

AFFIDAVIT OF JAMES A. MACDONALD
ON NECNP III.12 and 13

JAMES A. MACDONALD, being on oath, deposes and says as follows:

1. I am Manager of the Radiological Protection Group, employed by Yankee Atomic Electric Company. I am currently assigned to the Seabrook Project. My professional qualifications appear in the Operating License Application (FSAR Chapter 13).
2. The Applicant has analyzed the demographic and road network characteristics of the area surrounding Seabrook Station and used the results to estimate evacuation times for two, five and ten-mile radii areas for each of the following cases:
 1. Fair weather summer weekend (peak population condition),
 2. Fair weather off-season weekday, and
 3. Bad weather off-season weekday.

For each of these areas and cases, population data was converted to vehicle demand data which served as input to a numerical transportation simulation model. The model dynamically simulated an evacuation of the given population over the given road network to produce evacuation time estimates.

All the details of the population and road network data that formed the input for these areas and cases, the transportation simulation model operational description, and the evacuation time estimate results are given in Appendix C of the Applicant's Radiological Emergency Plan volume of the Final Safety and Analysis Report. This Appendix C is appended hereto as Attachment A.

The transportation simulation model has been subjected to a validation analysis. The method and results of this validation analysis are appended as Attachment B.

Both the overall evacuation time estimates and the statistical results which the model reports on parameters such as capacity, flow, queues, current and total volumes, speeds, network occupancy, and cumulative link departures form an information base that serves as useful assistance to detailed Seabrook Station Emergency Planning Zone (EPZ) emergency planning development generally, and evacuation management planning in particular.

The transportation simulation model used by the Applicant is consistent with the methodology reported by the NRC in NUREG/CR-2504, which is appended hereto as Attachment C. The use of this NRC methodology specifically for the Seabrook Station EPZ together with an evaluation of the Applicant's results and assumptions are reported as NUREG/CR-2903, appended hereto as Attachment D.

The conclusion from all these evacuation estimate analyses is that the Applicant has indeed provided an accurate assessment of population distributions and the dynamics of evacuation routings for pertinent cases and, therefore, has generated a useful base of information from which detailed evacuation management plans can be developed. It must be realized that the numerical values of evacuation estimates are not the sole quantity of interest. In fact, even more important than the estimates themselves are the statistical data on the dynamics of the road network operation in an evacuation mode. It is this information that forms the basis for evacuation management plan development. As described above, the Applicants' simulation model produces this statistical information base.

It must also be realized evacuation of the beaches under an evacuation management plan specifically developed for the Seabrook Station EPZ is not comparable to past history or experience. Implementation of an evacuation operation for the area would be performed with a specific traffic management scheme and not by the normal traffic controls program used on a crowded weekend. This makes "common knowledge" and conversations with police officials invalid reasons for rejection of evacuation time estimates.

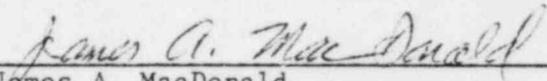
In anticipation of a tropical storm (demoted from hurricane) in August of 1976, some residents and vacationers from low-lying areas in Hampton Beach were evacuated during the evening to four shelters for a few hours as a precautionary measure. Conditions surrounding this evacuation were notably different from an evacuation for which the Applicants have estimated. It does not provide a useful gauge of evacuation time estimates provided by the Applicants.

Further, the NECNP citation of an Applicant's estimate of 4 hours, 30 minutes for the evacuation of the entire EPZ is wrong. As can be seen from Table 4 of Attachment 4, this time estimate is for a 90° Northeast, 0 to 10 mile sector - not the entire EPZ.

The Applicants have analyzed EPZ evacuation of an off-season weekday for adverse weather effects (Table 4 of Attachment A). The postulation of an adverse weather condition simultaneous with peak beach use was rejected as a useful analysis for evacuation traffic plan development purposes. The issue of "evacuee directional bias" is handled by the implementation of an evacuation traffic management plan. The issue of "evacuation shadow" is specious because while the concentrated evacuation traffic management considerations are for the EPZ in general and the beach areas in particular, the transportation corridors serving the overall area would be available for any additional "evacuation shadow" evacuee use. Such transportation corridors are not taxed to capacity in the evacuation estimate analyses performed by the Applicants. As for "expected vehicle mix", the Applicant's analysis used as input evacuation by automobile. This is the "expected vehicle mix" for this area.

In summary, each of the issues raised by NECNP have been taken into account in the analysis reported in Appendix C of the Radiological Emergency Plan (Attachment A hereto). The evacuation time estimate values set forth therein include the effects of those issues to the extent that those issues had any effect on evacuation time estimates.

Based on the above, I feel there is no issue relative to NECNP Contention III.12 and 13 on which factual hearings are warranted.

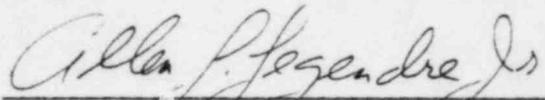

James A. MacDonald

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss

February 11, 1983

Then appeared before me the above suscribed James A. MacDonald and made oath that he was the author of the foregoing affidavit and the statements set forth therein are true to the best of his knowledge.


Allen L. Legendre, Jr., Notary Public
My Commission Expires August 5, 1988

CERTIFICATE OF SERVICE

I, Thomas G. Dignan, Jr., one of the attorneys for the Applicants herein, hereby certify that on February 14, 1983, I made service of the within "Applicants' Twenty First Motion for Summary Disposition (Contentions NECNP III.12 and .13)," by mailing copies thereof, postage prepaid, to:

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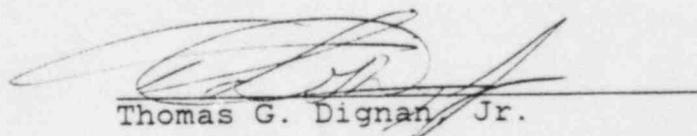
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