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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Before Administrative Judges:
Ivan W. Smith, Chairman
Gustave A. Linenberger, Jr.
Dr. Jerry Harbour

In the Matter of)
)
PUBLIC SERVICE COMPANY)
OF NEW HAMPSHIRE, et al)
)
(Seabrook Station,)
Unit 1))

Docket Nos. 50-443-OL/444-OL
(ASLBP No. 82-471-02-OL)
(Offsite Emergency Planning)

May 9, 1988

SEACOAST ANTI-POLLUTION LEAGUE'S
PROPOSED FINDINGS OF FACT, RULINGS OF
LAW AND CONCLUSIONS OF FACT

Now comes the Seacoast Anti-Pollution League and submits
"Seacoast Anti-Pollution League's Proposed Findings of Fact,
Rulings of Law and Conclusions of Fact." Additionally, SAPL joins
in and adopts the "Town of Hampton Proposed Findings of Fact and
Rulings of Law."

1. BACKGROUND AND INTRODUCTION

1.1. SAPL'S findings and rulings address all SAPL
contentions litigated in hearings before the Atomic Safety and
Licensing Board (ASLB) from October 5, 1987 - February 10, 1988.
SAPL also litigated Town of Kensington 1, Town of South Hampton
Contentions 2, 3 and 8 and NECNP Contention NHLP 6.

1.2. SAPL does not have any disagreement with the
Background and Introduction section of the
Applicant's proposed findings and rulings except

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for the Statement at 1.10 that the findings and rulings are the "Board's". They are instead the "Applicants'" findings and proposed rulings.

- 1.3. SAPL reserves its rights to appeal the improper denial of SAPL contentions 2, 4, 19, 20, 21, 22, and 24 filed by SAPL on February 21, 1986 and denied by the Board in Memorandum and Order of April 29, 1986. SAPL reserves the right to appeal the Board's denial on May 21, 1986 of SAPL redrafted Contention 23, and Contentions 27, 28 and 30 filed on April 8, 1986 and also the denial of portions of SAPL redrafted Contention 15 filed on that same date. SAPL further reserves its right to appeal the summary disposition of SAPL Contention 5 and those portions of SAPL's contentions asserting that adequate procedures for identifying persons with special needs are not adequate in the Board's Memorandum and Order of November, 4, 1986. SAPL reserves the right to appeal the denial of SAPL Contentions 35 and 36 filed on November 26, 1986. Finally, SAPL reserves the right to challenge the Board rulings described at 2.1.1. and 2.1.2. infra.

2. LETTERS OF AGREEMENT

2.1. Findings of Fact

2.1.1. The ASLB denied several of the basis points for SAPL Redrafted Contention No. 15 by Memorandum and Order of May 21, 1986. The Board decided that no letters of agreement are required for the local communities in the EPZ or with the host communities. The Board also ruled that School Administrative Units, schools, teachers, day care centers, nursing homes, and bus drivers do not need to be covered by letters of agreement because the Board decided that they are "recipients" of service and letters of agreement are required only of "providers" of services. (See basis d of SAPL Redrafted Contention 15 filed April 8, 1986 and Board Order of May 21, 1986 at 7-8.)

2.1.2. By Memorandum and Order of May 18, 1987, the Board reaffirmed the above ruling and further stated that the letters of agreement are not required for individuals who collectively supply a labor force or activity.

2.1.3. SAPL agrees with Applicants' finding 2.1.1 except in the following respects: SAPL did not as of November 26, 1986 allege that there were

problems with the N. E. Towing Association, U. S. Coast Guard or FAA letters of agreement (see bases 1 and 3 of SAPL redrafted Contention 15, November 26, 1986).

2.1.4. Richard H. Strome, the Director of the N. E. Office of Emergency Management (NHOEM) stated that his agency had a participant in the collection of virtually all of the letters of agreement. (Tr. at 2798) Mr. Strome, when asked if the people in his agency had specific instructions on what to tell potential signatories of LOA's as to what the letters committed them to, replied that the letters themselves point out what is expected. (Tr. at 2801) There was no formal program within NHOEM to review the NUREG - 0654 requirements in regard to letters of agreement. (Tr. at 2827, 2829) and there was not a clearly defined, absolute management path to get the individuals collecting letters to know what was to be communicated to signatories. (Tr. at 2837) Mr. Strome did not know specifically who drafted the form letter within his agency. He said he "probably" would have asked a question related to having a lawyer review it for legal sufficiency. Tr. at 2847-48) Mr.

Callendrello testified that New Hampshire Yankee had no input into the actual wording of the letters. (Tr. at 2850)

2.1.5. Rev. 2 is the third edition of the NHRERP that has been forwarded to FEMA for formal review. (Tr. at 2851) In December 1985, Mr. Strome sent to Mr. Vickers, Regional director of FEMA, a letter urging that the first version of the Plans, Rev.0, be approved as in compliance with federal criteria. (Id. and Tr. at 2854-56 and N.H. Exhibit 5, Tr. at 4140-41) No letters of agreement were sent to FEMA with Rev. 0 in December 1985; they were sent to FEMA later as an addendum. (Tr. at 3031-32)

2.1.6. There is no signature for the Commonwealth of Massachusetts on the LOA between New Hampshire Yankee and the States of New Hampshire and Massachusetts. (App. Exh. 5, Vol. 5 and Tr. at 2860-61)

2.1.7. Mr. Strome stated that the use of the word "availability" in regard to drivers and crews in the LOA's means that both drivers and crews normally in place for vehicles would be available during an emergency. (Tr. at 2862-63) Sal P. Guadagna, Director of Operations for National

School Bus Service, Inc. for the New England Region was the signatory of 3 LOA's which purported to make "available" a total of 300 drivers for an emergency response. (Guadagna Rebuttal, post Tr. 8117 at 1-3 and Hampton Exhibits 11-16) He stated that he had no recollection of putting in those numbers and that he could not, without taking a poll or survey of his drivers, know how many would be available to drive in an emergency. (Guadagna Rebuttal at 2 and Tr. at 8129, 8174) As of August 26, 1987, LOA's with bus provider companies purported to make available approximately 796 drivers. (App. Dir. No. 2, post Tr. 4228 at 13-14) The National School Bus Service, Inc. drivers constitute a substantial portion of those allegedly available drivers. There has been no showing that other vehicle providers were any better able to state the availability of their drivers than was Mr. Guadagna.

2.1.8. The question was raised as to whether people at NHOEM told the vehicle providers exactly what signing the letter of agreement would commit them to (Tr. at 2801) David Laughton, Secretary-Treasurer of Teamsters Local No. 633, and signatory

to a letter stating that Local 633 "will provide 1500 personnel," testified in his deposition that some of his membership works at Seabrook Station and "would be willing to drive most anything to get out of there." (SAPL Exhibit 1, at 22) When asked if he understood that the terms of the agreement might require that members drive in rather than out of the Seabrook area, he stated, "I don't think it [the letter] requires the membership to do anything that they don't choose to do." (Id.) When asked if he thought that the members who knew about the agreement understood that the intent was to have members drive vehicles into the EPZ in the event of a radiological emergency, Mr. Laughton stated that he was not sure he could answer that and that he didn't say that. (Id. at 36) The Board finds that there is nothing on this record to establish that other LOA signatories understood any better than Mr. Laughton what the drivers would be expected to do.

2.1.9. In addition to the Teamsters Union, the back up pool of drivers for a radiological emergency is to come from the N. H. Department of Transportation and the N. H. National Guard. (App. Dir. No. 1,

post Tr. 2795 at 7) There are no LOA's or even driver rosters for the DOT or National Guard included in the plan. (Tr. at 2992)

2.1.10. The letter of agreement with The Dover Public Schools accounts for 19 of the 709 school buses under the plans. There are 4 stipulations in regard to use of the buses, including one that the needs of Dover students and citizens take preference. (App. Dir. No. 2, post Tr. 4228, Attachment 4, 5 of 8 and Tr. at 4312) Mr. Guadagna also testified that the National School Bus, Inc. buses have to be used to accommodate the needs of his regular riders before they become available for use in an emergency. (Tr. at 8172) The National School Bus, Inc. buses total 292. (App. Dir. No. 2, post Tr. 4228, Attachment 4)

2.1.11. A letter of agreement with Jan Car Leasing was attached to an earlier version of Applicants' Direct Testimony No. 2 as one of the letters of agreement with bus providers. (Tr. at 2930) When examined on the letter, Mr. Strome conceded that Jan Car is out of business. (Id.) The Jan Car letter listed 150 drivers and 65 buses. (Id.) It has been replaced by a letter of agreement with

Ryder Student Transportation Company of Nashua, which letter provides for the same number of buses but 50 less drivers. (App. Dir. Exh. 7, post Tr. at 3035)

2.1.12. The Salem Boy's and Girl's Club and the Squamscott Home Health, Inc. of Dover are two of the private mass care facilities to which evacuees are to be sent following registration and other services being provided at the reception centers. The letters from each of these two facilities make no reference to a radiological emergency at Seabrook. (App. Dir. No. 1, post Tr. at 2795 at 5, Attach 3 and Tr. at 2899) Mr. Strome could not attest to the fact that either of these two facilities were apprised of the fact that a radiological emergency at Seabrook was among the emergencies for which they were being asked to make their facilities available. (Tr. at 2899-2901) Neither of these two letters were sent to FEMA for review. (Tr. at 2989-90)

2.1.14. The LOA's do not verify that there is radio communication capability with tow trucks and a number of LOA's with towing company operators do not indicate that they have communication capability with their trucks. (Tr. at 2896, 2898)

Volume 6 of the NHRERP states at 12-4 that "These tow trucks should all have communication equipment linked either directly or indirectly with EOC." (Tr. at 2893-94) The only means of contacting the trucks will be by telephone to their place of business. (Tr. at 2897, and 3029-30) The company will have no ability to contact them out in the field. (Tr. at 3030) Three towing company LOA's have not been sent to FEMA for review. (Tr. at 2989-90)

2.1.15. FEMA has not yet reviewed LOA's introduced in the hearing for adequacy. (Tr. at 3093, 3154) Mr. Strome testified that the LOA's are part of the plan. (Tr. at 2986)

2.2. Rulings of Law

2.2.1. To ensure the adequacy of letters of agreement, there must be a clear definition of the availability of personnel and resources during a radiological emergency and there must also be assurance that signatories of LOA's have been clearly informed of the responsibilities they are assuming by signing the letters. The letters themselves must specifically state those responsibilities because 10 CFR §50.47(b)(1) requires that emergency responsibilities of the various supporting organizations have been

specifically established. (emphasis added)

2.2.2. The Board concludes that, based on the record evidence, the letters of agreement in the NHRERP Rev. 2 are not of a quality sufficient to support a finding that personnel and resources will be made available to sustain an adequate emergency response effort.

2.3. Conclusions of Fact

2.3.1. The Board finds that the NHOEM did not have a sufficiently well-managed program to ensure that letters of agreement were properly obtained and in conformance with regulatory requirements and the NUREG-0654 guidance.

2.3.2. The head of NHOEM, Mr. Strome, certified to FEMA that the Rev.0 version of the plans were adequate even when there were no LOA's, which indicates a probable lack of understanding on his part of the importance of these agreements for an adequate emergency response.

2.3.3. It is clear that Mr. Guadagna of National School Bus, Inc., who signed three LOA's for a total of 292 buses and 300 drivers, did not know how many of these drivers would be available. It was also clear that his buses and the school buses from

Dover Public Schools would be made available only after their regular commitments for use had been fulfilled.

2.3.4. It was apparent from the testimony of David Laughton, Secretary-Treasurer of the Teamsters Union, that he did not have at all a clear understanding of what the 1500 teamster drivers were being asked to do and that he further did not feel that the letter required the teamsters to perform any services.

2.3.5. That a school bus company that was out of business, Jan Car, was included among the bus providers under the plans until the problem was called to NHOEM's attention during the hearings further raises questions about the quality of the NHOEM program for obtaining LOA's and the quality of the agreements obtained thereby.

2.3.6. NHOEM has not yet provided to FEMA any rosters for DOT or National Guard Drivers.

2.3.7. The LOA's with mass care facilities appended to Applicants' testimony make no reference to a radiological emergency and Mr. Strome could not attest to the fact that these mass care facilities were made aware that they were being asked to make their facilities available during a radiological emergency.

2.3.8. Applicants' testimony stated unequivocally that all host care facility agreements had been obtained when indeed such an agreement was not obtained for the Mark H. Wentworth Home until the lack of an LOA was brought up during the hearings. Only then was a letter with Frisbie Hospital obtained, and the ability of that facility to take all of the Mark H. Wentworth residents is not likely.

2.3.9. LOA's with the towing companies do not uniformly verify that there is the ability to communicate with trucks in the field so that they can be efficiently dispatched.

2.3.10. The Commonwealth of Massachusetts has not signed an agreement with New Hampshire Yankee so no emergency response by or coordination with the Commonwealth is assured.

2.3.11. FEMA has not yet reviewed all the LOA's for adequacy.

3. RESPONSE PERSONNEL ADEQUACY

3.1. Findings of Fact

3.1.1. SAPL agrees with Applicants' findings 3.1.1 - 3.1.5, 3.1.9, 3.1.10 and 3.1.14.

3.1.2. Hampton Police Officer Sergeant Victor DeMarco and Detective William Lally, testified that even if

it were assumed that the Town of Hampton (TOH) were to participate fully in staffing an evacuation, they do not believe there will be adequate police personnel to implement the NHRERP. They testified that there would be substantial delay in bringing off-duty TOH officers in to assist the on-duty staff during a radiological emergency. The number of full time officers on duty in TOH varies from 2-5 over a 24-hour time span. Other officers on duty are "special officers" and they bring the number of officers up to a number varying from 10 -15 depending on the shift. The TOH Police Department's 50 special officers lack the training and experience in traffic and crowd control to carry out the NHRERP. (DeMarco and Lally Dir., post Tr. 3659 at 3 and 10-13.

3.1.3. Officers DeMarco and Lally testified that even if the town's special officers were adequately trained, most would be off duty and not readily available. Even under normal conditions during the summer months, it is common to take two hours for an officer to travel from the western part of Hampton to the area of critical need on Hampton Beach. This could eliminate up to 80% of the special officers. (DeMarco and Lally Dir., post Tr. 3659 at 13.)

3.1.4. On July 1, 1987, the Hampton Police Association voted unanimously that the NHRERP is "totally unrealistic, unworkable and unsupportable."

(DeMarco and Lally Dir., post Tr. 3659 at 19 and Tr. at 3688-91).

3.1.5. Dona Janetos, Chairman of the Board of Selectmen for TOH, stated that there are not adequate personnel in the town to evacuate TOH, including Hampton Beach, in a radiological emergency. (Janetos Dir., post Tr. 3597 at 4-6).

3.1.6. In addition to maintaining accessibility of evacuation routes in Hampton, the TOH Public Works Director is required under the plan to coordinate transportation for special facilities, schools and those with special needs. Twenty-four Public works Dept. employees are temporary employees approximately 17 years of age whose normal duties are typically dump attendance, trash pick-up and street sweeping. They have had no experience in road clearance or traffic control. (Janetos Dir., post Tr. 3597 at 5 - 6)

3.1.7. Mrs. Janetos amended the wording in two sentences in her testimony. The amendment in regard to reliance on teamster drivers was made to reflect the fact that Applicants' testimony seems

now to place less of a reliance on teamsters for back-up drivers than NHRERP Rev. 2 indicates. (Janetos Dir. post-Tr. 3597 at 7-8 and Tr. at 3617-18)

3.1.8. The Board finds Mrs. Janetos' testimony, which is predominantly based on her experience as Chairman of the Board of Selectmen of TOH, highly credible. The selectmen of TOH are routinely required to assess personnel needs for each town department, to evaluate the tasks to be performed and to determine the number of necessary personnel. Mrs. Janetos performed a similar assessment in regard to certain provisions of the NHRERP. (Janetos Dir., post-Tr. 3597 at 1-2)

3.1.9. Andrew Christie, Jr., the Chief of Police of the Town of Hampton Falls (TOHF) expressed doubt that any of the full or part time officers in TOHF would be able to respond during a radiological emergency due to employment conflicts and other responsibilities. (Christie Dir., post-Tr. 3741 at 1-2) He further stated that even if all five officers in TOHF were to respond, they would not be able to provide adequate police response in the town (Christie Dir. post-Tr. 3741 at 2-3 and Tr. at 3761) On October 19 when Chief Christie was

testifying in Concord, N. H. before the Atomic Safety and Licensing Board, TOHF was being manned by Chief Christie. (Tr. at 3767)

3.1.10. Suzanne Breiseth, Chairman of the Board of Selectmen of TOHF, testified that other town officials in addition to the police would have other commitments that would take them out of town or take precedence over any responsibility to carry out the plan. (Breiseth Dir., post-Tr. 3740 at 2-3 and Tr. at 3766-67) She stated in addition that several positions under the plans are unstaffed such as the RADEF officer and Transportation Coordinator and that mutual aid cannot be relied upon because other area communities would need their own resources during a radiological emergency. She further noted that certain town officials have signed statements they they will not be available in a radiological emergency. (Breiseth Dir., post-Tr. 3740 at 3 and Tr. at 3766-67)

3.1.11. The Civil Defense Director for the Town of Kensington (TOK), Sandra Fowler Mitchell, testified that the availability of town officials in TOK to staff a radiological emergency response for even one shift is seriously in question and that

coverage on a 24-hour basis is plainly impossible. She testified that the selectmen do not intend to implement the plan and that several positions under the plan are not staffed. (Mitchell Dir. post Tr. 3805 at 1-2) She further stated that attempts to increase the roster of volunteer firemen in the town has been very unsuccessful. (Tr. at 3846-48)

3.1.12. David P. MacDonald, the Civil Defense Director for the Town of Rye, testified that the availability of personnel for Rye shown in the Personnel Resource Assessment Survey is overstated, that it is uncertain if personnel could be contacted and, if contacted, would be available to report for emergency duty. (D. MacDonald Dir. post Tr. 3867 at 3-5) He stated that mutual aid cannot be relied upon in a general regional emergency (D. MacDonald Dir., post Tr. 3867 at 4)

3.1.13. Mr. MacDonald made it clear that he would resign as Civil Defense Director for Rye if an operating license were granted to Seabrook. (Tr. at 3926) Mr. MacDonald's statement that he would put into effect parts of the plan was a statement made after he was asked to accept the hypothetical that he did not resign. (Tr. at 3927-30) [A transcript error appears at Tr. 3927, l. 21. "did

resign" should read "did not resign."]

3.1.14. Richard W. Ingram, a Selectman from the Town of North Hampton (TONH) stated that it is not unusual for all three of the Selectmen in the town to be unavailable at any one time and that only a fraction of TONH town employees are on duty at any one time. (Ingram Dir., post Tr. 4479 at 4 and 6) He further stated that the practical expectation of the people available to man the positions in the plan would be significantly less than the 28 identified as needed. (Tr. at 4490)

3.1.15. The TONH Highway (Road) Agent is supposed to provide manpower and equipment for emergency maintenance of evacuation routes (App. Exh. 5, Volume 19, IV K, Procedure Checklist for Highway Agent.) [See Applicants' finding at 3.1.24.] Mr. Ingram testified that the TONH Highway Agent does not have the resources necessary (Ingram Dir. post Tr. 4479 at 5)

3.1.16. Walter F. Shivik, Chairman of the Board of Selectmen in the Town of South Hampton (TOSH) testified that due to occupational commitments, not more than one selectman would be available to direct an evacuation in TOSH, that police in the town serve only part time and that the recent turnout of volunteer firefighters has been as few

as two people. He further testified that some town officials have been assigned multiple roles under the plan that they cannot possibly fulfill. He is one of those officials and he is often out of town. Recent business trips have taken him to Japan, the Philippines and Diego Garcia. The Transportation Coordinator listed in the plan for TOSH has moved to Oregon. (Shivik Dir., post-Tr. 3780, passim.)

3.1.17. FEMA has stated that it does not have assurance that the EPZ municipalities can fully implement their plans because many key emergency response positions do not have a back up for second shift responsibilities. FEMA also has testified that the State of New Hampshire will have to compensate fully for the six communities who have indicated they will not participate in the planning process. (FEMA Dir., post-Tr. 4051 at (81)) The State of New Hampshire's Compensatory Plan for non-participating communities consists of four pages of text and a chart. (Tr. at 3476-77) The number of emergency workers designated to carry out compensatory functions in any or all of the 17 local communities that might need help is only 69 people total. (App. Exh. 1, Table 3.1-4 and Tr. at 3480)

3.1.18. Local emergency workers are allowed to be exposed to radiation up to a level of 5 R. (Tr. at 4773-74) There will be 1300 state and local emergency workers who may potentially require monitoring and decontamination. (App. Dir. No. 4, post Tr. 4740 at 5) Applicants' witness John Bonds agreed that an emergency worker could potentially receive up to 25 R within an hour. (Tr. at 4983) Dr. Donald L. Herzberg, Director of the Division of Nuclear Medicine at the Dartmouth-Hitchcock Medical Center testified that a 5 R dose could be delivered to a large number of the 1300 emergency workers relatively quickly under certain scenarios and that there ought to be provisions for back up staffing for that large number of workers. (Herzberg Dir., post Tr. 5012 at 2) There has been no showing that there are sufficient back up personnel should 5 R or greater radiation exposures be quickly incurred.

3.1.19. Forty (40) State Police are required to provide assistance in staffing Traffic Control Posts (TCP's) and providing municipal security in the non-participating towns in the EPZ. (App. Exh. 5, Vol. 6 at 8-11 and App. Exh. 1) An additional

eight State Police are required for those functions in area of the participating towns. (Id.) Furthermore, 26-28 more State Police are needed to man Access Control Posts (ACP's). (App. Exh. 5, Vol. 6 at 9-12 and Tr. at 3367, 3370) The total requirement for State Police is 86 though an additional 11 are needed if the six non-participating towns do not participate. (App. Exh. 1-A, Table 3.1-1, App. Exh. 1, Table 3.1-4, and Tr. at 3370, 3384, 4686, 4720-22)

3.1.20. Troop A in Epping, with 36 troopers is the only State Police barracks in reasonable proximity of the Seabrook EPZ. (DeMarco and Lally Dir., post Tr. 3659 at 11-12 and Tr. at 3364, 4676)

3.1.21. Richard Strome, Director of the New Hampshire Office of Emergency Management (NHOEM) testified that State Police will provide 28 traffic control guides to the Town of Hampton. (Tr. at 3364) He stated that Troop A obviously does not have sufficient personnel to staff both the ACP's and the TCP's in just the Town of Hampton alone. (Tr. at 3369) Sergeant DeMarco and Detective Lally testified that virtually all of the Troop A State Police officers would be required to staff ACP's

with none left to compensate for the lack of adequate staffing in the local communities.

(DeMarco and Lally Dir., post-Tr. 3659 at 11-12)

3.1.22. Captain Sheldon Sullivan, a division commander with the N. H. State Police, testified that only 6-7 Troop A sworn officers are on duty at a given time on a summer weekend day and the same number of officers serve on the night shift. (Tr. at 4676-77) The next nearest state police barracks to Troop A are Troop B in Bedford, Troop D in Bow and Troop E in Tamworth. (Tr. at 4679-80) Captain Sullivan stated that four State police officers could be at TCP's within 15 minutes of notification of a problem at Seabrook, three more could be in place in 45 minutes, six more within two hours and 100 could be on duty within approximately five hours. (Tr. at 4704, 4714-15)

3.1.23. NUREG-0654 indicates that there can be a radiation release within one-half hour after the initiation of an accident at a nuclear power plant. (NUREG-0654, FEMA-REP-1, Rev. 1 at Table 2, page 17)

3.1.24. Chief Andrew Christie testified that when officers were brought in from outside of the area to assist during the Hampton Beach riots, there

were problems due to their lack of familiarity with the area. Chief Christie also stated that State personnel could not be provided quickly enough to do any good under many plausible scenarios.

(Christie Dir., post-Tr. 3741 at 3)

3.1.25. The NHOEM has not yet provided FEMA with a full set of rosters of State employees available to carry out the plans. (Tr. at 4055, 4058) The rosters in addition to an exercise are necessary before FEMA can conclude that the plans are adequate. (Tr. at 4056) The current status of FEMA's testimony is that FEMA has found that the plans did not adequately identify the personnel to carry out the State's Compensatory Plan. (FEMA Dir., post-Tr. 4051 at (81) and Tr. at 4086-87)

3.1.26. Suzanne Breiseth, Chairman of the Board of Selectmen of TOHF, testified that neither the State nor any other entity could supply emergency response workers to the town in a timely manner who would have the requisite familiarity with the town to direct an adequate response effort. (Breiseth Dir., post-Tr. 3739 at 4) Witnesses Shivik, Mitchell and Janetos raised similar concerns in

their testimony. (Shivik Dir., post-Tr. 3780 at 2; Mitchell Dir., post-Tr. 3805 at 3; Janetos Dir., post-Tr. 3597 at 7-9)

3.1.27. Dr. William T. Wallace, Jr., Director of the Division of Public Health Services (DPHS) sent out a letter requesting specific individuals under him to participate in the plans that resulted in 25 responses declining participation. (Tr. at 3403 and SAPL 3, post-Tr. at 3433) The current personnel directory for DPHS shows 66 personnel, which is the minimum number of personnel required to carry out that agency's functions under the plans. (Tr. at 3440-41) Dr. Wallace had a concern about 66 not being a sufficient number. (Tr. at 3413-14) There has been no contact with other state agency employees on a one-to-one basis to ask for participation except for a questionnaire sent out to Department of Health and Human Services (DHHS) employees. (Tr. at 3445-47) The Director of NHOEM was not aware of the results of the DHHS questionnaire. (Tr. at 3454) [See also SAPL's finding at 5.1.12 regarding DHHS employees]

3.1.28. The New Hampshire Office of Emergency Management (NHOEM) only has 40 or 41 employees and

only approximately 10 are in the Division of Technological Hazards. (Tr. at 3078) Table 3.1-1 of the Personnel Resource Assessment lists 75 NHOEM personnel as available and 54 as required. It states that the totals include 12 volunteers.

(App. Exh. 1-A)

- 3.1.29. The sufficiency of the number of drivers and proper coordination of those drivers for emergency vehicles including buses, ambulances and tow trucks is discussed in the portion of this decision regarding transportation availability. See SAPL's findings at 4.1.15 to 4.1.18 infra.
- 3.1.30. The sufficiency of the number of Rockingham County Sheriff's Deputies and other personnel to staff State and local staging areas is discussed in the portion of this decision regarding transportation availability. See SAPL's findings at 4.1.19 to 4.1.21 infra.
- 3.1.31. The sufficiency of personnel to handle the sheltering and evacuation of nursing homes and schools are discussed in the portions of this decision regarding transportation and special needs and human behavior respectively. See SAPL's findings at 4.1.1 and 4.1.8 re: nursing homes,

infra. See SAPL's findings at 7.1.4 to 7.1.14 re: teachers infra. The sufficiency of personnel at hospitals receiving EPZ hospital patients is discussed at 4.1.9-4.1.10.

- 3.1.32. The Summary of Personnel Resource Assessment, App. Exh. 1 as corrected by App. Exh. 1-A (hereinafter "Summary") was prepared under the direction and supervision of Applicants' witness Anthony M. Callendrello. Mr. Callendrello did not take responsibility for preparation of the methodology used in doing the Summary. (Tr. at 3191-9, 3198) He did not approve the methodology until an intermediate stage in the process of preparing the Summary. (Tr. at 3193)
- 3.1.33. Roughly 12 people were involved in collecting information at the local level of the 17 municipalities. It was not their full time job. (Tr. at 3199-3200) In addition, there were 10-15 individuals who worked with state agencies to gather information. In some cases, they were some of the same people gathering local plan information. (Tr. at 3200-3202) New Hampshire Yankee employees who gathered the information were supervised by Applicants' Witness Paul R. Frechette, Jr. and the NHOEM personnel were supervised by Mr. Mike Nawoj, Chief of the

Technological Hazards Division. (Tr. at 3203-3205, 3255) Mr. Frechette did not consult with Mr. Nawoj about the methodology used or any common assumptions or procedures. (Tr. at 3206)

3.1.34. There were two steps in preparing the Summary: The assessment of personnel needed was done by a walk-through of the plan procedures; information about the personnel available was collected on survey forms. (Tr. at 3232) Individuals conducting the walk-throughs of State and local procedures did not physically go through the procedures. (Tr. at 3269) There were also no written procedures employed for conduct of the walk-throughs. (Tr. at 3207-3208) No specific criteria were used in determining staffing levels for successful task implementation. (Tr. at 3281-82)

3.1.35. The person responsible for preparing the Summary was William F. Renz. (Tr. at 3212, 3238) A different individual, Mr. Joseph Enoch, was responsible for assembling the information from the assessment of need and the information relating to the personnel resources available. (Tr. at 3232-33) Mr. Renz did not systematically interview each

planner who participated in the conduct of the survey. (Tr. at 3243) To Mr. Renz's knowledge, no common terminology, e.g. of the word "availability", was used in interviews in filling out the survey assessment worksheets. (Tr. at 3253) The assignment of personnel to emergency response tasks was done by group with no consideration of individual competence to perform a task. (Tr. at 3323-25)

3.1.36. Applicants' Witness Callendrello's confidence in the Summary stemmed in part from his view of the adequacy of the methodology, which view of adequacy was achieved by having had it described to him by Mr. Renz. (Tr. at 3212) Mr. Renz based his opinions in the conclusion section of the Summary in part on his acceptance of the opinion of others. (Tr. at 3239)

3.1.37. NECNP Witness Clifford J. Earl, an expert in the area of public sector resource planning and management, concluded that staff needs and staff availability were not supported by the Summary due to various methodological weaknesses, including failure to define availability, failure to quantify workload for each position, the ambiguity of the

walk-through procedures used for assessing staffing needs and lack of consideration of variables like the time to implement actions. He testified that the reliability of the Summary was further undermined by a weak managerial and supervisory structure for conducting the study and the lack of use of consistent data sources. (Earl Dir., post Tr. 3776, passim.)

3.1.38. Mr. Earl stated that the techniques used in generating the numbers in the Summary did not even meet the minimum standards employed by resource planners. (Earl Dir., post Tr. 3776 at 4-5) Mr. Earl concluded that the Summary's principal conclusions were unreliable. (Earl Dir., post Tr. 3776 at 2)

3.2. Rulings of Law

3.2.1. A showing of personnel adequacy requires that each principal response organization be presently shown to have sufficient personnel to respond and to have additional personnel to call upon to augment its initial response on a continuous basis.
10 CFR 50.47(b)(1)

3.2.2. Radiological emergency response training is to have been provided to those who may be called on to

assist in an emergency before plans can be found adequate. 10 CFR 50.47(b)(15)

3.2.3. Although the State plan must provide for effective notification and communication between decisionmakers and the localities for back-up support, local levels are where the action is and specific details of the plan must be worked out. The plans cannot work without a showing that local details have been attended to. (Three Mile Island, Vol. 1, A Report to the Commissioners and to the Public, NRC Special Inquiry Group at 131-132.

3.2.4. The Board concludes that there is no reasonable assurance that there will be sufficient response personnel to carry out an emergency response adequate to protect the health and safety of the public in the New Hampshire portion of the EPZ.

3.3. Conclusions of Fact

3.3.1. The State of New Hampshire is going to have to provide fully for the lack of personnel for the 6 non-participating town is the N. H. portion of the EPZ, as FEMA has stated in its findings.

3.3.2. The witnesses from the six non-participating communities have established that, even if their towns were participating fully, they would not have adequate personnel available to carry out the local plans developed by the State.

- 3.3.3. In a fast developing radiological emergency the State and local emergency workers could quickly incur the allowable doses under the plans and would then need to be replaced.
- 3.3.4. Key state agencies, NHOEM and DPHS, have barely sufficient personnel to carry out their own emergency response functions much less to supplement local responses.
- 3.3.5. State Police cannot be made available in the early critical hours of an accident in large enough numbers to make much of a difference. The cumulative number of N. H. State Police in place within two hours of notification of a problem at Seabrook would be 13 officers. This is not a timely enough response since radiation can be released from the plant within one-half hour necessitating an early evacuation.
- 3.3.6. NHOEM has not provided FEMA with the rosters of state personnel available to carry out the plans or fulfill compensatory functions.
- 3.3.7. State personnel would not have the requisite familiarity with the local municipalities to be able to direct an adequate emergency response.
- 3.3.8. There has been no showing that sufficient emergency vehicle drivers are available.

3.3.9. There are insufficient personnel at the State and local staging areas to properly coordinate emergency vehicles and drivers.

3.3.10. There are insufficient personnel to carry out the evacuation of schools and nursing homes.

3.3.11. The preparation of the Summary of Personnel Resource Assessment was so loosely managed and the methodology employed so extremely flawed that the conclusions in the Summary are wholly unreliable.

4. TRANSPORTATION AVAILABILITY & SUPPORT SERVICES (SPECIAL NEEDS)

Findings of Fact

4.1.1. Maureen Barrows, a Rockingham County

Commissioner whose professional background includes registered nursing and serving as a Human Resources Administrator for the County, testified that there will not be sufficient staff at the Rockingham County Nursing Home (RCNH), an intermediate care facility with 290 beds, to assist either in the sheltering or evacuation of the residents of the facility in the event of a radiological emergency at Seabrook Station. (Barrows Dir., post Tr. 4405 at 2 and 4) She stated that her prediction is based upon an actual survey of the staff conducted

in 1986. (Barrows Dir., post-Tr. 4405 at 2, Tr. at 4430-31, 4470-71) She further stated that if an emergency occurred on a weekend or during the night that that would put the facility at a staff of less than 8 persons for the 290 patients. (Tr. at 4471-72) RCNH personnel have stated that they would go home before the end of their shift in the event of a radiological emergency. (Tr. at 4476) In a timed trial of an evacuation of a wheelchair patient, it took 2 aides to lift the one patient. (Barrows Dir., post-Tr. 4405 at 3)

4.1.2. Commissioner Barrows testified that Mr. William Sturtevant, the Administrator of the Rockingham County Nursing Home, was very unhappy with the emergency evacuation plan in the NHRERP for that facility and that he had refused to sign off on the plan. (Tr. at 4454) She was also aware that Mr. Sturtevant had communicated his dissatisfaction with the plan to State officials, as had another one of the County Commissioners. (Id.)

4.1.3. Applicants' witness Callendrello claimed that each of the hospitals and nursing homes including the Seacoast Health Center in the EPZ told them what they felt would be appropriate transportation

for their patients. (Tr. at 4292-95 and Tr. 4338) TOH Witness Daniel Trahan, the Director of the Seacoast Health Center in Hampton, an intermediate care facility serving approximately 107 elderly and special needs residents, testified that his bedfast residents would benefit by being transported by ambulances rather than converted buses. He stated that he was told the ambulance services would not be available. (Tr. at 7827) He testified that he told the planners that some ambulances would be needed, but they said the conversion beds would do. (Tr. at 7837)

4.1.4. Applicants' testimony indicates that there are only 18 ambulances allotted for transportation of evacuees from hospitals and nursing homes; there are 10 nursing homes and 2 hospitals in the New Hampshire portion of the EPZ. (App. Dir. No. 2, post Tr. 4228 at 4 and 10) All 18 of the ambulances are allotted to the 2 hospitals. No ambulances whatsoever are planned for nursing homes. (Tr. at 4290-91, 4294-95) SAPL witness Joan Pilot, President of Amoskeag Ambulance, testified that certain nursing home residents require ambulance transport such as those with severe osteoporosis, diabetics who require insulin

and those with chronic obstructive pulmonary disease. (Pilot Rebuttal, post-Tr. 7670 at 2) Further, Witness Trahan testified that evacuation of the Seacoast Health Center would result in extreme stress to a number of the patients and that he would anticipate that they would require increased medical attention. During an evacuation of his facility due to a bomb scare, a few patients went critical due to stress. (Trahan Dir. post-Tr. 7806 at 10 and Tr. at 7840 and 7845) He stated that his bedfast patients might need monitoring equipment, intravenous equipment or various traction and immobilizing arrangements in an evacuation. (Trahan Dir. post-Tr. 7806 at 6)

4.1.5. Bus bed board conversion kits are to be made available at each of the special needs facilities for those people who are not able to sit up during transit. (Tr. at 4295-96) Though the bus conversions have not been brought to the Rockingham County Nursing Home, (Barrows Dir., post-Tr. 4228 at 3), Volume 4B of the NHRERP states that these conversion kits are stored in sufficient number at each special facility and that they can be installed within a matter of minutes. (App.

Exh. 5, Vol 4B, Rockingham County Sheriff's Dept.
Procedures at A)

4.1.6. Volume 6 of the NHRERP assumes that 40 elderly and disabled patients can be loaded on a bus in 10 minutes, which is a loading rate of one person every 15 seconds (App. Exh. 5, Volume 6 at 11-21 and Tr. at 4300-4301) Ninety-three residents of the Rockingham County Nursing Home are total care patients who require all types of aids to daily living. (Tr. at 4456) Mrs. Barrows testified that she could not see how one of these persons who are in a fetal position could be safely moved to a conversion kit and transported on a bus. (Tr. at 4456-57) TOH Witness Daniel Trahan, who has served as a Commissioner on the Board of Examiners for Nursing Home Administrators in N. H. (Tr. at 7813), testified that it would take a minimum of one minute each to load his most physically and mentally capable patients. (Trahan Dir. post-Tr. 7806 at 8) Only four buses have been allocated to his facility and to his knowledge they are not equipped with lifts to safely board patients. (Trahan Dir. post-Tr. 7806 at 9 and Tr. at 4335) He testified that four people would be needed to

carry a heavy bedfast patient to a bus and that some kind of ramping system would be needed to get the patient up into the bus because his facility has no loading docks. (Tr. 7828-29, 7833-34) He testified that the ramp would need to be 99 feet long to meet the 3-foot to 1-inch rise normal wheelchair regulations. (Tr. at 7829, 7831) He testified that his facility could not take advantage of bus transport until the ramps are available. (Tr. at 7834) Witness Joan Pilot testified that it takes from 28 minutes to one hour to move an advanced life support patient from a hospital bed to the stretcher in the same room. It is not possible to prepare in advance to expedite the transport of such patients except to prepare their paper work. Moving lines, oxygen connections, tubes and the like make moving them a complicated and time consuming process. (Tr. at 7674-7676)

4.1.7. Applicants' Exh. 12 is in regard to a fire at the Rockingham County Nursing Home (RCNH) that was confined to one second-story room. The newspaper article states that there were no patient rooms in the immediate vicinity of the fire. The exhibit

does not tell how far any of the patients were moved or whether any vehicles were employed in moving them.

4.1.8. Witness Trahan testified that he would not have adequate staffing to either shelter or evacuate the Seacoast Health Center residents. He stated his opinion based on discussions with his staff, that his staff would leave the facility upon notification of a radiological emergency at Seabrook to care for their own families or other dependents. (Trahan Dir., post-Tr. 7806 at 3-5) He also stated that, even if one were to assume all his on-duty staff would remain, an evacuation still could not be effectively carried out. (Trahan Dir., post-Tr. 7806 at 5-7) He stated that a substantial number of additional medically and specially trained staff would be required to evacuate the Seacoast Health Center's 107 patients. (Trahan Dir., post-Tr. 7806 at 6)

4.1.9. SAPL Witness Joseph Degulis, MD, Director of the Emergency Department at Catholic Medical Center (CMC) in Manchester, N. H. and chairman of the hospital's disaster committee, testified in regard to the planned use of CMC as a receiving hospital

for five Class III and 6-10 Class II patients from Exeter Hospital. (Degulis Reb., Tr. 8749, passim) Dr. Degulis stated that he did not believe that CMC presently has the staffing to handle those patients in addition to its present volume of patients. (Degulis Re., at 1-2 and Tr. at 8753) He further testified that he believed other medical care facilities in Manchester would be similarly unequipped to adequately respond to a catastrophic accident at Seabrook Station with a reasonable level of care. (Degulis Reb. at 2)

4.1.10. Dr. Degulis stated that his reason for testifying was to clarify several things that had gone on through the previous hospital administration and to reflect changes that have fallen on the health care profession in general and in regard to staffing. (Tr. at 8755, 8763-64) Dr. Degulis said he did not believe CMC was capable of providing temporary shelter and food service for the Class III Exeter patients in an emergency. (Tr. 8757) The request by Exeter Hospital to CMC was only for care for patients for 24-48 hours of evacuation. (App. Exh. 29 and Tr. at 8766) There is no record evidence to show that Exeter Hospital

has made any provisions for its patients beyond 48 hours after evacuation. There is no evidence that the CMC administration disagrees with Dr. Degulis' position on the hospital's capability to treat evacuees. (Tr. at 8775)

4.1.11. The NHRERP provisions for people without transportation require that those persons somehow get to predesignated bus routes or pick-up points in the local communities. (App. Dir. No. 2, post Tr. 4228 at 10 and Tr. at 4230) The public information maps of bus routes show the bus routes in toto rather than the specific routes (Tr. 4231-4233) and therefore, it is not possible to make an estimate of the time for buses to travel the routes. (Tr. at 4233-4234) People needing transportation might have to stand outside in severe weather conditions waiting for a bus. (Tr. at 4235) The transportation pick-up points in the Town of Exeter are in locations at distances of a mile or two from some residents. Applicants' witness stated that the town would provide transportation to the pick-up points. (Tr. at 4241) However, the Personnel Resource Assessment shows only one person in Exeter designated to serve

special needs residents. (App. Exh. 1 at Table 2.3-3)

- 4.1.12. The calculation of the number of buses needed to serve people without transportation in the Town of Hampton, including the beach areas, did not take transients into consideration unless those transients were associated with a hotel responding to the 1986 special needs survey. (Tr. at 4245-4248, 4253) No particular calculation was made for the number of other transients that might have to be picked up. (Tr. at 4248)
- 4.1.13. Between September 10, 1987, the date of filing of the Applicants' first draft of their testimony, Applicants' witnesses testified, the number of buses available to carry out the NHRERP decline² by 105. (Tr. at 4286-4287)
- 4.1.14. NHCDA (now NHOEM) local liaisons are to serve an interface function between the 17 local communities and the EOC in Concord. They take the resource requests from the towns and also transmit information back to the towns. (Vol. 4, Section 13 and Tr. at 3485-88) The local liaison call list of personnel in NHRERP totals only 20 people (Vol. 4, Appendix C at C-16-17) The arrival time of local

liaisons to the Incident Field Office (IFO) was estimated to be one hour by the State of New Hampshire. (Tr. at 3490) Certain of the liaisons reside in towns at a considerable distance from the IFO including Claremont, Hinsdale, Plymouth and North Conway. (Vol. 4, Appendix C at C-16-17 and Tr. at 3491) Those people could not serve on the first shift if they were at home at the time of the notification of an incident at Seabrook. (Tr. at 3491)

4.1.15. The NHRERP Rev. 2 relies upon 1500 teamsters to provide back-up bus driving services as needed during a radiological emergency. (App. Exh. 5, Vol. 5, Letter of Agreement with Teamsters Local No. 633) The Director of the New Hampshire Office of Emergency Management (NHOEM) Mr. Strome, stated that the Teamsters were and still remain a part of the resource pool of drivers. (Tr. at 2887) David Laughton, Secretary-Treasurer of Teamsters Local No. 633, stated in a deposition regarding the original letter of agreement with the Teamsters, which he signed, that ". . . I don't think it requires the membership to do anything that they don't choose to do . . . they are not required by

this document to do anything." (Tr. at 2883 and SAPL_Exp. 1 at 22 and 26) Applicants' testimony now indicates that they have obtained specific agreements from companies employing Teamster drivers which represent only 48 such drivers. (App. Dir. No. 1, post Tr. 2795 at p. 7 and Tr. at 2888)

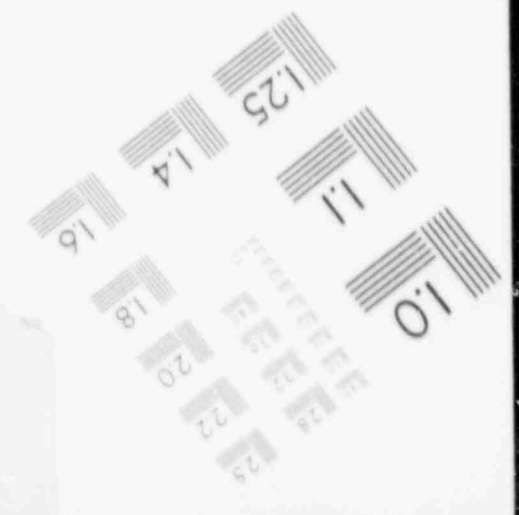
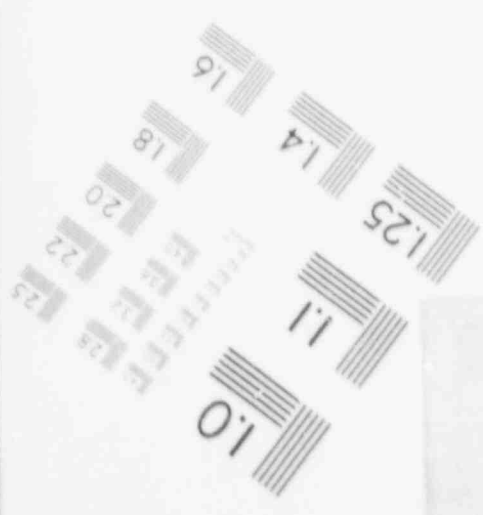
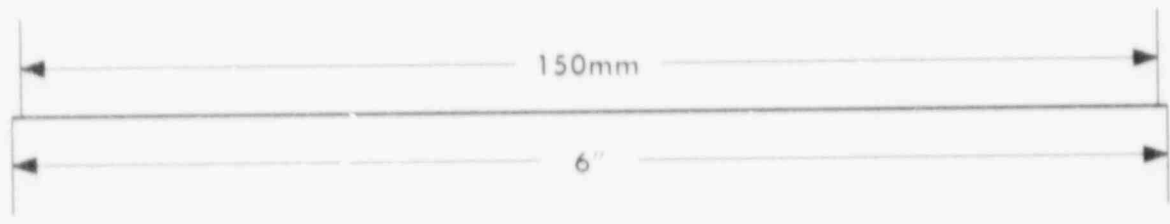
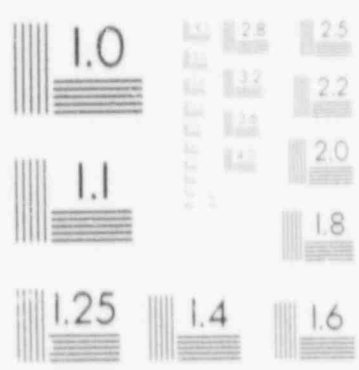
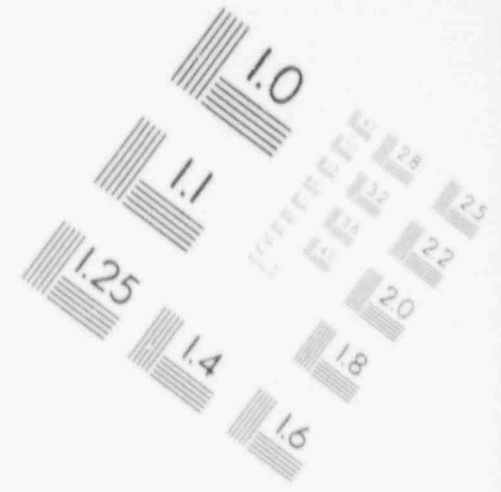
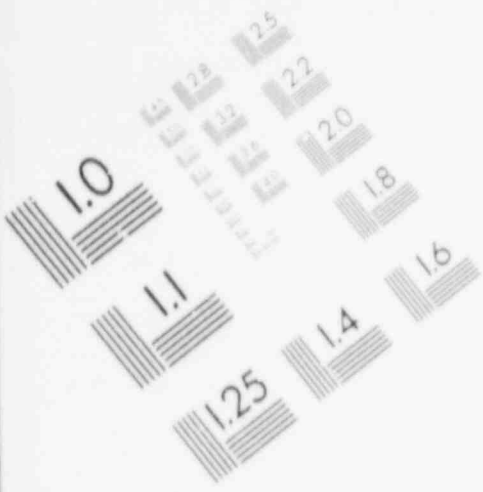
4.1.16. Through testimony, the Applicants have impliedly expanded the pool of emergency drivers by referencing the N. H. Dept. of Transportation and the National Guard as the primary sources for such personnel. (App. Dir. No. 1, pcst Tr. 2795 at 7 and Tr. 2888) There are no National Guard or DOT driver rosters provided in the plan. (App. Exp. 5 and Tr. at 2992) Only a small cadre of National Guard personnel are on duty at any one time and the bulk of the people in the National Guard have other full time jobs. (Tr. at 2991-92) Some of the National Guard people who might be called upon to drive buses might also have other roles assigned to them under the plan. (Tr. at 2992)

4.1.17. The procedures for calling up drivers and matching them with buses are not detailed in the plans. Mr. Strome did not know the procedures for

call up of the DOT or National Guard drivers. (Tr. at 4316) The procedure for call up of Teamster drivers is still under development in the NHOEM. (Tr. at 4317 and App. Dir. No. 2, post Tr. 4228 at 19) Applicants' witness Sinclair testified that the procedure would involve a call to the 9 Teamster trucking companies, and they would poll their drivers for availability. (Tr. at 4318) The Teamsters would be expected to use their own transportation to get to the vehicle they are supposed to drive. (Tr. at 4319 - 4320) Instructions on where the drivers should go would be given by the State EOC resources coordinator to the trucking company and then by the company to the driver. (Id.)

4.1.18. Mr. Strome, the Director of NHOEM, stated that in reference to the use of the term "availability" in the letters of agreement that he understood the term to mean, as a working assumption, that the equipment and drivers are available. (Tr. at 2893) Mr. Sal Guadagna, the signatory of three letters of agreement with divisions of the National School Bus Service, Inc., testified that he did not know how many of his drivers would be available. (Guadagna

IMAGE EVALUATION
TEST TARGET (MT-3)



Rebuttal, post-Tr. 8117 at 1-3) The three letters of agreement Mr. Guadagna signed showed a combined total of 300 drivers available, though he had no recollection of writing in those numbers.

(Guadagna Rebuttal, post-Tr. 8117, at 1-3 and Tr. at 8133 and 8137) Yet, Mr. Guadagna stated that he could make no representation as to how many of his drivers would drive without first conducting a poll of the drivers, which he had not done. (Guadagna Rebuttal, post-Tr. 8117 at 2 and Tr. at 8129, 8174) Mr. Guadagna also testified that he thought the number of drivers who would report would depend on the nature of the emergency and that you could get more drivers for other emergencies than you would for a nuclear disaster. (Tr. at 8129-30) Ann Hutchinson, the Manager of the Berry division of National School Bus Service, Inc., stated that after a poll of the Berry drivers was taken, the original number of drivers was amended from 60 to 9. (Tr. at 4567-68) She further stated that, based on her experience in the February, 1986 exercise, she did not believe that even 9 drivers would respond to an actual emergency at Seabrook. (Hutchinson Dir., post-Tr. 4562 at 2-3)

4.1.19. Under the NHRERP Rev. 2, the manner in which emergency vehicles are coordinated to pick up school children, institutionalized populations and persons in need of transport is that the State EOC Resources Coordinator, assisted by the Pupil Transportation Safety Representative, contacts transportation providers and has them send buses and ambulances to two state staging areas, the Rockingham County Complex in Brentwood and the Omne Mall in Portsmouth. Sheriff's deputies then coordinate the dispatch of buses and ambulances from those two centers to local staging areas in the 17 local communities. From the local staging areas, the emergency vehicles are then dispatched by other Sheriff's deputies to special facilities, along predesignated bus routes, or to the homes of special needs persons. (App. Exh. 5, Vol. 4, Section 7, EOC Resource Coordinator Procedures; Volume 4B, Rockingham County Sheriff's Department Procedures and Tr. at 3463)

4.1.20. The number of buses to be dispatched to the two state staging areas are uncertain. Mr. Strome agreed that approximately 231 buses were to go to the Rockingham County Complex and 289 to the Omne

Mall, but he also testified that of 533 buses to be dispatched, 200 or less were to go to Portsmouth and the remainder to the Rockingham County staging area. (Tr. at 4248-49 and 3465-68) At the entrance to each state staging area, drivers of emergency vehicles are to be issued dosimetry, KI, and maps. Data are also to be recorded about each vehicle and a number is to be assigned to each one. (Tr. at 3468, 4250 and App. Exh. 5, Vol. 4B, Rockingham County Sheriff's Procedures)

4.1.21. Only five Rockingham County Sheriffs deputies are assigned to staff the two state staging areas. (Tr. at 3468-69) These deputies come from a total of 17 and are to provide managerial functions while additional staffing is to be provided by 10 dispatchers and 24 other county sheriff's department personnel. (Tr. at 3469 and App. Exh. 1-A) In addition, 10 of the above-mentioned deputies are to staff local transportation staging areas (TSA's) in the municipalities in the EPZ. (Tr. at 3470) Table 3.1-2 of the Personnel Resource Summary indicates that 12 transportation staging area personnel are required in the 6 non-participating towns. (App. Exh. 1 and Tr. at

3470-71) These personnel are supposedly to come from either Rockingham County or from a contiguous county. Even if it were to be assumed there is no overlap in these numbers, the total number of personnel planned for is the 17 deputies, 10 dispatchers, 24 other personnel, plus the 12 personnel for local TSA's which yields a total of 63 personnel. (App. Exh. 1-A and App. Exh. 1 at Table 3.1-3) These personnel are to be divided among the two state staging areas in local communities needing assistance, yielding an average number of 7.9 personnel per staging area in an optimistic scenario where only the non-participating communities need assistance. In reality a higher number of personnel will be required at the two state staging areas, leaving even fewer per local staging area, e.g. the Brentwood staging area requires a minimum of 18 people. (App. Exh. 5, Vol. 4B, Rockingham County Sheriff's Procedures at 3)

4.2. Rulings of Law

4.2.1. Specific practical arrangements for requesting and effectively using assistance resources have to be made before plans can be deemed adequate. 10

CFR §50.47(b)(3) This requires, among other things, that the opinions of special facilities as to their needs in carrying out protective actions for their residents must be carefully paid heed and the needed staffing equipment and facilities be provided. 10 CFR §50.47(b)(8) and 10 CFR §30.47(b)(10)

4.2.2. The Board finds and rules that there is no reasonable assurance that adequate transportation resources or necessary support services can and will be made available during a radiological emergency for transport dependent and/or special needs individuals.

4.3. Conclusions of Fact

4.3.1. The Rockingham County Nursing Home does not have even close to adequate staffing to carry out an effective protective response for the residents of the facility in the event of a radiological emergency at Seabrook Station. Similarly, the Seacoast Health Center in Hampton does not have even close to adequate staffing for an effective protective response for its residents.

4.3.2. Though Applicants' witness testified that the hospitals and nursing homes in the area had stated

what they required as appropriate transportation for their facilities, it is clear that Commissioner Barrows and Mr. Trahan did not feel that the buses and conversion bed kits allotted to the facilities about which they testified adequately to protect the residents of those facilities. The testimony of the President of Amoskeag Ambulance to the effect that ambulance transport is necessary for certain nursing home residents bolsters Commissioner Barrow's and Mr. Trahan's testimony. Therefore, the Board finds that the allotment of no ambulances for nursing homes constitutes a very serious deficiency in the NHRERP such that it cannot possibly be deemed adequate.

4.3.3. The Board finds that the State of New Hampshire has been unresponsive to feedback received from Rockingham County Nursing Home in regard to the adequacy of their plans and that the state has failed to supply needed equipment such as bus bed conversion kits and ramps to special facilities.

4.3.4. The Board finds that Catholic Medical Center is not adequately staffed to receive Exeter Hospital Class III patients and may not even be able to serve the Class II patients. The capacity of other

hospitals to receive evacuees from EPZ hospitals is seriously in question.

- 4.3.4. The expectation that persons needing transportation will stand for indeterminate periods of time along pre-designated bus routes is not, in the Board's view, a reasonable means of protecting transport dependent populations in the EPZ. This method fails to account for possible severe weather conditions and the fact that a radiation plume may be overhead.
- 4.3.5. The fact that there was no calculation of the number of buses needed for transient transit-dependent populations is another deficiency in the NHRERP that needs to be addressed before the plans can be deemed adequate.
- 4.3.6. The Board finds that the pool of local liaisons is too small given the fact that a number of those liaisons reside at distances of over one hour driving time from the IFO in Newington. An adequate response requires that a sufficient number of these workers be identified and be able to be put promptly in place to coordinate unanticipated resource requests from local communities.
- 4.3.7. The Board finds that arrangements for teamsters

as part of the back-up pool of drivers are not adequate unless and until there is new evidence brought that the teamsters drivers have a specific and clear understanding of what is being requested of them and agree to provide those services.

4.3.8. Further, the Board finds that the back-up pool of drivers cannot be deemed adequate until rosters of DOT and National Guard drivers are provided and the arrangements for call up of drivers and the means of their assignment to specific buses are specifically worked out.

4.3.9. The Board finds that the letters of agreement with bus companies do not reasonably assure that drivers from those companies are indeed available.

4.3.10. The Board finds that the means for coordinating buses and other emergency vehicles at the two state staging areas needs further definition and refinement before the procedures can be deemed adequate. Further, additional personnel must be identified and specifically assigned to both State and local staging areas since there are clearly not sufficient numbers of sheriff's deputies from Rockingham County to coordinate adequately the dispatch of the number of emergency vehicles that will be needed.

5. RECEPTION CENTERS5.1. Findings of Fact

5.1.1. SAPL agrees with Applicants' findings 5.1.1 - 5.1.3 and 5.1.7.

5.1.2. The ASLB Memorandum and Order admitting two revised bases for SAPL Contention 7 reads as follows:

The additional two bases that we can discern, i.e., the possible impact of fewer centers on the capability to monitor and decontaminate evacuees and emergency workers, and the alleged risk from dilution (instead of collection and disposal) of wastewater from decontamination activities are admitted.

ASLB Memorandum and Order
(May 18, 1987) at 35.

5.1.3. SAPL Contention 33 reads:

Contrary to the requirements of 10 CFR 50.47(a)(1), 50.47(b)(8), 50.47(b)(9), 50.47(b)(10) and NUREG-0654 II.J.12, there is no showing that NHRERP Rev. 2 provides adequately for the registering and monitoring of evacuees at reception centers within about a 12-hour period.

ASLB Memorandum and Order
(Providing Basis for and
Revision to Board's Rulings
on Contentions on Revision 2
of NHRERP) (May 18, 1987)
at 44-45, appendix at 5.

- 5.1.4. In support of these contentions, SAPL presented testimony by Donald L. Herzberg, MD, Director of the Division of Nuclear Medicine at the Dartmouth Hitchcock Medical Center. (post Tr. 5011 and post Tr. 5012) Dr. Herzberg is eminently qualified in the fields of Diagnostic Radiology and Nuclear Medicine. (Curriculum Vita, post Tr. 5011)
- 5.1.5. Applicants' witnesses concede that since the direction of a radiation plume is not known, simultaneous and independent operation of the four host community reception centers is needed. (App. Dir. No. 4, post Tr. 4740 at 2.)
- 5.1.6. The number of general public evacuees estimated to arrive at the reception centers was based on the use of 20 percent of the total estimated number of evacuees. (App. Dir. No. 4, post Tr. 4740 at 4) Applicants' peak population estimates for Rye, Hampton, Hampton Beach, North Hampton and Seabrook were based on information in Volume 6 of the plan and an analysis of aerial photos taken on July 18, 1987. (App. Dir. No. 4, post Tr. 4740 at 4) July 18, 1987 was not a peak day for beach attendance. (Fallon et al. Rebuttal, post Tr. 8608 at 3)
- Massachusetts Attorney General's Witnesses Adler,

High and Befort testified that the Applicants' vehicle counts based on aerial photographs of the beach areas that are recorded in Volume 6 are too low and should be increased by 52% and that therefore the Applicants' estimates of the number of evacuees are too low. (High, et al Dir., post Tr. 6849 at 5)

5.1.7. The FFMA Guidance Memorandum upon which Applicants base their decision to plan for 20 percent of the estimated population states that there should be provisions for a minimum of 20 percent of the estimated population to be evacuated. (App. Dir. No. 4, post Tr. 4740, Attachment 1 (2 of 2)) The Manchester reception center is staffed and equipped for only 20 percent of the Applicants' estimate of the population from the areas directed to go to that host community except for the assumption that 100 percent of special facility transit-dependent populations will arrive there. (Tr. at 4768-69) Transient transit-dependent (daytripper) populations are not accounted for in the Applicants' calculations of numbers arriving at reception centers. (Tr. at 4935-36) The Hampton Beach evacuees are among those directed to go to the Manchester host community reception center for services. (Applicants' Exhibit 5, Public Information Calendar

at 4)

5.1.8. Dr. Donald Herzberg testified that, based on his experience in observing human reaction to information about radiation, the vast majority of evacuees would report to reception centers to be checked. (Herzberg Supplemental, post-Tr. 5012 at 2) He testified that the plan does not adequately prepare for the number of evacuees who might potentially be exposed and that there is no way, short of checking people with the appropriate survey instruments, to know whether they have been contaminated except in those instances where people have developed the signs and symptoms of radiation exposure. Another general flaw in the plan is that the plan treats evacuees as a homogeneous population when in fact the people will be in various states of health due to underlying medical problems and the reactor accident. (Herzberg Dir., post-Tr. 5011 at 1-3 and Tr. at 5024-26)

5.1.9. The N. H. Department of Health and Human Services Emergency Service Units (DHHS/ESU's) are responsible for establishing and administering reception and registration of evacuees at the host community reception centers. (App. Dir., No. 4, post-Tr. 4740 at 7-8) There is only one

registration area per host community and it is located in the primary reception center. (Tr. at 4471-72)

5.1.10. The total personnel needed from DHHS to run the reception centers are estimated at 428.

Applicants' testimony claims that there are 90 ESU personnel and another 471 personnel from DHHS Divisions who could be called upon to staff the four reception centers. (App. Dir. No. 4, post-Tr. 4740 at 10) DHHS based its assumption of how many registrars would be needed on the assumption that a registrar would process 6 units/hour or 72 units/12 hours. A registration "unit" was based on an assumed vehicle occupation rate of 2.6 people. (App. Dir. No. 4, post-Tr. 4740 at 8-9)

5.1.11. Applicants' Witness Callendrello testified that the 2.6 people/vehicle assumption was from a calculation performed by KLD Associates and that some of the data that went into the calculation was acquired by a telephone survey. Mr. Callendrello did not have any part in the design of the survey nor could he state how the 2.6 number was arrived at. (Tr. at 4744-46) He did not know whether the phenomenon of ride-sharing was factored into the calculation of persons/vehicle. (Tr. at 4764)

Without ride-sharing factored in, Mr. Callendrello agreed that 10 percent more staff would be needed in the Manchester facility and possibly also the Dover facility. (Tr. at 4763)

5.1.12. Applicants' Witness William N. Colburn is the Coordinator of Emergency Services for the New Hampshire Division of Human Services, DHHS. (Tr. at 4778) Mr. Colburn conducted a survey to try to determine why more people were not volunteering for Emergency Services Units (ESU's). (Tr. at 4780) Of 649 employees in District offices surveyed, only 152 returned the survey forms in time for tabulation. (Tr. at 5003) The responses were tallied on a document marked Survey WK-1. (SAPL Exh. 4 and Tr. at 4781) At the time the survey was returned, only 33 employees who responded to the survey were members of the ESU's; 119 respondents were not. (Tr. at 4782 and 4848) A pie chart Mr. Colburn had prepared illustrated reasons the respondents indicated for not participating in ESU's and it showed that 28.1 percent of the respondents were not willing to participate because of nuclear or Seabrook emergencies. (SAPL Exh. 5 and Tr. at 4784-85, 4787)

5.1.13. There were 95 ESU members at the time of Mr. Colburn's testimony. (Tr. at 4789) Except for those people who are in the ESU's, Mr. Colburn testified that DHHS employees have not been asked for a commitment to serve in a Seabrook emergency response. (Tr. at 4798) Mr. Colburn did not know whether any of the people among his 471 estimated DHHS personnel were those who had responded to the survey that they did not care to respond to a Seabrook emergency. (Tr. at 4801) Mr. Colburn said the 471 figure was not a guaranteed figure. (Tr. at 4803) He also said that those people are not receiving specific emergency response training. (Tr. 4804-05) Dr. Herzberg stated that the Applicants' testimony that there are 471 personnel who "could be called upon" provides no assurance whatsoever that adequate staffing can or will actually be put in place. He also testified that in his experience, no plan for decontamination can be adequately carried out without including the full staff in careful training in the procedures and in actual exercises. (Herzberg Dir., post-Tr. 5012 at 1-2 and Tr. at 5027, 5036, 5039, 5049) Only the 95 DHHS employees in ESU's are being trained in what to do. (Tr. at 4822, 4839)

5.1.14. DHHS employees are in district offices all over the State of New Hampshire including Berlin, Keene, Claremont, Laconia and Littleton. (Tr. at 4802) The time in which DHHS people could be on duty in the reception centers would vary. (Tr. at 4843-44) Chart A-2 under Division of Human Services in Volume 4B of the NHRERP shows 7 ESU staff from Berlin, 4 from Littleton, 4 from Conway, 9 from Laconia, 9 from Nashua, 10 from Keene and 6 from Concord for a total of 49 ESU staff. (App. Exh. 5, Vol. 4B, DHS at A-2 and Tr. at 4840-41) It is possibly a 2-hour ride from Berlin to the nearest reception center in Rochester. (Tr. at 4846) Even though Chart A-2 in Volume 4-B of the NHRERP shows 9 ESU staff from Nashua, and 40 supplemental staff, only one response to Mr. Colburn's survey was received from the Nashua district office and that person was not an ESU. Similarly, Chart A-2 shows 54 supplemental staff in Portsmouth but only 14 returned surveys and only 4 of these respondents were members of ESU's. (App. Exh. 5, Vol. 4B, DHS at A-2; SAPL Exh. 5, Tr. 4809 and Tr. at 4846-48)

5.1.15. DPHS is to provide personnel to staff the 24

decontamination Administrative positions in the 4 host communities. (App. Dir. No. 4, post. Tr. 4740 at 18) A letter sent out by Dr. William T. Wallace to specific individuals within the Dept. of Public Health Services stated that such functions as monitoring for radiation and supervision of the decontamination of persons and vehicles required 48 trained persons and an additional 26 for other duties. (SAPL-2 at p. 2 and Tr. at 3415) However, the number needed was reduced from 48 to 24 by a decision to staff just one 12-hour shift. (Tr. at 3417 and 3443) The current roster of names the Division would have to perform emergency response functions is dated 9-11-87. (SAPL-4 and Tr. at 3440) The number of individuals assigned to the decontamination supervisors pool on that roster adds up to only 18. (Tr. 3443) John Bonds testified that the 18 individuals on the list would suffice to staff only one decontamination center in each of the host communities and a secondary center in only one community and that the search for an additional 6 individuals was continuing. (Tr. at 3443-44) However, he stated that the search for the additional 6 had not been actively pursued for

the last couple of months. (Tr. at 4898) Mr. Bonds testified that they would have like to have had more than 24 to account for vacations, sickness or whatever other contingencies might arise. (Tr. at 3410)

5.1.16. Only two individuals are tasked to staff the Radiological Health Technical Advisor (RHTA) position in a 24-hour time slot in two 12-hour shifts. (Tr. at 4862-63) Dr. Donald Herzberg stated that the tasks designated to the RHTA under the NHRERP Rev. 2 were too extensive for that person to function effectively. (Herzberg Dir., post-Tr. at 5011 at 3, and Tr. at 5040)

5.1.17. The fire departments in the four host communities are to provide the personnel for monitoring and decontaminating evacuees. (App. Dir. No. 4, post-Tr. at 4740 at 18-20; App. Exh. 5, Host Community Plans) Applicants' Witnesses testified that NHOEM has established a "working relationship" with the fire departments of the four host communities. (App. Dir. No. 4, post-Tr. at 4740 at 18) There are 66 firefighters needed in each of the primary reception centers and 20 needed at each of the secondary centers yielding a total of 86 firefighters needed in each community. The

total needed for all 4 communities is 344. (App. Dir. No. 4, post-Tr. 4740 at 19-20 and Tr. at 4900) Dover has only 37 fire department personnel available. (Tr. at 4901-02) Salem has only 47. Rochester has 68. Applicants' testimony claims that 271 firefighters are available from other community fire departments. (App. Dir., post-Tr. 4740 at 20) No reference to those other firefighters appears in the Rev. 2 plans. (Tr. at 4902-4903)

5.1.18. Only 162 fire department personnel have had training. (Id. at 19) The total training encompasses seven and a quarter hours and none of the Applicants' witnesses knew how many of the 162 had completed the training. (Tr. at 4898-99) None of the witnesses on the Applicants' panel knew how many firefighters had been involved in drills. (Tr. at 4849) No one on the panel knew if the firefighters were tested to ensure the efficacy of the training. (Tr. at 4899)

5.1.19. Overall staffing of the reception center services has been planned for only 12 hours. (Tr. at 4879-4880) Other provisions will need to be made if the time runs longer than that. (Id.) If a 24-hour response were to be carried out, the

numbers of staff would need to be doubled. (Tr. at 4880) Even in the first 12-hour shift, staffing of the secondary centers in the host communities is on a minimal level and staffing at the full level would have to be an ad hoc response. (Tr. at 4887) NUREG-0654, Item A 4 states that principal response organizations shall be capable of continuous 24-hour operation for a protracted period. (NUREG 0654, II. A. 4, p. 33)

5.1.20. Evacuees from special facilities are to be monitored at their host facilities by monitors assigned from the host community staff, and if necessary, are then to be decontaminated at the host facility. (Tr. at 4942) No additional personnel are identified in the plan or in Applicants' testimony to perform these monitoring and decontamination services at host facilities. (Tr. at 4943)

5.1.21. The number of evacuees planned for at each of the reception centers is 9,667 people. (App. Dir. No. 4, post-Tr. at 4740 at 5) If this number of people arriving at the Manchester decontamination center all required decontamination, and 10 minutes per shower is assumed, as it is in Applicants' testimony, then given the number of showers in the

Manchester facility (25), it would take in excess of 64 hours to decontaminate all of the evacuees. (Tr. at 4884, 4886, 4889) [Note: At 10 minutes per shower, 6 people would use 1 shower in an hour. Six people times 25 showers equals 150 people showered per hour. 9667 people divided by 150 people/hour equals 64.4 hours.] Opening the secondary centers would have to be an ad hoc response. (Tr. at 4887) No other showers are documented in the Rev. 2 plans. (Tr. at 4893) No calculation has been given as to the supplies of warm water (Id.) Applicants' witness did not know if there was a backup generator to power the water heater. (Tr. at 4894)

5.1.22. Applicants' witness stated that monitoring equipment has not been physically placed in the host communities as yet. (Tr. at 4957)

5.1.23. Sampling of discharge water from host community decontamination centers will be performed by the Water Supply and Pollution Control Division under the direction of DPHS (App. Dir., No. 4, post-Tr. at 4740 at p. 24. The sampling personnel would be dispatched from the laboratory and the individuals who would supervise them would be either the EOC Radiological Health Technical Advisor (RHTA) or

some other individual in the EOC. (Tr. at 4907) Waste water samples have to be tested on a regular basis. (Tr. at 4909) Applicants' witnesses testified that water can be held up in the sewage treatment system if it is too highly contaminated. (Tr. at 4910) However, there has been no calculation of the impoundment capacity of the water treatment systems in any of the host communities relative to the amounts of water that would be generated by showering activities to ensure that water can be held back until it is properly diluted. (Tr. at 4911-14) Applicants' witnesses testified that if the sample has too much activity such that it is saturating the instrumentation, it is to be diluted down to the level where the lab or field equipment can analyze it. (Tr. at 4914 - 15)

5.1.24. Applicants' witnesses testified that disposal of contaminated materials is to be handled by New Hampshire Yankee or via provision the State of New Hampshire has for contracting with qualified waste handlers. (Tr. at 4917, 4923) Contaminated vehicles would be among the materials to be handled through this process if they could not be decontaminated. (Tr. at 4917-18) Applicants'

witness MacDonald stated that the Seabrook site would not be totally abandoned during a radiological emergency and any waste from the external environment would be added to the on-site waste. (Tr. at 4919, 4922, 4933) No details as to how this is to be handled logistically appear in either the NHRERP Rev. 2 or the Applicants' testimony. (App. Exh. 5 and App. Dir. No. 4)

5.2. Rulings of Law

5.2.1. Reception centers must be available to evacuees to provide decontamination services on a continuous 24-hour per day basis for a protracted period in a radiological emergency. NUREG-0654, II.A.4 at p. 33.

5.2.2. An adequate emergency response requires that radiological monitoring be planned for all evacuees who seek such services. Long Island Lighting Co. (Shoreham Generating Station), LBP-85-31, 22 NRC 410, 430-31 (1985).

5.2.3. The arrangements for the provision of registration, monitoring and decontamination services for evacuees at the host community reception centers are seriously inadequate because resources listed on paper are not reasonably

assured to be there in fact. No decontamination arrangements for certain special facility population (hospitals, nursing homes) have been made. Equipment and physical facilities have not been demonstrated to be adequate and plans for handling contaminated water and materials are not even rudimentarily adequate.

5.3. Conclusions of Fact

5.3.1. Applicants have based their calculations of the numbers of people who will report to reception centers for services on a peak population estimate that is too low and have failed to account for transient transit-dependent populations. Further, the phenomenon of ride sharing was not accounted for in calculations of numbers of evacuees per vehicle, which raises the number of staff needed in Manchester and possibly also Dover. The Board therefore finds that more evacuees will report to reception centers than the facilities are staffed or equipped to deal with. Further, the Board finds that there is no provision at the centers for dealing with those with medical conditions.

5.3.2. The Board finds that it is unreasonable to plan for only 20% of evacuees reporting to reception

centers for services. The Board finds Dr. Herzberg's testimony on this matter convincing and rules that all evacuees must be afforded a reasonable opportunity to be monitored for radiation contamination within a 12-hour time frame.

5.3.3. The Board finds that it is unreasonable to expect that there will be sufficient DHHS employees who will report to staff reception centers because the DHHS employees did not even respond at a very high rate to a survey that was sent out, those not in ESU's have not been asked for a commitment to serve in a Seabrook emergency response, and they have not received any training. Further, these employees are dispersed all over the State of New Hampshire.

5.3.4. The Board finds that having only 18 persons identified to serve as Decontamination Supervisors is inadequate since it does not provide the option of opening secondary centers in all the host communities, does not provide a 2nd shift capability for any of the centers and does not provide any margin for personnel being unavailable due to sickness, vacation or other contingencies.

5.3.5. The Board finds that having only 2 people

available as Radiological Health Technical Advisors (RHTA's) is not adequate.

5.3.6. The Board finds that absent call list rosters for local personnel having been submitted to FEMA, and absent the completion of training of all local personnel to be relied upon, the host community reception centers cannot be deemed adequately staffed.

5.3.7. The Board finds that there are no provisions documented in NHRERP Rev. 2 or Applicants' testimony for decontamination of nursing home evacuees at host facilities, though Applicants' witnesses claim that will be what is done if needed. The agreements with host facilities must specifically document what monitoring and decontamination capabilities, if any, are available and make alternative arrangements where needed.

5.3.8. The number of showers identified in Manchester are inadequate for the number of evacuees who might need decontamination. There is no evidence of consideration of means of assuring adequate supplies of warm water. The Board therefore finds no assurance of adequate means of decontamination.

5.3.9. Monitoring equipment has not yet been supplied to host communities.

5.3.10. There is no assurance that contaminated waste water can be impounded until it is diluted to allowable concentrations of contaminants or to levels where instruments will not be saturated.

5.3.11. There has been no reasonable demonstration that there are adequate means of disposing of contaminated materials that cannot be decontaminated, including automobiles.

6. EVACUATION TIME ESTIMATES¹

6.1. Findings of Fact

6.1.1. The Evacuation Time Estimates (ETE's) in the NHRPPP Rev. 2 are provided in Volume 6 of the plans. (App. Exh. 5 and Tr. at 5683) Some new ETE's that have not been incorporated in the NHRERP are provided in Applicants' Testimony. (App. Dir. No. 7, Post-Tr. 5622 at 42-43, and Tr. at 5686-5687)

6.1.2. Applicants' witness Anthony Callendrello, Manager for Emergency Planning for New Hampshire Yankee, testified that the place where the ETE's are intended to be utilized in the protective action decision-making process are in Appendix F to Volume 4 and Appendix U to Volume 4-A. (Tr. at

¹ SAPL would note that it has not litigated ETE's for Massachusetts communities. SAPL was foreclosed from examining the issue of the choice of locations and staffing of traffic control posts in Salisbury, Massachusetts when the Board denied SAPL

3685) The times in those sections of the NHRERP do not reflect the ETE's contained in Volume 6 but instead reflect earlier ETE's and would need to be corrected to be consistent with Volume 6. (Id. and Tr. at 5694) The Volume 6 numbers are not even the numbers Mr. Callendrello believes are the most accurate; the most accurate numbers are those in Applicants' testimony. (Tr. at 5688)

6.1.3. ETE's are important because they are a tool for deciding whether to order affected populations in a radiological emergency to shelter or evacuate. (Tr. at 5690) ETE's are also important in determining overall plan adequacy, particularly in situations where sheltering is not, for certain at-risk segments of the population, a planned response.

6.1.4. Witness Callendrello, though he is the Manager for Emergency Planning for NHY, was uncertain in his effort to use the ETE Tables in Volume 6 in conjunction with the Protective Action Recommendation Worksheet at Volume 4, Appendix F, Figure 1A. (Tr. at 5705-5706) He agreed that it is important for emergency decision-makers to have ETE's that are accurate in terms of time of day and

that there could be scenarios in which using ETE's for different hours of the day could tip the balance between ordering shelter or evacuation. (Tr. at 5711) The ETE tables in Volume 6 provide midday ETE's only. (App. Exh. 5, Volume 6 at pp. 10-6 through 10-11)

6.1.5. The Applicants' ETE's are based on an assumption that the Alert and Site Area Emergency emergency classification levels take place concurrently and that beaches are closed 25 minutes prior to any order to evacuate. (App. Exh. 5, Volume 6 at p. 10-13 and Tr. at 5665-5666, 5673) Therefore, in a scenario where there is an early General Emergency declaration during the summer beach season, the estimated times to get the last vehicle from the beach area out of the EPZ is a full 25 minutes more than the ETE's given in Applicants' testimony. (Id.)

6.1.6. Mr. Lieberman stated that his definition of "Beach Areas" as used in Table 10-9 at p. 10-11 of Volume 6 is the narrow slice of land along the coast. His definition of vehicles being off the beach area was when the last car entered Route 51 at the downstream edge of Highland Avenue, a

distance he said was 3 to 4 blocks off the beach. (Tr. at 5715-5716) According to Table 10-9 of Volume 6, the time to get a car just this short distance off the beach strip would take 5 hours and 40 minutes. (Tr. at 5718) Mr. Lieberman said that since the update of the ETE's was done, the estimated time to for cars to exit the beach area is six hours or more. (Tr. at 6714-15)

6.1.7. The drivers stuck in traffic for up to 5 hours and 40 minutes just to go 3 to 4 blocks would be at points on routes where the Seabrook reactor is plainly visible. (Fallon, et al. Dir, Post Tr. 8608 at 2-3 and Videotape, DeMarco and Lally Dir. post Tr. 3659 at 6) The behavior of drivers in the beach areas is discussed under Human Behavior in Emergencies at 7.1.11-7.1.25 infra. Applicants' witness Mileti stated that he cannot claim expertise on drivers' behavior in traffic jams. (Tr. at 6317) Applicants' witness Lieberman stated that "gapers blocks" where drivers "take their eyes off the road in front of them to take a look out to the side to see something interesting" can create a "shockwave which can cause congestion." (Tr. at 6709-11)

6.1.8. Applicants' witness Lieberman stated that the computer model simulation of evacuating traffic embeds the assumption that people perceive it in their best interest to move as far away from the source of radiation as possible and assumes that evacuees do not move closer to Seabrook Station. He stated that he did not think that it is a "rational action" on the part of any evacuee to take a route taking him closer to the reactors. (Tr. at 5679-5680) TOH witness Sargeant Victor DeMarco stated that it appears to him that the plant is closer to the Exeter Hampton Expressway (Route 51) than it is to Ocean Boulevard (Route 1A) and that his testimony that evacuees would be required to move closer to a damaged reactor, the very thing they were trying to escape, was accurate. (Tr. at 3678-80)

6.1.9. The 1987 Avis Airmap Company aerial photographs of beach population were taken between 12:00 noon and 1:20 p.m. on Saturday, July 18, 1987. Using net influx data collected by HMM in July of 1983, the percentage increase in vehicle population over the time frame in which the photos were taken was projected to 2:00 p.m., the previously determined

peak time of day. This approach implies the assumption that the rate of net influx of vehicles onto the beach on July 18, 1987 is comparable to that recorded by HMM on July 16, 1983. (App. Dir. No. 7, Post Tr. 5622 at 30-33) The Avis total count of parked vehicles of 26,850 was projected to be 29,293 at 2:00 pm. SAPL witnesses Fallon and Hollingworth testified that Saturday, July 18, 1987 was not a peak day for beach traffic and that peak days occur on Sundays rather than Saturdays. (Fallon, et al. Dir, Post Tr. 8608 at 3)

6.1.10. Witnesses DeMarco and Lally testified that tens of thousands of people are in the Hampton Beach area. (DeMarco and Lally Dir., post Tr. 3659 at 5 and Tr. at 3708) Though this is mainly during the summer beach season, Detective Lally stated that if there is a 40° day in January, the beach gets jammed with people. (Tr. at 3708-3709)

6.1.11. Witness Sargeant DeMarco of the Town of Hampton Police said that in the summer season he sees traffic at Hampton Beach from 8 o'clock in the morning to 9 o'clock at night, bumper to bumper. He also said that one day in May, it took him 2 hours to travel less than 1 1/2 miles to the police station from his home. (Tr. at 3686)

6.1.12. Applicants' witness Edward Lieberman testified that in preparing the ETE's in Volume 6, the planning basis assumption was that all traffic control measures would be in place at the order to evacuate. (Tr. at 5675) Traffic control measures were assumed to be in place for purposes of doing computer runs as early as 15 minutes after a beach closing. (Tr. at 5745) Thirteen traffic control guides are needed to staff the Traffic Control Posts (TCP's) in just the Hampton Beach area alone. (Tr. at 4212) Witness Callendrello agreed that up to 14 or 15 traffic guides were needed for beach closing. (Tr. at 5822) Captain Sheldon Sullivan of the New Hampshire State Police testified that only 4 state troopers could be in place within 15 minutes of their notification and only an additional 3 troopers could be in place within 45 minutes. (Tr. at 4704, 4714-15) [See also SAPL findings at 3.1.22 and 3.1.23 and at 6.1.28]

6.1.13. The I-DYNEV model used by Mr. Lieberman in calculating the ETE's did not model returning commuter traffic as experiencing impedānce that would cause trips home to be longer than they normally would be. (Tr. at 5676-5677) The

computer model employed by Mr. Lieberman also did not model the traffic on local streets (Tr. at 5674) and it also did not, for the most part, simulate 2-way traffic flow on roads. (Tr. at 5756)

6.1.14. Church Street, the entry to Route 51 off of the beach road (Route 1A) is one of the two main exits out of the beach area. It is a narrow passageway between two buildings. The properties abutting Church Street at the entry point from the beach have had to construct a brick wall and steel posts to prevent vehicles from running into their buildings. The wall there has probably been hit hundreds of times by trucks. Just one large vehicle breaking down there would totally obstruct the route because there is no space to push incapacitated vehicles aside. (Fallon, et al. Dir., Post_Tr. 8608 at 2, DeMarco and Bally Dir., Post_Tr. 3659 at 7 and Tr. at 3728-3730)

6.1.15 Even when traffic gets out onto Route 51, vehicle incapacitation due to stall outs, lack of gasoline, accidents or other causes is a major problem since the road is in the main only a two lane road and on some days cars are parked in the

breakdown lanes on both sides of the road for more than a mile to a mile and a half from the beach. This leaves no place to push incapacitated vehicles aside. (DeMarco and Lally Dir., Post_Tr. 3659 at 7-8 and Tr. at 3680-3682, 3696, 3726)

6.1.16. Accidents, breakdowns, and stalled vehicles in the Hampton Beach area roads occur on a daily basis during the summer months. (DeMarco and Lally Dir., Post_Tr. 3659 at 8)

6.1.17. The other main evacuation routes from Hampton Beach, Routes 1A and 101C, are also only two-lane roads. As with Route 51, these routes are also subject to traffic jams and gridlock. (DeMarco and Lally Dir., Post_Tr. 3659 at 8)

6.1.18. It is difficult to clear clogged roads because traffic backs up and the ability of wreckers to get into congested areas is severely limited due to the size of the roads. (Tr. at 3694-95)

6.1.19. When people abandon their vehicles, they almost always take their keys with them. Vehicles cannot be pushed when their transmissions are locked in park. It is necessary to call a wrecker to pull the pins on the transmissions so they can be moved. (Tr. at 8695)

6.1.20. In an afternoon partial evacuation of the immediate beach area when a nor'easter was expected to be coming in on the coast during the winter, traffic was tied up for about a 6 hour period.

(Tr. at 3663-3665, 3693-3694)

6.1.21. Applicants' witness Derman testified that his firm, Avis Airmap, took the aerial photographs of the beach area and counted people on the beach, all the cars in the beach area and in parking lots, the unfilled delineated spaces, the curbside spaces and the vehicles in transit on the roadways. (Tr. at 5931, 6011) Mr. Derman testified that Avis did not provide counts of the unfilled spaces in the unpaved parking lot at Hampton Beach State Park.

(Tr. at 6036) Mr. Derman did not know if the Applicants used the counts of the unfilled, delineated parking spaces. (Tr. at 6020) Mr.

Derman also did not know if the data on unfilled spaces along curbsides got dropped. (Tr. at 6021)

Mr. Derman did not count empty parking spaces in private driveways, front yards or back yards. (Tr. at 6040) Mr. Derman stated that there were not a lot of garages or carports in the beach area and that they were not counted. (Tr. at 6043-6045)

Mr. Lieberman's testimony was also that the counts of vehicles in the Applicants' ETE did not include counts of vehicles not visible from aerial photographs. (Tr. at 6042)

6.1.22. SAPL witness Rep. Beverly Hollingworth testified that there are a lot of undelineated parking spaces in the beach area and that most public parking lots are unlined. She further testified that she supervised the conduct of a count of the garages, carports and parking spaces under motels and hotels in the New Hampshire beach areas, spaces which would not, for the most part, be visible through aerial photography. The total count of such spaces in the beach areas was 1768, with 738 such parking spaces existing in Hampton Beach alone. (Fallon, et al. Dir, Post Tr. 8608 at 5 and Tr. at 8604-8605) Massachusetts' Attorney General's witness Thomas F. Moughan conducted a field survey to determine the number of garages, carports and under-building parking spaces in Salisbury Beach and on Plum Island. He found a total of 548 such spaces. (Moughan Rep., Post Tr. 9494 at 1-2)

6.1.23. Dr. Urbanik the NRC Staff's witness, testified that, in order to consider the Applicants' ETE study adequate at this time, three changes suggested in the supplement to his testimony would have to be done. (Tr. at 7697) Those changes were: (1) that the traffic control plan at Route 110 and I-95 should be revised to eliminate vehicles crossing the grassy median between the ramps, (2) that beach area vehicle capacity should be revised to include approximately 29,000 parked vehicles and approximately 1500 vehicles moving in traffic and (3) that screening should be eliminated at access control points. (Tr. at 7373-7375)

6.1.24. Dr. Urbanik stated that in doing ETE's at other plants, cars on the road are not normally used in the ETE simulation. He said that at Seabrook because the people on the beaches have such a short preparation time, accounting for those cars on the road is appropriate. (Tr. at 7745-46)

6.1.25. Only visible parked vehicles were used in the ETE update work done by Applicants. (Tr. at 6049-6050)

6.1.26. Applicants' ETE in Volume 6 of the NHRERP makes the blanket assumption that buses can be fully loaded at special facilities in about 10 minutes

(15 second mean headway for 40 passengers). (App. Exh. 5, Volume 6, p. 11-21)

6.1.27. The Applicants' evacuation time estimates for an EPZ-wide evacuation under Scenario 1 is 7 hours and 5 minutes and under Scenario 2 is 10 hours and 5 minutes. (App. Dir. No. 7, Post-Tr. 5622 at 43) [See also SAPL Finding 6.1.5. as to why 25 minutes should be added to these ETE's under some circumstances.]

6.1.28. Dr. Urbanik's assessment that the evacuation time estimate was adequate was based on the assumption that traffic control posts were manned according to the schedule set out in the Applicants' ETE study. (Tr. at 7723-24] He testified that at least 10 traffic control staff should be in place within half an hour. (Tr. at 7734-36) [See also SAPL Finding 6.1.12 to the effect that this will not be accomplished.] Dr. Urbanik, with others, authored a study in 1982 entitled "An Independent Assessment of Evacuation Time Estimates for a Peak Population Scenario in the Emergency Planning Zone of the Seabrook Nuclear Power Station." That study concluded that an evacuation time estimate in the range of 10 to 12

hours would represent the time estimate for evacuation under peak conditions if a relatively unimproved level of traffic control existed. (Tr. at 7703-7707) FEMA-REP-3, published in 1981, concluded that evacuation times for the Seabrook site in which traffic control was generally ineffective could range from 10 hours 30 minutes to 14 hours 40 minutes. (FEMA-REP-3 at 46)

6.1.29. Witnesses for the Commonwealth of Massachusetts Attorney General's office, Dr. Colin High, Dr. Thomas J. Adler and Dr. William A. Befort, estimated that the 1987 peak summer day beach population could exceed 93,000 -- over 52% more people than the NHRERP Rev. 2 plans for. The number of actual parked vehicles the Commonwealth counted on July 19, 1987 photos - 25,451 - was essentially equal to the KLD estimate of total parking capacity - 25,470. Their estimate of parking capacity in the area was 33,825. (High, et al. Dir., Post-Tr. 6849 at 5-6)

6.1.30. Massachusetts' Attorney General's witness Dr. Thomas J. Adler testified that KLD seriously underestimated ETE's because of unlikely to prevail assumptions such as : (1) that all evacuating

vehicles will take routes out of the EPZ which the plans prefer and (2) that all traffic control posts will be staffed with barriers and cones in place at the moment an evacuation begins. He stated that even if the evacuation were to proceed exactly as planned, ETE's provided by Applicants would still be significantly longer because some critical inputs appear to be in error. Applicants' estimate of vehicles in the beach area on peak summer weekends is at least too low by 50% and the KLD analysis ignores such factors as traffic created by thousands of drivers returning home to pick up family members. The effect of just the few factors mentioned is to increase ETE's in Volume 6 by more than 80% from 6:15 to 11:15 for the summer weekend evacuation of the entire EPZ. (Adler Dir., Post Tr. 7181 at 9-10)

6.2. Rulings of Law

6.2.1. Evacuation time estimates should be based upon realistic assumptions that reasonably account for phenomena and problems that regularly occur in the real world and should further deal realistically with special circumstances, such as commuters returning home, that would arise as the result of an evacuation order.

6.2.2. The Board finds that due to the very large beach area population and the inadequate roadway system upon which evacuating vehicles will be stuck for many hours, an evacuation order provides no reasonable assurance of adequate public protection for the Seabrook Nuclear Power Plant EPZ. An evacuation which meets the reasonable assurance standard is infeasible due to the unique conditions at this particular plant site.

6.3. Conclusions of Fact

6.3.1. The Board concludes that the Applicants' ETE's are unreasonably low because they are based on a beach area vehicle population estimate that is too low by a factor of over 50%. The Avis Airmap Company did not do traffic counts at a peak time or on a peak day. The KLD study, therefore, was not based on a reasonable estimate of the peak vehicle population in the beach area. Additional reasons why this is so are that vehicles not visible from aerial photography (in garages, carports and underground parking spaces) were not counted, undelineated parking spaces that would be filled during peak periods were not counted, and vehicles moving on the roadways were not counted. The Board

concludes that the population estimates provided by witnesses for the Commonwealth of Massachusetts are more realistic and provide a sounder basis for protective action decisionmaking and are corroborated by the testimony of the Town of Hampton Police witnesses.

6.3.2. The Applicants' ETE's are based on the unrealistic assumption that all traffic control measures are in place at the time of the evacuation order. NRC Staff witness Urbanik's assessment that the applicants' ETE's were adequate was based on his acceptance that traffic control measures would be in place. the Board finds that the testimony of the Town of Hampton Police and State Police witnesses is persuasive and that traffic control will not be sufficiently in place at the time of an evacuation order. The Board therefore concludes that the Applicants' ETE's are not reasonable.

6.3.3. The Applicants' ETE's in Volume 6 are too low because they are based on the assumption that all evacuating vehicles take the routes which the plans prefer out of the EPZ. Further, the computer model did not treat returning commuter traffic, did not model traffic on local streets and also did not,

for the most part, simulate 2-way traffic flow on roads.

6.3.4. In addition to being flawed by being too low, Applicants' updated ETE's have not been incorporated into Volume 4, Appendix F and Volume 4-A, Appendix U where emergency responders can consult them to make protective action decisions. Accurate ETE's should be readily accessible to assist decisionmakers in the important task of ordering appropriate protective actions. The Board is very concerned that the Manager for Emergency Planning for the Applicants expressed uncertainty in using ETE's in conjunction with the Protective Action Recommendation Worksheet.

6.3.5. Applicants' ETE's fail to take into account the human behavior problem of drivers stuck in traffic for hours, with many drivers in clear view of the nuclear plant, and with some of the evacuation routes appearing to bring evacuees closer to the reactor. Applicants' witness Lieberman stated that it would take 5 hours and 40 minutes to get the last car 3 to 4 blocks off the beach strip. Applicants' brought no human behavior witness with expertise on driver behavior in traffic jams who

could state that human behavior would not cause problems.

6.3.6. The Board finds the KLD estimate of time for loading buses at special facilities to be absurd.

6.3.7. The Board concludes that the choke point at the entry of Route 51 off the beach road (Route 1A) is a very serious problem in that a vehicle breakdown in that area could seriously lengthen or even wholly obstruct the evacuation progress for that substantial portion of the beach traffic relying on that route. The Board is also concerned that there may be problems with obstruction of traffic by incapacitated vehicles for up to a mile and a half out on Route 51 due to the lack of places to push such vehicles as a result of parked cars in the breakdown lanes. The overall congested road conditions in the area in addition to the large summer population, lead the Board to conclude that an evacuation that provides reasonable assurance of adequate public protection is infeasible in this area.

7. HUMAN BEHAVIOR IN EMERGENCIES

7.1. Findings of Fact

7.1.1. Applicants' expert on Human Behavior issues was Dr. Dennis S. Mileti, a Professor of Sociology from

Colorado State University. (App. Dir. No. 7, post Tr. 5622 at 93 et seq.) Dr. Mileti does not have a degree in social psychology and he did not take any courses in social psychology while he was working on his Ph. D. (Tr. at 6307 and 6309)

7.1.2. Dr. Mileti had a Ph.D student working under him do a telephone survey to assure role abandonment among certain organizations that had emergency responsibilities during the TMI accident (App. Dir. No. 7, post tr. 5622 at 128-131) An interview schedule or questionnaire was not developed for the survey (Tr. at 6455), Dr. Mileti did not recall the questions enough to state whether they were biased or not (Tr. at 6465-66) and no check on the accuracy of the information received was performed (Tr. at 6466).

7.1.3. Dr. Mileti's work on human behavior issues related to Seabrook, other than EBS messages, did not contain any evaluation of the effects of the specific characteristics of the site on human behavior. (Tr. 6314) Edward B. Lieberman of KLD Associates, Applicants' witness on evacuation time estimates (ETE's), stated that his estimate of time to get cars just 3 to 4 blocks off the beach strip

under a Region 1 evacuation order would be 5 hours and 40 minutes. (Tr. at 5716-5718) SAPL witnesses Mimi Fallon, Beverly Hollingworth and Elizabeth Weinhold stated that the Seabrook nuclear plant is visible to traffic exiting the beach for more than one mile on Route 51, that it is visible all along Route 1A from the Hampton Beach State Park to Route 286 except when occasionally obscured from view by trees and buildings and that it is also visible for a good distance along Route 286. (Fallon, et al. Rebuttal, post-Tr. 8608 at 2-3) Dr. Mileti stated that he cannot say he has expertise on traffic jams or drivers' behavior in traffic jams. (Tr. at 6317) However, Dr. Mileti claimed that traffic jams in emergencies are not problems. (Tr. at 6318)

7.1.4. The general responsibilities assigned to teachers in the Seabrook EPZ during a Seabrook emergency are that they are to account for their students, remain with them indoors during a sheltering protective action or supervise them until buses arrive if an evacuation is ordered. In an evacuation scenario they are to accompany students on buses to reception centers in host

communities and are to remain with the students until they are picked up by their parents or legal guardians. (App. Exh. 5, Local Community Plans, Appendix F, School Plans)

7.1.5. Mr. Strome, Director of NHOEM, testified that the teachers' responsibilities under the plans are purely voluntary. (Tr. at 3348, 3387) He said that there is no provision in the plans to compensate for the lack of teacher participation (Id.) Mr. Strome testified that in reaching the determination that there were adequate personnel, he did not consider whether teachers were available. (Tr. at 3365)

7.1.6. The Town of Hampton brought a panel of 12 teachers representing 9 different schools to testify in the hearings. (Pennington, et al. Dir., post-Tr. 3945, passim.) The position of the teachers was that, in the event of a radiological emergency at Seabrook, they would not carry out their school responsibilities and would leave the school to attend to family and/or other personal commitments. (Pennington, et al. Dir., post-Tr. 3945 at 5-9 and Tr. at 3947-50) 597 EPZ teachers signed a petition that stated that they would not

accept the responsibilities assigned to them under the plans. (Pennington, et al., Dir., post-Tr. 3945 at 6 and Tr. at 3936-38 and Hampton_Exp. 10) Further, surveys of their respective schools (a total of 15 schools) by certain of the teachers on the panel resulted in very low percentages of teachers willing to remain and implement the plans. (Pennington, et al., Dir., post-Tr. 3945 at 6-8 and Tr. at 3973-3985) Dr. Mileti testified that behavioral intentions statements of emergency workers whose emergency roles are a lot like their normal roles might be more reflective of what they might actually do than for other emergency workers. (Tr. at 9390)

7.1.7. Dr. Mileti testified that, if a teacher believed that by staying at work, their family would either die or suffer significant injury, they would go home and tend their family. (Tr. at 6512, Nov. 30, 1987 Transcript2)

7.1.8. The teachers who stated that they, in the event of a non-radiological emergency, would leave their school children to go home did so with the acceptance of the stipulation that the emergency simultaneously put their own family at significant

2 The November 20 and November 30 transcripts have some identical page numbers.

risk. (Tr. 3950-3963)

7.1.9. Donald J. Zeigler, a tenured associate professor of geography at Old Dominion University, James H. Johnson, a tenured associate professor of geography and Program Director for Population and Environmental Policy Studies at UCLA and Stephen Cole, a professor of sociology at the State University of New York at Stony Brook testified on behalf of the Commonwealth of Massachusetts on human behavior issues. (Ziegler, et al., Dir., post Tr. 7849, passim.) Drs. Ziegler and Johnson are highly qualified as experts in social and behavioral geography with reference to technological hazards. (Ziegler, et al., Dir., post Tr. 7849 at 2-3 and Attachments 1 and 2) Dr. Stephen Cole has conducted 150 social surveys for various clients, including Bookhaven National Laboratories and he has received a Guggenheim Foundation Fellowship for his work in sociology. He is highly qualified to conduct and evaluate social surveys. (Ziegler, et al., Dir., post Tr. 7849 at 3 and Attachment 3)

7.1.10. Drs. Ziegler and Johnson testified that role conflict is far more likely to be resolved in favor

of family in events involving radiation rather than other disaster agents. They testified that people are more fearful of radiation than other potential sources of danger except war and terrorism.

(Ziegler, et al, post-Tr. 7849 at 43-47)

7.1.11. Teachers on the panel stated that they perceived a drastic difference between a nuclear emergency and other types of emergencies in how they would respond. (Tr. at 3950-53)

7.1.12. The survey of public school teachers near the Diablo Canyon Plant in California, reported in the Ziegler, Johnson, Cole testimony, showed only that fewer teachers than the fireman or bus drivers in that area expressed an intention of abandoning their roles during a nuclear accident. (Ziegler, et al., Dir., post-Tr. 7849 at 47-50)

7.1.13. Witness Dunfey from the teacher panel stated that with students whose homes are within walking distance of the schools and with parents coming to pick up children, it is difficult to account for students. It was in the context of having been asked "The bell goes off and somebody says, Seabrook is gone, and how hard is it for you, at that point, to account for 28 kids and see to it

that they get to a bus?" that she answered, "I believe impossible." (Tr. at 3995-96) Witness Berry also testified that accountability would be "incredibly difficult" under those circumstances. (Tr. at 3977-78) Witness Milette testified that in her discussions with teachers at Winnacunnet High School, many teachers who said that they would not carry out their role under the plan made it clear they were not pro or anti-nuclear. (Tr. at 3990)

7.1.14. Many of the surveys of colleagues done by the teachers involved questions as to whether teachers would leave and those that did not involved questions as to whether teachers would implement the plan. The teachers indicated that their colleagues understood the responsibilities under the plan and that many respondents indicated their intention to leave even when not directly asked. (Tr. at 3973-85)

7.1.15. Donald L. Herzberg, Director of the Division of Nuclear Medicine at the Dartmouth Hitchcock Medical Center, stated that disruptive behavior should be expected in a radiation disaster situation. (Herzberg_Dir., post_Tr. 5011 at 3) Dr. Herzberg testified that he had a particular expertise in knowing how people relate to the idea of being

exposed to radioactivity. (Tr. at 5028 and 5056-58, 5067-68) He stated that the usual perception that under stress people hang together and act more appropriately does not hold with his experience with people in dealing with radiation. (Tr. at 5030) He testified that there is an element of hysteria in the public in relationship to radiation that will affect the way the public will respond and that he would expect some very dramatic inappropriate behavior. (Tr. at 5059-5060)

7.1.16. Dr. Mileti testified that pre-emergency fear can affect situational perceptions of risk. (Tr. at 6335, 6340) Dr. Mileti at one point said he had no data on which to base an answer to a question about whether pre-emergency fear affects how a person hears information. (Id.) He testified that situational risk perception has a direct effect on response. (Tr. at 6339-40)

7.1.17. Dr. Mileti stated that the key determination of situational risk perception formation is emergency information and he claimed that "good" emergency information can overcome the constraints to sound emergency public response. (Mileti Dir., post-Tr. 5622 at 150-159 and Tr. at 6342) However, Dr.

Mileti did say he could not answer the question as to whether pre-emergency fear would affect how members of the public would hear the information. (Tr. at 6335) Later he stated that fear can affect how a person receives information. (Tr. at 6347)

7.1.18. Dr. Mileti testified that he thought behavioral intentions research is the worst kind of evidence that can be gathered to predict what the public is likely to do in emergencies. (Tr. at 6322-6323) He even went so far as to say it was dangerous. (Tr. at 6331) He agreed that answers to behavioral intentions surveys are as unreliable for people who say they would obey instructions as for those who say they would not. (Tr. at 9389-9390) Dr. Mileti did admit, however, that there are behaviors that are very well predicted by pre-behavior intention research, such as voting behavior and consumer choice. (Tr. at 6325-26, 6345)

7.1.19. Drs. Johnson and Cole testified that, based on studies of natural and non-radiological technological disasters research conducted after the Three Mile Island accident and surveys of persons called upon to perform duties should an

accident occur at several U. S. reactor sites, a significant proportion of workers relied upon in the Plan for Seabrook would discover that their emergency work roles and family obligations were in conflict. They testified that they would resolve this dilemma first by assuring the welfare of their own families, which would make them either unavailable or delayed in performing their assigned emergency response duties. (Ziegler, et al. Dir., post-Tr. 7849 at 39-40)

7.1.20. A number of witnesses in the proceeding raised the issue of role conflict and concluded, as did Drs. Johnson and Cole, that other responsibilities would take precedence over emergency response duties. Mitchell Dir., post-Tr. 3805 at 1-2; Breiseth Dir., post-Tr. 3739 at 2-3; Christie Dir., post-Tr. 3741 at 1-2; Shivik Dir., post-Tr. 3780 at 1-2; Barrows Dir., post-Tr. 4405 at 2; Trahan Dir., post-Tr. 7806 at 7-8) (See also SAPL findings re: teachers at 7.1.5) TOH witness Ann Hutchinson stated that 90 percent of her company's drivers would refuse or be otherwise unavailable to drive buses. (Hutchinson Dir., post-Tr. 4562 at 2-3)

7.1.21. Applicants' witness Mileti testified that when emergency work roles are not clear or "certain", role conflict in emergencies can result in would-be workers playing more certain roles toward intimates before attending to emergency work. (App. Dir. No. 7, post-Tr. 5622 at 117-118) It was clear from his deposition that the Secretary-Treasurer of Teamsters Local 633 did not understand that the teamster drivers were being asked to drive into the EPZ. (SAPL Exh. 1 at 22, 36) There are no driver rosters for the DOT or National Guard drivers to serve as basis for concluding that those drivers have been clearly told of their responsibilities. (Tr. at 2992) Mr. Colburn testified that the only DHHS employees being trained were the 95 who are members of ESU's; the other 471 DHHS employees are not being trained. (Tr. at 4822, 4839, 4804-4805) Mr. Colburn testified that these other DHHS employees have not been asked for a commitment to serve in a Seabrook emergency response. (Tr. at 4798) Witness Moyer from the teacher panel testified that when the faculty at his school were told of their responsibilities under the plan in the event of a Seabrook emergency at a facility

meeting, the faculty present broke out into 10 solid minutes of hilarious laughter. He said that that one meeting was the extent of the training the faculty at his school had had. (Tr. at 4013-14) Director Strome has not yet supplied rosters of emergency workers to FEMA for review. (Tr. at 3093, 3154)

7.1.22. There was a riot in Hampton Beach in 1972 that was brought under control only after an extended period of time. (Tr. at 3667) A riot that occurred on Hampton Beach on Labor Day weekend in 1964, involving between 3,000 and 10,000 youths, took over 7 hours to quell even though there had been advance warning of the riot and the National Guard and 100 Maine State Police were brought in to assist. (Fallon, et al., Dir. post Tr. 8608 at 4-5)

7.1.23. Detective Lally of TOH testified that drivers deliberately disobey officers in a rainstorm and that he has seen people "that would run you down if it's raining to get out of the beach." (Tr. at 3714) Police Chief Christie of TOH testified that people panic and do funny things under stress and that he would expect that conditions would be chaotic. (Christie Dir., post

Tr. 3714 at 3-4) David MacDonald, Rye's Civil Defense Director, testified that vehicle operators do not simply obey instructions even when it is in their own interest to obey; he has seen instances where traffic barriers have been moved and people have driven past them onto flooded roadways. (MacDonald Dir., post-Tr. 3867 at 6 and Tr. at 3911-12) Witness Mimi Fallon testified that in 1982 at the time of an explosion at a fireworks factory adjacent to Seabrook Station, she heard on the police radio that people were driving on both lanes out Route 286 and were passing the fire truck. (Fallon, et al Reb., post-Tr. 8608 at 4) Witness Fallon thought it significant that this kind of reaction occurred even before Chernobyl. It was described by a police dispatcher as absolute pandemonium. (Id.) Salisbury Police Chief Edwin Olivera testified that he and his officers see all kinds of disorderly traffic behavior in traffic jams including drivers passing traffic by driving up the right shoulder of the road and riding up on sidewalks. (Olivera Reb., post-Tr. 9483 at 2-8, Tr. at 9471) Chief Olivera said that a large percentage of the beach area population are in the

17-25 age range and that people in this age group tend more to be disorderly drivers. (Olivera_Rep., post_Tr. 9483 at 5) He testified that with a radiation threat, drivers would be trying everything possible to get away from the nuclear plant quickly and would not worry about getting cited for a traffic violation (Olivera_Rep., post_Tr. 9483 at 7)

7.1.24. Dr. Mileti testified that it is a "myth" that panic occurs in mass emergencies. (App. Rep. No. 5, Post Tr. 9408 at 1) He stated that individual selfish acts may have been incorrectly labeled as panic, but that it is "certainly" not panic behavior when individuals behave in ways inconsistent with the good of the collective. (Tr. at 9412) Drivers driving up the right-hand shoulder or crossing a double yellow line to drive up the left lane or abandoning vehicles in the traffic stream are not behaving in a manner he would call panic. (Tr. at 9423-24) Even though Dr. Mileti said he thought of his own father when he was asked about individuals seeking their own evacuation routes after being stuck in traffic for hours, he still claimed such behavior was "not going to be probable." (Tr. at 9432)

- 7.1.25. Massachusetts Attorney General's witness Dr. Albert E. Luloff conducted a survey of populations on various New Hampshire beaches in the Seabrook EPZ in mid-July 1987. Dr. Luloff testified that the questions in the survey came from Resource Systems Group, Dr. Goble, Dr. Wrenn and himself. (Tr. at 8219-20) Dr. Luloff testified that the purpose of the survey was to provide scenarios to people at the beach that they would be able to respond to much in the same manner as scenarios were used in the First Market Research survey referenced in the Applicants KLD study. (Tr. at 8224) The survey involved 584 interviews. It showed that 22.1 percent of respondents, when asked if they would follow a policeman's instructions, said they would follow their own route and that 19.8 percent said it would depend on the situation and instructions. (Luloff Dir., post-Tr. 8203 at 14)
- 7.1.26. Dr. Miletì made the recommendation in his testimony that the emergency broadcast system (EBS) messages he clearly ascribed to multiple sources. (App. Dir. No. 7, post-Tr. 5622 at 158) The most recent draft EBS messages now have sources ascribed except in two of the messages. (Tr. at 6406-07)

The sources ascribed are NHOEM and public health officials and in some messages, the Governor. (Tr. at 6409) Dr. Mileti could not recollect the rationale behind that pattern of ascription. (Tr. at 6410) Dr. Mileti agreed that the credibility of sources is an important variable to consider. (Tr. at 6411) He opined, however that credibility is not all that affects the believability of the messages. (Tr. at 6412) He did not agree that people are less likely to respond as predicted when the information comes from a non-credible source. (Tr. at 6414) Dr. Mileti has done no research on the credibility of NHOEM or public health officials. (Tr. at 6415)

7.1.27. Teacher panel witness Herb Moyer testified to "significant misrepresentations of fact" he has heard from the NHOEM in meetings dealing with school evacuation plans, including the claim that no radiation was released offsite at TMI and the claim that there would be a 12 to 36-hour delay before any radiation could be released in a Seabrook accident. (Tr. at 4043-4046) Witness Moyer stated that the credibility of NHOEM would be a factor in determining his emergency response as a teacher. (Tr. at 4027) Witness Moyer testified that there was a real lack of trust of the

officials involved in emergency planning. (Tr. at 3990)

7.2 Rulings of Law

Applicants' have not met their burden of proof of showing that emergency worker role abandonment and public panic will not impair and render inadequate a radiological emergency response in the area around Seabrook Station.

7.3 Conclusions of Fact

7.3.1. The Board does not credit the testimony of Dr. Mileti where it disagrees with the testimony of intervenor witnesses because he is not a qualified expert in social psychology, his conclusions are not based on any study of the unique characteristics of the Seabrook site, he has no expertise on human behavior in traffic jams, his testimony is largely contradicted by testimony of highly qualified expert witnesses and local officials and teachers (many of whom have actual personal experience), his testimony on his knowledge of the effect of fear on the public's receipt of emergency information was contradictory and some of his research methods in regard to the TMI accident did not rise to even a minimum acceptable standard.

7.3.2. The Board finds that given the unique characteristics of the Seabrook site where evacuating populations will be stuck in traffic for hours with the nuclear plant in view, given the testimony of local officials regarding inappropriate driver behavior in the area even under non-emergency conditions, and given the testimony of Dr. Luloff that 22.1% of respondents to a beach survey stated that they would follow their own evacuation route, improper driver behavior will lead to a situation where an adequate evacuation of the area is not possible in any reasonable time frame.

7.3.3. The Board finds that student populations will not be adequately protected due to the non-participation (in the emergency response) of a significant number of EPZ teachers. Teachers will react differently and will be far less likely to carry out their roles in a nuclear emergency than in any other type of emergency.

7.3.4. The Board finds that the response of the public to a nuclear emergency at Seabrook will be characterized by very dramatic inappropriate behavior both because dramatic inappropriate

behavior has occurred in the Seabrook area before at non-emergency times and because highly qualified experts have testified in the proceeding that people are more fearful of radiation than they are of other disaster agents.

7.3.5. The Board finds that, due to role conflict, fear of radiation and the lack of clear specification of roles for many workers, the response of bus drivers, local officials, state employees and emergency workers generally will not be adequate due to delayed response and non-response by the individuals relied upon to carry out the plans.

7.3.6. The Board finds unpersuasive witness Mileti's claim that lack of credibility of sources of EBS messages will not make people less likely to respond to the messages as predicted. The Board finds that NHOEM is lacking in credibility and that this will adversely affect the public's response to EBS messages.

8. NOTIFICATION/COMMUNICATIONS

8.1. Findings of Fact

8.1.1. The public information calendar which is part of NHRERP Rev. 2 states on the front page under a

section that says in bold type "**For Help During an Emergency**", as follows:

The Civil Defense Agency is prepared to help you in an emergency. If you are handicapped or need special help, call your Emergency Operations Center.

During an emergency, these phone lines are only for people who need help.

[Phone numbers are then listed for 13 of the 17 New Hampshire towns, excluding Hampton Falls, Kensington, Rye and South Hampton]

*If your town does not have a number listed, call New Hampshire Civil Defense at 1 (603) 433-1419.
(APP. Exh. 5, Public Information Material)

8.1.2. Applicants' witnesses claimed that people needing transportation would not attempt to call for assistance because bus routes are in the Emergency Plan Information Calendar which depicts the routes and instructs them to tune to an EBS Station for bus information. (App. Dir. No. 5, Post Tr. 8920 at 4) Whether those people who heard the EBS message about buses but who did not see buses showing up promptly would attempt to telephone was a human behavior issue that Applicants' witness Callendrello, the Manager of Emergency Planning for NHY, had not consulted the Applicants' human behavior expert, Dr. Miletì, about. (Tr. at 8938)

- 8.1.3. Applicants' witness Mileti did testify in regard to ride sharing that people in emergencies check on the safety of others, communicate with friends, neighbors and intimates and offer help and provide assistance to each other. (App. Dir. No. 7, Post Tr. 5622 at 96) It is reasonable to expect that much of this communication would be by telephone.
- 8.1.4. The Emergency responders are going to have to call people who need special help to verify their transportation needs during an emergency. (App. Dir. No. 5, Post Tr. 8920 at 5-6)
- 8.1.5. Normally it is the function of the community's Emergency Operations Center (EOC) to contact facilities for the verification of transportation needs and to contact people who need special needs transportation. In the event a community is not participating, the local liaison is to perform these functions. (Tr. at 6926)
- 8.1.6. Applicants' witness Robert O. Nelson, District Manager Network Operations for New Hampshire and Vermont, New England Telephone, explained the reason that the EBS messages advise people to refrain from all use of telephones unless absolutely necessary. He referred to the problem

mentioned in Applicants' testimony at p. 6 that "everyone in an office picked up the telephone simultaneously to originate a call" and said that "if in fact we did have that kind of problem, we could conclude that it is extremely serious and that there would be a large demand placed on the telephone switching network." (Tr. at 8928) The word "office" refers to a central office telephone switching exchange. (Tr. at 8943)

8.1.7. There was a problem with the phone service in Portsmouth, N. H. associated with an airplane crash. (Tr. at 8932)

8.1.8. Mr. Nelson testified that in a heavy load condition, with all the people in the seacoast area attempting to call out of that area at the same time, it would be a lot busier than Mothers Day. People would have to wait for a dial tone. (Tr. at 8932) Mr. Nelson said he was unable to predict how long people would wait. (Tr. at 8944) He testified that the sentence in the testimony that says some customers may wait a few minutes was not his effort to answer that question. (Tr. at 8945)

8.2. Rulings of Law

The requirement that provisions exist for prompt communications among principal response

organizations and to emergency personnel and to the public at 10 CFR §50.47(b)(6) should reasonably be interpreted to mean that there should be communication provisions so that members of the public can reliably and promptly request assistance should such need arise. The Board finds that adequate provisions for such communications are not in place.

8.3. Conclusions of Fact

- 8.3.1. The public information calendar states that people who need special help should call their local EOC. No explanation is provided to let people know that "special help" does not mean a need for transportation assistance. The Board concludes that people needing transportation assistance will likely try to call the EOC.
- 8.3.2. NHY's Manager of Emergency Planning did not consult the Applicants' human behavior witness to find out if the plan's expectation that people will not make telephone calls is reasonable. Indeed, Applicants' witness Mileti testified in regard to the issue of ride sharing that people do check on the safety of friends, neighbors and intimates. The Board would expect that much of this contact

would be via the telephone system.

8.3.3. The Board concludes that emergency responders at either the State or local level are going to have to place many telephone calls to verify transportation needs of those who have indicated such needs in order to avoid needless deployment of transportation resources.

8.3.4. The commercial telephone system is subject to overload in circumstances where large numbers of people within a switching exchange try simultaneously to make calls.

9. CONCLUSION

9.1 The Board finds and rules that there is no reasonable assurance that adequate protective measures can and will be taken to protect the public health and safety in the New Hampshire portion of the Seabrook Station EPZ in the event of a radiological emergency at Seabrook Station.

Dated: May 9, 1988

Respectfully submitted,
Seacoast Anti-Pollution League
By its Attorneys,
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I hereby certify that copies of the within Findings have been furnished by Federal Express to the parties on the service list indicated by an asterisk and by first-class mail to the remainder of the parties on this 9th day of May, 1988.

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