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NUCLEAR REGULATORY COMMISSION ISSUANCES

October 1985

U.S. NUCLEAR REGULATORY COMMISSION

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This report includes the issuances received during the specified period from the Commission (CLI), the Atomic Safety and Licensing Appeal Boards (ALAB), the Atomic Safety and Licensing Boards (LBP), the Administrative Law Judge (ALJ), the Directors' Decisions (DD), and the Denials of Petitions for Rulemaking (DPRM).

The summaries and headnotes preceding the opinions reported herein are not to be deemed a part of those opinions or to have any independent legal significance.

U.S. NUCLEAR REGULATORY COMMISSION

Prepared by the Division of Technical Information and Document Control,
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Gary J. Edles
Howard A. Wilber

In the Matter of **Docket No. 50-322-OL-3**
(Emergency Planning)

LONG ISLAND LIGHTING COMPANY
(Shoreham Nuclear Power Station, Unit 1)

October 18, 1985

The Appeal Board affirms the Licensing Board finding in the emergency planning phase of this operating license proceeding that the applicant lacks the legal authority to implement material features of its proposed emergency response plan, and therefore, that such a plan cannot be carried out in conformity with Commission regulations.

EMERGENCY PLANS: CONTENT (ONSITE AND OFFSITE PREPAREDNESS)

Under Commission regulations, no operating license for a nuclear power reactor can issue unless the NRC finds that there is reasonable assurance that adequate protective measures both on and off the facility site can and will be taken in the event of a radiological emergency. As a general rule, offsite emergency plans must be developed for a 10-mile zone surrounding the plant (the plume exposure pathway emergency

planning zone) and a second zone of approximately 50 miles (the ingestion pathway emergency planning zone). *See* 10 C.F.R. § 50.47 and Part 50, Appendix E.

EMERGENCY PLANS: STATE AND LOCAL GOVERNMENT PLANS (UTILITY PLAN AS SUBSTITUTE)

The NRC is obligated to consider a utility-prepared offsite emergency plan submitted in the absence of state and local government-approved plans, and has the ultimate authority to determine whether such a submission is sufficient to meet the prerequisites for the issuance of an operating license. CLI-83-13, 17 NRC 741 (1983).

STATE STATUTES: FEDERAL PREEMPTION

State law can be preempted in either of two general ways. If Congress evidences an intent to occupy a given field, any state law falling within that field is preempted. If Congress has not entirely displaced state regulation over the matter in question, state law is still preempted to the extent it actually conflicts with federal law, that is, when it is impossible to comply with both state and federal law or where the state law stands as an obstacle to the accomplishment of the full purposes and objectives of Congress. *Silkwood v. Kerr-McGee Corp.*, 464 U.S. 238, 248 (1984).

STATE STATUTES: FEDERAL PREEMPTION

The Atomic Energy Act does not displace traditional enforcement of state tort law, including the state's right to authorize punitive damages for radiation injuries. *Silkwood*, 464 U.S. 238.

STATE STATUTES: FEDERAL PREEMPTION

The Atomic Energy Act does not preclude a state from enacting a moratorium on nuclear power plant construction based on economic rather than radiological health and safety considerations. *Pacific Gas & Electric Co. v. State Energy Resources Conservation & Development Comm'n*, 461 U.S. 190 (1983).

ATOMIC ENERGY ACT: REGULATORY STRUCTURE

The Atomic Energy Act establishes a dual regulatory structure for nuclear-powered electric generation. The federal government maintains

complete control of the safety and "nuclear" aspects of energy generation; the states exercise their traditional authority over the need for additional generating capacity, the type of generating facilities to be licensed, land use, ratemaking, and the like. *Pacific Gas & Electric*, 461 U.S. at 211-12; *Brown v. Kerr-McGee Chemical Corp.*, 767 F.2d 1234, 1241 n.4 (7th Cir. 1985). There is no bright line dividing the areas of federal and state responsibility and they may at times overlap.

NUCLEAR REGULATORY COMMISSION: HEALTH AND SAFETY RESPONSIBILITIES

The Commission is involved in emergency planning pursuant to its health and safety jurisdiction.

NUCLEAR REGULATORY COMMISSION: HEALTH AND SAFETY RESPONSIBILITIES (SCOPE)

The management of vehicular traffic on public roads, governmental response to public emergencies (including the implementation of any necessary evacuation), and control over the actions of corporations operating within the state, have nothing to do with radiological health and safety and fall well within the category of activities routinely subject to state supervision.

NUCLEAR REGULATORY COMMISSION: HEALTH AND SAFETY RESPONSIBILITIES (SCOPE)

Although the Commission has recognized its own role in emergency planning oversight, it has nonetheless observed that the state and local governments have the primary responsibility under their constitutional police powers to protect the public. 44 Fed. Reg. 75,167, 75,169 (1979).

STATE STATUTES: FEDERAL PREEMPTION

State laws that indicate the manner in which a utility may or may not conduct certain nonradiological activities within the state do not invade the federal domain simply because they have a significant effect on nuclear power issues or even foreclose the nuclear option entirely. Such laws are entitled to respect, absent an affirmative showing that Congress intended to supplant them. *Silkwood*, 464 U.S. at 255.

STATE STATUTES: FEDERAL PREEMPTION

In deciding if state laws affecting nuclear power or emergency planning for nuclear power plants are preempted by federal law, all that need be determined is whether there exists a nonsafety rationale for the enactment or enforcement of the state laws. *See Pacific Gas & Electric,* 461 U.S. at 213, 216.

STATE STATUTES: FEDERAL PREEMPTION

The reservation of exclusive jurisdiction by the federal government over radiological health and safety matters does not necessarily prevent a state from asserting its authority over matters within its own jurisdiction merely because its action coincidentally affects the area subject to federal control. *Silkwood,* 464 U.S. 238; *Pacific Gas & Electric,* 461 U.S. 190. *See generally Huron Portland Cement Co. v. City of Detroit,* 362 U.S. 440, 447 (1960).

ATOMIC ENERGY ACT: PREEMPTION

The Atomic Energy Act does not expressly require the states to construct or authorize nuclear power plants or prohibit the state from deciding, as an absolute or conditional matter, not to permit the construction of any further reactors. *Pacific Gas and Electric,* 461 U.S. at 205.

ATOMIC ENERGY ACT: PREEMPTION

The Atomic Energy Act does not preempt state laws solely because they coincidentally prevent operation of a completed reactor.

STATE STATUTES: FEDERAL PREEMPTION

State law is not preempted in all circumstances where it interferes with the potential exercise of federally licensed activities. *See Radio Station WOW, Inc. v. Johnson,* 325 U.S. 120, 129-33 (1945).

EMERGENCY PLANS: STATE AND LOCAL GOVERNMENT PLANS (UTILITY PLAN AS SUBSTITUTE)

The lack of an emergency plan officially sponsored by a state or local government does not stand as an absolute barrier to the grant of a license. The Commission may consider a utility plan in the absence of a state or local government-sponsored plan.

EMERGENCY PLANS: STATE AND LOCAL GOVERNMENT PLANS (UTILITY PLAN AS SUBSTITUTE)

The mere existence of a utility plan is not a sufficient basis for issuance of a license. The Commission must be able to conclude that the utility plan provides reasonable assurance that the public health and safety will be protected.

EMERGENCY PLANS: STATE AND LOCAL GOVERNMENT PLANS (UTILITY PLAN AS SUBSTITUTE)

Federal law does not override enforcement of certain state statutes that impede or foreclose a utility from presenting a viable emergency plan to the Commission for review.

STATUTORY INTERPRETATION: LEGISLATIVE INTENT

When choosing between alternative constructions of a statute, displacement of state laws exercising historic police powers should be avoided unless that was the clear and manifest purpose of Congress. *Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947), *cited with approval in Florida Lime and Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 146 (1963).

STATUTORY INTERPRETATION: LEGISLATIVE INTENT

The remarks of individual legislators are often an unreliable gauge of overall legislative intent. *In re Surface Mining Regulation Litigation*, 627 F.2d 1346, 1362 (D.C. Cir. 1980).

EMERGENCY PLANS: STATE AND LOCAL GOVERNMENT PLANS (UTILITY PLAN AS SUBSTITUTE)

The 1980 NRC Authorization Act, Pub. L. No. 96-295, 94 Stat. 780 (1980), accords a utility at least the opportunity to supplement an otherwise deficient governmental emergency plan. It also appears to foreclose the Commission from mandating a state or local government-sponsored plan as a regulatory requirement for licensing.

EMERGENCY PLANS: REQUIREMENT FOR PLANT OPERATION

Pursuant to 10 C.F.R. § 50.47(c), an applicant is permitted to show that deficiencies in emergency plans are not significant for the plant in question, that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit plant operation.

EMERGENCY PLANS: REQUIREMENT FOR OPERATING LICENSE

Section 50.47(a)(1) of 10 C.F.R. requires that there be reasonable assurance that protective measures can and will be taken in the event of a radiological emergency.

EMERGENCY PLANS: EMERGENCY PLANNING ZONES

Section 50.47(b)(10) of 10 C.F.R. requires that a range of protective actions be developed for the plume exposure pathway emergency planning zone for emergency workers and the public and that guidelines for the choice of protective actions during an emergency, consistent with federal guidance, are developed and in place.

EMERGENCY PLANS: CONTENT (EVACUATION)

Discrete aspects of an evacuation plan may be subjected to adversarial evaluation to determine the efficiency with which an evacuation can be accomplished. *See, e.g., Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit 1), ALAB-727, 17 NRC 760, 770-71 (1983).

EMERGENCY PLANS: CONTENT (EVACUATION)

Commission regulations require the formulation of satisfactory evacuation plans as a part of the overall emergency preparedness effort. *Id.* at 774 n.19.

APPEARANCES

James M. Christman, Richmond, Virginia (with whom **W. Taylor Reveley, III, Donald P. Irwin,** and **Kathy E.B. McCleskey,**

Richmond, Virginia, were on the brief), for the applicant Long Island Lighting Company.

David A. Brownlee, Pittsburgh, Pennsylvania, and **Karla J. Letsche,** Washington, D.C. (with whom **Michael J. Lynch** and **Kenneth M. Argentieri,** Pittsburgh, Pennsylvania, were on the brief), and **Eugene R. Kelley,** Hauppauge, New York, for the intervenor Suffolk County, New York.

Fabian G. Palomino, Albany, New York, for the intervenor State of New York.

Stephen B. Latham, Riverhead, New York, for the intervenor Town of Southampton.

Sherwin E. Turk for the Nuclear Regulatory Commission staff.

DECISION

Before us is the appeal of the applicant Long Island Lighting Company (LILCO) from portions of the Licensing Board's April 17, 1985, partial initial decision in the emergency planning phase of this operating license proceeding involving the Shoreham nuclear facility.[1] The Licensing Board resolved many of the outstanding offsite emergency planning issues in LILCO's favor. Significantly, however, it concluded that LILCO lacks the legal authority to implement material features of its proposed emergency response plan. That being so, the Board determined that an emergency plan in conformity with Commission regulations cannot be carried out. As explained in detail below, we affirm the Board's result in this regard.[2]

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[1] LBP-85-12, 21 NRC 644.

[2] Appeals from other portions of the partial initial decision were taken by intervenors Suffolk County and the State of New York. In response to a motion from the intervenors seeking additional time in which to file briefs in support of their own appeal, and a separate request from LILCO that we refer the legal authority issues directly to the Commission or, in the alternative, sever its appeal for expedited review, we established two briefing and oral argument schedules. Order of May 15, 1985 (unpublished). We treat solely LILCO's appeal in this opinion. The county and state appeals are now being briefed. In addition, one contested emergency planning issue (dealing with the adequacy of a proposed relocation center) was recently resolved in a separate partial initial decision. LBP-85-31, 22 NRC 410 (1985). Appeals from that decision have been filed and are also at the briefing stage.

I. BACKGROUND

Under Commission regulations, no operating license for a nuclear power reactor can issue unless the NRC finds that there is reasonable assurance that adequate protective measures both on and off the facility site can and will be taken in the event of a radiological emergency. As a general rule, offsite emergency plans must be developed for a 10-mile zone surrounding the plant (the plume exposure pathway emergency planning zone) and a second zone of approximately 50 miles (the ingestion pathway emergency planning zone).[3] In the usual case, state or local governments participate in the development and implementation of emergency plans. The Shoreham facility is situated in Suffolk County, New York, and the 10-mile emergency planning zone is either within the county or on the waters of Long Island Sound.[4] The controversy before us centers around the ramifications of the state and county governments' refusal to participate in the development and implementation of offsite emergency plans for Shoreham.

For a number of years both governments generally supported the construction of the Shoreham facility and assisted in the development of emergency response plans. Things changed in early 1982 when the County began to reappraise its view of the efficacy of an emergency response plan for Shoreham.[5] In due course, the County adopted resolutions concluding that no local response plan could adequately protect the health, welfare and safety of Suffolk County residents, and directing that no emergency plan be adopted or implemented. The State has supported the County's position.

On the strength of the determination embodied in its resolutions, the County filed a motion with the Licensing Board to terminate this proceeding. The gist of the County's argument was that the Commission's regulations require the submission of an emergency response plan sponsored by the local government as a prerequisite to issuance of an operating license. The Board denied the motion.[6] It concluded that, under Commission regulations and applicable federal statutes, the existence of an emergency plan approved by the local government was not a precondition to issuance of an operating license. Rather, an applicant is to be

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[3] *See* 10 C.F.R. 50.47 and Part 50, Appendix E.

[4] LBP-85-12, 21 NRC at 648.

[5] A partial history of the proceeding, on which we draw, is set out in an appendix to LBP-83-22, 17 NRC 608, 647-54, *aff'd on other grounds*, CLI-83-13, 17 NRC 741 (1983).

[6] *Id.* at 615.

accorded an opportunity to demonstrate that there is reasonable assurance that adequate protective measures can and will be taken in the event of an emergency despite the local government's refusal to prepare or implement an emergency plan.[7] The Board found, in this connection, that it was not bound by the County's determination regarding the feasibility of developing adequate emergency planning for Shoreham.[8]

The Licensing Board referred its ruling to us for review,[9] and we, in turn, referred it to the Commission.[10] On review, the Commission approved the Board's analysis of the regulations and applicable statutes and determined that this agency was obligated to consider any plan the applicant might submit.[11] However, it expressly declined to examine at that juncture what it described as "serious issues of federal preemption involved in the current offsite emergency planning controversy."[12]

On May 26, 1983, LILCO filed its so-called "transition plan" in which offsite emergency response procedures would be implemented by LILCO personnel, federal agencies, or private contractors. The plan does not rely on county or state personnel.[13] Almost 100 contentions directed to the plan were thereupon tendered by the intervenors. Contentions 1-10, i.e., those addressed to the applicant's legal authority to implement certain elements of its plan, alleged that LILCO is prohibited by state or local law from performing key emergency functions (such as directing traffic, activating the emergency sirens, or broadcasting emergency messages) and that, as a consequence, the plan cannot and will not be implemented as required by Commission regulations.[14]

LILCO filed a motion for summary disposition of these contentions.[15] All parties agreed that it could be decided without evidentiary hearings.[16]

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[7] *Id.* at 612.

[8] *Id.* at 637.

[9] LBP-83-21, 17 NRC 593 (1983).

[10] Order of April 26, 1983 (unpublished).

[11] CLI-83-13, 17 NRC 741.

[12] *Id.* at 743.

[13] *See* LBP-85-12, 21 NRC at 650, 895.

[14] Contentions 1-10 set out the alleged prohibited actions as follows: (1) guiding traffic; (2) blocking roadways, erecting barriers in roadways, and channelling traffic; (3) posting traffic signs on roadways; (4) removing obstructions from public roadways, including towing private vehicles; (5) activating sirens and directing the broadcasting of emergency broadcast system messages; (6) making decisions and recommendations to the public concerning protective actions; (7) making decisions and recommendations to the public concerning protective actions for the ingestion exposure pathway; (8) making decisions and recommendations to the public concerning recovery and reentry; (9) dispensing fuel from tank trucks to automobiles along roadsides; and (10) performing access control at the Emergency Operations Center, the relocation centers, and the plume emergency planning zone perimeters. *See id.* at 895.

[15] Motion for Summary Disposition of Contentions 1-10 (The "Legal Authority" Issues) (August 6, 1984) (hereafter cited as LILCO Motion).

[16] *See* Tr. 13,383 (LILCO), 13,831 (the State and the County), and 13,834 (the staff).

The Board nonetheless deferred its consideration of the motion,[17] having earlier urged the parties to resolve the issue in court.[18] The County, the State, and the Town of Southampton sought a declaratory ruling from a state court that LILCO was prohibited under state law from undertaking the various emergency functions ordinarily performed by state or local officials. In due course, that court issued a decision in which it agreed that private companies such as LILCO cannot under New York law perform certain key emergency functions contemplated by its plan. Such functions may be performed only by governmental entities.[19]

LILCO returned to the Licensing Board and renewed its motion for summary disposition of Contentions 1-10. For purposes of the motion, LILCO accepted the state court's decision as a binding interpretation of state law. It argued basically that the state laws prohibiting it from implementing its emergency plan are preempted by the Atomic Energy Act. In addition, it claimed that, in any event, state or local officials would respond in case of a genuine emergency. Finally, it asserted that most of the functions that it purportedly cannot perform by reason of New York law are not required by NRC regulations.

The Licensing Board rejected all of LILCO's arguments and denied the motion.[20] This appeal followed. LILCO renews its arguments before us. With some exceptions discussed below, intervenors Suffolk County and the State of New York, the Town of Southampton, and the NRC staff support the Board's result.[21]

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[17] Memorandum and Order of October 22, 1984 (unpublished).

[18] *See, e.g.*, Tr. 3675: "The Board believes that these legal contentions are properly matters to be disposed of by the New York State courts."

[19] *Cuomo v. Long Island Lighting Co.*, Consol. Index No. 84-4615 (N.Y. Sup. Ct. February 20, 1985), *appeal docketed* (N.Y. App. Div. April 26, 1985). In addition, Citizens for an Orderly Energy Policy, a private organization supporting operation of the Shoreham plant, brought suit in federal court to obtain a declaratory ruling that the county resolutions are preempted by federal law. The court concluded, however, that the resolutions were not in conflict with federal law and thus were not preempted. *Citizens for an Orderly Energy Policy v. County of Suffolk*, 604 F. Supp. 1084 (E.D.N.Y. 1985), *appeal docketed*, Nos. 85-7321, etc. (2d Cir. April 11, 1985). This organization also sought to intervene in this proceeding but its request was denied as untimely. LBP-83-42, 18 NRC 112, *aff'd*, ALAB-743, 18 NRC 387 (1983).

[20] LBP-85-12, 21 NRC at 895-919.

[21] Throughout most of the litigation, the County was represented principally by the law firm of Kirkpatrick and Lockhart. The State and County filed a joint brief supporting the Licensing Board's decision. Recently, however, the County Executive terminated the law firm's services and assigned the County Attorney to represent the County. On July 11, the County Attorney submitted a letter basically restating its support for the Board's determination of the preemption issue. However, the letter indicated that the County Executive now supports LILCO's claim that the County will respond in the event of a genuine emergency. The County Attorney takes no position on the Board's disposition of the so-called "immateriality" issue. *See* Section IV, *infra*. At the time of oral argument, the issue of the County Executive's authority to terminate the law firm's services was unresolved, so we permitted both the law firm and the Chief Deputy County Attorney to present argument. The state courts have now sustained the County Executive's authority. *Prospect v. Cohalan*, No. 5001A (N.Y. App. Div. August 13, 1985). The county

(Continued)

II. FEDERAL PREEMPTION

A central issue on appeal is whether the Atomic Energy Act preempts the enforcement of the laws of the State of New York, insofar as they prohibit LILCO from performing crucial emergency functions. The general principles regarding federal preemption are relatively straightforward and were recently reasserted and applied in the context of nuclear regulation by the Supreme Court in *Silkwood v. Kerr-McGee Corp.*, 464 U.S. 238 (1984), and *Pacific Gas & Electric Co. v. State Energy Resources Conservation & Development Comm'n*, 461 U.S. 190 (1983). In *Silkwood*, the Court observed:

> [S]tate law can be pre-empted in either of two general ways. If Congress evidences an intent to occupy a given field, any state law falling within that field is pre-empted. . . . If Congress has not entirely displaced state regulation over the matter in question, state law is still pre-empted to the extent it actually conflicts with federal law, that is, when it is impossible to comply with both state and federal law . . . or where the state law stands as an obstacle to the accomplishment of the full purposes and objectives of Congress.[22]

Applying that standard, the Court determined that the Atomic Energy Act does not displace traditional enforcement of state tort law, including the state's right to authorize punitive damages for radiation injuries. In *Pacific Gas & Electric*, the Court decided that the Atomic Energy Act does not preclude a state from enacting a moratorium on nuclear power plant construction based on economic rather than radiological health and safety considerations.

LILCO does not challenge the state court's determination that it lacks authority under New York law to perform certain of the emergency functions required by its plan.[23] It maintains, instead, that both of the preemption tests identified in *Silkwood* preclude the application of state law to block the implementation of its emergency plan. Specifically, LILCO contends, first, that the federal government has occupied the entire field of radiological health and safety, except for limited areas expressly reserved to the states,[24] and that regulation of emergency plan-

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resolutions remain in effect, however, and continue to reflect the official county position that no emergency plan can adequately protect county residents and Shoreham should not receive a license to operate at full power. App. Tr. 77-78, 86.

The Town of Southampton participated in the proceedings before the Licensing Board but before us filed only a letter outlining its position. With our permission, the Town was nonetheless accorded an opportunity to participate in oral argument.

[22] 464 U.S. at 248.

[23] LILCO's Brief Supporting Its Position on Appeal from the "Partial Initial Decision on Emergency Planning" of April 17, 1985 (June 3, 1985) (hereafter cited as LILCO Brief) at 5.

[24] *Id.* at 14.

ning falls squarely within the preempted field.[25] In this regard, LILCO asserts that the history of atomic energy legislation demonstrates a congressional intent to maintain exclusive federal control over the operation of nuclear plants. In LILCO's view, Congress speaks clearly and unambiguously when it intends to allow the states to "infringe" on the field of radiological health and safety.[26]

Second, LILCO claims that a conflict exists between federal and state law because it is impossible to comply with both,[27] and the state law stands as an obstacle to the accomplishment and execution of congressional objectives.[28] According to LILCO, the state laws are preempted because they effectively accord the states a "veto" over operating licenses for nuclear power plants.[29]

The Licensing Board concluded, to the contrary, that the federal government does not exclusively occupy the field of nuclear safety insofar as it relates to offsite emergency planning,[30] and that no actual conflict exists between federal and state law despite the practical impediment that state law presents to LILCO's ability to implement its plan.[31] The Board believed that preemption of a state's traditional police powers "must be premised on a finding that it was the 'clear and manifest purpose of Congress' to supersede State law"[32] and that LILCO failed to demonstrate that Congress intended to preempt state and local laws that prohibit LILCO's proposed activities.[33] We agree with the Board's conclusions.[34]

A. Federal Exclusivity

We find that LILCO's thesis that the state laws are preempted because they affect an area exclusively reserved to the federal government cuts too wide a swath. As the Supreme Court observed in the *Pacific Gas &*

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[25] *Id.* at 16.
[26] *Id.* at 12.
[27] *Id.* at 36.
[28] *Id.* at 38.
[29] *Id.* at 10-11.
[30] LBP-85-12, 21 NRC at 902-07.
[31] *Id.* at 908.
[32] *Id.* at 901, *citing Rice v. Santa Fe Elevator Corp.*, 331 U.S. 218, 230 (1947).
[33] *Id.* at 902, 907.
[34] LILCO's preemption argument before us is directed only to state law. LILCO does not assert that the county resolutions are preempted by the Atomic Energy Act and we do not reach that issue. We note only that the Licensing Board suggested that the resolutions are preempted, LBP-83-22, 17 NRC at 640-41, but the federal district court concluded to the contrary, *Citizens for an Orderly Energy Policy*, 604 F. Supp. 1084.

Electric case, the Atomic Energy Act establishes a dual regulatory structure for nuclear-powered electric generation.[35] When the statute was originally enacted in 1954, the Atomic Energy Commission (and the NRC as its successor for regulatory functions) "was given exclusive jurisdiction to license the transfer, delivery, receipt, acquisition, possession and use of nuclear materials . . . . Upon these subjects, no role was left for the States."[36] Even when the statute was amended in 1959 to give the states some regulatory jurisdiction over radiological materials, the Commission retained its authority with respect to the regulation of the construction and operation of nuclear power plants.[37] The federal government retained plenary authority in those areas in which the Commission's expertise was considered important.[38] The states, in contrast, maintained their "traditional responsibility" for determining need, reliability, cost and other related state concerns because these are "areas that have been characteristically governed by the States."[39] The Court summarized this division of responsibility as follows:

> [T]he Federal Government maintains complete control of the safety and "nuclear" aspects of energy generation; the States exercise their traditional authority over the need for additional generating capacity, the type of generating facilities to be licensed, land use, ratemaking, and the like.[40]

While there is no bright line dividing the areas of federal and state responsibility, and they may at times overlap, we find that the application of the state laws at issue in this case is within the areas traditionally reserved to the states

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[35] 461 U.S. at 211-12. Section 274(c) of the Act provides that "the Commission shall retain authority and responsibility with respect to regulation of — (1) the construction and operation of any production and utilization facility." 42 U.S.C. § 2021(c)(1) (1982). But section 274(k) provides that "[n]othing in this section shall be construed to affect the authority of any State or local agency to regulate activities for purposes other than protection against radiation hazards." 42 U.S.C. § 2021(k) (1982). Although section 274(k) applies in terms only to the preemptive effect of section 274, the courts have construed it as a reflection of congressional intent to distinguish generally between matters reserved to the federal government and those left to the states. *See Brown v. Kerr-McGee Chemical Corp.*, 767 F.2d 1234, 1241 n.4 (7th Cir. 1985), *citing Pacific Gas & Electric*, 461 U.S. at 210. In addition, section 271 provides that

> [n]othing in this chapter shall be construed to affect the authority or regulations of any federal, State or local agency with respect to the generation, sale or transmission of electric power produced through the use of nuclear facilities licensed by the Commission: *Provided*, that this section shall not be deemed to confer upon any Federal, State or local agency any authority to regulate, control, or restrict any activities of the Commission.

42 U.S.C. § 2018 (1982).

[36] *Pacific Gas & Electric*, 461 U.S. at 207.

[37] *Id.* at 208-10.

[38] *See Silkwood*, 464 U.S. at 250.

[39] *Pacific Gas & Electric*, 461 U.S. at 205.

[40] *Id.* at 212.

We have no quarrel with the general assertion that the federal government has exclusive jurisdiction over radiological health and safety matters and that the Commission is involved in emergency planning pursuant to its health and safety jurisdiction. However, the management of vehicular traffic on public roads, governmental response to public emergencies (including the implementation of any necessary evacuation), and control over the actions of corporations operating within the state, have nothing to do with radiological health and safety and fall well within the category of activities routinely subject to state supervision. Although the Commission has recognized its own role in emergency planning oversight, it has nonetheless observed that "the State and local governments have the primary responsibility under their constitutional police powers to protect the public."[41]

LILCO acknowledges that the New York statutes at issue were passed long ago and for purposes wholly unrelated to nuclear power or emergency planning for nuclear power plants.[42] These laws do not dictate the manner in which the Shoreham plant must be operated. Rather, they indicate the manner in which the utility may or may not conduct certain nonradiological activities within the state.[43]

To be sure, the conduct of such nonradiological activities heavily influences whether, or to what extent, viable emergency plans can be developed without governmental participation. But, as demonstrated by the *Silkwood* and *Pacific Gas & Electric* cases, such laws do not invade the federal domain simply because they have a significant effect on nuclear power issues or even foreclose the nuclear option entirely. As we read the Court's decision in *Silkwood,* and as the Licensing Board found, state laws of this stripe are entitled to respect, absent an affirmative showing that Congress intended to supplant them.[44] Apart from its reliance on the NRC Authorization Acts as a reflection of specific legislative intent (we discuss this matter in Section II.B of the opinion), LILCO does not contend that Congress affirmatively announced an intention to supplant the type of state laws at issue here.[45]

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[41] 44 Fed. Reg. 75,167, 75,169 (1979).

[42] LILCO Brief at 19.

[43] The state laws at issue here are thus not, as LILCO suggests, analogous to a state law forbidding emergency core cooling systems. *See id.* at 22-23.

[44] *Silkwood,* 464 U.S. at 255.

[45] We reject LILCO's suggestion that the rationale of the *Pacific Gas & Electric* and *Silkwood* opinions is somehow applicable only to cases involving need for power or tort law. App. Tr. 30-31. In our view, the Court reaffirmed the basic dichotomy between the regulation of radiation hazards, on the one hand, and "state regulation *in traditional areas,*" on the other. *Pacific Gas & Electric,* 461 U.S. at 222 (emphasis added).

Our view that application of these state laws does not bring them within the zone reserved exclusively to the federal government is unaffected by LILCO's claim that the state and county governments are simply using these laws to further their own radiological health and safety objectives.[46] When confronted with a similar assertion in the *Pacific Gas & Electric* case, the Court declined to undertake a probing inquiry into the state's "true motive" but instead, accepted its "avowed economic purpose" when determining that the state action fell outside the occupied field of nuclear safety regulation.[47] We too need determine only whether there is "a nonsafety rationale"[48] for the enactment or enforcement of the state laws. Plainly there is. That being so, we may not look behind the state's avowed purpose in enforcing these laws merely because enforcement in this instance arguably results from an ulterior motive.[49]

B. Conflict Between Federal and State Law

Our conclusion that the federal enclave established by the Atomic Energy Act does not embrace the state laws at issue in this case does not end the inquiry. Enforcement of those laws may still be foreclosed if it actually conflicts with the Atomic Energy Act or stands as an obstacle to the achievement of congressional purposes or objectives. We turn, now, to a consideration of this issue.

LILCO asserts that New York's laws are preempted because it is impossible to comply with both state law and NRC regulations, and because state law frustrates the establishment of uniform national emergency planning standards and the improvement of emergency planning.[50] The Licensing Board, reviewing this argument, reached the opposite conclusion. It determined that there is neither a conflict between the federal

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[46] LILCO argues that "[a]ny analysis that finds the State's 'purpose' in this case to be anything other than radiological health and safety is completely at odds with the facts." LILCO Brief at 19.

[47] 461 U.S. at 216. In the *Silkwood* case, the majority made no inquiry into the state's legislative purpose but seemed simply to accept the premise that tort law was a matter ordinarily left to the states. The four dissenting justices, in contrast, would have found the state's action preempted because the purpose behind punitive damage awards is to regulate the safety procedures of nuclear licensees. *See Silkwood*, 464 U.S. at 260-62 (Justice Blackmun, with whom Justice Marshall joined, dissenting), and *id.* at 274-78 (Justice Powell, with whom Chief Justice Burger and Justice Blackmun joined, dissenting).

[48] *Pacific Gas & Electric*, 461 U.S. at 213.

[49] Our rejection of LILCO's assertion that the state laws fall within the zone reserved exclusively to the federal government disposes as well of its claim that the states are foreclosed from taking any action affecting emergency planning in the absence of an express and precise delegation of authority from Congress. *See* LILCO Brief at 12-16. As LILCO recognizes, the requirement of an express and precise delegation from Congress arises only in those circumstances where exclusive authority over the subject matter would otherwise rest with the federal government. *See id.* at 23.

[50] *Id.* at 36-42.

and state law nor an obstacle to the accomplishment of federal objectives simply because state law stands as a practical impediment to LILCO obtaining a federal license.[51]

We agree with the Board's conclusion. As we see it, the operative question is not whether state law stands in the way of LILCO getting its license (plainly it does), but whether Congress was prepared to tolerate a situation in which state action could coincidentally block operation of a nuclear plant. If the answer to that latter question is yes, there is no impermissible conflict with federal law or any frustration of congressional objectives.

As the *Silkwood* and *Pacific Gas & Electric* cases show, the reservation of exclusive jurisdiction by the federal government over radiological health and safety matters does not necessarily prevent a state from asserting its authority over matters within its own jurisdiction merely because its action coincidentally affects the area subject to federal control.[52] The state laws do not conflict with the Atomic Energy Act or frustrate congressional objectives simply because they make it difficult, or even impossible, for LILCO to satisfy the conditions for a license. In *Pacific Gas & Electric*, the Supreme Court concluded that there was no conflict with the Atomic Energy Act and no frustration of congressional purpose where state law prohibited the construction of nuclear power plants entirely. The Court observed that "[t]he elaborate licensing and safety provisions and the continued preservation of state regulation in traditional areas belie" the notion that nuclear power is to be accomplished at all costs.[53] In the Court's view, the Atomic Energy Act "does not at any point expressly require the States to construct or authorize nuclear power plants or prohibit the States from deciding, as an absolute or conditional matter, not to permit the construction of any further reactors."[54] The Court rejected the argument that a ban on construction is preempted because it "regulates construction of nuclear plants;"[55] no persuasive reason is offered why the Court's rationale should not permit the states to enforce their laws in areas traditionally under their control even if such action bars the *operation* of a completed reactor as well.

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[51] LBP-85-12, 21 NRC at 908-09.

[52] *See generally Huron Portland Cement Co. v. City of Detroit*, 362 U.S. 440, 447 (1960) (local air pollution regulation that could require structural changes of ship boilers previously inspected and approved by the federal government is not in conflict with federal law despite extensive and comprehensive set of federal controls over ships and shipping; "[t]he mere possession of a federal license . . . does not immunize a ship from the operation of the normal incidents of local police power, not constituting a direct regulation of commerce").

[53] 461 U.S. at 222.

[54] *Id.* at 205.

[55] *Id.* at 204.

That being so, we cannot find in the terms of the Atomic Energy Act or its history as interpreted by the Supreme Court any preemption of state laws solely because they coincidentally prevent reactor operation.[56]

LILCO contends, however, that the congressional intent in the Atomic Energy Act to prevent the states from precluding nuclear power plant operations on emergency planning grounds is revealed by Congress' express treatment of emergency planning matters in the 1980 NRC Authorization Act[57] and subsequent authorization acts. By those enactments Congress permitted utilities to submit their own emergency plans when state or local governments refused to do so. LILCO claims that Congress has thereby evinced a specific intent not to allow states to use emergency planning as a means of preventing nuclear plant operation.[58] LILCO asserts that the Licensing Board's decision essentially reads the "utility plan" option out of the law.[59] It also contends that the Board's decision is in conflict with earlier Commission decisions authorizing LILCO to submit its plan for consideration.[60] We disagree with LILCO's arguments.

Section 109(a) of the 1980 Authorization Act, which deals with emergency plans, requires that "there exists a State or local emergency preparedness plan which . . . provides for responding to accidents at the facility concerned" but nevertheless permits issuance of an operating license in the absence of an approved state or local plan if "there exists a State, local, or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned."[61]

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[56] LILCO points to the Supreme Court's decisions in *Douglas v. Seacoast Products, Inc.*, 431 U.S. 265 (1977), and *Sperry v. Florida*, 373 U.S. 379 (1963), as illustrations of a conflict between state and federal law where the practical alternative to compliance with state law is to forgo a right to engage in federally licensed activities. LILCO Brief at 37, 42-43. But state law is not preempted in all circumstances where it interferes with the potential exercise of federally licensed activities. *See*, for example, *Radio Station WOW, Inc. v. Johnson*, 326 U.S. 120, 129-33 (1945) (state not precluded by principles of preemption from ordering the rescission of a contract transferring radio station property on grounds of fraud even though the transfer had been approved by the Federal Communications Commission and the rescission could result in cancellation of a license awarded by the Commission). Whether state law is preempted by an alleged conflict with federal law must be resolved by reference to the particular statutes at issue in each case. Thus, *Silkwood* and *Pacific Gas & Electric*, expressly construing the Atomic Energy Act and analyzing the respective roles of the federal government and the states in the realm of nuclear power regulation, are more pertinent to our inquiry.

[57] Pub. L. No. 96-295, § 109, 94 Stat. 780 (1980).

[58] LILCO Brief at 23.

[59] *Id.* at 4-7.

[60] *Id.* at 6-9.

[61] Language similar to that contained in the 1980 Act was included in the 1982-83 NRC Authorization Act, Pub. L. No. 97-415, § 5, 96 Stat. 2067, 2069 (1983), and the 1984-85 NRC Authorization Act, Pub. L. No. 98-553, § 108, 98 Stat. 2825, 2827 (1984). Section 109 of the 1980 Authorization Act is set out in full as an appendix to this opinion.

Two things are clear from these provisions. First, the lack of an emergency plan officially sponsored by a state or local government does not stand as an absolute barrier to the grant of a license. The Commission may consider a utility plan in the absence of a state or local government-sponsored plan. Second, the mere existence of a utility plan is not a sufficient basis for issuance of a license. The Commission must be able to conclude that the utility plan provides reasonable assurance that the public health and safety will be protected.

But that is about all that is clear from the language of the Act. Despite congressional awareness that some state or local governments might be unwilling or unable to participate effectively in emergency planning, Congress chose not to speak explicitly to the question of whether state actions that are an impediment to implementation of a utility plan should be deemed preempted by federal law.

LILCO urges us to conclude that Congress must have intended to override state laws in such circumstances, lest a utility's ability to mount its own plan be foreclosed at the threshold, rendering the utility plan option a nullity.[62] While we do not find LILCO's construction of the statute implausible, an alternative reading is more reasonable — namely, that Congress intended only to make clear that a plan sponsored by a state or local government was not to be a condition for grant of a license if the utility could otherwise demonstrate that it had the wherewithal (including any necessary authority under the law of its home state) to develop a plan that would adequately protect the public health and safety. When choosing between alternative constructions of a statute, we must not work a displacement of state laws exercising historic police powers "unless that was the clear and manifest purpose of Congress."[63] No such clear and manifest purpose is demonstrated by the text of the 1980 Authorization Act.

Nor does anything in the legislative history of the 1980 Act call this construction of the statute into question. Heightened interest in emergency planning arose in the wake of the accident at the Three Mile Island nuclear plant in 1979. Because federal law did not at that time require review of any state or local emergency plans for responding to an accident at a nuclear power plant, the President's Commission on the Accident at Three Mile Island and the General Accounting Office

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[62] LILCO Brief at 4-7.

[63] *Rice v. Santa Fe Elevator Corp.*, 331 U.S. at 230, *cited with approval in Florida Lime and Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 146 (1963).

(GAO) independently recommended that an approved state or local emergency plan be a condition of licensing.[64]

Bills passed by both the House and the Senate directed the Commission to establish standards for state plans and to review the adequacy of each state's plan. But these bills differed as to the effect to be given to the state plans. The Senate bill required Commission approval of state and local plans as a condition for licensing. In adopting this approach, the Senate expressly rejected an alternate proposal which would have affirmatively preempted state law by giving the Commission authority to prepare an interim emergency plan where a state plan was deficient. The House bill, in contrast, did not direct the Commission to take any action with respect to new or existing licenses if a state plan failed to comply with Commission regulations or was otherwise inadequate. Rather, the Commission was instructed to identify those states without adequate plans and to recommend to Congress any additional statutory authority which the Commission deemed necessary to ensure that each state had an adequate plan.

A conference committee declined to adopt either the House or Senate formula. Although it was not prepared to adopt the House view and allow the operation of nuclear plants in the absence of some emergency plan that ensured adequate protection of the public, it did not require Commission approval of state and local plans as a condition of licensing as the Senate proposed. The conference committee (and, eventually, the Congress) adopted the compromise section 109. The conference committee explained its approach as follows:

> The compromise provides that the NRC is to issue an operating license for a new utilization facility only if the State or local plan, as it applies to such facility, complies with the NRC's current guidelines for such plans or the new rules when promulgated, except that if a state or local plan does not exist that complies with the guidelines or rules, the compromise provides that NRC still may issue an operating license if it determines that a State, local or utility plan provides reasonable assurance that

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[64] *See Report of the President's Commission on the Accident at Three Mile Island* (October 1979) at 76 and "Areas Around Nuclear Facilities Should Be Better Prepared for Radiological Emergencies," *Report to the Congress by the Comptroller General of the United States* (March 30, 1979) at 35-36. Commission regulations in effect prior to the Three Mile Island accident nonetheless required the development of some plans by the applicant for coping with emergencies, including establishment of an exclusion area and a so-called low population zone (roughly one to two miles) immediately surrounding a nuclear plant. The exclusion area had to be totally under the applicant's control. There had to be a sufficiently small number of people in the low population zone to assure that steps for their protection (such as evacuation) could easily be taken in the event of an emergency. Also, the plant had to be designed so that radiation dosages at the respective zone perimeters in the event of an accident would not exceed certain levels. *See generally Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 2), ALAB-486, 8 NRC 9, 14, *review denied*, CLI-78-19, 8 NRC 295 (1978); *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-422, 6 NRC 33, 42-44 (1977), *aff'd*, CLI-78-1, 7 NRC 1 (1978), *aff'd sub nom. New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87 (1st Cir. 1978).

public health and safety is not endangered by operation of the facility. The Commission's regulations now require the determination prior to the issuance of an operating license that there is reasonable assurance that public health and safety is not endangered by operation of the facility.

The conferees sought to avoid penalizing an applicant for an operating license if a State or locality does not submit an emergency response plan to the NRC for review or if the submitted plan does not satisfy all the guidelines or rules. In the absence of a State or local plan that complies with the guidelines or rules, the compromise permits NRC to issue an operating license if it determines that a State, local or utility plan, such as the emergency preparedness plan submitted by the applicant, provides reasonable assurance that the public health and safety is not endangered by operation of the facility.[65]

LILCO argues that "the only rational conclusion is that Congress intended federal law to preempt."[66] In our judgment, the more reasonable conclusion is that Congress declined to embroil itself in the preemption thicket at all. Only the Senate had attempted to resolve the preemption question explicitly and, as noted above, it affirmatively rejected the option of federal intercession where the states are unwilling or unable to plan. Indeed, by requiring the approval of state and local emergency plans as a condition for licensing, it had accorded the states an absolute veto over licensing. We refuse to conclude that the compromise should now be read as representing a 180 degree reversal of the Senate's earlier position.

The House had not opted for either solution proposed in the Senate. Rather, it had instructed the Commission simply to report back on the need for further legislation in the event an impasse emerged. This House provision was included in the compromise ultimately adopted. That being so, we cannot assume that the House intended that the compromise serve as a definitive resolution of the preemption issue. In the circumstances, we believe that Congress intended to leave unaffected the law of preemption as it existed under the Atomic Energy Act.[67]

This view of congressional intent is fully consistent with the Commission's contemporaneous pronouncements on the subject. In July 1979, taking note of the GAO recommendation, the Commission invited

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[65] H.R. Rep. No. 1070, 96th Cong., 2d Sess. 27, *reprinted in* 1980 U.S. Code Cong. & Ad. News 2260, 2270-71.

[66] LILCO Brief at 32.

[67] LILCO directs our attention to the remarks of individual legislators (Representatives Lujan, Pashayan, Coughlin and Corcoran, and Senator Simpson) reflecting their view that preemption was intended. *See id.* at 27, 29-31. The remarks of individual legislators are often an unreliable gauge of overall legislative intent, *In re Surface Mining Regulation Litigation*, 627 F.2d 1346, 1362 (D.C. Cir. 1980), and, given the compromise nature of the bill as it eventually emerged, we are unprepared to conclude from the remarks of individual legislators that preemption was intended.

public comment regarding a proposed new regulatory requirement that NRC approval of state and local emergency plans be a condition for issuance of an operating license or continued operation of a nuclear facility.[68] In light of the comments received, the Commission issued a Notice of Proposed Rulemaking to require NRC concurrence in state and local response plans as a condition for licensing unless an applicant could demonstrate that deficiencies in the plans were not significant, that alternative compensating actions have been or will be taken promptly, or that there are other compelling reasons for issuing the license.[69]

In August 1980, the Commission issued new emergency planning regulations which it characterized as consistent with the recently passed 1980 Authorization Act.[70] The regulations rejected any requirement that emergency plans sponsored by the state or local government be a condition of licensing. The Commission did not assert, however, that its regulations were intended to have preemptive effect. On the contrary, it recognized that state and local governments were expected to be important participants in emergency planning and acknowledged that a problem would arise if states declined to participate in emergency planning. It observed:

> The Commission recognizes there is a possibility that the operation of some reactors may be affected by this rule through inaction of State and local governments or an inability to comply with these rules. The Commission believes that the potential restriction of plant operation by State and local officials is not significantly different in kind or effect from the means already available under existing law to prohibit reactor operation, such as zoning and land-use laws, certification of public convenience and necessity, State financial and rate considerations . . . and Federal environmental laws. The Commission notes, however, that such considerations generally relate to a one-time decision on siting, whereas this rule requires a periodic renewal of State and local commitments to emergency preparedness . . . . The Commission believes, based on the record created by the public workshops, that State and local officials as partners in this undertaking will endeavor to provide fully for public protection.[71]

More recently, interpreting its new regulations, the Commission reaffirmed that inaction by a state or local government "could effect a potential restriction on plant operations."[72] In our judgment, the only sensible conclusion to be drawn from the Commission's pronouncements is that it expected the state and local governments to cooperate in emergency

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[68] 44 Fed. Reg. 41,483 (1979).
[69] 44 Fed. Reg. 75,167 (1979).
[70] *See* 45 Fed. Reg. 55,402 (1980).
[71] *Id.* at 55,404.
[72] *Consolidated Edison Co. of New York* (Indian Point, Unit No. 2), CLI-83-16, 17 NRC 1006, 1010 (1983).

planning but recognized that they could use their new emergency planning responsibilities in a manner akin to their traditional power to prohibit reactor operation on nonradiological health and safety grounds.

We disagree with LILCO's assertion that such construction of the statute renders utility plans a nullity,[73] although it may well diminish their usefulness as a means of complying with the emergency planning requirements. The legislative compromise, after all, makes clear that utilities are not foreclosed at the threshold from obtaining a license merely because the state or local government declines to participate in emergency planning. In other words, the legislation accords a utility at least the opportunity to supplement an otherwise deficient governmental plan. It also appears to foreclose the Commission from mandating a state or local government-sponsored plan as a regulatory requirement for licensing. Although LILCO in this instance may have come up against an insurmountable obstacle despite the legislation (the bill, however, was not intended as a guarantee that all utilities would receive licenses), the statute may well have kept open avenues that might otherwise have been closed.[74]

LILCO also claims that the Board's decision rejecting its plan conflicts with Commission decisions encouraging the filing and consideration of the plan. In LILCO's view, the Commission would not have authorized it to present a plan to the Board for consideration if it was clear at the outset that an operable plan could not be implemented.

We find no conflict with the Commission's decisions. The decisions principally relied on by LILCO were rendered in 1983 and 1984 — before the state court's decision and at a time when LILCO's authority under state law to perform its emergency functions was genuinely in doubt.[75] At that time the Commission quite properly concluded that the planning issues were not "categorically unresolvable."[76] The Commission's June 1985 decision denying a request for an environmental evaluation of low power operation, although rendered after the state court had ruled on the state law issues, simply assumed that state and county cooperation would be forthcoming if the Commission ultimately determined that an adequate emergency plan is achievable with state and

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[73] *See* LILCO Brief at 4-7.

[74] For example, in the *Indian Point* case, CLI-83-16, 17 NRC 1006, the utility's ability to act in concert with the state government prevented the shutdown of a plant despite a local county's lack of participation in the emergency plan.

[75] *See* CLI-84-9, 19 NRC 1323 (1984), and CLI-83-17, 17 NRC 1032 (1983), cited in LILCO's Brief at 7-9.

[76] CLI-83-17, 17 NRC at 1034.

county participation.[77] As we discuss in Part III of this opinion, such assumption was not the predicate for the plan under review by the Licensing Board, and the Commission expressly declined to address any of the issues before us in this case.[78]

In sum, we conclude that the most reasonable construction of the Atomic Energy Act, the NRC Authorization Acts, and the Commission's prior determinations is that LILCO is entitled to submit an emergency plan in the absence of a state or local plan in an effort to demonstrate that the public can be adequately protected. But federal law does not override enforcement of the statutes of the State of New York that impede or foreclose LILCO from presenting a viable emergency plan to the Commission for review. If the current state of the law frustrates LILCO by giving the state an eleventh hour veto over operation of the Shoreham reactor, the remedy lies in the legislative arena.

III. REALISM

As noted earlier, LILCO did not rest its case below solely on its preemption argument. It contended as well that it is entitled to a decision in its favor on Contentions 1-10, even if state law bars it from carrying out the actions specified in those contentions.[79] This is so, according to LILCO, because the state and local governments would respond and take the necessary protective measures in the event of a real emergency that threatened the health and safety of the populace surrounding the plant.[80]

The Licensing Board rejected the claim, finding it flawed in two critical respects. First, according to the Board, LILCO "cannot be delegated the authority to perform the functions enumerated in Contentions 1-10" and therefore could not fully implement the plan by itself.[81] Second, and more to the point, any response by the State and County in a real emergency would be on "an uncooperative, uncoordinated, *ad hoc* basis."[82]

LILCO continues to press its "realism" argument before us. According to LILCO, the Licensing Board erred in basing its decision on the premise that in the event of a radiological emergency "the state would

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[77] *See* CLI-85-12, 21 NRC 1587, cited in LILCO's Reply Brief on the Legal Authority, Conflict of Interest, and State Plan Issues (July 24, 1985) (hereafter cited as LILCO Reply Brief) at 2, 4.

[78] *See* CLI-85-12, 21 NRC at 1589.

[79] LILCO Motion at 43.

[80] *Ibid.*

[81] LBP-85-12, 21 NRC at 911.

[82] *Id.* at 912.

simply deputize LILCO employees to carry out an emergency plan but do nothing itself."[83] LILCO claims that its argument is "simply that the State and County would in fact respond if a real emergency were to occur."[84]

It is not altogether clear that the Board predicated its decision on the premise suggested by LILCO. Although some portions of the Board's decision support LILCO's position,[85] there is also language suggesting that the Board had in mind a response involving the direct participation by state and county officials in the implementation of the plan. The Board observed:

> Applicant anticipates the State and County will provide for a planned response, but only after Shoreham begins to operate. LILCO Brief on Contentions 1-10, at 44. We must base our determination on what the proposed plan actually provides and whether it currently complies with the regulatory requirements so that a determination can be made whether there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency. The State and County affirmatively oppose participating in LILCO's Plan. We cannot base a judgment on the adequacy of the Plan on conjecture, as LILCO would have us do. *Although Intervenors may well respond in a planned manner insofar as they do respond, there is no reasonable assurance of record that the response will be in cooperation and coordination with Applicant, which is what is contemplated for an adequate plan.* (*See* Board Findings on Contention 92 in § XIII.C.).[86]

We need not decide whether the Licensing Board misconstrued LILCO's argument, as claimed. Even if it did, the Board's decision must be upheld. In the first place, assuming, as LILCO would have us do, that the State and County will in good faith respond in the event of a genuine emergency, no state or county response plan has been submitted for review on this record. The best that is currently available is the assurance of the County Executive that the County will fulfill its responsibility to protect the public in the event of an emergency and the assumption that the State would do the same.

In this regard, we have not overlooked the County Executive's recent announcement that the County is prepared to take any necessary action

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[83] LILCO Brief at 46.

[84] *Id.* at 45.

[85] The Board at one point stated that

> LILCO assumed that if the State and County were to participate in an emergency response at Shoreham, they would authorize the utility to perform the functions it proposes to carry out in an emergency as enumerated in the subject contentions. The realism argument is wholly predicated on the State and County authorizing LILCO to act as planned. Without such authorization the realism argument vanishes.

LBP-85-12, 21 NRC at 911.

[86] *Id.* at 912 (emphasis supplied).

to protect the public in the event of a genuine emergency and that a test of the LILCO emergency plan, presumably with the oversight of the County Executive, can be conducted.[87] It may well be that a new effort by LILCO and the County will in due course result in an adequately coordinated emergency plan. If and when some arrangement between LILCO and the County comes to fruition, it may be submitted for consideration.

Moreover, the Board found that any response by the State and County in the absence of prior planning and rehearsal would be necessarily ad hoc. It is this type of ad hoc response that was found unsatisfactory during the accident at Three Mile Island and that led to the adoption of the Commission's current emergency planning regulations.[88]

On this score, LILCO claims that the "issue of 'coordination' is a factual issue not properly raised by the motion for summary disposition of Contentions 1-10."[89] We disagree. In the usual licensing proceeding, the question of whether, and to what extent, an emergency plan can and will be successfully implemented does present factual issues for litigation. In the instant case, however, the State and County have thus far refused to participate at all in any preparation or testing of emergency procedures. Even if we assume that the State and County will respond to a genuine emergency, we cannot assume that such response will be coordinated in advance and rehearsed.

In thi regard, LILCO has failed to make any demonstration that its plan is amenable to ad hoc adoption by the appropriate governmental units at the time of an emergency. The inch-thick volume of the transition plan itself, plus two volumes of implementing procedures, each at least two inches thick, and another, three and one-half inch volume, labeled "Appendix A — Evacuation Plan," do not lend themselves to quick review and implementation if the State or County is called upon to act.[90] The plan establishes more than 50 different position titles and as many separate functions.[91] It is designed to evacuate up to 160,000 residents from a 160-square mile area that is encompassed within an approximately 10-mile radius from the plant.[92] Among the facilities to be evacuated are three hospitals, eight major nursing and adult homes, and two correctional facilities.[93] At other plants, extensive coordination and

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[87] *See* Letter to Appeal Board from Chief Deputy County Attorney Eugene R. Kelly (July 11, 1985).
[88] *See generally Duke Power Co. v. NRC*, 770 F.2d 386, 388 (4th Cir. 1935).
[89] LILCO Brief at 47.
[90] Tr. 832-35, 1204.
[91] *See* Applicant Ex. EP-1, Emergency Response Plan Implementing Procedures, at 2.1.1.
[92] *See id.*, Local Offsite Radiological Emergency Response Plan, Appendix A — Evacuation Plan, at I-4.
[93] *Id.* at II-28 to II-30.

rehearsal have been required for such a substantial undertaking. In short, there is simply no reasonable basis for assuming that the State or County could realistically step in at the last moment and execute the LILCO plan.[94]

IV. IMMATERIALITY

LILCO contends, finally, that certain of the actions specified in Contentions 1-10 — namely those associated with traffic management[95] — are not required by Commission regulations and thus are "immaterial" to a determination that adequate protection can and will be provided in the event of an accident. In LILCO's view, an evacuation can be conducted even without traffic control; such evacuation would take only about an hour and a half more than under controlled conditions and no longer than at other plants; and adequate protection in case of an emergency can be assured as long as accurate time estimates for an evacuation can be developed and found reliable.[96] In LILCO's view, the refusal of the State or County to allow traffic control simply increases the time estimate for an evacuation which must be taken into account when protective actions are considered (just as a major snowstorm might affect protective action recommendations).[97]

The Licensing Board acknowledged that no standard time is established in the regulations for an evacuation[98] and that, in any event, the utility is not obligated to ensure the best possible evacuation.[99] Nonetheless, the Board noted that 10 C.F.R. 50.47(a)(1) requires that there is "reasonable assurance that protective measures can and will be taken in the event of a radiological emergency." It also indicated that section 50.47(b)(10) requires that a "range of protective actions [has been] developed for the plume exposure pathway EPZ for emergency workers

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[94] We reject LILCO's alternate arguments that its transition plan should be considered an "interim compensating action" under 10 C.F.R. 50.47(c)(1), or that other factors warrant issuance of an operating license despite the lack of governmental participation in emergency planning. LILCO Brief at 50-52. Section 50.47(c)(1) permits an applicant to show that deficiencies in emergency plans "are not significant for the plant in question, that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit plant operation." In the instant case, material features of the LILCO transition plan cannot be carried out and the public's safety cannot be adequately assured. LILCO has also failed to demonstrate that compensating actions can or will be taken or that compelling reasons exist to permit plant operation.

[95] Contentions 1-4, 9, and 10. *See* note 14, *supra*.

[96] LILCO Brief at 48-50.

[97] *Id.* at 50.

[98] LBP-85-12, 21 NRC at 917.

[99] *Id.* at 918.

and the public" and that "[g]uidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed and in place."[100] It concluded that an unplanned evacuation restricts the range of available options and cannot meet these regulatory requirements.[101]

We believe that the Board properly rejected LILCO's "immateriality" argument. We recognize that the Commission's regulations do not spell out the precise manner in which an evacuation is to be conducted if necessary. Nonetheless, the Commission has construed its emergency planning regulations to require "*provisions* for evacuating the public in times of radiological emergencies."[102] We have likewise observed that the Commission's emergency planning scheme contemplates that emergency evacuation *procedures* be developed for the 10-mile area surrounding a nuclear plant.[103] As we stated in our *Zimmer* opinion,

> Commission regulations plainly require the formulation of satisfactory evacuation plans as a part of the overall emergency preparedness effort. Moreover, at least if adequately developed, those plans should aid materially the making of an informed judgment respecting which available protective measures are most suitable in the totality of the circumstances attending the specific emergency at hand.[104]

LILCO included traffic control as part of its proposed evacuation procedures in light of such requirements. We believe that such inclusion was proper. In the context of this case, at least, something more is needed than an aspiration that the public will be able to fend for itself in the event an evacuation is required.[105]

V. OTHER ISSUES

LILCO's appeal challenges certain other of the Licensing Board's subsidiary determinations.[106] Such challenges principally attack the Board's

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[100] *Id.* at 916.

[101] *Id.* at 917.

[102] 46 Fed. Reg. 11,288, 11,289 (1981) (emphasis added).

[103] *See The Detroit Edison Co.* (Enrico Fermi Atomic Power Plant, Unit 2), ALAB-730, 17 NRC 1057, 1069 n.12 (1983). Discrete aspects of an evacuation plan may be subjected to adversarial evaluation to determine the efficiency with which an evacuation can be accomplished. *See, e.g., Cincinnati Gas & Electric Co.* (Wm. H. Zimmer Nuclear Power Station, Unit 1), ALAB-727, 17 NRC 760, 770-71 (1983).

[104] *Id.* at 774 n.19.

[105] We offer no views as to whether every item subject to Contentions 1-4, 9, and 10 must be considered material to a proper emergency plan. We note, for example, that LILCO indicated at oral argument that a newly revised emergency plan eliminates trailblazer signs which were the subject of Contention 3. *See* App. Tr. 37.

[106] LILCO claims, for example, that, in response to Contention 11, the Board erroneously concluded that LILCO employees would be insufficiently independent of management to permit them to recom-

(Continued)

application of the Commission's regulations to the special facts of this case, but involve as well some disagreement over the conclusions the Board drew from the evidence of record. Although LILCO was obliged to raise these matters as part of its appeal from the Board's decision, they appear to bear on the viability of the plan itself, rather than LILCO's authority to implement it, and are more amenable to disposition in connection with the matters likely to be raised by the State and County.[107] Moreover, given our conclusions with respect to LILCO's principal arguments, resolution of LILCO's remaining claims does not affect our ultimate disposition of the emergency planning phase of the case. Thus, in view of the outcome here and our desire to expedite resolution of this phase of the case, we will defer our consideration of LILCO's remaining arguments until disposition of the appeals filed by the County and the State.

The Licensing Board's conclusions in LBP-85-12 concerning LILCO's legal authority to implement material features of its emergency plan are *affirmed.*

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

APPENDIX

1980 NRC Authorization Act

SEC. 109. (a) Funds authorized to be appropriated pursuant to this Act may be used by the Nuclear Regulatory Commission to conduct pro-

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mend appropriate protective action. LILCO Brief at 53-65. LILCO also maintains that, in connection with Contention 92, the Board improperly found that the lack of participation by the State constitutes an irremediable deficiency. *Id.* at 66-70.

[107] For example, counsel for the County noted that it planned to challenge the Board's conclusion that four functions normally performed by the State are within LILCO's capability to perform. App. Tr. 72-73. Staff counsel indicated that the Board's ruling regarding the alleged conflict of interest was wrong both as a matter of construction of the Commission's regulations and as a matter of fact. App. Tr. 108-09. LILCO asserted that the question of coordination with the state raised by Contention 92 is dealt with as well under Contentions 81, 85 and 88. LILCO Reply Brief at 5 n.4.

ceedings, and take other actions, with respect to the issuance of an operating license for a utilization facility only if the Commission determines that —

(1) there exists a State or local emergency preparedness plan which —

(A) provides for responding to accidents at the facility concerned, and

(B) as it applies to the facility concerned only, complies with the Commission's guidelines for such plans, or

(2) in the absence of a plan which satisfies the requirements of paragraph (1), there exists a State, local, or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned. . . .

(b) Of the amounts authorized to be appropriated under section 101(a), such sums as may be necessary shall be used by the Nuclear Regulatory Commission to —

(1) establish by rule —

(A) standards for State radiological emergency response plans, developed in consultation with the Director of the Federal Emergency Management Agency, and other appropriate agencies, which provide for the response to a radiological emergency involving any utilization facility,

(B) a requirement that —

(i) the Commission will issue operating licenses for utilization facilities only if the Commission determines that —

(I) there exists a State or local radiological emergency response plan which provides for responding to any radiological emergency at the facility concerned and which complies with the Commission's standards for such plans under subparagraph (A), or

(II) in the absence of a plan which satisfies the requirements of subclause (I), there exists a State, local, or utility plan which provides reasonable assurance that public health and safety is not endangered by operation of the facility concerned, and

(ii) any determination by the Commission under subclause (I) may be made only in consultation with the Director of the Federal Emergency Management Agency and other appropriate agencies, and

(C) a mechanism to encourage and assist States to comply as expeditiously as practicable with the standards promulgated under subparagraph (A) of this paragraph.

(2) review all plans and other preparations respecting such an emergency which have been made by each State in which there is located a utilization facility or in which construction of such a facility has been commenced and by each State which may be affected (as determined by the Commission) by any such emergency,

(3) assess the adequacy of the plans and other preparations reviewed under paragraph (2) and the ability of the States involved to carry out emergency evacuations during an emergency referred to in paragraph (1) and submit a report of such assessment to the appropriate committees of the Congress within 6 months of the date of the enactment of this Act,

(4) identify which, if any, of the States described in paragraph (2) do not have adequate plans and preparations for such an emergency and notify the Governor and other appropriate authorities in each such State of the respects in which such plans and preparations, if any, do not conform to the guidelines promulgated under paragraph (1), and

(5) submit a report to Congress containing (A) the results of its actions under the preceding paragraphs and (B) its recommendations respecting any additional Federal statutory authority which the Commission deems necessary to provide that adequate plans and preparations for such radiological emergencies are in effect for each State described in paragraph (2).

(c) In carrying out its review and assessment under subsection (b)(2) and (3) and in submitting its report under subsection (b)(5), the Commission shall include a review and assessment, with respect to each utilization facility and each site for which a construction permit has been issued for such a facility, of the emergency response capability of State and local authorities and of the owner or operator (or proposed owner or operator) of such facility. Such review and assessment shall include a determination by the Commission of the maximum zone in the vicinity of each such facility for which evacuation of individuals is feasible at various different times corresponding to the representative warning times for various different types of accidents.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Christine N. Kohl, Chairman
Gary J. Edles
Dr. Reginald L. Gotchy

In the Matter of **Docket Nos. 50-352-OL**
50-353-OL

PHILADELPHIA ELECTRIC COMPANY
(Limerick Generating Station,
Units 1 and 2)

October 22, 1985

The Appeal Board affirms the second partial initial decision rendered by the Licensing Board in this operating license proceeding, LBP-84-31, 20 NRC 446 (1984), with the exception of a matter relating to onsite emergency plan medical arrangements, which is remanded to the Licensing Board for further action.

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

In passing upon the admissibility of a contention, the proper inquiry is not whether the contention will ultimately be proven on the merits, but whether the basis and specificity requirements of 10 C.F.R. § 2.714(b) have been met. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 546-49 & n.10 (1980).

RULES OF PRACTICE: COMMISSION POLICY STATEMENTS (EFFECT)

The Commission policy in effect at the time an adjudicatory decision is rendered governs that decision. *See Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 82-83 (1974).

NUCLEAR REGULATORY COMMISSION: AUTHORITY

The Commission can limit adjudicatory hearings to issues that it considers material to its licensing decision. *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1444-51 (D.C. Cir. 1984), *cert. denied*, ___ U.S. ___, 105 S. Ct. 815 (1985); *Siegel v. AEC*, 400 F.2d 778, 783-85 (D.C. Cir. 1968).

NUCLEAR REGULATORY COMMISSION: POLICY STATEMENT ON SEVERE ACCIDENTS

Severe accident mitigation measures, beyond any already existing Commission requirements, are not to be "addressed in case-related safety hearings." 50 Fed. Reg. 32,138, 32,145 (1985).

NEPA: REQUIREMENTS

The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321, could not logically require more than the safety provisions of the Atomic Energy Act; further, these statutes, and the issues raised under each, are inherently interrelated. *See Public Service Electric and Gas Co.* (Hope Creek Generating Station, Units 1 and 2), ALAB-518, 9 NRC 14, 39 (1979); *Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291, 1299-1300 (D.C. Cir. 1975).

NEPA: ENVIRONMENTAL IMPACT STATEMENT (SEVERE ACCIDENTS)

NEPA does not require the Commission to consider low probability, severe (beyond design-basis) accidents at nuclear facilities. *See San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287, 1301 (D.C. Cir. 1984), *vacated in part and reh'g en banc granted on other grounds*, 760 F.2d 1320 (1985).

NUCLEAR REGULATORY COMMISSION: POLICY STATEMENT ON SEVERE ACCIDENTS

The Commission's recently adopted Severe Accident Policy Statement requires the issue of sabotage to be analyzed "to the extent practicable" in the design and operating procedures for new nuclear plants. Existing plants, however, need only conform to the Commission's current regulatory requirements. 50 Fed. Reg. at 32,141, 32,144-45.

SECURITY PLANS: LICENSE REQUIREMENT

All nuclear plants are required to have a detailed security plan to protect against external and internal sabotage. *See* 10 C.F.R. Part 73. The adequacy of such plans are subject to litigation in licensing hearings. *See, e.g., Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-653, printed as an Attachment to CLI-82-19, 16 NRC 53 (1982).

APPEAL BOARDS: SCOPE OF REVIEW

Generally, an appeal board will not entertain an issue raised for the first time on appeal. *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 348 (1978).

NUCLEAR REGULATORY COMMISSION: RESPONSIBILITIES UNDER NEPA

The Council on Environmental Quality regulation requiring a worst-case analysis (40 C.F.R. § 1502.22) is substantive, rather than procedural; hence, the Commission — as an independent regulatory agency — does not consider itself legally bound by it. 49 Fed. Reg. 9352, 9356-58 (1984). *See Baltimore Gas and Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 99 n.12 (1983).

APPEAL BOARDS: AUTHORITY (RELATION TO COMMISSION)

An appeal board cannot give binding effect to another agency's regulation explicitly eschewed by the Commission itself.

NEPA: ENVIRONMENTAL IMPACT STATEMENT

The Commission does not have any duty under NEPA to address " 'remote and highly speculative consequences' " in its environmental impact statements. *See San Luis Obispo Mothers for Peace*, 751 F.2d at 1300 and cases cited.

NEPA: ENVIRONMENTAL IMPACT STATEMENTS

Under NRC regulations and court precedent, a facility's Final Environmental Statement can be amended by the adjudicatory hearing record and subsequent Licensing Board decision. *See* 10 C.F.R. § 51.52(b)(3) (1984); 10 C.F.R. § 51.102 (1985); *New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87, 93-94 (1st Cir. 1978); *Citizens for Safe Power*, 524 F.2d at 1294 n.5.

RULES OF PRACTICE: CONTENTIONS

A party is bound by the literal terms of its own contention.

REGULATORY GUIDES: APPLICATION

Various NRC documents (such as the NUREGs that elaborate on the generalized regulatory requirements of 10 C.F.R. Part 50) simply serve as guidance for the staff's review and do not prescribe regulatory requirements. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-698, 16 NRC 1290, 1298-99 (1982), *rev'd in part on other grounds*, CLI-83-22, 18 NRC 299 (1983).

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

The Commission relies on predictive findings of adequacy in the emergency planning field more so than in other areas. The emergency plan itself need not even be final, so long as it is sufficiently developed to permit a board to make the necessary "reasonable assurance" finding. *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1103-04 (1983).

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

Post-hearing appraisal of an applicant's emergency facilities by the NRC staff is appropriate, if its emergency plan is developed enough to warrant a licensing board finding of adequacy.

EMERGENCY PLANS: CONTENT (ARRANGEMENTS FOR MEDICAL SERVICES)

Emergency plans must provide arrangements for medical services for "contaminated injured individuals." *See* 10 C.F.R. § 50.47(b)(12), and Part 50, Appendix E, § IV.E.

EMERGENCY PLANS: CONTENT (ARRANGEMENTS FOR MEDICAL SERVICES)

The medical arrangements for contaminated injured individuals required by 10 C.F.R. § 50.47(b)(12) should include local and backup hospital and medical services having the capability for evaluation of radiation exposure and uptake, including assurance that persons providing these services are adequately prepared to handle contaminated individuals. NUREG-0654, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980) at 69 (Planning Standard L.1). *See Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 535 n.9 (1983), *rev'd in part on other grounds, GUARD v. NRC*, 753 F.2d 1144 (D.C. Cir. 1985).

EMERGENCY PLANNING: BASIS FOR REQUIREMENT

The Commission's emergency planning regulations are premised on the assumption that a serious accident might occur and that evacuation of the emergency planning zone might well be necessary. *See id.* at 533. As a corollary, a possible deficiency in an emergency plan cannot properly be disregarded because of the low probability that action pursuant to the plan will ever be necessary.

EMERGENCY PLANS: CONTENT (ARRANGEMENTS FOR MEDICAL SERVICES)

The requirement that emergency response plans include "[a]rrangements . . . for medical services for contaminated injured individuals" (10 C.F.R. § 50.47(b)(12)) is not satisfied by a simple list of existing treatment facilities. *GUARD*, 753 F.2d 1144.

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

"Prudency" is the proper standard by which to measure emergency provisions. *See San Onofre*, CLI-83-10, 17 NRC at 533.

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

The Commission's emergency planning regulations do not require "extraordinary measures." *GUARD*, 753 F.2d at 1150 n.7.

EMERGENCY PLANS: CONTENT (SUFFICIENCY)

Under 10 C.F.R. § 50.47(c)(1), failure to satisfy the emergency planning standards in section 50.47(b) "may result in the Commission['s] declining to issue an operating license" unless it is demonstrated "that deficiencies in the plans are not significant for the plant in question, that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit plant operation."

EVIDENCE: EXPERT TESTIMONY

An expert witness may testify about analyses performed by other experts. *See Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-78, 5 AEC 319, 332 (1972).

EVIDENCE: HEARSAY

Hearsay evidence is generally admissible in administrative proceedings, providing its reliability can be determined — usually through questioning of the witness giving the hearsay. *Id.* at 332-33. *See Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 477 (1982).

APPEAL BOARDS: SCOPE OF REVIEW

It is well-settled that an appellate tribunal must judge appeals on the basis of the record developed at the hearing below. *Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-648, 14 NRC 34, 36 (1981).

EVIDENCE: EXPERT TESTIMONY

Expert testimony is typically a mixture of scientific principles (known to the expert through his or her training and experience), data derived from analyses or by perception, and the expert's opinions based on these principles and data. *See* Fed. R. Evid. 702; *McGuire*, 15 NRC at 475.

RULES OF PRACTICE: BURDEN OF PROOF

The standard of proof that an applicant must meet in a licensing proceeding is a preponderance of the evidence. *See Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 421 (1980).

ADJUDICATORY BOARDS: DISQUALIFICATION (STANDARD)

Disqualifying bias is not shown by unfavorable rulings, or by a judge's occasional use of strong language toward a party or the expression of his or her views on pending matters. *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-85-5, 21 NRC 566, 569 (1985), *aff'd sub nom. Three Mile Island Alert, Inc. v. NRC*, 771 F.2d 720 (3d Cir. 1985). Disqualifying bias must stem from an extrajudicial source – that is, it must be based on something other than what the adjudicator has learned from participating in the case. *Houston Lighting and Power Co.* (South Texas Project, Units 1 & 2), CLI-82-9, 15 NRC 1363, 1365 (1982).

NEPA: NRC RESPONSIBILITIES

NEPA requires the NRC to take a "hard look" at the environmental issues posed by a particular project. *See Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 838 (D.C. Cir. 1972).

QUALITY ASSURANCE/QUALITY CONTROL: REQUIREMENTS

The NRC requires an applicant to have a quality assurance program to ensure that a plant and its parts are designed and constructed or fabricated in accordance with acceptable standards. The necessary elements of a quality assurance program are set forth in 18 criteria specified in 10 C.F.R. Part 50, Appendix B.

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

In order for a contention to be admissible, the bases for it must be set forth with reasonable specificity. 10 C.F.R. § 2.714(b).

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

Discrete welding deficiencies identified in a few NRC inspection reports do not provide enough of a bases to support a contention alleging a complete breakdown in an applicant's quality assurance program. *See generally Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-812, 22 NRC 5, 16-44 (1985).

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

The conditional admission of any contention is unauthorized under the Commission's rules. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 467 (1982).

RULES OF PRACTICE: NONTIMELY SUBMISSION OF CONTENTIONS

The admission of late-filed contentions is to be determined by balancing the five factors in 10 C.F.R. § 2.714(a)(1). *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1045 (1983).

RULES OF PRACTICE: CONTENTIONS (ADMISSIBILITY)

Staff documents, if relevant and specific enough, can be relied on to support a contention. *Cf. Waterford,* ALAB-812, 22 NRC at 14, 17 & n.7.

ADJUDICATORY BOARDS: DISQUALIFICATION (STANDARD)

Inadvertent and possibly inaccurate statements do not establish bias on the part of an adjudicator.

LICENSING BOARDS: AUTHORITY TO REGULATE PROCEEDINGS

The Commission's Rules of Practice provide licensing boards with considerable flexibility to regulate the course of a hearing and designate

the order of procedure. 10 C.F.R. §§ 2.718(e), 2.731. *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-772, 19 NRC 1193, 1245-46 (1984), *rev'd in part on other grounds*, CLI-85-2, 21 NRC 282 (1985). Although the rules set forth a general schedule for the filing of proposed findings, licensing boards are authorized to alter that schedule or to dispense with it entirely. *See* 10 C.F.R. § 2.754(a).

LICENSING BOARD: RESPONSIBILITIES

Under 10 C.F.R. § 2.760(c) of the Commission's Rules of Practice, a licensing board is required to put its initial decision and the reasons or bases for the supporting findings, conclusions, and rulings in writing. While the decision may include transcript references to oral rulings made from the bench in explanation of the decision, this method of decisionmaking in complicated NRC licensing hearings is counterproductive to meaningful appellate review and should be avoided.

ATOMIC ENERGY ACT: SAFETY FINDINGS

Neither the Atomic Energy Act of 1954, as amended, nor the Commission's implementing regulations mandate a demonstration of error-free construction. What they require is simply a finding of reasonable assurance that, as built, the facility can and will be operated without endangering the public health and safety. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i); *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983). The requisite reasonable assurance exists if all ascertained construction errors have been corrected, and there is no showing of a pervasive breakdown in quality assurance so as to raise serious doubt about the overall safety of the plant. *Ibid.*

RULES OF PRACTICE: RESPONSIBILITIES OF PARTIES

The fact that a party may have personal or other obligations or possess fewer resources than others to devote to the proceeding does not relieve that party of its hearing obligations. *Statement of Policy on Conduct of Licensing Proceedings*, CLI-81-8, 13 NRC 452, 454 (1981).

EVIDENCE: EXPERT TESTIMONY

A witness is qualified as an expert by knowledge, skill, experience, training, or education. Fed. R. Evid. 702. *See McGuire*, 15 NRC at 475.

EVIDENCE: EXPERT TESTIMONY

Technical testimony on matters such as pipeline location or accidents requires an expert witness who can be examined on the reliability of the factual assertions and soundness of the scientific opinions offered. *McGuire*, 15 NRC at 477.

EVIDENCE: EXPERT TESTIMONY

Where an asserted expert witness can supply no scientific basis for his statements (other than his belief) and disparages his own testimony, a licensing board would be remiss in giving such testimony any weight whatsoever.

TECHNICAL CALCULATIONS: CONSERVATISM

The use of conservatism and margin for error in making technical calculations is necessary and desirable, but must be footed to some extent in reasonable, scientific ground. Conservatism upon conservatism can distort technical data to the point where the mechanism at issue is no longer meaningfully described.

REGULATORY GUIDES: APPLICATION

Regulatory guides and the like do not prescribe regulatory requirements. In general, they are treated simply as evidence of legitimate means for complying with regulatory requirements, and the staff is required to demonstrate the validity of its guidance if it is called into question during the course of litigation. *TMI-1 Restart*, ALAB-698, 16 NRC at 1299.

LICENSING BOARDS: RESPONSIBILITIES

A licensing Board's function is to oversee the *parties'* development of the record on contested issues and to issue an initial decision containing the board's findings of fact and conclusions of law on the matters in controversy. *See* 10 C.F.R. §§ 2.718, 2.760, 2.760a. This does not mean that a board must stand mute during the hearing and ignore deficiencies in the testimony. It must satisfy itself that the conclusions expressed by expert witnesses on significant safety or environmental questions have a solid foundation. *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-663, 14 NRC 1140, 1156 (1981), *review declined*, CLI-82-10, 15 NRC 1377 (1982).

OPERATING LICENSE HEARING: RESPONSIBILITY OF LICENSING BOARD

Reasonable assurance that the plant will be operated safely and that public health, safety, and environmental concerns will be adequately protected is the standard by which a licensing board is to measure an application; a risk-free environment is not required. *Carstens v. NRC*, 742 F.2d 1546, 1557 (D.C. Cir. 1984), *cert denied*, ___ U.S. ___, 86 L. Ed. 2d 694 (1985).

NEPA: SITE REVIEW

Alternative site issues can be raised only at the construction permit stage and not in connection with an operating license. *See* 10 C.F.R. §§ 51.106(c), (d).

TECHNICAL ISSUES DISCUSSED:

Severe Accident Mitigation
Probabilistic Risk Assessment (PRA)
Sabotage/Security Plan
Worst Case Risk Analysis
Socioeconomic Impacts
Onsite Emergency Plan
Emergency Operation Facilities
Technical Support Center
Operations Support Center
Aircraft Carburetor Icing
Quality Assurance
Pipeline Rupture
Overpressure Calculations
Structural Integrity.

APPEARANCES

Charles W. Elliott, Easton, Pennsylvania, for intervenor Limerick Ecology Action, Inc.

Frank R. Romano, Ambler, Pennsylvania, for intervenor Air and Water Pollution Patrol.

Robert L. Anthony, Moylan, Pennsylvania, intervenor pro se and for intervenor Friends of the Earth.

Mark J. Wetterhahn, Washington, D.C. (with whom **Troy B. Conner, Jr.,** and **Robert M. Rader,** Washington, D.C., were on the brief), for applicant Philadelphia Electric Company.

Benjamin H. Vogler (with whom **Ann P. Hodgdon** was on the brief) for the Nuclear Regulatory Commission staff.

DECISION

Intervenors Limerick Ecology Action, Inc. (LEA), Air and Water Pollution Patrol (AWPP), and Robert L. Anthony/Friends of the Earth (Anthony/FOE) each appeal from the Licensing Board's 1984 second partial initial decision (LBP-84-31, 20 NRC 446) and related orders entered in this operating license proceeding. In those decisions and orders, the Board resolved numerous technical, environmental, and onsite emergency planning issues in favor of applicant Philadelphia Electric Company (PECo) and authorized the issuance of a low-power license for the Limerick facility.[1] The pending appeals challenge the Licensing Board's rulings in a total of nine different areas. PECo and the NRC staff oppose the appeals. For the reasons set forth below, we affirm LBP-84-31 and related orders in all respects except one. Insofar as the medical arrangements in PECo's onsite emergency plan are concerned, we reverse and remand for further action.[2]

I. LEA'S APPEAL

All but two of LEA's arguments concern the adequacy of the environmental review in connection with PECo's operating license application. LEA contends that the Licensing Board improperly excluded consideration of design alternatives to mitigate severe accidents, the risk of sabotage, and certain socioeconomic impacts. It also argues that the consideration of human health impacts was inadequate. In its remaining argu-

[1] We denied requests to stay this decision in ALAB-789, 20 NRC 1443 (1984).

[2] In an earlier phase of this case, we reviewed and ultimately affirmed the Licensing Board's decisions concerning the environmental impacts of the supplementary cooling water system for Limerick. *See* ALAB-785, 20 NRC 848 (1984); ALAB-804, 21 NRC 587 (1985).

ments, LEA contends that PECo's onsite emergency plan violates Commission regulations, the Atomic Energy Act, and the Administrative Procedure Act (APA) in certain respects. We address each point in turn.

A. Severe Accident Mitigation Design Alternatives

In its contention DES-5, LEA claimed that the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. § 4321, and pertinent Commission regulations require consideration of design alternatives for the mitigation of severe accidents at Limerick. Because the plant is located in an area of relatively high population density, LEA asserted that such an accident would thus pose greater risk to the public. LEA cited NRC staff-sponsored studies, in which the cost-effectiveness of possible mitigating design features is under examination, as the bases for its contention. *See* LEA Contentions on the Environmental Assessment of Severe Accidents (February 13, 1984) [hereafter, "LEA DES Contentions"] at 11-13.

The Licensing Board, however, refused to admit the contention because it did not satisfy the Commission's requirements of basis and specificity. *See* 10 C.F.R. § 2.714(b). In the Board's view, DES-5 was just too general: LEA failed to describe a particular, cost-effective design alternative for a particular accident sequence. The fact that the staff had under way certain "generic" studies of the matter, according to the Board, did not render the contention admissible. Tr. 8776-78, 9471-75; Licensing Board Order of April 20, 1984 (unpublished), at 1, 3.

On appeal, LEA stresses that the staff's own studies, done under contract, identify severe accident mitigation design alternatives specifically for the Limerick facility. In particular, R&D Associates (RDA) under Contract No. NRC-03-83-092 is analyzing the cost-effectiveness of features such as a filtered-vented containment system. LEA argues that NEPA, as well as Commission and Council on Environmental Quality (CEQ) regulations, require consideration of these alternatives, which might significantly mitigate the risk of a severe accident at Limerick. Brief in Support of Appeal of Limerick Ecology Action, Inc. (October 4, 1984) [hereafter, "LEA Brief"] at 2-10.[3]

We are inclined to agree with LEA that the NRC-sponsored studies on severe accident mitigation, which LEA identified or submitted to the Licensing Board, together provide enough basis and specificity for the

[3] LEA also briefly argues that the "record of decision" for environmental purposes is deficient due to this failure to consider alternatives. LEA Brief at 47-48. *See* 10 C.F.R. § 51.103.

admission of contention DES-5. NUREG/CR-2666, "PWR Severe Accident Delineation and Assessment" (January 1983), contains a chapter devoted to mitigation features specifically for Limerick.[4] It suggests that a filtered-vented containment system or containment spray system could lower the risk from a severe accident.[5] But the discussion is largely qualitative (rather than quantitative), and no cost-benefit analysis for any design feature is performed. NUREG/CR-2666 at 7-1 to 7-15, 8-5.

The RDA study, however, is more enlightening. The September 15, 1983, status report on the project states:

> For Mark II containment as exemplified by the Limerick Plant, mitigation requirements (functions) have been identified, including containment heat removal, core residue capture and retention without concrete attack, and (if ATWS [anticipated transients without scram] events are to be mitigated) some kind of venting system. Candidate components to fulfill these requirements have been selected for preliminary conceptual design and cost estimation. Separate cost figures will be generated for 1) Plants before construction begins, 2) Plants built but not yet in operation, and 3) Operational plants.

LEA's Reply to Applicant and Staff Response (October 10, 1983), Attachment (Letter to C.W. Elliott from J.M. Felton (October 3, 1983), Enclosure at 4). By March 15, 1984, the preliminary design and cost analysis for several particular mitigation systems were completed, and the methodology for a quantitative value/impact (i.e., cost-benefit) analysis was formulated. Letter to C.W. Elliott from J. Rutberg (March 22, 1984), Enclosure (Monthly Project Status Report (March 15, 1984) at 3-4).[6] Although the RDA project was not due to be completed until late September 1985, the interim material available to the Licensing Board at the time of its ruling on contention DES-5 appears to have satisfied the threshold basis and specificity requirements for admission of the contention; that is, particular design changes that might be cost-effective were at least identified. Whether that would ultimately be proven on the merits is another matter. That, however, is not the appropriate inquiry at the contention-admission stage. *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-590, 11 NRC 542, 546-49 & n.10 (1980).[7]

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[4] This is so despite the facts that Limerick is a boiling water reactor (BWR) and the title of NUREG/CR-2666 refers only to pressurized water reactors (PWR).

[5] The authors of NUREG/CR-2666 did not include consideration of the containment spray system currently installed at Limerick. NUREG/CR-2666 at 7-9.

[6] The RDA status reports were submitted to the Licensing Board and were incorporated by reference in various LEA filings.

[7] The Licensing Board did not give much weight to the staff-sponsored RDA studies LEA cited because the studies were still under way and the staff considered them to be "generic." *See* Tr. 9451, 9453-54,

(Continued)

Although the Licensing Board thus erred in excluding contention DES-5 for the reason it stated — i.e., the lack of basis and specificity — we do not reverse and remand for further consideration of that matter. For the litigation of contention DES-5 is, in any event, precluded by Commission policy. At the time of the Board's ruling, the Commission had proposed a policy statement on severe accidents. *See* 48 Fed. Reg. 16,014 (1983) [hereafter, "Proposed Severe Accident Policy"]. In it the Commission noted the several extensive research programs under way to reduce the uncertainty in risk calculations and to explore the feasibility of certain engineered safety features. But the Proposed Severe Accident Policy also pointed out that this research had "not yet produced significant new insights into consequence mitigation features sufficient to support further regulatory changes . . . ." *Id.* at 16,018. Consequently, the Commission stated that "the capability of current designs or procedures (or alternatives thereto) to control or mitigate severe accidents should not be addressed in case-related safety hearing . . ." *Ibid.*[8]

The Commission's Proposed Severe Accident Policy was recently made effective (in modified form) following consideration of public comments, and it dictates our ruling here. *See Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 82-83 (1974). As in the proposed version, the now-enacted policy statement finds no undue risk to the public health and safety and "no present basis for immediate action on generic rulemaking or other regulatory changes for [existing] plants because of severe accident risk." 50 Fed. Reg. 32,138, 32,143 (1985) [hereafter, "Severe Accident Policy Statement"]. Further, the Commission explicitly removes plant-specific reviews of severe accident vulnerabilities as "a necessary or routine part of an Operating License review." *Id.* at 32,144.[9] Accordingly, it reiterates its earlier expressed position that severe accident miti-

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9472. But despite the staff's generic label, the RDA studies included Mark II containments (such as Limerick) and used Limerick as a case study. Tr. 9451. Further, although the RDA work was not yet final, it had progressed enough by the time of the Board's consideration of DES-5 so that "idealized mitigation opportunities in Mark IIs" and "what they might cost" could be identified. Tr. 9453. That material provides at least as much basis and specificity as did the Federal Energy Administration report on which intervenors relied in *Allens Creek*, 11 NRC at 547.

[8] In rejecting an earlier version of DES-5 (LEA's contention I-60), the Licensing Board relied, in part, on the Proposed Severe Accident Policy. LBP-83-39, 18 NRC 67, 87-88 (1983).

[9] Thus, because severe accident mitigation is not material to its licensing decisions, the Commission can properly exclude this issue from adjudicatory hearings. *Union of Concerned Scientists v. NRC*, 735 F.2d 1437, 1444-51 (D.C. Cir. 1984), *cert. denied*, ___ U.S. ___, 105 S. Ct. 815 (1985); *Siegel v. AEC*, 400 F.2d 778, 783-85 (D.C. Cir. 1968).

gation measures, beyond already existing Commission requirements, "should not be addressed in case-related safety hearings." *Id.* at 32,145.[10]

This is not to say that severe accident mitigation is being ignored. As the Commission points out in both the proposed and promulgated versions of the policy statement, extensive research in this area — evidenced by the very studies LEA cites — is ongoing. "Should significant new safety information develop, from whatever source, which brings into question the Commission's conclusion that existing plants pose no undue risk, then at that time the specific technical issues suggesting undue vulnerability will undergo close examination and be handled by the NRC under existing procedures for issue resolution including the possibility of generic rulemaking where this is justifiable." *Id.* at 32,144.[11]

We also note that, despite the exclusion of contention DES-5, the possible risks posed by the Limerick facility have received considerable attention from the staff. In accordance with the Commission's Statement of Interim Policy on "Nuclear Power Plant Accident Considerations under the National Environmental Policy Act of 1969," 45 Fed. Reg. 40,101, 40,103 (1980) [hereafter, "Interim NEPA Policy"], the final environmental impact statement for Limerick includes consideration of the environmental risks of both "design-basis" accidents and those that would be more severe.[12] As part of this enlarged environmental review,

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[10] LEA argues that the Policy Statement does not apply to DES-5 because in both the proposed and final versions the Commission refers to "safety hearings" and LEA's contention raises environmental — not safety — issues. *See* App. Tr. 114-15. We think LEA reads the Commission's statement too narrowly. It is unreasonable to believe the Commission intended to preclude litigation of severe accident mitigation measures under the rubric of safety issues, while permitting the litigation of the same subject matter as an environmental issue. This is especially so, given Commission precedent holding that NEPA could not logically require more than the safety provisions of the Atomic Energy Act, and court precedent recognizing the inherent interrelationship of these statutes and thus issues raised under each. *See Public Service Electric and Gas Co.* (Hope Creek Generating Station, Units 1 and 2), ALAB-518, 9 NRC 14, 39 (1979); *Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291, 1299-1300 (D.C. Cir. 1975).

[11] On appeal (LEA Brief at 5), LEA refers to a portion of the Proposed Severe Accident Policy that states: "[i]n future CP [construction permit] applications . . . , filtered-vented containment systems, or a variation of such systems, should be provided if these yield a cost-effective reduction in risk." 48 Fed. Reg. at 16,019. *See also id.* at 16,020. (This language does not appear in the actual policy statement as enacted.) LEA claims that severe accident mitigation systems, such as a filtered-vented containment system, cannot therefore be considered "remote" or "speculative" and must be considered here. We agree that the *concept* of such systems is not remote, but that is a far cry from a determination that they are feasible and cost-effective. The purpose of the *ongoing* research is to analyze just that. *See, e.g., Consolidated Edison Co. of New York* (Indian Point, Unit No. 2), CLI-85-6, 21 NRC 1043, 1073 (1985). The fact that the Commission has directed consideration of these systems in "future CP applications" (none of which has been filed since the late 1970s) is in no way inconsistent with its conclusion to preclude their consideration in the licensing of existing plants.

[12] Such severe accidents were formerly termed "Class 9" and were not considered in the environmental reviews of proposed plants because of their low probability of occurrence. They postulate significant deterioration of the fuel and of the ability of the containment structure to limit radioactive releases into the environment.

a probabilistic risk assessment (PRA) of Limerick was performed. *See* NUREG-0974, "Final Environmental Statement" (April 1984) [hereafter, "FES"], at 5-73 to 5-126.[13] Based on several factors including the results of the PRA, the staff has concluded that the likelihood of a severe accident at Limerick is "small and comparable to that of other reactors." *Id.* at 5-126.[14] The staff goes on to state generally that, "[b]ased on the . . . considerations of environmental impacts of accidents, which have not been found to be significant, [it] has concluded that there are no special or unique circumstances about the Limerick site and environs that would warrant consideration of alternatives for Limerick Units 1 and 2." *Ibid.*[15]

This additional, special attention devoted to the possibility of a severe accident at Limerick was undertaken as a matter of Commission discretion. It is not required by NEPA and has only served to confirm the Commission's view of the low risk posed by the facility. *See San Luis Obispo Mothers for Peace v. NRC*, 751 F.2d 1287, 1301 (D.C. Cir. 1984), *vacated in part and reh'g en banc granted on other grounds*, 760 F.2d 1320 (1985). A fortiori, consideration of possible design alternatives to mitigate a severe accident is not required either. Thus, the exclusion of LEA contention DES-5 violates neither NEPA nor any regulation promulgated pursuant to it.

B. The Risk of Sabotage

Neither PECo's nor the staff's environmental review of Limerick considered the effects of sabotage because "such an analysis is considered to be beyond the state of the art of probabilistic risk assessment." FES at 5-74. A portion of LEA's contention DES-6 claimed that the exclusion of a sabotage-initiated accident scenario violates NEPA and Commission policy and regulations.[16] As the basis for this contention, LEA submitted a one and one-half page excerpt of a report prepared by Steven Sholly of

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[13] Because Limerick is located in an area of relatively high population density, it is one of the few plants for which a PRA has been performed. The Commission recently described PRAs as "not empirically verifiable," but nevertheless "helpful supplement[s] to engineering judgment" and "'very powerful tools for identifying strengths and weaknesses in reactor safety.'" *Indian Point*, 21 NRC at 1057.

[14] The additional factors considered by the staff are set forth in the FES at 5-126.

[15] A further staff review of the Limerick PRA revealed several areas where cost-effective improvements could reduce Limerick's vulnerability with respect to core damage accidents. The staff has found PECo's response to these concerns reasonable and acceptable. *See* NUREG-1068, "Review Insights on the Probabilistic Risk Assessment for the Limerick Generating Station" (August 1984), at 7-1 to 8-5. (The preparation of this document was briefly discussed at the hearing (*see* Tr. 9424-49), but the report itself was not completed until after the hearing concluded and about the time the Board issued the decision before us on appeal. It was, however, served on all parties by Board Notification 84-147 (September 17, 1984), and no party sought to reopen the record to pursue any of the report's findings.)

[16] Contention DES-6 also concerned another issue, not raised here on appeal.

the Union of Concerned Scientists on the Severe Accident Risk Assessment (SARA) for Limerick. In this report, Sholly concludes that a sabotage risk analysis could be performed. LEA DES Contentions at 14; Letter to Licensing Board from J.A. Dorsey (August 31, 1983), Enclosure [hereafter, "LEA SARA Contentions"] fol. 21.

The Licensing Board, however, rejected the sabotage portion of contention DES-6. It determined that various Commission policy statements militate against litigation of such an issue. The Board referred specifically to the Proposed Severe Accident Policy, 48 Fed. Reg. 16,014, and the Commission's policy statement on the "Safety Goal Development Program," 48 Fed. Reg. 10,772 (1983) [hereafter, "Safety Goal Policy"]. Tr. 8778-80; Order of April 20 at 1, 3. In the latter policy statement, the Commission expressly excludes consideration of the possible effects of sabotage from its "safety goal" because "[a]t present there is no basis on which to provide a measure of risk on [this matter]." 48 Fed. Reg. at 10,773.[17] The Proposed Severe Accident Policy takes note of this, but suggests that, in the future, applicants for standard design approvals or construction permits should nevertheless address the issue of sabotage in their Safety Analysis Reports. 48 Fed. Reg. at 16,020.

On appeal, LEA criticizes Commission policy as evidencing a "reluctance to confront the issue" of sabotage. LEA Brief at 14. It also argues that both NEPA and a CEQ regulation, 40 C.F.R. § 1502.22, require consideration of sabotage as part of a "worst case" analysis — even though there may be uncertainties in the data on which a sabotage risk analysis would be based. In LEA's view, a potentially catastrophic event (i.e., a severe accident triggered by sabotage) cannot properly be excluded from the environmental review simply because the likelihood of its happening is remote.

We conclude that the Licensing Board did not err in excluding LEA's sabotage contention. At the outset, it is important to place the contention in proper perspective. As already discussed above in Part I.A and as the staff points out in its brief, the FES does, in fact, consider a whole range of design-basis *and* severe accident scenarios. *See* NRC Staff's Response in Opposition to the Appeals (January 7, 1985) [hereafter, "Staff Brief"] at 58. Insofar as this review — undertaken pursuant to the Commission's Interim NEPA Policy — encompasses severe (beyond design-basis) accidents, it is not even required by NEPA. *San Luis Obispo Mothers for Peace,* 751 F.2d at 1301. LEA does not explain what separate

[17] It is noteworthy that even the safety goals and design objectives that *are* included in the Commission's Safety Goal Development Program are "not to be litigated in the Commission's [licensing] hearings." 48 Fed. Reg. at 10,775.

consideration of sabotage as an initiator of such a severe accident would add, from a qualitative standpoint, to this *discretionary* environmental review. It would also add nothing of real quantitative significance.[18] LEA has therefore failed to cast any serious doubt on either the staff's conclusion that a sabotage risk analysis is beyond state of the art probabilistic risk analysis or the Commission's similar determination that there is no basis by which to measure that risk. *See* FES at 5-74; 48 Fed. Reg. at 10,773.[19] Contention DES-6 thus lacks even the threshold basis and specificity necessary to withstand rejection.

A second factor to bear in mind is that, although the risk of sabotage cannot be quantified in a way that would permit its litigation per se, the Commission's regulations nonetheless require each plant to have a detailed security plan to protect against external and internal sabotage. *See* 10 C.F.R. Part 73. The adequacy of such plans are subject to litigation in licensing hearings. *See, e.g., Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-653, printed as an Attachment to CLI-82-19, 16 NRC 53 (1982). LEA, however, has raised no challenge to Limerick's security plan.

LEA's argument that the risk of sabotage must be considered as part of the worst case analysis "required" by CEQ regulations is unavailing.[20] The provision in question, 40 C.F.R. § 1502.22, is addressed to "[i]ncomplete or unavailable information." As pertinent here, section 1502.22(b) provides:

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[18] The staff has explained that whatever additional risks might be associated with sabotage-initiated accidents are essentially already taken into account in the Limerick PRA within a general category of uncertainties. *See* FES at 5-74 ." 112. Sholly, however, apparently believes that a more precise calculation can be determined. By dividing the total number of reactor-years for all facilities through the end of 1981 (about 633) by the number of reported acts of insider sabotage between 1971 and 1981 (11), Sholly computes a frequency of roughly one act of sabotage for every 60 reactor-years. He acknowledges, however, that other variables would have to be added in order to refine the analysis. For one thing, his calculation fails to reflect that none of the 11 acts of sabotage was successful in initiating a reactor accident. Further, the analysis does not consider the frequency with which different systems of varying significance to the safe operation of the plant would be affected. Sholly himself thus admits that any sabotage risk analysis would have "large uncertainties." LEA SARA Contentions fol. 21. In effect, even this process would involve a substantial amount of guesswork. The staff's approach of considering sabotage along with other uncertainties is thus reasonable.

[19] The Commission's recently adopted Severe Accident Policy Statement is consistent with this as well. It recognizes the importance of sabotage and indicates that this issue will be carefully analyzed "to the extent practicable" in the design and operating procedures for *new* plants. Existing plants, however, need only conform to the Commission's current regulatory requirements. 50 Fed. Reg. at 32,141, 32,144-45.

To the extent that LEA criticizes Commission policy, its argument is, of course, directed to the wrong forum.

[20] LEA presses its CEQ argument for the first time on appeal. In this circumstance, we would be justified in summarily dismissing it. *Tennessee Valley Authority* (Hartsville Nuclear Plant, Units 1A, 2A, 1B, and 2B), ALAB-463, 7 NRC 341, 348 (1978). Nevertheless, we explain below the several reasons why 40 C.F.R. § 1502.22 does not dictate a different result in this case.

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

In the Statement of Consideration for the 1984 revision of the NRC's environmental regulations, 10 C.F.R. Part 51, the Commission addresses the asserted requirements of 40 C.F.R. § 1502.22(b). It agrees that each agency must decide for itself whether the unknown information is relevant and important to its decision and whether it wishes to proceed with the action in question. The Commission objects, however, to the requirement of a worst case analysis, characterizing this as a substantive (rather than procedural) requirement, by which the NRC — as an independent regulatory agency — is not legally bound.[21] Instead, the Commission states that its Interim NEPA Policy — with which the FES here complies — is designed to address the concerns of CEQ reflected in the worst case analysis regulation. 49 Fed. Reg. 9352, 9356-58 (1984).[22] In any event, we in turn are bound by this judgment on 40 C.F.R. § 1502.22(b): we cannot accord binding effect to a regulation explicitly eschewed by the Commission itself.

Even if the Commission had not so clearly proscribed the application of 40 C.F.R. § 1502.22(b), we would conclude that, by its terms, the regulation would not mandate here the consideration of sabotage in a worst case risk analysis. Risk is the product of probability and consequences; the "worst case" is concerned with the consequences side of the equation. As discussed at pp. 696-97, *supra,* the worst case has in fact been addressed in the FES for Limerick. What has not been empirically considered is sabotage as the source of the worst case consequences because of the uncertainties in determining the *probability* of sabotage — not uncertainties in determining the *consequences.* The CEQ regulation, however, focuses on the latter and thus does not pertain here.[23]

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[21] The Supreme Court has left open the question whether CEQ regulations are binding on independent agencies. *Baltimore Gas and Electric Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 99 n.12 (1983).

[22] We note that CEQ recently proposed the amendment of 40 C.F.R. § 1502.22 by eliminating the "worst case analysis" provision. *See* 50 Fed. Reg. 32,234 (1985).

[23] The language of the regulation bears this out. The last sentence of section 1502.22(b) states that the agency shall include "a worst case analysis *and* an indication of the probability or improbability of its occurrence" (emphasis added).

Finally, anticipating the argument that CEQ regulations are not binding on the NRC, LEA contends that NEPA itself requires a worst case analysis of sabotage risk. It relies principally on *Sierra Club v. Sigler*, 695 F.2d 957, 971 (5th Cir. 1983), which holds that the CEQ regulation in question merely codified the preexisting judicially-created "common law" of NEPA. Therefore, LEA argues, the NRC must weigh the cost of uncertainty concerning sabotage risk and consider in a worst case analysis a sabotage-initiated event of low probability but potentially catastrophic consequences. *See id.* at 971-72.

Assuming *Sigler* applies here, however, it does not aid LEA's case.[24] In the first place, the court indicated that an agency "may (and should) consider remoteness." *id.* at 974. Perhaps more important, the court recognized that "[t]here must, of course, be a base of information upon which to project past these limits." *Ibid.* Thus, it found that the Sierra Club's proposed model of oil dispersion (caused by the total cargo loss of a supertanker) in a wildlife estuary — "based on *known* information about tides and currents in the Bay" — was "informative and useful" and "reasonably limit[ed] speculation." *Ibid.* (emphasis in original). Thus, the unknown information in *Sigler* could reasonably be estimated from long-known, fundamental physical principles (tides and currents). We are aware of no similar principles (and LEA identifies none) that would permit reasonable prediction of — like the next high tide — the kind of stochastic human behavior displayed in an act of sabotage.

In sum, the risk of sabotage is simply not yet amenable to a degree of quantification that could be meaningfully used in the decisionmaking process. The Licensing Board therefore properly excluded LEA's contention DES-6.

C. Socioeconomic Impacts

LEA's contention DES-4(A) claimed that Supplement No. 1 to the staff's Draft Environmental Statement ("DES Supplement") failed to give adequate consideration to eight identified consequences of a severe accident. *See* LEA DES Contentions at 9. The Licensing Board permitted litigation of most of the eight areas. As pertinent to this appeal, however, the Board rejected the following two matters:

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[24] We see somewhat of an inconsistency between *Sigler* and *San Luis Obispo Mothers for Peace*. The latter squarely holds that NEPA does not require the NRC to consider *at all* severe, beyond design-basis accidents because of their very low probability. 751 F.2d at 1301. Yet *Sigler* — cited with seeming approval in connection with a discussion of 40 C.F.R. § 1502.22 in *San Luis Obispo Mothers for Peace*, 751 F.2d at 1302 n.77 — suggests that the common law of NEPA requires an agency to perform a worst case analysis, even for events of low probability, whenever there are uncertainties in important information. *See* 695 F.2d at 971-72.

(4) The socio-economic cost of compensation required for health effects induced by radiation exposure;
(5) Industrial impacts beyond the first year following the accident, and quantification of costs beyond the "output loss" mentioned in DES [Supplement], p 5-46[.]

Ibid. The Board considered these parts of the contention "not admissible because they are speculative, both in terms of occurrence and in terms of any reasonable quantification, even given that occurrence, and they are remote in terms of our reasonable proximity . . . . This is particularly so, given what the analyses include and other contentions, especially the other part of this very contention which in some respects goes more directly to things of concern, particularly with respect to 4." Tr. 8773-74. *See* Order of April 20 at 1, 2.

On appeal, LEA acknowledges that the FES discusses socioeconomic impacts but it argues that that discussion is too limited.[25] It also contends that, in violation of certain CEQ regulations, the Licensing Board ignored "additional significant economic impacts that can be known with reasonable certainty." LEA Brief at 20. LEA takes issue with the Board's statement that the impacts in parts (4) and (5) of contention DES-4(A) are speculative and not amenable to reasonable quantification.[26] It also asserts that there are enough data, provided by the staff itself, from which to calculate industrial impacts for periods in excess of 30 years. Even if there were difficulties in performing such computations, however, LEA argues that the NRC is nonetheless required to attempt them in the context of a worst case analysis.

We are not persuaded by LEA's arguments. It is not apparent from the actual wording of part (4) of contention DES-4(A) or LEA's brief on appeal exactly what LEA means by "[t]he socio-economic cost of compensation required for health effects." In response to the Licensing Board's questioning at the hearing, however, LEA's counsel clarified that DES-4(A)(4) concerns essentially the dollar value of compensation awarded to accident victims through insurance claims and lawsuits. *See* Tr. 8700-01.[27] By multiplying an assigned value per human life (e.g.,

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[25] The relevant portion of the FES is virtually identical to that in the DES Supplement. As LEA has done in its brief on appeal, we will therefore refer to the FES, rather than the DES Supplement, from this point on.

[26] In this connection, LEA points out that the Price-Anderson Act, 42 U.S.C. § 2210, provides for compensation, up to a specified limit, to victims of nuclear power plant accidents. Thus, LEA reasons that the recovery of such compensation cannot properly be considered "speculative."

[27] No party cited to this portion of the record. We remind all litigants that, as an appellate body, we do not oversee licensing hearings and thus have no working familiarity with the lengthy record below. We

(Continued)

one million dollars) by the estimated number of early fatalities from a severe accident (shown in the FES under the category of health effects), LEA suggests a basis for quantifying this "cost of compensation." Tr. 8701-02. This is apparently the "additional significant economic impact[] that can be known with reasonable certainty," which LEA claims must be considered in the environmental analysis of the plant. LEA Brief at 20.

We agree with the Licensing Board that this "simple" calculation of the cost of compensation is highly speculative. It yields a quantification of sorts, but it does not provide any reliable information of decisional significance in addition to that already quantified in the FES and admitted for litigation as a separate part of contention DES-4(A) -- i.e., the health effects of a severe accident. Indeed, it might well be argued that inclusion of such hypothetical costs, determined on the basis of randomly selected values applied to an event of very low probability, diminishes the true worth of the FES in the decisionmaking process. In any event, part (4) of DES-4(A) surely involves the kind of " 'remote and highly speculative consequences' " that need not be addressed in an environmental impact statement. *See San Luis Obispo Mothers for Peace*, 751 F.2d at 1300 and cases cited.

The same is true for part (5). The staff recognizes that a severe accident might "force numerous businesses to temporarily or permanently close." FES at 5-102. Nonetheless, its analysis of industrial impacts does not consider consequences beyond the first year following an accident "because they will vary widely depending on the level and nature of efforts to mitigate the accident consequences and to decontaminate the physically affected areas." *Id.* at 5-106. LEA points to "probabilistic calculations of specific land area interdiction by time period, distance, and sector, together with the extensive land use data available in the applicant's environmental documents" as support for its view that longer term impacts are not speculative and can indeed be quantified. LEA Brief at 24-25. But none of the empirical data mentioned by LEA or in the FES would make "more certain" — and thus, less speculative — the longer term uncertainties identified by the staff: the nature of efforts to mitigate the accident and to decontaminate affected areas. These are unknowns for which no relevant, practical experience exists.[28] The line

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must accordingly rely heavily on the parties' briefs for references to *all* relevant parts of the record. This is especially true where, as here, the rulings appealed were rendered from the bench and no detailed, written opinion by the Licensing Board is available.

[28] Even the 1979 accident at Three Mile Island did not involve the long-term industrial impacts to which DES-4(A)(5) is addressed. *See generally Report of the Governor's Commission on Three Mile Island* (1980) at 18-21, 29-43.

has to be drawn somewhere, and we believe the staff's determination to consider only the first year of post-accident industrial impacts is a reasonable one. Consideration of longer term impacts would, again, involve engaging in a level of speculation not required by NEPA.

As in the case of LEA's other severe accident contentions discussed here on appeal, it is important to keep in mind what the environmental review for Limerick *does* encompass. LEA concedes that the FES, in fact, considers various socioeconomic impacts of a *very low probability* severe accident. This consideration was undertaken in compliance with the Commission's Interim NEPA Policy, 45 Fed. Reg. at 40,103.[29] The discussion of socioeconomic impacts, however, is more detailed and inclusive than LEA suggests. *See, e.g.*, FES at 5-93 to 5-94, 5-98, 5-99, 5-102, 5-106 to 5-107. Moreover, several of the estimates used in the analysis rely on somewhat conservative assumptions — for example, no use of unused capacity in an area *un*affected by the accident to offset the initial lost production in the affected areas. *Id.* at 5-106. *See also id.* at 5-107. In the absence of any well-founded challenge to the adequacy of this discussion, we are therefore unable to conclude that either the Licensing Board's or the FES's consideration of the socioeconomic impacts of a severe accident is legally deficient.

D. Human Health Impacts

LEA's last environmental argument is essentially a procedural one. It complains that the FES does not contain the complete disclosure of certain nonfatal human health impacts of a severe accident, which NEPA assertedly requires. LEA lists six such impacts that the FES does not explicitly discuss, despite the fact that the risk of these effects is greater than that of most of those that the FES does address.[30]

The Licensing Board agreed with LEA that "it would have been more helpful to lay members of the public if the FES had contained more complete disclosure and explicit consideration of [these impacts]."

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[29] Thus, we need not decide whether the cases and various CEQ regulations to which LEA refers require NRC consideration of socioeconomic impacts. *See also* pp. 699-700, *supra*. We note, however, that the cases cited do not involve the socioeconomic impacts of an event of very low probability, such as that involved here. *See City of Rochester v. United States Postal Service*, 541 F.2d 967 (2d Cir. 1976); *Trinity Episcopal School Corp. v. Romney*, 523 F.2d 88 (2d Cir. 1975). The latter case also concerns a different section of NEPA.

[30] The six categories of impacts are: genetic effects/changes, nonfatal cancers, benign thyroid nodules and hypothyroidism, spontaneous abortions, sterility, and developmental impairment of children. Most of these are set forth in LEA's contention DES-4(A)(1).

LBP-84-31, 20 NRC at 551.[31] But the Board also found that the evidence concerning these nonfatal human health impacts adduced by the staff and PECo at the hearing, along with the Boar d's findings and conclusions, properly amended the FES. The Board concluded that this practice is acceptable under both the Commission's prior and existing NEPA regulations (and Commission and court precedent alike). *Id.* at 552-53. It explained, in this regard, that this additional evidence did not substantially modify the FES or result in any change in the conclusions of that document about the total risk posed by the Limerick facility. *Id.* at 551, 552-53, 557, 560, 573. The Board went on to discuss the pertinent evidence at some length, concluding that "the nonfatal latent health effects have been adequately disclosed and considered" and that these risks are "clearly small." *Id.* at 554-60, 573.

On appeal, LEA disagrees with the Licensing Board's reading of the pertinent NEPA regulations. It contends that the only applicable existing NRC regulation does not permit supplementation of the FES through the hearing process. LEA does not, however, challenge the substance of either the record or the Board's detailed discussion of it. Instead, it seeks, in effect, summary reversal of the Board's conclusions and supplementation and recirculation of the FES. LEA Brief at 26-32.

Amendment of the FES by the adjudicatory hearing record and subsequent Licensing Board decision is entirely proper under NRC regulations and court precedent. The applicable regulation in effect at the time of the hearing, 10 C.F.R. § 51.52(b)(3) (1984), provided:

> an initial decision . . . may include findings and conclusions which affirm or modify the content of the final environmental impact statement prepared by the staff. To the extent that findings and conclusions different from those in the final environmental statement prepared by the staff are reached, the statement will be deemed modified to that extent and the initial decision will be distributed as provided in § 51.26(c). . . .

LEA seems to acknowledge, at least tacitly, that the Board's action fully complied with this provision. LEA Brief at 31. It argues, however, that this regulation was not readopted when the Commission revised 10 C.F.R. Part 51 in 1984; thus, it no longer exists and does not apply here. According to LEA, the new provision cited by the Board, 10 C.F.R. § 51.102 (1985) — which took effect soon after the hearing on this

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[31] The staff did not include this matter in the FES because it "believed that such disclosure was implicit by citing authoritative references which treat these matters in detail." It also believed these impacts are "relatively unimportant in its best-estimate calculations of the risks of potential reactor accidents at Limerick." LBP-84-31, 20 NRC at 559. The Board noted that "[p]erhaps [the omission of this material in the FES] was a consequence of using state-of-the-art knowledge and methodology." *Id.* at 573.

matter but before the second partial initial decision was issued — does not require recirculation for public comment of the FES, as amended by the Board's initial decision. The FES thus remains deficient under NEPA and can be cured only by recirculation. LEA Brief at 31-32.

We need not decide which regulation controls, for section 51.102 serves the same purpose as its differently worded predecessor, section 51.52(b)(3). LEA's argument is therefore without merit. Section 51.102(a) states that "[a] Commission decision on any action for which a final environmental impact statement has been prepared shall be accompanied by or include a concise public record of decision." Generally, that record is to be prepared by the staff. 10 C.F.R. § 51.102(b). When an adjudicatory hearing is held on the action, however,

> the initial decision of the [Licensing Board] . . . will constitute the record of decision. An initial or final decision constituting the record of decision will be distributed as provided in § 51.93.

10 C.F.R. § 51.102(c). Section 51.103 describes the contents of the "record of decision," noting that it may incorporate by reference any material in the final environmental statement. On its face, 10 C.F.R. § 51.102 thus merges the FES with any relevant licensing board decision to form the complete environmental record of decision — just as former section 51.52(b)(3) did.[32] But even under the stricter construction of section 51.102 urged by LEA, nothing in it *precludes* modification of an FES by licensing board decision.

Several federal courts of appeals have approved the procedure set forth in former section 51.52(b)(3), providing for the amendment of an FES through the adjudicatory process. *See New England Coalition on Nuclear Pollution v. NRC*, 582 F.2d 87, 93-94 (1st Cir. 1978); *Citizens for Safe Power, supra* note 10, 524 F.2d at 1294 n.5. *See also Ecology Action v. AEC*, 492 F.2d 998, 1001-02 (2d Cir. 1974).[33] There is no reason to

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[32] The Commission's Statement of Consideration for the 1984 revisions to Part 51 does not discuss section 51.102. *See* 49 Fed. Reg. 9352. The discussion of this section in the notice of proposed rulemaking, however, clearly contemplates modification of an FES by a board decision following evidentiary hearing on an environmental issue. *See* 45 Fed. Reg. 13,739, 13,741 (1980).

[33] LEA cites a decision of the First Circuit, *Grazing Fields Farm v. Goldschmidt*, 626 F.2d 1068 (1st Cir. 1980), in support of its view that an FES cannot properly be amended by the hearing record. But that decision — which does not even cite to that circuit's opinion in *New England Coalition*, rendered just two years earlier — is easily distinguished. The studies and memoranda on which the Federal Highway Administration relied in *Grazing Fields* — albeit in the administrative record — were "not incorporated in any way" into the environmental impact statement for the highway project there at issue. The court therefore concluded that such studies could not "bring into compliance with NEPA an EIS that by itself is inadequate." *Id.* at 1072. Here, of course, the Licensing Board explicitly amended the FES by its decision. *See, e.g.*, LBP-84-31, 20 NRC at 572. Moreover, the FES itself is not inadequate. *See* p. 707, *infra*.

believe that the courts would not be just as approving of the same procedure today, either as embodied in section 51.102 or, indeed, in the absence of any regulation, as a matter of board practice.

While suggesting no prejudice to its own interests, LEA nonetheless voices concern that NEPA's purpose in providing the opportunity for public comment on an environmental statement is somehow thwarted by board amendment of an FES. But as the Licensing Board here pointed out, "the hearing . . . provide[s] the public ventilation that recirculation of an amended FES would otherwise provide." LBP-84-31, 20 NRC at 553, *citing* ALAB-262, 1 NRC 163, 197 n.54 (1975). This arguably allows for additional and a more rigorous public scrutiny of the FES than does the usual "circulation for comment." Further, like its predecessor regulation, section 51.102(c) requires that the decision amending the FES be distributed to various entities, including the Environmental Protection Agency, state and regional clearinghouses, and commenters on the FES. *See* 10 C.F.R. § 51.93(a). The staff has done so here. *See* Letter to A. Hirsch from A. Schwencer (December 3, 1984) and attached service list.[34]

Finally, it bears repeating that the impacts at issue here are those that might result from a low probability severe accident — an event that, according to the court in *San Luis Obispo Mothers for Peace*, 751 F.2d at 1301, need not even be considered for NEPA purposes. Thus, the extensive consideration given at the hearing and in the Licensing Board's decision to the identified nonfatal human health impacts — which consideration LEA does not attack on the merits — can hardly be criticized as inadequate under NEPA.

E. Onsite Emergency Plan

1. In its first challenge on appeal to PECo's onsite emergency plan, LEA claims that the Licensing Board closed the record too soon on its contention VII-8(b). That contention essentially complains that the emergency plan's descriptions of Limerick's Emergency Operations Facility (EOF), Technical Support Center (TSC), Operations Support Center (OSC), and unspecified emergency equipment and supplies are

[34] We are somewhat troubled, however, by several aspects of the staff's fulfillment of this distribution responsibility. For one thing, we do not understand why it took more than three months to perform this ministerial task. For another, although it is in the NRC's headquarters and local public document rooms, the Board's decision does not appear to have been served on a few FES commenters (for example, John Doherty and the Delaware River Basin Commission). Likewise, this Appeal Board — which clearly had jurisdiction over this part of the *Limerick* proceeding in December 1984 — was not served with a copy of Schwencer's letter. We learned of this only through PECo's brief. *See* Applicant's Brief (December 28, 1984) at 31 n.75.

insufficient to permit a meaningful assessment of these facilities' compliance with various regulatory criteria.[35]

LEA argues that, at the time of the hearing on this contention, the staff had not yet evaluated these facilities, and it points to the Licensing Board's statement that "the Staff's review was still far from complete" at this juncture. LBP-84-31, 20 NRC at 527.[36] LEA requested the Board to await the staff's appraisal visit report and thereafter to afford the parties the opportunity to propose findings in this regard. The Board, however, declined to do so. It balanced the intervenor's possible interest in the outcome of the staff's review against the absence of anything particularly unusual or controversial about that review and the criteria applied by the staff. The Board also stressed that "LEA raises no specific concern that any of these facilities will not meet a particular requirement." *Id.* at 527-28. It therefore ruled in favor of PECo on the contention. *Id.* at 516.

LEA contends that the Licensing Board has failed to make all of the findings required by the Commission's various emergency planning documents in connection with contention VIII-8(b). In its view, the Board has improperly delegated to the staff the post-hearing resolution of this issue, in violation of the hearing requirement of section 189a of the Atomic Energy Act, 42 U.S.C. § 2239a, as well as Commission and court precedent and sections 5 and 7 of the APA, 5 U.S.C. §§ 554, 556.

We disagree. First, the staff's review of PECo's emergency planning facilities was more complete at the time of the hearing than either LEA or the Licensing Board's decision suggests. The staff had completed its review of PECo's revised emergency plan, which included, among other things, descriptions of the EOF, TSC, and OSC. *See* Applicant Exh. 32,

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[35] The exact wording of contention VIII-8(b) follows:

> The LNGSEP [Limerick Nuclear Generating Station Emergency Plan] fails to demonstrate that adequate emergency facilities and equipment to support emergency response are provided and maintained as required by 10 CFR § 50.47(b)(8), especially in that:
>
> (b) The Plan's descriptions of the Emergency Operations Facility (Plan § 7.1.2), the Technical Support Center (Plan § 7.1.3), the Operational Support Center (Plan § 7.1.4), and emergency equipment and supplies are all insufficient to meaningfully assess compliance with 10 C.F.R. § 50.47(b)(8) and to evaluate the facilities with respect to the criteria of NUREG-0654, Supplement 1 to NUREG-0737 (§8), and NUREG-0696. Intervenor contends the applicant has not demonstrated that the facilities proposed are adequate. Applicant's response to Q 810.30 states that the plan will be expanded when final information is available on these facilities.
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> * * *
>
> *BASIS*
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> 10 CFR § 50.47(b)(8); Part 50, Appendix E; NUREG-0654, Criteria H.1, 2, 9; NUREG-0696, "Functional Criteria for Emergency Response Facilities: NUREG-0814, pp. 2-15; Supplement 1 of NUREG-0737, § 8.

LEA's Admitted On-Site Emergency Planning Contentions (November 14, 1983) [hereafter, "LEA's Emergency Planning Contentions"] at 7-8.

[36] The only direct evidence on onsite emergency planning was presented by PECo and the NRC staff. LBP-84-31, 20 NRC at 515.

§§ 7.1.2, 7.1.3, 7.1.4. The staff had also requested and obtained from PECo additional information concerning specific parts of the plan, which it reviewed (along with the plan itself) and found acceptable. Sears, fol. Tr. 9776, at 2-3, 9-12. Further, the staff had conducted a site visit of the facilities. *Id.* at 4; Tr. 10,061. The staff testified at the hearing that the facilities themselves were "near" or "very near to completion" — "well above 75 percent." Tr. 10,062. Essential communications equipment, desks, the Radiation and Meteorological Monitoring System (RMMS), and the Emergency Response Facility Data System (ERFDS) were installed at the time of the staff's tour but were not yet "hooked up" for operation. Tr. 10,061-62. All that remained were the staff's final onsite appraisal of PECo's capability to implement its overall emergency plan, and a determination of the reliability of the equipment in the facility. Sears, fol. Tr. 9776, at 3; Tr. 10,064-70.

The operability and reliability of the equipment and the conformity of the as-built emergency support facilities with their design, however, were not the subject of contention VIII-8(b). As noted above, that contention was directed to the adequacy of the *plan's descriptions* of the EOF, TSC, OSC, and associated equipment vis-a-vis the Commission's regulatory criteria. *See* note 35, *supra*. Perhaps LEA sought to litigate something else, but it is bound by the literal terms of its own contention.[37] Moreover, as the Licensing Board noted, LEA did not (and does not still) explain in what *particular* respects the emergency plan's descriptions are inadequate. *See* LBP-84-31, 20 NRC at 528. The mere invocation of the NRC's pertinent regulations and documents cannot suffice to prove LEA's case. For the controlling regulations themselves are general and permit considerable leeway in their application.

The standard pertinent to contention VIII-8(b), 10 C.F.R. § 50.47(b)(8), simply states that "[a]dequate emergency facilities and equipment to support the emergency response [must be] provided and maintained." Section IV.E of Appendix E to 10 C.F.R. Part 50 specifies *what* facilities and equipment must be provided — for example, "[a] licensee onsite technical support center and a licensee near-site emergency operations facility from which effective direction can be given and effective control can be exercised during an emergency" — but gives no details. Various NRC documents cited by LEA flesh out the generalized regulatory requirements of Part 50. *See, e.g.*, NUREG-0654, Rev. 1,

[37] Thus, LEA's generalized complaint that its hearing rights under the Atomic Energy Act and the APA were impaired by the Licensing Board's ruling is without merit: it cannot be wrongfully denied a hearing on an issue that it did not raise.

"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980), at 52-55; NUREG-0696, "Functional Criteria for Emergency Response Facilities" (February 1981); NUREG-0737, Supplement No. 1, "Requirements for Emergency Response Capability" (Generic Letter No. 82-33) (December 1982) at 17-26; NUREG-0814, "Methodology for Evaluation of Emergency Response Facilities" (August 1981), at 2-1 to 2-15, 4-1 to 5-17. But these, too, are generalized or contain descriptions of the functions the emergency facilities and equipment are to perform, rather than descriptions of the facilities and equipment themselves. In any event, these NUREGs simply serve as guidance for the staff's review and do not prescribe regulatory requirements, as do regulations like 10 C.F.R. § 50.47(b)(8). *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit No. 1), ALAB-698, 16 NRC 1290, 1298-99 (1982), *rev'd in part on other grounds*, CLI-83-22, 18 NRC 299 (1983).

Finally, the post-hearing appraisal of PECo's emergency facilities by the staff is entirely appropriate. As explained in *Louisiana Power and Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-732, 17 NRC 1076, 1103-04 (1983), the Commission relies on predictive findings of adequacy in the emergency planning area more so than in other areas. The emergency plan itself need not even be final, so long as it is sufficiently developed to permit a board to make the necessary "reasonable assurance" finding. Here, given the substantial staff review that had already taken place at the time of the hearing and the limits inherent in LEA's own contention (*see* pp. 708-09, *supra*), the plan was certainly developed enough to warrant the Licensing Board's finding of adequacy, despite the review work yet to be done by the staff. Indeed, the staff's final evaluation of the emergency facilities here is akin to the staff's post-hearing review of a siren warning system, which review we found acceptable in *Waterford*, 17 NRC at 1104-05.[38] We therefore conclude that the Licensing Board did not err in refusing to hold the record open pending the results of the staff's final onsite appraisal report.

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[38] Recognizing that it is not in the record, we nonetheless note in passing that the staff conducted its appraisal of the onsite emergency plan for Limerick in June 1984 and issued a report two months later, identifying certain required corrective actions. As pertinent to contention VIII-8(b), the areas indicated by the staff as needing corrective action or improvement involved principally the implementation of the plan and operability of the equipment, but did not necessitate significant changes in the plan itself. *See* Inspection Report No. 50-352/84-18 at 9-13. PECo responded to the report and the staff subsequently concluded that PECo's actions and commitments rendered the plan adequate for low-power operation. *See* NUREG-0991, Supplement No. 3, "Safety Evaluation Report" (October 1984) [hereafter, "SSER-3"], at 13-3 to 13-23. Later the staff gave its full approval to the overall emergency plan. *See* SSER-5 (July 1985) at 13-3.

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2. The Commission's emergency planning regulations require "[a]rrangements [to be] made for medical services for contaminated injured individuals." 10 C.F.R. § 50.47(b)(12).[39] Section IV.E of Appendix E to 10 C.F.R. Part 50 describes the equipment, facilities, and arrangements for which "[a]dequate" provision must be made. Items 6 and 7 are most pertinent here:

> 6. Arrangements for transportation of contaminated injured individuals from the site to specifically identified treatment facilities outside the site boundary;
>
> 7. Arrangements for treatment of individuals injured in support of licensed activities on the site at treatment facilities outside the site boundary[.]

Ibid. (emphasis added). NUREG-0654, Rev. 1, at 69 (Planning Standard L.1) states that such arrangements should include "local *and backup* hospital and medical services having the capability for evaluation of radiation exposure and uptake, including *assurance* that persons providing these services are adequately prepared to handle contaminated individuals" (emphasis added).[40] *See also id.* at 39 (Planning Standard B.9).

In an effort to comply with these requirements, PECo has arrangements with two hospitals for the treatment of individuals who are contaminated and injured onsite.[41] Pottstown Memorial Medical Center (PMMC) — located about two miles from the plant site and within the 10-mile Limerick emergency planning zone (EPZ) — is the primary receiving point. Through an agreement with PECo's contractor, Canberra Radiation Management Corporation (RMC), the Hospital of the University of Pennsylvania (HUP) — about 45 minutes away by motor vehicle — is intended to serve as the backup facility for treatment of onsite personnel who are contaminated and injured. LBP-84-31, 20 NRC at 531-32. *See* Applicant Exh. 32, §§ 5.3.2.1, 5.3.2.2.

A portion of LEA's admitted contention VIII-12(a) questions the adequacy of these arrangements, especially in a "general emergency"[42]

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[39] As used here without dispute, "contaminated injured" means those who are traumatically injured and are also contaminated with radionuclides on or in their bodies. The Commission had, at one time, generically expanded the scope of this phrase, but in the wake of an adverse court decision (*see* note 45, *infra*), it is reconsidering that expanded definition. The usage of the phrase here, however, does not involve the expanded definition.

[40] Although NUREG-0654, Rev. 1, provides "guidance" (*see* pp. 709-10, *supra*), the Commission itself specifically relied on and endorsed Planning Standard I in *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 535 n.9 (1983), *rev'd in part on other grounds, GUARD v. NRC*, 753 F.2d 1144 (D.C. Cir. 1985).

[41] PECo does not dispute the need for both local and backup facilities. *See* Applicant's Brief at 39-40.

[42] There are four emergency classes. A general emergency is the highest or most serious such category. *See* 10 C.F.R. Part 50, Appendix E, § IV.C.

when PMMC might be required to evacuate.[43] LEA argued before the Licensing Board that PECo should be required to make arrangements with a third hospital capable of treating the contaminated injured — specifically one that is less vulnerable to evacuation than PMMC but closer to Limerick than HUP.

Although a majority of the Licensing Board agreed that "it would be prudent to make more formal arrangements" with a closer backup hospital, it declined to require it. LBP-84-31, 20 NRC at 536. Significantly, it did not conclude that HUP is adequately close. Rather, the Board majority reached its judgment on the basis of four other factors. First, it noted the probability that PMMC would be unavailable to receive contaminated injured individuals is remote. Second, it referred to 19 other hospitals in the surrounding three-county area with "claimed capability" for handling these patients on an ad hoc basis in an emergency. *Ibid.* Third, the Board majority assumed that the staffs of PMMC, RMC, and HUP can and will provide assistance to one another in an emergency. Fourth, it noted that sheltering, rather than evacuation, is the first option during a general emergency. *Ibid.*

Judge Brenner, Chairman of the Licensing Board, dissented. *Id.* at 536-38. He agreed with his colleagues that evacuation of PMMC is improbable, but observed that the Commission's emergency planning regulations and guidance nevertheless assume that life-threatening releases from a plant could occur, with a corresponding need to evacuate the 10-mile EPZ. In concluding that PECo's medical arrangements for the contaminated injured are not adequate, Judge Brenner pointed out that HUP is available as a backup only when the trauma victims can withstand the 45-minute trip to that facility. As for the other 19 hospitals in the area to which the Board majority referred, Judge Brenner found "no reasonable assurance, due to the total absence of planning, that any of those hospitals is well prepared to treat such victims, especially if there were to be more than one or two victims." *Id.* at 537. Putting himself in

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[43] In pertinent part, contention VIII-12(a) states:

> The onsite plans fail to demonstrate that adequate arrangements have been made, or will be made, for medical services for contaminated injured individuals on-site, as required by 10 CFR § 50.47(b)(2) and (12), in that:
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> • • • The plans contain an agreement with Pottstown Memorial Hospital, a facility only two miles from the site, to provide emergency treatment to contaminated patients. In a general emergency, the hospital will be required to evacuate its own patients, which will preclude acceptance and treatment of radiation victims coming from the site. The status of medical support from the Hospital of University of Pennsylvania is unclear as well. . . . These are the only two hospitals listed in the Plan as available for medical services to on-site contaminated victims. See NUREG-0654, Criteria B.9 and L.1.

LEA's Emergency Planning Contentions at 10-11.

the shoes of a potentially contaminated injured worker at Limerick, Judge Brenner would have required PECo, as a condition for full-power operation of Limerick, to make arrangements similar to those with PMMC with a third hospital, "less vulnerable to evacuation, and significantly more accessible than HUP." *Id.* at 538, 537.

On appeal, LEA essentially repeats the arguments it made below. It asks that we reverse the Board majority and order further action consistent with Judge Brenner's dissent. *See* LEA Brief at 39-46. On this point, we agree with LEA: we are not persuaded that PECo has made adequate arrangements for the treatment of certain onsite personnel who are contaminated as well as traumatically injured. For such persons whose traumatic injuries require prompt medical attention, HUP is too distant to serve as an adequate backup hospital.

The reasons given by the Board majority in declining to require a closer backup hospital do not withstand scrutiny. As Judge Brenner noted, the improbability of PMMC's evacuation and consequent unavailability to receive contaminated injured workers is beside the point. The Commission's emergency planning regulations are premised on the assumption that a serious accident might occur and that evacuation of the EPZ might well be necessary. *See San Onofre*, CLI-83-10, *supra* note 40, 17 NRC at 533. The adequacy of a given emergency plan therefore must be adjudged with this underlying assumption in mind. As a corollary, a possible deficiency in an emergency plan cannot properly be disregarded because of the low probability that action pursuant to the plan will ever be necessary. Thus, the Licensing Board majority gave undue weight to the fact that evacuation of PMMC is remote.

There is also no basis in this record for the Board majority's reliance on the existence of some 19 (by the Board's count) other hospitals in the area, and on the assumption that these institutions are "adequately prepared" to serve as a backup to PMMC on an ad hoc basis. LBP-84-31, 20 NRC at 535. The Board majority conceded it had "no detailed knowledge of the specific abilities and training of the emergency medical service personnel at these potential alternative receiving hospitals." *Ibid.* But it was apparently influenced in this regard by the testimony of PECo's witness, Dr. Roger E. Linnemann, that all accredited hospitals are required by the national Joint Committee on Hospital Accreditation (JCHA) to have some plan for handling contaminated injured persons. *See id.* at 534; Tr. 9912-14. Of course, on this record the 19 hospitals have not even been identified, much less verified as accredited by the JCHA. In any event, we are inclined to agree with Judge Brenner's observation that, "[i]f JCHA accreditation were sufficient . . . , there

would be no need to provide [PMMC] with special training and equipment." LBP-84-31, 20 NRC at 537.[44] Moreover, there is no evidence if any of these assertedly capable facilities would be *willing* to enter an agreement with PECo to serve as a backup facility. *See generally* Tr. 9843-44, 9911-18. The record here simply does not provide any basis for the sanguine assumptions about the other 19 hospitals in which the Board majority has indulged.[45]

Similarly, there is no record basis for the Licensing Board majority's assumption that any assistance provided one another by the staffs of PMMC, RMC, and HUP somehow militates against the need for a closer backup hospital. In this connection, it assumes "that in the event of a hospital evacuation, trained personnel and some equipment would travel to the [unidentified] receiving hospital and provide assistance." LBP-84-31, 20 NRC at 535. A more reasonable assumption, however, is that, in an evacuation, the PMMC staff would be fully occupied with relocation efforts. HUP and its staff would still be 45 minutes away, and RMC is not a hospital.

The Board majority's findings thus are not supported by the record. *Compare Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-781, 20 NRC 819, 833-34 (1984). On the other hand, we find the dissenting opinion of Judge Brenner convincing.

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[44] Dr. Linnemann's own testimony in this proceeding and others stresses the need for special procedures and training to handle patients who are not only traumatically injured but also contaminated by radionuclides. *See, e.g.*, Tr. 9845, 9919-20; *Southern California Edison Co.* (San Onofre Nuclear Generating Station, Units 2 and 3), ALAB-680, 16 NRC 127, 137 (1982). One can reasonably infer from Dr. Linnemann's testimony that, before approving a hospital for handling radioactively contaminated patients, he would expect more than just JCHA accreditation on the basis of "some type of plan." Tr. 9914. So, too, should the NRC.

[45] The District of Columbia Circuit's decision in *GUARD*, *supra* note 40 — rendered subsequent to the Licensing Board's decision here on review — provides yet an additional reason to eschew ad hoc reliance on these other hospitals. There, the court struck down the Commission's determination in *San Onofre*, CLI-83-10, that "a simple list of treatment facilities already in place" could satisfy the requirement of 10 C.F.R. § 50.47(b)(12) for "[a]rrangements . . . made for medical services." 753 F.2d at 1146. The court found that this planning "starts and stops with a list." The actual medical services for radiation exposure would be "arranged entirely *ad hoc after* the onset of an emergency." *Id.* at 1149 (emphasis in original). In overturning this interpretation, the court stated: "A provision calling for pre-event arrangements is not sensibly met by post-event prescriptions." *Ibid.* The court went on to rebuff efforts to show certain arrangements were adequate in the absence of any record evidence to that effect, and to reject generalized assumptions about the availability of adequate facilities to serve victims of a radiological emergency. *Id.* at 1149-50.

To be sure, there are differences between *GUARD* and the instant case. The Commission's *San Onofre* interpretation was rendered in the context of its consideration of medical arrangements for persons *offsite* exposed to dangerous levels of radiation (not just contaminated). Nevertheless, section 50.47(b)(12) applies to both onsite and offsite emergency planning. *See* 10 C.F.R. § 50.47(b). The court's common sense construction of these same words — albeit in a different context — cannot reasonably be disregarded. The message is clear: if a list of facilities is not an "arrangement," the Licensing Board majority's taking notice of the existence of 19 unidentified facilities cannot suffice either, even as a backup.

As he noted, all parties agree that "it is prudent and proper medical practice that a hospital being relied upon for treatment of traumatic injury, contaminated or not, be reasonably close (accessible) to the plant." LBP-84-31, 20 NRC at 537. *See* Tr. 9844-45, 9906, 9929-30. And PECo acknowledges that "prudency" is the proper standard by which to measure emergency provisions. Applicant's Brief at 43. *See San Onofre*, CLI-83-10, 17 NRC at 533.

Applying that standard in the circumstances here, our judgment is that, for the treatment of certain traumatic injuries where time is of the essence (such as a serious injury to the head or a heart attack), reliance on a backup hospital 45 minutes away is not prudent.[46] This is not a sparsely populated, rural area with limited medical facilities. In such a case, a 45-minute trip to the hospital might well be acceptable as the only alternative. But here, all agree that numerous other options exist and that "it would be prudent to have at least skeletal arrangements with a hospital between PMMC and HUP." LBP-84-31, 20 NRC at 537 (Brenner, dissenting). The Commission's emergency planning regulations do not require "extraordinary measures." *GUARD*, 753 F.2d at 1150 n.7. On the other hand, we think it reasonable — indeed, prudent — to expect an applicant to pursue the *existing* options in an effort to comply with those regulations. We therefore reverse the Licensing Board's decision, in part, and remand for further proceedings to consider alternative options.[47]

One matter remains — the effect of our decision here on the full-power operating license recently issued by the Commission to PECo. *See* CLI-85-15, 22 NRC 184 (1985). Although we have concluded that PECo's onsite emergency plan is inadequate in one respect, the Commission's emergency planning regulations contemplate such an eventuality. Under 10 C.F.R. § 50.47(c)(1), failure to satisfy the emergency planning standards in section 50.47(b) "may result in the Commission['s] declining to issue an operating license" unless one of three factors is demonstrated:

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[46] It is not clear from the record whether this 45-minute "distance" took into account the inevitable traffic congestion that would occur in a general emergency during which evacuation is ordered. *See* Tr. 9844. Moreover, helicopter transport was not considered an option in this circumstance. *See* LBP-84-31, 20 NRC at 534 n.16, 537 n.17, 540.

[47] We do not impose any particular requirements on PECo's arrangements for adequate backup medical services for persons who are contaminated and injured onsite. We simply expect PECo to explore the entire range of reasonable options addressed to the concerns raised by LEA's contention. Thus, the facility selected should lie beyond the area subject to potential evacuation, but should otherwise be as close as possible to Limerick. This could even include HUP *if* arrangements for a significantly shorter transport time (for example, by air) could be reasonably assured.

that deficiencies in the plans are not significant for the plant in question, that adequate interim compensating actions have been or will be taken promptly, or that there are other compelling reasons to permit plant operation.

We need not look beyond the first alternative criterion. In our view, the deficiency in PECo's emergency plan identified here is not so significant as to warrant license suspension. Primary medical arrangements for contaminated and injured onsite personnel have been made and found adequate. All that is lacking are *backup* arrangements with an additional hospital closer to the site than HUP for those contaminated persons whose traumatic injuries require immediate medical attention. Moreover, the deficiency is not a permanent one. Although we prescribe no schedule, we trust that the Licensing Board and the parties (particularly, PECo) will act as expeditiously as possible in response to our remand, and that complete and adequate backup medical arrangements will be in place soon. In these circumstances, license suspension is not warranted.[48]

II. AWPP'S APPEAL

AWPP's arguments on appeal challenge the Licensing Board's disposition, after hearing, of two AWPP contentions. One concerns the potential for aircraft carburetor icing caused by water vapor emissions from the Limerick cooling towers. The other contention raises questions about the effectiveness of PECo's quality assurance program. After review of the record and the arguments presented here, we conclude that there is no basis for overturning the Licensing Board's decision in either of these areas.

A. Aircraft Carburetor Icing

AWPP's contention V-4, raised as an environmental issue under NEPA, states:

> Neither the Applicant nor the Staff have [sic] adequately considered the potential for, and the impact of, carburetor icing in aircraft flying into the airspace that may be affected by emissions from the Limerick cooling towers.

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[48] We note that the court in *GUARD, supra* note 45, did not direct the Commission to suspend the operating licenses for the San Onofre facility, despite its determination that the requirements of 10 C.F.R. § 50.47(b)(12) had not been fulfilled. And in a policy statement issued in response to the court's remand, the Commission explicitly approved interim reliance on section 50.47(c)(1) as a means to address the offsite emergency planning problem identified in *GUARD*. *See* 50 Fed. Reg. 20,892, 20,893-94 (1985). Our determination not to suspend PECo's operating license here is thus consistent with both the court's and the Commission's actions in a similar circumstance.

AWPP Motion to Reword Contention V-4 (September 26, 1983). The Licensing Board succinctly explained that "[c]arburetor icing is a well-recognized hazard to carburetor-equipped aircraft[,] . . . caused by water vapor freezing in the carburetor . . . . If permitted to accumulate, the ice can cause degrading engine performance to the point of failure." LBP-84-31, 20 NRC at 454. The Limerick facility uses two natural draft hyperbolic cooling towers to remove waste heat from the plant. About 35 million gallons of water vapor will be released per day from the towers, creating both visible and invisible plumes. Smith and Seymour, fol. Tr. 6234, at 5. AWPP fears that these emissions will cause carburetor icing in aircraft flying in the vicinity of the plant and that inexperienced pilots, in particular, will be unable to deal with this potential problem.

The Licensing Board held five days of hearings on contention V-4, at which several witnesses for PECo and the staff (including meteorologists and pilots) testified. AWPP also presented testimony from one witness, its lay representative, who is a chemist and pilot. The Board concluded that contention V-4 lacks merit. Specifically, the Board found that PECo, "without any reasonable contradiction, has established by the overwhelming preponderance of the evidence that the Limerick cooling tower plumes will not have temperature and moisture conditions significantly different from the ambient air beyond a quarter mile from the tower." LBP-84-31, 20 NRC at 456. Within a quarter mile, a plane would pass through the area "in a matter of seconds — much too soon for hazardous carburetor ice to accumulate." *Id.* at 462. The Board stressed that these findings are based on several conservative assumptions — among them, the "unrealistic" assumption that a pilot could or would do nothing to prevent or remedy carburetor icing, if encountered. *Ibid.* In this regard, the Board noted that 99 percent of the carburetor aircraft flown in the Limerick area are equipped with carburetor heat systems. By use of these systems and proper flight procedures, a trained pilot could avoid carburetor icing problems. *Id.* at 462-64.

AWPP attacks the Licensing Board's decision on several grounds. Essentially, it contends that the plume of water vapor emitted from the Limerick cooling towers extends over a greater distance and poses more of a hazard to aircraft in the vicinity than acknowledged by the Board. AWPP also asserts that detection of carburetor icing is difficult because most planes do not have gauges to indicate icing, and the symptoms of icing can be confused with those of other aircraft failures. Thus, if icing cannot be readily detected, pilots (especially those who are inexperienced) cannot always respond quickly enough. AWPP, in addition, objects to certain aspects of the Board's decision on procedural grounds. We find none of AWPP's arguments, however, convincing.

AWPP first argues that PECo and the Board improperly relied on data generated by the 1981 Thomson-Pennsylvania State University study of cooling tower plume behavior. The results of that study show that, beyond a quarter mile from the towers, the temperature and humidity within the plume are indistinguishable from those of the ambient air. *Id.* at 458. In AWPP's view, the towers used in that study (at the Keystone power plant in western Pennsylvania) differ from those at Limerick, making any comparison unreliable. AWPP also asserts that the purpose of the Thomson study was not to study the issues it regards as critical here — i.e., invisible plumes and the distances traveled by such plumes. Finally, AWPP complains that PECo's witnesses did not perform the Thomson study themselves.

The Licensing Board correctly determined that the results of the Thomson study are valid for Limerick. The evidence and testimony cited by the Board, and not contradicted on this record, show that the applicable weather and topographical conditions at Limerick and Keystone are quite similar, and the difference in cooling tower height would not affect plume behavior. Both visible and invisible plumes were tested by airplane flights cutting across and through the plumes at various altitudes and distances up to 10 miles. *See id.* at 458-59. *See also* Smith and Seymour, fol. Tr. 6234, at 5-6.

The fact that PECo's witnesses themselves did not perform the Thomson plume study does not detract significantly from the weight properly accorded to their testimony or render the results of the study invalid. We held long ago that an expert witness may testify about analyses performed by other experts. *See Wisconsin Electric Power Co.* (Point Beach Nuclear Plant, Unit 2), ALAB-78, 5 AEC 319, 332 (1972), where we observed that "[a]n expert is, of course, not expected to derive all his [or her] background data from experiments which he [or she] personally conducts; if that were required, scientific experts would rarely, if ever, be qualified to give any opinion on any subject whatsoever." Expert testimony that relies on the work of others is essentially hearsay. Hearsay, however, is generally admissible in administrative proceedings, providing its reliability can be determined — usually through questioning of the witness giving the hearsay. *Id.* at 332-33. *See Duke Power Co.* (William B. McGuire Nuclear Station, Units 1 and 2), ALAB-669, 15 NRC 453, 477 (1982). Here, PECo witnesses Maynard E. Smith and David Seymour (experienced meteorologists and, in the latter case, a holder of a commercial pilot's license) were subject to considerable cross-examination by AWPP at the hearing. AWPP thus had a fair opportunity to discredit their testimony and reliance on the Thomson study. But as noted above, AWPP failed to do so.

AWPP similarly objects to the Board's reliance on the results of an experiment conducted on the ground with an automobile engine and airplane carburetor. *See* LBP-84-31, 20 NRC at 461; Smith and Seymour, fol. Tr. 6234, at 9. AWPP contends that the study's results are invalid because it was not done with an airplane in flight. It also complains that PECo's witnesses did not take part in these experiments, which were performed by other individuals (Gardner and Moon). We have already determined, as discussed above, that PECo's experts may testify about the experiments of others. As for the study itself, its purpose was to accumulate the greatest amount of carburetor ice in the least amount of time — i.e., the worst possible conditions — in order to determine various power losses over intervals of time. As explained by witness Seymour, creating and maintaining the conditions most likely to cause carburetor icing are more easily accomplished in a laboratory environment. He also stressed that while the type of engine used is not important, the use of an airplane carburetor to simulate aircraft behavior is necessary, given the purpose of the experiment. Tr. 6507-09. Thus, the worst case scenario created in this laboratory experiment provided more conservative, and therefore more reliable, results than could have been achieved in the manner AWPP suggests.

AWPP repeatedly argues that PECo's and the staff's testimony about aircraft and pilot response to carburetor icing is contradictory; that it is not fact, but only opinion; and that, therefore, the Board's decision is not based on "'beyond-a-reasonable-doubt' fact." Appeal of Air & Water Pollution Patrol (October 10, 1984) [hereafter, "AWPP Brief"] at 15. We have reviewed the record, along with these claims, and disagree with AWPP. The Licensing Board's decision fully and accurately summarizes the written evidence and oral testimony adduced at the hearing. *See* LBP-84-31, 20 NRC at 454-64. No purpose would be served by our rehearsal of it here. Suffice it to say that we do not see the asserted contradictions in the testimony perceived by AWPP.[49] We see instead a

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[49] For example, one such contradiction upon which AWPP dwells is assertedly found in the testimony of staff witness Bernard Geier, Manager of the General Aviation and Commercial Division, Office of Flight Operations, Federal Aviation Administration. AWPP points to Geier's statement that "ice can form instantaneously," claiming it contradicts PECo's testimony that it would take approximately eight minutes (without carburetor heat) for enough carburetor ice to form to cause a hazard to the aircraft. *See* Geier, fol. Tr. 6883, at 2; Smith and Seymour, fol. Tr. 6234, at 9. Geier's complete testimony on this matter, however, states: "Although ice can form instantaneously under the proper conditions, *it does not accumulate at such a rate* that the pilot who pays attention to the signs cannot prevent engine stoppage due to blocking by ice of the carburetor throat." Geier, fol. Tr. 6883, at 2 (emphasis added). As can be seen, the statements are clearly reconcilable. It is not the mere formation of ice that is significant for ice can form and quickly melt under certain climatic conditions. What is significant is the build up of ice and the rate at which it develops. Geier was not able to set a time frame within which enough ice could accumulate to cause [illegible] acknowledged that he had no basis for disputing

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record well developed by the testimony of the expert witnesses presented by PECo and the staff.[50] On the other hand, AWPP's evidence is more anecdotal than empirical, and, despite AWPP's protestations to the contrary, neither it nor AWPP's cross-examination seriously challenged the testimony of the PECo and staff witnesses. *See, e.g.*, Romano, fol. Tr. 6725.[51]

AWPP's objection that the witnesses testified about their opinions rather than the facts is unavailing. Expert testimony, such as that here at issue, is typically a mixture of scientific principles (known to the expert through his or her training and experience), data derived from analyses or by perception, *and* the expert's *opinions* based on these principles and data.[52] It is the Licensing Board that must "find the facts" based on the whole record, which includes not only the proffered expert opinion but also any contrary evidence (including opposing opinion). Here, the Board found the expert opinion testimony of PECo's and the staff's witnesses to be convincing and unrefuted. To be sure, AWPP disagrees with these conclusions, but it has failed to demonstrate that the Board's decision does not comport with the record or is unreasonable. Moreover, contrary to AWPP's view, the Board measured the evidence by the correct standard of proof -- a preponderance of the evidence. *See, e.g.*, LBP-84-31, 20 NRC at 456. *See also Commonwealth Edison Co.* (Zion Station, Units 1 and 2), ALAB-616, 12 NRC 419, 421 (1980).[53]

AWPP's "due process" arguments are likewise without merit. AWPP's representative contends that he "was not given [his] legal right to cross examine as [his] own witness as Judge Brenner had, before the hearings, told [him he] would have." AWPP Brief at 5. We fail to comprehend what AWPP's point here is. What is clear, however, is that AWPP was given more than ample time for cross-examination of

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PECo's testimony on that score. Tr. 7002-03. His principal point was that aircraft are equipped with the means, and pilots are routinely trained, to prevent and eliminate carburetor icing before it accumulates to a hazardous level. Geier, fol. Tr. 6883, at 2-5.

[50] As noted by the Licensing Board and not challenged by AWPP, the credentials of the five PECo and staff witnesses are impressive. All are experienced meteorologists and/or pilots. One is also a nuclear engineer. *See* LBP-84-31, 20 NRC at 455.

[51] AWPP refers to and submits with its brief on appeal several articles and other references that are not in the evidence of record before the Licensing Board. It is well-settled that, as an appellate tribunal, we must judge appeals on the basis of the record developed at the hearing below. *Puerto Rico Electric Power Authority* (North Coast Nuclear Plant, Unit 1), ALAB-648, 14 NRC 34, 36 (1981). Consequently, the additional material supplied by AWPP is not properly before us and will not be considered.

[52] Rule 702 of the Federal Rules of Evidence -- to which we have previously turned for guidance -- specifically provides that an expert witness may testify "in the form of an opinion or otherwise." *See McGuire*, 15 NRC at 475.

[53] The "beyond a reasonable doubt" standard urged by AWPP applies in criminal, not civil or administrative, proceedings. *See McCormick on Evidence* §§ 339, 341, 357 (3d ed. 1984).

PECo's and the staff's witnesses, as well as time for presentation of its own case. *See* Tr. 6252-6433, 6442-6529, 6685-6713, 6716-23, 6899-6914, 6920-7090, 7109-20; Romano, fol. Tr. 6725; Tr. 6853-56.[54] We discern no way in which AWPP's right to cross-examination was impaired.

AWPP also charges that the Licensing Board was personally biased against it. Evidence of this bias, according to AWPP, can be found in the Board's reference to "an unfortunate apparent inability [by AWPP's representative] to understand the testimony." LBP-84-31, 20 NRC at 459. AWPP also cites other Board statements to the effect that AWPP did not contradict certain PECo testimony.

We believe AWPP is overly sensitive about language commonly used in legal proceedings and opinions. There is no indication, in either the Board's decision or the lengthy transcript, of any bias whatsoever on the part of the Board. In fact, the Board took due account that AWPP was not represented by counsel and was quite indulgent of the shortcomings in AWPP's participation at the hearing. The Board comments to which AWPP takes offense are consistent with the record and merely reflect the Board's judgment concerning the persuasiveness of the respective positions of the parties. We perceive no personal disparagement and we believe none was intended. As the Commission recently observed, "the right to an impartial adjudicator does not mean that favorable rulings must be divided equally between the parties, or that a judge may not occasionally use strong language toward a party or in expressing his [or her] views on matters before him [or her]." *Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), CLI-85-5, 21 NRC 566, 569 (1985), *aff'd sub nom. Three Mile Island Alert, Inc. v. NRC*, 771 F.2d 720 (3d Cir. 1985). In any event, disqualifying bias must stem from an extrajudicial source — that is, it must be based on something other than what the adjudicator has learned from participating in the case. *Houston Lighting and Power Co.* (South Texas Project, Units 1 & 2), CLI-82-9, 15 NRC 1363, 1365 (1982). AWPP has alleged no extrajudicial source for the Board's asserted bias and we see none.

AWPP complains that witness Geier was permitted to correct certain errors in his prefiled testimony. Such changes are routinely made at the beginning of a witness's testimony, in order to correct typographical and

[54] Indeed, our review of the hearing transcript indicates that the Board was extremely generous in its allotment of time to AWPP for cross-examination, especially in light of the disorganized and confusing questioning of the witnesses by AWPP's representative. The Board also gave AWPP a second chance to submit a cross-examination plan for PECo's witnesses, after it failed to do so initially. *See* Licensing Board Memorandum and Order of December 1, 1983 (unpublished), at 8.

other errors as well as to update the testimony.[55] The corrections to Geier's testimony were necessary to reflect a recent change in traffic patterns at the Limerick airport. Tr. 6884-85. Inasmuch as AWPP had an opportunity to cross-examine Geier, there is no basis for its not fully developed claim of error.

Finally, AWPP asserts that its contention V-4 has merit and requires "special attention." AWPP Brief at 14. The record and Licensing Board's decision unequivocally show that this contention got special attention. The Board initially denied PECo's motion for summary disposition and went on to hold five days of oral hearings on this issue alone. *See* Licensing Board Memorandum and Order of November 8, 1983 (unpublished), at 3-8. We have now reviewed the matter further. The "hard look" at environmental issues required by NEPA has been fully satisfied. *See Natural Resources Defense Council, Inc. v. Morton*, 458 F.2d 827, 838 (D.C. Cir. 1972). Moreover, we agree with the Licensing Board that the record shows that water vapor emissions from the Limerick cooling towers will not cause a significant carburetor icing hazard to aircraft.[56] Thus, contention V-4 is without merit.

B. Quality Assurance

A chronology of AWPP's quality assurance (QA) contention VI-1 is necessary to an understanding of the arguments AWPP raises on appeal.[57] As originally proffered, the contention stated:

> Applicant has failed to establish and carry out an adequate quality assurance program as required by Appendix B of 10 CFR Part 50. This is shown by a pattern of careless workmanship, departure from specified procedures, together with faulty inspection and supervision in the construction of Units 1 and 2 of the Limerick Generating Station.

It went on to refer to, among other things, unspecified defects in concrete, record keeping infractions, the failure to follow proper welding

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[55] AWPP's witness was afforded such an opportunity with respect to his prefiled statement. *See* Tr. 6723-25.

[56] It is important to keep in mind that the Licensing Board did not find that aircraft could never be placed in a hazardous situation by carburetor icing. LBP-84-31, 20 NRC at 464. It properly recognized that such a circumstance is possible. But the Board stressed, first, that the conditions in the plume (simply a man-made cloud) most likely to be encountered by aircraft in the area are virtually indistinguishable from the conditions naturally present in the air, and, second, that routine procedures and means exist for pilots to prevent or eliminate icing. In other words, the Limerick emissions pose no greater threat of carburetor icing than already exists.

[57] The NRC requires an applicant to have a quality assurance program to ensure that a plant and its parts are designed and constructed or fabricated in accordance with acceptable standards. The necessary elements of a QA program are set forth in 18 criteria specified in 10 C.F.R. Part 50, Appendix B.

procedures, the effects of quarry blasting, and inadequate corrective actions. The basis of the contention was a list of NRC inspection reports and related correspondence from 1976-1978. Supplemental Petition of Coordinated Intervenors (November 24, 1981) at 74-75. Noting the importance of an effective QA program to the safety of a plant, the Licensing Board conditionally admitted this contention in 1982 (except insofar as it concerned the effects of quarry blasting), "subject to the development of specific contentions and their bases." LBP-82-43A, 15 NRC 1423, 1518 (1982). *See also* Licensing Board Memorandum and Order of July 14, 1982 (unpublished), at 6. After several months of informal discovery, the Board set a time for the filing of such specifications. Licensing Board Memorandum and Order of February 10, 1983 (unpublished), at 6.

AWPP accordingly submitted a revised version of contention VI-1. It still asserted, in general terms, a pattern of careless workmanship and lack of quality assurance during the construction of Limerick. The basis for the contention, however, dealt principally with various welding deficiencies discussed in several NRC inspection reports. *See* Letter to Licensing Board from J.A. Dorsey (April 12, 1983), Enclosure ("VI. Quality Assurance/Control") [hereafter, "AWPP Revised QA Contention"]. After a special prehearing conference, the Licensing Board rejected the contention. The Board stressed the importance, in litigating QA problems, of showing either existing construction defects or a pattern of related deficiencies, rather than merely existing assorted noncompliances over the years. Despite the additional information supplied by AWPP, "[t]he Board could perceive no particular pattern from the allegations or summaries of reports in the contention." LBP-83-39, *supra* note 8, 18 NRC at 89. Nonetheless, it expressed some concern about whether PECo's corrective action for certain defective welds identified in the staff's Inspection Report No. 50-353/76-06 (November 10, 1976) was adequate. The Board, however, believed this matter could be resolved easily by appropriate affidavits and made its rejection of revised contention VI-1 subject to these forthcoming assurances from PECo. *Id.* at 89-91.

The information provided by PECo was not quite what the Board expected. *See* Tr. 4610-14. Thus, following AWPP's request for reconsideration and subsequent discussion at a prehearing conference, the Board reversed its decision and admitted contention VI-1 in part, reworded as follows:

> Applicant has failed to control performance of welding and inspection thereof in accordance with quality control and quality assurance procedures and requirements,

and has failed to take proper and effective corrective and preventive actions when improper welding has been discovered.

The Board also directed AWPP, after further discovery, to file a list of all the welding deficiencies (including those relating to inspection and correction) it believed were pertinent to the contention, and to identify the reports or other documents relevant to each such instance. The Board stressed that AWPP's case on the merits would be limited to the instances set forth in the list. As for the remainder of the contention that did not concern welding (for example, the part alleging improper placement of concrete), the Board found no basis for it and therefore confirmed its earlier rejection of this matter. Licensing Board Memorandum and Order of October 28, 1983 (unpublished), at 5-7.

AWPP submitted a list of approximately 35 instances of welding "infractions."[58] In response to PECo's motion to strike certain items on the list, the Board struck some parts as beyond the scope of the contention and retained others. Licensing Board Memorandum and Order of April 2, 1984 (unpublished). Litigation of the contention consumed about four days of hearing. Witnesses testified for PECo and the staff and were cross-examined by AWPP. The direct testimony offered on behalf of AWPP, however, was rejected for the reasons set forth in Licensing Board Memorandum and Order of May 2, 1984 (unpublished), at 1-6. At the conclusion of the hearing, the Board announced its tentative judgment that PECo had overwhelmingly met its burden of proof on the contention. It thus determined there was no need for PECo to file proposed findings of fact and conclusions of law. The Board deferred final ruling, however, in order to give AWPP an opportunity to file its proposed findings. Tr. 11,046-60.

After receipt of AWPP's findings, the Board heard oral argument and ruled from the bench that contention VI-1 lacked merit. *See* Tr. 11,915-94. It later confirmed this ruling in its second partial initial decision. LBP-84-31, 20 NRC at 511. The Board noted that, although some welding defects had been discovered among the two million safety-related welds at Limerick, there was no evidence of a pattern of such deficiencies, so as to suggest a breakdown of the Limerick QA program. *Id.* at 512-13. The Board also expressed its satisfaction with the truthfulness of PECo's witnesses and with the corrective actions undertaken by PECo. *Id.* at 512.

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[58] Although it is not dispositive of AWPP's appeal, we note that AWPP's list (dated March 5, 1984) is technically not part of the official record in this proceeding. This document has no certificate of service and was not served on either us or the Commission's Secretary. *See* 10 C.F.R. § 2.701.

AWPP raises essentially four arguments on appeal from the Licensing Board's decision on contention VI-1. We address them in turn, finding each without merit.

1. AWPP first objects to the Board's rewording of its contention so as to focus only on welding matters. In its view, the Board "emasculated the force of the contention" — i.e., a pattern of carelessness during construction of the plant. AWPP Brief at 16. Apparently, AWPP intended to litigate an asserted overall breakdown in the Limerick construction quality assurance program. But if the Board committed any error, it likely was in admitting the contention in the first place.

In our view, AWPP's original contention (*see* p. 722, *supra*) lacked the basis and specificity required by the Commission's Rules of Practice. *See* 10 C.F.R. § 2.714(b). If AWPP sought to litigate a complete breakdown in QA, then surely more of a basis was required than a few NRC inspection reports identifying discrete deficiencies. *See generally Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-812, 22 NRC 5, 16-44 (1985). The Licensing Board essentially recognized this by *conditionally* admitting the contention, subject to greater specification in the future. *See* LBP-82-43A, 15 NRC at 1518. A short time later, however, we held the conditional admission of any contention to be unauthorized under the Commission's rules. *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-687, 16 NRC 460, 467 (1982). On review of that decision, the Commission held further that the admission of contentions after the time specified in the Rules of Practice was to be determined by balancing the five "late contention" factors in 10 C.F.R. § 2.714(a)(1). *Id.*, CLI-83-19, 17 NRC 1041, 1045 (1983). Thus, the Licensing Board's subsequent admission and litigation of AWPP's contention VI-1 in *any* form — without balancing the five factors in section 2.714(a)(1) — afforded AWPP greater participatory rights than those to which it was strictly entitled.[59]

But even if the conditional admission of contention VI-1 were authorized, we see no error in the Board's limiting of its scope to possible welding deficiencies. When AWPP submitted its revised contention in April 1983, its focus was clearly on welding. *See* AWPP Revised QA Contention at 1-4. After the Board's conditional rejection of the revised contention in LBP-83-39, 18 NRC at 88-91,[60] AWPP successfully sought recon-

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[59] Indeed, the Licensing Board gave AWPP several gratuitous opportunities to conform its QA contention to the Commission's basis and specificity requirements.

[60] AWPP seems to interpret certain language in that decision (LBP-83-39) as unfairly critical of AWPP's reliance on NRC staff inspection reports. It argues that the Licensing Board's comments in this regard show the Board's bias against AWPP. AWPP Brief at 18-19. AWPP, however, has misunderstood

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sideration, again raising concerns principally with welding. *See* Letter to Licensing Board from F.R. Romano (August 5, 1983), Enclosures. The only other articulated issue that AWPP repeatedly tried to raise (including here on appeal) concerns certain defects in concrete placement at the site. But as the Licensing Board noted, AWPP's representative had raised this identical issue several years earlier in a petition to the NRC's Director of Nuclear Reactor Regulation. The matter was thoroughly investigated, and the staff was ultimately satisfied with PECo's resolution of the problem. DD-79-16, 10 NRC 609, 610-11 (1979). When pressed by the Board, AWPP was unable to provide any new information concerning possible concrete defects; it simply expressed its belief that the matter had not been fully corrected. *See* Tr. 4883-94, 4911-12. In these circumstances, the Board's admission of a contention limited in scope to welding matters was fully justified. *See* Tr. 4610-14, 4912-19.

2. AWPP argues that the Licensing Board prejudged its case when the Board "arbitrarily" dispensed with the need for PECo to file proposed findings of fact and conclusions of law. AWPP Brief at 19. We disagree. At the time the Board announced its tentative judgment that PECo had overwhelmingly met its burden of proof and thus relieved PECo of the obligation to file proposed findings and conclusions, the Board had already heard *all* of the evidence presented on contention VI-1. Tr. 11,046-48. Given the completeness of the evidentiary record at this point, *pre*judgment on the part of the Board was not possible. The Board simply gave its preliminary assessment of the evidence of record and eliminated a round of filings (PECo's proposed findings and conclusions) that would have been superfluous in the circumstances.

More important, the Board explicitly stated that its determination was only tentative, and it strongly urged AWPP to file proposed findings and conclusions of its own. Tr. 11,048-60. AWPP did so and presented oral argument to the Board as well. *See* Tr. 11,915-94. Thus, AWPP was, in

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the Board's statements. The Board does not state that an intervenor can never properly rely on staff documents like inspection reports. Rather, it states that "the *mere* recitation of *unrelated* adverse findings" in such reports "does not supply information on what *specifically* would be litigated." It is too "broad" and "unfocused." But where "*particular* allegations of *specific* patterns of QA/QC [quality control] problems" are shown through the use of staff inspection reports, such matters can and will be considered and, if justified, litigated. LBP-83-39, 18 NRC at 89 (emphasis added). *Cf. Waterford*, ALAB-812, 22 NRC at 14, 17 & n.7 (staff documents are generally acceptable evidence to support motion to reopen on QA).

AWPP also claims bias in the Board's conditional rejection of its revised contention and in an assertedly possibly inaccurate statement by the Board. AWPP Brief at 19. As noted at p. 721, *supra*, unfavorable rulings do not establish bias on the part of the adjudicator. Nor do inadvertent and possibly inaccurate statements. Moreover, in this instance, the Board reversed itself in response to AWPP's request for reconsideration and admitted the contention on welding. Given the Board's dogged pursuit of this matter and the many opportunities afforded AWPP (*see* pp. 722-24 and note 59, *supra*), the latter's claim of bias is particularly groundless.

fact, afforded a full and fair opportunity to be heard. Finally, the Commission's Rules of Practice provide licensing boards with considerable flexibility to regulate the course of a hearing and designate the order of procedure. 10 C.F.R. §§ 2.718(e), 2.731. *See Metropolitan Edison Co.* (Three Mile Island Nuclear Station, Unit 1), ALAB-772, 19 NRC 1193, 1245-46 (1984), *rev'd in part on other grounds*, CLI-85-2, 21 NRC 282 (1985). Although the rules set forth a general schedule for the filing of proposed findings, licensing boards are authorized to alter that schedule or to dispense with it entirely. *See* 10 C.F.R. § 2.754(a). The Licensing Board's actions here are therefore entirely consistent with the Rules of Practice.[61]

3. AWPP disputes the Licensing Board's finding that "[t]he circumstances relating to two structural weld deficiencies . . . have been fully and truthfully described in the Applicant's and Staff's testimony." *See* LBP-84-31, 20 NRC at 513. The welds in question — performed during early plant construction — were in an area not readily accessible; in order to reach the area, the welder attached the electrode holder to a broomstick — hence, AWPP's characterization of this incident as the "Broomstick Affair." An NRC inspector discovered these welds in 1976 and concluded that the welder who had done them was not qualified to use this "extension" technique. PECo, however, disagreed with the NRC inspector's interpretation of the pertinent codes and standards. After closer visual inspection, the NRC found the welds themselves to be unacceptable, despite earlier acceptance by a quality control (QC) inspector for PECo's architect-engineer and constructor, Bechtel Power Corporation. PECo subsequently repaired the welds and reinspected all the accessible structural welds that had been inspected by the Bechtel inspector who had accepted the "broomstick" welds. Boyer, et al., fol. Tr. 10,321, at 40-41. PECo also issued a directive prohibiting the unauthorized use of electrode extensions and provided additional training for all QC and field welding personnel. Durr and Reynolds, fol. Tr. 10,977, at 18-20.

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[61] One aspect of the Board's conduct of the proceeding, though not challenged by AWPP, warrants some comment. After receiving AWPP's proposed findings and the replies of the staff and PECo, the Board issued its final ruling on contention VI-1 orally from the bench. *See* Tr. 11,915-94. Fortunately, the Board later confirmed that ruling in LBP-84-31, 20 NRC at 511-13, for the Commission's rules require an initial decision to be in writing. 10 C.F.R. § 2.760(c). The Board's discussion of contention VI-1 in LBP-84-31, however, is brief, supplemented with many references to the transcript of its bench ruling. Although it is not legally deficient, this method of decisionmaking in complicated NRC licensing hearings has some significant drawbacks and should be avoided. For one thing — as is evident from this case — a board's bench ruling provides many opportunities for interruption and argument by the parties. As a result, such a transcript is hard to follow and counterproductive to meaningful appellate review.

According to AWPP, however, the testimony of PECo's witnesses (especially Boyer and Clohecy) in this regard was not truthful.[62] AWPP provides no references whatsoever to this claimed untruthfulness at the hearing, but directs our attention, instead, to portions of an earlier deposition by these individuals, assertedly showing their "evasion." AWPP Brief at 20. The deposition, however, was not admitted or introduced into evidence in this proceeding and therefore cannot be relied upon. *See* note 51, *supra*. AWPP's reliance on this extra-record material is particularly inappropriate here, where the deponents were available for, and subject to, lengthy cross-examination by AWPP. *See* Tr. 10,456-617, 10,644-75, 10,683-719, 10,728-98, 10,816-30, 10,841-927. Moreover, the Licensing Board specifically reminded AWPP's representative that the deposition was not in evidence but could nonetheless be used to question the witnesses. Tr. 10,602-04. Thus, AWPP had an opportunity to establish the witnesses' "untruthfulness" *on the record*; having failed, it cannot now attempt to do so on the basis of material *not* in the record.[63]

AWPP does not otherwise directly attack the evidence adduced by PECo and the staff concerning the various welding deficiencies specified by AWPP in advance of the hearing. *See* p. 724, *supra*. AWPP implies, however, disagreement with the Licensing Board's conclusion that these deficiencies

> are isolated, nonprogrammatic, and, particularly given their source, in general, indicative of the effectiveness of the Limerick QA program. There has been no "breakdown" of the Limerick QA program for welding.

LBP-84-31, 20 NRC at 513. AWPP further suggests that PECo management "condoned" improper welding procedures. AWPP Brief at 20. But we have reviewed the testimony and fully agree with the Board's judgment. To be sure, the NRC inspection reports covering 10 years of construction activity show some violations in welding and inspection procedures. But the record (especially with regard to the instances highlighted by AWPP) shows that the violations were few in number for the two million safety-related welds at the facility and did not demonstrate a pattern of improper actions. Moreover, where deficiencies were identified, PECo performed extensive reinspection of the affected work and took proper corrective action. *See* Durr and Reynolds, fol. Tr. 10,977, at 3, 11-23; Boyer, et al., fol. Tr. 10,321, at 4, 27-90.

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[62] AWPP does not raise similar objections to the testimony of staff witnesses Durr and Reynolds.

[63] Even if AWPP could properly rely on the deposition in question, our review of the referenced portions reveals no inconsistency with the deponents' testimony at the hearing.

Our observation in *Union Electric Co.* (Callaway Plant, Unit 1), ALAB-740, 18 NRC 343, 346 (1983), is pertinent here:

> [i]n any project even remotely approaching in magnitude and complexity the erection of a nuclear power plant, there inevitably will be some construction defects tied to quality assurance lapses. It would therefore be totally unreasonable to hinge the grant of an NRC operating license upon a demonstration of error-free construction. Nor is such a result mandated by either the Atomic Energy Act of 1954, as amended, or the Commission's implementing regulations. What they require is simply a finding of reasonable assurance that, as built, the facility can and will be operated without endangering the public health and safety. 42 U.S.C. §§ 2133(d), 2232(a); 10 C.F.R. § 50.57(a)(3)(i). Thus, in examining claims of quality assurance deficiencies, one must look to the implication of those deficiencies in terms of safe plant operation. [Footnote omitted.]

The requisite reasonable assurance exists if all ascertained construction errors have been corrected, and there is no showing of a pervasive breakdown in quality assurance so as to raise serious doubt about the overall safety of the plant. *Ibid.* The record shows that test has been met here.

4. AWPP's last argument is that the Licensing Board erred in rejecting the proffered testimony of AWPP's witness, Dr. Gudmund R. Iversen, a professor of statistics at Swarthmore College. Under the terms of an earlier Board order, the prefiled direct testimony for all parties on contention VI-1 was due by April 16, 1984. Licensing Board Order of March 15, 1984 (unpublished), at 6. *See also* 10 C.F.R. § 2.743(b). In its April 16 filing, AWPP simply submitted Dr. Iversen's name as a witness concerning PECo's auditing methods; no testimony or statement of the witness's qualifications was tendered. Testimony of Air & Water Pollution Patrol (April 16, 1984) at J. The Licensing Board ruled that Dr. Iversen would not be permitted to testify because of AWPP's failure to comply with the Board's order and 10 C.F.R. § 2.743(b), requiring the advance filing of written direct testimony. Memorandum and Order of May 2 at 3. AWPP nonetheless produced Dr. Iversen and his written testimony the day the hearing began, seeking reconsideration of the Board's ruling. The Board entertained argument on the matter but again rejected the testimony because it was unjustifiably and unduly late. The Board also concluded that the testimony was not confined to the scope of the revised contention or sufficiently probative of the welding QA issue under consideration. Tr. 10,413-36, 11,931; LBP-84-31, 20 NRC at 510.

The Board was entirely justified in rejecting AWPP's testimony on the ground of lateness. AWPP had ample notice of the filing requirements for this particular direct testimony. *See* Tr. 8322-24, 10,413, 10,415-16, 10,417, 10,429. Moreover, by this time AWPP had been a participant in

the proceeding for several years and had reason to be knowledgeable about the Commission's general requirements for prefiling testimony. *See* 10 C.F.R. § 2.743(b). Its excuse that it is "a citizen group without any attorney and . . . [the] resources of the Applicant" is thus particularly unavailing. AWPP Brief at 21. *See Statement of Policy on Conduct of Licensing Proceedings,* CLI-81-8, 13 NRC 452, 454 (1981) ("the fact that a party may have personal or other obligations or possess fewer resources than others to devote to the proceeding does not relieve that party of its hearing obligations"). As the Licensing Board stressed, these are complex proceedings that demand an orderly process; requiring parties to produce their direct testimony in advance of oral hearing is not a mere technicality but an essential ingredient of such process. *See* Tr. 10,431.

The Board's assessment of the relevance and probative value of Dr. Iversen's testimony is also correct. We have examined this testimony (AWPP Exh. 3) and find that it refers to various PECo audit reports and other matters not encompassed within revised contention VI-1 and AWPP's list of welding deficiencies. *See* p. 724, *supra*. Although AWPP refers to Dr. Iversen's "statistical analysis" (AWPP Brief at 21), no such analysis is included in the four pages of proffered testimony; instead, there is only generalized criticism of apparently PECo's program for auditing the installation of pipe hangers. *See* AWPP Exh. 3 at 2-3. The Board reasonably concluded that, even if timely, this testimony would not have been of probative value to the consideration of contention VI-1.

III. ANTHONY/FOE'S APPEAL

ARCO Pipe Line Company transports petroleum products through an underground pipeline that traverses the Limerick site. Columbia Gas Transmission Corp. similarly operates two underground natural gas pipelines near the site. LBP-84-31, 20 NRC at 467-69, 474-76. A major part of the Licensing Board's second partial initial decision addresses Anthony/FOE's concerns, set forth in contentions V-3a and V-3b, about the effects of a pipeline accident on the Limerick nuclear plant. *See id.* at 464-97. These contentions state:

> V-3a: In developing its analysis of the worst case rupture of the ARCO pipeline, the Applicant provided no basis for excluding consideration of siphoning. Thus, the consequences from the worst case pipeline accident are understated.

V-3b: In discussing deflagration of gas and petroleum due to pipeline rupture, no specific consideration has been given to the effect of radiant heat upon the diesel generators and associated diesel fuel storage facilities.

Licensing Board Order of November 22, 1982 (unpublished), at 5, 7.

The Board oversaw the development of an extensive record on these contentions, devoting considerable attention to

> the nature of the materials transported in the pipelines, how much of these materials could react to produce heat and blast overpressures and the ability of safety-related structures, systems and components to withstand such impacts, including interactions from the nonsafety-related structures, systems and components that could be damaged from the results of potential heat or blast impacts.

LBP-84-31, 20 NRC at 466. Indeed, the Board's consideration extended well beyond the four corners of contentions V-3a and V-3b to encompass the Columbia gas pipelines and the effect of overpressures (from the detonation of fuel oil or gas released after a pipeline rupture) on various structures at the site. *See, e.g., id.* at 465-66, 482.[64] The Board determined, on the basis of "very conservative postulates of accident scenarios" and the evidence adduced by PECo and the staff, that these structures are adequate to withstand the calculated radiant heat loads and overpressures. It therefore concluded that contentions V-3a and V-3b have no merit. *Id.* at 466, 467.

Anthony/FOE raise myriad arguments on appeal in connection with the Board's disposition of their pipeline rupture contention. Apart from some more generalized arguments at the outset, Anthony/FOE's brief is essentially a collection of comments on various Board findings — some expressing agreement, but most disagreeing with the Board's judgment.[65] We have considered all of Anthony/FOE's arguments in the context of the record evidence and the Licensing Board's decision and find none

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[64] The Licensing Board, in effect, raised these matters sua sponte. *See* 10 C.F.R. § 2.760a. No party complains here about that action. Thus — particularly in view of the outcome — we need not decide if the Board violated the internal procedure for notifying the Commission of an intent to raise an issue sua sponte. *See Houston Lighting and Power Co.* (South Texas Project, Units 1 and 2), LBP-81-54, 14 NRC 918, 922-23 & n.4 (1981).

[65] Attached to Anthony/FOE's brief as "Exhibit A" is a document entitled "Rebuttal of Applicant's Reply Findings" (June 6, 1984). It was submitted to the Licensing Board, but apparently never formally accepted or rejected. On March 8, 1985, Anthony/FOE submitted to us their "Additions to Oral Argument." Neither document is authorized under the Commission's Rules of Practice, and thus they will not be considered. We note, however, that both of these submittals largely contain arguments or information already before the Licensing Board and pressed before us in Anthony/FOE's brief on appeal. Thus, nothing in either document — even if considered — would affect the outcome here.

convincing. We group what we perceive as related arguments and address the most significant below.[66]

A. Expert Witness Qualifications

1. Anthony/FOE object to the Licensing Board's reliance on the testimony of PECo witness John D. Walsh. They contend that, as a meteorologist, Walsh does not have the credentials and training to qualify him as an expert witness on their pipeline accident contentions. They also list several areas in which Walsh "was proven wrong" but do not provide any citations to the record or Board decision to support this allegation. R.L. Anthony/FOE Brief in Support of Appeal (November 23, 1984) [hereafter, "Anthony/FOE Brief"] at 2.

We have reviewed Walsh's credentials and testimony and agree with the Licensing Board that he is qualified and competent to testify in connection with contentions V-3a and V-3b. Walsh has an undergraduate degree in meteorology and has taken graduate level courses in meteorology, physics, and mathematics. He has worked as a professional meteorologist since 1959 and has done research in atmospheric dispersion. Walsh has also performed accident analyses for over a dozen nuclear power plants, including analyses of natural gas or petroleum products pipelines near several such plants. *See* Professional Qualifications [of] John D. Walsh, fol. Tr. 5411; Tr. 5453.

The Licensing Board relied on Walsh's testimony for principally those parts of its decision that deal with the formation and dispersion of a flammable mixture in the atmosphere — matters clearly within Walsh's expertise. *See* LBP-84-31, 20 NRC at 470-72, 476-77.[67] A meteorologist is not just the person who predicts the weather on the evening news. Meteorology is

> [t]he study dealing with the phenomena of the atmosphere. This includes not only the physics, chemistry, and dynamics of the atmosphere, but is extended to include many of the direct effects of the atmosphere upon the earth's surface, the oceans, and life in general. The goals often ascribed to meteorology are the complete understanding, accurate prediction, and artificial control of atmospheric phenomena.

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[66] As noted above, the Board's discussion of the issues raised in conjunction with contentions V-3a and V-3b is extensive. We repeat only those facts or background information necessary for the disposition of the discrete arguments raised by Anthony/FOE's appeal.

[67] As we stated at note 52, *supra*, we rely on the standard in Rule 702 of the Federal Rules of Evidence for determining a witness's qualifications as an expert. *McGuire*, 15 NRC at 475. Under that rule, a witness is qualified as an expert by "knowledge, skill, experience, training, or education."

Glossary of Meteorology 367 (R. Huschke ed. 1959). In other areas (for example, whether the ARCO pumps would shut down), the Board earlier determined that Walsh was *not* qualified to testify, and it relied instead on the most conservative assumptions (for example, that the ARCO pumps would operate continuously, maximizing the amount of fuel released into the atmosphere). Memorandum and Order of November 8 at 9-10; LBP-84-31, 20 NRC at 470-71. The Board thus looked closely at Walsh's testimony and properly relied on those portions within his area of demonstrated expertise. *But see* pp. 736-37, *infra*.

2. Anthony/FOE also complain that Robert L. Anthony was not permitted to testify about pipelines and the Limerick site. The Licensing Board granted PECo's motion to strike Anthony's testimony, concluding that he "is not qualified by knowledge, skill, experience, training, education, or any other basis to testify as an expert on any matters related to the contentions." The Board noted that Anthony had conceded his lack of expertise, claiming he only wanted to present certain information as a "coordinator." The Board determined, however, that the information in question was expert matter on which Anthony was not competent to testify. Memorandum and Order of December 1, *supra* note 54, at 1-2. *See also* LBP-84-31, 20 NRC at 466.

The Board's refusal to let Anthony testify was proper. Anthony is a retired art therapist, who has participated as a lay advocate in various land use and related environmental hearings. He has no background relevant to pipeline location or accidents, yet his proposed testimony covered such material. *See* Testimony of Robert L. Anthony (November 14, 1983) at 1-3.[68] This type of testimony requires sponsorship by an expert witness "who can be examined on the reliability of the factual assertions and soundness of the scientific opinions found in the documents." *McGuire*, 15 NRC at 477. An expert witness would also be necessary to relate the generalized material in question to the particular pipelines at Limerick. By his own acknowledgment, Anthony is not such an expert. *See* note 67, *supra*.

B. Overpressure Calculations

After noting several areas of agreement with the Licensing Board, Anthony/FOE object to certain aspects of the Board's decision insofar as it concerns the calculations of the overpressures on Limerick structures in the event of a rupture of the ARCO or Columbia pipelines. With respect

[68] This submission, like others (*see* note 58, *supra*) was not served properly and thus was difficult to locate for the purpose of appellate review.

to the ARCO line, Anthony/FOE contend that the Board should have used a larger "spray area" (i.e., the surface area of the gasoline as it covers the ground after a pipe break) than 24,800 square feet as part of that calculation.[69] The surface area is important because it determines the rate at which the gasoline evaporates and combines with air to form an explosive mixture. LBP-84-31, 20 NRC at 471. Anthony/FOE argue that the overpressure calculations should have been based on the spray area used by their witness, Bevier Hasbrouck — 10,000 square meters, or roughly 108,000 square feet. *See* Hasbrouck #1, fol. Tr. 5750, at 2.

The Board, however, correctly found "no scientific basis" for the surface area used by Hasbrouck. LBP-84-31, 20 NRC at 473. In fact, he agreed at the hearing that there was no basis for the area he assumed. Tr. 5995, 6004, 6100-01, 6115. On the other hand, the 24,800 square feet area, used by the staff in its calculations and accepted by the Board, is based in reality and properly conservative as well. The staff derived this figure by adding the area of the spill pathway on the hillside (assuming a pipe break at Possum Hollow Run) and the surface area of a pool at the bottom of the hill where the gasoline would collect. The pool width assumed for the calculation is especially conservative. *See* LBP-84-31, 20 NRC at 472; Ferrell, fol. Tr. 7136, at 2; Tr. 7155-57.

Anthony/FOE argue, in this regard, that the Licensing Board misunderstood or rejected their scenario of a larger pool — with a correspondingly larger surface and evaporative area — created by the damming of Possum Hollow Run by a PECo road parallel to a railway embankment. The record, however, again shows no basis for the surface area assumed in such a scenario. Moreover, the staff's witnesses testified that, even if there were a legitimate basis for the dimensions Anthony/FOE give to this pool, it would not measurably affect their calculation of how much gasoline would be evaporated. Tr. 7531-34, 7536-45. The Board therefore correctly "assign[ed] no credence to the FOE postulates and resulting calculations." LBP-84-31, 20 NRC at 474.

As for the Columbia gas pipelines, Anthony/FOE first note that "diffusion" would be impeded during inversion conditions. Anthony/FOE Brief at 4.[70] No one disputes this. Hence, PECo's calculations assumed

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[69] Gasoline was used for the ARCO calculations, as it is the most volatile of the petroleum products transported in that line. LBP-84-31, 20 NRC at 470.

[70] When leaving a broken pipe, the natural gas in the air will be too highly concentrated to burn or detonate. Only after considerable dispersion to reduce its concentration will the gas-air mixture be in the flammable range. A slow "diffusion" rate (such as would result from an atmospheric inversion condition) thus would allow more time for the natural gas cloud to float toward the plant before its concentration decreases into the flammable range. Further dispersion reduces the concentration below the flammable range and thereby eliminates the ability of the gas-air mixture to burn or detonate. *See generally* Walsh, fol. Tr. 5411, at 11-12.

an inversion even though "[a]tmospheric conditions actually are more conducive to dispersion 95% of the time." LBP-84-31, 20 NRC at 477. *See* Walsh, fol. Tr. 5411, at 11-12.

Anthony/FOE next complain that the Licensing Board did not consider the "fire-hose effect" of a gas pipe break. The Board, however, did hear testimony on this scenario, but relied on PECo's calculations, which assumed an even more conservative (i.e., worse) scenario than the fire-hose effect. PECo assumed a pipe rupture in which there is a complete separation of the pipe and both pipe ends are forced straight up and out of the ground. The gas is assumed to be released in a vertical jet and then to travel, with minimal dispersion, in a cloud as near as possible to the Limerick facility before deflagration. Any other orientation would cause more rapid mixing and dilution of the gas at a ground level source, resulting in detonation or deflagration *farther* from the plant. *Id.* at 10-12. *See* LBP-84-31, 20 NRC at 477. For example, in the fire-hose effect, the pipe ends are in a horizontal orientation at ground level, directed toward the plant. More turbulence and thus dilution with air would occur on the ground, with greater likelihood of flammability nearer *the break,* rather than the plant. This scenario would therefore *reduce* the overpressure calculations, contrary to Anthony/FOE's implicit suggestion. Tr. 5422-24, 5473, 5476.

Anthony/FOE argue that the Board erred in giving "no weight" to Hasbrouck's postulate of a flammable gas mixture that travels 5500 feet (more than a mile) to within 800 feet of the facility and remains in a flammable concentration. *See* LBP-84-31, 20 NRC at 479. The Board pointed out, however, that Hasbrouck had no technical basis for his testimony and that he himself had characterized his theory as "half-baked." *Ibid. See* Tr. 6008-09. *Compare* Campe, fol. Tr. 6131, at 3-4. Indeed, where an asserted expert witness can supply no scientific basis for his statements (other than his "belief") and disparages his own testimony, a board would be remiss in giving such testimony any weight whatsoever.[71]

With respect to the actual overpressure calculations for ruptures of the ARCO and Columbia pipelines, Anthony/FOE object to the Licens-

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[71] Anthony/FOE voice an additional complaint, but provide no supporting cites to the record. They claim that the Licensing Board ignored their "scenario for an ignition trigger from gas confined at plant level." Anthony/FOE Brief at 4. To the extent we understand this cryptic argument, it is without merit. If there is no legitimate basis for assuming a detonable cloud within 800 feet of the plant, there is no reason to consider an ignition trigger at this point. We note, however, that PECo's analysis assumed an explosion at 1200 feet, "triggered by some undefined high-energy ignition source." LBP-84-31, 20 NRC at 478.

ing Board's reliance on the NRC staff's calculations.[72] Overpressure calculations are ordinarily derived by reference to the blast effects of TNT. Thus, the mass of gasoline or natural gas vapor released as a consequence of a pipeline rupture must be converted to an equivalent mass of TNT in order to determine the blast effects of detonation of the vapor. The staff based its overpressure calculations on a TNT conversion factor of 240 percent, or a factor of 2.4. This conversion factor is found in NRC Regulatory Guide 1.91 (Rev. 1), "Evaluations of Explosions Postulated to Occur on Transportation Routes Near Nuclear Power Plants" (February 1978), at 1.91-2. Some of PECo's computations, however, used a conversion factor of 10, which the Licensing Board described as "4 times too great." LBP-84-31, 20 NRC at 473. Anthony/FOE assert that PECo's calculations discredited those based on Regulatory Guide 1.91 (Rev. 1), and that PECo's higher conversion factor must be used for a worst case analysis.

We disagree. Regulatory Guide 1.91 (Rev. 1) relies on studies that generally show less than one percent of the heat energy is released in a blast of hydrocarbon vapor. The heat of combustion of hydrocarbons is about 10 times that of TNT, resulting in an equivalence on a mass basis of 10 percent (1% x 10 = 10%); i.e., the blast effect of one unit of hydrocarbon vapor is about ten percent of (or 0.1) that of an equal mass of TNT. But because actual blast energy is a function of accident-specific phenomena, Regulatory Guide 1.91 (Rev. 1) adds in a substantial (as much as 24-fold) conservatism: it sets a reasonable upper bound to the blast energy of a vapor cloud at 240 percent. In other words, it assumes that the blast effect of one unit of hydrocarbon vapor is 240 percent of (or 2.4 times) that of an equal mass of TNT.

PECo's witness (Walsh) neither rejected nor discredited Regulatory Guide 1.91 (Rev. 1). He was well aware of the 2.4 conversion factor but nonetheless assumed that *all* of the gas-air mixture within explosive limits is detonated, releasing 100 percent of the available blast energy. (In contrast, with its built-in, approximately 24-fold conservatism, Regulatory Guide 1.91 (Rev. 1) assumes that about 24 percent of the available energy is released when the gas-air mixture is detonated. Thus, Walsh's conversion factor is about four times that of the staff's.) Walsh, however, gave no scientific basis for this assumption: he did it "[t]o be conservative." Tr. 5430-31, 5551-54.

Conservatisms and margins for error in such calculations are necessary and desirable, but must be footed to some extent in reasonable, scientific

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[72] The staff calculated a peak overpressure of 2.1 psi (pounds per square inch) for a rupture of the ARCO line and 7.4 psi for the Columbia line. *Id.* at 474, 480.

ground. Conservatism upon conservatism can distort technical data to the point where it no longer meaningfully describes the mechanism at issue. This is especially true here, where Walsh provided no explanation for the 100 percent detonation hypothesis in his overpressure calculations. Moreover, Walsh's credentials as a meteorologist — albeit pertinent to the formation and dispersion of hydrocarbon vapors in the atmosphere — do not encompass expertise in calculating the explosive force and overpressures created by the detonation of such vapors. In this circumstance, there is no reason to give weight to Walsh's overpressure calculations.

Rejection of Walsh's overpressure calculations, however, does not automatically "validate" the Board's reliance on the staff's Regulatory Guide 1.91 (Rev. 1) calculations. Regulatory guides and the like do not prescribe regulatory requirements. In general, they are "treated simply as evidence of legitimate means for complying with regulatory requirements, and the staff is required to demonstrate the validity of its guidance if it is called into question during the course of litigation." *TMI-1 Restart*, ALAB-698, 16 NRC at 1299. Regulatory Guide 1.91 (Rev. 1) was admitted into evidence, without objection, as Staff Exh. 7. Expert staff witnesses testified as to the bases for the 2.4 TNT conversion factor in this regulatory guide. *See* Tr. 6150-55; Ferrell, fol. Tr. 6136, at 8.[73] The Licensing Board therefore did not err in accepting the overpressure calculations determined by the staff using the TNT conversion factor found in Regulatory Guide 1.91 (Rev. 1).[74]

C. Structural Integrity

The Licensing Board actively explored, on its own, "the ability of safety-related structures at the Limerick Generating Station to withstand the effects of postulated detonations resulting from the assumed rupture of the ARCO and Columbia Gas transmission pipelines." LBP-84-31, 20 NRC at 482. It concluded, on the basis of "conservative" calculations and analyses performed by PECo and the staff's review, that the safety-related structures are adequate to withstand both the direct overpres-

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[73] One such NRC witness, Dr. Kazimieras M. Campe, is responsible for the evaluation of industrial hazards like explosions and is therefore especially qualified to testify on this matter. *See* "Kazimieras M. Campe Professional Qualifications," fol. Tr. 6131.

[74] Anthony/FOE argue that some witnesses actually calculated considerably higher overpressures (e.g., 24 psi) during cross-examination. *See, e.g.*, Tr. 7507. It is apparent from this testimony, however, that the witnesses simply performed mathematical computations with input and assumptions provided by Anthony/FOE but did not signify agreement with those assumptions. *See* Tr. 7506-09.

sures from a pipeline explosion and the indirect effects of failure of nonsafety-related structures. *Id.* at 467. *See id.* at 483-93.

Anthony/FOE challenge the Board's decision in this regard on numerous grounds, but fail to develop fully their argument on any particular point. *See* Anthony/FOE Brief at 5. Nonetheless, we briefly address those concerns that we are able to understand.[75]

Anthony/FOE question the validity of the "critical element" used in the structural integrity analysis for each safety-related structure. *See* LBP-84-31, 20 NRC at 485. They contend that the "weakest points" in the walls and roof provide the only valid test for structural integrity. Anthony/FOE Brief at 5. The critical element, however, is "that beam, column wall, slab, or floor that because of its geometry and/or orientation bears a significantly larger stress than other like structural elements." Kuo, fol. Tr. 9043, at 3. Here, the critical wall of each structure was first determined and then the critical element of that wall selected — a one-foot wide beam with fixed ends, with no credit taken for the additional support provided by adjacent walls. *Id.* at 3-4. Thus, the "weakest" part of the structure, viewed as a function of stress, *was* used in the analyses.[76]

The structural adequacy of a critical element can be expressed in terms of the "ductility ratio." The pertinent building code allows a mid-span ductility ratio of 3.0 and an end-point ratio of 10. *See* LBP-84-31, 20 NRC at 485. The highest such ratios calculated here were 2.2 (mid-span) and 2.9 (end-point). Tr. 8947-48, 9069-70. Anthony/FOE complain that the margin for the mid-span ductility ratio is not adequate. They also make related arguments that the "failure threshold" of a structure must be evaluated, and that the margins between the calculated overpressures and the design basis pressure for each structure are inadequate. *See* Table II, LBP-84-31, 20 NRC at 496. But as the Licensing Board correctly explained, such code values are not intended to express the ultimate failure threshold of a structure; they include "some *additional* unquantified safety margin." *Id.* at 486 (emphasis added). Thus, a structure "built to code" has an added margin of safety. Structures

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[75] In this portion of their brief, Anthony/FOE again object to any reliance by the Board on overpressure calculations determined in accordance with the TNT conversion factor of Regulatory Guide 1.91 (Rev. 1). We will not revisit that discussion. *See* pp. 735-37, *supra*. We note, however, that PECo recalculated blast overpressures from a rupture of the Columbia gas pipeline by this method and derived data similar to those of the staff. LBP-84-31, 20 NRC at 483-84.

[76] Anthony/FOE also assert that the "as built" condition of the structures, rather than their design, should have been taken into account. Whether the Limerick facility has been built in accordance with its approved design, however, goes well beyond not only Anthony/FOE's contentions V-3a and V-3b, but also the Licensing Board's own expanded consideration of the effects of a pipeline explosion.

within the code values — such as those here — have still more margin and cannot be fairly characterized as inadequate.

Anthony/FOE assert that the Licensing Board erred in comparing the stresses on a structure caused by an earthquake, which operate through the ground, with those that would result from a pipeline explosion in the air. Based on PECo's analysis, the Board found that the overturning moment and the story shear associated with the design basis "safe shutdown earthquake" for Limerick were larger than those associated with the postulated explosions.[77] The Board thus concluded: "[s]ince the plant has been designed to withstand the safe shutdown earthquake loading values, there is more than adequate structural capacity to resist the forces associated with the postulated explosions." *Id.* at 487.

The Board did not err in making this comparison. Overturning moment and story shear are different types of "forces" that can be exerted on a structure. *See* Kuo, fol. Tr. 9043, at 8-9.[78] As a result, they can be expressed as numerical values. Once such a value is determined, the cause of the building response — i.e., an earthquake in the ground or a blast in the air — is irrelevant. Either a structure can withstand that moment or shear, or it cannot. Hence, comparison of values calculated from blast overpressures with those already accepted in connection with the seismic capability of the plant is not only valid, but useful. It simply provides yet another means of judging the structural integrity of the facility by reference to a known and accepted standard.

Anthony/FOE also claim that the Licensing Board ignored or did not adequately consider a variety of factors in connection with a pipeline explosion — to wit, dead weight as an additive to blast pressure on the roofs, vibratory load, temperature differentials, hydrostatic forces, differential settlement, failure of louver and roof openings, overturning of the cooling towers and transmission towers, and breach of the cooling tower basin. But intervenors' claim is seriously at odds with the Board's decision and the record. Each of these matters was fully considered by PECo and the staff, and the Licensing Board's decision contains extensive discussion on these subjects. *See* LBP-84-31, 20 NRC at 487-92. Inasmuch as Anthony/FOE challenge virtually none of the Board's findings in this regard, we need not repeat them here.[79] We add only that

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[77] The safe shutdown earthquake is based on site-specific characteristics and "produces the maximum vibratory ground motion for which certain structures, systems, and components are designed to remain functional." 10 C.F.R. Part 100, Appendix A, § III(c).

[78] In engineering terminology, overturning moment and story shear are overall responses of a building to an external phenomenon.

[79] Anthony/FOE expressly object to one aspect of the Board's discussion of a postulated failure of certain louver and roof openings in the reactor building. The Board noted that, even if the pressure from

(Continued)

none of these factors was shown to present a threat to the integrity of any safety-related structure at Limerick.

Finally, Anthony/FOE contend that the issue of possible damage to the spray pond from missiles generated as a result of a pipeline explosion is unresolved. The evidence shows, however (and Anthony/FOE do not disagree), that whatever missiles might be generated would not affect the spray pond building, fixtures, or pipes leading to the fixtures. The only matter still "open" at the time of the hearing was the effect of a *tornado* on safety-related spray nozzles and piping within the pond — an issue not raised by any contention. PECo then had under way a probabilistic risk assessment of a tornado and its effects on this hardware, which the staff expected to evaluate. But the unrefuted testimony of both PECo and staff witnesses was that a blast wave from an explosion exerts force downward and thus would not lift up and carry away missiles that could affect the spray nozzles, as a tornado might. *Id.* at 492-93. *See* Tr. 8900-01, 9367-68. Thus, nothing directly pertinent to Anthony/FOE's pipeline explosion scenario was or is "unresolved" by the Board's decision.[80]

D. Other Issues

Anthony/FOE contend that the extensive record developed in connection with their contentions V-3a and V-3b proves that the ARCO and Columbia pipelines pose a risk to the Limerick plant. In their view, it was the Licensing Board's "function . . . to establish that accidental releases from the pipelines could cause explosions which could impact the plant[,]" and "duty . . . to eliminate this risk." Anthony/FOE Brief at 1.

A licensing board's function, however, is to oversee the *parties'* development of the record on contested issues and to issue an initial decision

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an explosion were not absorbed in some other way (as PECo's calculations showed it would be), a failed ventilation louver would allow the pressure inside the building to increase by no more than 0.016 psi and have a negligible effect. LBP-84-31, 20 NRC at 489. For a roof opening panel failure, the reactor building pressure would increase only about 0.01 psi. *Ibid.* Anthony/FOE argue that this obscures the real hazard, radioactive contamination of the outside air. While it is agreed that failure of the ventilation louver or roof opening will result in the reactor building being open to the outside air, a staff witness testified that ordinarily (and in this case) there would not be any airborne contamination in the reactor building that could be released. Tr. 9111-12, 9128-29. In agreeing with Anthony's assertion that failure of the ventilation louver would leave the reactor building with an opening to the outdoors, PECo witness Boyer characterized this occurrence as "a maintenance problem." Tr. 8967. In fact, the roof opening is specifically designed as a blowout panel to relieve overpressure inside the building. Tr. 8959.

[80] PECo subsequently completed its tornado PRA. The staff evaluated it and concluded that, subject to certain improvements in procedures, the pertinent design criteria were satisfied with respect to protection against such natural phenomena and the missiles that they might generate. *See* SSER-3 at 9-1 to 9-4; SSER-4 (May 1985) at 9-1 to 9-3.

containing the board's findings of fact and conclusions of law on the matters in controversy. *See* 10 C.F.R. §§ 2.718, 2.760, 2.760a.[81] This does not mean that a board must stand mute during the hearing and ignore deficiencies in the testimony; it must, of course, " '. . . satisfy itself that the conclusions expressed by expert witnesses on significant safety or environmental questions have a solid foundation.' " *South Carolina Electric and Gas Co.* (Virgil C. Summer Nuclear Station, Unit 1), ALAB-663, 14 NRC 1140, 1156 (1981), *review declined,* CLI-82-10, 15 NRC 1377 (1982). The Licensing Board more than fulfilled that obligation here, soliciting testimony on matters not even within the scope of the admitted contentions. *See* pp. 731, 737, *supra.*

A board is not obliged, however, to eliminate all risk that may be revealed in connection with a facility. "Reasonable assurance" that the plant will be operated safely and that public health, safety, and environmental concerns will be adequately protected is the standard by which a licensing board is to measure an application; a "risk-free environment" is not required. *Carstens v. NRC,* 742 F.2d 1546, 1557 (D.C. Cir. 1984), *cert. denied,* ___ U.S. ___, 86 L. Ed. 2d 694 (1985).[82] Again, the record and Licensing Board decision here amply demonstrate reasonable assurance that the public health and safety are protected from the risks of a pipeline explosion at Limerick.[83]

The Licensing Board's second partial initial decision, LBP-84-31, is *affirmed,* except insofar as it approves PECo's onsite emergency plan medi-

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[81] Anthony/FOE point out that, had it not been for their pursuit of the issue, the potential danger from the pipelines near Limerick would not have been analyzed as thoroughly. Anthony/FOE Brief at 1. That may well be true. Intervenors can therefore feel gratified that their participation in this proceeding has contributed to a greater demonstration of the Limerick facility's ability to withstand the postulated pipeline explosions.

[82] The court went on to reject the notion that the Commission is required "to adopt wholesale the worst case scenario that a party may gloomily frame." *Carstens,* 742 F.2d at 1557.

[83] In view of our decision upholding the Licensing Board's disposition of contentions V-3a and V-3b, we need not address the specific relief requested by Anthony/FOE — relocation of the pipelines. *See* Anthony/FOE Brief at 1. We note, however, that the NRC does not have regulatory jurisdiction over pipelines; the Federal Energy Regulatory Commission and the states regulate various aspects of these entities. The NRC, of course, must approve the location selected for a nuclear power plant. Alternative site issues, however, can be raised only at the construction permit stage and not in connection with an operating license. *See* 10 C.F.R. §§ 51.106(c), (d).

cal arrangements. On that issue, we *reverse and remand* for further action consistent with this opinion.

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Alan S. Rosenthal, Chairman
Dr. W. Reed Johnson
Howard A. Wilber

In the Matter of **Docket Nos. 50-440-OL**
50-441-OL

CLEVELAND ELECTRIC ILLUMINATING COMPANY, *et al.*
(Perry Nuclear Power Plant, Units 1 and 2)

October 24, 1985

The Appeal Board denies intervenor's application for a stay *pendente lite* of a Licensing Board decision (LBP-85-35, 22 NRC 514) in this operating license proceeding.

RULES OF PRACTICE: STAY OF AGENCY ACTION (CRITERIA)

In passing upon stay requests, the following criteria are to be applied: whether the movant has made a strong showing that it is likely to prevail on the merits; whether the movant will be irreparably harmed in the absence of a stay; whether the granting of a stay would harm other parties; and where the public interest lies. 10 C.F.R. § 2.788(e). The same criteria are applied by the courts. *See, e.g., Virginia Petroleum Jobbers Ass'n v. FPC*, 259 F.2d 921 (D.C. Cir. 1958); *Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc.*, 559 F.2d 841 (D.C. Cir. 1977).

RULES OF PRACTICE: STAY OF AGENCY ACTION (CRITERIA)

The second of the 10 C.F.R. § 2.788(e) factors — whether the movant will be irreparably harmed in the absence of a stay — is often the most important in determining the need for a stay. *See, e.g., Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-794, 20 NRC 1630, 1633 (1984), *quoting Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-789, 20 NRC 1443, 1446 (1984). *See also Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-437, 6 NRC 630, 632 (1977).

RULES OF PRACTICE: STAY OF AGENCY ACTION (CRITERIA)

The strength or weakness of the showing by the movant on a particular 10 C.F.R. § 2.788(e) stay factor influences how strong the showing on the other factors must be in order to justify the sought relief. *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-338, 4 NRC 10, 14 (1976). *See also Cuomo v. NRC*, 772 F.2d 972, 974 (D.C. Cir. 1985).

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

A party applying for a stay is required to demonstrate that the claimed irreparable injury is both "certain and great." *Cuomo*, 772 F.2d at 976, *quoting Wisconsin Gas Co. v. FERC*, 758 F.2d 669, 674 (D.C. Cir. 1985).

RULES OF PRACTICE: STAY OF AGENCY ACTION (IRREPARABLE INJURY)

Speculation about a nuclear accident does not, as a matter of law, constitute the imminent, irreparable injury required for staying a licensing decision. *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-84-5, 19 NRC 953, 964 (1984), *citing New York v. NRC*, 550 F.2d 745, 756-57 (2d Cir. 1977) and *Virginia Sunshine Alliance v. Hendrie*, 477 F. Supp. 68, 70 (D.D.C. 1979).

APPEARANCES

Susan L. Hiatt, Mentor, Ohio, for the intervenor Ohio Citizens for Responsible Energy.

Jay E. Silberg, Harry H. Glasspiegel, Michael A. Swiger, and **Rose Ann C. Sullivan,** Washington, D.C., for the applicants Cleveland Electric Illuminating Company, *et al.*

Colleen P. Woodhead for the Nuclear Regulatory Commission staff.

MEMORANDUM AND ORDER

On September 3, 1985, the Licensing Board rendered its Concluding Partial Initial Decision on Emergency Planning, Hydrogen Control and Diesel Generators.[1] That decision paved the way for the issuance of operating licenses for the two-unit Perry nuclear facility, subject to (1) compliance by the applicants with certain specified conditions imposed by the Board; and (2) the requisite findings by the Director of Nuclear Reactor Regulation on matters not placed in controversy before the Licensing Board.[2]

Intervenors Sunflower Alliance (Sunflower) and Ohio Citizens for Responsible Energy (OCRE) have appealed the September 3 decision.[3] OCRE, but not Sunflower, has accompanied its appeal with an application under 10 C.F.R. 2.788 for a stay of the effectiveness of the decision *pendente lite*.[4] According to OCRE, all four of the established criteria to

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[1] LBP-85-35, 22 NRC 514.

[2] *Id.* at 588. *See also* 10 C.F.R. 50.57(a).

By virtue of 10 C.F.R. 2.764(f)(2), however, the Director may not authorize the operation of the facility at power levels above five percent of rated power without prior Commission approval following the conduct of an "immediate effectiveness" review. It is currently uncertain when that review will be completed. In this connection, applicants' counsel recently furnished us with a copy of an October 11, 1985 letter from an official of the lead applicant to the Director of Nuclear Reactor Regulation in which the Director was informed that Unit 1 of the facility "may be ready to load fuel as early as November 8, 1985." It would thus appear unlikely that that unit will be in a position to operate at above the five percent level prior to the turn of the year.

[3] Both appeals are addressed to certain previously entered interlocutory orders as well.

The applicants also filed a notice of appeal from the decision. They subsequently withdrew the notice, however, upon obtaining Licensing Board clarification respecting the timing of two conditions imposed by the Board in the area of offsite emergency planning.

[4] Motion for a Stay Pendente Lite (September 25, 1985) ["Stay Motion"]. A previously filed motion seeking the same relief was rejected as illegible. *See* Order of September 23, 1985 (unpublished). The specific difficulties were the size of the type employed and the clarity of the print. On the former score,

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be applied in passing upon stay requests support the grant of such relief here.[5] The applicants and the NRC staff argue otherwise and, accordingly, oppose the application.[6] For the reasons stated below, we deny it.

A. The second section 2.788(e) stay criterion -- whether OCRE has demonstrated that it will be irreparably injured unless its application for such relief is granted -- commands our attention first because it is "often the most important in determining the need for a stay."[7] Most appeals present at least some close questions. Where no threat of irreparable injury is established, both the need for and the wisdom of our precipitous pronouncement on the merits of the appellant's claims are doubtful at best.[8]

We now turn to OCRE's specific allegations of irreparable injury.

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although they do not explicitly prescribe a minimum type size, the Rules of Practice most assuredly implicitly mandate that the type be large enough to be read without incurring undue eye strain. *See* 10 C.F.R. 2.708(b).

[5] Those criteria, set forth in 10 C.F.R. 2.788(e), are:

(1) Whether the moving party has made a strong showing that it is likely to prevail on the merits;
(2) Whether the party will be irreparably injured unless a stay is granted;
(3) Whether the granting of a stay would harm other parties; and
(4) Where the public interest lies.

The same criteria are applied by the courts. *See, e.g., Virginia Petroleum Jobbers Ass'n v. FPC*, 259 F.2d 921 (D.C. Cir. 1958); *Washington Metropolitan Area Transit Comm'n v. Holiday Tours, Inc.*, 559 F.2d 841 (D.C. Cir. 1977).

[6] Applicants' Answer to Ohio Citizens for Responsible Energy's "Motion for a Stay Pendente Lite" (October 10, 1985) ["Applicants' Response"]; NRC Staff Response in Opposition to the Motion for Stay filed by Ohio Citizens for Responsible Energy (OCRE) (October 9, 1985) ["Staff's Response"].

[7] *See, e.g., Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), ALAB-794, 20 NRC 1630, 1633 (1984), *quoting Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-789, 20 NRC 1443, 1446 (1984). *See also Public Service Co. of Indiana* (Marble Hill Nuclear Generating Station, Units 1 and 2), ALAB-437, 6 NRC 630, 632 (1977):

> The factor which has proven most crucial in our deliberations (as it often does in judicial ones) is the question of irreparable injury to the movants. It is the "established rule that a party is not ordinarily granted a stay of an administrative order without an appropriate showing of irreparable injury." *Permian Basin Area Rate Cases*, 390 U.S. 747, 773 (1968).

[8] If the stay application does not contain the requisite showing of irreparable injury, it is similarly unlikely that the third and fourth stay criteria (harm to other parties resulting from a grant of stay relief and public interest considerations) would call for affirmative action on the application. *See Catawba*, 20 NRC at 1635.

It need be added in this regard only that the proposition stated in the text is entirely consistent with our long-held view that "the strength or weakness of the showing by the movant on a particular factor influences principally how strong his showing on the other factors must be in order to justify the sought relief." *Public Service Co. of New Hampshire* (Seabrook Station, Units 1 and 2), ALAB-338, 4 NRC 10, 14 (1976). In the same vein, the Court of Appeals for the District of Columbia Circuit recently observed in a case involving administrative action of this agency:

> To justify the granting of a stay, a movant need not always establish a high probability of success on the merits. Probability of success is inversely proportional to the degree of irreparable injury evidenced. A stay may be granted with either a high probability of success and some injury, or vice versa.

Cuomo v. NRC, 772 F.2d 972, 974 (D.C. Cir. 1985). It reasonably follows that one who establishes *no* amount of irreparable injury is not entitled to a stay in the absence of a showing that a reversal of the decision under attack is not merely likely, but a virtual certainty.

1. OCRE maintains that operation of the Perry facility will expose the public to "routine non-natural radioactive emissions."[9] In this connection, it offers the affidavits of Dr. Carl J. Johnson and Susan L. Hiatt. For his part, Dr. Johnson expresses the opinion that chronic exposure to the low levels of ionizing radiation that will be released during normal Perry operation will result in "carcinogenic damage to body cells" posing a "grave risk to the health of those living near" the facility and, further, that a "person having a history of cancer on both sides of the family is especially at risk."[10] According to Ms. Hiatt's one-page affidavit, she is an OCRE member who lives in the vicinity of the Perry facility and has several other contact points with the area in close proximity to the facility site.[11] We are told, without elaboration, that "[t]here is a history of cancer on both [her] mother's and father's side of [her] family."[12]

As the Court of Appeals for the District of Columbia Circuit has twice emphasized in recent months, "[a] party moving for a stay is required to demonstrate that the injury claimed is 'both certain and great.' "[13] It is readily apparent that neither affidavit amounts to such a showing.

To begin with, Dr. Johnson offers no authority whatever in support of his opinion that the radioactive effluents from normal plant operation pose a "grave" cancer risk to members of the public in the vicinity of the facility. Nor does he confront (any more than did OCRE below) the staff's conclusion in the Perry Final Environmental Statement that, even if subjected to the maximum possible exposure to the radioactive effluents associated with normal plant operation, an individual would incur a minimal risk of premature death from cancer — i.e., less than one chance in a million per each year of reactor operation.[14] It appears that this estimate was derived from a report of the Advisory Committee on the Biological Effects of Ionizing Radiations of the National Academy of Sciences.[15] Surely, if Dr. Johnson disagrees (as he presumably does)

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[9] Stay Motion at 7.

[10] Affidavit of Dr. Carl J. Johnson (September 5, 1985), attached to Stay Motion, at 4. Dr. Johnson informs us that he possesses doctorates in both medicine and veterinary medicine, as well as a master's degree in public health. *Id.* at 1. Although going on to describe himself as "a recognized expert in the epidemiology of illness due to environmental pollutants such as radionuclides" (*ibid.*), he does not illume the basis for that statement and makes no reference to either present or past professional undertakings.

[11] Affidavit of Susan L. Hiatt (September 19, 1985), attached to Stay Motion.

[12] *Ibid.*

[13] *Cuomo*, 772 F.2d at 976, *quoting Wisconsin Gas Co. v. FERC*, 758 F.2d 669, 674 (D.C. Cir. 1985).

[14] NUREG-0884, Final Environmental Statement for the Perry facility (August 1982) ["FES"] at 5-27.

[15] *Id.* at 5-21. This report, entitled "The Effects on Populations of Exposure to Low Levels of Ionizing Radiation," was published in November 1972 and is frequently referred to as "BEIR I." As the FES further observes (at 5-23), the values for risk estimators employed by the staff

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with the content of that report, it was incumbent upon him to explain why the report (and the staff's conclusion founded thereon) should be laid to one side in favor of the acceptance of his views. This is particularly so given the fact that his thesis would seem to apply with equal force to *every* operating nuclear power facility in the United States; i.e., he does not assert that the Perry facility will occasion uniquely high radiation releases in normal operation. Thus, to credit his sweeping claim that a grave cancer risk stems from routine radiation emissions would bring into question, without the slightest substantiation of that claim, the propriety of permitting operation of all nuclear power plants — not just Perry.[16]

Similarly, Dr. Johnson does not endeavor to supply a foundation for his belief that "genetic factors play a role in determining which persons in a population exposed to carcinogens will be afflicted with cancer" — the belief undergirding his conclusion that persons are at greater risk if there is a history of cancer on both sides of their family. Likewise, Ms. Hiatt's representation of her assertedly higher risk of cancer is not substantiated with the type of documentation on which we must base our decisions.

2. OCRE also claims that Perry operation will subject its members and the general public to the risk of "a severe nuclear reactor accident."[17] In common with the movant for a stay in *Catawba*, however, OCRE does not treat either "the manner in which the postulated accidents might be created [or] the probability of their occurrence."[18] Accordingly, as the like assertion in *Catawba*,[19] the claim must be rejected for want of other than a purely conjectural basis.[20]

3. Finally, OCRE is concerned that, unless a stay is issued, it may lose by reason of mootness its challenge to the Licensing Board's dismissal of its contention to the effect that the applicants should be required

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are consistent with the recommendations of a number of recognized radiation-protection organizations, such as the International Commission on Radiological Protection (ICRP), the National Council on Radiation Protection and Measurement (NCRP), the National Academy of Sciences (BEIR III), and the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR).

[16] The ten-page limitation on the length of stay applications imposed by 10 C.F.R. 2.788(b) is "exclusive of affidavits." This being so, the limitation did not preclude a full exposition by Dr. Johnson of the foundation for the views set forth in his affidavit.

[17] Stay Motion at 7.

[18] 20 NRC at 1634.

[19] *Ibid.*

[20] As the Commission has observed:

> It is well-established that speculation about a nuclear accident does not, as a matter of law, constitute the imminent, irreparable injury required for staying a licensing decision.

Pacific Gas and Electric Co. (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-84-5, 19 NRC 953, 964 (1984), *citing New York v. NRC*, 550 F.2d 745, 756-57 (2d Cir. 1977) and *Virginia Sunshine Alliance v. Hendrie*, 477 F. Supp. 68, 70 (D.D.C. 1979).

to install an automated standby liquid control system to mitigate the consequences of an anticipated transient without scram.[21] Even if it were warranted, that concern scarcely can be converted into a claim of irreparable injury in the absence, as here, of a demonstration that plant operation without the automated system would pose an immediate and serious threat to the health and safety of persons (such as OCRE members) in the vicinity of the plant.[22] Additionally, should we ultimately agree with OCRE that the automated system contention was improperly dismissed, it is not clear that the fact that the plant was allowed to operate *pendente lite* would stand in the way of its obtaining relief on a remand to the Licensing Board for further consideration of the contention.

B. In light of the foregoing, it is unnecessary to consider at length the other three section 2.788(e) stay criteria. It is enough to note that OCRE's showing on none of them comes close to offsetting the absence of any demonstrated or discernible irreparable injury associated with plant operation during the pendency of its appeal. In this regard, OCRE may or may not ultimately prevail on the merits of its various challenges to Licensing Board findings and conclusions. That matter must await the full briefing and oral argument of the appeal. All we need or do decide now is that OCRE has not established the existence of such manifest Board error as would warrant our intercession at this early stage of the appellate process.

OCRE's stay application is *denied.*[23]

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[21] *See* LBP-84-40, 20 NRC 1181 (1984). Because the dismissal order was manifestly interlocutory, OCRE had to abide the event of an appealable decision before seeking our review.

[22] *See Catawba*, 20 NRC at 1635.

[23] Also denied as moot is OCRE's October 15, 1985 Motion to Strike Portions of the Applicants' Response to the Stay Application. That motion is addressed to (1) the applicants' citation to prior decisions of a federal district court and this Board in which the worth of Dr. Johnson's testimony and views was discussed; and (2) certain affidavits submitted by the applicants in support of their opposition to OCRE's stay application. As seen, we have not cited, let alone relied upon, any of the assertedly objectionable material.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Administrative Judges:

Gary J. Edles, Chairman
Dr. W. Reed Johnson
Christine N. Kohl

In the Matter of **Docket No. 50-289-SP (Restart)**

METROPOLITAN EDISON COMPANY,
et al.
(Three Mile Island Nuclear Station, Unit No. 1)

October 25, 1985

Acting on a referral by the Licensing Board of an intervenor's petition to reopen the proceeding, the Appeal Board (1) affirms the Licensing Board's ruling that that Board lacks jurisdiction to consider the petition and (2) declares its own lack of jurisdiction to consider it.

RULES OF PRACTICE: JURISDICTION (APPEAL BOARD)

If an appeal board has previously considered an issue and (by either the action or inaction of the Commission) the determination amounts to final agency action on that issue, the appeal board has no jurisdiction over a subsequent attempt to raise that matter once again. Such requests are, in general, more properly directed to the Director, Nuclear Reactor Regulation, even though other issues in the same proceeding may still be pending before the board. When an issue sought to be considered anew, or to be reconsidered, has a reasonable nexus to a discrete matter still pending before an appeal board, the board has jurisdiction over it.

Louisiana Power & Light Co. (Waterford Steam Electric Station, Unit 3), ALAB-792, 20 NRC 1585, 1588 (1984). *See also Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-782, 20 NRC 838, 841 (1984). The "reasonable nexus" test can be satisfied where the new issues overlap those pending before the board; a total identity or commonality of issues is not necessary. *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-797, 21 NRC 6, 8-9 (1985).

MEMORANDUM AND ORDER

We have before us a petition to reopen this proceeding, filed with the Licensing Board by Marvin I. Lewis and referred to us by that Board. The petition seeks a reopening with regard to the so-called "Hartman Allegations . . . expanded to take in all aspects of leak rate," as set forth in the following new contention:

> Leak rates have been and are being measured erroneously. Erroneous leak rates allow the TMI #1 reactor to be operated outside technical specification limits, increasing danger of a major nuclear accident and reducing the public's safety.[1]

In support of his petition, Mr. Lewis relies on a September 6, 1985, memorandum from the Director, Division of Reactor Safety, NRC Region I, to the Director, Division of Licensing, Office of Nuclear Reactor Regulation (NRR), regarding leak rate test results obtained during a recent heatup of TMI Unit 1. This memorandum states that, although "evaporative losses" actually appear to be zero, this term is not in the TMI Unit 1 technical specifications. The memorandum accordingly goes on to recommend modification of the technical specifications. Mr. Lewis alleges that this is additional evidence of what he describes as a "continuing pattern of incompetence" by the licensee, its nuclear steam system supplier, and the Commission as well.[2] The licensee and the NRC staff oppose the petition.[3]

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[1] Petition of Marvin I. Lewis, Intervenor, for A New or Expanded Contention Concerning the Hartman Leak Rate Allegations (September 19, 1985) at 4.

[2] *Id.* at 3.

[3] *See* Licensee's Response to the Petition of Marvin I. Lewis for a New Leak Rate Contention (October 4, 1985); NRC Staff's Answer to Petition of Marvin I. Lewis, Intervenor, for a New or Expanded Contention Concerning the Hartman Leak Rate Allegations (October 9, 1985).

The Licensing Board denied the petition, finding it lacks jurisdiction to entertain it. The Board nonetheless referred it to us — not for review of *its* ruling, but rather for determination of whether *we* independently have authority to consider it.[4] We conclude that we do not. We also affirm the Board's ruling as to its own jurisdiction.

In our *Waterford* opinion we addressed the matter of our authority to consider issues raised in a petition to reopen. We observed:

> If we have previously considered an issue and (by either the action or inaction of the Commission) our determination amounts to final agency action on that issue, we have no jurisdiction over a subsequent attempt to raise that matter once again. Such requests are, in general, more properly directed to NRR. This is true despite the fact that other issues in the same proceeding may still be pending before us. On the other hand, when an issue sought to be considered anew, or to be reconsidered, has a reasonable nexus to the discrete matter still pending before us, we have jurisdiction over it.[5]

In response to a request for clarification of that opinion, we held that the "reasonable nexus" test could be satisfied where the new issues overlap those pending before us, because "a total identity or commonality of issues" is not necessary.[6]

In the instant case, we earlier completed appellate review of all but four matters. Specifically, we ordered the Licensing Board to conduct further hearings with regard to (i) the adequacy of the licensee's training program, (ii) the so-called Dieckamp mailgram, (iii) the Hartman allegations of falsification of leak rate data at Unit 2, and (iv) other allegations regarding falsification of leak rate data at Unit 1.[7] The Commission, however, reversed our decision regarding the Unit 1 leak rate issue and decided that no hearing on that subject was warranted.[8] The Commission also determined that the Hartman allegations concerning Unit 2 did "not raise a currently significant safety issue" so as to require further hearings in this proceeding.[9] Nevertheless, it decided to institute a sepa-

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[4] Licensing Board Memorandum and Order of October 15, 1985 (unpublished).

[5] *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-792, 20 NRC 1585, 1588 (1984). *See also Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), ALAB-782, 20 NRC 838, 841 (1984).

[6] *Louisiana Power & Light Co.* (Waterford Steam Electric Station, Unit 3), ALAB-797, 21 NRC 6, 8-9 (1985).

[7] ALAB-738, 18 NRC 177 (1983) (Hartman allegations); ALAB-772, 19 NRC 1193 (1984) (training, Dieckamp mailgram, and Unit 1 leak rate data falsification).

[8] CLI-85-2, 21 NRC 282, 306-14, *reconsideration denied*, CLI-85-7, 21 NRC 1104 (1985).

[9] *Id.* at 304-05.

rate proceeding with regard to certain aspects of the Hartman allegations.[10] That brought to an end the adjudicatory consideration in this proceeding of allegations concerning falsification of leak rates (including the Hartman allegations) and left pending only the issues of licensed operator training and the Dieckamp mailgram.[11]

It is not entirely clear whether Mr. Lewis is concerned with an asserted ongoing pattern of leak rate problems — of which the new information is simply another example — or a wholly new matter (or both). If it is the former, the Commission has already taken final action on such matters and determined that they shall not be evaluated in this proceeding. If his petition raises a new concern, no reasonable nexus to the two discrete matters still pending before us is asserted or apparent. In either circumstance, we lack authority to consider the issue raised in the petition.[12]

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[10] *Id.* at 305-06.

[11] The Commission subsequently lifted the order directing that Unit 1 remain shut down and permitted resumption of operations. CLI-85-9, 21 NRC 1118, *aff'd, Three Mile Island Alert, Inc. v. NRC*, 771 F.2d 720 (3d Cir. 1985).

In response to our remand, the Licensing Board has issued LBP-85-15, 21 NRC 1409 (1985), and LBP-85-30, 22 NRC 332 (1985), resolving both the training and Dieckamp mailgram issues in the licensee's favor. Appeals from those decisions were timely filed but have since been withdrawn. Our sua sponte review, however, has not yet been completed. *See* Appeal Board Order of October 21, 1985 (unpublished).

[12] *Waterford*, ALAB-792, 20 NRC at 1588, and ALAB-797, 21 NRC at 8-9.

As for the Licensing Board's ruling concerning its own lack of jurisdiction in this matter, we affirm. Its jurisdiction over *all* matters in this proceeding ceased with the filing of an appeal from its last decision on the Dieckamp mailgram.[13]

The petition of Marvin I. Lewis is *dismissed.*[14]

It is so ORDERED.

FOR THE APPEAL BOARD

C. Jean Shoemaker
Secretary to the
Appeal Board

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[13] *See* ALAB-699, 16 NRC 1324, 1326-27 (1982).

[14] Several other matters are noteworthy. First, the instant case is a "special proceeding" in which the Commission has directed adjudicatory consideration of only selected issues. *See* CLI-80-5, 11 NRC 408 (1980). It is not clear that the matter Mr. Lewis seeks to raise falls within those designated by the Commission for adjudicatory examination. Second, the Licensing Board previously ruled that Mr. Lewis had not demonstrated the requisite standing to intervene in this proceeding, although it nonetheless allowed him to participate with respect to a contention dealing with the adequacy of the TMI filter system for radioactive effluents, an issue not advanced by any other intervenor. *See* LBP-81-32, 14 NRC 381, 392 n.4 (1981). Given our disposition of the petition as noted above, however, we need not determine whether the issue he now seeks to raise is actually embraced within the matters delegated to the adjudicatory boards by the Commission, or whether he has the requisite standing to raise it.

Finally, we note that the September 6 memorandum does not appear to raise any genuine safety question. Indeed, it indicates that the current leak rate at Unit 1 is "essentially zero" and suggests no safety concerns on the part of the staff.

Atomic Safety and Licensing Boards Issuances

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Cite as 22 NRC 755 (1985) LBP-85-39

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Kenneth A. McCollom
Dr. Walter H. Jordan
Herbert Grossman, Esq.

In the Matter of

Docket Nos. 50-445-OL&OL-2
50-446-OL&OL-2
(ASLBP No. 79-430-06-OL)

TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Units 1 and 2)

October 2, 1985

In this Memorandum, the Board clarifies its previous order in which it stated that it might not "accept" evidence submitted by Applicants based on the work of the Comanche Peak Response Team, stating that the degree of independence of that Team would affect the weight of the evidence and not whether it would be received into evidence.

RULES OF PRACTICE: EVIDENCE

Studies of plant quality may be admitted into evidence even if the study group was not independent of plant management. Lack of independence of a study group may affect whether a Board will "accept" the evidence because it affects the weight to be accorded to the evidence.

QUALITY ASSURANCE/QUALITY CONTROL

The extent to which management may not have properly controlled plant quality during construction may affect the required intensity of review of the finished construction in order to demonstrate the adequacy of construction.

MEMORANDUM AND ORDER
(Applicants' Motion for Modification)

Memorandum

Applicants' Motion for Modification, filed September 25, 1985, shall be granted in part.

We agree with Texas Utilities Electric Company, *et al.* (Applicants) that the degree of independence of the Comanche Peak Response Team (CPRT) affects the weight of the evidence and not whether it would be received into evidence. *See The Dallas Morning News* article of August 30, 1985 (at 16A) cited by Applicants.

We find that the remainder of our Memorandum and Order dealing with the way in which management has exercised its responsibility requires neither modification nor correction in response to Applicants' motion. The assessment of plant quality is a complex matter. There are allegations of a pattern of construction and design deficiencies. A determination concerning how management has exercised its responsibility for the quality of design and construction and the adequacy of QA/QC would, at the very least, affect the necessary scope and intensity of review, including sample sizes.

With respect to *sua sponte* matters, our view of our responsibilities differs from that of Applicants. In particular, the timeliness factors that affect us are different from those affecting intervenors. Intervenors must submit new issues in a timely manner when information relevant to those matters raises their suspicions. It is not, on the other hand, appropriate for a Licensing Board to act on suspicion. We wait. We hear the presented evidence. We declare issues *sua sponte* when the evidence suggests the necessity for our doing so.

Our unwillingness to act on suspicion is tempered by our awareness that in complex litigation it may be proper to discuss our views, in a preliminary and nonbinding manner, in order to assist the parties in anticipating their evidentiary needs. This can avoid the extensive delay that

might arise if our views came as a surprise to a party later in the litigation. Hence, we prefer to put the parties on notice of our preliminary views — providing them with a fair opportunity to assemble and present relevant evidence.

At the present time, the way in which management exercised its responsibility for the construction of Comanche Peak is relevant to the compiling of an adequate record about plant quality. In addition to the present significance of this information, we will consider the implications for the safe operation of the plant of whatever we learn from this relevant evidence.

We expect Applicants, either in the hearing context or outside of it, to address management's responsibility in a careful fashion that reflects their concern for the public safety. We expect to be apprised of any documents that reflect the way in which management exercises this responsibility.

Whether or not Applicants harassed workers or otherwise deviated from Appendix B requirements, as alleged, affects our assessment of the adequacy with which QA/QC observed the quality of the plant. In assessing the significance of QA/QC deficiencies and the remedies that might be appropriate with respect to such deficiencies, we would be concerned were we to conclude that *present* management has difficulty assessing and learning from management's previous errors. Consequently, should carefulness be missing from Applicants' studies of their own management behavior (or should Applicants fail to develop an adequate understanding of their own behavior), we would consider the implications of that lack of concern.[1]

To the extent that the CPRT does not assess management actions, including actions with respect to this litigation, we are hopeful that the Staff will rise to fill that void. If not, we will need to consider whether to declare a *sua sponte* issue, considering all the evidence before us as this case is developed.

Since Applicants have withdrawn their summary disposition motions, we will not act on those motions.[2] Typically, when a motion is withdrawn it becomes moot. However, the submission of these summary disposition documents may reflect on management's ability to understand and

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[1] Of course, to the extent that the evidence might indicate that Applicants' QA/QC program was adequate, the need for management to demonstrate an appreciation for its own deficiencies would be diminished.

[2] Although Applicants appear to be withdrawing *all* their summary disposition motions, including those we have already acted on, we do not interpret their motion to apply to withdrawal of motions covered by final decisions of the Board. If we are incorrect in this interpretation, Applicants should notify us promptly, stating why they would have us withdraw decisions that we have already issued.

control the quality of design.[3] The affidavits were submitted for our formal consideration. To the extent that the evidence was incomplete or misleading, we still expect Applicants to fulfill their obligation to correct our record. If necessary, they should explain the reason for the incomplete or misleading affidavits.

Order

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 2nd day of October 1985,

ORDERED:

Applicants' September 25, 1985 Motion for Modification of our order of August 29, 1985, is granted in part — by clarification in the accompanying Memorandum of the Board's concern about the independence of the CPRT. In all other respects, the Motion is denied.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland

[3] We note that our December 1983 Memorandum and Order, LBP-83-81, 18 NRC 1410 at 1452 concluded, in part, that "[t]he record before us casts doubt on the design quality of Comanche Peak, both because applicant has failed to adopt a system to correct design deficiencies promptly and because our record is devoid of a satisfactory explanation for several design questions raised by intervenors." Nothing subsequently presented to us, up to this time, has detracted from this conclusion.

Cite as 22 NRC 759 (1985) LBP-85-40

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Herbert Grossman, Chairman
Dr. A. Dixon Callihan
Dr. Richard F. Cole

In the Matter of **Docket Nos. 50-456-OL**
50-457-OL
(ASLBP No. 79-410-03-OL)

COMMONWEALTH EDISON COMPANY
(Braidwood Nuclear Power Station,
Units 1 and 2) **October 4, 1985**

The Licensing Board grants a protective order providing for confidential treatment of the names and otherwise identifying information of Intervenors' quality assurance witnesses to be disclosed to the other parties during discovery.

RULES OF PRACTICE: PROTECTIVE ORDER

The Board weighs the benefit of encouraging confidential deposition testimony upon the *prima facie* showing of its significance to the proceeding and the witnesses' reluctance to otherwise testify for supportable reasons, against the detriment of inhibiting public access to the information and the cumbersome procedures that a protective order necessitates, and finds the balance in favor of issuing the protective order.

MEMORANDUM AND ORDER
(Granting Protective Order)

Memorandum

I. INTRODUCTION

Intervenors Bridget Little Rorem, *et al.*, have moved for an order providing for confidential treatment of the names and otherwise identifying information regarding prospective witnesses on Intervenors' Quality Assurance contention. Intervenors seek the entry of a protective order limiting the disclosure of such identifying information during the course of this litigation. The order sought would confer confidentiality protections only during the present discovery phase of these proceedings (although the protections afforded would continue thereafter), but no request is now made for a ruling on *in camera* evidentiary hearings that might follow, which Intervenors submit (Intervenors' Motion at 7-8) would be premature and speculative at this time and may well not ultimately be required.

Intervenors seek confidential treatment at this time for eleven present and former L.K. Comstock quality control inspectors and, as necessary, for other prospective witnesses to be identified by Intervenors at a later date. The protective order would provide for limited disclosure of names and identifying information strictly on a "need to know" basis as required for participation by a party in the proceeding. Disclosure of such protected information would be limited to persons who have executed affidavits of nondisclosure to be filed with the Board and available to the parties. Although Intervenors appended to their motion a copy of a form of protective order and affidavit of nondisclosure that was approved by the Commission with regard to a security plan in *Pacific Gas and Electric Co.* (Diablo Canyon Nuclear Power Plant, Units 1 and 2), CLI-80-24, 11 NRC 775 (1980), Intervenors submit that a less elaborate order and affidavit would effectively meet the needs for confidential treatment here. Intervenors would undertake to negotiate the contents of such an order and affidavit with the other parties if this motion is granted.

Applicant and NRC Staff oppose the motion.

We grant the motion and authorize Intervenors to negotiate the contents of the order and affidavit with the other parties, to be submitted to the Board for approval. If an agreement is not forthcoming, Intervenors shall submit a proposed order and affidavit to the Board.

II. FACTUAL BASIS FOR INTERVENORS' MOTION

Intervenors summarize the factual claims of harassment and fear of reprisal in their motion and rely upon an unexecuted affidavit of one Comstock QC inspector, that was appended to Intervenors' prior motion, of July 12, 1985, concerning the protective order. The unexecuted affidavit indicates that the affiant QC inspector has personal knowledge of widespread intimidation, harassment and retaliation at Comstock; has had extensive discussions with at least thirty other Comstock QC inspectors, who have knowledge of harassment and intimidation by Comstock management and who, he believes, would cooperate with the Licensing Board; and has spoken to at least ten Comstock QC inspectors, who were eager to present such testimony and provide documentation, but had expressed fear of retaliation based upon harassment which they have already experienced. According to Intervenors, however, the affiant has become fearful of being fired by Comstock management if he takes any further voluntary affirmative steps in this proceeding such as executing the affidavit, and has consequently not signed it. As part of their factual basis for the motion, Intervenors also refer to the finding of a U.S. Department of Labor area director sustaining an employee's complaint of unlawful discrimination by Comstock in violation of the employee protection provisions of the Energy Reorganization Act of 1974, 42 U.S.C. § 5851, and to a March 29, 1985 complaint to the NRC by twenty-four Comstock QC inspectors of harassment and technical concerns, including threats of physical violence by a Comstock supervisor. Intervenors further state that, as directed by the Board, after the July 23, 1985 prehearing conference they communicated further with each of previously identified sixteen Comstock QC inspectors and that eleven of the sixteen expressed fear of reprisal or discrimination, requested confidential treatment of their names, and asked Intervenors to seek a protective order providing for the maximum protection available even where absolute confidentiality could not be secured.

III. DISCUSSION

In opposing Intervenors' motion for protective order, Applicant and Staff rely heavily upon *Kansas Gas and Electric Co.* (Wolf Creek Nuclear Generating Station, Unit 1), ALAB-327, 3 NRC 408 (1976), as establishing the standards for granting a protective order for withholding information from the public. According to Applicant (Applicant's Response at 3) and Staff (Staff's Response at 2), the Appeal Board adopted a four-part analysis requiring that a party seeking to protect information

from public disclosure must demonstrate: (1) that the information is of a type customarily held in confidence; (2) that the information has in fact been kept confidential by its originator; (3) that the information is not available from public sources; and, (4) that there is a rational basis for holding the information confidential.

We do not find the *Wolf Creek* standards, which involve the protection of proprietary information, to be of much assistance in determining whether the public interest would be served by the issuance of an order to protect the confidentiality of prospective witnesses. Nevertheless, Intervenors' showing appears to satisfy the four requirements: (1) We take official notice of the fact that the NRC Staff and Atomic Safety and Licensing Boards (whether or not in published orders) have customarily granted confidential treatment to quality control inspectors who would otherwise refuse to come forward with information concerning harassment and intimidation for fear of reprisal by the company. (2) The names of the prospective witnesses have been kept confidential, to the extent of being disclosed only to a more limited class than under the proposed protective order. (3) The information is not currently available to those who would not receive it under the protective order. And, (4) there is a rational basis for treating the information confidentially, if we are to believe the representations by Intervenors that the prospective witnesses would be fearful of coming forward with their information without confidentiality because of past incidences of harassment and intimidation, including the three instances of individual reprisal enumerated in Intervenors' motion (at 3-5).

The situation here stands in stark contrast to that of *Houston Lighting and Power Co.* (Allens Creek Nuclear Generating Station, Unit 1), ALAB-535, 9 NRC 377 (1979), upon which Applicant and Staff rely so heavily to deny the request for confidentiality. In *Allens Creek*, the Appeal Board denied "standing" to an intervenor organization that sought to base its representational standing on the residence of a member in close proximity to the facility site, whose name the organization would not disclose to the parties or the Board. The organization proposed submitting an affidavit by its attorney attesting to the proper standing. In rejecting this approach, the Appeal Board noted that such a procedure would deny the Board and the other parties the right "to determine *for themselves*, by independent inquiry if thought warranted, whether a basis existed for a formal challenge to the truthfulness of the assertions" of intervenor. 9 NRC at 393 (emphasis in original).

Here, the names of the protected witnesses would be disclosed to the other parties and the Board, and the parties would have every right to depose these witnesses. All of the assertions made in Intervenors'

motion and in the unexecuted affidavit attached to Intervenors' prior motion could be tested by the other parties.

The Board does not favor conferring confidentiality on witnesses or information. The main detriment is not to the ability of the parties to marshal their known witnesses and information to counter unfavorable confidential testimony. The parties, after all, will have whatever information is disclosed during the confidential discovery, on a "need to know" basis. Rather, the price that will be paid is in not having the confidential information disclosed to the public so that further information, unknown to the parties at this time, might become available to them and the Board. In that respect, we can only surmise that Intervenors' case would be harmed more than that of the other parties by having the information disclosed to the parties during discovery kept confidential from the public, because of Intervenors' more limited access to direct information about practices on the site. But, be that as it may, we do not see any great harm in granting this limited confidentiality at this discovery stage, considering that, while information gleaned through discovery is legally accessible to members of the public, it is rarely disseminated to them.

On the other hand, if confidentiality is not offered at this point, we risk losing the testimony of a number of witnesses who might make a valuable contribution to the hearing record according to the *prima facie* showing made by Intervenors.

We are further persuaded from Intervenors' motion that Intervenors have made some effort at informing the prospective witnesses of the limited nature of the confidentiality that would be bestowed by the protective order and the risks attendant upon maintaining their secrecy, as opposed to public disclosure and the full protections that might be afforded them under the Energy Reorganization Act of 1974, 42 U.S.C. § 5851. We are not convinced that their choice of limited confidentiality, rather than full public disclosure, is in their best interest. However, we are not fully knowledgeable about their working conditions. It is possible that any perceived threats to their employment security might emanate more from fellow employees and low-level supervisors who might not become privy to the confidential discovery, than from higher-level employees who would receive that information on a "need to know" basis.

We make no determination that the prospective witnesses should be in fear of reprisal for testifying or that they have wisely chosen to seek confidentiality. We simply weigh the benefit of encouraging their testimony, upon the *prima facie* showing made by Intervenors of its significance to this proceeding and the witnesses' reluctance to testify otherwise for supportable reasons, against the detriment of inhibiting public access to the information and the cumbersome procedures that a protec-

tive order necessitates, and find the balance in favoring of issuing the protective order.

Order

For all the foregoing reasons and based upon a consideration of the entire record in this matter, it is, this 4th day of October 1985,

ORDERED

(1) That Intervenors' motion for a protective order is *granted*;

(2) That Intervenors' counsel is directed to negotiate the form and substance of the protective order and accompanying affidavit of non-disclosure; and

(3) That Intervenors are directed to submit a proposed protective order and affidavit subsequent to their negotiation with the other parties, with or without agreement.

FOR THE ATOMIC SAFETY AND
LICENSING BOARD

Herbert Grossman, Chairman
ADMINISTRATIVE JUDGE

October 4, 1985
Bethesda, Maryland

Cite as 22 NRC 765 (1985) LBP-85-41

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:

Peter B. Bloch, Chairman
Dr. Kenneth A. McCollom
Dr. Walter H. Jordan
Herbert Grossman, Esq.

In the Matter of

Docket Nos. 50-445-OL&OL-2
50-446-OL&OL-2
(ASLBP No. 79-430-06-OL)

TEXAS UTILITIES ELECTRIC COMPANY, *et al.*
(Comanche Peak Steam Electric Station, Units 1 and 2)

October 31, 1985

In this Memorandum and Order, the Licensing Board rules on various procedural matters.

RULES OF PRACTICE: DISCOVERY; SEPARATE DOCKETS

When two separate dockets for an operating license case are interrelated, discovery filed in one docket should be considered filed in both and responses should be made unless the request is irrelevant to both dockets.

RULES OF PRACTICE: EVIDENCE; SEPARATE DOCKETS

When two separate dockets for an operating license case are interrelated, evidence filed in one docket should be considered filed in both and may be relied on in the other docket if it is relevant.

RULES OF PRACTICE: MULTIPLE REPRESENTATIVES OF PARTIES

Multiple representatives of a party should coordinate their cases.

RULES OF PRACTICE: DISCOVERY

When a case is unfolding gradually because of a major study that is under way, it is appropriate for a party to request documents that have not yet been created; such documents should be supplied as they become available.

RULES OF PRACTICE: DISCOVERY

Parties should exchange information voluntarily. Also, when a party believes that discovery requests made of it seem too broad, they should be narrowed by a rule of reason and responded to in the narrowed form.

QUALITY ASSURANCE: DESIGN

Errors in design documents are an independent concern, regardless of whether they may be corrected before the plant is completed. Although errors may be made, significant errors should be promptly identified, documented, and corrected with reasonable speed. When Applicants become aware of deviations from these principles, they should investigate the root cause of the deviations.

TECHNICAL ISSUE DISCUSSED

Quality Assurance for Design.

MEMORANDUM AND ORDER

(Procedural Rulings; Board Concern About QA for Design)

Memorandum

This Memorandum addresses issues raised in the course of the discovery process that is under way and it also raises a Board concern arising out of a Board notice of a meeting between Staff and the Applicants about pumps and valves.

I. PROCEDURAL MATTERS

On October 25 to 28 the parties responded to discovery matters raised by the Board in an off-the-record telephone conference held on October 15, 1985. In that conference, the Boards asked the parties to respond to the following statement:

> This is a single case: (a) in which CASE's representatives should make a good faith effort to coordinate their discovery activities; (b) in which Applicants should provide more specific responses to discovery, identifying prior responses whenever they believe that they have been subject to a redundant request, and (c) in which objections as to relevance may not be restricted to relevance to a particular docket.

Applicants disagree that this is a single case. To the extent that there are two separate Boards with separate jurisdiction, based on the Notice of Hearing for each case, Applicants are correct. However, as other parties have pointed out, the cases are richly intertwined. As a consequence there are matters occurring in one docket that may be relevant to the other docket. To that extent, the two Boards agree that discovery requests filed in one docket shall be deemed to be filed in the other docket as well. Hence it will not be necessary for either Board to make narrow procedural rulings whose only consequence would be refiling in the other docket.

With respect to evidence, it also is obvious that material in one docket may be relevant in the other. The Board has discussed this question with respect to paint quality assurance, for example. To the extent that there may be a pervasive breakdown in paint quality assurance, this appears to be relevant to the question of whether paint quality assurance inspectors or Mr. Lipinski may have been subjected to harassment or intimidation. Thus, technical questions in docket 1 may bear on issues in docket 2.

Since the dockets are factually intertwined, a party may wish to rely on evidence from the other docket. We consider it preferable to permit such reliance rather than to require refiling the evidence in the second docket.

The extent to which a party in one docket relies on evidence in the other docket will be revealed when the party files proposed findings of fact.[1] Hence, there will be no fair notice problem. Lawyers in both dockets must, therefore, be alert to implications for the other docket. We

[1] Given the way in which the Boards have determined that this case may be considered a single case for purposes of discovery, there is no need for us to clarify the scope of Docket 2, as Staff requests. Docket 2 deals with harassment and intimidation — terms bearing a natural meaning. We also recall having commented on the meaning of these terms previously.

will consider evidence relevant to one docket to be available for citation in the other docket, providing that it is relevant to the issues in the second docket.

We note that *both* parties have multiple representatives who should coordinate their discovery activities, including their responses to discovery. Similarly, both parties should identify particular prior responses when they respond to an interrogatory or document request by claiming to have responded to discovery in the other docket.

To the extent that Applicants have objected to discovery requests because they refer to documents not yet in existence, we do not expect to honor that objection. If there are no documents of a requested type available, Applicants should say so. Then, given the gradually unfolding nature of this case, they should update their response periodically until the period of discovery is closed by Board order, pursuant to this Order of the Board and to 10 C.F.R. § 2.740(e)(3).

We continue to encourage cooperation among the parties concerning the informal exchange of information. To the extent that any of the parties have objected to the participation of other parties in meetings to exchange information, we are hopeful that a more cooperative attitude may prevail in the future. Each of the parties has demonstrated the ability and willingness to participate in constructive dialogue. We are hopeful that each of the parties will keep this in mind and will not only encourage cooperation but will seek to learn from and benefit from the contributions of the other parties.

In the interest of efficiency, we require parties faced by a discovery request considered to be overly broad to explain why the request is too broad and, if feasible, to interpret the request in a reasonable fashion and to supply documents (or answer interrogatories) within the realm of reason.

II. STRESS ALLOWABLES FOR ACTIVE VALVES

The Board in the principal docket has discussed the Summary of Meeting Held on September 17, 1985 – for NRC/TUGCO to Discuss the Potential Deviation from FSAR Commitment on Stress Allowables for Active Valves (filed with us October 17, 1985). We are concerned that the problem discussed in that meeting should be pursued further with respect to the Board's findings on Quality Assurance for Design, set forth in LBP-83-81, 18 NRC 1410, 1428 (1983); LBP-84-10, 19 NRC 509, 513 (1984) ("[t]here has been no recognition that errors in design documents are an independent concern, regardless of whether they may be corrected before the plant is completed. . . . Although errors may be

made, significant errors . . . should be promptly identified, 'documented,' and corrected with reasonable speed.")

In particular, we are concerned that there may not have been a procedure to document deficiencies in specifications detected by vendors, that there apparently was no documentation of or prompt followup of such deficiencies in this instance and that whatever system existed to control the quality of design documents did not detect that specifications had deviated from FSAR commitments. We expect the Applicants or the Staff to investigate the implications of these problems for the adequacy of the system for controlling the quality of design documents.

Order

For all the foregoing reasons and based on consideration of the entire record in this matter, it is, this 31st day of October 1985,

ORDERED:

1. Discovery requests filed in one docket shall be deemed to be filed in the other docket as well.
2. Evidence relevant to one docket is available for citation in the other docket.
3. Both parties have multiple representatives who should coordinate their discovery activities.
4. Both parties should identify particular prior responses when they respond to an interrogatory or document request by claiming to have responded to discovery in the other docket.
5. Parties faced by a discovery request considered to be overly broad should explain why the request is too broad and, if feasible, should interpret the request in a reasonable fashion and supply documents (or answer interrogatories) within the realm of reason.
6. To the extent that this Order affects the validity of discovery responses or objections that have already been filed, a party may promptly file an amended response.

FOR THE ATOMIC SAFETY AND
LICENSING BOARDS

Peter B. Bloch, Chairman
ADMINISTRATIVE JUDGE

Bethesda, Maryland

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