ORIGINAL

UNITED STATES
NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF:

PHILADELPHIA ELECTRIC COMPANY

(Limerick Generating Station,
Units 1 and 2)

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ORAL ARGUMENT

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE

ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of:	:	
	:	Docket Nos. 50-352-OL
PHILADELPHIA ELECTRIC COMPANY	:	50-353-OL
	:	
(Limerick Generating Station, Units 1 and 2)	:	ORAL ARGUMENT
	:	

Nuclear Regulatory Commission
Fifth Floor Hearing Room
4350 East-West Highway
Bethesda, Maryland

Monday, March 4, 1985

The above-entitled matter came on for oral argument at 1:40 p.m.

BEFORE:

JUDGE CHRISTINE N. KOHL, Chairman
Atomic Safety and Licensing Appeal Board

JUDGE GARY J. EDLES, Member
Atomic Safety and Licensing Appeal Board

JUDGE REGINALD L. GOTCHY, Member
Atomic Safety and Licensing Appeal Board

P R O C E E D I N G S

JUDGE KOHL: Good afternoon, I'm Christine Kohl. To my right is Gary Edles who, like myself, is another lawyer, a member of the Appeal Panel. To my left is Dr. Reginald Gotchy, the technical member of the Panel.

We're hearing oral argument this afternoon on three appeals from the licensing boards August 1984 partial initial decision. That decision authorized low power operation for the Limerick Nuclear Facility. Appelants are Limerick, Ecology Action, Air and Water Pollution Patrol, and Friends of the Earth.

Our January 16, 1985 order specified --

MR. ANTHONY: Excuse me. It's Robert Anthony, Friends of the Earth and the Friends of the Earth.

JUDGE KOHL: We realize that, Mr. Anthony. Parties will also have an opportunity to identify themselves. Let me continue.

Our January 16, 1985 order specified the amount of oral argument time for each party and set forth the order of presentation. I'd now like the parties, Counsel, or their representatives to identify themselves for the record and to indicate in the case of the Appelants how much time you wish to reserve for rebuttal.

MR. ELLIOTT: I'm Charles Elliott. I'm here for LEA. I'd like to reserve 5 to 10 minutes for rebuttal.

JUDGE KOHL: Thank you.

Next, Mr. Anthony?

MR. ANTHONY: I'm Robert Anthony, representing myself and Friends of the Earth. I would like to reserve 5 minutes, please. I'm sorry the Board didn't see fit to offer us rebuttal time.

JUDGE KOHL: Thank you, Mr. Anthony. Am I correct in assuming that Mr. Romano is not with us yet?

MR. ELLIOTT: Is he not present?

JUDGE KOHL: Is he late?

VOICE: He's supposed to be on his way.

JUDGE KOHL: Thank you

Next?

MR. WETTERHAHN: Good afternoon. My name is Mark Wetterhahn from the firm of Connor & Wetterhahn, representing the Applicant in this proceeding, Philadelphia Electric Company.

MR. VOGLER: Good afternoon, I'm Ben Vogler, Counsel for the NRC Staff. Also with me here this afternoon is Co-Counsel for NRC Staff, Ann Hodgdon.

JUDGE KOHL: Thank you.

Mr. Elliott?

ORAL ARGUMENT OF CHARLES W. ELLIOTT, ON BEHALF OF LIMERICK ECOLOGY ACTION

MR. ELLIOTT: Ms. Kohl, Mr. Edles, Mr. Gotchy,

the first issue I'd like to deal with is the mitigation of alternatives under NEPA. It's a bedrock proposition of law that NEPA requires an FES to include a detailed statement on an alternative to the action proposed. CEQ regulations provide that discussions of alternatives are at the heart of an environmental impact statement that requires an environmental statement to present --

JUDGE EDLES: Excuse me, Mr. Elliott. Speak up just a bit please so people in the room can hear you. Thank you.

MR. ELLIOTT: The CEQ regulations require an environmental statement to present the environmental impacts of the proposal and the alternatives in comparative form for the purpose of sharply defining the issues and providing a clear basis for the choice among options by the decision-maker and by the public. The agency is required to rigorously explore and objectively evaluate all reasonable alternatives that includes an appropriate mitigation measure which is not included in the alternative or in the proposal itself.

This Commission's regulations require it to consider in the FES alternatives available for reducing or avoiding adverse environmental effects. In this proceeding LEA contended that the FES should include a discussion of design alternatives to mitigate the consequences of severe

accidents.

JUDGE KOHL: What specific design alternatives did LEA advocate needed to be considered?

MR. ELLIOTT: LEA advocated those design alternatives which are being analyzed by the Staff contractors as bases for the contention. We included a list of the design alternatives.

JUDGE KOHL: Can you give me a couple specifics?

MR. ELLIOTT: If you can give me just a moment.

(Pause.)

Core retention devices is one. There are a number of possibilities. It seems as though given the reactor design probably the rebel bed under the reactor pressure vessel pedestal would be one appropriate alternative, overpressure control from hydrogen or hydrogen burning, oxygen exclusion. In this case the Mark II is inerted to at least part of that mitigation alternative is already being addressed. Overpressure control from attack on concrete, overpressure control by venting the containment building, that was another alternative.

JUDGE KOHL: Mr. Elliott, did you make these specific arguments, though, to the licensing board? My understanding of the Board's ruling on your contention DES-5, the Board rejected it for failure to be specific enough and that you did not mention these specific items

that you just now mentioned to the Board?

MR. ELLIOTT: That's not the case because it is the case that the Board denied the contention on the basis of some standard of specificity. It is not the case that LEA did not present those alternatives in its contention. Submitted as an attachment to the contention was a pile of data from the contractor -- NRC's Staff contractors -- which provided a list of those alternatives, listed which ones were being designed and concepted and gave a great deal of information about the specifics. The Licensing Board denied the contention on the basis that LEA didn't identify any particular sequences which were required mitigation.

With all respect, I think the Board missed the point. What is being mitigated are the consequences from a variety of reactor damage end states. There could be hundreds or there could be thousands of sequences which ultimately would lead to those damaging end states.

JUDGE KOHL: Your basic argument, as I understand it, is because these matters were being considered by various contractors for the NRC, that provided enough reason to litigate your contention in this particular case?

MR. ELLIOTT: It provided adequate factual bases for the assertion of those, the existence of those alternatives, and their reasonableness.

JUDGE KOHL: What were the conclusions of some of

those contractors studies?

MR. ELLIOTT: Among one was although the conclusion is definite that Mark II litigation is feasible and justified it is important decision makers have a feel for the uncertainties that lie within the factors used. In the present case there is little uncertainty that the proposed mitigation equipment can be instalied, that it will function as designed, and that the cost can be determined.

JUDGE KOHL: Excuse me. Did any of the studies that you rely on affirmatively recommend and urge that specific accident mitigation features be undertaken at the time the study was issued or are these matters --

MR. ELLIOTT: As I understand it, it was not the purpose of the study to specifically recommend the implementation of any particular one or more of the design alternatives.

JUDGE KOHL: Then what was the purpose of the study?

MR. ELLIOTT: The purpose of the study was to determine whether design alternative features could be made available, whether they could be implemented, whether they could be cost effective.

JUDGE KOHL: So no conclusion on any of those particular issues was reached though.

MR. ELLIOTT: Yes. The conclusion was that the

systems could be designed.

JUDGE KOHL: Were there conclusions on cost effectiveness?

MR. ELLIOTT: Yes, there were. On a number of those alternatives were cost effective, that is, it would result --

JUDGE KOHL: Could you give me a couple examples of which ones were determined to be cost effective?

MR. ELLIOTT: I can probably give you that if you give me minute?

(Pause.)

You'll have to forgive me for the moment. I'm trying to deal with a document of about this long. The conclusion of this document was that some of the proposals would result in sufficient man-rem reduction at a reasonable cost to warrant their use. That's based upon an assumption of $1,000 per man-rem averted. Maybe if I have an opportunity --

JUDGE KOHL: Could you just refer me, then, to the basic document without getting too specific?

MR. ELLIOTT: Yes. This particular document is Mitigation Systems for Mark II Reactors, Preliminary Report, May of '84. The number is RDA-TR-127303-001.

JUDGE KOHL: Does that have a NUREG designation?

MR. ELLIOTT: It's not a regulatory report; it's

a Staff contractor report, preliminary study. There's no NUREG number assigned to it.

JUDGE KOHL: Was that in the record? Was that attached to your contention?

MR. ELLIOTT: This particular report was issued subsequent to the Licensing Board decision.

JUDGE KOHL: What did you submit? You said you referred the Licensing Board to a number of reports?

MR. ELLIOTT: What I submitted were the underlying status reports, all the documents which were available to LEA at the time of the proceeding which was the monthly project status reports for the research which culminated in the study.

JUDGE KOHL: Those are the status reports that you referred to in your brief?

MR. ELLIOTT: Yes. The record, I think, is fairly clear, that the mitigation systems have been designed -- they have been costed but they have not been considered for implementation at this reactor in this proceeding. The Staff contractor already identified the dominant risks to which attention should be paid, listed the types of mitigation features that would be appropriate for installation. The severe accident risks were identified in the Applicant's PRA and all of those matters were submitted on the bases that LEA set forth.

JUDGE KOHL: Is there anything in any of the reports that you relied on, though, that indicates the measures that the reports we're discussing should be undertaken prior to licensing as opposed to identifying matters that should be subjected to an ongoing technical consideration?

MR. ELLIOTT: No.

JUDGE KOHL: The NRC has lots of contracts with various research laboratories and there are many, many, many issues that are under consideration on an ongoing basis.

MR. ELLIOTT: I understand that. The function of the research as I understand it, was not intended to determine or to make a recommendation for implementation at any given reactor of the design alternatives which are being identified. It was not the purpose of this research to do that.

JUDGE KOHL: So your job as the litigant, though, would have been to persuade the Licensing Board to make that next step and take the reports and implement what those reports discussed on this particular reactor?

MR. ELLIOTT: That would have been my ultimate goal but I think contention is directed more at the defectiveness or the failure to even consider these alternatives. The FES is silent on them.

JUDGE KOHL: There's nothing in the FES?

MR. ELLIOTT: The FES is silent on mitigative alternatives. Now, the Applicant has argued that the risk is already pretty low and there's no real need to consider these alternatives. If you take a look at the FES and you go through the calculations, with respect to latent cancer deaths, given two reactors over a period of 40 reactor years, the changes are 1 in 500 that there will be 100 people who will die of cancer. With respect to non-fatal cancers, the change is 1 out of 25 that 90 people will get cancer; one chance out of 500 that 900 will get cancer.

With respect to genetic defects, the risk is 2.6 times 10 to the minus 1 per reactor year. Over a period of 80 reactor years there are 20 expected genetic defects. That's not even to mention spontaneous abortions, sterility, and developmental defects in children. So, it's LEA's contentions that those health risks are not so low that they can be totally ignored in this proceeding with respect to some efforts to try to reduce health risks.

JUDGE KOHL: When you're talking about those issues you're on to another point, aren't you?

MR. ELLIOTT: No, I don't think so because, as I say, the Applicant has urged that the risks are so low that the whole issue can be ignored.

JUDGE KOHL: But the matters that you just discussed were pursued at the hearing, were they not, and

were discussed in the partial initial decision?

MR. ELLIOTT: It's arguable as to whether or not they were adequately considered but that's true. The only point I make by raising this is to suggest that what is known about the health risks at this point warrant an examination of the mitigative alternatives.

I'd like also to reinforce the point that contrary to the Applicant's argument, this contention does not seek a risk-free reactor. It does not seek a reactor that is safe at any cost. It seeks only an examination of alternatives which are justified in view of both the cost and the risk. Applicant has argued that there's no need to consider these alternatives because they are themselves remote and speculative. That's contradicted by the record. They're not remote and speculative. They have been costed, they have been designed, and they have been judged cost effective.

In any event, that kind of argument is really defense on the merits. We're still at a pleading stage in this contention. The contention says the FES must consider these alternatives. PECo or the Staff might be able to defend it by showing, for example, that the research community really hasn't come up with any alternatives that could work or they might work but it would take 50 years to backfit them.

Research results are the contrary but in any event those arguments are arguments on the merits. That's an argument that says, well, given what we know the FES didn't need to consider them on the merits because they're not reasonable alternatives.

The proper course would have been to admit the contention, flesh it out with some discarding, if necessary, and then set it out. The Board might conclude on the merits that no mitigative alternatives were necessary, and then again, they might have concluded, based upon the information provided in the litigation that perhaps a thorough, detailed examination of those alternatives was necessary.

Unless the Board has some other questions on this contention, I'd like to move to the other issues.

JUDGE KOHL: All right.

MR. ELLIOTT: The next issue is whether the Board improperly excluded the risk of sabotage from the risk assessments.

We all know why the NRC has physical protection requirements and safeguards requirements. It's because sabotage has always been identified as a possible great source of catastrophic damage to a reactor.

We don't need to be really very imaginative to consider how sabotage, for example, the strategic placement of high explosives might result in a reactor damage end state that is not encompassed by the risk assessment that has been performed thus far.

JUDGE KOHL: Did your contention, though posit any specific sabotage scenario or did you raise any challenges to the security plan under Part 73?

MR. ELLIOTT: No, because they're different matters, I think. The issue here is whether one can make a calculation of the contribution to risk from acts of sabotage. The Applicant took the position, as did the Staff, that such risk analysis was impossible. It wass simply beyond the state of the art, and it couldn't be analyzed. LEA contended that the sabotage risk could and should be analyzed, and we offered as a basis for that opinion, the opinion of Mr. Steve Sholly of the Union of Concerned Scientists who had testified at the Indian Point proceedings on the very issue of the exclusion of sabotage from the Indian Point PRA.

JUDGE EDLES: Mr. Elliott, a question.

What would be the end product of your contention? If sabotage were to be included, where would that get us eventually?

MR. ELLIOTT: It would get us to a more accurate and a fuller disclosure of what the risk from a severe accident at Limerick would be. It might very well, depending upon the results, show, as Mr. Sholly suggested at Indian Point, that perhaps sabotage is a sleeper. The way external events at Indian Point were, we don't know whether the risk at this reactor, as disclosed in the PRA, the SARA and the FES is bounded. The inclusion of sabotage may well show that the risk is significantly greater than what has

been estimated thus far.

The Board didn't consider that the risk of sabotage was so low as to be trivial, and it could not have concluded that sabotage risk analysis could not be performed. Instead, the basis on which they rejected the contention was in reliance on several policy statements looked at collectively. Among those was the policy statement on safety goals. The language in that policy statement says that at present, there is no basis on which to provide a measure of risk on these matters. And that's the language that the Applicant, I think, relies upon for the proposition that the Commission has already determined that these analyses are beyond the state of the art and can't be performed.

If one takes a look at that language carefully, you'll see that the Commission did not say that risk assessments could not be made. It only says that at present, that is, at the time that the policy statement was issued, that there was at present no basis to measure the risk. That is, no one in the U.S. reactor community had made such a risk assessment. That's not to say that it can't be done. And more than one expert, including the experts for Indian Point and apparently some members of the ACRS have suggested that sabotage risk analysis can be performed. The ACRS has apparently been urging that they

include this.

It was not included for the Limerick PRA, and it is our contention that that analysis should be done to insure that the full scope of the environmental risk at Limerick has been addressed and disclosed.

The next issue is the Board's exclusion of victim compensation and industrial impacts of severe accidents beyond the first year. Both of those impacts were rejected by the Board because the Board considered them to be speculative. With respect to the compensation of victims, if you take a look at the FES, yo ucan see that the FES calculates the numbers of victims, the types of injuries the victims might receive and the probability of those types of injuries and the numbers of people. The numbers are not speculative, because they have been probabilistically calculated, nor is the fact that they will receive compensation, although granted that the amount of compensation is subject to some uncertainty.

The point in my brief about the Price-Anderson Act, which apparently seems to have been misconstrued by both the NRC and the Applicant --

JUDGE KOHL: I would like you to elaborate on that, because I have to admit I didn't understand it either.

MR. ELLIOTT: It's simply to establish one point. The Board was of the view that compensation is speculative.

Now if the numbers of victims are not speculative, then only the amount of compensation can arguably be speculative.

The Price-Anderson Act has set up a statutory scheme under which damage claims will be made, and they will be paid.

JUDGE GOTCHY: Mr. Elliott, I want to make sure I understand what you're saying.

Are you saying, because the numbers of victims, as you say, is calculated probabilistically, that the results are not speculative? There are very large uncertainties, are there not, in all these fault trees and event trees?

MR. ELLIOTT: That's true. It is subject to uncertainty, but the point is that so long as the Staff has sufficient confidence in these numbers to advance them for any decisionmaking purpose, if one gives credence to the probabilistically generated figures of the number of accident victims, then the issue of compensation for those victims is not speculative, so long as there is a specific statutory scheme to provide compensation for these people. If you're going to consider cost factors such as cost of replacement power in the order of magnitude of $400 million, then I think it's arbitrary to exclude another source of cost by accident, which will be compensating the victims.

The Price-Anderson Act sets up a scheme by which $610 million will be paid, and I think that amount should be

factored in as well.

JUDGE KOHL: I guess I'm still not clear on what you think the FES should have had in it that it didn't have.

MR. ELLIOTT: It should have had some mention that victim compensation will be a cost of severe accidents at Limerick, just in the same way as a severe accident will cause the plant to be nonoperational, causing the recurring of replacement power costs. This is another cost, as well. I just think it was arbitrary for them to include one and to totally exclude the other, when both are equally sizable amounts of money.

JUDGE KOHL: Just let me ask one more question on that point.

Had it been included, would it have altered the cost-benefit balance?

MR. ELLIOTT: I don't know. I think it would be important, not only to look at that additional cost factor but also the additional health impacts, which I'll talk about momentarily.

JUDGE KOHL: You've got about 10 minutes left, and you said you wanted to save about 5 for rebuttal.

MR. ELLIOTT: Maybe what I'd like to do is jump to the onsite emergency plans.

LEA had contended that the Applicant's plan did not establish the adequacy of the emergency facility and

the operational support center. That contention was submitted on the basis of the inadequacy of the Plaintiff's descriptions as they existed at the time the contention was filed, but on the basis of no more information than what was available at the time the contention was written, the Board closed the record on the contention, despite the fact that the construction facilities were not complete. There was some equipment that was not yet installed. There was equipment still sitting in crates. Staff said it couldn't determine the adequacy of the facilities without waiting for its onsite appraisal to take a look at what was there.

That appraisal team visit, when it finally took place, took place when the facilities were not yet adequate. Important information was still lacking. If you take a look at the actual Board decision, you don't find a simple sentence in the discussion of the facilities which says we find the facilities are adequate. On the record, as it stood, there was simply no way that either the Board or, for that matter, the NRC Staff, through their witness, could evaluate the facilities against the applicable regulatory criteria, which is NUREG 0654; 0696 and 0814.

The Board left it for the Staff to do later, for the Staff to go over the facilities and measure the facilities against those criteria.

JUDGE KOHL: Mr. Elliott, excuse me. That's not

an unusual occurrence, though, in NRC proceedings involving emergency planning.

Decisions on emergency planning are necessarily predictive in nature, and as I understood your contention, you weren't really challenging whether the facilities would be built as specified in the plans.

MR. ELLIOTT: There is no way we could know. All we have, in terms of a plan, is a one or two-paragraph description of a facility in the broadest of terms. The issue, in fact, is whether the facilities are going to be built in accordance with the regulatory criteria. If Mr. Sears, who is the Staff witness --

JUDGE KOHL: What reason do you think that they won't be, though?

MR. ELLIOTT: I have very good reason now, because the Staff went out and looked at it and said it still doesn't comply. You still haven't provided the equipment.

JUDGE KOHL: Doesn't that show that the Staff is doing its job?

MR. ELLIOTT: That may be, but we have the right to examine witnesses on that issue. I think we have the right to challenge, to test the credibility, the fairness of the review, and in every other way to ascertain in an adjudicatory setting, with the appropriate safeguards in cross-examination, whether that work was being done and

whether it was being done correctly.

With respect to backup hospital arrangements. In a general emergency, PECo's arrangements would require that seriously injured, contaminated persons onsite to travel for an hour before they were going to get hospital care. The primary hospital, Pottstown Memorial Medical Center, is two miles away from the site. That hospital will be evacuated, in the event of a general emergency, under the Commonwealth of Pennsylvania's evacuation policy.

JUDGE GOTCHY: How many other hospitals would be included in the EPZ? As I understand the state would have to pick something between the EPZ and the University of Pennsylvania, as I understand it; is that correct?

MR. ELLIOTT: The zone evacuation policy, I believe -- I have to check to make sure, but I believe it was within two miles.

JUDGE GOTCHY: My understanding that that was the Applicant's position. It was the state position that if there's any evacuated, that they be evacuated to 360 degrees for the whole EPZ.

JUDGE KOHL: Let me ask another question another way. There's some reference in the decision to some 19 to 20 other hospitals, other than Penn and Pottstown. Is there anything in the record that shows the location of those 19 hospitals? How many of them are closer than Penn, but

beyond the 10-mile EPZ zone? Do we know that from the record?

MR. ELLIOTT: I don't believe we do.

JUDGE KOHL: Do we know anything at all about those 19 hospitals?

MR. ELLIOTT: No, I don't think we do. And that raises a very good point, because the Board relied upon a list of hospitals that LEA did not know it was going to rely upon. That list of hospitals was not in the record. What the Board did was take a bunch of pages from the offsite emergency plans which it had before it in another context and pulled out those lists of hospitals and applied it to this contention.

JUDGE EDLES: Mr. Elliott, roughly, though, you would argue for a hospital somewhere beyond the EPZ boundary, but closer than the University of Pennsylvania?

MR. ELLIOTT: A lot closer than 45 minutes drive; that's right.

JUDGE EDLES: How long a trip is it before you get outside the 10-mile zone? Aren't you going to get up to about 20 minutes or so? I don't know the road structure around there.

MR. ELLIOTT: I don't live in that area myself, but I would venture to say it's considerably less than a 45-minute drive. Even 20 minutes. It's half the time.

The point is that the only medical witness to testify testified that good medical practice requires that the patient be sent to the closest available hospital.

JUDGE KOHL: Is that Dr. Linneman?

MR. ELLIOTT: Dr. Linneman, that's correct. He also said that we would be remiss in jumping over a close hospital to set up one further away, but, yet, that's exactly what they did. There are other hospitals in the area with which some arrangements could be made for contaminated injured patients.

JUDGE KOHL: We don't know what specific hospitals those are.

MR. ELLOTT: Not on the record, no, which is the point. The point, as I think Mr. Brenner indicated, was what we have to do is go back and examine on the record what additional hospital arrangements can be made. We know that there are hospitals that are closer than the University of Pennsylvania. We know that there are some which do not have

the vulnerability of Pottstown Memorial. It doesn't seem to me to be a great burden to impose upon the applicant making additional arrangements with at least one more hospital that is close enough to provide emergency trauma care. The standard that should be applied to this is that the board must have assurance that the persons providing service are adequately prepared. With reliance upon these other 19 hospitals, there is no such assurance.

Dr. Linneman testified that one of those 19, Phoenixville, he didn't know if they were prepared or not. He consistently said that Pottstown wouldn't be prepared either. The one that they relied upon would not be prepared until they completed the Radiation Management Corporation Training Program. That has not been done for any other hospital in the area.

And, as I say, I think it's encumbent to have those kind of arrangements made with at least one hospital that's close enough to provide emergency trauma medical care, but not so close that in the event of a general emergency, you're not going to be able to take a patient there.

JUDGE GOTCHY: What is the problem with the argument that was presented by the applicant that, in the event Pottstown Memorial Medical Center had to be evacuated, that those that had been trained by Radiation Management

Corporation would be able to essentially pick up and go to another hospital further outside?

MR. ELLIOTT: There are no plans for it.

JUDGE GOTCHY: I know there are no plans for it. But, it seems, as I recall, in the record, there are no really sophisticated special equipment needed at the hospital. Primarily, it's the training of people and setting aside part of the hospital and for managing contamination, isn't it? Primarily?

MR. ELLIOTT: That's true. But, again, Dr. Linneman, the only medical witness who testified, testified that specialized procedures and specialized equipment was necessary. There's no indication that those kinds of procedures are in place in other hospitals. There's no indication that that kind of equipment is in place in another hospital, unless the idea is to wholesale, take the people who have been trained and somehow force-fit the Pottstown Memorial Center procedures into a facility which is not prepared for it and isn't ready for it. That's the only way that I think, on this record, a finding of adequacy could be made.

JUDGE GOTCHY: Aren't all of these other hospitals though also, as he said, accredited hospitals that have some people on the staff supposedly oncologists or medical physicians that deal with radiological types of things in

the hospital -- radiological physics? Radiography? That sort of thing?

MR. ELLIOTT: Yes. But, Dr. Linneman consistently testified that one of the hospitals that had that accreditation and would presumably be qualified wasn't qualified. He had no idea whether or not that hospital was prepared to accept contaminated, injured patients from Limerick.

He also testified with respect to Pottstown. Pottstown has that accreditation also. If the mere presence of the accreditation were sufficient to make it prepared, then there would be no need for the RMC training and, certainly, Dr. Linneman's testimony that Pottstown was not prepared unless it had gone through the RMC training, that contradicts the idea that mere accreditation is sufficient to confer adequacy.

JUDGE GOTCHY: I would agree with that but I was just saying in relation to the possibility of the trained crew from Pottstown going to those hospitals and working with the staff that's in place at the other hospitals.

Doesn't it seem reasonable that they might be able to provide reasonable service? All we're dealing with here is the on site.

MR. ELLIOTT: Perhaps the kind of arrangements which Mr. Brenner contemplated may have involved, for

example, an arrangement whereby the trained staff of Pottstown would go to a designated other hospital and perform those tasks. That's the kind of additional arrangements that could be explored; if the matter were sent back to the board for an additional proceeding, that may very well solve the problem. But, at least as of now, there is no such plan in place.

I think, if you have Pottstown evacuated, there's going to be chaos to try to have other staff go somewhere else and implement the procedures they are familiar with at Pottstown.

JUDGE KOHL: Mr. Elliott, why don't you take a minute and sum up. Then you could save five minutes for rebuttal.

MR. ELLIOTT: Thank you. I don't really have to sum up. I think I have addressed the issues I needed to address on the record at this point, but I appreciate the five minutes.

JUDGE KOHL: Thank you very much. I assume that the gentleman who is seated next to Mr. Anthony is Mr. Romano. You're up next.

MR. ROMANO: May I ask that, in view of the fact that I just got here, that Mr. Anthony might go ahead, if it's agreeable?

JUDGE KOHL: Is that okay with you, Mr. Anthony?

MR. ANTHONY: Yes, I agree.

ORAL ARGUMENT ON BEHALF OF FRIENDS OF THE EARTH

BY ROBERT ANTHONY:

MR. ANTHONY: Honorable Judges, there's not much I can do in 15 minutes except say hello to all of you. I'm glad to get acquainted. I also want to thank you for your very enlightened consideration of the many appeals that I've sent you and you've been very patient with me and I appreciate your very thoughtful consideration.

Also, I have to plead guilty to having occasioned quite a severe scolding from Ms. Shoemaker for some of my latest appeals during the progress of the hearings, and your patience...

JUDGE KOHL: Don't blame Ms. Shoemaker. She's a very nice person.

(Laughter.)

MR. ANTHONY: I'm sure she is. I think the scolding was probably deserved. Anyway, everything I have done n the last years is in the record; there's not much I can add to it.

JUDGE KOHL: Let me ask you one question then.

You ask us in your brief to order the relocation of the Arco pipeline. How can the NRC do that? How do we have jurisdiction or authority to order the movement of a pipeline, of an entity that we don't regulate?

MR. ANTHONY: Well, I believe there is an example, but I don't know which plant did have a pipeline that was relocated; whether that was done voluntarily or not, I don't know. I don't know that the NRC has ever approached either pipeline to ask them to relocate. But I have great faith in your power, a lot more than I am able to gather together.

Well, as you conclude, I've become involved in this because I am very much disturbed and worried lay person. I have pursued the contentions that were possible for a lay person and they had to do with the external hazards that impinge on the plant. The plant got its fuel in October, started actual operation on the 22nd of December. It is now apparent that there are lots of things wrong inside the plant that I could never have imagined.

But, I guess that judging from the scope of the undertaking and the fact that Three Mile Island happened, and nobody foresaw that there could be such complications.

So what I want to do today is to bring us up to date on the actual operation of the plant. That comes mostly from the licensee event reports.

JUDGE KOHL: Mr. Anthony, the focus of your appeal before us, the only matters that we are going to be considering, is the disposition of your contentions 5-3A and 3B. So I think perhaps your time would be best spent today explaining to us why the Licensing Board's treatment of the

pipeline explosion scenario was inadequate in your view; because that's all we can look at on appeal. This is not a broad look at the plant operation overall. We are limited to what was developed on the record before the Licensing Board, and then to what the Licensing Board said in its partial initial decision.

MR. ANTHONY: That's the record which I feel has a great deal in it, especially on over-pressures, and the fact that Philadelphia Electric never convinced me, and I don't see how they convinced the board, that the buildings are built to withstand the pressures that they say they are.

The fact that there are construction deficiencies and there are as built things that are now showing up. And one of my problems with the Licensing Board was they never would allow anything to be said about as built conditions.

And, to me, unless there was some checkup on the way the plant was built and whether it was built in such a way that the walls will stand the pressures they say they will, there is no point in looking at the design and looking at the fancy figures that the mathematicians and scientists put together without actually testing those walls in some way to see how they are built.

So that's a primary basic difference I have, and was never allowed to use any of that or to investigate that.

JUDGE GOTCHY: That was never a point of your

contention, was it? Design was never part of your contention initially.

MR. ANTHONY: No, it was an added part, as you recall, when the question of how much over-pressure would come from the possible pipeline explosions, then what was the plant able to withstand? I believe it was never established properly that the plant could withstand 30 pounds per square inch, which we think is a possibility with a gas explosion, and something like 24 pounds per square inch for the Arco pipeline, with fuel in it.

JUDGE KOHL: How do you derive those two figures? What's your basis for that?

MR. ANTHONY: That's in the record. It was done through using the NRC calculations and the Philadelphia Electric calculations, and different factors of the explosiveness of the fuel; and combining the two as we might get them to do in the cross-examination, the figures came out to that amount; especially, I'm sure, the 24 pounds per square inch for the Arco line was the one that's definitely in the transcript.

JUDGE KOHL: But, as I understand the argument of the applicant and the staff, yes, they testified to those figures but you are putting words in the witnesses' mouths. You are making them assume certain scenarios that weren't otherwise justified on the record.

Therefore, the 24 pounds per square inch figure isn't an accurate figure. It's not something that's valid.

MR. ANTHONY: I wish I were a sufficient mathematician that I could have made the calculation myself. But the only thing I could do is ask them, and ask them to use different values. And this is what came out.

JUDGE KOHL: I don't think they dispute that if you take those values and put them together in a particular formula that, yes, you do get the 24 pounds per square inch.

I think what they are challenging is the assumptions, the source of the figures you used to arrive at that ultimate calculation. And that's where the objection is.

MR. ANTHONY: I understand their objection, and I will object right back that even if it's 30, or even if it's 15, there is no way that the NRC should allow such a risk to exist. And, to get back to fundamentals, the plant should never have been sited there.

And Mr. Denton raised a great question about that in a hearing three years ago, saying:

If it were a question of siting that plant there now with 3,400,000 people within 30 miles, there would have been a very serious question of whether it would have ever been sited.

JUDGE GOTCHY: That had nothing to do with the pipelines though. That was a question of population density within a certain radius. There's a high population density question -- not the Arco and Columbia pipelines.

MR. ANTHONY: That's one of the things that was overlooked, the population. Some of the others are the external hazards. And I was not allowed to enter contentions on those. I tried about 11 contentions -- on the railroads, the quarry that's nearby, the plastics factory that's a quarter of a mile away. These were all thrown out.

I have to frankly say that it appears that my contention on the pipelines was left in and it looked like a sort of a chance to let a lay person in, and to validate for the process. I'm willing to validate the process, and I've put thousands of hours into trying to do that validation, and hundreds of dollars of my own money.

Nobody has forced me to do this. However, I do think that the NRC, whether it was that way from the beginning, it is now. It is an alliance with the licensee, and there's nothing that I can do with my best efforts to break that alliance.

What I am asking this board is, if you have any independence left, which I hope you have, you are able to make some decisions favorable to these citizen interventions. And our contentions. I don't know whether you're going to do that.

JUDGE KOHL: Mr. Anthony, you've got about five minutes of your time left. Do you want to save that for rebuttal, or do you want to take a couple of minutes and

sum up? Or, do you have anything additional?

JUDGE GOTCHY: I have a number of questions. One of the bigger differences between what you think would be a worst case analysis and what the board accepted was the difference between what staff proposed for the TNT equivalency and what the applicant proposed.

I looked at the applicant's calculations for TNT equivalency, and it appears to me that all they really did was take the ratios of the total energy, assuming all the energy for the gas or gasoline would be converted to an explosive force.

In other words, they just calculated the ratios of the Btu content of the gas to the TNT. If there's anything in the record which I have missed which provides a basis for 10 rather than 2.4 that was assumed by the staff...

MR. ANTHONY: I believe the 10 was the expert that Philadelphia Electric had. That was theirs, wasn't it?

JUDGE GOTCHY: Yes, sir.

MR. ANTHONY: It was never questioned. They stayed with it all through the hearing. I don't think they relinquished it. I don't see why I should, or why the board should.

JUDGE GOTCHY: I think it makes a difference in terms of the psi calculated. It's not a factor of 4, I realize that, because there's the cube root of the yield

involved, but it certainly does make a difference if it's tail or 2.4 in calculating the over-pressure.

MR. ANTHONY: As far as I'm concerned, the record has in it those figures that were used in combination, and I can't give you any satisfactory answer, I'm afraid, on that.

I would like to sum up by saying that we now know something about what's going on in the plant. There have been 74 events in the first 96 days, and these are a combination of deficient equipment and procedures, which, in interaction with poorly trained personnel and questionable supervision, have combined to produce an alarming series of events.

It isn't only personnel errors. Also, there is evidence now from the independent design review that the system...that there are two disturbing features which cloud the design work at Limerick. One is the fact that G.E. could not validate some of their designs that go way back.

The other is...this is the Torrey Pines report, which I don't know whether you've seen...have you seen the Torrey Pines Report? It is being studied now by NRC. And it says there were errors discovered in calculating the automatic feed pressurizing system, the reactor protection system and the containment isolation system, as well as the

core spray system. The core spray system was a specific system that the study was authorized to study.

In order to follow up some of the side conclusios, the study would have had to have knowledge of all plant systems and components. But this study was stopped short of this. It only had to do with the core spray system.

The errors and inconsistencies in the analysis that was used to show safe plant shutdown made the framers of the report conclude that there is no validation for the fact that the plant can be shut down safely. And if it can't be shut down safely, it shouldn't be operating.

JUDGE KOKL: Mr. Romano.

ORAL ARGUMENT ON BEHALF OF AIR AND WATER POLLUTION CONTROL, BY FRANK R. ROMANO

MR. ROMANO: Thank you for giving me a little more time. I was in New Orleans last night, so if I don't get this decision reversed, it's because I didn't have enough time to look at my notes.

JUDGE KOHL: Did you have lunch at Bremmen's?

MR. ROMANO: Yes.

JUDGE KOHL: How much of your 25 minutes would you like to reserve for rebuttal?

MR. ROMANO: I have two contentions, you know.

JUDGE KOHL: I realize that so how much of your time? You realize that you get a rebuttal after the

applicant and staff have argued. How much time would you like to reserve?

MR. ROMANO: I reserve 15 minutes.

JUDGE KOHL: That's more than half of your allotment.

MR. ROMANO: Let's make it 10.

Well, you know that I'm going to discuss air and water pollution control. That's the group of which I am chairman in the Montgomery County Air and Water Pollution Patrol.

The first contention was that neither the applicant nor the staff had adequately considered the potential for carburetor icing on aircraft flying into the air space that may be affected by emissions from the Limerick cooling tower.

Now that may seem like an unimportant contention, but there are a lot of little small plane accidents -- and I'm a pilot myself. And I appreciate what can happen and the rapidity with which carburetor ice can sneak up on a person. Because of the limited time, I have back there 30-40 references on carburetor ice, where it is absolutely recognized --

JUDGE EDLES: Mr. Romano, excuse me, let me interrupt. How long does it take for the carburetor icing phenomenon to build up on a small aircraft? That's a

single engine prop plane.

MR. ROMANO: This is where the references come in. Even you and Mr. Geier of the NRC used the term "instantaneously". Then, you know, you complete a sentence and someone can take part of that sentence and say, Well, he didn't really mean instantaneously. But I have other references there which indicate it can instantaneous.

JUDGE EDLES: Mr. Romano, explain to me what you mean when you say "instantaneous". Does that mean that the carburetor would begin to freeze up and the plane would be in immediate peril? Immediate jeopardy?

MR. ROMANO: It would be instantaneous from the standpoint that you have no way of knowing if it's building up or not, whether it's building up or not in the time that you get to know it. And I can show you references on that. They have references which I have turned in. It can be too late to do anything about it.

And there's another situation that makes that even more important. That is, within seven, eight to 10 miles of Limerick, there are 10-12 small airports, where they also have schools. You have a compounding situation there in that you have a lot of students out there, a lot of students who have just made their first solo. They're more concerned with getting that airplane down than they are observing a lot of other instruments. And the only instrument, if you

can call it an instrument, that you can do something about, and which the other side has relied very heavily on, is called the carburetor heat.

It's nothing more than a crude lever that lets a little bit of the exhaust gas come up into the engine situations.

JUDGE KOHL: But aren't those students going to be instructed on how to deal with carburetor icing in any event, even if Limerick weren't there?

MR. ROMANO: Yes.

JUDGE KOHL: Or if they were flying over a fossil plant that has similar cooling towers, carburetor icing would be a problem to be reckoned with in any event, correct?

MR. ROMANO: Mr. Geier, who was the witness for the Nuclear Regulatory Commission, I showed him the instruction book. You can look at any new student instruction book, and I showed him where it had about one paragraph, just saying, "Before you start your engine up, you push the carburetor heat down, then bring it back up to see if it's working." Nothing at all in examples of how this suddenly may come up on you and what you might do.

The best I've seen on that is, when nothing seems to work, hunt for a place to land. And a student, under those conditions, can have, I'm sure...a lot of students

have been killed by that. We'll tell you in the same references that by the time the FAA gets there, or somebody gets to the accident, the ice has melted, or something like that, and we don't know about it.

So they don't attach enough information to the fact that these airports near Limerick, and lots of the studies that have been done on carburetor ice have been done at airports where there wasn't such a congestion of airplanes.

Limerick, for instance, has -- the Limerick-Pottstown air field is only a mile and a half or so when you consider the flight pattern. Not only that, you're allowed to fly within 500 feet of the tower.

Mr. Geier --

JUDGE KOHL: Who allows them to fly that close? Who sets the 500-foot?

MR. ROMANO: That's the FAA rule.

And Mr. Geier, who was to testify and did testify on the Limerick situation, his testimony he had before we started, and I didn't think that was fair -- before we started, they had, of course, gotten some of my testimony and he didn't even know which way the pattern went. The patterns had been changed.

JUDGE KOHL: As I understand it, that was a recent development, in trying to bring his testimony up to date.

MR. ROMANO: Yes, it was before he presented his testimony though. So his testimony did not really take into concern all the kinds of things that I was talking about.

JUDGE KOHL: You mean the flight patterns had changed before he filed his prefiled testimony.

MR. ROMANO: Yes.

JUDGE GOTCHY: He just was not aware of that change, and reflected in the FAA books.

MR. ROMANO: But a student is supposed to be aware of all these things, isn't he? Like the rules on carburetor icing, which are one paragraph.

JUDGE GOTCHY: Mr. Geier doesn't fly in and out of Limerick-Pottstown airport.

MR. ROMANO: Yes, but when the student is discussing an airport, he has to look at what's happening there. If Mr. Geier was going to write about this airport, he should look there.

JUDGE GOTCHY: But that was the reason he changed his testimony, was it not? He discovered after he filed that there had been a change. And he was required -- remember now, he's testifying under oath not to give false testimony, and he had to change that testimony.

As I recall, the board scolded him for doing it at that late date.

MR. ROMANO: I think now, if I can remember back, there were there or four other things. I was supposed to testify as a witness on this carburetor ice and because I'm not an attorney you talk about he didn't know. I didn't know that I was -- at a certain time -- I was supposed to cross-examine myself, which is an unusual thing, and I was not given that opportunity. I think that was very wrong.

Further, Mr. Geier -- whereas he may not have known about that airport -- said that when students fly toward this airport, which is a mile and a half away or so, they can radio in. He gave the information to the Atomic Energy Judges that they could radio in and get all the information they needed.

Then I asked Mr. Geier subsequently, do all airports answer questions coming in from pilots? He had to answer, no. And I said, even if they have, do they all have Unicoms? They may not be in operation. He had to answer, no. So he had tried to impress the Judges with the idea that there was a simple thing that a pilot could just pick his radio up and get all the information he wanted when he came toward Limerick. That's the impression he made. But if I hadn't asked the question it would have been a very good point against my contention, except that I knew with experience that you can radio in and if the fellow is eating a hot dog, he doesn't have to answer.

JUDGE GOTCHY: How often do they answer? I'm sorry.

JUDGE KOHL: You had an opportunity through cross-examination then to show that particular weakness in his testimony?

MR. ROMANO: Yes, but here's a man from the FAA.

JUDGE KOHL: Did the Licensing Board rely on that particular thing in reaching its decision about calling into the airport?

MR. ROMANO: Well, they relied on his great big list of experiences about what he knew and that he was a man way up in the FAA.

JUDGE KOHL: Do you challenge his expertise in this general area?

MR. ROMANO: Yes, I do. I challenge it.

JUDGE KOHL: On what basis?

MR. ROMANO: On the basis that tells you when ice is forming and he testified that a pilot can readily understand that he's getting carburetor ice. He testified that you know when you're getting carburetor ice which is not so because carburetor ice has the same symptoms as dirt in the gas, water in the gas, vapor lock, bad spark plugs, bad gas, and when your engine is faltering -- let's take these students that fly around there again. Your engine is faltering, you got to throw carburetor heat on. The only

thing he was told about, carburetor heat can reduce your power as much as 15 percent. Now you're in real trouble because you're having trouble already.

JUDGE GOTCHY: According to Mr. Geier, though, he said unless you get to the point where you've got a large enough accumulation to shut down your engine, the application of carburetor ice will still clear it in a few seconds.

MR. ROMANO: That's not so. You see, there is where we challenge the situation. If I had time for the references I'd show you that it wouldn't be that because you say a few seconds. The symptoms are an engine faltering.

JUDGE GOTCHY: That's not what he testified to, sir. I submit that he testified that the onset of carburetor icing is shown by a reduction in rpm's, constant speed propellor, reduction of manifold pressure. You have a variable pitch propellor, reduction of air speed from cruising, and a reduction of engine speed. If you have a tachometer do you get a reduction of power? If you maintain your altitude you're going to get an indication on your altimeter that you're dropping. These are all indications that he says are valid indications that you may have a problem.

At that point would it not be true if you applied carburetor ice or carburetor heat that you could remove that

carburetor ice.

MR. ROMANO: How many rpm drop is he talking about?

JUDGE GOTCHY: He was talking about a 200 rpm drop in his aircraft.

MR. ROMANO: I don't think so. I've testified about 25 rpm.

JUDGE KOHL: At what point does the plane immediately get into trouble?

MR. ROMANO: What?

JUDGE KOHL: At what point does the plane begin to get into trouble?

MR. ROMANO: May I just respond to that?

JUDGE KOHL: I think we're talking about the same thing. I think all three of us are concerned.

Assume that the icing does form instantaneously.

MR. ROMANO: Well, according to Mr. Geier and some of the other witnesses, you can see this as quickly as 25 rpm.

JUDGE KOHL: How many rpm would a plane be cruising out at that point? I'm not a pilot but how much of a drop would 25 be?

MR. ROMANO: Coming around in a pattern he could be cruising at 2000 or 2100 and the divisions between the hundreds are very small. So if you're going to see 25 that

could be due to buffeting.

JUDGE KOHL: So you're not talking about, then, a significant loss of engine power?

MR. ROMANO: But he is using that as indication of carburetor ice to do something about that and you can't see 25, so you've lost. You don't see it that quickly.

JUDGE KOHL: What I'm trying to find out is at what point would you see it? How much margin is there? Assume I agree with you that 25 is nothing, that it's so slight that even an experienced pilot wouldn't feel it, wouldn't know that they've lost that much power. How much -- when would you start to know "I'm in trouble"? Would it be 100 rpm and how much of a time factor?

MR. ROMANO: You'd have to start losing 2, 3, 400 with your engine sputtering, and then you aren't sure it's carburetor ice because there are five other things that can cause the same thing. And again, I say if you assume it's carburetor ice -- like they tell the students -- you thrown on your carburetor heat. Now, you've lost more power and you may be down to where you have to hunt -- as they say in some of the references. The last sentence is "Find a place to land." Now, that's discussing this king of a thing.

JUDGE KOHL: I still recall Mr. Geier's testimony on his aircraft was that 200 rpm that he could see -- I recall that explicitely in the record. The 25 rpm's that I

recall was based on a study that he testified to, not in his own particular aircraft, that's all I was saying.

MR. ROMANO: He doesn't fly the kind of airplanes that students fly. The poor students have to rely on a 140 horsepower Cessna or Piper and, you know, they can't afford any more and you risk your life when you go up.

JUDGE EDLES: Mr. Romano, the students in that area -- those who are studying to fly in that area -- are they advised about the Limerick facility?

MR. ROMANO: No, they're not advised at all. Don't forget, you have students on solo flight which now require 300 miles. And another very important thing about Limerick is that they have a radio beam, a VOR right there, you know, right there by the towers.

Now, a confused student -- and you want to know how confused and afraid you can be, you want to try your first solo cross-country where you have to look at maps and you have to wonder what this is, and you've been given a weather report that now is different and you want to get down and you'd better head for that Limerick VOR, which isn't the one you thought you were going to go to anyway, but you think that's a little closer.

And now you've got Limerick belching 35 million gallons of water as vapor per day with generally -- the sky out there generally -- fair visibility. You come toward

Limerick because you're heading for that VOR and now you don't have good visibility, and now you are coming in to high humidity air, sort of saturated low visibility with this added material from Limerick.

JUDGE GOTCHY: Is a student permitted to do that under FAA regulations; to fly into a plume? I thought the testimony was to the contrary.

MR. ROMANO: You heard a lot of testimony to the contrary. When you're up there --

JUDGE GOTCHY: Answer the question. That's a yes or no, sir.

MR. ROMANO: When you're up there and you have a VOR over here 10 miles away versus the other one 50 miles away where it looks black, you're going to come over towards this one because the rule is that you are captain of that ship and you in an emergency can do anything you want. That is an FAA rule. And that student will go for that thing not knowing that the air is more saturated. And that's the other point I want to get to.

The main witnesses for the Applicant -- paid by the Applicant, of course -- use the Penn State Thompson Test. The Penn State Thompson Test was not a test at all which was determined to determine how much moisture there was or whether there were different conditions. One quarter mile from the tower it was not.

JUDGE GOTCHY: I've read it.

MR. ROMANO: You can't find one word in there that talks about a quarter mile from the tower and visibility.

JUDGE GOTCHY: But there are tables and figures in there which show the delta T's and the delta Q's, that they're measured inside and outside the plume; are there not, sir?

MR. ROMANO: I could bring a whole lot of figures here to dispute those figures if I could afford.

JUDGE GOTCHY: You had the report, sir, before I did.

MR. ROMANO: I could show you figures. That was a different kind of tower. It wasn't even the same kind of tower.

JUDGE GOTCHY: It's an 1800 megawatt plant. Limerick is 2100. I submit to you there's very little difference.

MR. ROMANO: There were different altitude; different height towers; different types of towers.

JUDGE GOTCHY: Isn't there testimony that these two plumes, when you've got 500 megawatts, aren't substantially different?

MR. ROMANO: I could show you pictures right there, graphically, from that same tower which they used as

their tower. They show plumes up around 4 to 5,000 feet where they said it couldn't exist. And if you can see a plume up in the sky --

JUDGE GOTCHY: Was that under stagnant air conditions primarily where it would rise straight up?

MR. ROMANO: It could if the conditions in the air were somewhat similar to the plume, that is, it wouldn't condense as much, then it would rise. They say it can't rise over a quarter mile.

JUDGE GOTCHY: I don't think they said that. That's not what they said.

MR. ROMANO: Yes, they did.

JUDGE GOTCHY: No, it's not, sir.

MR. ROMANO: Then I'll tell you what they said, that the air a quarter of a mile, the temperature and the humidity beyond one quarter mile from the tower as a result of the plume is the same as out there.

JUDGE GOTCHY: Not the same; not substantially different. And didn't you admit, sir, once that a 10 degree Fahrenheit change going from cruise, for example, down to an ascent and to landing, that you could get at least a 10 degree Fahrenheit change in temperature and that that wouldn't be the problem. That occurs over a matter of minutes.

MR. ROMANO: No, no, no. You could have 10

degrees drop in temperature in nice, clear air and have no similarity to the Limerick situation.

JUDGE GOTCHY: You could also have changes of 30 to 40 percent in relative humidity over a relatively few hundred feet according to the Amos Cooling Tower Studies. That's an ambient air.

MR. ROMANO: You could have that under extreme conditions, probably, where a student wouldn't be flying in that condition.

JUDGE GOTCHY: But as I recall from the tables and figures I looked at there were only a few degrees temperature difference beyond a quarter of a mile and all the conditions would have --

JUDGE KOHL: I'm going to have to interrupt here. I think we're at a stand-off and we're going to have to resolve this by looking closely at the record. Meantime you are running out of time, Mr. Romano, so why don't you take a few minutes and go on to your second point on quality assurance?

(Pause.)

MR. ROMANO: Like Mr. Anthony, I would like to say something should be changed, where people are being exposed to something that they're afraid of, and they don't have enough money to try to protect themselves, the government should come in here and do something, because all along, all of us who tried to prevent a facility from coming into our area which is not needed at all, but as we learned through the process of their building and seen inspection and engineering reports --

JUDGE KOHL: Mr. Romano, why don't you focus more precisely on your quality assurance contention. Elaborate for me, please, on the thing that you referred to as the "broomstick affair." What did that involve?

MR. ROMANO: It involves exactly what I'm talking about now. People are finding out that things have happened in that plant that has them afraid that we're going to have another and perhaps worse than TMI situation, which was once said to be nothing, but now is something.

The contention that I wanted to bring up had to do with a pattern of carelessness, but unfortunately, going back to say people can't protect themselves, I was limited to showing where in these millions of welds what mistakes have been made that were not corrected by PE.

It's absolutely impossible. I went to the

Document Room where they have these crates of documents, and it would take, you know, a battery of experts and months to look through. And one day we had a meeting there, and Mr. Wetterhahn was there with his quality assurance man, and Mr. Anthony was there, who can witness the situation. We couldn't understand how to get in there. The idea was that we asked that they come forth and help us go through this situation. It was like finding a needle in a haystack.

I wanted to know a few things, get a few pieces of information. We were right there with material in the crates. And I asked Mr Wetterhahn, you know, how about this? Can you tell me how I can find this? And he said, you can write me on that.

JUDGE KOHL: Mr. Romano, I don't think that anyone would dispute that when you build a project as large as the Limerick facility that some construction errors, some mistakes will be made. That's why we have quality assurance programs and why the NRC has so many regulations and requirements. That's what auditing QA is about.

Let's focus on the specific things that you argued to the Licensing Board, that you believed demonstrated your point. We're limited to what's in the record. You've only got a few minutes.

MR. ROMANO: My contention was -- the thing that I wanted to show was that if you can take -- like you say,

there's a lot of mistakes. We all know there are some mistakes. Just like we all know we have to take risks, but there are certain risks we don't want to take.

JUDGE KOHL: That's right. The NRC needs to be shown that there is reasonable assurance that the plant was constructed properly and can operate properly.

What basis do you have for arguing otherwise? You can't just point to an isolated incident.

MR. ROMANO: I think it's very important that if you have 500 mistakes, repeated mistakes, when it demonstrates a pattern, to say, now I don't want to hear about those other 499, I just want to hear about one, I don't think that's giving the people --

JUDGE KOHL: You yourself acknowledged a little while ago, that there are several million welds done in the plant. So a few hundred out of several million may not be statistically significant.

Did you show that those hundred that you're referring to, assuming that they've been proven, exist in one particular area?

MR. ROMANO: Again I go back to saying that when you have these records of inspection and enginering, and you bring them up, you've got five witnesses who say, "Oh, we looked at that and we collected that," and amen. And so the whole thing was -- it seemed to me that I got the impression

then there's a lot of people who believe that the NRC and the utilities and Philadelphia have a very nice cosy relationship. And I've seen this in many kinds of things here. Oh, they just simply looked at these things.

But I will get now to the 76 0601. It's the same story. All I have to say, and I saw the whole pattern, PE seems to say, you find the mistakes we made in the welds, and we'll correct them. I don't call that quality assurance. And I have here a very good example.

JUDGE KOHL: Mr. Romano, you don't recognize then the appropriateness of correcting these mistakes. That's not enough. Is that your point?

MR. ROMANO: What?

JUDGE KOHL: Correction of the errors that were found is not adequate.

Am I stating your point correctly?

MR. ROMANO: That's one of the points. It's not adequate. The other point is --

JUDGE KOHL: You've got one minute.

MR. ROMANO: -- however, there are hundreds and thousands that haven't been found.

JUDGE KOHL: You've got one minute left, so why don't you sum up?

MR. ROMANO: I sum up with an example.

An inspector -- one of these welds that I found

throughout here had said a weld was okay. It was found later that it wasn't okay. And we wrote to the Philadelphia Electric, and they said on account of that thing that we brought up, that this inspector had marked off as okay, but it wasn't okay, which was later, by Mr. Boyer, the Vice President in Philadelphia, he declared, well, he used his judgment.

That's another thing I want to say. You aren't supposed to use judgment. You have specified procedures for inspection. But there's another example of how the nice cosy arrangement gets through it by saying he uses judgment or he wasn't standing at the right angle to see this weld.

Well, Mr. Wetterhahn had written a letter saying that the NRC, they had reinspected all welds this man, this inspector, had inspected, and that he was fired the same day that this was found. And they reinspected them and found everything to be all right. It took them almost six months or more, because they came back again and found out, no, that isn't so. We didn't inspect everything. We found some more. It went from about 400 and some up to about 1200 and some in this one situation. And then, of course, the nice relationship came out, that what we can't see, we have gotten a pencil and a slide rule or a computer and said they're okay anyway.

So I close now with the idea that the people are

more important than Philadelphia Electric. I think that we who try to do something, including the situation on evacuation, have not had our day in court, nor do we feel that it has been a democratic process.

JUDGE KOHL: Thank you, Mr. Romano.

Mr. Wetterhahn.

ORAL ARGUMENT OF MARK J. WETTERHAHN, ON BEHALF OF PHILADELPHIA ELECTRIC COMPANY.

MR. WETTERHAHN: May it please the Board, I wish to address the arguments in reverse order, the last one is freshest in the Board's mind.

The Air & Water Pollution Patrol questions the Licensing Board's decision with regard to the emissions from the Limerick Cooling Tower. The Board found they would not contribute to carburetor icing for planes flying in the vicinity. The Board examined this from a number of perspectives, and from each perspective found in the Applicant's favor. It found that beyond a quarter mile from the facility, whether the plume was rising straight up, whether it bent over or not, the conditions in and outside the plume were not significantly different.

The Board also found tht even if there was a significant difference in these plumes, that there would not be sufficient time for carburetor icing to arise, even if pilots flew through the plume.

The Board also found that pilots are trained and the airplanes they fly are equipped to deal with carburetor icing. Carburetor icing, of course, is not a phenomenon of Limerick. It can happen almost all over. It's up to the FAA to deal with it. The FAA has found that the instrumentation and controls in the plane are adequate to take care of carburetor icing.

JUDGE KOHL: How much did the Board take into account the point that Mr. Romano made about there being numerous small airstrips in the vicinity. As as I understand his argument, that attracts more students than you would have, say, in another locale. And that the skies are crowded with rather inexperienced pilots, who wouldn't be as skilled in dealing with icing.

MR. WETTERHAHN: Contrary to the argument of Mr. Romano, the evidence of record is that students and even pilots with low hours are taught the basics in how to deal with carburetor icing. This is part not only of the ground school, but part of the flight training, and to say that even a pilot with low hours couldn't deal with it is just not supported by the record.

JUDGE EDLES: But his point, as I understand it, was not they were all trained to deal with carburetor icing, if they see it, but first of all, that it's difficult in terms of reading the rpm gauges to discover when the onset

of carburetor icing occurs. And second, it can be confused with a variety of other phenomena. So they don't respond properly.

MR. WETTERHAHN: With regard to your latter point, I think the record is clear that the other witnesses that the Board relied on testified that the other problems that a pilot could see were significantly different, such that it could not be confused with carburetor icing.

With regard to the fact that there are a number of airports within 10 miles, the Board believed the testimony of the Applicant that there was no significant difference once we went beyond a quarter of a mile. So there would not be a significant increase in carburetor icing potential.

To correct some statements of Mr. Romano, Mr. Romano was permitted by the Board to make a statement in lieu of what he called "self cross-examination." He did not take the Board up on that opportunity, but he was offered that opportunity with regard to whether pilots are advised that the Limerick facility is there. The Limerick facility and its cooling towers and other structures do appear on aeronautical charts. So, yes, the pilot who was flying cross-country knows that the Limerick facility is there.

In summary, the Board's decision is based upon the overwhelming weight of the evidence, and it's supported by the testimony of extremely qualified witnesses.

JUDGE KOHL: Mr. Wetterhahn, I had a question about one of the Board's findings. I believe it was A-18. It concerns the Thompson Penn State study in the Keystone Towers. Maybe I'm missing something, but that particular finding was supposed to be addressed to possible differences between the Keystone Cooling Towers and those of Limerick.

As I understand it, the ones at Limerick are about 200 feet higher than at Keystone?

MR. WETTERHAHN: Right.

JUDGE KOHL: What evidence is there, what's in the record that would show that that 200-foot difference doesn't make a difference for purposes of the results of the study?

The answer that the Licensing Board gives is in terms of electrical output and the significance of that escaped me vis-a-vis the height of the tower.

MR. WETTERHAHN: The testimony is that of Applicant's Witness Smith, who is a trained meteorologist, and who has experience in the actual study of cooling tower plumes. And he testified as to the fact that above a certain heat output, it really doesn't make any difference with regard to the internal composition and reaction of the cooling tower plume of the surrounding atmosphere.

JUDGE KOHL: But doesn't the physical height difference, doesn't that account for something? In other words, the plume would be leaving Limerick 200 feet higher

in the atmosphere than it does at Keystone.

Is there anything in the record that says, oh, now, never mind.

MR. WETTERHAHN: I think you have to look at the design of cooling towers, which are sized to eject a certain heat output, but as far as whether it's 200 feet higher or 200 feet further, I think that's a trivial difference.

JUDGE KOHL: It's not relevant, where in the atmosphere the plume originates?

MR. WETTERHAHN: No. I think, as Mr. Smith, I think, testified, the larger the tower, the more heat input, the higher it would rise before it would turn over.

I don't think that makes a difference with regard to seeing whether one study is relevant to the Limerick area.

JUDGE KOHL: What is the output of Keystone in terms of megawatts? What is it when compared to Limerick?

MR. WETTERHAHN: I believe it's smaller than Limerick.

JUDGE KOHL: Is it over 500?

JUDGE GOTCHY: 1800 megawatts.

MR. WETTERHAHN: 1800 megawatts. You can't directly compare them because the heat output of a nuclear plant is a little bit more but it's comparable. It's probably equal since it's 1800 megawatts. They're essentially equal. In any event the expert testimony is that once you go above a certain level the size of the cooling tower with the amount of heat ejected doesn't make a difference in the way that cooling tower plumes behave.

With regard to the quality assurance contention, the Board first accepted a general contention that was before the Catawba decisions of the Appeal Board and the Commission and then allowed informal discovery to take place. It then asked for further specification and found that the generalized contention submitted by Mr. Romano and AWPP did not fulfill the requirements of 2714. It later did admit the contention related to the quality of welding. And I assert that the record is overwhelming on the fact that the Applicant has met its burden with regard to this contention.

With regard to its procedural questions, I don't think the fact that he was required to submit his findings first makes any difference. He was permitted to reply to the Applicant's and Staff's findings.

With regard to some information he claims is in a deposition which he took, he could have used that on cross-examination. He has pointed to no information which contradicts essential Board findings.

With regard to the rejection of the contention of Dr. Iverson, I think it's clear the Board had certain independent grounds on which to reject such testimony. It was simply late, unrelated to the specific instances, and of no probative value.

JUDGE KOHL: Just a minute. Let me ask a question about that. Was there 100 percent reinspection of those welds?

MR. WETTERHAHN: The welds at issue -- the ones reported in inspection report 76-0601 -- were either inspected entirely, segments were inspected, or some were not accessible. They were analyzed to determine whether they were capable of supporting the design loads so, yes, there was reinspection of all those and the remainder were analyzed.

JUDGE KOHL: So that item in the Staff's inspection report was closed out favorably to the utility?

MR. WETTERHAHN: That's correct; it was closed out. Let me add that the analysis revealed that many of these welds were construction welds. They had no purpose after construction was complete. It was to hold things together while the concrete set.

JUDGE GOTCHY: It was about 80 percent; as I recall.

MR. WETTERHAHN: Something like 80 percent. With regard to Mr. Anthony's argument, I will just note two things: first, the question of as-built has come up. As the witness has testified the specifications they looked at -- the drawings -- reflected actual construction. They were not as-built in the sense that the plant wasn't completed. That is the sense that engineers and the NRC use as-built. But they did reflect the actual construction, things like rebar spacing; things like the strength of the concrete. So they were, in that sense, as-built.

With regard to the confusion over the factor of ten in 2.4, the Applicant recognized throughout the hearing that the Reg. guide number 1.91 and the factor of 2.4 was the correct number. It had used and continued to use the factor of 10 as a conservatism of 4 -- 4 to the 1/3 power, I guess. But it recognized the Reg. guide number was the one and it used the value of 10 as one of the conservatisms it used in its analysis. So I think the record is clear what

the correct value was.

JUDGE GOTCHY: Why did Mr. Walsh use the 1975 version of Reg. guide 1.91 and cause all this confusion?

MR. WETTERHAHN: Because the analysis was prepared prior to the submittal of the FSAR. The contention arose as a result of the analysis whose results were contained in the FSAR. So the analysis was probably done in the '75 to '78 time frame.

JUDGE GOTCHY: Mr. Walsh's analysis; the one that was presented as his prefiled testimony?

MR. WETTERHAHN: Yes, that is correct, the original analysis.

JUDGE GOTCHY: This didn't appear in the testimony just for the hearing, did it?

MR. WETTERHAHN: Yes. It was a challenge as to the manner in which he did his testimony. His testimony came right from his design calculations. So that explains the difference in time.

JUDGE KOHL: I wondered why Applicant used a meteorologist as its principle witness on this point. I realize he does have some background in matters of pipeline explosions.

MR. WETTERHAHN: I think an engineer's undergraduate degrees somewhat confuse what that person does. Mr. Walsh did most of these analyses for that

particular architect engineer and he was trained by experience and by doing these type of site analyses. Meteorology does play a large part in these so --

JUDGE KOHL: I can see some role but it struck me as a bit peculiar that he would be the principal.

MR. WETTERHAHN: His analysis was the analysis which was performed prior to submittal of the FSAR. At the hearing, of course, the Applicant presented testimony of particular experts in structural analysis and explosions, et cetera, with regard to the evaluation of the margin of the structures as they were.

JUDGE GOTCHY: Could you, Mr. Wetterhahn, tell me if I'm right. I've read his testimony and it appears to me that in calculating his blast or TNT equivalency for determing peak overpressures, did he assume that the total energy content of the methane or gasoline vapor was converted to an explosive force?

MR. WETTERHAHN: Yes, that's a result of assuming the factor of 10; that's correct. It's a perfect explosion, if you will.

JUDGE GOTCHY: Well, if I go back and look at the calculation, he doesn't even mention the factor of 10 in here. It comes out because of the ratios of the Btu content on the gas and the TNT.

MR. WETTERHAHN: Yes, that is a conservatism.

Let me say that different analysts do calculations in different ways. If the result -- even if there are extreme conservatisms in one number, if in the first round the analyst determines that it's within the proper margin, he doesn't have to go back and do more study or look at whether he was being too conservative.

JUDGE GOTCHY: I understand that. Sometimes these conservatisms come back and bite you, though.

MR. WETTERHAHN: Yes, they do. And I think we went back and looked at that conservatism. As to how it affected the calculations, we carried that throughout the calculations into the margin tables and I think table 1 and table 2 carry the results of both the factor of 10 and the factor of 2.4.

With regard to Limerick Ecology Action, the Limerick case was one of the first where an Applicant had to submit a probabilistic assessment in response to a policy statement. It's been fairly reviewed by the Staff and it's submitted that the probabilistic risk assessment and the resulting final environmental impact statement produced by the Staff and reviewed by the Board, meet all requirements of the interim policy statement and the Commission's regulations.

Applicant submits that the contention with regard to alternatives was denied because of lack of specificity

and I think you have to look at what information existed at one time in order to understand what the Board did.

JUDGE KOHL: Mr. Elliott said he presented to the Board several documents -- contractor studies -- that strongly indicated that various design features were possible. We're not talking about remote and speculative things; we're talking about things that contractors said were in the realm of possibility. Wasn't that specific enough to at least get the contention in?

MR. WETTERHAHN: I don't believe that is the case, that most of these various studies at that time said in conjunction with work assigned by the Commission with regard to its severe accident rulemaking and it's other rulemaking, the Commission assigned contractors to do various studies. At most these progress reports said we're looking at these things. There were no results at the time of any substance -- at the the Board ruled.

JUDGE KOHL: But had the contention been admitted maybe there could have been more quantitative information developed at the hearing.

MR. WETTERHAHN: I think Catawba says that you can't admit a contention until you have a specific contention.

JUDGE KOHL: Well, he wasn't asking for a conditional admission, as I understand it, and in any event

this Board did admit numerous contentions on that basis because Catawba wasn't around at that time.

MR. WETTERHAHN: I submit that the timing was such that the Board was considering at the point in time at which it was admitting contentions related to the FES yet had the Catawba decisions in hand.

JUDGE KOHL: There is nothing in the specific contract or studies that Mr. Elliott has referred to before the Licensing Board that provided the basis for flushing out and discovery after admission of contentions.

MR. WETTERHAHN: I submit now there was a final report or an interim report that was referred to that came out later. I submit that the proper course of action, if information came to light after the Board ruled or while it was before the Appeal Board, to ask that a late filed contention be submitted showing that specific information ha now come to the floor which would support the admission of a late filed contention.

I think that time has passed with regard to the particular report. I can tell it's dated May 1984. I myself received it in November and I believe that's about the same time frame that LEA did receive it.

Beyond the question of specificity, I do not believe that the Commission's regulations require the consideration of alternatives designed to reduce an already

small impact.

JUDGE KOHL: But do they prohibit it?

MR. WETTERHAHN: I believe that reading the Safety and Environmental Regulations of the Commission, I do believe at this time such a contention is prohibited.

JUDGE KOHL: Which particular Commission regulation or policy statement would prohibit it?

MR. WETTERHAHN: Both the policy statement on severe accidents which says that the proper --

JUDGE KOHL: Isn't that still in proposed form?

MR. WETTERHAHN: But it does give the latest Commission guidance on how these matters are to be considered in licensing proceedings?

JUDGE KOHL: Is that the basis of the Licensing Board's decision, though? As I read the transcript and the brief order that the Licensing Board issued on this particular contention, I understand the Board's ruling to have been based solely on the lack of specificity in the contention.

MR. WETTERHAHN: If it were I believe I'm free to advance any other reason for not admitting that.

JUDGE KOHL: You are, but I'm interested because I found in reading the transcript that the pages that were cited were a little bit confusing and I'm trying to get a handle on what the Board's basis was for eliminating this

contention. Would you agree that it was solely for lack of specificity?

MR. WETTERHAHN: No, Limerick is not that keen. Certainly the Applicant advanced arguments similar to the ones I'm advancing here for the Board. I just don't recall specifically whether it relied on the Applicant's arguments. It did agree and disagree with certain of our arguments.

JUDGE KOHL: Your point is that in any event the Commission's policy statements have given guidance on this and you feel that that serves as a bar to the litigation of that contention in any event?

MR. WETTERHAHN: Yes. I think you asked me which policy statements and which regulations specifically -- I believe I covered them in my brief. A couple that come to mind are the new part 51 relating to the type of alternatives that should be examined with regard to reactors of this type and the statements in the interim policy statement stating that the benefits should be looked as opposed to the risks involved. So that is the basis for our position. It's spelled out in our brief.

JUDGE GOTCHY: Let me ask you one question. If LEA had submitted their design mitigation contention such that they could identify or specify an alternative system that they considered cost-effective, would you have objected to the admission of that contention?

MR. WETTERHAHN: I think, as I just stated, it's barred as a matter of law. In addition to the ground advanced by the Licensing Board, that is, specificity, I don't think the Commission at all intended the question of what additional safeguards are necessary to be litigated on an ad hoc basis in individual proceedings.

That is the purpose of the various rulemaking proceedings which are ongoing at this very moment.

JUDGE KOHL: You've got about 15 minutes left.

JUDGE EDLES: I would appreciate it if you would make at least an effort to get to the observation Mr. Elliott made on the lack of detail in the inspection of the on site facilities, and also to the inspection of hospitals.

MR. WETTERHAHN: Let me go to that immedately.

JUDGE KOHL: Before you even start, let me ask you, what effect you think that the D.C. Circuit's decision in Gard versus NRC has on this case, particularly in the argument about the hospital.

MR. WETTERHAHN: First of all, I read that very

recently and I believe that was limited only to offsite, by its words, offsite impacts.

JUDGE KOHL: But they were interpreting the medical arrangements. That applies both to on site and off site.

MR. WETTERHAHN: I would agree with you, but it's still not relevant because there is no question that the applicant has made arrangements with an offsite facility and a backup facility. The type of arrangements, the training was never questioned in the contentions. The question is, is that sufficient?

JUDGE EDLES: But the Licensing Board, as I recollect in their statements, also said that, in any event, there are 19 hospitals in the area that can be used, and all of them are basically trained to deal with these things.

Isn't that the same kind of checklist that the Court of Appeals says isn't enough?

MR. WETTERHAHN: I don't believe so.

JUDGE KOHL: Didn't the board majority on that point rely specifically on the language, the ad hoc language in the Commission's decision in San Onofre, the very language that the D.C. Circuit has now rejected?

MR. WETTERHAHN: That was one of the bases of reliance. However, yes, arrangements were made with Pottstown Hospital, with the University of Pennsylvania

Hospital. Those were specific and met all requirements. Beyond that, for which there is no requirement, yes, in an emergency, you do everything that you could to utilize what facilities that you had available.

I think that's what the majority of the board was saying. But, beyond meeting the requirements, certainly you would do everything. If there came a situation where these 19 hospitals would be helpful, certainly you use them to the extent you could. And I believe it's more than a listing. I believe that at least there's an indication as backup hospitals that they would not refuse a patient which was contaminated. And they do have some training and some experience and some facilities to deal with these people.

As a primary hospital, I don't think that would be acceptable but considering the extremely low probability of not having the Pottstown University Hospital available, and also the University of Pennsylvania Hospital being too distant, I think it's more than adequate.

JUDGE KOHL: But isn't Judge Brenner correct in his dissent, when he says that the probability, low or otherwise, is really quite beside the point because the Commission's regulations recognize the possibility of evacuation.

MR. WETTERHAHN: I don't know where you stop. For 99.9 if not higher percentage, the Pottstown Hospital is

ideal. If you're dealing with traumatic --

JUDGE KOHL: Perhaps we're focusing on the wrong thing then. Let's not focus on whether Pottstown is okay as the principal hospital, but let's focus on whether the hospital at Penn is the appropriate backup as opposed to one closer in but beyond the 10-mile EPZ.

MR. WETTERHAHN: There is not an indication in the record that there is any deficiency whatsoever with the University of Pennsylvania Hospital.

JUDGE KOHL: Forty-five minutes is a rather long period of time for a traumatic injury, isn't it? If you were in an accident on the Beltway -- maybe this isn't a fair question. But would you want 45 minutes to elapse before being treated? I mean, you don't have to answer that but that's the problem that I'm having with this. And there doesn't seem to be anything in the record about those other 19 hospitals.

MR. WETTERHAHN: I don't think there has to be to meet the Commission's requirements for on site planning. I believe --

JUDGE KOHL: But you do have to have a backup hospital, right?

MR. WETTERHAHN: Yes, and the backup is the very prestigious hospital in Pennsylvania, which is 45 minutes away.

JUDGE EDLES: Why was that one selected?

MR. WETTERHAHN: Because I think that it is the hospital designated by a number of utilities with regard to their offsite plans, and it has specialized facilities and even more ability to deal with traumatic contaminated injuries.

JUDGE KOHL: Is its superior standing in that regard demonstrated on the record here?

MR. WETTERHAHN: I believe Dr. Linneman is associated with that hospital.

JUDGE KOHL: But we still know nothing about the other 19 hospitals.

MR. WETTERHAHN: Only that they carry an accreditation, but that's about all.

JUDGE GOTCHY: Aside from the fact that you feel it wasn't required to have a second backup hospital that would be somewhere between Pottstown Memorial and the University of Pennsylvania, don't you think it would have been prudent to make some skeletal arrangements, as Dr. Linneman suggested?

MR. WETTERHAHN: I believe that the arrangements...I can't think of a circumstance in my own mind where the Pottstown Hospital would be unavailable and the University of Pennsylvania would not be adequate. I'm sure, as the testimony reveals, that no other hospital would

refuse to accept these patients, particularly when they would be accompanied by health physicists from the plant and, as previously stated, people from Pottstown could be moved to that hospital to assist in these circumstances.

JUDGE KOHL: Can we really indulge in that kind of assumption? As I read the D.C. Circuit's opinon in the San Onofre case, it's that kind of assumption that they would frown on. Perhaps, if there were a real emergency, those hospitals would be burdened with other problems as well and not be so willing.

MR. WETTERHAHN: I guess that's the advantage of having a hospital somewhat removed from the EPA. It would not be a hospital which serves as an evacuation hospital for those in the EPZ. Yet, people have been trained and it's only 45 minutes away. So I believe it's a good choice. We have one close and we have one somewhat removed from the facility.

JUDGE GOTCHY: Are you speculating that these people -- I think there's some testimony on it, too -- that people from the University of Pennsylvania Hospital could kind of meet somebody halfway at one of these other unidentified 19 hospitals, with somebody coming in an ambulance? That sort of a system?

MR. WETTERHAHN: I think that's one of the things that could be done. I don't think we can say here that

even if we selected 19 backups in the EPZ, we would have done the right thing. I believe the Commission said here, "Other requirements." Beyond that, you can always say, "Here's another contingency. This is adequate planning if these are not for a particular low probability event, not adequate, we'll use what we have."

But, I believe, with regard to hospitals, we meet all requirements. With regard to the question regarding the emergency response facilities, I think the statement of the contention is what's important. The statement of contention is that the design is somehow inadequate, that the description of the design, we had a hearing, the board made findings, the board did not find any deficiency. We haven't an identified design deficiency here.

Certainly, when these are constructed, the staff will take a look as it has. It may find its own, what we'll call, as built deficiencies, which is part of the process. These have not been corrected. And I believe the board found correctly with regard to the emergency response facility contentions.

JUDGE GOTCHY: Can I ask you one general question with regard to the emergency response facilities?

The EOF as an offsite safety function, too, are we going to be getting that somewhere down the pike, to look at again in terms of adequacy in the offsite population?

MR. WETTERHAHN: I can be corrected. I don't believe that was one of the particular contentions which was pursued by LEA. So the answer is no, I wouldn't expect that you would see the adequacy of the offsite facility raised again before you.

I have about five more minutes.

JUDGE KOHL: About five more minutes. I would like you to address LEA's contention on sabotage.

MR. WETTERHAHN: Our response to that contention and the board's denial was based upon its lack of specificity. We agree with the board's ruling and we believe that the statement of the Commission with regard to sabotage binds this appeal board. The finding was not only that sabotage was difficult to model but the risk was very low. At the words quoted in our brief:

"We believe that it's a factual matter."

JUDGE GOTCHY: How do you determine "very low"?

JUDGE KOHL: Isn't that LEA's point, that they wanted a probablistic risk assessment as to exactly how low that risk is? And they didn't get an opportunity to do it?

MR. WETTERHAHN: The question with regard to high/low, the risk of sabotage, is a question to be determined by the Commission when it promulgated its safety regulations. After all, the agency's mission, and I don't have to tell you this, is safety. It decides what undue

risk is and how health and safety of the public is. And it sets its regulations such as to make that risk extremely low.

That's how the Commission, I assumed, decided that the risk was low. It looked at its own regulations and made that determination in its regulations. And I don't think that's a matter to be challenged in individual licensing proceedings under the guise of NEPA.

JUDGE KOHL: But if the Commission is pursuing it in other contexts, in other proceedings, such as Indian Point, for example, doesn't that seem to suggest that maybe it's not that low, and maybe it's not so unquantifiable.

MR. WETTERHAHN: I believe the Commission, when it wanted it considered, has spoken, as it did specifically at Indian Point. And I believe it is constantly considering whether its regulations, including sabotage, are adequate. And it does that on a generic rulemaking basis.

JUDGE KOHL: Was the licensing barred by anything in the Commission's policy statements or elsewhere from pursuing it?

MR. WETTERHAHN: I believe that the statement of the finding of the Commission, that the risk was extremely low, was binding on the board. In addition, I again state that this contention did not have a basis for specificity. I don't believe this statement by Mr. Sholly provided that

specificity. You must examine again what was before the Licensing Board. It was a statement by Mr. Sholly, who was not identified to be an expert, say, "Well, maybe you can do an evaluation."

It did not...it was not in contention form. It did not assert the risks were high. It said, perhaps we could do it.

I'd like to summarize, if there are no other questions, by stating that with regard to the August 29, 1984 decision, and the prior rulings of the board as challenged by the intervenors, it should be upheld and all the three appeals denied.

Thank you.

JUDGE KOHL: Thank you, Mr. Wetterhahn.

We'll take about a 10-minute recess.

(Recess.)

JUDGE KOHL: Mr. Vogler.

ORAL ARGUMENT OF BENJAMIN H. VOGLER, ESQ., ON BEHALF OF NRC STAFF.

MR. VOGLER: May it please the Appeal Board, Staff submits that the Licensing Board's second partial initial decision is based on solid record evidence and should be sustained by the Appeal Board.

With regard to the first issue, that of carburetor ice, the Licensing Board found that the cooling towers at Limerick would not cause carburetor icing as alleged on a number of principles on the physical characteristics of the plume itself and also the fact that pilots are trained to recognize and remedy carburetor ice.

I submit to the Appeal Board that the record is complete on that issue, and that the testimony of Staff's expert witness, Mr. Geier, was conclusive on that aspect, and some of the allegations today of Mr. Romano are not well-taken and are not in the record.

I have in mind the number of airplanes that are used by pilots as opposed to those used by others and the fact that he changed his testimony.

JUDGE KOHL: Wait a minute. I'm confused.

What do you mean, "the number of airplanes used by pilots as opposed to others"?

MR. VOGLER: I'm sorry. The remark was made that

some pilots don't use the same type of plane. They're using any type of plan they can get, and there's no indication that the carburetor treatment would be available in that type of a plane. That was the implication that I got from it. We have no evidence to that. There's nothing in the record on that regard.

JUDGE KOHL: What about his point of their being an exceptionally large number of students in the vicinity of the Limerick towers, more so than some other areas? In other words, a highe proportion of the people flying planes in that area are students with less flight experience.

MR. VOGLER: There is a flying school at Pottstown. That's in the record. But I don't believe we've got the proportion of students that would be flying and to what impact that would be. Plus the fact that 99 percent of the planes built since World War II have this carburetor heat.

JUDGE GOTCHY: I think there was testimony that there were five public airports within 10 miles and 10 private airports.

MR. VOGLER: That's correct.

With regard to Mr. Romano's AWPP contention on quality insurance, again, the Licensing Board's findings in this regard are based on the evidence of record and the allegations that are made in the Appeal brief that the order

on quality assurance should be overturned because of the narrowing of the contention.

The Licensing Board all during the course of the proceeding requiring Mr. Romano to file his findings first, the evidence from Applicant's witnesses, Mr. Boyer and Mr. Clohecy, the disparity there and the fact that Professor Iversen was not permitted to testify were all handled by the Licensing Board in a fashion that reflects the evidence. They found that Professor Iverson, in addition to being inexcusably late, he appeared the day of the hearing, his testtimony was not germane or relevant to the testimony that was at hand.

Mr. Iversen was talking about statistical sampling. We're dealing here with 100 percent reinspection of welds.

JUDGE GOTCHY: Accessible welds.

MR. VOGLER: Yes.

The narrowing of the contention was done at the last prehearing conference after approximately two years of filing contentions and having them respecified in well over a year of discovery. And finally, at Phoenixville, Pennsylvania, a matter of weeks before the start of the hearing, the Licensing Board specified a contention that they regarded as litigable.

The Commission's Rules of Practice provide, under

2.71(a) and 2.71(b), that the Licensing Board can adjust and alter the course of a proceeding in the interest of judicial economy, in an effort to reach the facts in the easiest possible way.

The Staff submits that all of these matters are based -- are on the record and should be sustained.

With regard to industrial pipes, if the Board has any questions, and the Appeal Board, I would be glad to respond. Otherwise, I feel we can rest on brief in this matter.

We found that the explosions and blast overpressures were insignificant.

We also found that -- it didn't come out here today -- that the record is replete with evidence that unconfined natural gas will not explode in this area. In order to have gas explode, you have to have a powerful initiator like TNT or something similar.

And the Licensing Board, on the basis of the evidence, found there was no circumstance in the Limerick Station area that would generate such an explosion.

JUDGE GOTCHY: Was the question of lightning omitted? I thought lightning was one of the potential high energy sources that was discussed.

MR. VOGLER: Lightning was discussed, and it weas assumed that if it did ignite, the following would be the

result. The Staff's evidence and the Licensing Board so found that there are no initiators to cause an explosion in the Limerick area.

On emergency planning, in regard to Contention 8(b), the emergency response facilities, the Licensing Board noted, as the Applicant here, that the contention involves the adequacy of the plan.

JUDGE KOHL: Yes. Mr. Elliott said that the description of the facilities only amounted to a paragraph or two; is that correct?

MR. VOGLER: The emergency response facility plans were submitted in their entirety. I really don't know the answer to how many pages the plans consisted of. They were submitted and agreed to by the Applicant and the Staff, that they were complete, that there would be no further additions to it, and that the emergency response facilities would be constructed according to those plans.

JUDGE KOHL: Can you give me some idea as to what those plans include? Is it a floor plan? How specific is it, as far as the equipment that's in it? What's left out?

MR. VOGLER: Pardon me?

JUDGE KOHL: What's left out of the plans? Maybe that's the better wa.

MR. VOGLER: Nothing is left out of the plans, and on the basis of the plans submitted, the NRC Staff could

reach a conclusion that if they were constructed according to those plans, they would meet all the requirements about regulations.

In that regard, plans were complete.

JUDGE GOTCHY: Did that regard TNT equifalency factors and decontamination factors for high efficiency particulate factors, that sort of thing? I didn't recall seeing that in there. I'm not saying it's not in there, but I don't recall seeing it.

MR. VOGLER: The Licensing Board found there was no controversy concernig these plans. The facilities that were to be constructed had been constructed elsewhere in other nuclear units, and there was nothing significant about them, as far as they were concerned. And on that basis, they made a predictive finding, that if they were constructed according to these plans, they would meet all of our requirements.

Mr. Elliott is right. When we moved the hearing on onsite emergency planning forward, the onsite appraisal team had not conducted its investigation. The onsite appraisal team subsequently conducted its investigation and issued the report that was sent to the Board and to all the parties.

I will note that the report is in two sections, Appendix A and Appendix B. A being serious deficiencies and

Be being matters that need correcting.

The deficiencies found in both reports totaled 49. As of a few days ago, there were 9 open items left.

JUDGE KOHL: In the A part or the B part?

MR. VOGLER: Both. The majority, Judge Kohn, of the deficiencies were in A, but they were not specifically concerned with the emergency response facilities. It was the entire onsite appraisal that was involved in the onsite appraisal. They just didn't look at the ERFs.

JUDGE KOHL: I know we've had past decisions where we've certainly recognized the need for making predictive findings, and we've left to the Staff to go over different aspects of the emergency facilities at the last minute and eliminated the need for hearing on that.

For example, in the Waterford case, there was a question as to the sirens around the site of the plant, and we determined that it was okay to delegate checking out the sirens to see if they actually worked or not. That was an appropriate Staff function. But have we, in another case, left this much to Staff review?

MR. VOGLER: I would submit, your Honor, that the Zimmer proceeding travels basically the same path in its findings as the Waterford proceeding where the Licensing Board and then the Appeal Board in Zimmer advised that the plans submitted must include a description sufficient to

demonstrate that the plans provide a reasonable assurance that adequate protective measures can and will be taken.

That was basically the Licensing Board's basic conclusion here. Upon looking at the plans, they determined that if they are constructed pursuant to the plans submitted and Staff's onsite appraisal, those individuals in Region 1 who investigated the plant continued to do what they're supposed to do, we have a reasonable assurance that these plans will be submitted.

Indeed, the onsite appraisal report and the follow-up reports indicate that that is precisely what is taking place.

JUDGE EDLES: Mr. Vogler, what happens if at some stage the facilities are not constructed precisely as the plans had been laid out? What happens then?

MR. VOGLER: The individuals who are in charge of this, the NRC Staff people who are responsible for this primarily in Region 1, will have so advised the Applicant and asked him to change it.

JUDGE EDLES: Are the Intervenors kept apprised of the Staff review of these matters?

MR. VOGLER: We have furnished all reports that come out of the Region to all of the parties and the Licensing Board.

JUDGE EDLES: And we'll continue to do that?

MR. VOGLER: Yes, sir. In the event it is determined, Mr. Edles, that the Applicant is not in conformance, then we will order conformance. That's the procedure that is followed.

JUDGE KOHL: Then I assume that all nine items that are now open will be resolved satisfactorily.

MR. VOGLER: None of the remaining nine items that are open involve emergency response facilities.

JUDGE GOTCHY: Did you say before full power?

MR. VOGLER: Before licensing.

I have one more point that I think the Board should listen to.

Limerick Ecology Action was invited at the hearing to cross-examine the Applicant's panel and the Staff's only witness, the guest expert, and basically declined to do so. They indicated that the record was not complete enough for them to formulate questions.

The Licensing Board noted this in its partial initial decision. The witnesses were there, the plans were there. If you have something that is bothering you, why don't you ask about it?

That never came pass.

I think that that also weighed on the Licensing Board's opinion to close. There wasn't really at that point any controversy.

With regard to hospitals, Contention 12-A --

JUDGE KOHL: Why don't you begin by giving me your version of how the D.C. Circuit's decision in the San Onofre case may or may not affect the matters before us.

MR. VOGLER: That's the Gard opinion.

Judge Kohl, there are several items that differentiate the recent San Onofre opinion. The first one is that it involves offsite planning as opposed to onsite planning.

JUDGE KOHL: I think we dealt with that earlier.

The regulation that we're talking about, 50.47(b) applies to both onsite and offsite.

Let's focus on the D.C. Circuit's construction of the term "medical arrangements" and exactly what that's supposed to include and how that might affect the decision here, because, as you will recognize, I think your brief and the Applicant's brief, as well as the majority of the Licensing Board opinion, did rely heavily on the Commission's language in San Onofre about the reliance on the ad hoc arrangements, and that's no longer the precedent.

MR. VOGLER: Fine.

In addition to the onsite-offsite differing characterization, we don't have in this proceeding for the onsite an ad hoc arrangement for hospitals. There are, in

hand, signed agreements with two hospitals in the area to render service and aid to those individuals who are traumatically injured and contaminated. One is the Pottstown Memorial Center, located approximately two miles from Limerick, and the other is the Hospital of the University of Pennsylvania.

So it really isn't an ad hoc arrangement. There are, pursuant to -- I believe, it's Planning Standard L of NUREG 0654, that indicate you need a local hospital and a backup hospital. And indeed, that has been done in this case.

So we're beyond a skeletal arrangement or an ad hoc arrangement for hospitals.

JUDGE KOHL: Except for the fact that the Licensing Board's majority opinion, as I recall, did rely to some extent upon the existence of the other 19 hospitals. That was part of the basis of its decision.

MR. VOGLER: You're referring to finding, I believe, E74 on Emergency Planning? It's on page 148. If the Board please, I would like to direct the Board's attention to the top of page 149 where they conclude their finding, E74, by advising that the Applicant has met the requirements of the planning standard of the requirement.

JUDGE KOHL: But that conclusion is based on the material. You can't ignore the rest of that paragraph and it begins by noting that it would be prudent to have a hospital closer than Penn. It then goes on to note that the probability of Pottstown being unavailable is remote, and Judge Brenner addressed that in his dissent and pointed out that that's quite beside the point since the Commission's regulations recognize the possibility that evacuation maybe necessary.

The the Board majority goes on to refer to the 19 other hospitals. So each of those factors presumably led to the Board majority's conclusion that the Applicant has met the requirements that formed the basis for its decision in that regard.

MR. VOGLER: Well, we may have a slight variance

on our views of E74. They do refer to the fact -- they also refer to the fact that Pottstown's evacuation is remote. Judge Brenner also found that.

JUDGE KOHL: Do I take it, then, that the Staff's position is that the D.C. Circuit opinion really doesn't alter anything in this case?

MR. VOGLER: Not in this aspect. The emergency planning phase of the proceeding would be coming here in due course and I am sure that Gard, the San Onofre opinion, will have a bearing on what happens. As for on-site, the Staff submits -- as they do in their pleading -- that the Applicant has met the requirements of 50.47 B 12 and planning standard of NUREG 0654 and that nothing further is required under the regulations, and the Licensing Board's majority in this regard was correct.

JUDGE KOHL: You're not just the slightest bit uncomfortable with the Court's opinion interpreting the identical language and the identical section of the regulations contrary or in a manner that might be considered contrary to what the Board majority found.

MR. VOGLER: You're referring to my position as an attorney?

JUDGE KOHL: I'm referring to your position as Counsel for the Staff.

MR. VOGLER: I feel, your Honor, that the

Applicant has met the requirements for 50.47 B 12 and that's the Staff's position. We don't feel, at this time, and most certainly the Applicant is capable if it so desires to go out and make something more than a skeletal arrangement with another hospital, most certainly the Appeal Board on it's review can order anything that they feel is suitable for the facts and the evidence that we have. However, the Staff's position is as set forth in our brief.

As Counsel for the Staff I submit that nothing further is required for onsite emergency planning.

JUDGE GOTCHY: With regard to offsite, Mr. Vogler, do I understand you to say that eventually we're going to get in the offsite emergency planning hearings, a discussion of the hospital capabilities for off site contaminating and injuries.

MR. VOGLER: Let me back off just a moment. My remark was that the off site planning phase of the Limerick proceeding is now ongoing. The hearing is over and we are in findings. I assume that that will come here. Whether it deals with the hospital arrangements, I'm going to have to back off. I really don't know whether that's at issue or not.

Finally, with regard to medical facilities, the Staff's witness, Mr. Sears, also advised on the record thatthe situation in the Limerick area with the local

hospital being in close to take care of traumatically injuried individuals and the hospital of the University of Pennsylvania being 45 minutes away, was not unlike situations elsewhere throughout the United States involving onsite emergency plans.

JUDGE EDLES: Was the Pottstown Hospital selected because it was close?

MR. VOGLER: All I can go on, Judge Edles, is the testimony of Dr. Linneman, the Applicant's witness. He advised on the record that he would be remiss in his duties on not utilizing the Pottstown Memorial Hospital for traumatically injuried individuals because of its location.

JUDGE EDLES: Any affirmative reason for selecting the University of Pennsylvania Hospital as backup?

MR. VOGLER: There are several things that bear on that. We were presented with the fact that the hospital of the University of Pennsylvania -- the Staff, that is -- was selected by the Applicant as a backup hospital because of the excellence of that facility and the fact that they do have indepth training for radiation injuries. LEA brought out that Dr. Linneman's Radiation Management Corporation has a contract and, indeed, the Applicant's connection is with radiation management which, in turn, goes to the Hospital of the University of Pennsylvania.

Staff didn't see anything unusual about that in

view of the fact that they were able to ascertain the Hospital of the University of Pennsylvania was available and had agreed to be.

JUDGE EDLES: Anything in the record which might suggest that even if there were a nearer hospital you would still want to send people to the University of Pennsylvania because of its facilities?

MR. VOGLER: No. With regard to LEA's allegations and contentions on alternatives to risks -- contention DES-5 that was rejected -- we've had a lot of discussion on that here this morning -- this afternoon, excuse me. I would like to point out to the Appeal Board that the bases for dismissing DES-5 was the basis of specificity. The Licensing Board pointed out that we are not in a construction permit proceeding; we are now in an OL proceeding.

JUDGE KOHL: What's that got to do with basis of specificity?

MR. VOGLER: I believe primarily, Judge Kohl, it has quite a bit to do with specificity. That plant and the plans thereto have been available for approximately 10 years and that it was encumbent upon LEA after this length of time and the number of reports that had been submitted, to be a little more specific as to what design alternative they had in mind.

JUDGE KOHL: Well, Mr. Elliott said that he was specific, that he submitted several fairly recent studies that were done under contract to the NRC that did identify a number of accident mitigation devices that were feasible in the eyes of the contractor. Why wasn't that specific enough?

JUDGE EDLES: I believe he said they were cost effective as well.

JUDGE KOHL: He said in some instances although I can't remember his specifically identifying which ones. He did say some of them had been determined by the contractor to be cost effective.

MR. VOGLER: First of all, the contractor studies were done under a large NRC contract to study various reactors under a generic system.

JUDGE KOHL: But they differed from, specifically, the Limerick.

MR. VOGLER: They used that for the General Electric Mark II reactor.

JUDGE KOHL: I think at least one that he referred to in his brief specifically does refer to Limerick.

MR. VOGLER: Excuse me, the Mark II reactor study was done at Limerick. The prototype was the Limerick reactor, so it was specific to Limerick. But the Licensing

Board found, and the Staff pleaded in its briefs, that there was no nexus -- sufficient nexus -- between the findings of the contractors generic study and the Limerick plant as it existed. The status reports indicated that there were ongoing studies and we are looking into various aspects of it. And then approximately six months ago they came out with a final report which was served on all of the parties and there has been no comment from LEA to refile the contention, respecify the contention, or reopen the record.

On the final report which, for reasons that we don't know, is labeled a preliminary report.

JUDGE KOHL: I guess I still don't understand why the original contention that LEA filed as supported by the preliminary versions of the reports -- why was that not specific enough? Granted, some of the studies were generic but there are specific references to Limerick which you acknowledge. Why was that not specific enough to permit at least admission of the contention. We're not talking about ultimate resolution of it but his point was the contentions should have been admitted and then they could have been flushed out further.

MR. VOGLER: LEA was asked to make it more specific and the Licensing Board found that their response was not sufficient, that there was still no specificity.

JUDGE KOHL: Had LEA pointed to a specific

sentence in one of these contractor's reports that said, we think it is desirable and cost efficient for the Limerick facility to have a core retention system. Would that have done it?

MR. VOGLER: The Licensing Board, Judge Kohl, made it very clear that its reliance on documents such as the contractor's reports were too general for site specificity. You can't just look at all the alternatives and walk away from it.

JUDGE KOHL: Mr. Vogler, where it refers specifically to Limerick, how can you say that's not site specific enough?

MR. VOGLER: They were looking at a standardization plan for Mark II reactors.

JUDGE KOHL: Why didn't they say that rather than we're looking at Limerick? I don't understand why there would be any reference to the name Limerick as far as I know. Limerick is a particular plant.

MR. VOGLER: That would be back in the reasons for initiating the contract and setting it out as to why they wanted to look at Limerick.

JUDGE GOTCHY: Was the design they looked at actually the Limerick design?

MR. VOGLER: They looked at the Mark II reactor.

JUDGE GOTCHY: Well, that's what Limerick is.

MR. VOGLER: But you cannot look at it in isolation. So they looked at the Limerick facility.

JUDGE KOHL: Is Limerick constructed basically in the same fashion as the generic Mark II plant, the study looked at?

MR. VOGLER: I think that Limerick reactor functions in the same way as a Mark II reactor should function but I don't mean to imply that the balance of the plant would be the same throughout the United States. The Licensing Board found that they wanted more than just a reference to a contractor's status report.

JUDGE KOHL: That's what I'm trying to find out. What more?

MR. VOGLER: The Licensing Board said you should come up with a particular sequence which if it were changed would be cost effective, bearing in mind that the finding was that the risk here is very low.

JUDGE KOHL: And if the contractor had a particular sequence and it was determined that the mitigation measure would have been cost effective, would that have been enough to satisfy the specificity requirement?

MR. VOGLER: I believe, first of all, that situation didn't arise. Second of all, if it was proved that there was a large risk at Limerick and that the

consequences from all large risks being what they are, and that they could specify what it was I believe, perhaps, the Licensing Board would have looked at it differently but that's not what we have here.

Finally, with regard to alternatives we have a proposed policy statement that tells the Staff and the Licensing Boards that measures or control or mitigate severe accidents should not be addressed in case related hearings?

JUDGE GOTCHY: Did that come out to the acceptance on that case related contention?

MR. VOGLER: The Licensing Board's primary finding was the lack of the basis of specificity and it also advised that the Commission's policy statement on this issue on severe accidents and the fact that we should not address these issues in case related proceedings militated against the admission.

JUDGE KOHL: Where did the Licensing Board say that? I can't find it in the references.

MR. VOGLER: It's in our brief and I'm sure we can find it.

JUDGE KOHL: I'd like to see specifically where the Licensing Board relies on something other than the lack of specificity. Why don't you move on to your next point?

MR. VOGLER: My next point, your Honor, is sabotage. Again, the Licensing Board dismissed LEA's

contentions on sabotage because it was as alleged too broad, vague, and speculative and, also, the Commission's policy statement. The risk of sabotage is beyond the state of the art as currently understood also militated against the admission of this contention.

JUDGE KOHL: Is that being litigated in any other cases? LEA refers to Indian Point.

MR. VOGLER: Indian Point was, as your Honor knows...

JUDGE KOHL: I realize that was a special proceeding.

MR. VOGLER: Yes, it was. And I think that's one of the items that was to be covered from the mandate that came down from the Commission.

We did not have at Indian Point a broad-ranging licensing proceeding as we had here. There were certain items to be handled in hearing on the Indian Point matter.

JUDGE KOHL: Did the Commission then specifically identify the sabotage issue as something to be litigated? Or, was that raised by a party?

MR. VOGLER: That was not raised, I don't believe.

In addition, the Licensing Board held that LEA offered no basis for the separate consideration of sabotage as an initiator of severe accidents, but contributed to the environmental statement that we had already determined, and which we had considered a severe accident. On that basis, they dismissed sabotage.

So, again, it's specificity and basis.

With regard to LEA's contentions regarding health effects, the staff agrees that the health effects set forth

by LEA are numerically greater than the health effects analyzed by the staff in its environmental statement.

JUDGE KOHL: Why then didn't staff include that in the FES? Apparently, staff had done the work. It had done the analysis but there was a judgment made for some reason not to include that in the actual document.

Is that correct?

MR. VOGLER: The staff in the FES notes that impacts shall be discussed in proportion to their significance, and the staff selected the impacts to discuss involving fatalities, and they noted that, although numerically greater, in their opinon, they are less significant. LEA's health effects are less significant qualitatively than the risk of injuries that lead to fatalities.

So they focused on in the FES that type of radiation and health effects resulting from an accident that would lead to a fatality.

JUDGE KOHL: So if it doesn't kill you, you're not going to talk about it in the FES?

MR. VOGLER: First of all, the risk to health effects in the FES are very low. Therefore, they selected only the most significant.

JUDGE KOHL: Excuse me. I would ask the audience to permit Mr. Volger to answer my question without

interruption.

MR. VOGLER: Also, they noted that the health effects put forward by LEA could be determined from the reference material that is in the FES. The bureau reports, I have specifically in mind.

So, although they were not specifically spelled out with fatalities, the information is there. So that an informed person using the reference material can determine health effects that do not lead to fatalities.

It was on that basis that the Licensing Board judged the FES.

JUDGE KOHL: Maybe you can't answer this but if the question is, if that judgment had to be made again, do you think now it would be better in hindsight to include that material?

Again, it's not a question of not having considered health effects, it's just a judgment which was made for some reason not to detail them as explicitly as the other health effects. It just seems to me if the FES had been more specific, we wouldn't be here arguing about this particular point.

MR. VOGLER: The health effects were considered. They just were not spelled out in the FES and the reference material was reviewed. The bureau reports were all considered. The staff made a judgment that they would spell

out in detail only those health effects that would lead to fatalities.

JUDGE KOHL: It's that judgment I'm trying to understand better, why there wasn't more explicit discussion, given that there is agreement that they are numerically greater. I'm trying to get a handle on what the criteria are for what gets discussed and what gets merely referenced in the document; and if there is some reason why that distinction is even made.

That's what I don't quite understand.

MR. VOGLER: There are several reasons. They picked fatalities because those impacts were the type which experience indicated would best illustrate the risk from the Limerick Station. We had testimony at the hearing on the risk of the health effects that LEA is stressing would be difficult to discern. The risk was basically almost the same as that from general background radiation.

Also, in other words, the risk was small.

May I check to see if we have a transcript cite?

JUDGE KOHL: Sure.

(Pause.)

MR. VOGLER: Your question, Judge Kohl, was where did the Licensing Board discuss the lack of specificity in the contention put forward by LEA.

JUDGE KOHL: Not to lack of specificity. I know

where that is. I wonder where the Licensing Board had referred to the policy statement. I understood you to say that the Licensing Board relied secondarily on the proposed policy statement on severe accidents.

MR. VOGLER: I believe it's on page 46 at the staff's brief. We can go there. At the bottom of the page just above the footnote, halfway through there.

JUDGE KOHL: That was the second prehearing conference order?

MR. VOGLER: Yes, involving I-60, which LEA had put forward on the safety side. When it was rejected, they came forward on the NEPA side and posited the same contention. If you notice there at the beginning, it says, "Prior to the proposed policy statement." It might have been open to LEA to allege.

And, at the beginning, your Honor, about six lines down from the top, the last sentence before the inset,

"In rejecting LEA's contention, I-60, the board noted the Commission policy statement on severe accident."

JUDGE KOHL: I recognize that your argument is that, but the Licensing Board then did not repeat this?

MR. VOGLER: I believe they did but I can't find it here this afternoon. But that was the genesis of my remark, here on page 46.

JUDGE KOHL: So your basic point is it was the

same contention?

MR. VOGLER: It is the same contention. It didn't get in on the safety side so they posited it on the environmental side. I'm sure that they referenced it. If the appeal board would want me to get back with them on that, I'd be glad to give you a citation. Otherwise, we can move on.

JUDGE KOHL: If you can give us a cite in addition to what you have already referred us to...

(Pause.)

MR. VOGLER: Judge Kohl, my co-counsel here has done a very good job. She points me to page 51 of the staff's brief. There's a transcript citation in there in which 9471 on the transcript...then the Licensing Board goes on to say, "DES-5 is nothing more than a re-articulation of I-60." The commentor had alleged that there was a particular dominant sequence, and they refer to its reasons for rejecting the I-60.

JUDGE KOHL: Again, I think where the Licensing Board says they are rejecting it for lack of basis and specificity, not because of the policy statement, but we'll reread that part of the transcript. Why don't you go on to your next point?

MR. VOGLER: Basically, if there are no further questions on health effects, the staff feels it has covered

the appeal. If the Appeal Board has any specific, particular questions, the staff would be glad to respond.

JUDGE KOHL: I think Dr. Gotchy has a few.

JUDGE GOTCHY: I just had a couple of questions. One of these dealt with the FOE appeal and one with the AWPP appeal.

The FOE appeal brief at page 5 referred to board findings, B-86 through 89, and claimed the possibility of damage to the spray pond and to the equipment is still unresolved and is the subject of a special study.

My question was, has this study been completed? And has the staff reviewed it in any way? Are you aware of that?

MR. VOGLER: May I have the paragraph number? I'm on page 5.

JUDGE GOTCHY: It's right near the bottom.

MR. VOGLER: Of FOE's brief.

JUDGE GOTCHY: Yes. Since it's written in the form of exceptions, it's B-86 to 89. That's just before the conclusion.

MR. VOGLER: That study has been completed, Judge Gotchy. And it's found to be safe.

JUDGE GOTCHY: And the staff has found?

MR. VOGLER: The staff has concluded that the allegation is without merit, that damage to the spray pond

from the blast over-pressure and the over-terming of the cooling tower would not affect the integrity of the spray pond.

JUDGE GOTCHY: So it wouldn't damage any of the spray, or anything like that? That was the question. Okay.

I had another question on Mr. Romano's appeal. It was ointed out here today in his oral argument that FAA regulations permit pilots to fly within 500 feet of cooling towers. I guess the implication here is that they can presumably fly into these plumes where there may be temperature and humidity differences that are much different at 500 feet as opposed to a quarter of a mile. And that those conditions might produce serious carburetor icing. I notice neither the staff nor the applicant briefed this question.

I'd just like to have an answer to that question, if you have one, and maybe you can cite to me where this is discussed.

MR. VOGLER: First of all, Mr. Romano is correct, you are supposed to stay, under FAA rules, within 500 feet away from the cooling towers. They also have a rule, the FAA also has a rule, that says you're supposed to stay 500 feet away from clouds. And the cooling tower plume falls into that category. You're not supposed to fly through the

plume.

JUDGE GOTCHY: Instrument-rated pilots can, as I understand it.

MR. VOGLER: Wait a minute. There's two types, VFR and IFR. Visual is what we're referring to. If you are a visually-rated pilot, you're not supposed to go within 500 feet of a cloud. We have testimony in the record to that effect. If you are an instrument pilot, VFR, then I assume...although it's not recommended to fly through clouds, I don't think that the 500 foot rule applies.

JUDGE GOTCHY: Obviously, they did at the Keystone study or they wouldn't have gotten those results.

JUDGE KOHL: Thank you, Mr. Vogler.

Rebuttal first from Mr. Elliott. You've got about five minutes.

FURTHER ORAL ARGUMENT ON BEHALF OF THE LIMERICK ECOLOGY ACTION, BY CHARLES W. ELLOTT

MR. ELLIOTT: With respect to the applicability of the proposed policy statements on severe accidents in the context of mitigation, I just wanted to note that the language in the policy statement does not apply to the contention that LEA filed.

The language of the proposed policy statement restricts litigation of mitigation features in case-related safety hearings. This is not on the safety side of the

hearings. It was a NEPA contention. So if you look at the language of the policy statement, I don't think it governs LEA's contention on the NEPA side.

JUDGE KOHL: Mr. Elliott, haven't there been both court and NRC cases that have held that you can't really put these kinds of issues into neat little boxes and kind of label them NEPA or a label that says "Atomic Energy Act"?

I'm not sure where that kind of labeling will really get us anyway.

MR. ELLIOTT: The defect, if any, is perhaps in the language of the proposed policy statement.

JUDGE EDLES: Don't you get into a problem there?

JUDGE GOTCHY: Don't you get into a problem there? If you argue along your lines, you're saying that NEPA has more stringent safety requirements than the safety requirements that were put on the agency by Congress.

MR. ELLIOTT: No, all we're saying is that NEPA may require an examination of mitigation features where they are cost-effective. I don't know that that necessarily imposes any additional safety requirements.

With respect to the question of whether the research that is done applies to Limerick as opposed to some generic Mach II containment, I think the record is pretty clear that what is being considered is the Limerick design as part of the bases that LEA submitted we've attached a

a reference from NUREG/CR-2666, the title of which is Chapter 7, a further consideration of mitigation features for a specific plant, Limerick.

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JUDGE KOHL: Is there anything in that document about cost-effectiveness, however,?

MR. ELLIOTT: Not in that particular document, because that document was issued prior to the research that got into that detail. Let me just go on, though. The document which has most recently come out references again the selection of containments to be considered in Mark 2, the BWR represented by the Limerick Generating Facility. So that most recent report deals specifically with Limerick.

JUDGE KOHL: That's not in the record, though.

MR. ELLIOTT: It came out posthearing.

Now what Applicant would like to do is put LEA in the Catch-22 box, either the time they submitted the information, it was too early, because the research didn't exactly come down to the point where it specifically recommended implementation of mitigation features or it was too right, because by the time the report came out, you were six months past the time when the hearings took place.

It's an eminently unfair position for the Applicant to take.

What was submitted that was part of the record was the March 15th -- the most recent one we had -- the March 15th status report. That status report said for Mark 2 containment ligitation, the necessary requirements have been established and a choice of systems designed encosted and

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ready for final consideration. The systems include capabilities for steam venting during ATWS, filter containment of excess hydrogen formation, redundant high-capacity heat removal from the containment suppression pool, water sprays, core retention and vacuum breaker. Several versions have been designed for some components, especially for retention.

Not all of these capabilities are likely to be included in any one selection, since their cost may exceed the residual risk to benefit arrived at.

The entire cost analysis has been prepared in three versions: for the case of a plant already in operation; a plant still under construction; and for a new plant at inception.

Engineering work for the Mark 2 mitigation system is complete, except for modifications that result from the value impact analysis.

Now when we came down to the most recent information, posthearing, the conclusion was that costs justified for mitigation ranged from $26.4 million without the ATWS 3-A fixed to about $19.9 million with it.

Well-developed mitigation equipment is available to meet the requirements, but the question of cost and compatibility with existing systems remains to be explored in a more detailed study. That more detailed study came

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out. That more detailed study listed a number of mitigation features which, in fact, they concluded are within those cost guidelines.

JUDGE GOTCHY: This is for a plant already constructed?

MR. ELLIOTT: That's right. A plant already constructed and having commenced operation, in effect. Mr. Wetterhahn makes reference to the new Part 51 regulations with a suggestion that perhaps in the statement of consideration, there is a listing of several mitigation or design alternatives, which by way of example, Rule 51 makes reference to. Mr Wetterhahn implies that those examples are by way of limitation, and nothing else may be considered. I disagree with that conclusion. I think that those items are listed by way of example. In any event, those examples or limitations don't appear anywhere in the actual language of the regulation. It just talks about alternatives and mitigation features. It doesn't limit them.

In any event, even if Mr. Wetterhahn were correct in his conclusion that the types of systems which may be considered are limited to those examples, one of the examples given is alternate heat dissipation systems, and one of the examples that LEA mentioned at the March 15th report is high-capacity heat removal from the containment.

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So one of the examples that is listed in the new Part 51, is one of the examples that LEA has submitted as a basis for a new mitigation alternative.

JUDGE KOHL: Thank you, Mr. Elliott.

Mr. Anthony. Mr. Anthony, you have five minutes.

FURTHER ORAL ARGUMENT OF ROBERT L. ANTHONY, ON BEHALF OF FRIENDS OF THE EARTH.

MR. ANTHONY: Judge Kohl, I'm not very smart when I'm on my feet like this. When you spoke about how do I propose that these four solutions, remedies that I proposed would be carried out, it's not up to me. I think the answer is, if you were to say and the NRC were to say "No license PECo, until these six things are solved," they would find a way to solve them.

And may I add that I love big pronouncements and great noble phrases, and it killed me to put my findings down into these six pedestrian, in a way, but essential solutions to the dangers from outside the plant. There is so much danger inside that plant, to have any regulatory body like the NRC allowing the possibility of a pipeline explosion or a railroad explosion is, to me, suicide, and just doesn't protect the public in the way they deserve.

We've got a ludicrous situation here.

I'm glad, Judge Kohl, that you mentioned Mr. Walsh as a meteorologist and what does he have to do with

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pipelines?

Indeed, what does he have to do with pipelines? Indeed, what does he have to do, as a reliable witness? Mr. Walsh was discredited, and who was the guy who blew the whistle on Mr. Walsh? He's standing right here. He is here, and he is telling you that Mr. Walsh submitted a lot of baloney in the form of testimony, and then PECo moed that there should be a summary judgment on the basis of this.

It was our response to these so-called "facts" that PECo advanced, which began to open the eyes of PECo and NRC to the fact that Mr. Walsh was completely wrong about the amount of fuel from the Arco pipeline, by about 10 or 20 times. He was completely wrong about the placement of the most deadly break that would take place. It was on the hillside, not at the bottom of the creek like he said, and he was completely wrong about siphoning and the amount of fuel that would flow out of a break in the line.

In spite of this, the Licensing Board used all of Mr. Walsh's testimony, all of his figures in their findings, and it seemed to be incredible that they should do this. He is a discredited witness.

And this leads me to the fact that Mr. Wetterhahn, even now uses the phrase "as-built deficiencies." Well, let's see. I'm glad to hear him use the phrase. One of those "as-built deficiencies" that came up in the hearing

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was when Judge Brenner asked, where is the vault for the new fuel to be built, and he was looking at a plan. It was in the plan. We were told that has been changed. There is no vault. This was just what I was trying to get at. "As-built" is the way it is built. This is what Mr. Wetterhahn calls an "as-built deficiency," and the plant must be, we feel, riddled with them.

If a rank amateur like me can blow the whistle on a so-called "expert" like Mr. Walsh, then all the way down the line, to all the Ph.Ds and all the technicians who have submitted their plans and their evidence, they can be made full of holes too, if the right person comes along.

Unfortunately, I'm not the right person, because I didn't have the expertise to do it, but we are seeing now that the evidence is coming out. 74 events, potential accidents, in 95 days, shows that the operation of Limerick is falling apart. It can't be relied on. The construction deficiences are built in, and the operation by the operators is faulty.

This Board has a chance to question some of what's behind all of this, and I'm only referring to my part as a little bit of what can be seen underneath the iceberg, because we now see a little glimpse with 74 events in 96 days. We see there is much too much danger. There has been much too much casualness in the whole process, and the

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plant and the operators must now be questioned. And I hope that you will take your part in beginning this question.

JUDGE KOHL: Thank you, Mr. Anthony.

Mr. Romano.

Mr. Romano, you have about five minutes.

FURTHER ORAL ARGUMENT OF FRANK R. ROMANO, ON BEHALF OF AIR & WATER POLLUTION PATROL

MR. ROMANO: In five minutes, I'm going to try to save Montgomery County and half of Pennsylvania.

Just on peripheral, that Mr. Vogler stated that you'd have to say 500 feet below the cloud, a flyer would, and I'll go back to this poor kid, who is afraid, and he has to stay and follow that rule 500 feet below clouds. He'd fly right in it again. And I think you know we have to use our heads sometimes and not allow that to be an excuse.

Then I stated also that I did not get a chance in the cross-examination of the AWPP witness, which would be me, there I wanted to disprove some of the statements made by the witnesses. For instance, I have a table here, under B, Attachment B, of light aircraft, piston engine, carburetor detector warning device sensitivity effectiveness, page 10, where it shows that it is the private pilot that has most of the carburetor icing accidents, and they even have their licensing. Students are even worse.

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JUDGE KOHL: Mr. Romano, the document you are are referring to, is that in evidence?

MR. ROMANO: Yes. Attachment B, light aircraft piston engine carburetor icing.

JUDGE KOHL: That was introduced and accepted into evidence by the Licensing Board?

MR. ROMANO: Yes.

Mr. Wetterhahn said that it had been definitely proven that the pilot was given sufficient training, and they would know how to do it.

Now I'm just going to give one example, of that five minutes or so, I just want to give one example of erroneous testimony given by PE through Mr. Wetterhahn or whoever provided the information to show that other testimony is questionable.

We've been told that it's easily recognizable when you have a carburetor ice situation, that it's just so simple to get rid of it, but if you look at that that table that I've referred to here, you see that certified instructors, these are certified instructors, that shows the number of fatalities or accidents that these certified instructors had on carburetor ice.

So it isn't such a simple thing, when even certified instructors can have a situation, and we go on here, as it relates to how easy it is to recognize

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carburetor ice, and then get rid of it. Here we have light aircraft, piston engine, ice detector warning, Attachment B. The same reference on page 20. Under Item 4, it says "Performance degradation may not be caused by ice formation." And so you see, if you're going by performance rpm degradation, it states right here, performance degradation may not be caused by ice formation.

Then it says "Performance degradation does not appear at initiation of ice formation, but rather after an accumulation has been developed."

And that proves that it can get ahead of you, and you don't know what's coming. Here now we're talking again about all these students around these 10 fields.

JUDGE EDLES: How long does it take for the accumulation to occur, before you have a problem?

MR. ROMANO: It has been stated in more than one place, even though Mr. Geier, he said instantaneously, and there are other references that I have, that it's a factor of instantaneous, a minute or so.

JUDGE KOHL: Do you agree that it requires some accumulation, some amount of ice that's accumulated, for there to be a problem?

MR. ROMANO: Yes, that's so, but you don't know when it's happening. It gets too far ahead of you. So I read one more thing that might answer that.

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"When the carburetor temperature is well below freezing, there are times when the application of heat will make icing conditions worse; however, a pilot doesnt always know when these conditions exist."

That's the tricky.

Other references I have. Icy fingers in your carburetor and the carburetor is still a threat, and all those things.

This is just one example to show how erroneous the testimony is. I asked the panel before the Judge -- oh, that's something else.

In addition to standard cockpit instrumentation required by FAA, there are optional instruments available on the market shelf which have been approved by the FAA on a no-hazard basis with the issuance of a certain STC. Such instruments are approved as optional equipment only, and FAA warns flight operations should not be predicated on their use.

What I want to bring out, it isn't known what's happening with this carburetor icing situation, as these people tried to say.

How much more time do I have?

JUDGE KOHL: You're out of it. I was just about to tell you.

MR. ROMANO: That's on carburetor icing. I have

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five on the other?

JUDGE KOHL: No, you don't. You have a total of five minutes.

Why don't you take one minute to sum up on your OA contention? We'll thenclose the hearing.

MR. ROMANO: Again, I want to give one example to show the testimony wasn't quite right.

JUDGE KOHL: This is on your OA?

MR. ROMANO: Yes. And I'm very concerned, because in 3:00 a.m. darkness, an accident, you know, a blizzard-blocked roads, people can't get away, and then they say they have to shelter them. You know, six-foot walls, and now they want people to stay in their own homes, because they can't get out. Now that's going to be a deathtrap.

All right. So they threw out 7601. The Board did. I insisted on proof that PE had said that everything that they had said to the Board was correct. We asked for an affidavit. Unable to substantiate via an affidavit information which had previously and repeatedly been submitted as fact. Philadelphia Electric, through its counsel, Mr. Wetterhahn, who knows all about that August 1983 letter, said "In the course of preparing to respond to the Atomic Safety and Licensing Board request for an affidavit to verify the statements made, those statements

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were that all inspections, that all welds had been reinspected." He said to verify statements contained in the May 20th letter to the Licensing Board, this is what PE was saying. They then learned that, after they were required to present an affidavit, they then learned that all inspections performed by the subject quality control inspector had not been identified and, therefore, they're not reinspected as previously believed.

That goes back to the idea that PECo first said that this fellow had inspected 435 welds, and then it came up a week or two later that it wass 750. Then it went up to 1275.

The real situations exist, not for the Board, not for them, not for us. It's in those welds, those questionable welds inside that reactor. And it's a shame that the real test of what PE has done may cost hundreds or thousands of lives.

And I think the Board should be very careful that they don't take the responsibility for this thing. I would say, let the people take the responsibility. Have a referendum in Montgomery County and surrounding counties. Let the people decide.

JUDGE KOHL: I'd like to thank all the parties for their participation here today.

And the case is submitted. Thank you.

(Whereupon, at 5:00 p.m., the oral argument was concluded.)

CERTIFICATE OF OFFICIAL REPORTER

This is to certify that the attached proceedings before the UNITED STATES NUCLEAR REGULATORY COMMISSION in the matter of:

NAME OF PROCEEDING: PHILADELPHIA ELECTRIC COMPANY

(Limerick Generating Station, Units 1 and 2)

ORAL ARGUMENT

DOCKET NO.: 50-352-OL & 50-353-OL

PLACE: BETHESDA, MARYLAND

DATE: MONDAY, MARCH 4, 1985

were held as herein appears, and that this is the original transcript thereof for the file of the United States Nuclear Regulatory Commission.

(sigt) David L. Hoffman

(TYPED)

DAVID L. HOFFMAN

Official Reporter

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