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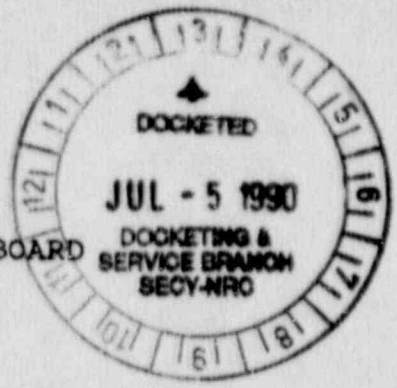

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Before Administrative Judges:

G. Paul Bollwerk III, Chairman
Alan S. Rosenthal
Howard A. Wilber

In the Matter of	)	Docket Nos. 50-443-OL
	)	50-444-OL
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, ET AL	)	
(Seabrook Station, Units 1 and 2)	)	July 5, 1990

INTERVENORS' COMMENTS ON LICENSING BOARD'S RECOMMENDATION THAT BEACH SHELTERING REFERRAL BE VACATED

In its June 27, 1990 Memorandum and Order, LBP-90-20, the Licensing Board made certain findings and rulings which purportedly resolved the remaining aspects of the remanded Beach Sheltering issue. LBP-90-20 slip opinion at 9 ("Accordingly, we conclude that the remanded sheltering issue has been resolved.") The lower Board also concluded that

> because of the clarification provided by the State of New Hampshire and FEMA concerning the provisions of the plan, this Board no longer requires guidance from the Appeal Board . . . .

LBP-90-20 at 9. Based on this statement the Licensing Board recommended that this Appeal Board vacate the accepted referrals made earlier in LBP-90-12. Intervenors, the Massachusetts Attorney General and the New England Coalition on Nuclear Pollution, oppose any vacation for the reasons that follow.

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1. The only stated basis for the Licensing Board's recommendation is that the State of New Hampshire and FEMA have stated that there is no "actual sheltering" for the general beach population other than the "shelter-in-place" concept. Yet, this fact[1/] was the very basis on which the Licensing Board in LBP-90-12 referred the Condition (1) sheltering issue in the first place. Even by the standards of this proceeding, such "reasoning" is far from persuasive.

2. The sheltering issues presented by the referrals have not been resolved in <u>any</u> fashion. Nothing in LBP-90-20 indicates that there has been such a resolution. In any event, since the Licensing Board's purported "resolution" of the Beach Sheltering issue (including Condition (1) sheltering) will be subject to appellate review at some point the only consequence of a vacation of the referrals will be further delay. Such delay is unconscionable in light of the holding of this Board in ALAB-924 that the absence of sheltering detail precluded the approval of the NHRERP and the "reasonable assurance" finding. New Hampshire beaches are at their most crowded now. This

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1/ As Intervenors have repeatedly made clear, "shelter-in-place" and "beach sheltering" as explicated and defended during the NHRERP hearings and approved in LBP-88-32 will result in the general beach population (those at T_1 inside or with access to the inside of shelters) being advised to take shelter when that protective action is dose-minimizing, as it will be, for example, in a "puff release". The State of New Hampshire and FEMA, to the extent they now deny this fact, are not "clarifying" but modifying the NHRERP. This modification, in turn, has no technical basis or justification as it results in the choice of evacuation for those out on the beaches even in those cases in which sheltering these people (in accordance with a still not-yet-created sheltering plan) has been found to be dose-minimizing.

Board, therefore, should retain the referrals on which the parties have already been heard in memoranda, and issue a decision suspending operation in the absence of a sheltering plan or record support for the proposition that sheltering is not the dose-minimizing protective action for the general beach population in certain circumstances.

3. As a separate matter, Intervenors wish to challenge immediately the Licensing Board's disposition of Condition (2) sheltering to the extent (if at all) that the Licensing Board resolved this issue based on certain statements of counsel representing the Massachusetts Attorney General and the New England Coalition on Nuclear Pollution made at the prehearing conference held on June 5, 1990. LBP-90-20 at 6-7. Intervenors' counsel stated as follows:

> MR. TRAFICONTE: I found the Board's analysis of that issue persuasive in the May 3 opinion. I found the discussion of the condition under which there would be tens of thousands of people on the beaches, but at the same time, there would be no means of evacuation because the bridges or the roads would all be out simultaneously, or there would be such a dense fog that would hit the beach areas while tens of thousands of people were on the beaches -- I agree, and intervenors agree, that that is such a rather absurd set of circumstances . . . .

Tr. 28,330. This statement by counsel was made without knowledge of an important piece of testimony made part of the record of this proceeding during emergency plan hearings held in 1983. Attached hereto is a portion of the July 15, 1983 prefiled testimony of Philip B. Herr which states, inter alia:

> Q.04 Why is it important to analyze summer adverse weather conditions?
>
> A.04 NUREG-0654 calls for such analysis (at IV-A, pg. 4-6). In the Seabrook case it is possible that the greatest threat to safety could come in the summer when the summer-swollen number of nearby people can be coupled with

adverse weather, such as fog or a sudden thunderstorm. Fog and rain reduce travel speeds and road capacity through reducing visibility and reducing braking effectiveness . . . .

Peak numbers of persons and adverse weather aren't at all mutually exclusive. Coastal fog is quite common, resulting when winds are onshore on a hot humid day. On such days people considering day trips have no way of knowing that the beach will be in fog since only a few miles inland it is clear, and often the foggy weather is warm enough that people remain on the beach hoping the fog will burn off, as it often does. Exactly those conditions were observed by me to have prevailed on the Sunday of the 1983 Fourth of July weekend along the entire beach zone from Portsmouth to the Merrimack River: beaches, parking lots, and streets full, but my vehicle and others moving slowly through fog with headlights on.

Herr testimony at 3. (See, August 18, 1983 hearing transcript ff. Tr. 1196) In light of this testimony, which was cross-examined (Tr. 1197-1276) and is part of the record of this proceeding, Intervenors' counsel's statement is simply wrong. Moreover, the Licensing Board in LBP-89-20 ignores the context in which all of Intervenors' counsel's June 5 comments were made:

MR. TRAFICONTE: . . . [T]here would be large beach populations that somehow magically find themselves on the beaches, even though there are impediments, somehow magically, impediments to ingress and egress.

We, with the Board, find that to be an extremely unusual, if not unimaginable, circumstance . . . .

CHAIRMAN SMITH: Well, are we in a position to review [sic: probably agree] that that is not an issue?

MR. TRAFICONTE: Well, the Intervenors are not going to agree, Your Honor, to anything. We object.

CHAIRMAN SMITH: You're not going to agree to anything?

MR. TRAFICONTE: We're not going to agree with anything. We're not going to stipulate to any facts and we're not going to agree to anything.

CHAIRMAN SMITH: That is a categorical refusal? You will not stipulate to any facts whatever?

MR. TRAFICONTE: Well, I'm sure we're not going to stipulate unless I saw it in writing. I'm not going to stipulate --

CHAIRMAN SMITH: You're not going to stipulate in advance to unknown facts.

MR. TRAFICONTE: I'm surely not going to stipulate in advance to unknown facts. That's clear enough. But, I'm not going to agree before you orally that Issue 2, Condition 2 sheltering is somehow resolved.

Tr. 28328-29. Notwithstanding these unambiguous statements, the Licensing Board in LBP-90-20 at 6 stated:

> At the prehearing conference, the condition (2) sheltering issue, as defined by the Licensing Board, evaporated. The Intervenors agree with this Board's analysis of the condition (2) scenario in LBP-90-12.

To the extent (if at all), that the Licensing Board resolved the remaining Condition 2 sheltering issues based on Intervenors' counsel's statement, that resolution is in error.[2/]

Respectfully submitted,

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DATED: July 5, 1990

2/ Although clearly part of an appeal from LBP-90-20, these points are presented here because: 1) Intervenors' counsel has only been apprised of the existence of the attached Herr testimony after LBP-90-20 issued on June 27, 1990 and wished to call attention to it at the earliest possible time; and 2) it may be that the Board's resolution of Condition (2) sheltering in LBP-90-20 is part of the basis, left unexplained by the Board, for its recommendation that this Board vacate the referrals. As noted above, Condition (2) sheltering has been incorrectly resolved.

EXHIBIT 1

Testimony of Philip B. Herr

before the Atomic Safety and Licensing Board

in the matter of Public Service Company of New Hampshire, et al.,

(Seabrook Station, Units 1 and 2), Docket Nos. 50-443 OL and 50-444 OL.

RE: NECNP Contentions III.12 and III.13

July 15, 1983

Q.01 Please state your name, your position, and your business address.

A.01 My name is Philip B. Herr. I am the principal in Philip B. Herr & Associates and an Associate Professor in the Department of Urban Studies and Planning at M.I.T. The Herr Associates address is 261 Newbury St., Boston, MA., 02116. My M.I.T. address is Department of Urban Studies and Planning, room 10-485, M.I.T., Cambridge, MA. 02139.

Q.02 Please summarize your background as germane to this testimony.

A.02 A statement of my qualifications is attached to this testimony as Exhibit A. Recent relevant professional involvements in emergency planning have included serving on the Steering Committee for Radiological Emergency Response Planning for Suffolk County, N.Y., in relation to the Shoreham Nuclear Power Station. In that capacity I participated in the drafting of plans for evacuation and other emergency responses and the critique of such plans by others, and testified as an expert before the (New York) Governor's Shoreham Commission and before the Suffolk County legislature. Earlier I gave expert testimony before the Atomic Safety and Licensing Board in the construction permit proceeding for the proposed Pilgrim II Nuclear Power Station, in conjunction with which I prepared and analyzed evacuation time estimates for the area surrounding that station, and analyzed such estimates prepared by others.

Since 1944 I have lived no further than 60 miles from the Seabrook site, and have frequently visited that vicinity, especially the adjacent beach and recreational areas: as a day-trip transient, hotel patron, guest of cottage owners, nighttime amusement participant, and off-season beachwalker.

Q.03 Have you reviewed the Applicants' submitted time estimates in order to examine analyses of simultaneous evacuation of beaches both north and south of the Seabrook facility, and to examine analyses of effects of adverse weather in the summer?

A.03 Yes, I have reviewed the "Preliminary Evacuation Clear Time Estimates for Areas Near Seabrook Station" contained in Appendix C to the Applicants' Radiological Emergency Response Plan, (Reference 1). Finding no estimates for simultaneous beach evacuation or summer adverse weather in that material, I also reviewed other materials, including the following:

2. "Additional Evacuation Clear Time Estimates," submitted July 31, 1981 by John DeVincentis of PSNH to Mr. Robert L. Tedesco, USNRC.

3. "Emergency Planning Zone Evacuation Clear Time Estimates, Seabrook Nuclear Power Station," prepared by CE Maguire, Inc. for the New Hampshire Civil Defense Agency, February, 1983.

4. "Seabrook Station Evacuation Analysis, Final Report, Estimate of Evacuation Times," prepared by Alan M. Voorhees & Associates for FEMA, July 1980.

5. "An Independent Assessment of Evacuation Time Estimates for a Peak Population Scenario in the Emergency Planning Zone of the Seabrook Nuclear Power Station," NUREG/CR-2903, prepared by Pacific Northwest Laboratory for the USNRC, November, 1982.

6. "Review of Seabrook Station Evacuation Anaysis; Final Report," review of item 4 above prepared by HMM Associates for Yankee Atomic Electric Co., January, 1981.

Q.04 Why is it important to analyze summer adverse weather conditions?

A.04 NUREG-0654 calls for such analysis (at IV-A, pg 4-6). In the Seabrook case it is possible that the greatest threat to safety could come in the summer when the summer-swollen number of nearby people can be coupled with adverse weather, such as fog or a sudden thunderstorm. Fog and rain reduce travel speeds and road capacity through reducing visibility and reducing braking effectiveness, as has been documented in many studies*. That literature makes clear that different storm severities have a range of effects, from complete immobilization in the worst fog to the 15-25% capacity reduction resulting from rain or fog of small severity. Those capacity reductions in turn lengthen the time required for evacuation of areas such as the beaches.

Peak numbers of persons and adverse weather aren't at all mutually exclusive. Coastal fog is quite common, resulting when winds are onshore on a hot humid day. On such days people considering day trips have no way of knowing that the beach will be in fog since only a few miles inland it is clear, and often the foggy weather is warm enough that people remain on the beach hoping the fog will burn off, as it often does. Exactly those conditions were observed by me to have prevailed on the Sunday of the 1983 Fourth of July weekend along the entire beach zone from Portsmouth to the Merrimack River: beaches, parking lots, and streets full, but my vehicle and others moving slowly through fog with headlights on.

In my experience sudden rainstorms along this coast are also not uncommon, and if quickly developing can occur before beach patrons leave. My family and I have experienced exactly that at Salisbury Beach. Sudden rain or thunderstorms have an even more ominous potential than fog. The loss of power which sometimes accompanies such storms exacerbates the weather limitations on evacuation by disabling any notification, communications, or traffic control systems which are dependent upon areawide power.

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* See, for example, E. Roy Jones et al., "The Environmental Influence of Rain on Freeway Capacity," Highway Research Record #321, 1970, Highway Research Board.

That combination of peak population and weather- and power-loss -limited evacuation capability is more serious where loss of off-site power is a significant contributor to the probability of a core melt accident, and Seabrook evidently is such a case. Applicants treat loss of off-site power as a potential initiating event of a core-melt accident. (See Chapter 7 of the ER-OLS, particularly pp 7.3-1, 7.3-8, and 7.3-13).

In fact, preliminary results of a probablistic risk assessment commissioned by the Applicants indicate that loss of off-site power is the highest ranked contributor to risk of death or injury from an accident at the Seabrook plant. See Pickard, Lowe, and Garrick, Inc., "Seabrook Station Probabilistic Safety Assessment, Phase 1, Preliminary Risk Model Development," (PLG-0242), pp 34-36, 176, & 178. Table 1-5 in that reference, while preliminary, provides a sense of the scale of significance of power loss. Pickard, Lowe and Garrick estimate that loss of off-site power is an initiating event with frequency of 3.5×10^{-3} per plant year, while all core melts together are estimated to have a frequency of 4.4×10^{-3} per plant year, indicating that loss of off-site power is an initiator in 80% of all cases of core melt.

Based on those estimates, loss of off-site power for alerting, communications, traffic control, drawbridge operation, gasoline pumping, and other emergency actions has virtually an 80% probability given a condition of core melt. The circumstances where off-site power would be available, given core melt, would be in the 20% of cases where loss of power is not an initiating event plus the fraction of cases where loss of power to the plant does not affect the vicinity.

A frequent cause of loss of electric power is the wind accompanying adverse weather. Because of that link, in a large fraction of the cases where loss of off-site power is an initiator of core melt it can be anticipated that adverse weather will prevail.

We are not dealing with core melt, loss of power for emergency response, and adverse weather as three independent low-probability events. Their joint probability is not the product of their individual probabilities, and thus negligibly small. We are dealing with three related events having powerful causal links. Clearly, there is a very strong likelihood that adverse weather and power loss will prevail in the event of a core melt accident, gravely handicapping emergency response.

The summer/adverse weather concern is compounded by the rapid deposition of radioactive materials which takes place under rain or fog conditions, as acknowledged by the Applicants in the ER-OLS (see pg. 7.4-3) and the NRC Staff in the FES (see pg. 5-39). The resulting elevated dose levels make rapid emergency response more important exactly when the capability for notifying or evacuating people has a high probability of being impaired by power loss and adverse weather.

Flooding, suggested as a potential adversity for examination by NUREG-0654 (at 4-6), is a critical contingency at Seabrook. Hampton Beach, Seabrook Beach, and Salisbury Beach are all developed on barrier beaches separated from the mainland, except at the north of Hampton Beach, by either rivers or wide marshes. Only four roads, three on fill just higher than marsh level, provide connections between those three beaches and the mainland (see Exhibit 1). Evacuation time estimates, to be useful tools for emergency planners and protective action decision-makers, must consider the possibility that one or all of those roads could be flooded when evacuation is being attempted. Again there is a continuum of possible effects on travel and thus on evacuation time, ranging from small reductions in speed as a result of casual water on the road to complete interdiction when water depths make the road impassable.

Severe flooding in coastal New England has always been accompanied by severe winds and rain, in fact, sometimes by hurricanes, gales, or blizzards. Hurricanes, gales, or even strong winds greatly increase the likelihood of area power loss; so power loss is an expectable accompaniment to severe flooding. ~~As discussed earlier, this causes flooding to have a higher probability of prevailing given a core melt accident than it otherwise would because of the causal links among flooding, high winds, power loss, and accident initiation.~~

In short, adverse summer weather is a very serious consideration, and demands careful study.

Q.05 Did you find that the Applicants have adequately considered the contingency of summer adverse weather?

A.05 None of the materials submitted by the Applicants examine the combination of summer population and adverse weather. Neither the August 4, 1980 set of ten scenarios (Reference 1) nor the July 31, 1981 set of seventeen scenarios (Reference 2) examine summer adverse weather. There is no analysis of flooding in any of those materials, regardless of season.

Q.06 Why are simultaneous beach evacuation estimates important?

A.06 Given the configuration of the Seabrook vicinity, a protective action order is quite likely to include beaches both north and south of Seabrook, regardless of projected wind direction. A "keyhole" area for emergency response action can be expected (as illustrated at NUREG-0396, page 12). If the central circle of such a keyhole is two miles in radius, it encompasses most of Hampton Beach to the north and Seabrook Beach to the south. At five miles it encompasses all of Hampton's and Seabrook's beaches, and all except the State Reservation at Salisbury.

In planning for or deciding upon the appropriateness and content of a protective action order it is important to have reliable estimates of the time required for evacuation of that central circle.

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NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING APPEAL BOARD

Before Administrative Judges:

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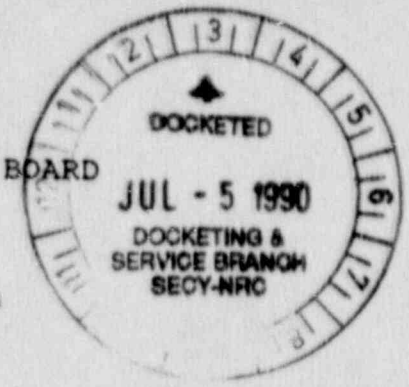

In the Matter of	)	Docket Nos. 50-443-OL
	)	50-444-OL
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, ET AL.	)	
	)	
(Seabrook Station, Units 1 and 2)	)	July 5, 1990

CERTIFICATE OF SERVICE

I, John Traficonte, hereby certify that on July 5, 1990, I made service of the enclosed INTERVENORS' COMMENTS ON LICENSING BOARD'S RECOMMENDATION THAT BEACH SHELTERING REFERRAL BE VACATED by telefax as indicated by (*) and by first class mail to:

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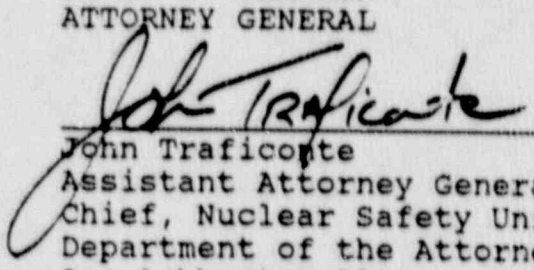

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Dated: July 5, 1990