UNITED STATES OF AMERICA NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before the Administrative Judges:

Ivan W. Smith, Chairman Dr. Richard F. Cole Kenneth A. McCollom

In the Matter of

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, ET AL. Docket Nos. 50-443-OL 50-444-OL

(Seabrook Station, Units 1 and 2)

July 31, 1990

AFFIDAVIT OF ROBERT L. GOBLE

I, Robert L. Goble, hereby depose and state:

I am a Research Associate Professor at Clark
University in Worcester, Massachusetts. My professional
qualifications are a matter of record in this proceeding.

2. My affidavit addresses an issue defined by the Licensing Board concerning the preparation of advanced life support (ALS) patients for evacuation; specifically it addresses question 4) as defined by the board.

> "Would uncertainties in the times available to prepare ALS patients for evacuation produce ETEs that are too inaccurate to be useful in the action of protective action options?"

9008070279 900731 PDR ADDCK 05000443 3. The main points, discussed in more detail below, may be summarized as follows:

 (i) Evacuation time estimates (ETE's) specific to special facilities such as hospitals are useful, indeed necessary, in making effective protective action recommendations (PAR's) which will maximize dose savings for residents of these facilities.

(ii) ETE's are specifically needed for ALS patients for whom the PAR must also incorporate a judgment about the risks of evacuation.

(iii) Preparation and loading time is an essential component to be considered in developing the ETE's for ALS patients.

(iv) Although uncertainties are always present in developing ETE's, reasonable and attainable accuracy in the estimates will produce results which can make a difference in the choice of PAR across a broad spectrum of accident situations.

(v) The use of facility specific ETF's for ALS patients to develop PAR's for them will not heavily burden the emergency planning process; it will help assure that the resources already allocated to these patients are used effectively.

4. There are two reasons why suitably disaggregated facility specific ETE's are needed for ALS patients:

(i) The facilities in question offer substantially better sheltering protection than is assumed in tormulating

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PAR's for the general population in the vicinity of the Seabrook plant. Consequently, it may well happen that there will be dose savings if residents of the facility shelter while the general public is evacuating. This could be true for both ALS and non ALS residents.

(ii) The non-radiological risks of an evacuation may be substantially greater for ALS patients than the very small risk assumed in making PAR's for the general population. As described in the affidavit of John Bonds, the choice of protective action for an ALS patient is best made by appropriate medical staff who can weigh the radiological risk against the non-radiological risks. The decision might be very different depending on whether the threatened radiation exposure imposes a small increased risk of cancer or whether it threatens an immediate radiation-caused injury or death. It is vital to note, contrary to the implication in the Bonds affidavit, that there may well be radiological risks in evacuation as well as in sheltering. What is relevant for protective action decision-making is to estimate the dose savings, if any, to be obtained by evacuation versus sheltering. ETE's are an essential ingredient in determining such dose savings. It is also worth noting that because of the good sheltering capabilities of the hospitals under consideration, the ETE must be disaggregated into times spent indoors and times spent outdoors.

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5. Preparation and loading times differ from facility to facility and are in dispute. Estimates in the various

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affidavits range from 45 minutes to over 2 hours. In all cases they are a significant fraction of typical ETE's for the general public of roughly 5 hours. As noted above, indoor and outdoor times are needed.

6. The details provided in the various affidavits makes it clear that it should be feasible to make realistic estimates for the various components of evacuation time including patient preparation and loading, and that the estimates can be detailed enough to make the necessary distinction between indoor and outdoor activities.

7. Contrary to the implication of the Callendrello affidavit, for the ETE's including preparation and loading to matter in choosing PAR's, it is only necessary that they be within the longest reasonably anticipated ETE for the general public, since the immediate question will be whether to evacuate the patients along with the general evacuation or after it. The Callendrello affidavit shows that there is considerable margin for evacuation of ALS patients to occur in the same time frame as that of the general public in many accident situations.

8. Thus even with uncertainties in the precise values for the indoor and outdoor components of ALS ETE's, it should be possible over a broad range of accident situations to calculate estimated dose reductions obtainable i) from trying to evacuate a patient while the main evacuation is going on, ii) from waiting (sheltered) until the general public has completed its evacuation, or iii) from not evacuating at all. The results of

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such calculations would serve as a useful basis for PAR decision-making; they will depend strongly on the nature of the accident situation and on the ETE values used.

Considerable effort in the planning process addresses 9. the needs of ALS patients in a potential accident: the effort includes special provisions for ambulances, for preparation and loading, and for the medical evaluation of risks. It is clearly appropriate to devote the additional effort needed to obtain the information to use these resources effectively, to be prepared to decide under particular ranges of accident conditions whether it is better to enter the main evacuation stream, to evacuate later, or not to evacuate the patient at all.

Signed under the pains and penalties of perjury this 314day of fulz, 1990.

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Bryan D.O Connell Notory Public Expires 3/9/95

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