and the answers shall be signed by the person(s) making them.

In addition, as allowed by 10 CFR 2.741, the NRC Staff requests that ECNP make available for Staff inspection and copying (or provide copies of), those documents designated by ECNP in its answers. <sup>2/</sup>

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1/ The answers are to be provided by June 29, 1979, as required by the Licensing Board's Special Prehearing Conference Order dated March 6, 1979 (at p. 79).

2/ Of course, if the document was prepared by the NRC Staff or its consultants, or was submitted by the Applicant in connection with the captioned matter, it need not be made available by ECNP.

General Interrogatories<sup>3/</sup>

G-1. State whether you intend to present any expert witnesses on the subject matter at issue in:

- |                 |                  |
|-----------------|------------------|
| a) Contention 1 | f) Contention 6  |
| b) Contention 2 | g) Contention 7  |
| c) Contention 3 | h) Contention 8  |
| d) Contention 4 | i) Contention 9  |
| e) Contention 5 | j) Contention 18 |

If so, provide the names, addresses (residence and business), and professional qualifications of those persons you expect to call as expert witnesses, state the subject matter on which the expert is expected to testify, state the substance of the facts and opinions to which the expert is expected to testify and provide a summary of the grounds for each opinion.

G-2. Identify by title, author, date of issuance or publication, and issuer or publisher, all documents that you intend to use (refer to or offer in evidence) in presenting your direct case on the contentions listed in Interrogatory G-1 and all documents that you intend to refer to in conducting your cross-examination of witnesses for other parties who

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       / These interrogatories should be answered separately with respect to each contention.

may testify in connection with any admitted contention, and make available those documents for Staff inspection and copying (or provide copies of them).

Specific Interrogatories

Contention 1

- S-1.1. Set forth in detail your basis for the statement that the radon-222 to be released as a result of the fuel cycle for the Susquehanna facility has not been adequately assessed.
- S-1.2. Set forth in detail each incorrect assumption that you believe to have been made in estimating the releases, and state with specificity all your reasons for believing that the assumptions made are incorrect.
- S-1.3. Specify with particularity the effect that you believe each assumption listed in answer to interrogatory S-1.2 has on the estimate of radon releases.
- S-1.4. Set forth in detail the assumptions that you believe should be made in estimating radon releases.
- S-1.5. Specify with particularity the effect that you believe each assumption listed in answer to interrogatory S-1.4 has on the estimate of radon releases.
- S-1.6. If you allege that radon-222 releases are underestimated, specify the amount that you believe will be released and

set forth in detail each calculation made and specify, and state your bases for, all assumptions made by you in estimating the releases.

- S-1.7. Specify with particularity all of the errors that you believe to exist in the estimates of the health effects of radon-222, the magnitude of such errors and the causes of such errors.
- S-1.8. Specify with particularity each health effect of radon-222 that you believe will occur and state in detail how that health effect is caused.
- S-1.9. Set forth in detail all calculations made and specify, and state your bases for, all assumptions made in reaching your conclusions about the health effects of radon-222.
- S-1.10. Specify with particularity the effect that you believe inclusion in the cost-benefit analysis of these allegedly omitted health effects of radon-222 will have on the outcome of that analysis and state in detail the basis for your conclusion.
- S-1.11. Specify with particularity your basis for the statement that the health effects of all isotopes, other than radon-222, to be released during the fuel cycle for the Susquehanna facility have been underestimated (and misrepresented).

- S-1.12. Specify with particularity all of the errors that you believe to exist in the estimates of the health effects of isotopes other than radon-222, the magnitude of such errors and the causes of such errors.
- S-1.13. Identify each isotope other than radon-222 that you believe will cause health effects, specify with particularity each health effect that you believe will occur and state in detail how that health effect is caused.
- S-1.14. Set forth in detail all calculations made and specify, and state your bases for, all assumptions made in reaching your conclusions about the health effects of isotopes other than radon-222.
- S-1.15. Specify with particularity the effect that you believe correct inclusion in the cost-benefit analysis of these allegedly now underestimated health effects of isotopes other than radon-222 will have on the outcome of that analysis, and state in detail the basis for your conclusion.

Contention 2

- S-2.1. Specify with particularity all of the errors that you believe to exist in the estimates of the health effects of cesium-137, cobalt-60 and chlorine releases from the Susquehanna facility, the magnitude of such errors and the causes of such errors.

- S-2.2. Specify the amount of cesium-137, cobalt-60 and chlorine that you believe will be released and set forth in detail each calculation made and specify, and state your bases for, all assumptions made by you in estimating the releases.
- S-2.3. Specify with particularity each health effect of cesium-137, cobalt-60 and chlorine that you believe will occur and state in detail how that health effect is caused.
- S-2.4. Set forth in detail all calculations made and specify, and state your bases for, all assumptions made in reaching your conclusions about the health effects of cesium-137, cobalt-60 and chlorine.
- S-2.5. Specify with particularity the effect that you believe correct inclusion in the cost-benefit analysis of these allegedly now inadequately assessed health effects of cesium-137, cobalt-60 and chlorine will have on the outcome of that analysis, and state in detail the basis for your conclusion.

Contention 3

- S-3.1. State with particularity why you believe that known and assured reserves of uranium are not sufficient to supply the lifetime fuel requirements of Susquehanna 1 and 2.

- S-3.2. Specify the values that you assumed (or calculated) for: (1) known and assured, reserves of uranium, (2) lifetime fuel requirements of Susquehanna 1 and 2, and (3) total uranium requirements of all types during the lifetime of Susquehanna 1 and 2 and state in detail the bases for your assumptions (or calculations).
- S-3.3. Specify with particularity your basis for the statement that much uranium for the facility will have to be imported and state the amount that you believe will have to be imported.
- S-3.4. Set forth in detail each calculation made and specify, and state your basis for, all assumptions made in estimating fuel requirements, reserves and imports.
- S-3.5. Specify with particularity why you believe that fuel costs for the facility, when added to other costs, will tip the cost-benefit balance against authorizing operation of the facility.

Contention 4

- S-4.1. Specify the growth rate of peak electric load that you believe will occur in the Applicants' service areas over the life of the Susquehanna facility.
- S-4.2. Provide your projections of peak load and available capacity in the Applicants' service areas over the life of the Susquehanna facility.

- S-4.3. Specify the models used in making your calculations of peak load and available capacity, and state why you believe those models should be used.
- S-4.4. Set forth in detail each calculation made and specify, and state your basis for, all assumptions made in reaching your conclusions about peak load projections and available capacity.

Contention 5

- S-5.1. Specify with particularity the models used to calculate individual and population radiation doses that you believe to be inaccurate and obsolete and set forth in detail your basis for that belief.
- S-5.2. Specify with particularity the models that you believe should be used to calculate individual and population radiation doses and set forth in detail your basis for that belief.
- S-5.3. Set forth in detail each calculation made and specify, and state your basis for, all assumptions made by you in reaching your conclusions about radiation doses and dose models.
- S-5.4. Specify with particularity (not merely by general reference to an article in Health Physics) your basis for the statement that the milk transfer coefficient for iodine (as used

in the individual and population dose models) has been underestimated. Specify the coefficient that you believe should be used.

- S-5.5. Set forth in detail each calculation made and specify, and state your basis for, all assumptions made in reaching your conclusions about the milk transfer coefficient for iodine.
- S-5.6. Specify with particularity (not merely by general reference to an article in Health Physics) your basis for the statement that the factors (as used in the individual and population dose models) for conversion of alpha-particle dose in rads to rems are far too low. Specify the factors that you believe should be used.
- S-5.7. Set forth in detail each calculation made and specify, and state your basis for, all assumptions made in reaching your conclusions about the factors for conversion of alpha-particle dose in rads to rems.
- S-5.8. Specify with particularity (not merely by general reference to an article in Health Physics) your basis for the statement that the factors (as used in the individual and population dose models) for estimating radiation effects of low energy beta and gamma radiation, as from H-3 and C-14, underestimate those effects. Specify the factors that you believe should be used.

S-5.9. Set forth in detail each calculation made and specify, and state your bases for, all assumptions made in reaching your conclusions about the factors for estimating the radiation effects of low energy beta and gamma radiation.

Contention 6

S-6.1. Identify (if necessary for clarity provide a map marked to show) the area in which (in the event of a design basis accident at the Susquehanna facility and without prompt notification and evacuation) you believe persons may be exposed to radiation doses in excess of those permitted by existing radiation exposure standards for the general public and protective action guides.

S-6.2. Specify the numerical values (in appropriate units) of the exposure standards and guides which you believe will be exceeded and state why you believe they will be exceeded.

S-6.3. Specify the models used in making your dose-distance calculations and state why you believe those models should be used.

S-6.4. Set forth in detail each calculation made and specify, and state your bases for, all assumptions made in reaching your conclusions about the adequacy of the emergency plan.

S-6.5. Specify in detail how you believe the Applicants' emergency plan fails to satisfy the Commission's regulations. Cite each regulatory requirement that you believe is not satisfied. State the basis for your conclusion that the requirement is not satisfied by the Applicants' proposed plan.

Contention 7

- S-7.1. Specify with particularity your basis for the statement that the Susquehanna containment structures may not be strong enough to withstand the dynamic forces that could occur during blowdown.
- S-7.2. Identify with particularity each dynamic force "realized during blowdown" that you believe the containment should be designed to withstand and state your basis for believing that the containment may not be able to withstand such force(s).
- S-7.3. Set forth in detail each calculation made and specify, and state your bases for, all assumptions made in reaching your conclusions about the ability of the containment to withstand the dynamic forces that could occur during blowdown.
- S-7.4. Specify with particularity why you believe that the type of pipe cracking that has occurred at other BWR facilities renders the Susquehanna units unsafe to operate.

- S-7.5. In what types of stainless steel piping has this cracking mainly occurred?
- S-7.6. Has such cracking occurred at nuclear facilities in piping made of materials other than stainless steel? If so, identify those materials.
- S-7.7. What conditions have been found to make piping susceptible to the occurrence of intergranular stress corrosion cracking?
- S-7.8. What measures can be taken during design and fabrication of piping to prevent, or reduce the likelihood of, pipe cracking at the Susquehanna facility?
- S-7.9. What were the actual consequences to public health and safety of the pipe cracking to which you refer as having occurred?
- S-7.10. Set forth in detail each calculation made and specify, and state your basis for, all assumptions made in reaching your conclusions about pipe cracking.
- S-7.11. Specify with particularity why you believe that the type of nozzle cracking that has occurred at other BWR facilities renders the Susquehanna units unsafe to operate.
- S-7.12. In what types of nozzles other than "core spray" nozzles has cracking occurred?

- S-7.13. What conditions caused this nozzle cracking?
- S-7.14. What measures can be taken during the design, fabrication or operation of the nozzles to prevent, or reduce the likelihood of, nozzle cracking at the Susquehanna facility?
- S-7.15. What were the actual consequences to public health and safety of the nozzle cracking to which you refer as having occurred?
- S-7.16. Specify with particularity what you would consider to be an acceptable demonstration of the low contribution to risk of an anticipated transient without scram (ATWS), and state in detail the basis for your conclusion.

Contention 8

- S-8.1. Specify with particularity your basis for the statement that the Applicants have not adequately demonstrated "compliance" with part II.6, "Operating Conditions," of Standard Review Plan, §5.3.3, "Reactor Vessel Integrity."
- S-8.2. Define the terms "adequately" and "compliance" as they are used in the context of Contention 8.
- S-8.3. Identify the specific requirements of the Commission's regulations that the reactor pressure vessel does not meet and provide the basis for your conclusion.

S-8.4. Set forth in detail each calculation made and specify, and state your bases for, all assumptions made in reaching your conclusions about the inability of the reactor pressure vessel to withstand thermal shock.

Contention 9

S-9.1. Specify with particularity why you believe that the monetary costs of decommissioning the Susquehanna facility will at least be equal to the cost of its construction and provide an estimate of those monetary costs.

S-9.2. Provide an itemized list showing what you believe the monetary costs of decommissioning the facility will be.

S-9.3. Set forth in detail each calculation made and specify, and provide your bases for, all assumptions made in reaching your conclusions about the monetary costs of decommissioning the Susquehanna facility.

S-9.4. Specify with particularity why you believe that decommissioning the Susquehanna facility will result in serious radiation hazards, particularly for workers.

S-9.5. Identify and provide estimates of these "new" occupational hazards to workers.

S-9.6. Specify with particularity the "new" environmental hazards that you believe will result from decommissioning the Susquehanna facility.

S-9.7. Specify with particularity why you believe that the decommissioning costs, when added to other monetary and health costs of the facility and the nuclear fuel cycle, tilt the cost-benefit balance against authorizing operation of the facility.

Contention 18

- S-18.1. State whether, and if so specify with particularity why, if use of herbicides is prohibited you believe that some alternate means (for example, cutting and piling the brush) of maintaining the clearance of transmission line rights-of-way cannot be used.
- S-18.2. State whether, and if so specify with particularity why, you believe that the environmental impacts of periodically cutting and piling the brush that may grow in the transmission line rights-of-way would be adverse, environmentally significant and sufficient to tip the cost-benefit balance against authorizing operation of the Susquehanna facility.
- S-18.3. Set forth in detail each calculation made and specify, and state your bases for, all assumptions made in reaching your conclusions about the environmental impacts of methods for maintaining the clearance of transmission line rights-of-way.

10 CFR 2.740(e) of the Commission's regulations states that a party is under a duty seasonably to supplement his response with respect to questions directly addressed to the identity of each person expected to be called as an expert witness at the hearing, the subject matter on which the witness is expected to testify and the substance of the witnesses' testimony. Section 2.740(e) also states that a party is under a duty seasonably to amend a prior response if he obtains information upon the basis of which (i) he knows that the response was incorrect when made, or (ii) he knows that the response though correct when made is no longer true and the circumstances are such that a failure to amend the response is in substance a knowing concealment.

APPENDIX D

Applicants' First Set of Interrogatories (filed May 25, 1979).

Interrogatories on Contention 1A

- 1A-1 Describe each aspect in which you contend the assessment of the quantity of radon-222 to be released during the fuel cycle for the Susquehanna facility is inadequate.
- 1A-2 What quantities of radon-222 do you contend will be released during the fuel cycle for the Susquehanna facility?
- 1A-3 For each step in the fuel cycle for the Susquehanna facility, specify the quantities of radon-222 which you contend will be released during that step.
- 1A-4 What are the radiological health effects associated with the quantities of radon-222 which will be released during the fuel cycle for the Susquehanna facility?
- 1A-5 With respect to each of your answers to Interrogatories 1A-1 through 1A-4 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 1B

- 1B-1 With respect to each isotope (other than radon-222 which will be released from the fuel cycle for Susquehanna,
- a. Identify the isotope;

- b. Specify the step or steps in the fuel cycle during which such isotope will be released;
- c. Specify the quantity of each isotope which you contend will be released at each step identified in your answer to Interrogatory 1B-1b above.

1B-2 Describe each aspect in which you contend the radiological health effects of isotopes other than radon-222 to be released from the fuel cycle for Susquehanna have been misrepresented and underestimated.

1B-3 Describe the radiological health effects of all isotopes other than radon-222 which you contend will be released during the fuel cycle required for the Susquehanna plant.

1B-4 With respect to each of your answers to Interrogatories 1B-1 through 1B-3 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 2

2-1 With respect to each radionuclide whose release from the Susquehanna facility you contend will result in resident risks of low-level radiation:

- a. Identify the isotopes;
- b. Specify the quantity of each isotope which will be released
- c. Describe the release point or points from the facility for each of the isotopes identified.

- 2-2. Specify the types and magnitude of residual risks of low-level radiation which you contend will result from the release of radionuclides from the Susquehanna facility.
- 2-3 Describe the quantities of chlorine which will be discharged by the Susquehanna facility.
- 2-4 Specify each source from which chlorine will be discharged and the quantities discharged from each source.
- 2-5 What is your estimate of the chlorine concentration in the Susquehanna River immediately downstream of the discharge point during facility operation?
- 2-6 Identify the nearest downstream water supply intake to the Susquehanna facility.
- 2-7 Describe what you believe to be the health effects of chlorine discharged into the Susquehanna River from the facility and the number of such health effects.
- 2-8 Describe what you believe to be the health effects of chlorine in the Susquehanna River other than chlorine discharged from the facility and of chlorine added to drinking water and the number of such health effects.
- 2-9 With respect to each of your answers to Interrogatories 2-1 through 2-8 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 3 .

- 3-1        What is your estimate of the lifetime fuel requirements for Susquehanna 1 and 2?
- 3-2        What do you contend is the quantity of "known and assured reserves of uranium"?
- 3-3        What do you contend is the quantity of uranium resources in the U. S.?
- 3-4        What is the basis for the statement that the historic growth rate for nuclear generated electricity is about 32% for 1961 through 1977?
- 3-5        Assuming that the growth rate for nuclear generated electricity would remain at 32% during the 30 year life of Susquehanna 1 and 2, how many commercial nuclear power reactors do you contend will be operating in the U. S. by the year 2000?
- 3-6        Assuming that the growth rate for nuclear generated electricity drops to 15%, how many commercial nuclear power reactors do you contend will be operating in the U. S. by the year 2000?
- 3-7        What do you contend uranium prices will be in 1980, 1985, 1990, 1995, 2000 and 2010 in both constant (i.e., real) and current (i.e., inflated) dollars?
- 3-8        Describe why future increases in uranium prices, if any, are related to "the approximate 400% price rise in the price of uranium fuel in the last 6 years".

- 3-9 Describe why "much uranium for the facility will have to be imported" and specify the total quantities of those imports, the quantities per year, and the price.
- 3-10 With respect to each of your answers to Interrogatories 3-1 through 3-9 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 4A

- 4A-1 Is it your assertion that most or all output of both units will be sold outside Applicants' service area as the units come on line? If so, describe the amount of the output which you contend will be sold and the basis for this assertion.
- 4A-2 Is it your assertion that load growth will be consistent with the Very Low growth rate scenario? If so, describe in detail the basis for this assertion.
- 4A-3 With respect to each of your answers to Interrogatories 4A-1 and 4A-2 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 4B

- 4B-1 Identify the "latest projections of energy use and requirements" referred to in the contention.

- 4B-2 Identify all "existing facilities and sources" which you claim can meet the needs of Applicants' customers during the next 30 years and state whether you assume that each such facility and source will continue to be available to meet those needs during the entire 30 year period.
- 4B-3 With respect to each of your answers to Interrogatories 4B-1 and 4B-2 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 4C

- 4C-1 Identify each conservation program suggested by Applicants which is "not designed to encourage either meaningful energy conservation or efficient energy use" and explain why each such program does not encourage either meaningful energy conservation or efficient energy use.
- 4C-2 Describe how Applicants encourage reliance on "expensive electrically operated mechanical heating and cooling devices."
- 4C-3 With regard to each conservation program "aimed at encouraging continued electrical energy usage",
- a. identify each such program;
  - b. describe the other forms of energy which you contend are more "efficient. . . for the job at hand"; and

c. specify the efficiency and cost of each such other form of energy.

4C-4 State all information of which you are aware regarding the cost of "upgrading the thermal insulation in existing residences and commercial buildings in the service area of the Applicants", identify the changes in electricity sales and demand which you contend such upgrading would create, state the time which you contend it would take to perform this upgrade, and state the number and types of buildings in which you contend such upgrading would be performed.

4C-5 Describe the "end use efficiencies" and "Second Law Efficiencies" which assertedly should have been discussed in connection with energy conservation, how these "end use efficiencies" and "Second Law Efficiencies" would effect energy conservation, and the economic costs of achieving these "end use efficiencies" and "Second Law Efficiencies".

4C-6 Specify the "health benefits of energy conservation".

4C-7 With respect to each of your answers to Interrogatories 4C-1 through 4C-6 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 4D

- 4D-1 State the basis for asserting that Applicants have not considered solar energy as an alternative to Susquehanna.
- 4D-2 Describe each form of solar energy which should be considered an alternative to Susquehanna and provide the basis for the statement that each such form is "commonly used".
- 4D-3 For each type of solar energy installation which assertedly has not been considered as an alternative to Susquehanna, specify all information of which you are aware regarding:
- a. the cost of constructing, operating and maintaining each type of installation;
  - b. whether each type of installation requires storage capacity and if so, the capital, operating and maintenance costs of such capacity;
  - c. the number of such installations which would be installed in Applicants' service areas by 1981 and 1983;
  - d. the sales and demand for electricity which such installations would displace.

4D-4 With respect to each of your answers to Interrogatories 4D-1 through 4D-3 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 5

- 5-1 Which models used by Applicants to calculate individual and population radiation doses do you contend are inaccurate and obsolete?
- 5-2 Identify the milk transfer coefficient for iodine which you assert Applicants use.
- 5-3 Identify the factors which convert alpha particle dose in rads to rems which you assert Applicants use and where Applicants use these factors.
- 5-4 Identify the factors which "underestimate the radiation effect, on a per rad basis, for the very low energy beta and gamma radiations" which you assert Applicants use and where Applicants use these factors.
- 5-5 Identify any authorities, other than the cited Health Physics articles, which support the contention.
- 5-6 With respect to each of your answers to Interrogatories 5-1 through 5-5 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 6

- 6-1 Describe the "areas in which persons may be exposed to radiation doses in excess of those permitted by existing radiation exposure standards for the general public and Protective Action Guides".
- 6-2 Identify each of the "narrow roads" in the vicinity of the site for which you contend the emergency plan fails to account adequately.
- 6-3 Identify all other roads in the vicinity of the site which you contend could not be used for evacuation.
- 6-4 Describe each respect in which the emergency plan fails to account adequately for narrow roads.
- 6-5 Identify the "adverse weather conditions" in the vicinity of the site for which you contend the emergency plan fails to account adequately and specify the frequency with which those conditions can be expected to occur.
- 6-6 Describe each respect in which the emergency plan fails to account adequately for adverse weather conditions.
- 6-7 Specify the "assigned functions" of the Office of Radiological Health in the event of an emergency.
- 6-8 Identify any record (including documents, tape recordings, etc.) which include the statement by the Director of the Office of Radiological Health cited in paragraph b. of the contention.

- 6-9 Describe why the Office of Radiological Health will not be able to fulfill its assigned functions.
- 6-10 Assuming that the Office of Radiological Health will not be able to fulfill its assigned functions, what effect do you believe such a failure would have on implementation of Applicants' emergency plan?
- 6-11 Describe the "radiation-hazard safeguards" which you contend are needed to protect local emergency units, specify the level of radiation exposure against which these units must be protected, and describe the accidents or situations which could cause these units to receive such exposures.
- 6-12 Describe the type of "training" which you contend is necessary for the local emergency units.
- 6-13 Describe each aspect in which information in the emergency plan is "insufficient" concerning training of or the adequacy of radiation-hazard safeguards to protect local emergency units.
- 6-14 With respect to each of your answers to Interrogatories 6-1 through 6-13 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 7(a)

- 7(a)-1 Specify all information of which you are aware regarding the nature and magnitude of each of "the dynamic forces realized during blowdown."

- 7(a)-2 Specify all information of which you are aware regarding the strength of the pressure suppression containment structure to withstand each of "the dynamic forces realized during blowdown".
- 7(a)-3 Specify all information of which you are aware regarding the strength of the pressure suppression containment structure which would be sufficient to withstand each of "the dynamic forces realized during blowdown."
- 7(a)-4 With respect to each of your answers to Interrogatories 7(a)-1 through 7(a)-3 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 7(b)

- 7(b)-1 Describe the circumstances of which you are aware in which cracking of stainless steel piping in BWR coolant water environments has occurred, including the location of cracking, the types of coolant water environments, and the types of stainless steel.
- 7(b)-2 Explain why the circumstances described in your answer to Interrogatory 7(b)-1 will be applicable to the Susquehanna facility.
- 7(b)-3 Describe all measures which you believe would prevent or avoid cracking of stainless steel piping in BWR coolant water environments.

- 7(b)-4 With respect to each of your answers to Interrogatories 7(b)-1 through 7(b)-3 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 7(c)

- 7(c)-1 Identify all instances of which you are aware in which BWR core spray nozzles have cracked.
- 7(c)-2 Specify all information of which you are aware regarding the circumstances in which cracking of BWR core spray nozzles has occurred, including the types of materials which cracked, the location of the cracks, and the environment to which the material which cracked was exposed.
- 7(c)-3 Explain why the circumstances described in your answer to Interrogatory 7(c)-2 will be applicable to the Susquehanna facility.
- 7(c)-4 With respect to each of your answers to Interrogatories 7(c)-1 through 7(c)-3 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 7(d)

- 7(d)-1 Explain why reliance on "probabilistic numbers, as  $10^{-7}$  per year, is unwise and unsafe."
- 7(d)-2 Describe each Anticipated Transient Without Scram for which you contend the Susquehanna facility's "ability . . . to survive" has not been demonstrated.

- 7(d)-3 Describe the manner in which the Susquehanna facility would not be able to "survive" each Anticipated Transient without Scram identified in your answer to Interrogatory 7(d)-2 above.
- 7(d)-4 With respect to each of your answers to Interrogatories 7(d)-1 through 7(d)-3 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 8

- 8-1 State specifically in what way you contend Applicants have failed to adequately demonstrate compliance with the Standard Review Plan §5.3.3, Reactor Vessel Integrity, Part II.6.
- 8-2 What do you contend is the nature and magnitude of the "thermal shock of cool ECCS water after blowdown" on the reactor pressure vessel?
- 8-3 What do you contend is the maximum "thermal shock of cool ECCS water after blowdown" which the Susquehanna reactor pressure vessels could survive without cracking?
- 8-4 What do you contend will be the temperature of the "cool ECCS water" entering the reactor pressure vessel after blowdown?
- 8-5 Describe the nature, location, magnitude and extent of cracking which you contend will occur to the reactor pressure vessel as a result of "the thermal shock of cool ECCS water after blowdown".

- 8-6 With respect to each of your answers to Interrogatories 8-1 through 8-5 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 9

- 9-1 State specifically the manner in which you contend the monetary and health costs identified by the Applicants for decommissioning the Susquehanna facility are understated.
- 9-2 Describe what you contend will be the monetary and health costs of decommissioning the Susquehanna facility. State the monetary cost in both constant (i.e., real) and current (i.e., inflated) dollars and state the year or years in which you estimate decommissioning will occur.
- 9-3 State the basis for your assertion that the monetary costs of decommissioning will be "at least equal to the cost of construction". Identify the method of decommissioning to which the assertion refers.
- 9-4 Identify the "industry-sponsored study" to which the contention refers and explain why that study is "obviously biased".
- 9-5 Identify and quantify the "new occupational or environmental hazards" which you contend are associated with the decommissioning of a large nuclear power facility.

- 9-6 Describe the "serious radiation hazards, particularly for workers" which you contend will result from decommissioning.
- 9-7 Describe the reasons for concluding that Applicants are financially unqualified to assume the monetary costs of decommissioning.
- 9-8 With respect to each of your answers to Interrogatories 9-1 through 9-7 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 10

- 10-1 Specifically identify those structures, systems, and components important to safety that you contend have not been adequately protected against the effects of rail accidents on site.
- 10-2 Specify all information of which you are aware regarding the manner in which the rail lines on site are not adequately designed to assure that accidents affecting structures, systems and components important to safety will not occur.
- 10-3 Describe each type of rail accident on site which you contend would impact safety structures, systems and components.

- 10-4 With respect to the "significant [rail] accident" which has "already occurred":
- a. identify and describe this accident;
  - b. describe how this accident indicates that safety structures, systems and components are inadequately protected against the effects of rail accidents on site.

- 10-5 With respect to each of your answers to Interrogatories 10-1 through 10-4 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 11

- 11-1 Describe each aspect in which you contend Applicants have failed to provide adequately for safe on-site storage for periods of up to 10 to 15 years of:
- a. spent fuel;
  - b. low-level radioactive wastes.
- 11-2 State the manner in which Applicants' proposed storage of spent fuel and low-level radioactive wastes on site creates an "unreasonable risk upon the health and safety" of Intervenors or others.
- 11-3 State specifically in what manner Applicants' storage plans violate the Commission's standards for protection against radiation in 10 C.F.R. §§20.1 and 20.105(a).
- 11-4 With respect to each of your answers to Interrogatories 11-1 through 11-3 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 12

- 12-1 Explain specifically in what manner the design of the Susquehanna facility fails to solve the "problem of flow-induced vibration in the core, thereby creating in-vessel sparger failure."
- 12-2 Specify all information of which you are aware regarding all instances in which flow-induced vibration in a reactor core has caused in-vessel sparger failure.
- 12-3 State the manner in which you contend an in-vessel sparger failure at the Susquehanna facility would "create an unreasonable risk of harm to the health and safety of petitioners and their private property".
- 12-4 State specifically in what manner an in-vessel sparger failure at the Susquehanna facility would "violate the Commission's standards for protection against radiation in 10 C.F.R. §§20.1 and 20.105(a)".
- 12-5 With respect to each of your answers to Interrogatories 12-1 through 12-4 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 13

- 13-1 State specifically the ways in which Applicants have not responded adequately to or complied with NRC's Notice of Violation issued by letter of May 10, 1978.
- 13-2 With respect to your answer to Interrogatory 13-1 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 14

- 14-1 Identify the capacity factors used by Applicants in their cost-benefit balance.
- 14-2 Describe why the capacity factors identified in your answer to Interrogatory 14-1 above are "over-optimistic".
- 14-3 Identify the capacity factors which you believe Applicants should have used in their cost-benefit balance and explain why these capacity factors should have been used.
- 14-4 What specific aspects of the design, construction or operation of the Susquehanna facility do you contend will render the facility incapable of producing the amount of electricity predicted by Applicants?
- 14-5 With respect to each of your answers to Interrogatories 14-1 through 14-4 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 15

- 15-1 With respect to "the exposure to radiation of maintenance workers and workers working on Unit 2 of the station while Unit 1 is in operation"
- a. state the maximum annual exposure and average annual exposure which you contend maintenance workers will receive;
  - b. state the total cumulative exposure (in man-rems) which you contend all maintenance workers will receive annually;

- c. state the maximum annual exposure and average annual exposure which you contend will be received by workers working on Unit 2 of the station while Unit 1 is in operation;
- d. state the total cumulative exposure (in man-rems) which you contend will be received annually by workers working on Unit 2 while Unit 1 is in operation.

- 15-2 Specify the sources and types of radiation which will cause the radiation exposures to maintenance workers and workers working on Unit 2 while Unit 1 is in operation.
- 15-3 Specify the types and magnitudes of health effects which you contend will be caused by the radiation exposures to maintenance workers and workers working on Unit 2 while Unit 1 is in operation.
- 15-4 Identify and quantify all factors which you considered in contending that radiation exposure to workers working on Unit 2 achieved by delaying Unit 1 operation until Unit 2 construction is completed would be "as low as is reasonably achievable" as required by 10 C.F.R. §20.4(c).
- 15-5 With respect to each of your answers to Interrogatories 15-1 through 15-4 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 16

- 16-1 Identify the radioactive isotopes which will be present in the "seventy million gallons of radioactive water to be vented daily from the Susquehanna facility's cooling towers".
- 16-2 Specify the quantities and concentrations of each of the isotopes identified in your answer to Interrogatory 16-1 on the "seventy million gallons of radioactive water to be vented daily for the Susquehanna facility's cooling towers".
- 16-3 By what mechanism will the isotopes identified in your answer to Interrogatory 16-1 enter evaporated water from the cooling towers in the quantities and concentrations specified in your Answer to Interrogatory 16-2.
- 16-4 With respect to the "economic threat to the dairy industry in the East-Central area of Pennsylvania".
- a. State the geographic boundaries of the "East-Central area of Pennsylvania";
  - b. describe the nature of the "economic threat";
  - c. quantify the magnitude of the "economic threat".
- 16-5 With respect to each of your answers to Interrogatories 16-1 through 16-4 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 17

- 17-1 Describe the type or types of "noise pollution which you contend would be produced by the UHV transmission lines associated with the Susquehanna facility and quantify the level of such "noise pollution".
- 17-2 With respect to the "electrical shock from flashover" which the contention states would be caused by the UHV transmission lines associated with the Susquehanna facility:
- a. define what is meant by "flashover";
  - b. describe how "flashover" would occur;
  - c. describe how electrical shock would be caused by "flashover";
  - d. identify by whom, and the conditions in which, such an electrical shock would be received;
  - e. specify what you contend would be the magnitude of such electrical shock;
  - f. identify all instances of which you are aware where such shock has occurred.
- 17-3 Specify the extent to which you contend the Susquehanna UHV transmission lines would create television and radio interference including the magnitude of such interference and the maximum distance from the transmission lines at which such interference would occur.

17-4

With respect to the "strong electrostatic and electromagnetic fields that adversely affect living organisms along the UHV transmission right-of-way and beyond":

- a. define what is meant by "strong";
- b. describe the adverse effects which would be caused;
- c. identify all instances where such effects have been observed;
- d. identify those "living organisms" which would be adversely affected;
- e. define what is meant by "beyond" and state the maximum distance at which you contend the "strong electrostatic and electromagnetic fields" would have an adverse effect.

17-5

With respect to the asserted injuries caused by the generation of "dangerous levels of ozone":

- a. define the levels of ozone that you contend are "dangerous";
- b. specify the "levels of ozone" which you contend will be generated by the Susquehanna UHV transmission lines;
- c. describe the "injury to vegetation" which you contend will be caused by the levels of ozone generated by the Susquehanna UHV transmission lines;
- d. describe the "harmful effects on human health" which will be caused by the levels of ozone generated by the Susquehanna UHV transmission lines;

e. identify all instances of which you are aware in which such "injury to vegetation" and "harmful effects on human health" have been observed.

17-6 With respect to each of the phenomena discussed in the contention (i.e., noise pollution, electric shock from flashovers, radio and television interference, electromagnetic and electrostatic fields, and ozone), describe the difference in magnitude and impact which would be caused by use of lines in the range of 138,000 - 230,000 volts maximum as compared with the Susquehanna UHV transmission lines.

17-7 Specify all information of which you are aware regarding the lowest level at which each of the phenomena discussed in this contention will adversely affect human health or (if applicable) vegetation and the lowest level at which such adverse effects have been observed for each such phenomenon.

17-8 a. State whether you believe that placing the transmission lines for the Susquehanna facility underground (using compressed gas as an insulator) would be justified on cost-benefit basis.

b. If the answer to Interrogatory 17-8(a) is yes:

i. what do you contend would be the economic cost of building the UHV transmission lines for Susquehanna underground using compressed gas as an insulator;

- ii. identify all environmental impacts which you contend would be caused by such underground lines;
- iii. identify all UHV transmission lines which have been built and operated underground using compressed gas as an insulator.

17-9 With respect to each of your answers to Interrogatories 17-1 through 17-8 above, answer General Interrogatories 1 through 4.

Interrogatories on Contention 18

- 18-1 Would the (1) selective foliage application of Krenite (2) selective foliage application of a mixture of equal parts Weedone 2,4-DP and either Amdon 101 or Tordon 101, or (3) selective basal application of a mixture of equal parts of Weedone 170 and Banvel 520, have any of the adverse health and safety effects referred to in the contention, or any other adverse effects?
- 18-2 If you have answered Interrogatory 18-1 affirmatively, state specifically the health and safety effects from each of the herbicides which you contend will occur.
- 18-3 Explain specifically the relationship between the use of the herbicides referred to in Interrogatory 18-1 and the health and safety effects you identified in answer to Interrogatory 18-2.

- 18-4 Identify all specific instances of which you are aware where there have been any adverse health or safety effects from the use of the herbicides referred to in Interrogatory 18-1.
- 18-5 To the extent that you have identified any instances in answer to Interrogatory 18-4, state whether the circumstances of use in these instances involved the same mixtures as those referred to in Interrogatory 18-1. In your answer, state the frequency and method of application that was involved in any instances identified in answer to Interrogatory 18-4.
- 18-6 State specifically any environmental impacts, other than those identified elsewhere in your answers to Interrogatories 18-1 - 18-5, which you believe may occur from the use of the herbicides referred to in Interrogatory 18-1.
- 18-7 If you have identified effects in answer to Interrogatory 18-6, explain specifically why such effects would be expected to occur in conjunction with the use of such herbicides.

18-8 With respect to each of your answers to Interrogatories 18-1 through 18-7 above, answer General Interrogatories 1 through 4.

Interrogatory 19

- 19-1 With respect to each individual whom you intend to call as a witness in this proceeding:
- a. Identify by name and address each such individual,
  - b. State the educational and professional background of each such individual, including occupation and institutional affiliations, publications and papers;
  - c. Identify the contention as to which each such individual will testify;
  - d. Describe, to the extent known, the nature of the testimony which may be presented by each such individual;
  - e. Identify by court, agency, or other body, proceeding, date and subject matter all prior testimony by each such individual.

GENERAL INTERROGATORIES

1. 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.
  
2. Is your answer 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 or describe the study, calculation, or analysis.
  - b. Who performed the study, calculation, or analysis?
  - c. When and where was the study, calculation, or analysis performed?
  - d. Describe in detail the information that was studied, calculated, or analyzed.

\*For the purpose of these General Interrogatories, "document" means all writings and records of every type in the possession, control or custody of Intervenor, including but not limited to memoranda, correspondence, reports, surveys, tabulations, charts, books, pamphlets, photographs, maps, bulletins, minutes, notes, diaries, speeches, articles, transcripts and all other records, written, electrical, mechanical or otherwise.

"Documents" shall also mean copies of documents even though the originals thereof are not in the possession, custody or control of Intervenor.

- e. What were the results of such study, calculation, or analysis?
  - f. Explain how such study, calculation, or analysis provides a basis for your answer.
3. Is your answer based upon research? If so:
- a. Describe all such research and identify each document discussing or describing such research.
  - b. When and where was the research conducted?
  - c. By whom was the research conducted?
  - d. Explain how such research provides a basis for your answer.
4. Is your answer based upon conversations, consultations, correspondence or any other type of communications with one or more individuals? If so:
- a. Identify by name and address each such individual.
  - b. State the educational and professional background of each such individual, including occupation and institutional affiliations.
  - c. Describe the nature of each communication with each such individual, when it occurred, and identify all other individuals involved.
  - d. Describe the information received from each such individual and explain how it provides a basis for your answer.

- e. Identify each letter, memorandum, tape, note or other record related to each conversation, correspondence, or other communication with such individual.

APPENDIX E

Environmental Coalition on Nuclear Power (ECNP) First Round  
Discovery Requests to NRC Staff, Applicant, and Commonwealth

Pursuant to 10 C.F.R. 2.744 and the Licensing Board's Special Prehearing Conference Order of March 7, 1979, the Environmental Coalition on Nuclear Power (ECNP), intervenors in the captioned proceeding, hereby serve upon the Executive Director for Operations, the following list of documents for production to these intervenors:

1. For ECNP Contention 1, 2, 3, 5, which refer to the cost-benefit analysis and to the various aspects of the health effects of the nuclear fuel cycle, the following documents:

ORNL-4903, Vol. 1&2  
ORNL-5315  
ORNL-TM-4154  
ORNL-TM-5251

ORNL/NUREG/TM-102

GJO-100(78) and-100(79)  
GJO-11(1978)  
GJO-1640  
GJO-1659-1  
GJT-2, -4, -6, -12, -18, -21  
NUREG-0109  
NUREG-0119  
NUREG-0322  
NUREG/CR-0573  
NUREG/CR-0574

NUREG/CR-0311  
NUREG/CR-0597  
NUREG/CR-0114  
NUREG/CR-0649  
NUREG-0456 (NUREG/CR-0456)

CONF-720805  
CONF-730907  
MIT-952-5

FBDU-218-1  
FBDU-224-10

USGS Professional Paper 820  
USGS Open File Report 78-1050

2. All calculations, assumptions, with references cited, used in cost-benefit analysis for Susq. 1 & 2, with emphasis on compliance with 10 C.F.R. 51.20(c).
3. All references in which particular values used in a cost-benefit are singled out for comparison with some parameter not used in the analysis, so as to create the illusion that the singled out parameter is insignificant and need not be included in the cost-benefit analysis. The comparisons here refers to the comparison of radon-222 emissions to natural releases of radon-222 so as to obscure the health effects caused by the operation of Susquehanna 1 & 2.

This should also include the references to justifications for, in detail, tampering with one side of the analysis balance and not the other.

4. Transcripts of each and every meeting of the NRC Commissioners, with all attachments and discussion papers, in which the quantity of radon-222 in Table S-3 is discussed, and all Staff position papers and recommendations pertaining to radon-222.

ERDA-93  
BNWL-2190  
NIOSH-75-117  
UCRL-50163 (1968)

"Reserves and Resources of Uranium", Supplement to  
Mineral Resources and the Environment Nat. Acad. Sci.,  
1975

"President's Report on Occupational Safety and Health",  
1972

Bureau of Mines Publ. RI 8254

Draft Report of Task Force on Uranium Mill Tailings,  
Argonne National Labs., 1976

"Monticello Mill Tailings Erosion Control Project:  
Monticello, Utah," Report and Supplemental Report, USAEC,  
1966

USPHS Tech. Report W62-19 (1962)

Jan., 1979, Draft Report of NCRP Sci. Comm. 40

Copy of the NRC Translation of a report by Dieter  
Teutel of the University of Heidelberg

And also supply:

1. All assumptions, references, and calculations used in arriving at the radon-daughter air-concentration to dose to the bronchial epithelium of 0.625 mrem/pci m<sup>3</sup> in NUREG-0511, Vol. II, p. G-44. Cite all references.

2. For ECNP Contention 6 on Evacuation, supply the following information:
  1. All presently (as of May 25, 1979) applicable and proposed revisions of NRC detailed requirements for emergency response and evacuation plans to be met by Applicant, agencies of the Commonwealth, local governmental agencies, and federal agencies, including full specification of the legal responsibilities of all institutions (agencies) and personnel for
    - a. reporting of accidents,
    - b. recommendations for evacuation,
    - c. decisions to implement emergency and/or evacuation plans, and
    - d. the actual conduct of these plans.
  2. All correspondence and requests for information documentation and data pertaining to emergency preparedness and evacuation planning submitted by NRC to the Applicant, Commonwealth, and any other agencies of government or private organizations in consequence of and/or subsequent to the March 28, 1979, accident at Three Mile Island, Unit 2.

3. All correspondence and requests for information, data, and documentation pertaining to radiation monitoring submitted by NRC to the Applicant, Commonwealth, and any other agencies of government or private organizations in consequence of and/or subsequent to the March 28, 1979, accident at Three Mile Island, Unit 2.
  4. All federal radiation monitoring data from Three Mile Island, Unit 2, in possession of the NRC, subsequent to March 28, 1979, in order to establish whether the NRC, or other involved federal agency, has monitored to a distance and extent to be able to establish radiation doses to the public with a reasonable degree of accuracy and timeliness, in the event of a serious radiological emergency at Susquehanna.
3. For Contention 7, referring to unresolved safety problems, supply copies of the following:
- PTR-815
  - BNL-17608
  - PTR-738
  - WASH-1246
  - SAND 77-1371
  - NUREG/CR-0649
  - NUREG-140
- Any reports on ATWS published subsequent to WASH-1270.  
"Meteorology and Atomic Energy-1978", USAEC, TID-24190.

The most recent report to Congress describing unresolved generic safety problems.

Those portions of the transcripts of the hearings in the Black Fox proceeding in which unresolved safety problems were discussed.

In addition, supply a description of each design basis accident, indicating in the resulting analysis, which engineered safeguards upon which reliance for safety is placed, have been tested under realistic accident conditions (temperature, pressure, full-scale test) and which are calculated to be effect through analytical technique.

4. For Contention 9, concerning decommissioning of nuclear power plants, supply copies of:
  - (a) the report of the Atomic Industrial Forum on decommissioning; and
  - (b) any NRC reports on reactor decommissioning.

To Applicant

The following information and documents, data, and reports are requested from the Applicant:

1. For Intervenors' Contentions 1-18, supply all reports, calculations, revised information, and other responses to any requests from NRC, the Commonwealth of Pennsylvania,

or any other agency of government arising out of, and/or subsequent to the March 28, 1979, accident at Three Mile Island, Unit 2.

2. For ECNP Contention 4, Need for Power, all data and calculations of Applicant's estimated electricity demand, use, and supply projections for the operating life of the reactor. Supply all bases for assumptions in Appendix B1 and Appendix B2, Environmental Report, and all updated information subsequent to those reports.
3. For ECNP Contention 6, on Evacuation, supply:
  - a. Applicant's complete emergency preparedness and evacuation plans (which were not provided with the FSAR) and all subsequent modification of these documents by the Applicant, including any resulting from the TMI-2 accident of March 28, 1979.
  - b. Any calculations and the detailed bases of all assumptions used to prepare Applicant's emergency response and evacuation plans, including not readily available references, used in the development of those portions of the plans pertaining to:
    1. traffic studies in Luzerne and adjoining counties and elsewhere;
    2. evacuee destination planning;

3. emergency fuel supply plans; and
  4. plans for special handling of the infirm and institutionalized persons - which together ensure conformity with Protective Action Guides and any other applicable governmental regulations.
- c. Emergency preparedness and evacuation plans for Class 9 accidents, or any accident more serious than the Applicant's Design Basis accident.
- d. All data and information on radiation monitoring in the vicinity of the plant requested or required by NRC, Commonwealth, or any other agency of government in consequence of and/or subsequent to the March 28, 1979, accident at Three Mile Island, Unit 2.
4. For ECNP Contention 7, supply following documents listed in the FSAR, Chap. 1.6:

APED-4986	NEDO-10174	NEDO-10958-A
APED-5458	NEDO-10299	NEDO-10959
APED-5460	NEDO-10320	NEDO-20231
APED-5652	NEDO-10329	NEDO-20340
APED-5750	NEDO-10349	NEDO-20360
APED-5756	NEDO-10527	NEDO-20360-IP
GEAP-13112	NEDO-10739	NEDO-20566
NEDE-10313	NEDO-10801	NEDO-20626
NEDE-21175-P	NEDO-10802	NEDO-20626-1
NEDM-10735	NEDO-10846	NEDO-20626-2
NEDO-10173	NEDO-10958	NEDO-20631

NEDO-20913	IDO-ITR-105
NEDO-20922	WACP-6065
NEDO-20939	WAPD-TM-283
NEDO-20944	WAPD-TM-416
NEDE-20944-P	BN-TOP-1, Rev. 1 (11-72)
NEDO-20948-P	BN-TOP-2, Rev. 2 (5-74)
NEDO-21142	BQ-TOP-1, Rev. 2 (1977).
NEDO-21143	
NEDO-21159	
NEDO-26453 (all parts)	

and

The report authored by Dr. Charles Reed of General Electric concerning the present and future status of BWRs with regard to, among other things, safety.

The bases for the assumptions in the "assessment of likelihood" of "rare" and "extremely rare" used in the Environmental Report (ER) Table 7.1-17 with specification as to whether these bases are factual, estimated, or speculative.

5. For ECNP Contention .9, on Decommissioning, supply all data, cost estimates, and worker exposure estimates now associated with decommissioning which have been developed by the Applicant since filing of the FSAR or subsequent to and/or in consequence of the TMI-2 accident of March 28, 1979.

6. For ECNP Contention 18, on Herbicides, supply a detailed description of Applicant's plans to maintain clearance of transmission line rights-of-way, including full information on:

- a. Any chemical herbicides proposed to be used and a full environmental analysis thereof;

- b. Physical or mechanical means of maintenance and their full environmental impacts; and
- c. Detailed provisions and identification of any subcontracts and subcontractors and their plans for rights-of-way maintenance.

To Commonwealth of Pennsylvania

The Commonwealth is asked to provide Intervenors with the following information, data, documents and reports:

- 1. For Intervenors' Contentions 1-18, provide all correspondence and requests for information, data or documents from the Commonwealth to the Applicant subsequent to and/or in consequence of the March 28, 1979 accident at Three Mile Island, Unit 2.
- 2. For ECNP Contention 6, on Evacuation, supply
  - a. The most recent version of the Commonwealth's emergency preparedness and evacuation plans;
  - b. All correspondence from, and to, the Bureau of Radiological Protection, the Pennsylvania Emergency Management Agency, the Commonwealth Justice Department, the Applicant, and NRC pertaining to the adequacy and any proposed changes in emergency preparedness and evacuation plans in consequence of and subsequent to the March 28, 1979, TMI-2 accident.

- c. All records, documents, and other information detailing the legal responsibilities and obligations of employees of the Commonwealth with respect to their ability to respond fully, adequately, and timely to a radiological emergency at a nuclear power facility in order to protect the health and safety of the citizens of Pennsylvania.
  
- d. All radiation monitoring data from Three Mile Island, Unit 2, in the possession of the Commonwealth Bureau of Radiological Protection subsequent to March 28, 1979, in order to establish whether the Commonwealth or any other involved institution or agency has monitored to a distance and extent to be able to establish radiation doses to the public with a reasonable degree of accuracy and timeliness in the event of a radiological emergency.
  
- e. Emergency preparedness and evacuation plans of the Pennsylvania Emergency Management Agency and local agencies of government to provide adequately for the protection of the health and safety of the citizens of Pennsylvania

in the event of a radiological accident worse than the Applicant's calculated "design basis accident," or a Class 9 accident.