

10.1 FINDINGS OF FACT

Chronology of FEMA Positions

10.1.1 On June 4, 1987, FEMA filed its positions on contentions with the Licensing Board pursuant to a schedule set by the Board. With respect to revised Town of Hampton Contention VIII, SAPL Contention 16, and NECNP Contention RERP-8, which dealt with protection for the beachgoing population without ready access to sheltering, FEMA stated the relevant facts in its Conclusion as follows:

- (1) The primary guidance document used by FEMA and the RAC in reviewing off-site emergency plans is NUREG-0654, FEMA REP-1, Rev. 1, a document jointly developed by FEMA and the NRC. That guidance document indicates on p. 13 that "(t)he range of times between the onset of accident conditions and the start of a major release is of the order of one-half hour to several hours". This statement is further clarified on p. 17, Table 2 to indicate that (a) the major portion of a release may occur in a time period ranging from as little as one-half hour to one day after the release begins and (b) that the travel time of the release to exposure point can range from one-half hour to two hours at five miles, and one hour to four hours at ten miles.
- (2) On peak summer days there are thousands of beachgoers in the Seabrook EPZ in areas beginning approximately 1.7 miles from the plant. The current New Hampshire plans contemplate evacuating the many thousands of beachgoers who have access to no adequate shelter as a protective action in the event of an accident at Seabrook. We understand that the plans contain no consideration of sheltering the "day trippers" because on summer days when there are a large number of these people, it is not possible to find reasonably accessible shelter for them. There

are an additional number of persons who would be in or have access only to shelter in unwinterized cottages and motel rooms. The protection afforded by sheltering in these structures will definitely be less than that afforded by a normal wood frame house.

- (3) The Evacuation Time Estimate for the Seabrook EPZ submitted by the State of New Hampshire indicates at pp. 10-1 et. seq. that in good weather when the beaches are at 60 to 100 percent of capacity it will take three and one-half hours to clear the beaches, and a total of from four hours and fifty minutes to five hours and fifty minutes to evacuate all the population on the beaches from the EPZ. In some situations such as sudden bad weather following a peak summer day, the total evacuation time for portions of the EPZ range up to seven hours and fifty minutes.

Therefore, using the standard guidance for the initiation and duration of radiological releases, and the current New Hampshire RERP including ETE, it appears that thousands of people could be unable to leave during an accident at Seabrook involving a major release of radioactivity without adequate shelter for as much as the entire duration of that release. Therefore, until these issues are resolved even if all the other inadequacies and deficiencies cited in the RAC Reviews of the New Hampshire Plans, and the Review of the Exercise of these plans were to be corrected, FEMA would not be able to conclude that the New Hampshire State and local plans to protect the public in the event of an accident at the Seabrook Nuclear Power Plant are adequate to meet our regulatory standard that such plans "adequately protect the public health and safety by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency." (See, 44 CFR 350.5(b)). (FEMA Position filed June 4, 1987)

10.1.2 The filing of the June 4 FEMA position followed a pre-meeting of FEMA officials and two other meetings that were held on June 2, 1987. (Tr. at 13528, 13535) The pre-meeting involved an extended discussion of the Seabrook beach population that came to a conclusion with Robert Wilkerson of FEMA stating that though he believed NUREG-0654 elements J.9. and J.10.m. were met, that did not mean that there was reasonable assurance of an

adequate level of public safety. (Tr. at 13528) Mr. Krimm, FEMA's Associate Director for the Office of Natural and Technological Hazards, endorsed that position. (Tr. at 13529)

10.1.3 At the June 2 meeting with the NRC that followed the premeeting, Mr. Wilkerson laid out FEMA's concerns about the beach population. Mr. Krimm testified that the NRC people were advised of the position FEMA would be taking and he said he believed the NRC people were apprised of the fact that the June 4 FEMA position was being affected by the change in the Bores memo eliminating reference to containment features at Seabrook. (Tr. at 12843-44, 12834)

10.1.4 Mr. McLoughlin, Deputy Associate Director for State and Local Programs and Support, stated in the internal FEMA meeting on June 2 that followed the meeting with NRC that FEMA was in the business of reasonable assurance of adequate safety and that if the other people at the meeting thought there was risk, so be it. (Tr. at 13539-42, 12846) Mr. McLoughlin testified that at that time, it was important in his view to look at the options that would provide maximum dose savings and that a series of options was discussed including the construction of additional facilities for shelter. (Tr. at 12678, 12832-33, 12671-73)

10.1.5 The internal FEMA meeting resulted in agreement among Mr. Thomas, Mr. Krimm, Mr. McLoughlin and Mr. Wilkerson that what became pages 38 and 39 of FEMA's June 4 position on contentions should be filed. (Tr. at 12846, 13541-42) Mr. Krimm testified that he was part of the team that put the position at pages 38 and 39 together. (Tr. at 12867)

10.1.6 On September 11, 1987, FEMA refiled the above-mentioned position as its pre-filed testimony in this case.

10.1.7 On October 30, 1987 FEMA filed a response to "Applicant's Objection in the Nature of a Motion In Limine to the Admission into Evidence of Certain Portions of FEMA's Pre-filed Testimony." (Tr. at 12913-14) Mr. McLoughlin testified that as of October 30, FEMA was still prepared to support the pre-filed testimony of September 11 and knew of no reason why they weren't willing to support that testimony. (Tr. at 12926)

10.1.8 On January 11, 1988, H. Joseph Flynn, counsel for FEMA announced to the Licensing Board that FEMA would be filing a supplement to its testimony. (Tr. at 8390) On January 12, Attorney Flynn characterized the process of changing FEMA's testimony as being "like turning an ocean liner around." (Tr. at 8511, 12982-83) On January 13, after conferring with Washington FEMA officials, Attorney Flynn modified his statement by saying that FEMA was not taking a new position and that the position the agency would be taking would be that already stated. (Tr. at 8960, 12988-12989)

10.1.9 Mr. McLoughlin testified that the conflicting statements by Attorney Flynn at the ASLB hearings in January were pursuant to conversations with him and that he accepted some responsibility for the garble of the message to the Board. (Tr. at 12985-86) There had been a conference call with Mr. Flynn the night of January 12 with Mr. McLoughlin, Mr. Krimm and Mr. Peterson participating. Mr. Peterson testified that Mr. McLoughlin was concerned that a statement should not be made to

the Board premature to the Agency taking a firm position on the change in its testimony. (Tr. at 12990-12991) Nonetheless, FEMA had, through its attorney of record, affirmatively and clearly stated to the Board that as of January 13, 1988, the new FEMA testimony would not change the FEMA position. (Tr. at 8960, 12988-89)

10.1.10 On January 19, 1988, a meeting with high level NRC and FEMA officials, and staff people from both agencies, took place at FEMA headquarters in Washington, D.C. (Tr. at 12995-12997) There was no formal agenda for the meeting. (Tr. at 12998, 12721) Though Mr. Flynn, counsel for FEMA, furnished an agenda for the meeting entitled "FEMA - NRC Agenda, January 19, 1988" to the parties to this proceeding, both Mr. Peterson and Mr. Krimm disavowed having ever seen or used the agenda before or during the January 19 meeting. (Tr. at 12999-13000)

10.1.11 To Mr. Peterson's knowledge, no one at the January 19 meeting took notes. (Tr. at 13000) Ed Thomas was not invited to attend the meeting, though he was in Washington, D.C. working on testimony preparation. (Tr. at 13775, 12998)

10.1.12 In the January 19 meeting, Mr. Stello, the Executive Director of Operations for NRC, threatened war between the two agencies. Mr. Peterson testified that Stello's remark was to indicate that if FEMA interpreted NRC's regulations to require sheltering, that that was how NRC would respond. (Tr. at 12717, 13026-27, 13257, 12725, 13974-75) Mr. Peterson said he felt no duress at the meeting to do anything. (Tr. at 13256)

10.1.13 Mr. Thomas testified that Mr. Cumming had told him that Mr. Stello had said in the meeting that NRC would engage in total war with FEMA if FEMA's testimony was not changed on the beach population. (Tr. at 13778)

10.1.14 Mr. Thomas said he was also told by Mr. Flynn, counsel for FEMA, that George Watson, Associate General Counsel for FEMA, had told him that FEMA had negotiated away a negative finding at that meeting. (Tr. at 13784-85) Although Mr. Peterson denied that this had happened, neither Attorney Flynn nor Attorney Watson denied that this statement was reported to Mr. Thomas. (Tr. at 12754) Mr. Flynn was present when Mr. Thomas made this representation. (Tr. at 13784-85)

10.1.15 On January 25, 1988, supplemental testimony of Dave McLoughlin, Edward A. Thomas and William R. Cumming was filed on behalf of the Federal Emergency Management Agency on sheltering/beach population issues. (MA AG Exh. 42)

10.1.16 A meeting took place on January 25, 1988 to review the testimony to be filed. (Tr. at 13794-95) Mr. Thomas testified that he expressed a concern at the meeting that the testimony was misleading and said he would not be a part of it because Mr. Flynn had told him the previous Thursday, January 21, that the agency was going to do a 180 degree turn on the beach population testimony and that if they had reached a conclusion to do a flip-flop, the testimony should not be supplemental but new and different and revised testimony. Mr. Thomas said Mr. Wingo of Mr. Krimm's staff said the testimony was not misleading or false but only ambiguous. (Tr. at 13797) Mr. Thomas said he refused to

be a part of it. Mr. McLoughlin then called Grant Peterson into the meeting and Mr. Peterson said no final decision had been reached to do a 180 degree turn and FEMA was going to wait to see what was received from the State. Based on that representation, Mr. Thomas signed onto the testimony. (Tr. at 13796-98)

10.1.17 The January 25 testimony stated in pertinent part as follows:

"As it presently stands, the NHRERP provides neither an adequate description of how a sheltering option might be used nor a rationale for not having the option available for the transient beach population. For these reasons, FEMA concludes that planning standards J.9. and J.10.m. have not been met with respect to the transient beach population."
(Emphasis added)

(MA AG Exh. 42 at p.6)

Planning Standard J.9. states:

Each State and local organization shall establish a capability for implementing protective measures based upon protective action guides and other criteria. This shall be consistent with the recommendations of EPA regarding exposure from passage of radioactive airborne plumes, (EPA 520/1-75-001) and with those of DHEW (DHHS)/FDA regarding radioactive contamination of human food and animal feeds as published in Federal Register of december 15, 1978 (43 FR 58790).

Planning Standard J.10. states:

The organization's plans to implement protective measures for the plume exposure pathway shall include:

- m. The bases for the choice of recommended protective actions from the plume exposure pathway during emergency conditions. This shall include expected local protection afforded in residential units or other shelter for direct and inhalation exposure as well as evacuation time estimates.

(MA AG Exh. 42 at p. 5)

On the issue of reasonable assurance, the testimony said as follows:

"FEMA interprets its regulations to mean that it must determine first whether radiological emergency response plans comply with NUREG 0654/FEMA REP 1, Rev. 1 (44 CFR §350.5(a) and second, whether such plans 'adequately protect the public health and safety by providing reasonable assurance that appropriate protective measures can be taken off-site in the event of a radiological emergency' (44 CFR §350.5(b). In FEMA's view, a finding or determination that State and local plans provide reasonable assurance is a matter of professional judgment."

(MA AG Exh. 42 at p. 7)

In other words, the testimony maintained the position that there is a two-tiered test of plan adequacy: the NUREG-0654 checklist and the overall exercise of professional judgment as to whether there is reasonable assurance of adequate public protection.

On the dose savings issue, the January 25 testimony said that the plan ought to take to advantage of every readily available opportunity to reduce dose and concluded that the state of New Hampshire should fully consider whether there might be opportunities for dose savings through sheltering of the transient beach population. (MA AG Exh. 42 at p. 7)

10.1.18 On February 11, 1988, under covering letter of Richard H. Strome, Director of the New Hampshire Office of Emergency Management, the State of New Hampshire filed a response to the FEMA supplemental testimony. In that response, the State took the position that evacuation is the protective response that would be used in the majority of emergency scenarios at Seabrook and that the protective action of sheltering would be preferable to evacuation in only a very limited number of accident scenarios. The state proposed to amend the plan to identify potential shelter

locations for the transient beach population without transportation, which it estimated to be 2 percent of the peak population. (App. Direct, No. 6, post Tr. at 10022 at Appendix 1)

10.1.19 The State of New Hampshire then sent FEMA "Supplemental Analysis of Potential Shelter Capacity in the Seabrook EPZ Beach Areas" on February 19, 1988. This document purported to show the relative distribution of identified potential shelter capacity and the beach population based on a study performed for New Hampshire Yankee by the Stone & Webster Engineering Corporation. (App. Direct No. 6, post Tr. at 10022 at Attachment 3) The Applicants' witnesses did not adopt this February 19 supplemental analysis as part of their testimony though it was an attachment to their testimony. (Tr. at 10707)

10.1.20 No implementing procedures for sheltering the beach area populace are included in the plan. (Tr. at 10182)

10.1.21 On March 14, 1988, the Federal Emergency Management Agency filed new testimony sponsored by Dr. Joan Hock, Joseph H. Keller and William R. Cumming on sheltering/beach population issues. This testimony stated that the pre-filed testimony dated September 11, 1987 was outdated and adopted the supplemental testimony filed on January 25, 1988 to the extent it was consistent with the March 14 testimony. (FEMA Prefiled Testimony of March 14, 1988, pp. 1-11)

10.1.22 The portion of the March 14 testimony dealing with legal considerations was sponsored by Mr. Cumming. On the dose saving issue, Mr. Cumming's testimony stated that it had become

increasingly clear to FEMA that requiring shelter for the transient beach population as a condition of finding reasonable assurance was inconsistent with the precept that emergency planning does not require that an adequate plan achieve preset minimum radiation dose savings or achieve minimum evacuation times. (FEMA Prefiled Testimony of March 14, 1988 at p. 7)

10.1.23 The technical part of the March 14 testimony, sponsored by Dr. Hock and Mr. Keller, stated in part that "it is FEMA's understanding of the NRC's current guidance and internal response procedures . . . that initial protective action decisions for areas near the site should be based on plant status without inclusion of calculations of projected doses unless a release of radioactive material is already underway." Their testimony concluded that sheltering followed by evacuation is likely to be less effective as a means of achieving dose reduction than evacuation alone, particularly for the severe accident sequences. (FEMA Prefiled Testimony of March 14, 1988 at p. 7-11)

10.1.24 The March 14 testimony contained no conclusions as to the adequacy of evacuation as a means of achieving meaningful dose savings.

10.1.25 On June 10, 1988, FEMA filed amended testimony of William R. Cumming and Joseph H. Keller on sheltering/beach population issues. (FEMA Direct, post Tr. at 13968) Dr. Hock was no longer included as a witness on the testimony and this testimony no longer incorporated by reference the supplemental testimony of January 25, 1988, thereby eliminating any reference to a two-tiered test of reasonable assurance. (Id.) Though

nothing in the testimony provided a basis or rationale for eliminating the two-tiered test, the testimony added reference to events since the filing of FEMA's pre-filed testimony on March 14, 1988 that were said to reinforce the conclusions in the testimony. (Id. at p. 7)

10.1.26 The June 10 testimony concluded that planning elements J.9 and J.10.m at NUREG-0654, FEMA REP-1, Rev. 1 had been met with respect to the summer beach population and that there was a technically appropriate basis for the choice made by New Hampshire not to shelter the summer beach population except in very limited circumstances. (FEMA Direct, post Tr. 13968 at 11) The testimony did say that whenever this choice was incorporated into the NHRERP, implementing detail would be necessary. (Id. at 11) As was the case with the March 14 testimony, the June 10 testimony contained no conclusions as to the adequacy of evacuation as a means of assuring meaningful dose savings.

10.1.27 On the day that the June 10 testimony was offered into evidence, reference to NUREG-1210 was deleted from it. (Tr. at 13965-67)

10.1.28 The July 10, 1988 amended testimony of FEMA does not provide overall FEMA findings and determinations of the adequacy of the NHRERP. (FEMA Direct, post Tr. 13968 at 1-11) Mr. McLoughlin testified that the reason FEMA has not made a determination of reasonable assurance is because there are outstanding exercise and plan deficiencies. (Tr. at 13136)

FEMA's Agency Role in Evaluating Emergency Response Plan Adequacy and the Evolution of FEMA's Position on the NHRERP

10.1.29 FEMA witness William R. Cumming is an attorney in the program law division of the Office of General Counsel at FEMA, and Joseph H. Keller is an employee of the Westinghouse Idaho Nuclear Company at the Idaho National Engineering Laboratory. (Tr. at 13921 and 13964)

10.1.30 Westinghouse Idaho Nuclear Company, Mr. Keller's employer, is a subsidiary of the Westinghouse Corporation, which is the company that designed and built the reactor systems for Seabrook Station. There was certainly at least the potential for a conflict of interest in Mr. Keller's testifying in the Seabrook licensing proceeding. (Tr. at 14141)

10.1.31 In addition to the witnesses sponsoring the June 10 testimony, FEMA sponsored three top agency officials to describe the evolution of the Agency's position in regard to Seabrook Station licensing; Grant Peterson, Associate Director for State and Local Programs and Support; Dave McLoughlin, Deputy Associate Director for State and Local Programs and Support; and Richard Krimm, Assistant Associate Director for the Office of Natural and Technological Hazards, State and Local Programs and Support. (Tr. at 12649)

10.1.32 The relationship and mechanisms for coordination between the Nuclear Regulatory Commission (NRC) and the Federal Emergency Management Agency (FEMA) in radiological emergency response planning matters are set out in two Memoranda of Understanding (MOU's). 45 Fed. Reg. 82,713 (1980) superceded at

50 Fed. Reg. 15,485 (1985) (Tr. at 12772) The MOU's were developed to carry out a commission announced by the President of the United States in December 1979 via Executive Order. (Tr. at 13136-39)

10.1.33 Mr. Peterson and Mr. McLoughlin agreed that the MOU's give FEMA the "lead role" in assessing off-site radiological emergency plans. (Tr. at 13139-40) Mr. Peterson, however, added that FEMA has "an obligation" to take into account NRC Commission rulings on how FEMA might approach its lead role. (Id.)

10.1.34 Mr. Cumming did not agree that the MOU refers to FEMA as having lead responsibility for establishing off-site preparedness criteria. (Tr. at 14100-02)

10.1.35 Mr. Cumming noted that the bridge between the two agencies regulatory schemes are the planning standards at 10 CFR §50.47(b) (1-16) and 44 CFR §350.5(a) (1-16), which are identical. He testified that the NRC has absolute authority to change any of the 16 planning standards jointly adopted by NRC and FEMA in NURSG-0654, FEMA-REP-1, Rev. 1 without consulting with or gaining concurrence from FEMA. (Tr. at 13986, 14099, 14100)

10.1.36 Mr. Cumming also testified that the definitive interpretation of the overall regulatory scheme for radiological emergency preparedness has been left in the hands of the NRC and its adjudicatory bodies and that definitive positions out of the Commission for its adjudicatory process are binding on FEMA. (Tr. at 14025, 14099)

10.1.37 FEMA's regulation at 44 CFR §350.5(b) reads as follows:

"In order for State and local plans and preparedness to be approved, such plans and preparedness must be determined to adequately protect the public health and safety by providing reasonable assurance that appropriate protective measures can be taken offsite in the event of a radiological emergency."

10.1.38 In Mr. Cumming's view, the FEMA regulations at 44 CFR §350.5(a) and (b) are only procedural and not mandatory. (Tr. at 14028) He did concede that there is mandatory language in the FEMA regulations, but he argued that that language is incorrect. (Tr. at 14029) In so arguing, Mr. Cumming challenged the validity of his own agency's regulations.

10.1.39 Mr. Cumming acknowledged that under 44 CFR Part 350 there is a requirement that if a governor wants to have a FEMA review of its plans, the governor or his or her designee would have to ship that plan to FEMA with a certification that there was reasonable assurance with respect to protection of the health and safety of the public. (Tr. at 14032) Mr. Cumming said, however, that since the decision to send in the plan for review is voluntary, that FEMA's regulations are not mandatory and FEMA has no regulatory authority. (Tr. at 14030-32) He made no statement that NRC could require plan submission either, however, and therefore made no meaningful differentiation between FEMA's and NRC's regulations on that point.

10.1.40 Throughout the period from the time when the Agency filed its position on the NHRERP on June 4, 1987, refiled that position as pre-filed testimony on September 11, 1987, and filed

its supplemental testimony on January 25, 1988, the position was held that there was a separate standard of reasonable assurance above and beyond compliance with the checklist elements of NUREG-0654. (Tr. at 14045)

10.1.41 On January 25, Mr. Cumming co-sponsored the testimony which reiterated the FEMA position that there was a two-part or two-tiered test for adequacy: compliance with the NUREG-0654 elements as per 44 CFR §350.5(a) and a determination of reasonable assurance as per §350.5(b). (Tr. at 13986-87 and MA AG Exh. 42) However, Mr. Cumming testified that this was not the best legal position and that his interpretation of the regulation at 44 CFR §350.5(b) is different from other people's insofar as the vitality of the regulation is concerned. (Tr. at 14136-38)

10.1.42 Mr. Cumming said he came to the conclusion that two-tiered legal position was incorrect, i.e., that the overwhelming weight was contrary to that position, sometime between the September 11, 1987 filing and his deposition on March 25, 1988. (Tr. at 14046-47)

10.1.43 Mr. Cumming admitted that the bottom line of the changed FEMA testimony of March 14, 1988 was approved by Mr. Peterson at the March 4, 1988 meeting of FEMA officials and that the rationale for the change was developed to some extent subsequent to that date. (Tr. at 13978)

10.1.44 Mr. Cumming, opined that it was probably his "hammering" which had a material influence on the Agency dropping the assertion of a two-part test in the June 10, 1988 testimony. (Tr. at 13995)

10.1.45 By the June 10, filing, there was no longer any assertion in FEMA's testimony of a two-part test of reasonable assurance. The Agency's legal position shifted to one in which there is no independent test of the reasonable assurance standard beyond meeting the requirements of NUREG-0654. (Tr. at 13390-91, 13995)

10.1.46 Mr. Cumming conceded that the language at 10 CFR §50.47(a)(2) which says that:

"A FEMA finding will primarily be based on review of the plan. Any other information already available to FEMA may be considered in assessing whether there is reasonable assurance that the plans can be implemented."

does lend support to the proposition that there should be a two-tiered test of plan adequacy. (Tr. at 13989-90) He did, however, take the position that a final determination of reasonable assurance in regard to plan adequacy is a responsibility vested in NRC and that NRC's determination would be binding on FEMA. (Tr. at 14016)

10.1.47 Mr. Cumming, nonetheless, said he does still hold that FEMA has independent judgment on whether the NUREG-0654 standards have been met but he stated that whether FEMA's judgment is ultimately upheld, rejected, reversed or modified by the Commission is in no way of interest to FEMA. (Tr. at 14024)

10.1.48 Edward A. Thomas, the sole sponsor of the June 4, 1987 position and the September 11, 1987 testimony on the beach population and one of three sponsors of the January 25, 1988 testimony filed by FEMA, was the agency official in charge of the review of the NHRERP as the Chief of the Natural and Technological

Hazards Branch of FEMA Region 1. (Tr. at 13372-73)

10.1.49 Mr. Thomas sent FEMA headquarters a memo in October 1986 raising some fundamental issues about the definition of reasonable assurance because he thought that the Agency would be benefited by thinking through what that concept meant. (Tr. at 13100)

10.1.50 Mr. Thomas was a proponent of the position that a reasonable assurance finding requires a two-tiered approach: that, first, the checklist standards of NUREG-0654 have to be met and that, second, professional judgment needs to be exercised to determine whether there is overall reasonable assurance. (MA AG Exh. 43, post. Tr. 13106)

10.1.51 About July 20, 1987, Thomas sent headquarters another memo saying that an important RAC meeting was coming up and he asked if there was any objection to his using the contents of the October 1986 memo for briefing the RAC. (Tr. at 13101 and MA AG Exh. 44, post Tr. 13106)

10.1.52 This July 20 memo from Mr. Thomas ultimately resulted in a July 30, 1987 memo from George Watson, FEMA Associate General Counsel to Dave McLoughlin stating that a number of issues were raised by Thomas' memo and that there should be a meeting to discuss some important policy questions. (Tr. at 13102, MA AG Exh. 46, post Tr. 13106)

10.1.53 Though the first three FEMA filings up through and including the January 25, 1988 were in congruence with Mr. Thomas' viewpoint on this matter of the definition of reasonable assurance, Dave McLoughlin testified that by the time the

September 11 pre-filed testimony was submitted, he himself had become persuaded that if all the planning standards at 44 CFR §350.5(a) were met, that a positive reasonable assurance finding under 44 CFR §350.5(b) had to be made. (Tr. at 12686) Dave McLoughlin was a sponsor of the January 25, 1988 testimony which contradicted his stated view of the regulations. (MA AG Exh. 42)

10.1.54 Despite this change in interpretation of the reasonable assurance standard, the Agency did file an objection to the Applicants' Motion in Limine to strike FEMA's testimony on October 30, 1987 even though the Applicants' motion sought to eliminate the September 11 testimony on the grounds that it was not legally defensible. (Tr. at 12920-21) Mr. McLoughlin's new interpretation of the effect of §350.5(b) was that since all plans have some inadequacies per the §350.5(a) review, §350.5(b) was to allow the planner the prerogative to make a positive finding based on professional judgment in spite of those inadequacies. (Id. and Tr. at 13133)

10.1.55 Mr. Cumming was a proponent of the opinion that there is not a two-tiered test of plan adequacy under FEMA's regulations. Among the elements that were most important in Mr. Cumming's mind in concluding that FEMA's prior position that there was a separate standard for reasonable assurance was legally incorrect were:

1. The filing by NRC Staff counsel Sherwin Turk of a proposed NRC rebuttal testimony on sheltering on October 4, 1987 (Tr. at 14047)

2. Dr. Bores' memo of October 15 indicating that there was a misimpression of his prior memos, Bores 1 and Bores 2, when the FEMA June 4, 1987 position was filed. Dr. Bores expressed the view that the lack of a reference to the Seabrook containment in his letter of June 4, 1987, the so-called Bores 2 memo, made no difference in the technical conclusion that the NHRERP does achieve significant dose savings for the transient beach population and that there are a number of circumstances which work together to lessen the risk.

3. The NRC's rule change on emergency planning of November 3, 1987 which included in its Statement of Considerations the assertion that emergency plans were not to be judged by any specific quantitative standard. (Tr. at 14054).

4. The Licensing Board's rejection of the Massachusetts Attorney General's Sholly/Beyea dose consequence testimony on November 16, 1987 (Tr. at 14054 and FEMA Dir., post Tr. 13968 at pages 3-6).

5. Mr. Cumming testified that the "straw" that convinced him was the February 18, 1988 letter from Sherwin Turk. (Tr. at 14056)

10.1.56 Sherwin Turk is the Supervisory Trial Attorney for the NRC staff. His letter of February 18, 1988 to H. Joseph Flynn, Assistant General Counsel for FEMA, states in pertinent

part as follows:

"As you know, authoritative interpretations of NRC regulations may be rendered only by the Commission or its General Counsel. However, I wish to confirm that the NRC staff interprets the regulations in the manner you have stated-- i.e., that the NRC's emergency planning regulations do not require that sheltering be provided for all accidents, at all times and at all locations within the plume exposure pathway emergency planning zone (EPZ). Stated differently, the Staff views the regulations as not requiring that there be a range of protective actions that includes both sheltering and evacuation options, for all accidents at all times and at all locations within the EPZ. This interpretation is consistent with established Federal practice in approving emergency plans for other commercial nuclear power plants, and may be relied upon by FEMA in its evaluation of NHRERP." (MA AG Exh. 39 at p. 2)

10.1.57 Attorney Turk's February 18, 1988 letter, as it speaks for itself, makes no representation that it states any opinion other than that of the NRC staff and admits that only the Commission or its General Counsel can offer authoritative regulatory interpretations. (Id.)

10.1.58 Attorney Turk's letter in substance simply repeated the position on the range of protective actions stated in the NRC staff's rebuttal outline of October 4, 1987. (MA AG Exh. 39)

10.1.59 Mr. McLoughlin made the point three times in the course of his testimony that the NRC staff cannot interpret NRC regulations and stated that that is why it takes so "inordinately long" to deal with issues. (Tr. at 12718-20)

10.1.60 Mr. Cumming therefore relies for his legal conclusions only on documents produced by the NRC staff and on Board and Commission rulings which, in disavowing quantitative standards, are inapropos of the qualitative reasonable assurance

standard in question. Neither the November 3 NRC rule change nor the Board's October 16 ruling on Sholly/Beyea interdict a reasonable assurance finding based on the exercise of professional judgment by FEMA's agency experts.

10.1.61 Mr. Thomas testified that he worked with Attorney Chan of the NRC on preparing the June 4 statement of FEMA's position on Contentions. (Tr. at 13513) Mr. Thomas also testified that his working relationship with Attorney Turk was that he treated Mr. Turk as co-counsel to FEMA. (Tr. at 13445-46) Mr. Thomas testified that Mr. Cumming had stated that the conduct of NRC in filing the October 4, 1987 rebuttal plan to FEMA's testimony was inappropriate because FEMA witnesses were sponsored by NRC staff lawyers as their experts in emergency preparedness planning. (Tr. at 13651)

10.1.62 Mr. McLoughlin testified that by the end of September he was concerned about the FEMA testimony, though he said that even by the end of November he had not reached a final conclusion that the testimony ought to be changed and he had in no way indicated to Ed Thomas that the Agency was thinking of no longer supporting his position. (Tr. at 12953-54)

10.1.63 Mr. McLoughlin testified that there were discussions from the NRC staff to Mr. Krimm's staff that FEMA was not properly understanding the technical issues of shelter. (Tr. at 12957-58, 12977-78) Mr. Krimm said that the NRC's argument was that FEMA was contravening NRC's regulations. The NRC's staff people were saying that sheltering is not mandatory. Mr. Krimm did not recall

anyone at FEMA saying anything about what FEMA's regulations would require. (Tr. at 12960-62)

10.1.64 It was Mr. Wingo of Mr. Krimm's staff who was the impetus behind getting Mr. Keller to start his technical work for FEMA. (Tr. at 12978) Mr. Krimm testified that his staff members Mr. Wingo and Margaret Lawless wanted the position taken by FEMA changed and stated that the basis for wanting to change the position was the Keller data primarily. (Tr. at 12956-57)

10.1.65 Mr. McLoughlin testified that there were two things included in his discussion with the FEMA technical staff, (1) the Keller study, and (2) NUREG-1210. (Tr. at 13225-27) He said that the Keller study needed to be combined with NUREG-1210 for the full set conclusions. (Tr. at 13227)

10.1.66 Mr. McLoughlin's understanding of the basis on which NRC thought that FEMA had misunderstood the technical issues were the four conclusions that came out of the Keller work and NUREG-1210. (Tr. at 12981-82)

10.1.67 Mr. McLoughlin testified that Keller's October 1987 technical analysis had substantial input into his decision to counsel Mr. Peterson to withdraw the previous FEMA testimony and replace it. (Tr. at 13225)

10.1.68 Mr. Krimm could not recall if his staff discussed with him what analysis Keller did to lead to his conclusions that evacuation is best and that the major dose contributor is ground shine, but he was briefed by his staff on these results of the study Mr. Keller did. Mr. Krimm's recollection was that there was

some contribution to Keller's work from Mr. Baldwin at Argonne National Laboratories. (Tr. at 13229-31)

10.1.69 The analysis Mr. Keller did for FEMA involved his going to WASH-1400 for a list of pressurized water reactor accident sequences, taking the 38 detailed accident sequences for which there are detailed time and core fraction releases, and performing a simple calculation from those. (Tr. at 14146) Those sequences encompassed a range from PWR 1 through PWR 9 accident sequences. The purported bottom line of Mr. Keller's analytical work was that the probability of an accident exceeding the PAG's at two miles within one hour after accident initiation was very low. (Tr. at 14165)

10.1.70 Mr. Keller characterized his analysis as a probability analysis. (Tr. at 14154) He testified that he studiously did not include the probability parts of his analysis in his testimony. (Tr. 14156) Mr. Keller testified that his testimony did not depend upon NUREG-1210 either. (Tr. at 13961) Mr. Keller testified that he had removed site specific considerations of probabilities and dose consequences from his analysis and from the basis of his testimony. (Tr. 14161) His testimony was not site specific to Seabrook. (Tr. at 14163, 14192)

10.1.71 Mr. Keller made a report based on probabilities and consequences in Washington, D.C. on the 28th and 29th of October. This report was on the only work he reported on and the only work he did on Seabrook in the fall of 1987 except for a start of a sheltering study. (Tr. at 14162-64) Mr. Keller stated that he

was concerned when reading the transcript because in the transcript it said that Dr. McLoughlin referred to his sheltering study, and he had done no analytical work on the sheltering study. (Tr. at 14165)

10.1.72 Mr. Keller testified that Dr. Baldwin of Argonne National Laboratories also made a presentation at the October 29th meeting on his calculation of the number of people who would be left on the beach at various times after beaching closing or evacuation notification under various wind speed assumptions. The number of people left on the beach was defined as people with two feet on the sand. (Tr. at 14166) Attorney Flynn told the Board that it was established that Dr. Baldwin's work was incorrect because the evacuation times he used were grossly understated and that FEMA as an agency would not dispute that. (Tr. 14169)

10.1.73 Mr. Thomas testified that he was told by Mr. Keller that the purpose of meetings held in Washington in October was to get him to change his testimony. (Tr. at 13654)

10.1.74 It is clear from all the foregoing, that Mr. McLoughlin, in making his recommendation to Mr. Peterson that FEMA ought to change its position on the adequacy of the protective measures for the beach population at Seabrook, was basing that recommendation on information that Mr. Keller has since withdrawn as basis for the FEMA testimony (the probability analysis reported at the meetings in October and NUREG-1210), on the incorrect work by Mr. Baldwin of Argonne National Laboratories and on an incomplete shelter study that Mr. Keller said was not an analytical study.

10.1.75 Edward A. Thomas, the sponsor of the original June 4, 1987 position on beach population, the September 11, 1987 testimony and the January 25, 1988 testimony, in his capacity as Chief of the Natural and Technological Hazards Branch of FEMA Region 1, chaired the Regional Assistance Committee (RAC) meetings where the plans were reviewed for adequacy. The role of the RAC is to serve in an advisory capacity to FEMA. (Tr. at 12664)

10.1.76 Ed Thomas prepared a draft response to contentions on June 3, 1987 that included a chronology of how FEMA had gotten to where it was on the beach population issue. (MA AG Exh. 50 and Tr. at 13543, 13546-47) Mr. Flynn directed that Mr. Thomas should delete a considerable portion of that part of the draft, about a page of material. (Tr. at 13546-48) In the September 11, 1987 filing, Thomas had wanted the agency to explain how it had gotten to where it was on the beach population, to what extent the RAC was being relied on and that there was a disagreement with NRC. There was not the time to do that. (Tr. at 13608)

10.1.77 Mr. Thomas brought a considerable amount of experience to his job. Mr. Thomas had held his position in FEMA Region 1 since November 1981 and had been in charge of the review of over a hundred plans for the six operating nuclear sites in New England plus Seabrook. (Tr. at 13372-73)

10.1.78 Mr. Thomas, in connection with at least three other nuclear plants, has had occasion to review and evaluate issues in connection with protecting summer transient populations in the event of an accident. (Tr. at 13374) The beach population issue at Seabrook came to Ed Thomas' attention as a special planning

issue late in 1981 before he took over his responsibilities as the Chief of the Natural and Technological Hazards Division at FEMA.

(Tr. at 13375)

10.1.79 Before taking over his post at FEMA, Ed Thomas had reviewed FEMA-REP-3, a document entitled "Dynamic Evacuation Analyses: Independent Assessments of Evacuation Times from the Plume Exposure Pathway Emergency Planning Zones of Twelve Nuclear Power Stations." (MA AG Exh. 48 and Tr. at 13383)

10.1.80 FEMA-REP-3 is an operative document at FEMA that Mr. Thomas relied upon as guidance in performing his duties in certain aspects. That document identified Seabrook as a special case and made special recommendations in terms of evacuation of the beach population. Some of the other things that struck Mr. Thomas about the document were that it made recommendations with respect to looking at behavior of the drivers within sight of the plant, sequential evacuation, sheltering the population, and building supplemental evacuation only ramps onto I-95. (Tr. at 13383-85)

10.1.81 The issue of reduction of plant operations during the summer was also raised in a September 2, 1987 memo from Mr. Krimm to Frank Congel at NRC. No direct answer to the memo was ever received from NRC. (MA AG Exh. 36 and Tr. at 12690-91, 12886)

10.1.82 Mr. Thomas also said he was influenced by a NUREG document, authored by Dr. Thomas Urbanik, that indicated evacuation times up to 14 hours at Seabrook if the evacuation was uncontrolled. (Tr. at 13424-25)

10.1.83 Mr. Cumming testified that the people at FEMA and he himself think the evacuation time estimates in Volume 6 of the Rev. 2 NHRERP which are those cited in FEMA's June 4 and September 11 filings, are too low. (Tr. at 14060)

[See SAPL's finding at 6.1.6 that it would take 5 hours and 40 minutes, according to Table 10-9 of Volume 6, to get a car just 3 to 4 blocks off the beach strip. See also SAPL's finding at 6.1.27 that the EPZ-wide evacuation under Scenario 1 is 7 hours and 5 minutes and under Scenario 2 is 10 hours and 5 minutes according to Volume 6 of the NHRERP, Rev. 2.]

Range of Protective Actions

10.1.84 The June 4 FEMA position stated specific facts about the Seabrook beach population issue in 3 paragraphs on p. 39. (See Finding 10.1.1, supra) Both Mr. Krimm and Mr. McLoughlin agreed that the statement in paragraph 2 regarding the degree of protection afforded by sheltering in unwinterized cottages being less than that afforded by a normal wood frame house was still a correct statement. (Tr. at 12873-75) Mr. Krimm testified that, to his knowledge, the State of New Hampshire had not submitted anything which would change the facts of p. 39 of the June 4 FEMA position. (Tr. at 12877) Mr. Krimm, Mr. Peterson and Mr. McLoughlin all agreed that no one else was exercising options to change those facts. (Tr. at 12878)

10.1.85 Applicants' testimony states that while the preferred protective action for the seasonal beach population is the precautionary measure of early beach closure or evacuation, the State of New Hampshire is prepared to recommend sheltering in

a limited number of circumstances. (App. Dir. No. 6, post Tr. 10022 at p. 2)

10.1.86 Applicants' witness Richard H. Strome, Director of the New Hampshire Office of Emergency Management, testified that the total beach population could be recommended to shelter in the circumstances described under headings 1. and 2. of pages 7 and 8 of Appendix 1 to the Applicants' testimony, which are as follows:

1. Dose Savings

Sheltering could be recommended when it would be the more effective option in achieving maximum dose reduction. New Hampshire has chosen to base its protective action decisions on the lowest values cited by EPA guidance, that is 1 rem whole body dose and 5 rem thyroid dose. The protective action guidelines contained in EPA 520/1-75-001, Manual of Protective Action Guides for Nuclear Incidents, Revised 1980, have been adopted in the protective action procedures of Appendix F and Appendix U.

2. Consideration of Local Conditions

The protective action recommendation procedure of the NHRERP (Appendix F. Vol. 4 and Appendix U, Vol. 4A) considers impediments to evacuation when evacuation is the result of the detailed evaluation utilized in the decision making process. (Tr. at 10060-62)

10.1.87 The Applicants' testimony about the implementation of the sheltering option was as follows:

For implementation of this protective action option under any of the three conditions, New Hampshire decisionmakers will rely on the mechanisms now in place, or to be put in place, in the NHRERP for recommending shelters to the public whether on the beach or any place else. These mechanisms include rapid assessment of accident conditions; activation of the public alert system, which include the beach public address system; and EBS announcements. It is expected that people will comply with EBS announcements to take shelter and that owners/operators of public access facilities

will make their facilities available for this very limited purpose. (App. Dir. No. 6, post Tr. 10022 at p. 20)

10.1.88 Applicants' witness Anthony Callendrello testified that there are no prescribed EBS messages in the present plan for sheltering the entire beach population. (Tr. at 10063, 10069-70, 10165)

10.1.89 EBS Message F, which is entitled "General Emergency (Evacuation of Sheltering) (Release of Radioactive Material)" states at p. 6-30 as follows: "Before you leave your home or work place, make sure you have put out all fires and closed fireplace dampers, lock all doors when you leave." (Tr. at 10092-93)

10.1.90 Applicants' witness Dennis Miletì has testified on the sheltering issue as follows:

"It is inconceivable that people (be they shopkeepers, hotel operators, theatre managers or merely citizens in their homes) would lock people out were a sheltering advisory issued at Seabrook and people were 'stranded' outside. The reverse would occur as people would encourage those outside to seek shelter in the buildings which they occupy. It is equally inconceivable that persons outside would engage in aberrant behavior in the attempt to get inside. The only behavior that could reasonably be hypothesized in such a circumstance would be on the part of those inside encouraging those outside to share their shelter."

. . .

"Individually and collectively they suggest that it is beyond the realm of human possibility to conceive of an emergency at Seabrook in which anyone would be 'locked out' when sheltering was advised." (Tr. at 10033-34, 10037)

10.1.91 There are no documented studies which support Dr. Mileti's assertions. (Tr. at 10055-56) Dr. Mileti did agree that if shelter owners perceived beachgoers seeking shelter as being contaminated then the altruistic response he had predicted should not be expected to occur. (Tr. at 10131-32) Massachusetts Attorney General's witness Ortwin Renn testified that perception studies have shown that people believe radiation to be contagious if someone has been exposed to it. (Prefiled Corrected Testimony of Goble et al, post Tr. 10963 at 82-84)

10.1.92 Dr. Mileti's testimony that owners/operators of public access facilities would make their facilities available for shelterees is at variance with the instruction in EBS Message F that owners/operators should lock their doors and evacuate the area. (Tr. at 10098-99) Mr. Callendrello testified that Message F was only directed to the situation where transients without transportation would be sheltered and said that the State was only planning to use State or municipal buildings as shelters. (Tr. at 10101) Applicants' witnesses did not know the number of state buildings in Hampton Beach. (Tr. at 10703) The two state structures listed in the Stone & Webster sheltering study for Hampton Beach are restrooms on Ocean Boulevard, 3000 square feet,

and the state park bathhouses on Ocean Boulevard, 2000 square feet. (Tr. at 10703-04) The two municipal buildings listed in the study are the police station and fire station. (Tr. at 10705)

10.1.93 Massachusetts Attorney General's witnesses Robert Goble and Victor Evdokimoff testified that they agreed with the FEMA June 4, 1987 position that the cottages in the beach area were unsuitable for sheltering. (Pre-filed corrected testimony of Goble, et al, post Tr. 10963 at pp. 24-33)

10.1.94 Applicants' witness Mr. Bonds from DPHS stated that the state has not gone as far as identifying the specific buildings to be used as shelters yet. (Tr. at 10117) Dr. Wallace and Mr. Strome also indicated that there are no detailed explanations of where people would shelter or specific locations identified. (Tr. at 10177, 10182)

10.1.95 At first Mr. McLoughlin testified that it was his understanding that New Hampshire was not going to employ sheltering for the 98% beach population under any circumstances. (Tr. 13171) When it was pointed out to Mr. McLoughlin during cross-examination that page 5 of the State of New Hampshire's submission states that the protective action of sheltering may be preferable to evacuation in a limited number of scenarios, Mr. McLoughlin stated: "We believe that New Hampshire is not precluded from using sheltering in some instances for the 98% population." (Tr. 13174-1716, 13184-85)

10.1.96 When Mr. McLoughlin was asked whether the lack of implementing procedures for sheltering 98% of the beach population

was a small technical deficiency, he said that he needed to think about the issue, did not want to deny that and would want to get advice from technical people at FEMA before he could give a good strong answer. (Tr. at 13186-87) Mr. McLoughlin said that the fact that FEMA had not seen any implementing plan yet was where some uncomfortableness came from in terms of the implementability of sheltering the 98% beach population. (Tr. at 13202)

10.1.97 Later in the day, Mr. McLoughlin testified after discussions with Mr. Krimm and Mr. Peterson and the two FEMA attorneys that the probable incidence of the requirement for sheltering of the 98% population was not very significant and that planning for that on an ad hoc basis was acceptable. (Tr. at 13291-13294) Mr. McLoughlin agreed that the determination that the requirement of shelter for the 98% population would not be very significant in terms of probable incidence was getting FEMA into risk assessment. (Tr. at 13296)

10.1.98 Mr. Peterson had earlier testified that "determination of risk is in NRC's ball park" and that he did not believe FEMA exercised professional judgment in determining whether risk at a particular site is acceptable. (Tr. at 13282) Mr. Keller, although his analytical work for FEMA was related to the claimed low probability of an accident resulting in doses in excess of PAG's within one hour, also later agreed that risk reduction is not within FEMA's purview. (Tr. at 14197, 14165)

10.1.99 Mr. Cumming testified that though there was no implementing detail in the plan for sheltering, the plan was adequate in concept. He said that, to the extent possible, you

want to plan to reduce ad hoc responses, but he also stated that there would be situations where an ad hoc response would be appropriate, the so-called "sheltering in place." (Tr. at 14072-74)

10.1.100 The beach population cannot shelter in place if they are on the beach or in their cars. Applicants' witness Dr. Wallace, Director of the Division of Public Health Services, New Hampshire Department of Human Services, testified that the assumption is that automobiles would provide no sheltering protection. (Tr. at 10112)

Dose Savings

10.1.101 At a January 5, 1988 meeting of FEMA officials in Washington, Mr. McLoughlin said that the reasonable assurance standard was met by the best reasonable dose savings considering the nature of the site. (Tr. at 13729) Mr. McLoughlin said that the assessment of best reasonable dose saving required some judgment and that the judgment would be applied in terms of the A through P planning standards of NUREG-0654. (Tr. at 13730)

10.1.102 The so-called Christenbury memo, prepared by Edward S. Christenbury, Director and Chief Hearing counsel of NRC on June 18, 1986 and sent to Spence W. Perry, Acting General Counsel of FEMA, cites an Appeal Board decision that states that the goal of emergency planning is maximum dose savings. (NRC Staff Exh. 5 and Tr. at 12665) That memo stated that the decision in Southern California Edison, Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 533 (1983) provides only limited support for a conclusion that facilities will never be

required to be built or installed to satisfy NRC emergency planning regulations. (Id.)

10.1.103 Witness Cumming differentiated the objective of emergency planning, which he stated is always to achieve maximum dose savings for the entire population of the EPZ, from the legal requirement, which he said required only that there be some dose savings to the entire population of the EPZ. (Tr. at 14068-69) He stated that taking the objective to its logical extreme per the San Onofre decision would have you constructing new facilities to some degree, but that that was not FEMA's approach. FEMA's approach was to take what was at the site. (Id.)

10.1.104 Mr. Cumming stated that no minimum dose savings must be achieved; that the plan must only achieve some (undefined, but presumably including de minimis) level of doses to the aggregate population of the EPZ in terms of dose rates integrated over time. (Tr. at 14070)

10.1.105 Applicants' witness Mr. Strome responded to a question about the definition of dose savings that if even one individual were to move out of the area and receive no dose, that would be considered a dose saving. (Tr. at 10350)

10.1.106 Mr. Cumming agreed that he had testified in his deposition that his technical understanding of sheltering could not be too heavily relied upon and that FEMA lacked the understanding to be able to defend its testimony referenced on a technical analysis. (Tr. at 13970)

10.2. CONCLUSIONS OF LAW

10.2.1 FEMA is the agency having the lead in assessing the adequacy of offsite emergency response plans for radiological emergencies under the Memoranda of Understanding. 45 Fed. Reg. 82,713 (1980) superceded at 50 Fed. Reg. 15,485 (1985).

10.2.2 FEMA has a separate and independent duty to make a determination on the adequacy of offsite emergency planning under its own regulations. 44CFR §350.5(b). NRC regulations at 10 CFR §50.47(a)(2) state that "The NRC will base its finding on a review of the Federal Emergency Management Agency (FEMA) findings and determinations as to whether State and local emergency plans are adequate and whether there is reasonable assurance that they can be implemented" (Emphasis added) Absent either the presentation of an appropriately arrived at formal finding by FEMA that a plant provides reasonable assurance of adequate public protection or the rebuttal of an appropriately arrived at FEMA finding to the contrary, the plant cannot be licensed.

10.2.3 A finding of reasonable assurance requires a two-tiered analysis to determine: (1) that the checklist standards in NUREG-0654, FEMA-REP 1, Rev. 1 have been adequately met pursuant to 44 CFR §350.5(a) and (2) that a competent plan reviewer can conclude, based on an overall exercise of professional judgment in regard to the facts pertaining to the particular plant site, that there is reasonable assurance of adequate public protection.

10.2.4 FEMA's findings and determinations must be made on a site specific basis and must take into account the

characteristics of the site as they will affect the implementation of the emergency response plans.

10.2.5 The implementation of a plan is not a mere detail but is essential to the plan's viability, as the regulation at 10 CFR §50.47(a)(1) indicates by stating that a reasonable assurance finding is made by determining that "adequate protective measures can and will be taken in the event of a radiological emergency."

10.2.6 The "reasonable and achievable dose savings given the nature of the site" standard of adequacy could lead to the result that a plant could be sited in a location where only a handful of people could be given some protection and the plans for that site would have to be deemed adequate. Therefore, at the very worst sites, the populace would be afforded the least protection. The proper standard is "maximum dose savings", which means the plans should provide meaningful dose savings for a major portion of the population at risk. Only by utilizing such a standard can offsite emergency planning fulfill its role as an "essential" safety feature or "bolster" the protection afforded by compliance with siting and engineering requirements. (Statement of Considerations accompanying final adoption of emergency planning requirements. (45 Fed. Reg. 55402, Aug. 19, 1980)

10.2.7 Planning for radiological emergencies is required as a prudent risk reduction measure for those individuals contaminated with radioactive material or exposed to dangerous levels of radiation or both. In Southern California Edison Co. (San Onofre Nuclear Generating Station, Units 2 and 3), CLI-83-10, 17 NRC 528, 533 (1983)). Therefore, dose savings must be achieved

for those at risk individuals, and not just be provided cumulatively for whole populations.

10.2.8 For purposes of assessing the adequacy of offsite emergency plans, the probability of an accident, which includes all accidents within the planning spectrum including the so-called fast breaking accidents, has to be assumed to be one.

10.2.9 Where, as at Seabrook, there is a situation in which for almost all accident scenarios there is only one protective option that can be implemented to protect those members of the public in the vicinity of the plant, i.e., evacuation, the evacuation time estimates (ETE's) must be of sufficiently short duration to reasonably assure that a large proportion of that at-risk population can be removed from the area quickly enough to reduce [to a significant degree] the individual and aggregate population dose. Otherwise, the requirement for ETE's, when there is no choice between protective actions, would be meaningless.

10.2.10 The NRC can require additional facility construction such as highway ramps and shelters as a condition of licensing in situations where, as at Seabrook, the population is concentrated fairly close to the plant, the road network is inadequate to accommodate evacuation prior to plume passage and potential severe health effects from nuclear accidents at the fast breaking end of the spectrum of accidents could therefore result.

10.2.11 Whether or not the "checklist" planning standards found in 10 CFR 50.47(b) are met, NRC must also determine that the offsite emergency plans achieve a level of safety that provides "reasonable assurance of adequate protection" in the event of an

accident. See Statement of Considerations accompanying the November 3, 1987 rule change and 10 CFR §50.47(a)(2).

10.2.12 The accident scenarios for which emergency plans must provide the requisite adequate protection include the so-called fast breaking accidents described in NUREG-0654. This includes accident sequences that can result in releases of radioactivity offsite within as little as 30 minutes of an initiating event.

10.3 CONCLUSIONS OF FACT

10.3.1 The position on contentions filed by FEMA on June 4, 1987 and refiled on September 11, 1987 as FEMA's prefiled testimony continues to provide an accurate description of the facts relative to protection of the beach population at Seabrook, with these exceptions: (1) that the evacuation time estimates are now generally recognized to be even longer than those cited in the June 4 testimony, and (2) that the State of New Hampshire is now contemplating sheltering the estimated 2 percent transit-dependent transient beach population and, in very limited circumstances, the 98 percent beach population as well. (See Findings at 10.1.1, 10.1.83-10.1.86, supra)

10.3.2 The NHRERP contains no implementing detail for sheltering either the 2 percent transit-dependent transient population or the remaining 98 percent of the beach population. Any movement of beachgoers to shelter would be an ad hoc response. (See Findings at 10.1.96-97, 10.1.99, supra)

10.3.3 There are no studies to back up the claim by Applicants' witness Dr. Miletti that owners of shelters will not lock people out and he agreed that if shelter owners perceive beachgoers as contaminated, then one could not expect to see the altruistic response of owners sharing their shelters. (See Findings at 10.1.90-91, supra)

10.3.4 The degree of protection afforded by sheltering in the unwinterized cottages in the beach area is less than that afforded by normal wood frame houses. Those cottages are largely unsuitable as shelters. Cars do not provide any sheltering protection for radiological emergency response planning purposes. (See Findings at 10.1.1, 10.1.93, 10.1.100, supra)

10.3.5 Even the Applicants' EPZ-wide evacuation times for the Seabrook site exceed ten hours under certain adverse weather conditions and seven hours in fair weather conditions. (See Findings at 10.1.83, 6.1.5, 6.1.27, supra)

10.3.6 FEMA has not fulfilled its lead responsibility under the Memoranda of Understanding, 44 CFR §350.5 and 10 CFR §50.47(a)(2) to provide overall findings and determinations as to the adequacy of offsite emergency response for Seabrook Station in that the current testimony provides no such findings and determinations for the Seabrook site. No site specific review of the Seabrook plans for beach area populations serves as basis for FEMA's testimony, and the agency has provided no analysis of the adequacy of the public protection to be expected under the NHRERP. (See Findings at 10.1.26, 10.1.28, 10.1.70, supra)

10.3.7 FEMA's generic determination that evacuation is, generally and in most cases, a preferable protective action to sheltering does not constitute a finding or determination that the NHRERP reasonably assures an adequate level of protection.

10.2.8 The current FEMA testimony does not indicate, and none of the sponsoring witnesses testified, that any of them has visited the beaches within the Seabrook EPZ during the summer season.

10.3.9 The present FEMA testimony is based upon an improper interpretation of the agency's regulations and upon a so-called technical analysis which disavows its own analytical underpinnings. The agency's sponsored legal witness, Mr. Cumming, thinks the agency's regulations are wrong, and the agency-sponsored technical witness, Mr. Keller, performed a probabilistic analysis of the level of risk and then stated that his testimony was not even based upon that analysis. (See Findings at 10.1.34, 10.1.38, 10.1.69-70, supra)

10.3.10 The top agency decision makers at FEMA relied for their conclusion that the agency should change its position on Seabrook on the legal advice of Mr. Cumming, who thought the agency's regulations were wrong, and on the parts of Mr. Keller's analysis that were later stated not to be the foundation for his testimony: the probability analysis he reported on in October, his incomplete shelter study, and NUREG-1210. Further, there is evidence that the decision to change FEMA's position was made before the rationale for making the change was developed. The evidence suggests that pressure from the NRC was a significant

factor in the FEMA flip-flop. (See Findings at 10.1.43-44, 10.1.63-74, 10.1.10-14, supra)

10.3.11 Though FEMA officials have stated that it is NRC's job to assess risk, FEMA in effect performed a risk assessment when the agency officials, during the course of the hearing, determined that an a hoc sheltering response is sufficient for 98 percent of the beach population at Seabrook because of the "low probability of such a scenario." (See Findings at 10.1.97-98, supra)

10.3.12 FEMA has, since 1981 and the publication of FEMA-REP-3, officially recognized Seabrook as a site with unique emergency planning problems. As recently as September 1987, the agency was inquiring into special measures such as shutting down the reactor during the summer season. (See Findings at 10.1.79-81, 10.1.4, supra)

10.3.13 The consideration of building adequate shelters as FEMA officials discussed in June 1987, is consistent with the legal opinion rendered in the Christenbury memo that the decision in the San Onofre case does not preclude the NRC requiring the construction of additional facilities to satisfy emergency planning requirements. (See Finding at 10.1.102, supra)

10.3.14 The FEMA witness on earlier versions of testimony regarding the beach population, Edward A. Thomas, who considered the problems of evacuation of the Seabrook site for many years, brought considerable agency planning expertise to bear in his exercise of professional judgment that the planning for that population was not adequate given the characteristics of the

Seabrook site. The record evidence shows that Mr. Thomas is not anti-nuclear, but is instead a dedicated civil servant who takes his public responsibilities very seriously. Mr. Thomas has approved the plans for the other nuclear sites in New England, but found that due to unique problems at the Seabrook site, the state of planning for the beach area population could not be deemed adequate. (See Findings at 10.1.1, 10.1.48, 10.1.76-80, supra)

10.3.15 Even if the standard of adequacy is whether one has maximized dose savings given the constraints of a particular site, the Applicants have failed to meet their burden of proof because there has been no showing that for the fast breaking accidents any dose savings can be achieved by the protective actions in the plans as compared to dose savings to be achieved by an ad hoc response.

10.3.16 Even if the standard of adequacy is whether one has maximized dose savings given the constraints of a particular site, the Applicants have not maximized dose savings because the plan calls for shelter of transit-dependent transients and in some cases, all the beach population, without providing specific procedures to carry out the protective action of sheltering or designating the appropriate sheltering locations.

Respectfully submitted,
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I hereby certify that copies of the foregoing have been furnished by Federal Express to all parties indicated by an asterisk on the attached service list and by first-class, postage prepaid mail to all other parties on said list.



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