NUREG/CR-2903
PNL-4290

An Independent Assessment of Evacuation Time Estimates for A Peak Population Scenario in the Emergency Planning Zone of the Seabrook Nuclear Power Station

Prepared by M.P. Moeller, T. Urbanik II*, M.A. McLean, A.E. Desrosiers

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Prepared for
U.S. Nuclear Regulatory Commission

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Manuscript Completed: October 1982
Date Published: November 1982

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ABSTRACT

This study comprises two major tasks. First, it includes an independent assessment of the methods and assumptions used in calculating evacuation time estimates (ETEs) applicable to the general population for a peak population scenario in the emergency planning zone (EPZ) of the Seabrook Nuclear Power Station. This consists of a review and analysis of previous work by Public Service of New Hampshire (PSNH) and the Federal Emergency Management Agency (FEMA), as well as an independent calculation of evacuation times using the CLEAR model for the demographic data reported by PSNH. Secondly, this study includes independent estimations of evacuation time for the peak population scenario developed using demographic data prepared by the U.S. Nuclear Regulatory Commission (NRC). These evacuation time estimates are approximately 60% and 84% greater, respectively, than the estimate provided by PSNH for a simulataneous evacuation of the entire EPZ under peak conditions. The CLEAR model, which was developed by Pacific Northwest Laboratory (PNL) under the sponsorship of the NRC, was also used for these latter calculations. The results of this study reveal the importance of the assumptions used for calculating evacuation times. Because traffic routings and management plans have not been prepared for the area, the CLEAR calculations utilized independently prepared traffic routings and assumptions. A detailed analysis of the results suggests that the ETEs submitted by PSNH are consistent with the methods and assumptions which provide the bases for PSNH's evacuation time estimates. Differences among evacuation time estimates stem largely from differences in the assumed size of the evacuating population and the estimated effectiveness of traffic controls.

SUMMARY

This study is an independent assessment of the evacuation time estimate for the general population reported by PSNH, Public Service of New Hampshire, for a peak population scenario in the emergency planning zone of the Seabrook Nuclear Power Station. The study consisted of two parts. First, the computer model CLEAR was used to calculate ETEs for the Seabrook peak population scenario based upon the demographic data and automobile demand estimates submitted by PSNH. Second, the CLEAR model was also used to calculate independently the ETEs for the same scenario based upon the demographic data and automobile demand estimates prepared by the U.S. Nuclear Regulatory Commission.

The results of this study reveal the importance of the assumptions used for calculating evacuation times. Analysis of the evacuation time estimates reported in this study suggest that the ETE computed by PSNH is consistent with the methods and assumptions used in their analysis. Their assumptions are optimistic and include implicitly attaining a high level of efficiency and utilization of the available transportation network.

In contrast to the 380 minute ETE reported by PSNH, a 610 minute ETE was calculated for the same demographic data using the computer model CLEAR. Using equally realistic methods and assumptions, the CLEAR ETE is greater because the methods and assumptions used in the calculations are more conservative. Furthermore, because the demographic data and automobile demand estimates prepared by NRC were larger than those reported by PSNH, the CLEAR model calculated a 90 minute inc ease in its ETE when using the NRC data.

The evacuation times reported in this study will remain gross estimates until the assumptions used in the calculations for this scenario are defined. Specifically, when the detailed local evacuation plans have been prepared for the Seabrook EPZ, a more exact ETE can be calculated.

This last point identifies the significance of the detailed local evacuation plans in determining the time necessary to evacuate the Seabrook EPZ. As detailed in this report, the relative degree of evacuation planning and implementation of effective traffic management procedures will ultimately determine the time required to evacuate.

In conclusion, the results of this study emphasize the need to develop a detailed local evacuation plan for the Seabrook EPZ and the need to reexamine the ETEs after these plans are developed. The alternative traffic management schemes discussed in this report should aid in the optimization of the local traffic management portion of the offsite emergency plans.

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INTRODUCTION

This study is an evaluation of the evacuation time estimates for the general population submitted by PSNH[a,b] for a peak population scenario in the emergency planning zone of the Seabrook Nuclear Power Station. The purpose of this study is to independently assess the validity of the ETEs, as well as the methods and assumptions used by PSNH for estimating evacuation times. This independent verification of PSNH's time estimates for the Seabrook EPZ includes two independent calculations of evacuation time estimates using the CLEAR[1] model. Evacuation time estimates were prepared using both PSNH and NRC's demographic and vehicle demand estimates. Therefore, this study reflects an independent assessment of all variables, parameters and assumptions used in calculating evacuation time estimates for the Seabrook EPZ. In addition, an examination of the transportation network in the EPZ was performed in order to establish assured evacuation routings.

A single scenario was selected as a basis of comparison. This scenario is an evacuation of the entire (360°) EPZ surrounding Seabrook Station under a peak population condition. The population is assumed to consist of the permanent, seasonal and peak transient residents of the EPZ. Institutionalized populations are not included.

The selection of this scenario does not imply that institutionalized populations should not be included in emergency preparedness plans or that a simultaneous 360° evacuation of an EPZ is a preferred protective action. The NRC's guidance[7] should be consulted in this regard. The scenario was selected as a means of comparing PSNH's ETEs with independent calculations under conditions that would highlight differences.

The calculations in this report are likewise not intended for use by decision makers during emergencies. The present estimates are based on assumptions by the authors regarding preferred evacuation routings and traffic management. The recommendations of this report, other analyses of the Seabrook EPZ and the experiences of local officials should be reviewed and detailed local plans should be implemented. At that time, the evacuation time estimates indicated in NRC's emergency preparedness criteria[7] should be prepared for the use of decision makers.

There are two other studies of evacuation times for the Seabrook site. One of these studies, by Wilbur Smith and Associates, was not reviewed as it is somewhat dated. However, a more recent study by the Federal Emergency Management Agency[3] is discussed.

(a) Personal correspondence from John D. Vincentis, Public Service of New Hampshire to the U.S. Nuclear Regulatory Commission dated July 31, 1981.
(b) Personal correspondence from Arthur M. Shepard, Public Service of New Hampshire to the U.S. Nuclear Regulatory Commission dated August 4, 1980.

DEMAND ESTIMATION

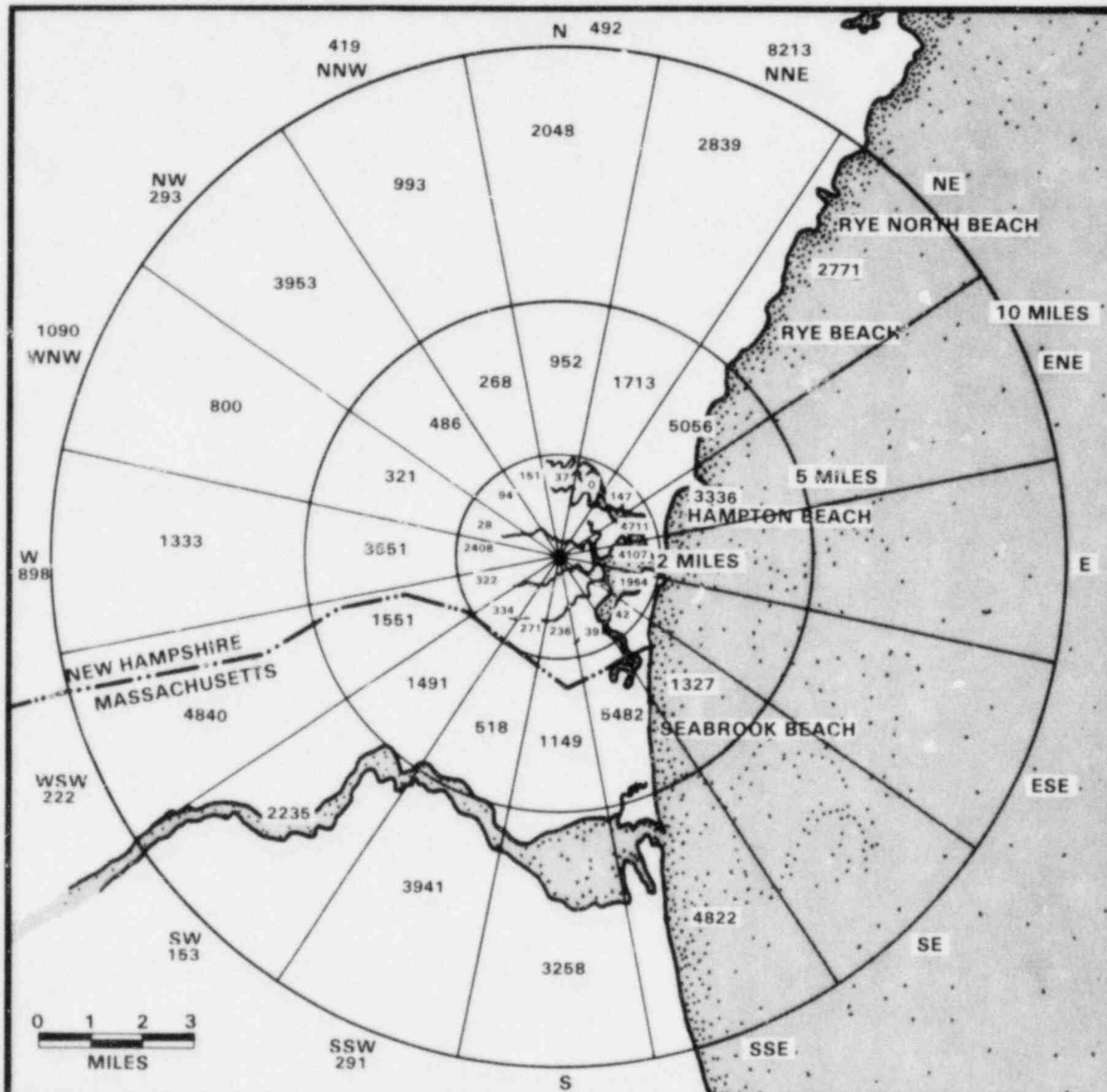
The objective of this section is to provide an estimate of the number of vehicles participating in the evacuation. The automobile demand estimate is based upon three potential population groups. These include: 1) permanent residents, 2) seasonal residents, and 3) daily transients. Permanent residents are those who live in the area throughout the year, while seasonal residents live in the area during the tourist season. Daily transients include those in hotels, motels, and campgrounds, daily visitors to beaches, and persons at the Seabrook Greyhound Park (a race track) and other facilities in the EPZ.

The automobile demand estimates used as input for the CLEAR calculations were those reported by PSNH and the NRC for the three population groups. Figures 1 and 2 and Table 1 are summaries of the automobile demand estimates for a peak population scenario in the Seabrook EPZ. These figures illustrate the total number of vehicles within the EPZ, as well as their spatial distribution in each sector. The total number of vehicles estimated to be in the Seabrook EPZ during this scenario was established as 87,996 by PSNH and as 95,822 by the NRC. Additional information used to calculate the automobile demand estimates is illustrated in Appendix I. Table 2 shows the percentage differences between PSNH's and NRC's estimates of automobile demand.

The NRC's automobile demand estimates used in the CLEAR calculations for the zero to ten mile radius area of the Seabrook EPZ were those reported in Table 43 (Summer Weekend Case: Vehicle Demand 1983.) of the NRC report[2]. Excluded from this table are automobile demand estimates for the resident non-auto owning population group in the zero to ten mile area. In order to have a format consistent with PSNH's data, vehicle demand estimates were calculated for the resident non-auto owning population. It was assumed that the resident non-auto owning population would be evacuated by bus in an emergency situation. One bus was assumed to carry approximately forty residents and one bus was assumed to be the demand equivalent of two automobiles. Therefore, in the Seabrook EPZ the resulting automobile occupancy factor for the resident non-auto owning population is twenty residents per automobile. This occupancy factor was used in conjunction with Table 46 (Summer Weekend Case: Non-auto Owning Population 1983.) of the NRC report[2] to determine the automobile demand estimates for the entire EPZ of the Seabrook site.

The ETEs are not sensitive to these assumptions because the resulting demand is less than one percent of the total demand estimate. In the 0-10 mile area of the EPZ, the resident non-auto owning population was estimated by NRC as 13,061. According to the formula mentioned above, this resulted in a automobile demand estimate of 653. It is also reasonable to assume that, in reality, people without automobiles may be absorbed into neighbors' vehicles.

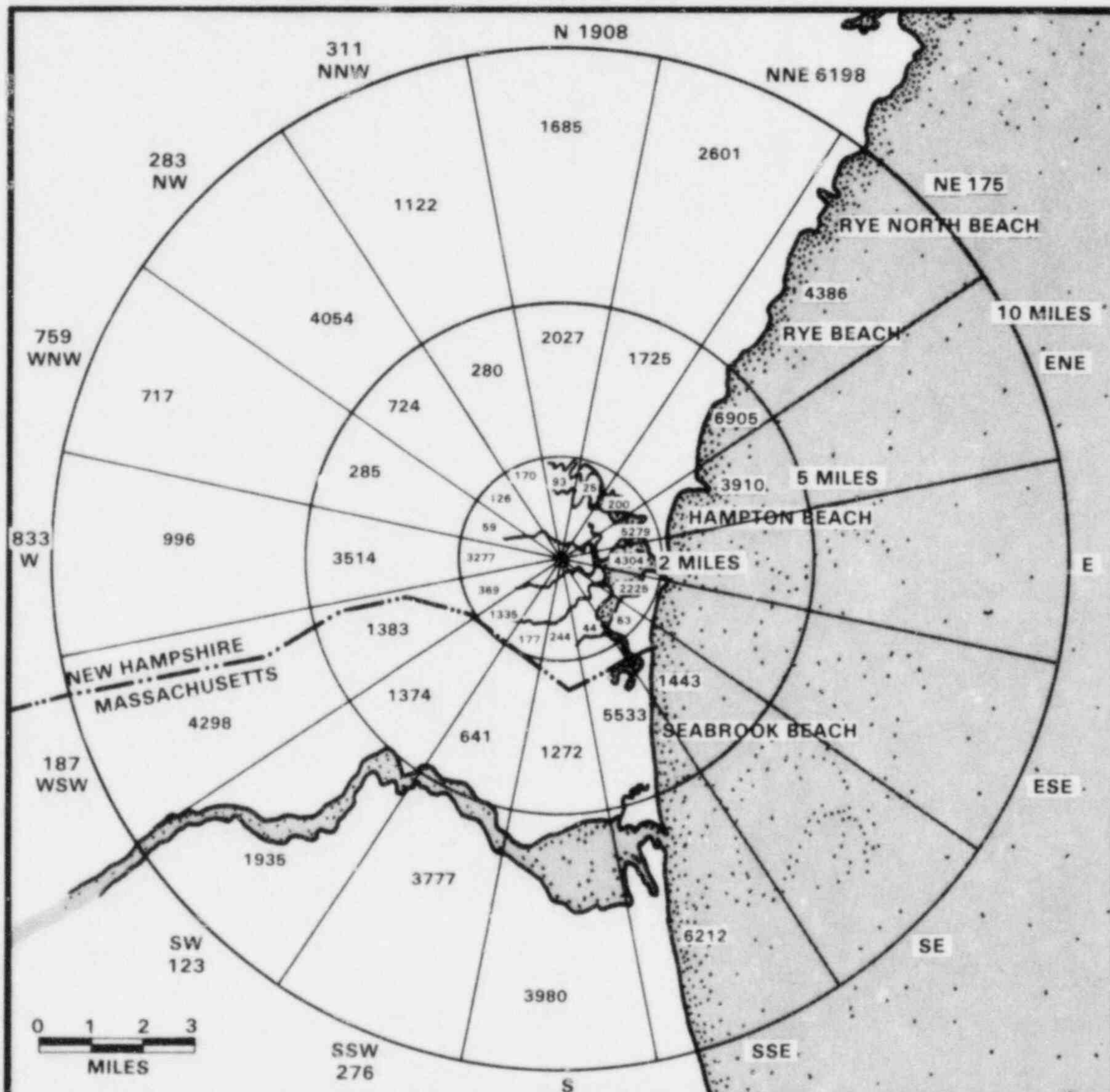
AUTOMOBILE DEMAND ESTIMATES FOR A PEAK POPULATION SCENARIO IN THE SEABROOK EMERGENCY PLANNING ZONE



PSNH VEHICLE TOTALS			
RING MILES	RING VEHICLES	TOTAL MILES	CUMULATIVE VEHICLES
0-2	14891	0-2	14891
2-5	27201	0-5	42092
5-10	33833	0-10	75925
10-EPZ	12071	0-EPZ	87996

FIGURE 1.

AUTOMOBILE DEMAND ESTIMATES FOR A PEAK POPULATION SCENARIO IN THE SEABROOK EMERGENCY PLANNING ZONE



NRC VEHICLE TOTALS			
RING MILES	RING VEHICLES	TOTAL MILES	CUMULATIVE VEHICLES
0-2	17990	0-2	17990
2-5	31016	0-5	49006
5-10	35763	0-10	84769
10-EPZ	11053	0-EPZ	95822

FIGURE 2.

TABLE 1. Automobile Demand Estimates for a Peak Population Scenario In the Seabrook EPZ

Sector	0-2 mi. NRC	0-2 mi. PSNH	2-5 mi. NRC	2-5 mi. PSNH	5-10 mi. NRC	5-10 mi. PSNH	10-EPZ NRC	10-EPZ PSNH	Total NRC	Total PSNH
N	93	37	2027	952	1685	2048	1908	492	5713	3529
NNW	170	151	280	268	1122	993	311	419	1883	1831
NW	126	94	724	486	4054	3953	283	293	5187	4826
WNW	59	28	285	321	717	800	759	1090	1820	2239
W	3277	2408	3514	3551	996	1333	833	898	8620	8190
WSW	369	322	1383	1551	4298	4840	187	222	6237	6935
SW	1335	334	1374	1491	1935	2235	123	153	4767	4213
SSW	177	271	641	518	3777	3941	276	291	4871	5021
S	244	236	1272	1149	3980	3258	0	0	5496	4643
SSE	44	39	5533	5482	6212	4822	0	0	11,789	10,343
SE	63	42	1443	1327	0	0	0	0	1506	1369
ESE	2225	1964	0	0	0	0	0	0	2225	1964
E	4304	4107	0	0	0	0	0	0	4304	4107
ENE	5279	4711	3910	3336	0	0	0	0	9189	8047
NE	200	147	6905	5056	4386	2771	175	0	11,666	7974
NNE	25	0	1725	1713	2601	2839	6198	8213	10,549	12,765
Total	17,990	14,891	31,016	27,201	35,763	33,833	11,053	12,071	95,822	87,966

TABLE 2. Percentage Difference Between PSNH and NRC Automobile Demand Estimates*

Sector	0-2 mi. %	2-5 mi. %	5-10 mi. %	10-EPZ %	Total %
N	+151	+113	-18	+288	+62
NNW	+ 13	+ 4	+13	- 26	+ 3
NW	+ 34	+ 49	+ 3	- 3	+ 7
WNW	+111	- 11	-10	- 30	-19
W	+ 36	- 1	-25	- 7	+ 5
WSW	+ 15	- 11	-11	- 16	-10
SW	+300	- 8	-13	- 20	+13
SSW	- 35	+ 24	- 4	- 5	- 3
S	+ 3	+ 11	+22	0	+18
SSE	+ 13	+ 1	+29	0	+14
SE	+ 50	+ 9	0	0	+10
ESE	+ 13	0	0	0	+13
E	+ 5	0	0	0	+ 5
ENE	+ 12	+ 17	0	0	+14
NE	+ 36	+ 37	+58	+N/A	+46
NNE	+N/A	+ 1	- 8	- 25	-17
TOTAL	+ 21	+ 14	+ 6	- 8	+ 9

*Percentage difference is calculated by $\frac{\text{NRC-PSNH}}{\text{PSNH}} \times 100$.

Two other population groups (medical related and institution related) identified in Table 46 of the NRC report were not included in determining automobile demand estimates for the NRC's non-auto owning population group for a peak population scenario. This was consistent with PSNH's automobile demand estimates, which also did not include these institutional population groups. Automobile demand estimates for populations in educational facilities were also not considered in determining ETEs for both PSNH's and NRC's data, since the peak population occurs on a summer weekend.

This is not to say that evacuation time estimates should not be prepared for such groups. However, these groups were not selected for inclusion in the estimates generated for this comparison because the purpose of this study is to independently assess the methods for calculating evacuation times for the general population.[10]

NRC automobile demand estimates for the Seabrook EPZ outside of the ten mile radius were determined from population data reported in April, 1982[2]. In the other report, NRC did not generate data for the area from the 10-mile radius to the EPZ boundary. To obtain this information, the NRC population estimates for towns beyond ten miles in the Seabrook EPZ, as shown in Table 3, were divided into two basic groups; a total population and an estimated population without automobiles. To determine the NRC automobile demand estimates in each town for this portion of the EPZ, the non-auto owning populations were subtracted from the NRC's total population groups. The resulting populations were divided by the average household size for each town[4]. These numbers represented the number of households owning automobiles in the Seabrook EPZ beyond ten miles. The vehicle occupancy factor used for these calculations was one household per vehicle. This is the vehicle occupancy factor which the NRC study adopted.[5]

The non-auto owning populations were divided by the vehicle occupancy factor of twenty residents per automobile equivalent (as previously discussed). This determined the effective automobile demand estimates for these populations. Estimates were summed to obtain the total automobile demand estimate for each town extending beyond the 10-mile radius.

The resulting demand estimates for each town in the EPZ beyond the ten mile radius are assumed to be distributed evenly over each town's area and divided into sectors (N, NNW, etc.) accordingly. For example, the town of Brentwood has a total population of 1,984 outside of ten miles in the EPZ[2]. However, 1,401 residents are in the WNW sector and 583 are in the NW sector. This procedure is performed for the auto-owning and non-auto owning population groups in each town.

In regard to Table 3, the data for the townships of Portsmouth and Kingston have been readjusted from the original table received from the NRC. As

TABLE 3. Population Beyond 10 Miles in Towns Within the Seabrook EPZ

Town	Sector	PSNH's 1983 Population	NRC's Revised 1983 Population*	NRC's Estimated Population Without Autos
Rye	NE	604	465	11
Rye	NNE	603	464	10
Portsmouth	NNE	19,228	17,994	2,682
Portsmouth	N	4,807	4,498	670
Greenland	N	1,477	1,304	115
Stratham	NNW	480	422	37
Newfields	NNW	778	601	53
Newfields	NW	247	191	17
Exeter	NW	146	149	23
Brentwood	WNW	1,756	1,401	123
Brentwood	NW	731	583	51
Kingston	WNW	1,207	1,047	70
Kingston	W	2,817	2,242	163
Newton	W	187	130	11
Newton	WSW	187	130	11
Merrimac	WSW	480	477	56
West Newbury	SW	459	479	89
Newbury	SSW	872	852	60

*These data are for total resident population which include those who have access to automobiles and those who do not.

indicated in the original table received from NRC, the outer boundaries of Portsmouth and Kingston are not indicated in Figure B-1 of PSNH's report, which the NRC demographers used to divide the population groups into their corresponding sectors. The original table indicates that the total population of Portsmouth is in the NNE sector and that approximately 38% of Kingston's total population is in the WNW and 62% in the W sector. The appropriate sectors have been drawn on maps which do show the outer boundaries[6]. It is found that Portsmouth's population beyond 10 miles in the EPZ lies in both the NNE and N sectors, with percentages of 80% and 20%, respectively. It is also found that approximatley 30% of Kingston's population is in the WNW sector and 70% is in the W sector.

These new data percentages have been calculated by dividing the towns' area within the ten mile radius and outside the ten mile radius into approximately triangular areas. The area in a specific sector is then divided by the appropriate total area beyond ten miles and multiplied by 100 in order to determine the percentage of the total population group that is in the particular sector. This is performed by assuming an even population distribution throughout these two towns.

The automobile demand estimates for the entire Seabrook EPZ are assigned to the appropriate sectors and radial annuli. The sectors being N, NNW, NW, etc. and the annuli being 0-2, 2-5, 5-10 miles and beyond 10 miles within the EPZ (10-EPZ). These estimates are used as input to the CLEAR model for the evacuation trees[1] established in the Seabrook EPZ. The CLEAR model is used to calculate the ETE for each evacuation tree.

TRAFFIC CAPACITY

In order to assess the capacity of the transportation metwork, two on-site visits were made to the Seabrook EPZ. One was made during the last weekend of July 1981 and the other during Labor Day weekend, 1982. The first effort involved an overall examination of the entire transportation network in the Seabrook EPZ. This review included the collection of data detailing the capacity, speed, number of lanes, and intersecting routes for each road segment in the EPZ.

In addition to this effort, several special traffic studies were conducted in the Seabrook EPZ in order to establish psrameters used in calculating ETEs. These special studies involved the collection of travel time and speed data over several critical lengths of the Seabrook EPZ (see Figure 3). The data analysis and determination of the various parameters were performed at the Texas Transportation Institute (TTI).

One special study involved the recording of the last three digits on vehicle license plates between two points on the major evacuation routes in the EPZ. From these data, travel times were calculated for vehicles under a wide range of conditions. A total of four studies were made on two separate routes. Two of the studies were conducted on New Hampshire Route 286, between Washington Street and New Hampshire Route 1A. Although eastbound New Hampshire Route 286 would not be an evacuation route, the studies were conducted in both directions in order to detail traffic flow in the particular area. At each upstream survey point, the data collectors recorded on tape recorders both the last three digits on a vehicle license plate and the time at which the vehicle passed the survey point. Only the last three digits of the license plates were recorded because it was not necessary to match all license plates at both survey points. At each downstream point, the same data was collected; that is, the last three digits of each vehicle's license plant and the time at which the vehicle passed the survey point. From these data, both the total number of vehicles involved and the average travel time between the two points were determined. It was apparent during the collection of the data that the critical points in the transportation system were the intersections downstream of the survey points. Based on observations at these critical points, such as outbound on New Hampshire Rout 286, it became apparent that part of the congestion was induced by downstream traffic signaling. The relationship of these studies to the assumed traffic capacities used in the CLEAR calculations will be discussed later in this report.

In order to establish road segment characteristics and develop evacuation routings, extensive field work was conducted which included driving the transportation network in the Seabrook EPZ in order to determine the number of lanes and free-flow velocity of each road segment (see Figure 4). In addition, aerial photographs were taken of the entire Seabrook EPZ which enabled verification of the field work and assisted in the development of evacuation routings. A total of eight maps showing those road segments used as evacuation routes are included in this report as Appendix II. Each map corresponds to an evacuation tree used to calculate an evacuation time

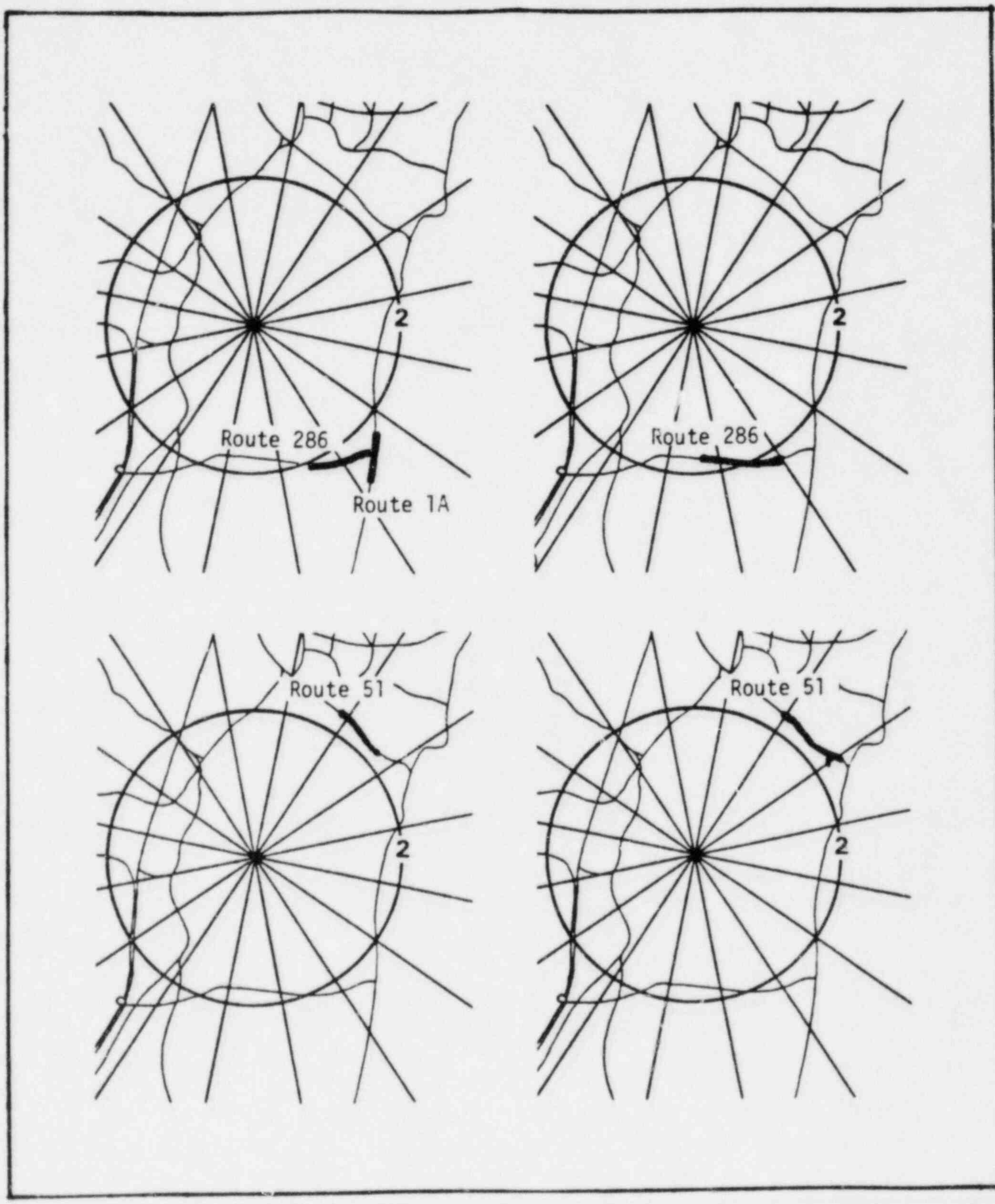


FIGURE 3. Road Segments on Which Special Traffic Studies Were Conducted

TRANSPORTATION NETWORK IN THE SEABROOK EMERGENCY PLANNING ZONE

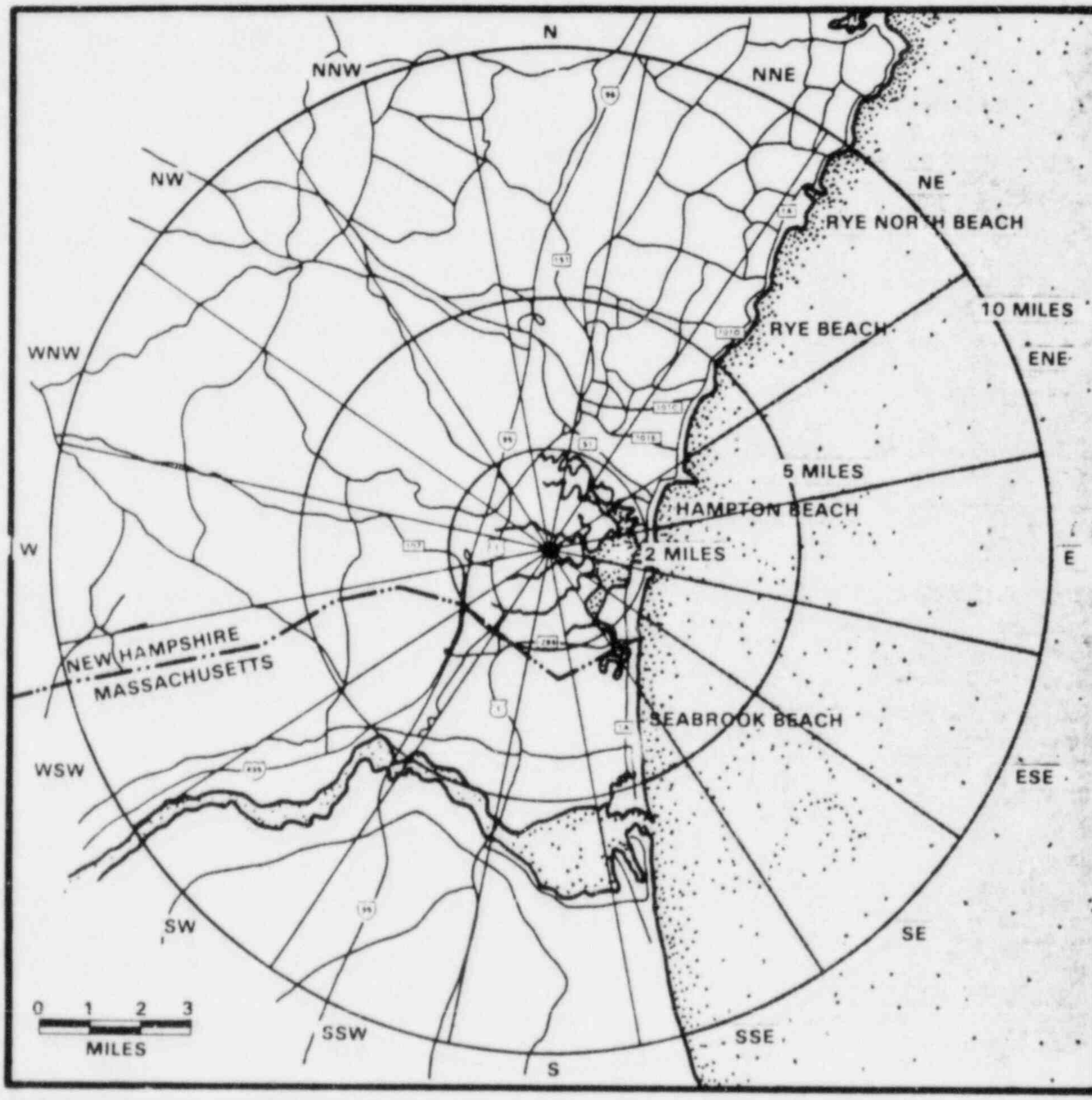


FIGURE 4.

estimate for the population in that area. An evacuation tree is a closed system of road segments which indicate the evacuation routings used for the population in each area.

From the traffic studies, field work, and aerial photographs, characteristics for each road segment in the Seabrook EPZ were established. Characteristics of each road segment are listed by evacuation tree in Appendix III. This appendix is actually the first part of the output from the CLEAR model. The printout details the input characteristics of each road segment used to calculate the ETEs.

One exception to the usual method of establishing an evacuation tree and planned routing was made for Interstate-95 (I-95). The southbound evacuation route for I-95 is split into two road segments with an imaginary divider from the intersection with New Hampshire Route 107 to the off-ramp to Interstate-495 (I-495). The road segments are modeled in this manner because there is a reduction in capacity on southbound I-95 south of the I-495 off-ramp. Specifically, I-95 north of the I-495 off-ramp has four lanes, and south of the I-495 off-ramp it has three lanes. Therefore, the portion of Route 107 west of I-95 and up to and including Seabrook Greyhound Park was simulated as evacuating on a single lane of I-95 southbound and then routed via the off-ramp to I-495. The remaining three lanes of I-95 southbound were assigned to another evacuation tree. Because I-95 did not reach its capacity during the CLEAR calculations, these assumptions do not distort the evacuation time estimates. Hence, it is not particularly important how traffic on I-95 southbound is split between I-95 and I-495, because the evacuation time is constrained by the capacity of the roads that feed onto I-95 and I-495.

The process of assigning the vehicles to the transportation network included the use of three independent special traffic generators(1). These three generators included the Seabrook Nuclear Power Station, the Seabrook Greyhound Park, and a campground south of New Hampshire Route 1A near Salisbury Beach. With one exception, the remaining traffic was assigned using the normal CLEAR procedure of distributing the traffic along all of the road segments of a particular zone(1). Due to the limited access of southbound I-95 south of New Hampshire Route 1A, no population was assigned initially to that road segment. This was accomplished by creating a special zone with zero population that included the relevant section of I-95 (see Appendix III).

The road segment capacity used for this study is a critical (or limiting) lane volume of 1500 vehicles per hour. The 1500 vehicles per hour volume is a widely-used capacity figure and represents an attainable value for average-to-good urban conditions. It should be noted that a critical lane volume of 1500 vehicles per hour includes the sum of all movements approaching an intersection. Where two road segments merge into a single lane, the two contributing road segments cannot reach the 1500 vehicles per hour volume because the downstream link would be controlling the volume.

The road segment capacity figure was chosen in consideration of several factors. Based on the traffic studies conducted in the EPZ, it is apparent that congestion exists are due to a variety of factors. In some cases, it was observed that traffic signals were not functioning in the most efficient manner. In others, there existed substantial side friction caused by vehicles entering and leaving the road segment in numerous areas; most notably in the commercial areas with restaurants.

The flow rates attainable on any particular road segment during the evacuation are also based on other factors. It is assumed that traffic control will be instituted at critical intersections and that traffic flows are routed in accordance with the evacuation trees developed in this model.

The observed congestion that exists in the EPZ during a typical summer weekend is not necessarily representative of events occurring during an evacuation. For example, it is not expected that large numbers of people would be stopping at the local dining establishments during the evacuation. It is also expected that higher flow rates will be achieved on certain critical links due to the presence of traffic control at critical intersections and that efficient routing of traffic will be instituted to avoid unnecessary conflicts between competing traffic flows. This explains why the congestion which may exist over time periods as great as 6.5 hours during a summer Sunday does not represent a minimum attainable evacuation time for that particular area. In other words, flow rates on particular road segments during an evacuation are anticipated to be higher and some traffic that would normally use a particular road segment could be rerouted over alternate routes in order to better utilize the available capacity within the entire transportation network.

An issue that was raised by residents in the Seabrook EPZ concerned potential delay problems caused by the French-speaking population present in the area. It was alleged by some that up to 20 percent of the population were non-English-speaking people from Canada. In order to attain an estimate of the potential French-speaking population, two sets of data were collected in the EPZ. The study included the collection of license plate data on the Exeter/Hampton Expressway (Route 51). Approximately 350 vehicles were recorded inbound on Route 51 on a Sunday morning. Of this number, approximately 3 percent had Canadian license plates. This route was selected because it was the most likely route by which vehicles from the Province of Quebec would enter into the area. It seems unlikely that any other route would have a significantly larger number of vehicles from Canada. In addition, based on a survey of vehicles parked near the beach area, NRC staff estimated that 3 percent of the vehicles were from Canada. Therefore, it appears reasonable to assume that 3 percent is the upper limit on the number of French-speaking residents of the area. This appears to be an upper limit because it is unlikely that all of those vehicles coming from Canada are occupied by people that speak or understand only French because Canada is a bilingual country.

The non-English speaking population should be considered under the general area of problems that might be addressed during an evacuation. Other such problems would include accidents, vehicles running out of gas, and vehicles that suffer mechanical failures. It is considered that these factors are not a significant problem. Vehicles blocking traffic flow on a road segment for any of the above reasons would be isolated incidents that could generally be cleared in a reasonable amount of time, or otherwise bypassed. However, this is not to imply that provisions should not be made in the detailed planning for evacuation to provide a means of accommodating these limited problems. A few wrecker vehicles, tow trucks and other service vehicles needed to handle these emergencies could be deployed within the EPZ after a decision to evacuate had been made. In addition, an information program for the area could be implemented in a manner consistent with the fact that not all drivers speak English. It is common in Canada and other foreign countries to use symbolic signs to convey messages to drivers, for example. To repeat, this is a detailed planning requirement that should be addressed in the planning phase.

ANALYSIS OF EVACUATION TIMES

This section of the report will discuss the methodology of the CLEAR model for loading and advancing vehicles on the transportation network and report the results of the analysis. The only scenario being evaluated in this report is the peak summer population during normal weather conditions. Normal summer conditions refer to clear weather, good visibility and dry pavement. Degraded weather conditions are inconsistent with the assumption of a peak transient population. This analysis is essentially a benchmark to compare studies and not a complete evaluation of all aspects of an evacuation time analysis.

METHODOLOGY

The methodology used in CLEAR to load traffic onto the road segments utilizes the distribution function method allowed in NUREG-0654. The distribution function method involves determining the time distribution of loading, and the maximum loading time. It was determined in this study to use two separate loading functions. One loading function was used for the beach and another loading function was used for the general population. The loading function for the beach areas was determined to be shorter because people need only pack a few belongings and get to their vehicles. The maximum departure time(1) was set at 1 hour, with 25% of the population loading during the first 15 minutes. Of the remaining population, 25% would depart during the next 15 minutes, 50% over the next 15 minutes, and last 25% would depart during the final 15 minutes.

For the remainder of the population, a different loading function with a longer time distribution was used. The maximum departure time was set at 90 minutes with only 10% of the population simulated to depart during the first 22.5 minutes. Of the remaining population, 25% would depart during the next 22.5 minutes, 50% over the next 22.5 minutes, and the last 25% would depart during the final 22.5 minutes.

Finally, please note that the total evacuation time includes 15 minutes for notification time. Thus, it is assumed that no vehicles will depart during the first 15 minutes after the decision to evacuate has been made. Therefore, a 15 minute time period is added to the time estimate calculated by the CLEAR model because the mathematical simulation begins when vehicles are ready to depart.

RESULTS

The results reported in this paper are based on calculations using the CLEAR model. The preceding discussion details all of the assumptions incorporated in the model that were necessary to perform these calculations. No modifications were made to the model as it is described in NUREG/CR-2504 (PNL-3770).

The CLEAR ETEs are the result of an iterative process of analyzing the evacuation times. The first step in this process was the selection of traffic routings (evacuation trees) that were perceived to be the most logical for the evacuees to exit the EPZ. The first set of CLEAR ETEs revealed that more efficient routings could be selected to reduce the evacuation time. This process provided additional information on the interactions of the transportation network and the evacuating traffic. No attempt was made to totally optimize the routings or to thereby minimize the evacuation time estimates. Therefore, the evacuation time estimates could be reduced by further optimization of traffic routings. It is not, however, advisable to select routings that would be considered unacceptable to evacuees or that would be unknown to evacuees unless a detailed traffic management plan and information program were in effect.

The results of the first computer processing (runs) using PSNH data for the eight evacuation trees are presented in Table 4. The results of these calculations indicate that evacuation tree No. 7A had the longest evacuation time. This evacuation tree includes traffic from both Salisbury Beach and Seabrook Beach, plus half of the traffic from Hampton Beach. As a result, some additional calculations were made which modified the distribution

TABLE 4. Initial Evacuation Time Esimates Calculated Using the CLEAR Model for a Peak Population Scenario in the Seabrook EPZ (Initial Runs, PSNH Data).

Evacuation Tree	Evacuation Time Estimate* (Hours: Minutes)	(Minutes)
No. 1	8:55	535
No. 2A	4:10	250
No. 3	2:25	145
No. 4	6:00	360
No. 5	3:10	190
No. 6	4:15	255
No. 7A	12:00	720
No. 8	5:15	315

*Includes 15 minute notification time.

of the evacuating traffic in this area. These additional calculations separated the evacuation trees at the Hampton Harbor drawbridge (see evacuation trees No. 2B and No. 7B).

In the second run using PSNH data, all of the Hampton Beach traffic was routed north onto Route 51 which reduced the volume of traffic southbound on New Hampshire Route 1A by 8775 vehicles. The results of these reruns, shown in Table 5, indicate that by judiciously routing the traffic it is possible to reduce the evacuation time below the previous estimate. The resulting ETEs for evacuation trees No. 1, No. 2B and No. 7B are all roughly equivalent ranging from nine to ten hours. The initial routings resulted in evacuation tree No. 7A, which included New Hampshire Route 286, having the most congestion.

TABLE 5. Recalculation of Evacuation Time Estimates Using the CLEAR Model for a Peak Population Scenario in the Seabrook EPZ (Rerun for No. 2 and No. 7, PSNH Data).

Evacuation Tree	Evacuation Time Estimate* (Hours: Minutes)	(Minutes)
No. 1	8:55	535
No. 2B	10:10	610
No. 3	2:25	145
No. 4	6:00	360
No. 5	3:10	190
No. 6	4:15	255
No. 7B	9:25	565
No. 8	5:15	315

*Includes 15 minute notification time.

As a result of rerouting the Hampton Beach traffic, the ETE for evacuation tree No. 2 increased while the evacuation time estimate for evacuation tree No. 7 decreased. It should be noted that in evacuation tree No. 1 the critical road segments are not within the EPZ. The bottleneck locations occur in the Portsmouth area as traffic converges onto a reduced number of lanes.

Evacuation time estimates were also calculated for the NRC demographic data described previously using the CLEAR model. Evacuation times were calculated for the second iteration of evacuation trees (i.e., 2B and 7B). A summary of the ETEs is illustrated in Table 6.

TABLE 6. Calculation of Evacuation Time Estimates Using the CLEAR Model for a Peak Population Scenario in the Seabrook EPZ. (NRC's Demographic Data)

Evacuation Tree	Evacuation Time Estimates* (Hours: Minutes)	(Minutes)
No. 1	9:40	580
No. 2B	11:40	700
No. 3	2:20	140
No. 4	6:15	375
No. 5	2:45	165
No. 6	3:40	220
No. 7B	10:25	625
No. 8	6:25	385

*Includes 15 minute notification time.

In order to determine the impact of using NRC's demographic data on the calculations, ETEs were prepared using the CLEAR model and the same evacuation trees. A comparison of these results versus the results obtained using PSNH's demographic data is presented in Table 7.

TABLE 7. Comparison of Evacuation Time Estimates as Calculated by the CLEAR model for a Peak Population Scenario in the Seabrook EPZ Using Two Demograph Data Bases.

Evacuation Tree	ETE Using PSNH (Min)	NRC Data ETE (Min)	Time Difference (NRC-PSNH, Min)
No. 1	535	580	+45
No. 2B	610	700	+90
No. 3	145	140	- 5
No. 4	360	375	+15
No. 5	190	165	-25
No. 6	255	220	-35
No. 7B	565	625	+60
No. 8	315	385	+70

DISCUSSION

In discussing the results of this study, it is desirable to compare and contrast the results with two other studies. One study was done by Allan M. Voorhees and Associates for the Federal Emergency Management Agency (FEMA)[3]. The second study was by PSNH, Public Service of New Hampshire, and was initially submitted in August of 1980. The latter study uses the EVAC model developed by HMM and Associates. In addition, Public Service of New Hampshire submitted a supplement to the initial study in July, 1981. A discussion of the results of this supplemental study[a] will also be included in this section.

There are several aspects of the FEMA study which make a comparison with the CLEAR results difficult. According to Table 7 on page 48 of the FEMA study, the total number of vehicle trips during the summer Sunday scenario was 65,227. This number is significantly less than the 87,996 vehicle total reported by PSNH and the 95,822 vehicle total developed by NRC. Therefore, the traffic volumes used in the CLEAR calculations are 35% and 47% larger, respectively.

There are additional considerations that make it difficult to proportionately scale the FEMA analysis to the CLEAR calculations. The traffic routings outlined in the FEMA report utilized principally U.S. Route 1 southbound. The FEMA report did not utilize the I-95 expressway to its fullest potential. In addition, the FEMA report assumed that U.S. Route 1 southbound would be operated with the center left-turn lane as a continuous outbound lane for evacuating traffic. Consequently, it is difficult to scale any of the CLEAR calculations to those reported in the FEMA study.

It should also be noted that the FEMA report indicated that ineffective traffic control could increase the evacuation time estimate from six hours and 10 minutes to 14 hours and 40 minutes. A lack of documentation prevents an assessment of the rationale for this statement. It appears that the FEMA study may have assumed a reduced network capacity to account for traffic accidents or mismanagement. It is also not possible to determine whether the longer time estimate results from revisions to the assumed evacuation traffic routings.

One similarity between the FEMA results and the CLEAR results is, however, noteworthy. It was determined by the FEMA analysis that the maximum delay would occur due to the evacuation of the Salisbury Beach area, as indicated on page 62 of the FEMA report. This result is consistent with the CLEAR analysis, which indicates that the Salisbury Beach area would be one of the critical areas. It should be noted, however, that this does not suggest that the Hampton Beach area is not critical in the evacuation process. In fact, it is necessary to route much Hampton Beach traffic to the north in order to obtain the estimated evacuation time. This necessity is not completely

(a) Personal correspondence from John D. Vincentis Public Service of New Hampshire to the U.S. Nuclear Regulatory Commission dated July 31, 1982.

consistent with the route which may be perceived by motorists to be the most expedient evacuation route. In other words, motorists may perceive that they should evacuate to the south even though their most expeditious route is to the north. The effect of routing traffic to the south can be seen in the results of the initial run of evacuation tree No. 7A in Table 4.

The estimate for the 360 degree evacuation of the entire 10-mile EPZ for a peak summer weekend population reported by PSNH was 6 hours and 5 minutes. A notification time of 15 minutes should be added to this estimate to determine total evacuation time. Therefore, the time estimated by PSNH is 6 hours and 20 minutes.

There are several interesting aspects of PSNH's methodology. PSNH allowed a portion of the evacuating traffic to travel in a direction that was not consistent with general radial dispersion as suggested in NUREG-0654. The concept of general radial dispersion implies that traffic should be routed in a general direction away from the nuclear power plant site. The methodology used by PSNH allowed vehicles at some of the critical intersections to evacuate in a nonradial direction.

A portion of the traffic evacuating southbound out of Seabrook was allowed to turn right onto the entrance ramp to I-95 northbound. This means that a portion of the traffic that was initially evacuating in a radial direction to the south was allowed to change direction and evacuate on I-95 northbound.

Although non-radial evacuation routings could be desirable under certain circumstances, such routings were not used in the CLEAR analysis in order to provide a more conservative estimate of the evacuation time. This difference was also observed when estimates performed by PSNH's contractor were compared with CLEAR calculations for another site.[8]

Nonradial dispersion was incorporated into PSNH's analysis at several critical intersections in the Seabrook EPZ, including one intersection in the Salisbury Beach area. Specifically, the intersection is at the junction of New Hampshire Route 1A and U.S. Route 1. Traffic westbound on New Hampshire Route 1A approaching U.S. Route 1 was allowed to turn left onto U.S. Route 1 south and proceed straight on to New Hampshire Route 110.

In addition, a portion of the traffic was allowed to turn northbound onto U.S. Route 1 in the general direction of the plant. According to PSNH's methodology, this volume would increase as congestion in the vicinity of this critical intersection increased. The volume directed to the north ranged from 5 to 10 percent of the volume evacuating from the Seabrook Beach area. This dynamic routing algorithm utilized by PSNH would produce a lower evacuation time than that produced by the CLEAR model.

In summary, PSNH's approach to calculating ETEs allows for a greater optimization of the transportation network within the EPZ than that used in the CLEAR analysis. In order to achieve this optimization, a higher level of traffic control would be necessary than under the assumptions used in the CLEAR calculations. Whether or not this level of traffic control could be achieved would depend on the evacuation plans developed for the Seabrook EPZ.

The 610 minute and the 700 minute evacuation time estimates by the CLEAR model did not require the previously mentioned assumptions. This does assume, however, that there will be traffic control at the major bottleneck locations. Consequently, the time estimates are not the maximum evacuation time estimate that could be calculated for the Seabrook EPZ.

The point of this discussion is to emphasize that the evacuation time estimates are, in fact, estimates. Their value is in determining critical planning factors and needs. For example, the analysis reveals that there is a critical need for the planning of evacuation routes. Depending on the degree of refinement of these routes and the amount of traffic control that could be obtained during an actual evacuation, the time estimate can be reduced.

Alternatives are available to reduce evacuation times. Traffic signals could be operated in a manner that would maximize flow in the direction of the evacuation. In some instances, reversal of the normal flow of traffic could also be appropriate. For example, traffic outbound from the Salisbury Beach area approaching the intersection of U.S. Route 1 could be operated in a reverse flow manner such as to maximize the traffic flow out of the beach area. This would necessitate that some traffic, such as emergency vehicles, would have to use alternate routes to obtain access into the Salisbury Beach area. For example, New Hampshire Route 286 could remain in a two-way traffic flow mode if New Hampshire Route 1A westbound from the Salisbury Beach area is operated in a reverse flow manner. This would allow emergency vehicles access to the Salisbury Beach area using New Hampshire Route 286 into the Salisbury Beach area.

Other traffic management opportunities also exist for the area. For example, outbound traffic on the Exeter/Hampton Expressway (Route 51) could be operated in a one-way traffic flow mode on the bridge over the I-95 expressway. This would allow more efficient routing of traffic entering the area from Route 101C and from Route 51 to attain access onto the I-95 expressway. This special traffic management would require alternate routing of traffic eastbound into the area using Route 101C.

Still more traffic management opportunities for reducing evacuation time exist in the Seabrook EPZ. These include the rerouting of traffic northbound on U.S. Route 1 and New Hampshire Route 1A through the Stratham area. In addition, as indicated in the FEMA report it is possible to operate U.S. Route 1 in a two-lane traffic flow mode by utilizing the center turning lane as a second lane in the direction of evacuation.

As a final note, there are other opportunities for expediting the evacuation process in the area. For example, there are on-ramps to the I-95 expressway, just south of both the Exeter/Hampton Expressway (Route 51) and New Hampshire Route 101C, that are used currently only by maintenance vehicles. It is possible that these ramps could be utilized in the evacuation through the use of special traffic control.

It must be emphasized, however, that all of these special traffic management techniques require advance preparation. In some cases, it could involve the deployment of traffic control personnel, the utilization of special signing, the deployment of traffic cones, or any of a number of other techniques in order to achieve the desired traffic flow.

In summary, the various calculations indicate that there is a wide range of evacuation times applicable to a peak population scenario in the Seabrook EPZ. The range of values appears to be from a lower estimate of slightly more than 6 hours to an upper estimate of 12 hours or more. The lower estimate requires extensive traffic control management and routing techniques while the upper limit reflects traffic conditions without the benefit of a sound traffic management plan. Furthermore, the upper limit of 12 hours does not represent an absolute maximum time. Without a traffic management plan, the potential for inefficient routings and disruptions is increased.

Although the calculations reported in this study deal only with normal weather conditions, it is unlikely that a severe adverse weather condition would exist during periods of peak population. The only likely adverse weather during a peak population scenario would be summer rain. There could be some minor reduction in roadway capacity due to such rain showers. It is unlikely that a major severe weather condition such as a hurricane or snow would exist during a peak population occurrence. The summer weekends that are represented in this study comprise 6% of a year's duration.

There are some miscellaneous considerations that should be addressed in this study. These factors primarily concern issues raised by some of the local residents during the preparation of this study. One concern was the drawbridge over the Hampton Harbor entrance. This concern was addressed in two ways.

The schedule and priority of operation for the bridge was investigated during an emergency situation. Here, the question is whether or not boats would be able to preempt vehicular traffic. According to the New Hampshire Department of Civil Defense, the bridge would not be operated in a manner inconsistent with full utilization of the roadway transportation network during an evacuation.

In addition, the results of the CLEAR analysis indicate that it would not necessarily be desirable to evacuate any significant number of residents of the Hampton Beach area across the drawbridge to the south. This is due to the fact that a more efficient utilization of the road segments would be acheived by using the Hampton/Exeter Expressway (Route 51), as well as other routes to the north.

Another concern raised by the local residents was that on some summer weekends traffic congestion has been observed for periods up to 6.5 hours along New Hampshire Route 1A southbound and along New Hampshire Route 286 westbound. As was previously indicated, there are two reasons why this traffic delay is not representative of evacuation conditions for the area. First, optimization of the traffic flow during an evacuation would route the Hampton Beach traffic to the north, thereby alleviating much of the observed traffic problems on New

Hampshire Route 1A and New Hampshire Route 286. The traffic leaving for home observed normally on a summer weekend includes a large amount of traffic from the Hampton Beach area.

The second reason concerns flow rates attainable during an evacuation. The traffic delays and flow rates on some summer weekends are representative of the current operation of traffic signals at the intersection of New Hamphire Route 286 and U.S. Route 1. This is not, however, indicative of achievable traffic flow under a good traffic management plan. It was observed that the congestion occurring along the route exists because people are not evacuating the area but rather gaining access to and from the numerous businesses along the route. This type of activity would be minimized during an emergency evacuation.

The evacuation times calculated for the peak population scenario described in this study are relatively long because the added transportation demand of the transient population cannot be rapidly accommodated by the transportation network. This situation does not exist throughout the year, but occurs primarily during the summer tourist season and is most acute on summer weekends when the weather is favorable. Therefore, evacuation time estimates reported in this study are representative of conditions that occur during a small portion (6%) of the year.

Furthermore, evacuation time estimates for the peak population scenario are not indicative of the evacuation time expected for permanent residents of the area during the off-season. Calculations of evacuation times for an off-season case indicate that evacuation times are reduced to approximately 60% of estimates for the peak case in the Seabrook EPZ[3] (see Appendix IV). Further discussion of off-peak cases and associated time estimates have been prepared by FEMA[3] and PSNH[a,b]. The effects of adverse conditions and peak loads on evacuation times for other sites have been summarized in previous work[9].

The major traffic problems predicted for the Seabrook EPZ occur primarily in the areas east of the I-95 expressway. This is due to the scenario being evaluated which assumes that a very large population will exit from the beach area when the evacuation is declared. Areas located west of I-95 should experience essentially no significant traffic problems during the evacuation.

It should be emphasized that with a thorough traffic management plan, it is possible to attain more effective use of the traffic capacity readily available on I-95. For example, the Seabrook town population could be initially evacuated south on some of the local roads over to I-95 northbound. This would be effective because it would avoid hindering their evacuation because of the evacuation of the Seabrook Beach population.

(a) Personal correspondence from John D. Vincentis, Public Service of New Hampshire to the U.S. Nuclear Regulatory Commission dated July 31, 1981.
(b) Personal correspondence from Arthur M. Shepard, Public Service of New Hampshire to the U.S. Nuclear Regulatory Commission dated August 4, 1980.

CONCLUSIONS

According to the data available for the peak number of vehicles evacuating the Seabrook EPZ, it appears that evacuation times ranging from 6 to 12 hours could be anticipated for the area. The range is a result of the assumptions and the demographic data bases that are used in the calculations. In general, the lower estimate represents a high level of utilization of the available transportation network. This could be achieved either by utilization of a high level of traffic control or through extensive education of the population as to alternative evacuation routes. The upper estimate represents a less optimistic assumption concerning the ability of the transportation network to be utilized to its maximum efficiency. Until the detailed local evacuation plans are developed, it is difficult to specify a smaller range of evacuation time estimates.

The evacuation time estimates computed by PSNH are consistent with the assumptions and demographic data base used in their analysis. The assumptions include implicitly attaining a high level of efficiency and utilization of the available transportation network. The appropriateness of these assumptions will ultimately be judged in the context of the local plans developed for the area. Furthermore, this study emphasizes the need to develop a detailed local evacuation plan for the Seabrook EPZ. Because it has been determined that the vehicle demand estimates for a peak population scenario used by PSNH are lower than those developed by NRC, PSNH's evacuation time estimates could be adjusted to reflect those differences. The percentage increase in PSNH's ETE using the NRC demographic data would probably not be greater than the percentage increase recorded in the comparative CLEAR ETEs. The basis for this statement involves the aforementioned methodology and assumptions used by PSNH in preparing an ETE.

The data presented in this report suggests that an evacuation time of 6 to 7 hours is possible under peak conditions if a high level of effectiveness and traffic optimization are achieved. An evacuation time estimate in the range of 10 to 12 hours represents the time estimate for an evacuation under peak conditions if a relatively unimproved level of traffic control exists.

In conclusion, the results of this study emphasize the need to develop a detailed local evacuation plan for the Seabrook EPZ and the need to reexamine the ETEs after these plans are developed. The alternative traffice management schemes discussed in this report aid the optimization of the local evacuation plan.

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4. These average household size factors were from Appendix B of reference 3.

5. This factor was for the resident population group from Table 42 of reference 3.

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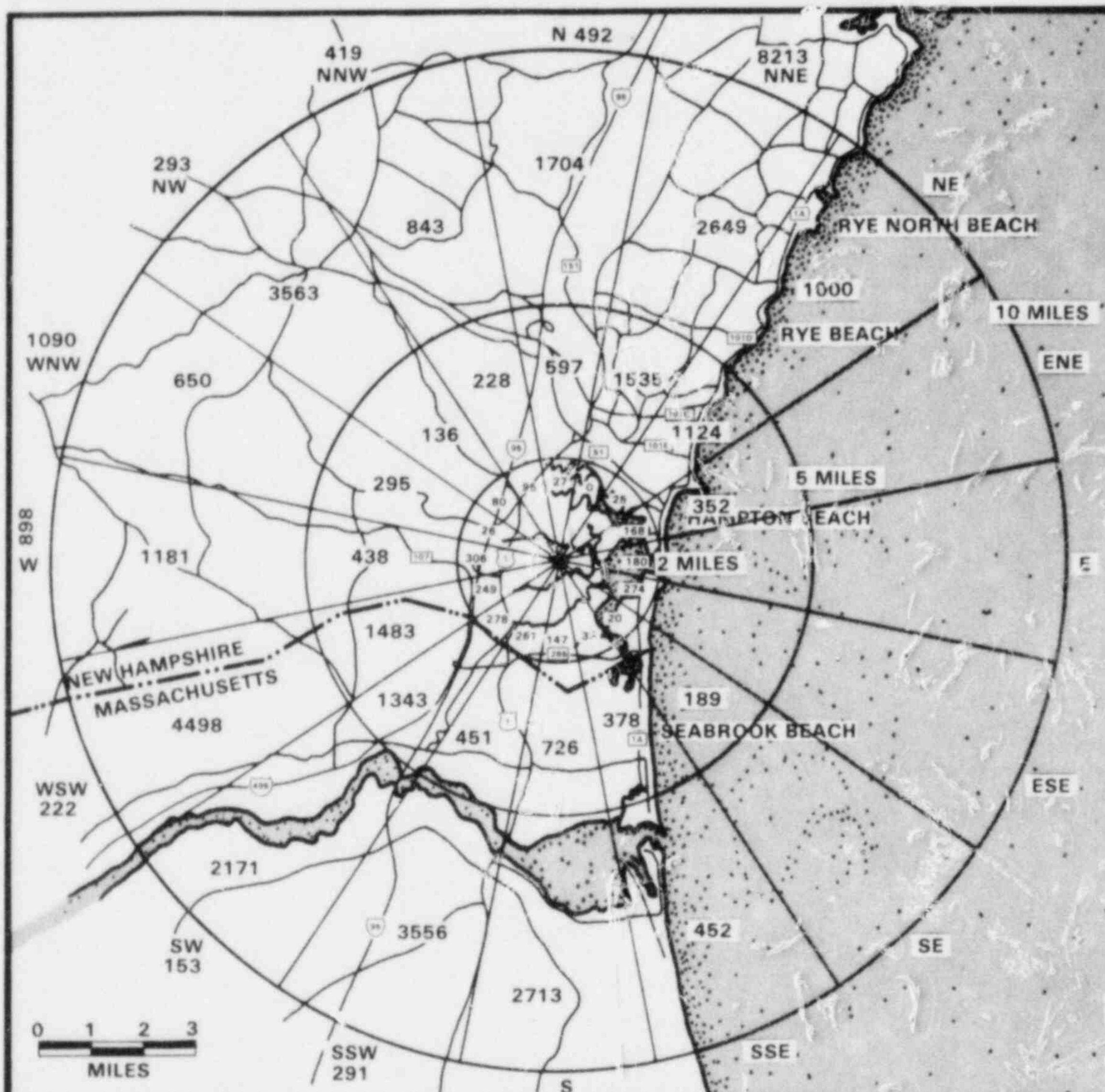
APPENDIX I

This appendix includes the component automobile demand estimates used to calculate the total automobile demand estimate for the peak population scenario for PSNH and NRC.

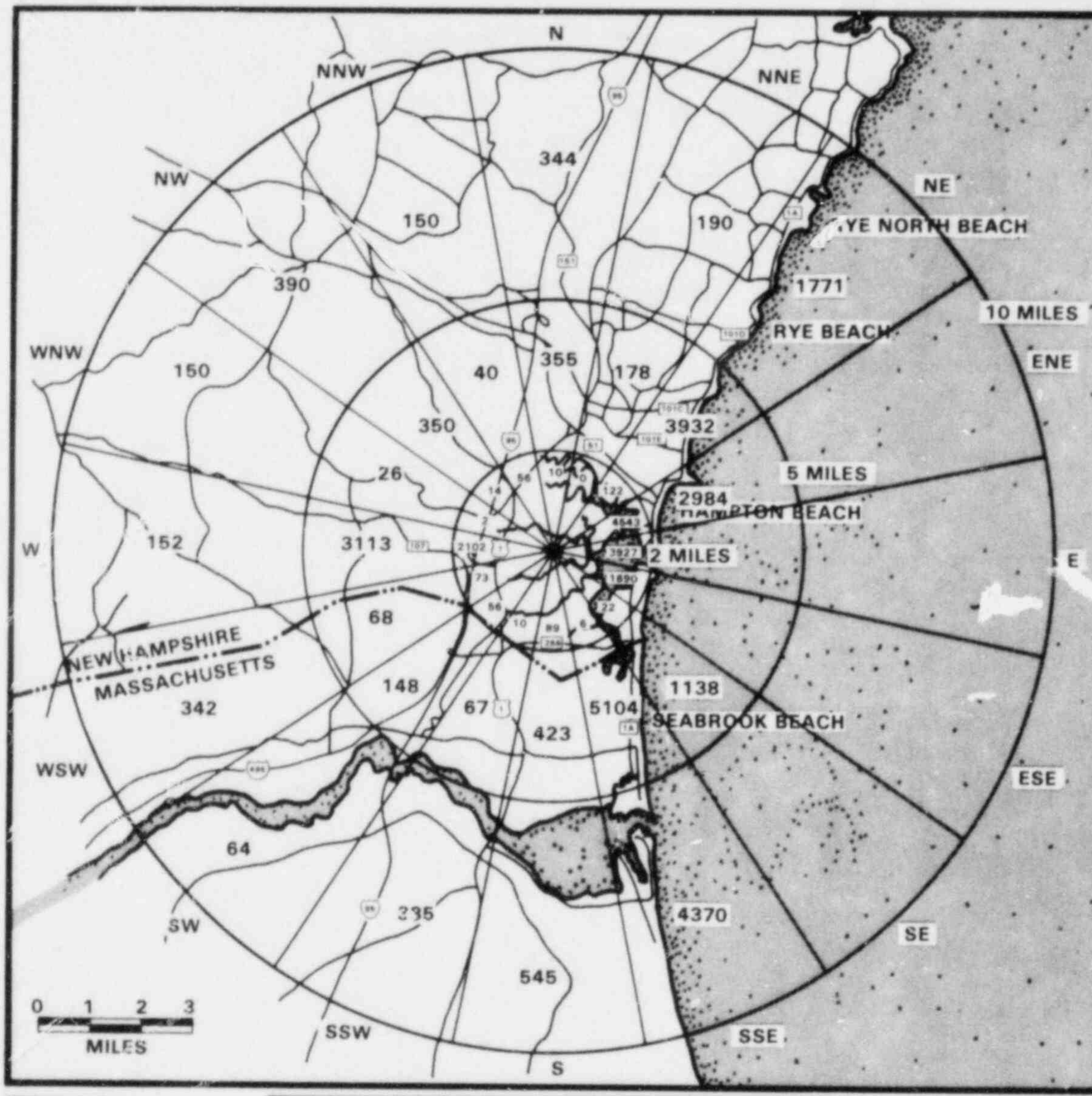
AUTOMOBILE DEMAND ESTIMATES FOR AN ESTIMATED 1983 PERMANENT RESIDENT POPULATION IN THE SEABROOK EMERGENCY PLANNING ZONE



36424
TOTAL SEGMENT VEHICLES 0 TO 10 MILES

PSNH VEHICLE TOTALS			
RING MILES	RING VEHICLES	TOTAL MILES	CUMULATIVE VEHICLES
0-2	2169	0-2	2169
2-5	9275	0-5	11444
5-10	24980	0-10	36424
10-EPZ	12071	0-EPZ	48495

AUTOMOBILE DEMAND ESTIMATES FOR AN ESTIMATED 1983 SEASONAL RESIDENT AND DAILY TRANSIENT POPULATION IN THE SEABROOK EMERGENCY PLANNING ZONE

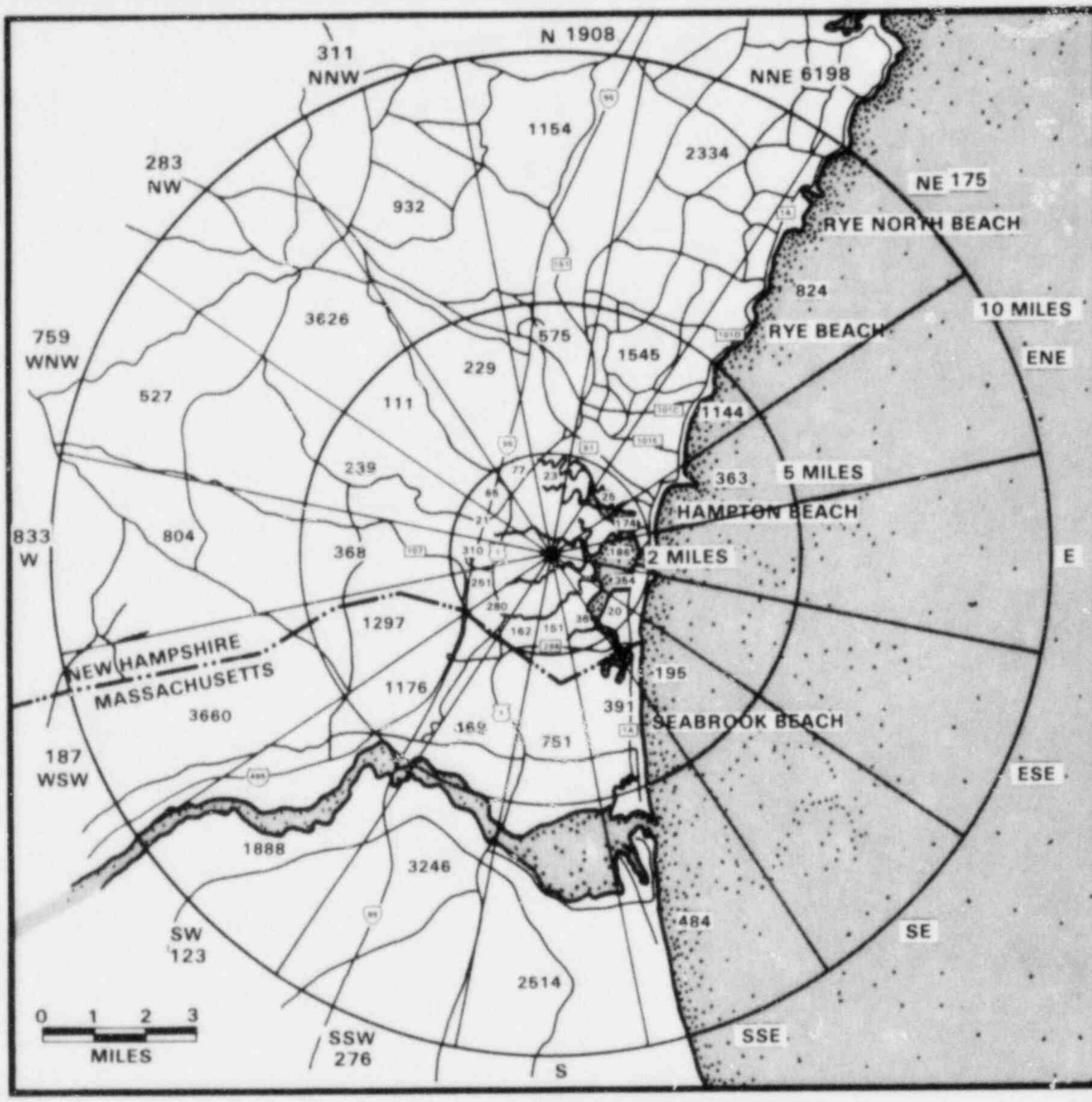


39501

TOTAL SEGMENT VEHICLES 0 TO 10 MILES

PSNH VEHICLE TOTALS			
RING MILES	RING VEHICLES	TOTAL MILES	CUMULATIVE VEHICLES
0-2	12722	0-2	12722
2-5	17926	0-5	30648
5-10	8853	0-10	39501

AUTOMOBILE DEMAND ESTIMATES FOR AN ESTIMATED 1983 PERMANENT RESIDENT POPULATION IN THE SEABROOK EMERGENCY PLANNING ZONE

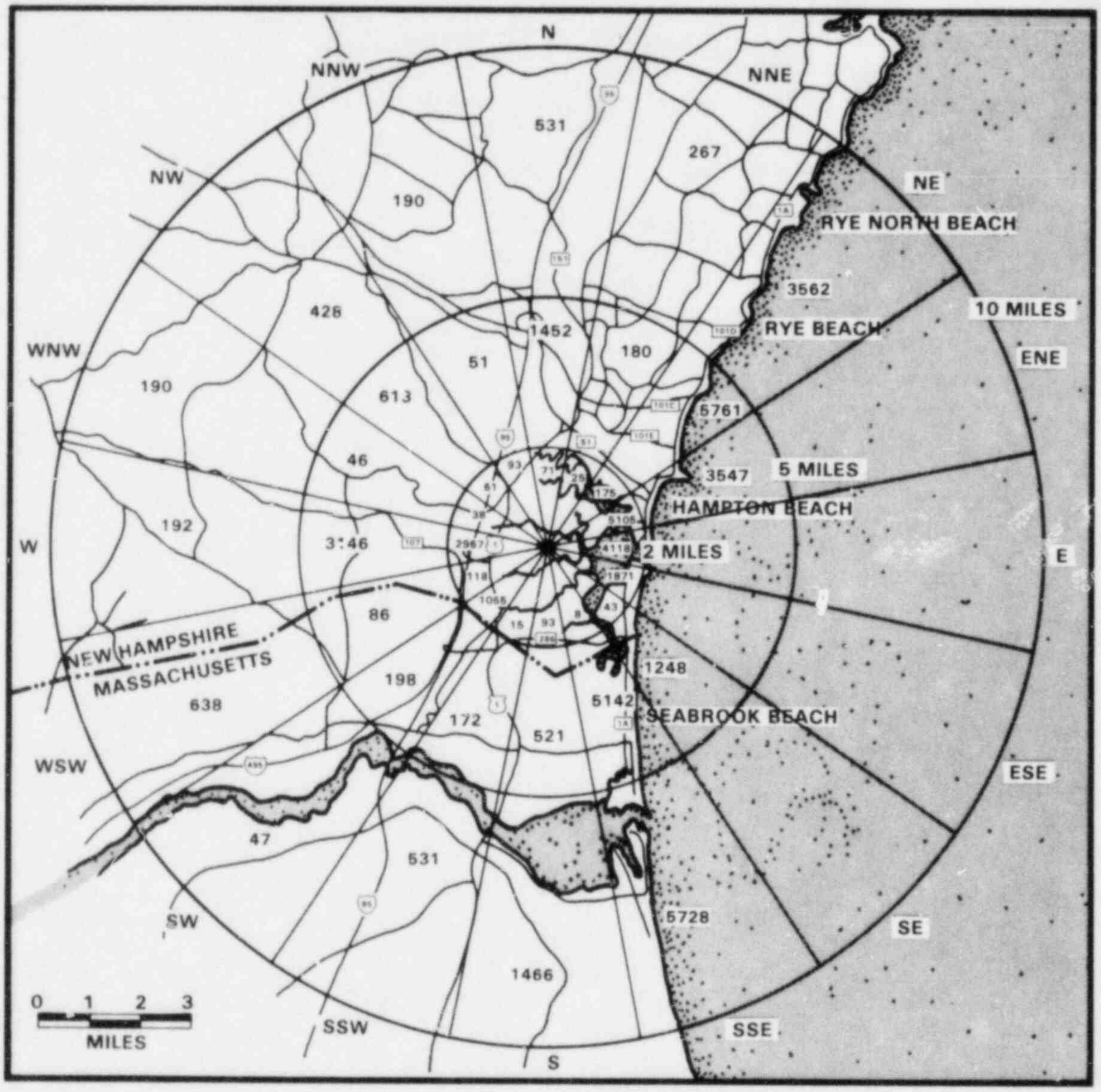


32980

TOTAL SEGMENT VEHICLES 0-10 MILES

NRC VEHICLE TOTALS			
RING MILES	RING VEHICLES	TOTAL MILES	CUMULATIVE VEHICLES
0-2	2134	0-2	2134
2-5	8853	0-5	10987
5-10	21993	0-10	32980
10-EPZ	11053	0-EPZ	44033

AUTOMOBILE DEMAND ESTIMATES FOR AN ESTIMATED 1983 SEASONAL RESIDENT AND DAILY TRANSIENT POPULATION IN THE SEABROOK EMERGENCY PLANNING ZONE



51789

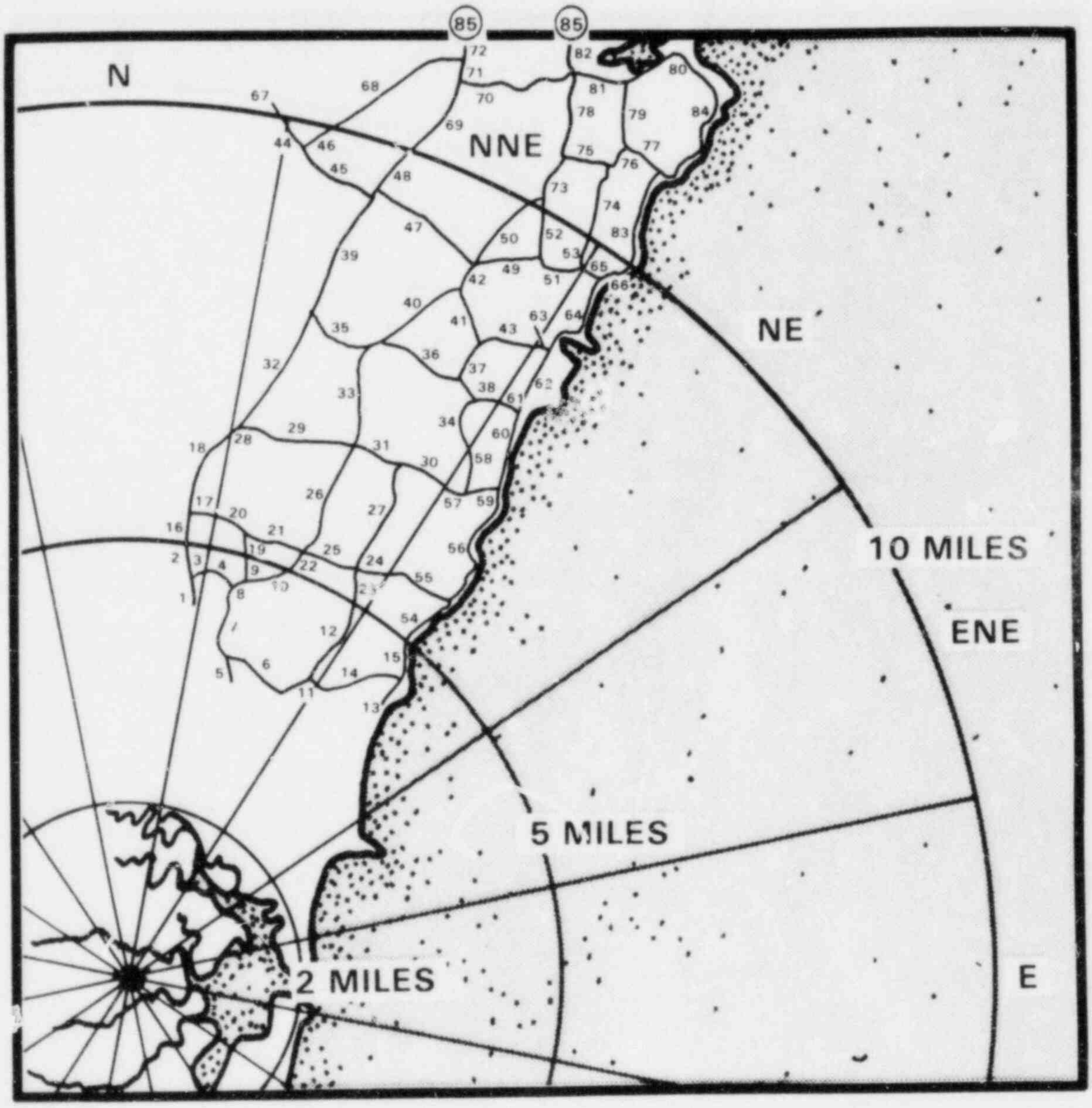
TOTAL SEGMENT VEHICLES 0 TO 10 MILES

NRC VEHICLE TOTALS			
RING MILES	RING VEHICLES	TOTAL MILES	CUMULATIVE VEHICLES
0-2	15856	0-2	15856
2-5	22163	0-5	38019
5-10	13770	0-10	51789

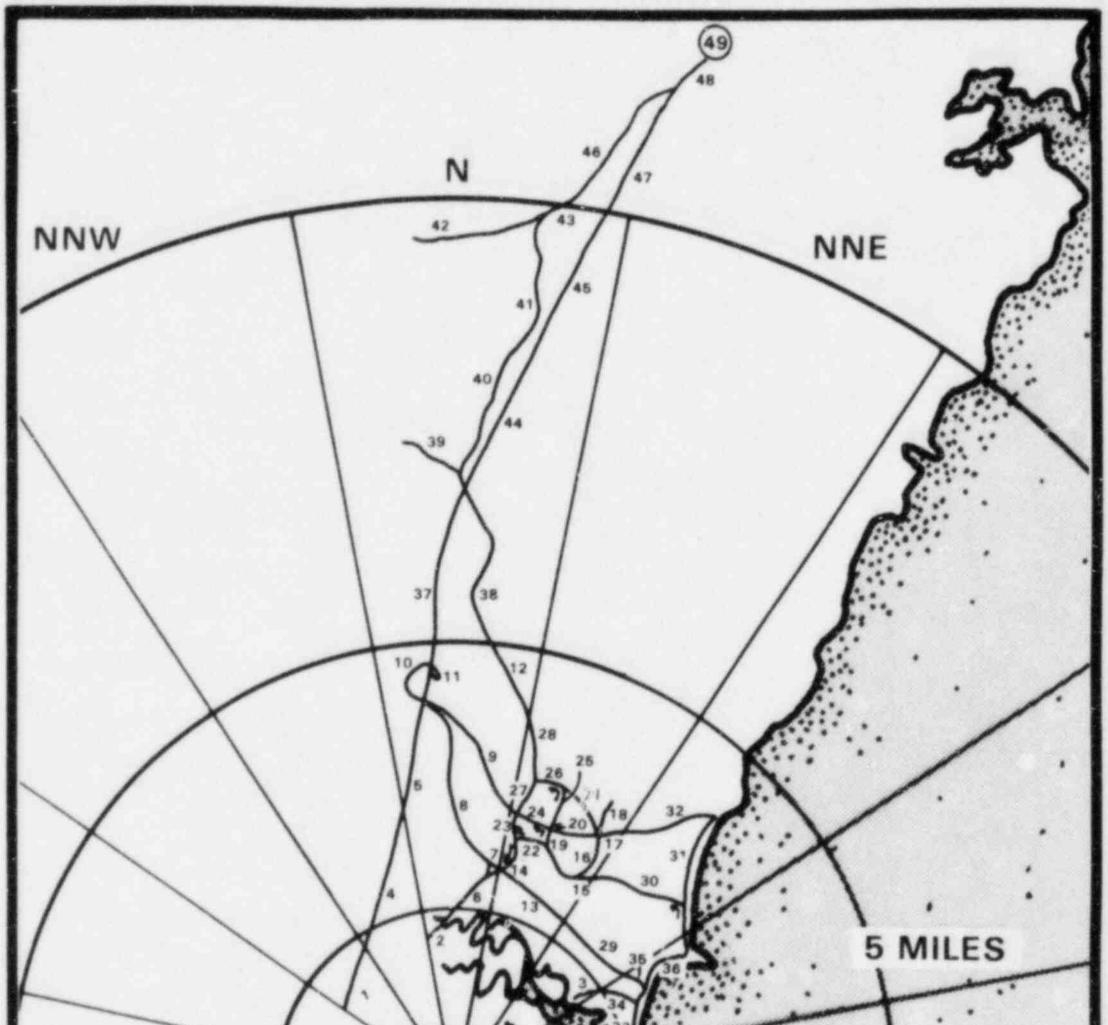
APPENDIX II

This appendix illustrates the eight evacuation trees used in the initial runs and the two additional evacuation trees used to calculate the ETEs.

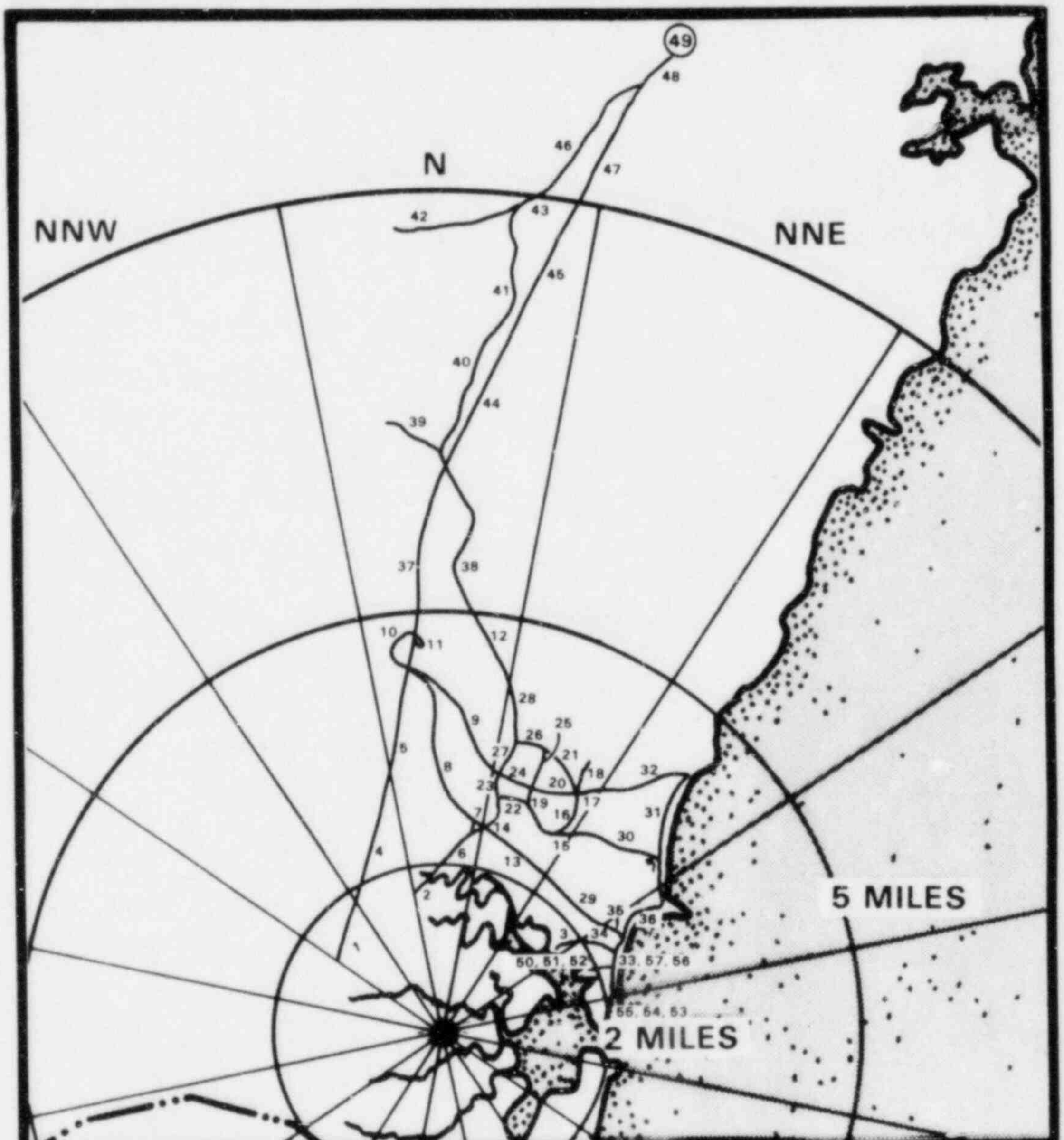
SEABROOK EVACUATION TREE NO. 1



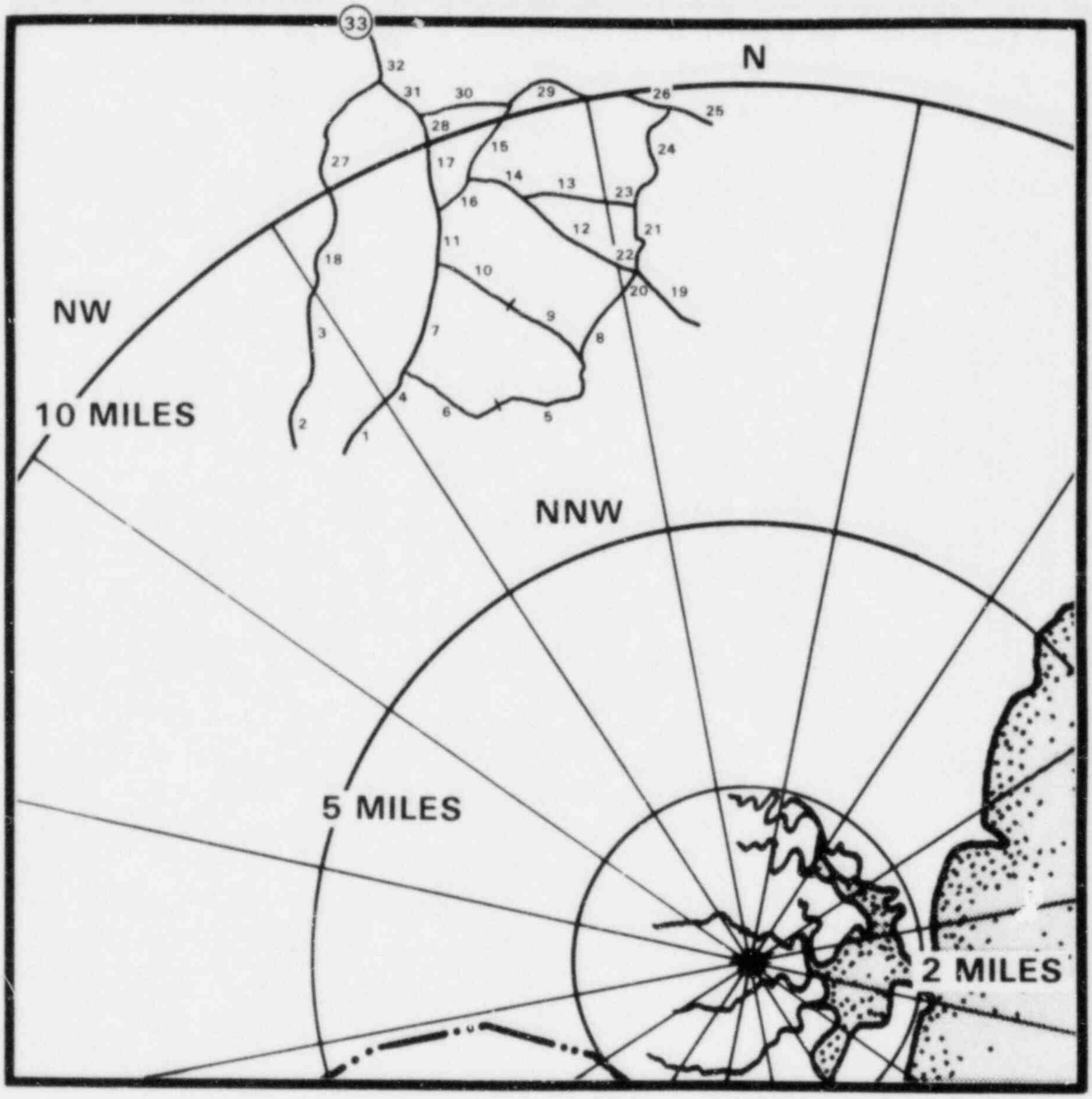
SEABROOK EVACUATION TREE NO. 2A



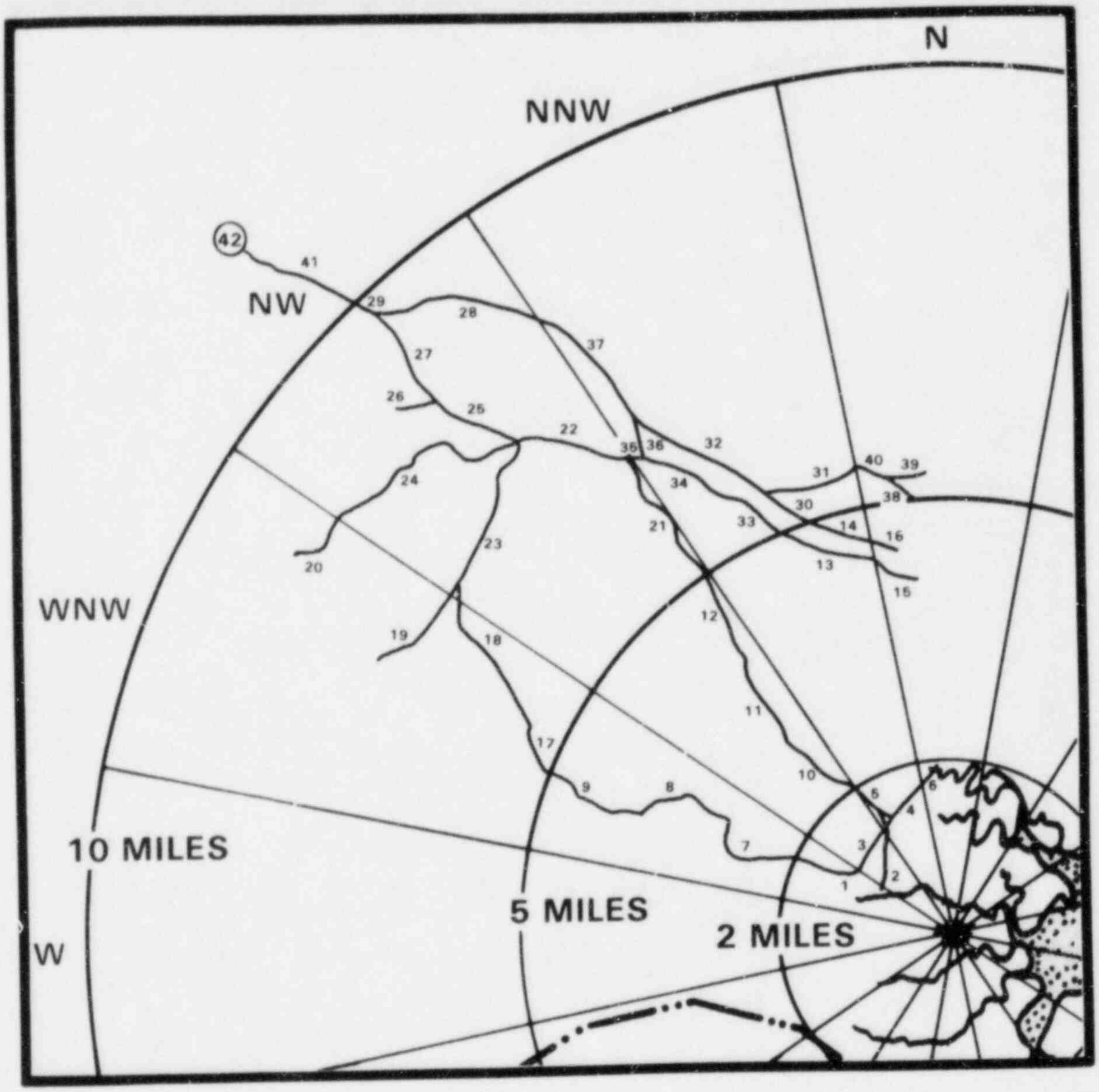
SEABROOK EVACUATION TREE NO. 2B



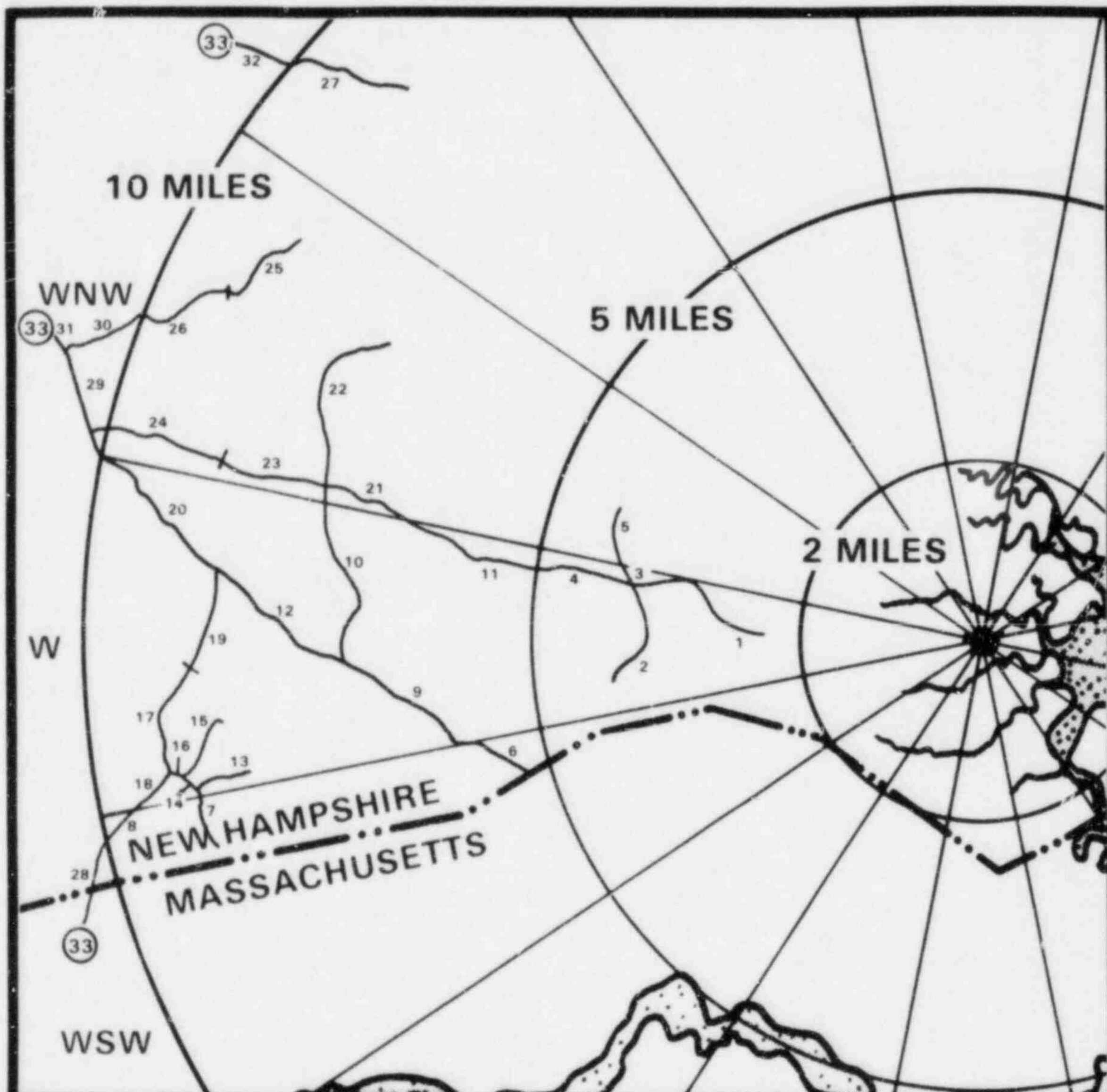
SEABROOK EVACUATION TREE NO.3



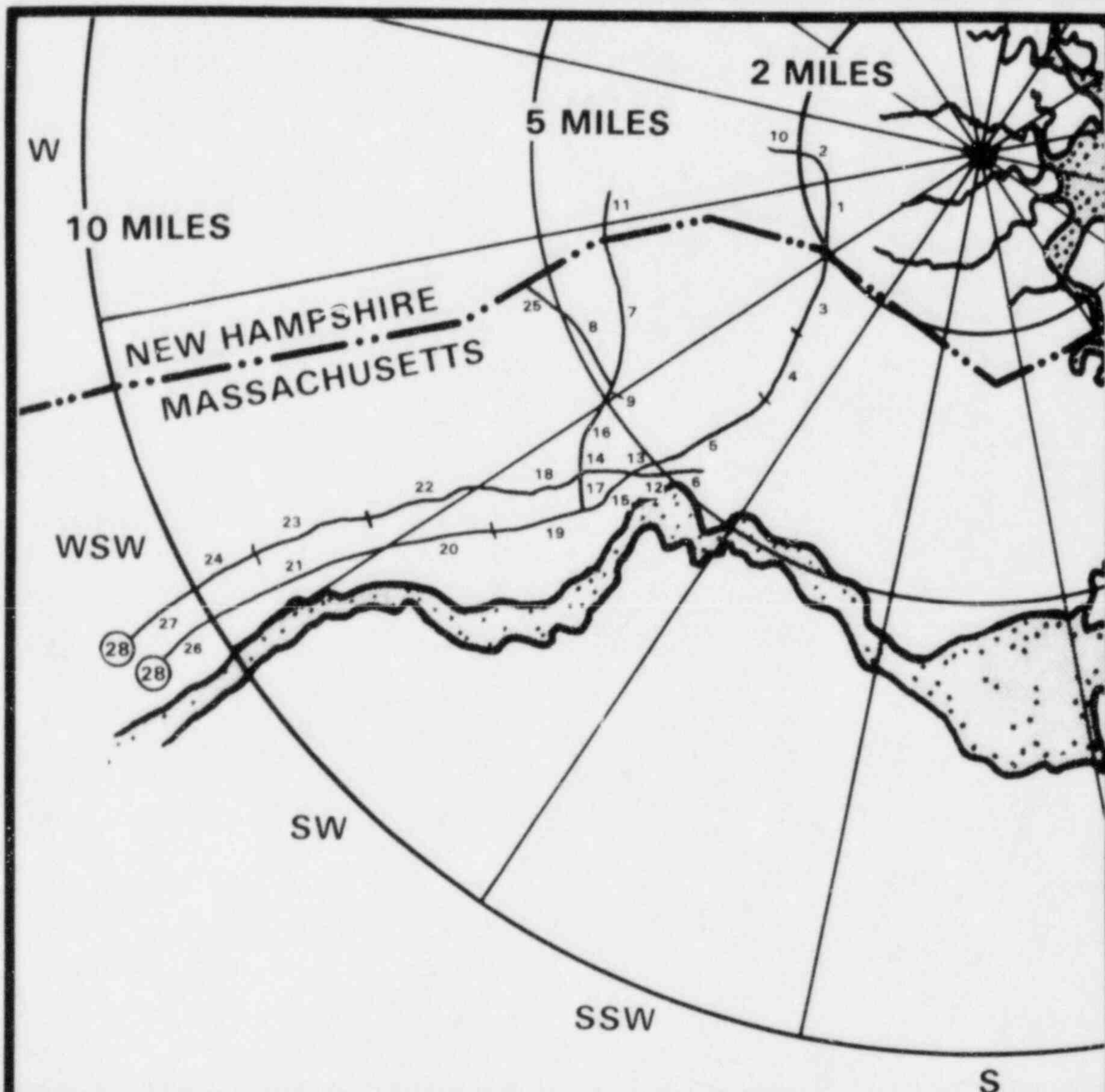
SEABROOK EVACUATION TREE NO. 4



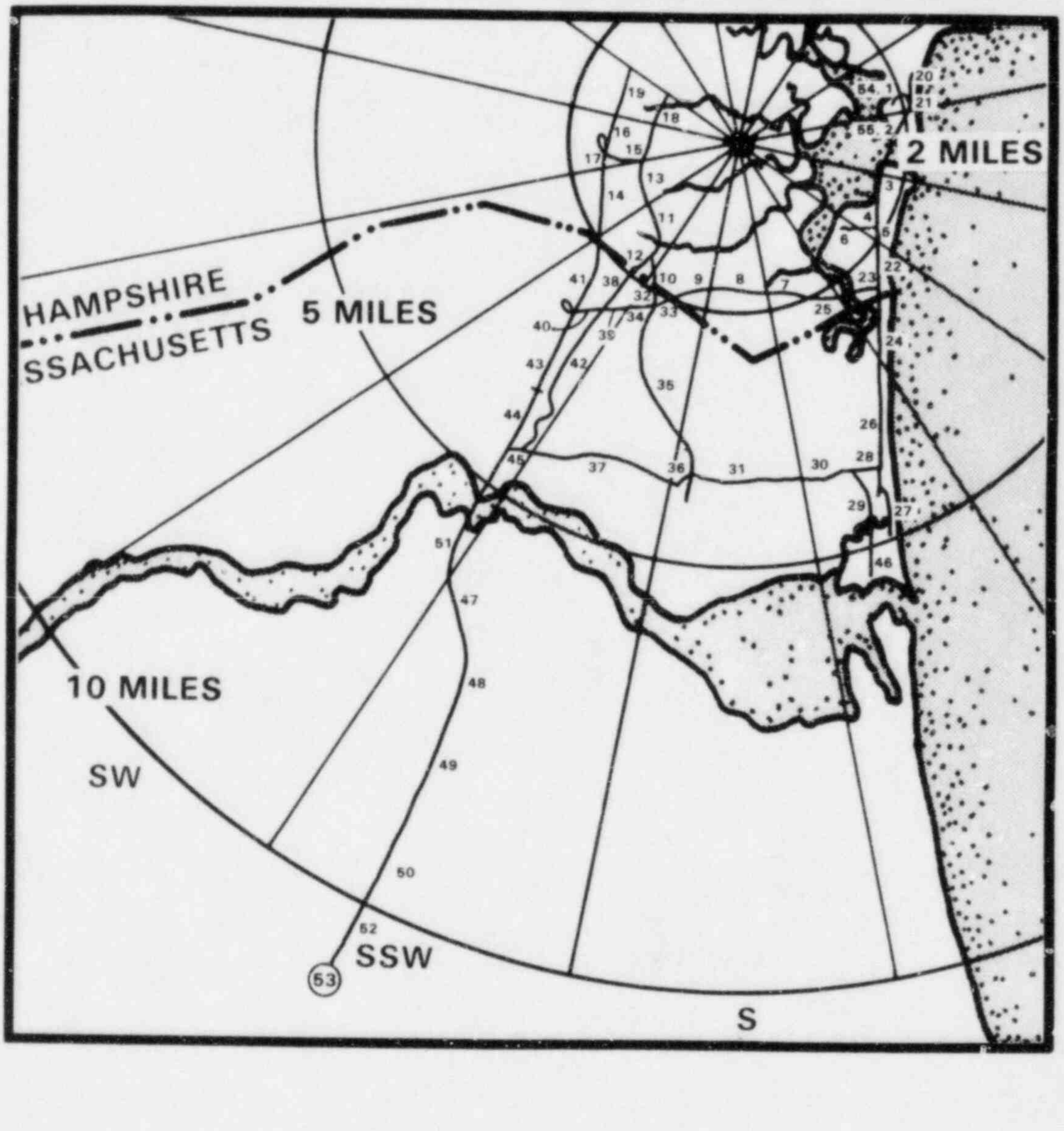
SEABROOK EVACUATION TREE NO. 5



SEABROOK EVACUATION TREE NO. 6



SEABROOK EVACUATION TREE NO. 7A



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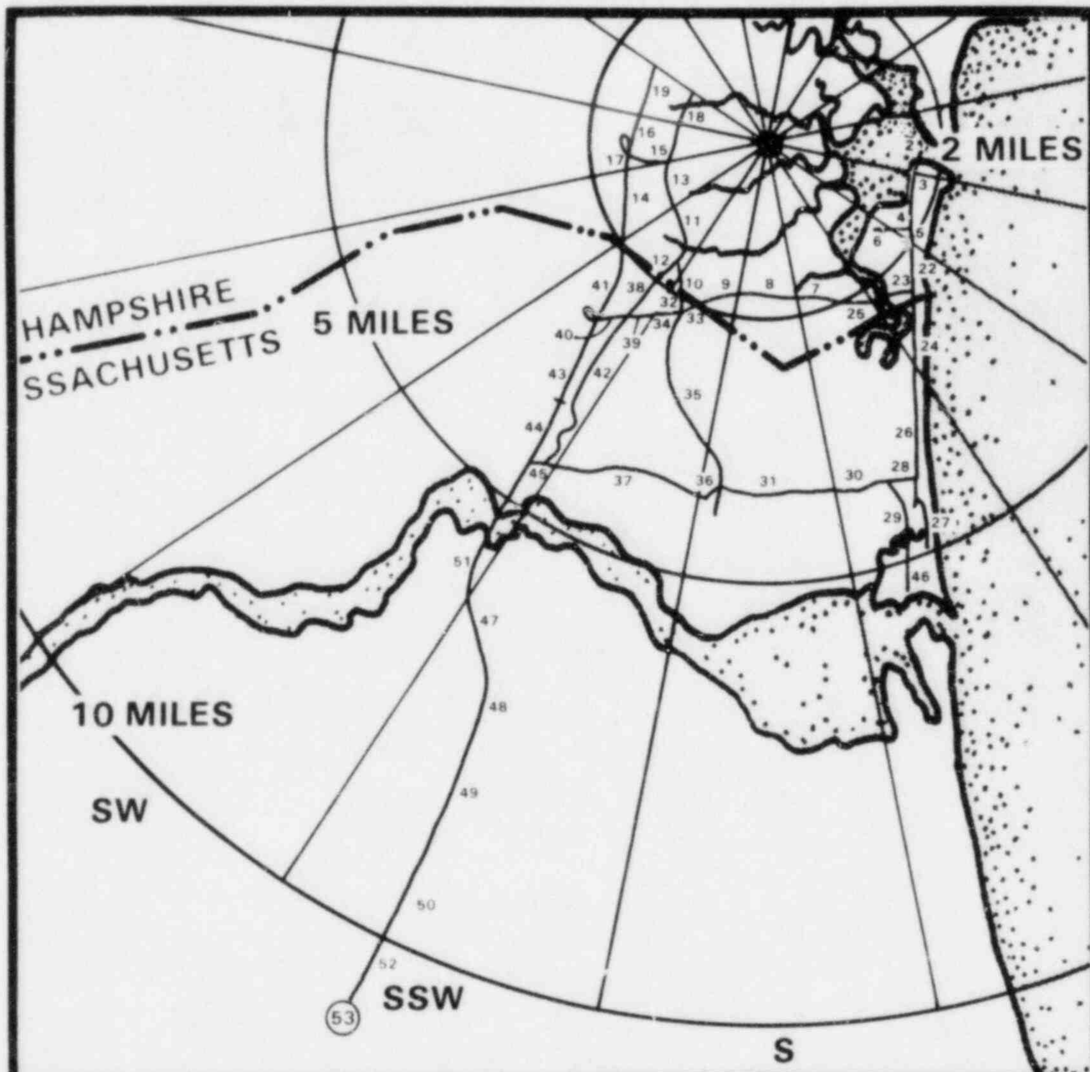
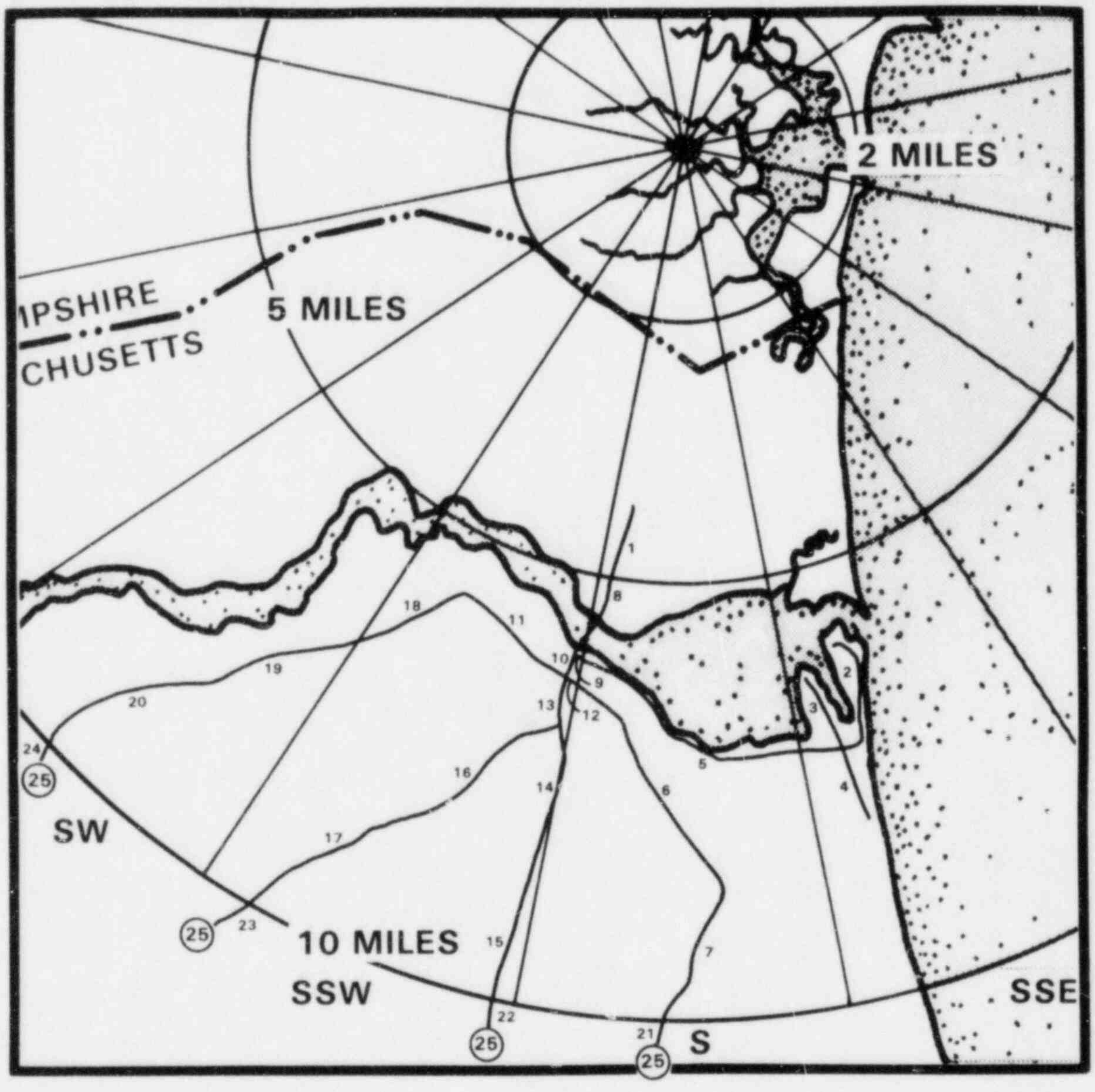


SEABROOK EVACUATION TREE NO. 8



APPENDIX III

This appendix contains the input data for CLEAR code runs. This material details the input data for each road segment of the Seabrook EPZ.

Pages III-1 through III-17 show the data inputs based on PSNH's demand estimates for the eight original evacuation trees and two revised evacuation trees that were used in this study. Pages III-18 through III-29 give the input data for the eight evacuation trees that were analyzed using NRC's demographic data.

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EVACUATION TREE NUMBER ONE FOR SEABROOK     NO.1

4              CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.25 MAXDEP=  3600 POPVEH=  1 LGCODE=  4 FLORAT=  1500 MINSPD=  15
ZTWO=    0 ZFIV=   3 ZTEN=   6 ZEPZ=   8 ISTG=   0 EX=  85 EPZ=  13
ZONE:  1 POPZN=       952. NRDS=         3 LENRDS=     18800.
ZNRD:          1 LINK=          2 LEN=       600 RADIS=          5 NOMVEL=        45 NLANES=          1 NRSEC=         3
ZNRD:          2 LINK=         16 LEN=       600 RADIS=          5 NOMVEL=        45 NLANES=          1 NRSEC=         0
ZNRD:          3 LINK=          2 LEN=       300 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=         1
ZONE:  2 POPZN=      1713. NRDS=         9 LENRDS=     22800.
ZNRD:          4 LINK=          8 LEN=       800 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=         7
ZNRD:          5 LINK=          7 LEN=       600 RADIS=          4 NOMVEL=        30 NLANES=          1 NRSEC=         6
ZNRD:          6 LINK=          7 LEN=      2000 RADIS=          4 NOMVEL=        30 NLANES=          1 NRSEC=         5
ZNRD:          7 LINK=          8 LEN=      1200 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=         4
ZNRD:          8 LINK=         10 LEN=       300 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:          9 LINK=         19 LEN=       500 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         10 LINK=         22 LEN=       800 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         11 LINK=         12 LEN=       300 RADIS=          4 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         12 LINK=         24 LEN=      1800 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZONE:  3 POPZN=      5056. NRDS=         3 LENRDS=     10300.
ZNRD:         13 LINK=         15 LEN=       300 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=        14
ZNRD:         14 LINK=         15 LEN=      1300 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=        13
ZNRD:         15 LINK=         54 LEN=       600 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZONE:  4 POPZN=      2048. NRDS=         3 LENRDS=     36200.
ZNRD:         16 LINK=         18 LEN=       600 RADIS=          6 NOMVEL=        45 NLANES=          1 NRSEC=        17
ZNRD:         17 LINK=         18 LEN=       300 RADIS=          6 NOMVEL=        35 NLANES=          1 NRSEC=        16
ZNRD:         18 LINK=         28 LEN=      1300 RADIS=          6 NOMVEL=        45 NLANES=          1 NRSEC=         0
ZONE:  5 POPZN=      2839. NRDS=        35 LENRDS=     47300.
ZNRD:         19 LINK=         21 LEN=       400 RADIS=          6 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         20 LINK=         17 LEN=      1000 RADIS=          6 NOMVEL=        35 NLANES=          1 NRSEC=         0
ZNRD:         21 LINK=         26 LEN=      1200 RADIS=          6 NOMVEL=        35 NLANES=          1 NRSEC=        22
ZNRD:         22 LINK=         26 LEN=       500 RADIS=          6 NOMVEL=        30 NLANES=          1 NRSEC=        21
ZNRD:         23 LINK=         25 LEN=       600 RADIS=          6 NOMVEL=        30 NLANES=          1 NRSEC=        24
ZNRD:         24 LINK=         25 LEN=       600 RADIS=          6 NOMVEL=        35 NLANES=          1 NRSEC=        23
ZNRD:         25 LINK=         26 LEN=      1100 RADIS=          6 NOMVEL=        35 NLANES=          1 NRSEC=        22
ZNRD:         26 LINK=         33 LEN=      2400 RADIS=          6 NOMVEL=        30 NLANES=          1 NRSEC=        29
ZNRD:         27 LINK=         31 LEN=      2500 RADIS=          6 NOMVEL=        30 NLANES=          1 NRSEC=        30
ZNRD:         28 LINK=         32 LEN=       900 RADIS=          7 NOMVEL=        45 NLANES=          1 NRSEC=         0
ZNRD:         29 LINK=         33 LEN=      2300 RADIS=          7 NOMVEL=        30 NLANES=          1 NRSEC=        26
ZNRD:         30 LINK=         31 LEN=      1000 RADIS=          7 NOMVEL=        30 NLANES=          1 NRSEC=        27
ZNRD:         31 LINK=         33 LEN=      1000 RADIS=          7 NOMVEL=        30 NLANES=          1 NRSEC=        26
ZNRD:         32 LINK=         39 LEN=      2500 RADIS=          8 NOMVEL=        45 NLANES=          1 NRSEC=        35
ZNRD:         33 LINK=         40 LEN=      2800 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=        36
ZNRD:         34 LINK=         37 LEN=      1100 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         35 LINK=         39 LEN=      1300 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=        32
ZNRD:         36 LINK=         40 LEN=      1700 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=        33
ZNRD:         37 LINK=         41 LEN=      1000 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         38 LINK=         61 LEN=       800 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=        47
ZNRD:         39 LINK=         48 LEN=      2500 RADIS=          9 NOMVEL=        45 NLANES=          1 NRSEC=        47
ZNRD:         40 LINK=         42 LEN=      1900 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=        41
ZNRD:         41 LINK=         42 LEN=      1100 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=        41
ZNRD:         42 LINK=         50 LEN=       400 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         43 LINK=         63 LEN=      1000 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         44 LINK=         46 LEN=       600 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=        45
ZNRD:         45 LINK=         46 LEN=      1600 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=        44
ZNRD:         46 LINK=         68 LEN=      1000 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         47 LINK=         48 LEN=      2400 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=        39
ZNRD:         48 LINK=         69 LEN=      1000 RADIS=         10 NOMVEL=        35 NLANES=          1 NRSEC=         0
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ZNRD:        49 LINK=         52 LEN=       1300 RADIS=         10 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZNRD:        50 LINK=         73 LEN=       1700 RADIS=         10 NOMVEL=        30 NLANES=        1 NRSEC=      52
ZNRD:        51 LINK=         53 LEN=        900 RADIS=         10 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZNRD:        52 LINK=         73 LEN=       1300 RADIS=         10 NOMVEL=        30 NLANES=        1 NRSEC=      50
ZNRD:        53 LINK=         74 LEN=        500 RADIS=         10 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZONE:   6 POPZN=       2771. NRDS=          13 LENRDS=      13600.
ZNRD:        54 LINK=         56 LEN=       1500 RADIS=          6 NOMVEL=        30 NLANES=        1 NRSEC=      55
ZNRD:        55 LINK=         56 LEN=       1500 RADIS=          6 NOMVEL=        35 NLANES=        1 NRSEC=      54
ZNRD:        56 LINK=         60 LEN=       2700 RADIS=          7 NOMVEL=        30 NLANES=        1 NRSEC=      59
ZNRD:        57 LINK=         59 LEN=        500 RADIS=          7 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZNRD:        58 LINK=         34 LEN=       1000 RADIS=          8 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZNRD:        59 LINK=         60 LEN=        800 RADIS=          7 NOMVEL=        30 NLANES=        1 NRSEC=      54
ZNRD:        60 LINK=         62 LEN=       1600 RADIS=          8 NOMVEL=        30 NLANES=        1 NRSEC=      61
ZNRD:        61 LINK=         62 LEN=        800 RADIS=          8 NOMVEL=        30 NLANES=        1 NRSEC=      60
ZNRD:        62 LINK=         64 LEN=       1200 RADIS=          9 NOMVEL=        30 NLANES=        1 NRSEC=      63
ZNRD:        63 LINK=         64 LEN=        600 RADIS=          9 NOMVEL=        30 NLANES=        1 NRSEC=      62
ZNRD:        64 LINK=         66 LEN=       2000 RADIS=         10 NOMVEL=        30 NLANES=        1 NRSEC=      65
ZNRD:        65 LINK=         66 LEN=        500 RADIS=         10 NOMVEL=        30 NLANES=        1 NRSEC=      64
ZNRD:        66 LINK=         83 LEN=        700 RADIS=         10 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZONE:   7 POPZN=       8213. NRDS=          16 LENRDS=      28700.
ZNRD:        67 LINK=         44 LEN=        700 RADIS=         11 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZNRD:        68 LINK=         72 LEN=       3400 RADIS=         11 NOMVEL=        30 NLANES=        1 NRSEC=      71
ZNRD:        69 LINK=         71 LEN=       1900 RADIS=         11 NOMVEL=        35 NLANES=        1 NRSEC=      70
ZNRD:        70 LINK=         71 LEN=       2400 RADIS=         12 NOMVEL=        30 NLANES=        1 NRSEC=      69
ZNRD:        71 LINK=         72 LEN=       1600 RADIS=         12 NOMVEL=        35 NLANES=        1 NRSEC=      68
ZNRD:        72 LINK=         85 LEN=       1900 RADIS=         12 NOMVEL=        40 NLANES=        1 NRSEC=       0
ZNRD:        73 LINK=         78 LEN=        900 RADIS=         11 NOMVEL=        30 NLANES=        1 NRSEC=      75
ZNRD:        74 LINK=         76 LEN=       2100 RADIS=         11 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZNRD:        75 LINK=         78 LEN=       1000 RADIS=         11 NOMVEL=        30 NLANES=        1 NRSEC=      73
ZNRD:        76 LINK=         79 LEN=        500 RADIS=         12 NOMVEL=        30 NLANES=        1 NRSEC=      77
ZNRD:        77 LINK=         79 LEN=        800 RADIS=         12 NOMVEL=        30 NLANES=        1 NRSEC=      76
ZNRD:        78 LINK=         82 LEN=       1800 RADIS=         12 NOMVEL=        30 NLANES=        1 NRSEC=      81
ZNRD:        79 LINK=         81 LEN=       1300 RADIS=         12 NOMVEL=        30 NLANES=        1 NRSEC=      80
ZNRD:        80 LINK=         81 LEN=       2000 RADIS=         13 NOMVEL=        30 NLANES=        1 NRSEC=      79
ZNRD:        81 LINK=         82 LEN=       1300 RADIS=         12 NOMVEL=        30 NLANES=        1 NRSEC=      78
ZNRD:        82 LINK=         85 LEN=        700 RADIS=         12 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZONE:   8 POPZN=       8213. NRDS=           2 LENRDS=      28700.
ZNRD:        83 LINK=         77 LEN=       2000 RADIS=         11 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZNRD:        84 LINK=         80 LEN=       2400 RADIS=         12 NOMVEL=        30 NLANES=        1 NRSEC=       0
ZONE:   9 POPZN=          0. NRDS=           1 LENRDS=     999999.
ZNRD:        85 LINK=         85 LEN=     999999 RADIS=         15 NOMVEL=         3 NLANES=    99999 NRSEC=       0
```

EVACUATION TREE NUMBER TWO FOR SEABROOK - NO.2A

```
4              CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.25 MAXDEP=  3600 PUPVEH=  1 LGCODE=  4 FLORAT=  1500 MINSPU=  15
ZTWO=   3 ZFIV=   8 ZTEN=   9 ZEPZ=  10 ISTG=   0 EX=  49 EPZ=  12
ZONE:  1 POPZN=        49.  NRDS=      1 LENRDS=     3700.
ZNRD:         1 LINK=      4 LEN=     1200 RADIS=        2 NOMVEL=     55 NLANES=     4 NRSEC=     0
ZONE:  2 POPZN=        37.  NRDS=      1 LENRDS=     1400.
ZNRD:         2 LINK=      6 LEN=      500 RADIS=        2 NOMVEL=     35 NLANES=     1 NRSEC=     0
ZONE:  3 POPZN=       147.  NRDS=      1 LENRDS=      800.
ZNRD:         3 LINK=     34 LEN=      800 RADIS=        2 NOMVEL=     20 NLANES=     1 NRSEC=     0
ZONE:  4 POPZN=       268.  NRDS=      1 LENRDS=     5200.
ZNRD:         4 LINK=      5 LEN=     2800 RADIS=        3 NOMVEL=     55 NLANES=     1 NRSEC=     0
ZONE:  5 POPZN=       952.  NRDS=      8 LENRDS=    16800.
ZNRD:         5 LINK=     11 LEN=     2800 RADIS=        4 NOMVEL=     55 NLANES=     4 NRSEC=    10
ZNRD:         6 LINK=      8 LEN=      900 RADIS=        3 NOMVEL=     35 NLANES=     1 NRSEC=     7
ZNRD:         7 LINK=      8 LEN=     1000 RADIS=        3 NOMVEL=     35 NLANES=     1 NRSEC=     6
ZNRD:         8 LINK=     10 LEN=     3000 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=     9
ZNRD:         9 LINK=     10 LEN=     2700 RADIS=        4 NOMVEL=     40 NLANES=     1 NRSEC=     8
ZNRD:        10 LINK=     11 LEN=     2300 RADIS=        5 NOMVEL=     20 NLANES=     1 NRSEC=     5
ZNRD:        11 LINK=     37 LEN=      400 RADIS=        5 NOMVEL=     55 NLANES=     4 NRSEC=     0
ZNRD:        12 LINK=     38 LEN=     2000 RADIS=        5 NOMVEL=     35 NLANES=     1 NRSEC=     0
ZONE:  6 POPZN=      1713.  NRDS=     16 LENRDS=    22800.
ZNRD:        13 LINK=      7 LEN=     1000 RADIS=        3 NOMVEL=     35 NLANES=     1 NRSEC=    14
ZNRD:        14 LINK=      7 LEN=      800 RADIS=        3 NOMVEL=     35 NLANES=     1 NRSEC=    13
ZNRD:        15 LINK=     19 LEN=      300 RADIS=        3 NOMVEL=     30 NLANES=     1 NRSEC=     0
ZNRD:        16 LINK=     20 LEN=     1100 RADIS=        3 NOMVEL=     30 NLANES=     1 NRSEC=    17
ZNRD:        17 LINK=     20 LEN=      500 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=    16
ZNRD:        18 LINK=     20 LEN=      700 RADIS=        4 NOMVEL=     30 NLANES=     1 NRSEC=    17
ZNRD:        19 LINK=     24 LEN=     2200 RADIS=        3 NOMVEL=     30 NLANES=     1 NRSEC=    20
ZNRD:        20 LINK=     24 LEN=     1000 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=    19
ZNRD:        21 LINK=     26 LEN=     1200 RADIS=        4 NOMVEL=     30 NLANES=     1 NRSEC=    25
ZNRD:        22 LINK=     23 LEN=      800 RADIS=        4 NOMVEL=     30 NLANES=     1 NRSEC=     0
ZNRD:        23 LINK=     27 LEN=      500 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=    24
ZNRD:        24 LINK=     27 LEN=      800 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=    23
ZNRD:        25 LINK=     26 LEN=      800 RADIS=        4 NOMVEL=     30 NLANES=     1 NRSEC=    21
ZNRD:        26 LINK=     28 LEN=      600 RADIS=        4 NOMVEL=     30 NLANES=     1 NRSEC=    27
ZNRD:        27 LINK=     28 LEN=      700 RADIS=        4 NOMVEL=     30 NLANES=     1 NRSEC=    26
ZNRD:        28 LINK=     12 LEN=     1500 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=     0
ZONE:  7 POPZN=      5056.  NRDS=      4 LENRDS=    10300.
ZNRD:        29 LINK=     13 LEN=     1800 RADIS=        3 NOMVEL=     35 NLANES=     1 NRSEC=     0
ZNRD:        30 LINK=     15 LEN=     2800 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=     0
ZNRD:        31 LINK=     32 LEN=     1800 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=     0
ZNRD:        32 LINK=     17 LEN=     1700 RADIS=        4 NOMVEL=     35 NLANES=     1 NRSEC=     0
ZONE:  8 POPZN=      3336.  NRDS=      4 LENRDS=     4300.
ZNRD:        33 LINK=     35 LEN=      700 RADIS=        3 NOMVEL=     35 NLANES=     1 NRSEC=    34
ZNRD:        34 LINK=     35 LEN=      700 RADIS=        3 NOMVEL=     35 NLANES=     1 NRSEC=    33
ZNRD:        35 LINK=     29 LEN=      900 RADIS=        3 NOMVEL=     15 NLANES=     1 NRSEC=     0
ZNRD:        36 LINK=     30 LEN=     1300 RADIS=        3 NOMVEL=     35 NLANES=     1 NRSEC=     0
ZONE:  9 POPZN=      2048.  NRDS=      9 LENRDS=    30200.
ZNRD:        37 LINK=     44 LEN=     2600 RADIS=        6 NOMVEL=     55 NLANES=     4 NRSEC=     0
ZNRD:        38 LINK=     40 LEN=     3000 RADIS=        6 NOMVEL=     55 NLANES=     1 NRSEC=    39
ZNRD:        39 LINK=     40 LEN=     2500 RADIS=        7 NOMVEL=     35 NLANES=     1 NRSEC=    38
ZNRD:        40 LINK=     41 LEN=     3000 RADIS=        8 NOMVEL=     55 NLANES=     1 NRSEC=     0
ZNRD:        41 LINK=     43 LEN=     2200 RADIS=        9 NOMVEL=     55 NLANES=     1 NRSEC=    42
ZNRD:        42 LINK=     43 LEN=     2500 RADIS=       10 NOMVEL=     50 NLANES=     1 NRSEC=    41
ZNRD:        43 LINK=     46 LEN=      700 RADIS=       10 NOMVEL=     55 NLANES=     1 NRSEC=     0
ZNRD:        44 LINK=     45 LEN=     3000 RADIS=        8 NOMVEL=     55 NLANES=     4 NRSEC=     0
ZNRD:        45 LINK=     47 LEN=     3000 RADIS=        9 NOMVEL=     55 NLANES=     4 NRSEC=     0
ZONE: 10 POPZN=       492.  NRDS=      3 LENRDS=     6100.
```

```
ZNRD:        46 LINK=        48 LEN=      2600 RADIS=          11 NOMVEL=          55 NLANES=         1 NRSEC=        47
ZNRD:        47 LINK=        48 LEN=      2500 RADIS=          11 NOMVEL=          55 NLANES=         4 NRSEC=        46
ZNRD:        48 LINK=        49 LEN=      1000 RADIS=          12 NOMVEL=          55 NLANES=         4 NRSEC=         0
ZONE: 11 POPZN=          0. NRUS=         1 LENRDS=      9999.
ZNRD:        49 LINK=        49 LEN=      9999 RADIS=          14 NOMVEL=           3 NLANES=       999 NRSEC=         0
```

RERUN OF EVACUATION TREE NUMBER TWO FOR SEABROOK - NO.2B

```
5              CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=      YP=  25 FRACT= 0.25 MAXDEP=  3600 PUPVEH=  1 LGCODE=  5 FLORAT=  1500 MINSPD=  15
ZTHO=   5 ZF        ZTFN=  11 ZEPZ=  12 ISTG=   0 EX=  49 EPZ=  12
ZONE:  1 POPZ         98. NRDS=        1 LENRDS=      3700.
ZNRD:        LINK=        9 LEN=      1200 RADIS=           2 NOMVEL=        55 NLANES=        4 NRSEC=      0
ZONE:  2 POPZN=       37. NRDS=        1 LENRDS=      1400.
ZNRD:       2 LINK=       6 LEN=       500 RADIS=           2 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZONE:  3 POPZN=      147. NRDS=        1 LENRDS=       800.
ZNRD:       3 LINK=      34 LEN=       800 RADIS=           2 NOMVEL=        20 NLANES=        1 NRSEC=      0
ZONE:  4 POPZN=     4711. NRDS=        3 LENRDS=      1000.
ZNRD:      50 LINK=      51 LEN=       300 RADIS=           2 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZNRD:      51 LINK=      52 LEN=       300 RADIS=           2 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZNRD:      52 LINK=      56 LEN=       400 RADIS=           2 NOMVEL=        35 NLANES=        1 NRSEC=     55
ZONE:  5 POPZN=     4107. NRDS=        3 LENRDS=      1400.
ZNRD:      53 LINK=      54 LEN=       400 RADIS=           2 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZNRD:      54 LINK=      55 LEN=       400 RADIS=           2 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZNRD:      55 LINK=      56 LEN=       400 RADIS=           2 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZONE:  6 POPZN=      268. NRDS=        1 LENRDS=      5200.
ZNRD:       4 LINK=       5 LEN=      2800 RADIS=           3 NOMVEL=        55 NLANES=        4 NRSEC=      0
ZONE:  7 POPZN=      952. NRDS=        8 LENRDS=     18800.
ZNRD:       5 LINK=      11 LEN=      2800 RADIS=           4 NOMVEL=        55 NLANES=        4 NRSEC=     10
ZNRD:       6 LINK=       8 LEN=       900 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=      7
ZNRD:       7 LINK=       8 LEN=      1000 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=      6
ZNRD:       8 LINK=      10 LEN=      3000 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=      9
ZNRD:       9 LINK=      10 LEN=      2700 RADIS=           4 NOMVEL=        40 NLANES=        1 NRSEC=      8
ZNRD:      10 LINK=      11 LEN=      2300 RADIS=           5 NOMVEL=        20 NLANES=        1 NRSEC=      5
ZNRD:      11 LINK=      37 LEN=       400 RADIS=           5 NOMVEL=        55 NLANES=        4 NRSEC=      0
ZNRD:      12 LINK=      38 LEN=      2000 RADIS=           5 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZONE:  8 POPZN=     1713. NRDS=       16 LENRDS=     22800.
ZNRD:      13 LINK=       7 LEN=      1000 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=     14
ZNRD:      14 LINK=       7 LEN=       800 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=     13
ZNRD:      15 LINK=      19 LEN=      1200 RADIS=           3 NOMVEL=        30 NLANES=        1 NRSEC=      0
ZNRD:      16 LINK=      20 LEN=      1100 RADIS=           3 NOMVEL=        30 NLANES=        1 NRSEC=     17
ZNRD:      17 LINK=      20 LEN=       900 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=     16
ZNRD:      18 LINK=      20 LEN=       700 RADIS=           4 NOMVEL=        30 NLANES=        1 NRSEC=     17
ZNRD:      19 LINK=      24 LEN=      1300 RADIS=           5 NOMVEL=        30 NLANES=        1 NRSEC=     20
ZNRD:      20 LINK=      24 LEN=      1000 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=     19
ZNRD:      21 LINK=      26 LEN=      1200 RADIS=           4 NOMVEL=        30 NLANES=        1 NRSEC=     25
ZNRD:      22 LINK=      23 LEN=       800 RADIS=           4 NOMVEL=        30 NLANES=        1 NRSEC=      0
ZNRD:      23 LINK=      27 LEN=       500 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=     24
ZNRD:      24 LINK=      27 LEN=       800 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=     23
ZNRD:      25 LINK=      26 LEN=       800 RADIS=           4 NOMVEL=        30 NLANES=        1 NRSEC=     21
ZNRD:      26 LINK=      28 LEN=       600 RADIS=           4 NOMVEL=        30 NLANES=        1 NRSEC=     27
ZNRD:      27 LINK=      28 LEN=       700 RADIS=           4 NOMVEL=        30 NLANES=        1 NRSEC=     26
ZNRD:      28 LINK=      12 LEN=      1500 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZONE:  9 POPZN=     5056. NRDS=        4 LENRDS=     10300.
ZNRD:      29 LINK=      13 LEN=      1800 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZNRD:      30 LINK=      15 LEN=      2800 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZNRD:      31 LINK=      32 LEN=      1800 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZNRD:      32 LINK=      17 LEN=      1700 RADIS=           4 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZONE: 10 POPZN=     3336. NRDS=        6 LENRDS=      4300.
ZNRD:      56 LINK=      57 LEN=       400 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=     52
ZNRD:      57 LINK=      33 LEN=       500 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZNRD:      33 LINK=      35 LEN=       500 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=     34
ZNRD:      34 LINK=      35 LEN=       700 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=     33
ZNRD:      35 LINK=      29 LEN=       900 RADIS=           3 NOMVEL=        15 NLANES=        1 NRSEC=      0
ZNRD:      36 LINK=      30 LEN=      1300 RADIS=           3 NOMVEL=        35 NLANES=        1 NRSEC=      0
ZONE: 11 POPZN=     2048. NRDS=        9 LENRDS=     36200.
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ZNRD:          37 LINK=          44 LEN=         2600 RADIS=          6 NOMVEI=         55 NLANES=         4 NRSEC=         0
ZNRD:          38 LINK=          44 LEN=         3000 RADIS=          6 NOMVEI=         55 NLANES=         1 NRSEC=        39
ZNRD:          39 LINK=          40 LEN=         2500 RADIS=          7 NOMVEI=         35 NLANES=         1 NRSEC=        38
ZNRD:          40 LINK=          41 LEN=         3000 RADIS=          8 NOMVEI=         55 NLANES=         1 NRSEC=         0
ZNRD:          41 LINK=          43 LEN=         2200 RADIS=          9 NOMVEI=         55 NLANES=         1 NRSEC=        42
ZNRD:          42 LINK=          43 LEN=         2500 RADIS=         10 NOMVEI=         50 NLANES=         1 NRSEC=        41
ZNRD:          43 LINK=          46 LEN=          700 RADIS=         10 NOMVEI=         55 NLANES=         1 NRSEC=         0
ZNRD:          44 LINK=          45 LEN=         3000 RADIS=          8 NOMVEI=         55 NLANES=         4 NRSEC=         0
ZNRD:          45 LINK=          47 LEN=         3000 RADIS=          9 NOMVEI=         55 NLANES=         4 NRSEC=         0
ZONE: 12 POPZN=        392. NRDS=         3 LENRDS=       6100.
ZNRD:          46 LINK=          48 LEN=         2600 RADIS=         11 NOMVEI=         55 NLANES=         1 NRSEC=        47
ZNRD:          47 LINK=          48 LEN=         2500 RADIS=         11 NOMVEI=         55 NLANES=         4 NRSEC=        46
ZNRD:          48 LINK=          49 LEN=         1000 RADIS=         12 NOMVEI=         55 NLANES=         4 NRSEC=         0
ZONE: 13 POPZN=          0. NRDS=         1 LENRDS=       9999.
ZNRD:          49 LINK=          49 LEN=         9999 RADIS=         14 NOMVEI=          3 NLANES=       990 NRSEC=         0
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SEA3,LOG;1                          6-NOV-1981 04:12:52,78          PAGE 3
EVACUATION TREE NUMBER THREE FOR SEABROOK
                                        NO.3

              CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.10 MAXDEP=  5400 POPVEH=  1 LGCODE=  2 FLORAT=  1500 MINSPD=  15
ZTWO=   0 ZFIV=   0 ZTEN=   3 ZEPZ=   4 ISTG=   0 EX=  33 EPZ=  12
ZONE:  1 POPZN=      3953. NRDS=        3 LENRDS=     29600.
ZNRD:        1 LINK=       4 LEN=     1600 RADIS=        8 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZNRD:        2 LINK=       3 LEN=     1600 RADIS=        9 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZNRD:        3 LINK=      18 LEN=     1600 RADIS=        9 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE:  2 POPZN=       943. NRDS=       15 LENRDS=     28400.
ZNRD:        4 LINK=       7 LEN=      600 RADIS=        8 NOMVEL=      35 NLANES=       1 NRSEC=      6
ZNRD:        5 LINK=       6 LEN=     2400 RADIS=        7 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:        6 LINK=       7 LEN=     2400 RADIS=        7 NOMVEL=      30 NLANES=       1 NRSEC=      4
ZNRD:        7 LINK=      11 LEN=     2500 RADIS=        8 NOMVEL=      35 NLANES=       1 NRSEC=     10
ZNRD:        8 LINK=       9 LEN=     1600 RADIS=        8 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:        9 LINK=      10 LEN=     1600 RADIS=        8 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:       10 LINK=      11 LEN=     1600 RADIS=        9 NOMVEL=      30 NLANES=       1 NRSEC=      7
ZNRD:       11 LINK=      17 LEN=     1400 RADIS=        9 NOMVEL=      35 NLANES=       1 NRSEC=     16
ZNRD:       12 LINK=      14 LEN=     2400 RADIS=        9 NOMVEL=      30 NLANES=       1 NRSEC=     13
ZNRD:       13 LINK=      14 LEN=     1800 RADIS=        9 NOMVEL=      30 NLANES=       1 NRSEC=     12
ZNRD:       14 LINK=      16 LEN=     1200 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=     15
ZNRD:       15 LINK=      16 LEN=     1700 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=     14
ZNRD:       16 LINK=      17 LEN=      800 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=     11
ZNRD:       17 LINK=      28 LEN=     1400 RADIS=       10 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZNRD:       18 LINK=      27 LEN=     2500 RADIS=       10 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE:  3 POPZN=      2048. NRDS=        8 LENRDS=     36200.
ZNRD:       19 LINK=      22 LEN=     1800 RADIS=        8 NOMVEL=      30 NLANES=       1 NRSEC=     20
ZNRD:       20 LINK=      22 LEN=      300 RADIS=        8 NOMVEL=      30 NLANES=       1 NRSEC=     19
ZNRD:       21 LINK=      23 LEN=     1500 RADIS=        9 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:       22 LINK=      12 LEN=      300 RADIS=        9 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:       23 LINK=      13 LEN=      300 RADIS=        9 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:       24 LINK=      26 LEN=     2300 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=     25
ZNRD:       25 LINK=      26 LEN=      800 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=     24
ZNRD:       26 LINK=      29 LEN=     1800 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZONE:  4 POPZN=       419. NRDS=        6 LENRDS=      6100.
ZNRD:       27 LINK=      32 LEN=     2700 RADIS=       11 NOMVEL=      35 NLANES=       1 NRSEC=     31
ZNRD:       28 LINK=      31 LEN=      300 RADIS=       12 NOMVEL=      35 NLANES=       1 NRSEC=     30
ZNRD:       29 LINK=      30 LEN=     1600 RADIS=       11 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:       30 LINK=      31 LEN=     2000 RADIS=       11 NOMVEL=      25 NLANES=       1 NRSEC=     28
ZNRD:       31 LINK=      32 LEN=     1000 RADIS=       11 NOMVEL=      35 NLANES=       1 NRSEC=     27
ZNRD:       32 LINK=      33 LEN=     1000 RADIS=       12 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE:  5 POPZN=         0. NRDS=        1 LENRDS=      9999.
ZNRD:       33 LINK=      33 LEN=     9999 RADIS=       14 NOMVEL=       3 NLANES=     999 NRSEC=      0
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EVACUATION TREE NUMBER FOUR FOR SEABROOK

NO.4

```
4            CLEAR         MUELLER        CLEAR         BATTELLE        CLEAR        MOELLER        CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.10 MAXDEP=  5400 PUPVEH=  1 LGCODE=  4 FLOWAT=  1500 MINSPD=  15
ZTWO=    4 ZFIV=   8 ZTEN=  12 ZEPZ=  13 ISTG=   0 EX=  42 EPZ=  11
ZONE:  1 POPZN=        28, NRDS=        1 LENRDS=      3100.
ZNRD:        1 LINK=        7 LEN=       1600 RADIS=          2 NOMVEL=       30 NLANES=       1 NRSEC=      0
ZONE:  2 POPZN=        94, NRDS=        2 LENRDS=      3700.
ZNRD:        2 LINK=        5 LEN=       1200 RADIS=          2 NOMVEL=       35 NLANES=       1 NRSEC=      4
ZNRD:        3 LINK=        1 LEN=       1300 RADIS=          2 NOMVEL=       30 NLANES=       1 NRSEC=      0
ZONE:  3 POPZN=       151, NRDS=        2 LENRDS=      2300.
ZNRD:        4 LINK=        5 LEN=       1000 RADIS=          2 NOMVEL=       35 NLANES=       1 NRSEC=      2
ZNRD:        5 LINK=       10 LEN=       1300 RADIS=          2 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZONE:  4 POPZN=        37, NRDS=        1 LENRDS=      1400.
ZNRD:        6 LINK=        4 LEN=        900 RADIS=          2 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZONE:  5 POPZN=       321, NRDS=        3 LENRDS=      7100.
ZNRD:        7 LINK=        8 LEN=       2100 RADIS=          3 NOMVEL=       30 NLANES=       1 NRSEC=      0
ZNRD:        8 LINK=        9 LEN=       2300 RADIS=          4 NOMVEL=       30 NLANES=       1 NRSEC=      0
ZNRD:        9 LINK=       17 LEN=       1700 RADIS=          5 NOMVEL=       30 NLANES=       1 NRSEC=      0
ZONE:  6 POPZN=       486, NRDS=        3 LENRDS=      5600.
ZNRD:       10 LINK=       11 LEN=       1900 RADIS=          3 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZNRD:       11 LINK=       12 LEN=       1900 RADIS=          4 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZNRD:       12 LINK=       21 LEN=       1800 RADIS=          5 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZONE:  7 POPZN=       268, NRDS=        2 LENRDS=      5200.
ZNRD:       13 LINK=       30 LEN=       1700 RADIS=          5 NOMVEL=       30 NLANES=       1 NRSEC=      0
ZNRD:       14 LINK=       33 LEN=        800 RADIS=          5 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZONE:  8 POPZN=       952, NRDS=        2 LENRDS=     18800.
ZNRD:       15 LINK=       13 LEN=       1300 RADIS=          5 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZNRD:       16 LINK=       14 LEN=        900 RADIS=          5 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZONE:  9 POPZN=       400, NRDS=        4 LENRDS=      2400.
ZNRD:       17 LINK=       15 LEN=       1900 RADIS=          6 NOMVEL=       30 NLANES=       1 NRSEC=      0
ZNRD:       18 LINK=       23 LEN=       1300 RADIS=          7 NOMVEL=       30 NLANES=       1 NRSEC=     19
ZNRD:       19 LINK=       23 LEN=       2400 RADIS=          8 NOMVEL=       30 NLANES=       1 NRSEC=     18
ZNRD:       20 LINK=       27 LEN=       2300 RADIS=          9 NOMVEL=       25 NLANES=       1 NRSEC=      0
ZONE: 10 POPZN=      3953, NRDS=        9 LENRDS=     29600.
ZNRD:       21 LINK=       35 LEN=       2800 RADIS=          6 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZNRD:       22 LINK=       25 LEN=       2400 RADIS=          7 NOMVEL=       35 NLANES=       1 NRSEC=     23
ZNRD:       23 LINK=       25 LEN=       3300 RADIS=          8 NOMVEL=       30 NLANES=       1 NRSEC=     22
ZNRD:       24 LINK=       25 LEN=       4400 RADIS=          8 NOMVEL=       25 NLANES=       1 NRSEC=     22
ZNRD:       25 LINK=       27 LEN=       2000 RADIS=          9 NOMVEL=       35 NLANES=       1 NRSEC=     26
ZNRD:       26 LINK=       27 LEN=        800 RADIS=          9 NOMVEL=       35 NLANES=       1 NRSEC=     25
ZNRD:       27 LINK=       29 LEN=       2500 RADIS=          9 NOMVEL=       35 NLANES=       1 NRSEC=     28
ZNRD:       28 LINK=       29 LEN=       3300 RADIS=          9 NOMVEL=       55 NLANES=       1 NRSEC=     27
ZNRD:       29 LINK=       41 LEN=       1000 RADIS=         10 NOMVEL=       35 NLANES=       1 NRSEC=      0
ZONE: 11 POPZN=       993, NRDS=        8 LENRDS=     28400.
ZNRD:       30 LINK=       32 LEN=       1800 RADIS=          6 NOMVEL=       35 NLANES=       1 NRSEC=     31
ZNRD:       31 LINK=       32 LEN=       1900 RADIS=          6 NOMVEL=       30 NLANES=       1 NRSEC=     30
ZNRD:       32 LINK=       37 LEN=       2700 RADIS=          6 NOMVEL=       35 NLANES=       1 NRSEC=     36
ZNRD:       33 LINK=       34 LEN=       1200 RADIS=          6 NOMVEL=       30 NLANES=       1 NRSEC=      0
ZNRD:       34 LINK=       36 LEN=       1200 RADIS=          6 NOMVEL=       35 NLANES=       1 NRSEC=     35
ZNRD:       35 LINK=       36 LEN=        300 RADIS=          7 NOMVEL=       35 NLANES=       1 NRSEC=     34
ZNRD:       36 LINK=       37 LEN=       1100 RADIS=          7 NOMVEL=       35 NLANES=       1 NRSEC=     32
ZNRD:       37 LINK=       28 LEN=       2300 RADIS=          8 NOMVEL=       55 NLANES=       1 NRSEC=      0
ZONE: 12 POPZN=      2048, NRDS=        3 LENRDS=     36200.
ZNRD:       38 LINK=       40 LEN=       1000 RADIS=          6 NOMVEL=       30 NLANES=       1 NRSEC=     39
ZNRD:       39 LINK=       40 LEN=       1000 RADIS=          6 NOMVEL=       30 NLANES=       1 NRSEC=     38
ZNRD:       40 LINK=       31 LEN=        900 RADIS=          6 NOMVEL=       35 NLANES=       1 NRSEC=      0
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SEA4,LUG12                    6-NOV-1981 20:30:17.74          PAGE 4

ZONE: 13 POPZN=       293. NRUS=          1 LENRDS=      2500.
ZNRD:          41 LINK=          42 LEN=       1000 RADIS=           11 NOMVEL=          35 NLANES=           1 NRSEC=           0
ZONE: 14 POPZN=         0. NRUS=          1 LENRDS=      9999.
ZNRD:          42 LINK=          42 LEN=       9999 RADIS=           14 NOMVEL=           3 NLANES=         999 NRSEC=           0
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SEAS.LOG;1                    9-NOV-1981 12:04:15.83          PAGE 2
EVACUATION TREE NUMBER FIVE FOR SEABROOK    NO.5

2            CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

JO= 3 DELT=   12 TYP=  25 FRACT= 0.10 MAXVEP=  5400 POPVEH=  1 LGCODE=  2 FLORAT=  1500 MINSPD=  15
ZTWO=   0 ZFIV=   2 ZTH =   6 ZEPZ=   9 ISTG=   0 EX=  33 EPZ=  11
ZONE:  1 POPZN=        474. NRDS=          4 LENRDS=      9700.
ZNRD:          1 LINK=          4 LEN=        3500 RADIS=          3 NOMVEL=          35 NLANES=          1 NRSEC=     2
ZNRD:          2 LINK=          4 LEN=        1800 RADIS=          4 NOMVEL=          30 NLANES=          1 NRSEC=     1
ZNRD:          3 LINK=          4 LEN=         500 RADIS=          4 NOMVEL=          30 NLANES=          1 NRSEC=     1
ZNRD:          4 LINK=         11 LEN=        2400 RADIS=          5 NOMVEL=          35 NLANES=          1 NRSEC=     0
ZONE:  2 POPZN=        361. NRDS=          1 LENRDS=      3700.
ZNRD:          5 LINK=          3 LEN=        1000 RADIS=          5 NOMVEL=          30 NLANES=          1 NRSEC=     0
ZONE:  3 POPZN=       4440. NRDS=          3 LENRDS=     13000.
ZNRD:          6 LINK=          9 LEN=        2300 RADIS=          6 NOMVEL=          30 NLANES=          1 NRSEC=     0
ZNRD:          7 LINK=         14 LEN=        1001 RADIS=          9 NOMVEL=          30 NLANES=          1 NRSEC=    13
ZNRD:          8 LINK=         28 LEN=         800 RADIS=         10 NOMVEL=          35 NLANES=          1 NRSEC=     0
ZONE:  4 POPZN=       1333. NRDS=         12 LENRDS=     22200.
ZNRD:          9 LINK=         12 LEN=        2700 RADIS=          7 NOMVEL=          30 NLANES=          1 NRSEC=     0
ZNRD:         10 LINK=         23 LEN=        3700 RADIS=          8 NOMVEL=          30 NLANES=          1 NRSEC=    21
ZNRD:         11 LINK=         21 LEN=        1700 RADIS=          6 NOMVEL=          35 NLANES=          1 NRSEC=     0
ZNRD:         12 LINK=         20 LEN=        3300 RADIS=          8 NOMVEL=          35 NLANES=          1 NRSEC=    19
ZNRD:         13 LINK=         14 LEN=        1500 RADIS=          9 NOMVEL=          30 NLANES=          1 NRSEC=     7
ZNRD:         14 LINK=         16 LEN=         600 RADIS=          9 NOMVEL=          30 NLANES=          1 NRSEC=    15
ZNRD:         15 LINK=         16 LEN=         800 RADIS=          9 NOMVEL=          30 NLANES=          1 NRSEC=    14
ZNRD:         16 LINK=         18 LEN=         300 RADIS=          9 NOMVEL=          30 NLANES=          1 NRSEC=    17
ZNRD:         17 LINK=         18 LEN=        1600 RADIS=         10 NOMVEL=          35 NLANES=          1 NRSEC=    16
ZNRD:         18 LINK=          8 LEN=         800 RADIS=         10 NOMVEL=          35 NLANES=          1 NRSEC=     0
ZNRD:         19 LINK=         20 LEN=        1500 RADIS=          9 NOMVEL=          35 NLANES=          1 NRSEC=    12
ZNRD:         20 LINK=         29 LEN=        3700 RADIS=          9 NOMVEL=          35 NLANES=          1 NRSEC=    24
ZONE:  5 POPZN=        801. NRDS=          6 LENRDS=     24000.
ZNRD:         21 LINK=         23 LEN=        2700 RADIS=          7 NOMVEL=          35 NLANES=          1 NRSEC=    10
ZNRD:         22 LINK=         23 LEN=        3000 RADIS=          8 NOMVEL=          30 NLANES=          1 NRSEC=    21
ZNRD:         23 LINK=         24 LEN=        2600 RADIS=          8 NOMVEL=          35 NLANES=          1 NRSEC=     0
ZNRD:         24 LINK=         29 LEN=        2600 RADIS=          9 NOMVEL=          35 NLANES=          1 NRSEC=    20
ZNRD:         25 LINK=         26 LEN=        2100 RADIS=          9 NOMVEL=          25 NLANES=          1 NRSEC=     0
ZNRD:         26 LINK=         30 LEN=        2100 RADIS=         10 NOMVEL=          30 NLANES=          1 NRSEC=     0
ZONE:  6 POPZN=       3055. NRDS=          1 LENRDS=     29600.
ZNRD:         27 LINK=         32 LEN=        2500 RADIS=          9 NOMVEL=          30 NLANES=          1 NRSEC=     0
ZONE:  7 POPZN=        222. NRDS=          1 LENRDS=      3500.
ZNRD:         28 LINK=         33 LEN=        1500 RADIS=         11 NOMVEL=          35 NLANES=          1 NRSEC=     0
ZONE:  8 POPZN=       1490. NRDS=          3 LENRDS=      5400.
ZNRD:         29 LINK=         31 LEN=        1800 RADIS=         11 NOMVEL=          35 NLANES=          1 NRSEC=    30
ZNRD:         30 LINK=         31 LEN=        2600 RADIS=         11 NOMVEL=          35 NLANES=          1 NRSEC=    29
ZNRD:         31 LINK=         33 LEN=        1000 RADIS=         11 NOMVEL=          35 NLANES=          1 NRSEC=     0
ZONE:  9 POPZN=        293. NRDS=          1 LENRDS=      2500.
ZNRD:         32 LINK=         33 LEN=        1500 RADIS=         11 NOMVEL=          30 NLANES=          1 NRSEC=     0
ZONE: 10 POPZN=          0. NRDS=          1 LENRDS=      9999.
ZNRD:         33 LINK=         33 LEN=        9999 RADIS=         13 NOMVEL=           3 NLANES=        999 NRSEC=     0
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SEAB.LOG;3                    9-NOV-1981 18:07:52.33          PAGE 2
EVACUATION TREE NUMBER SIX FOR SEABROOK
                                        NO.6

4             CLEAR          MUELLER          CLEAR          BATTELLE          CLEAR          MUELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.10 MAXDEP=  5400 PUPVEH=  1 LGCODE=  4 FLOWAT=  1500 MINSPD=  15
ZTWO=   2 ZFIV=   5 ZTEN=   7 ZEFZ=   8 ISTG=   1 EX=  28 EPZ=  11
ZONE:  1 POPZN=      362. NROS=          1 LENROS=      3300.
ZNRD:        1 LINK=        3 LEN=        1400 RADIS=          2 NUMVEL=        55 NLANES=          1 NRSEC=        0
ZONE:  2 POPZN=     2468. NROS=          1 LENROS=      3900.
ZNRD:        2 LINK=        1 LEN=        1500 RADIS=          2 NUMVEL=        55 NLANES=          1 NRSEC=        0
ZONE:  3 POPZN=     1491. NROS=          4 LENROS=     15400.
ZNRD:        3 LINK=        4 LEN=        1500 RADIS=          3 NUMVEL=        55 NLANES=          1 NRSEC=        0
ZNRD:        4 LINK=        5 LEN=        1000 RADIS=          4 NUMVEL=        55 NLANES=          1 NRSEC=        0
ZNRD:        5 LINK=       13 LEN=        1800 RADIS=          5 NUMVEL=        40 NLANES=          1 NRSEC=        0
ZNRD:        6 LINK=       12 LEN=         500 RADIS=          5 NUMVEL=        55 NLANES=          4 NRSEC=        0
ZONE:  4 POPZN=     1551. NROS=          3 LENROS=      3700.
ZNRD:        7 LINK=        4 LEN=        2400 RADIS=          5 NUMVEL=        30 NLANES=          1 NRSEC=        8
ZNRD:        8 LINK=        9 LEN=        1000 RADIS=          5 NUMVEL=        30 NLANES=          1 NRSEC=        7
ZNRD:        9 LINK=       16 LEN=         300 RADIS=          5 NUMVEL=        30 NLANES=          1 NRSEC=        0
ZONE:  5 POPZN=     3551. NROS=          2 LENROS=      9700.
ZNRD:       10 LINK=        2 LEN=         400 RADIS=          3 NUMVEL=        35 NLANES=          1 NRSEC=        0
ZNRD:       11 LINK=        7 LEN=        1100 RADIS=          5 NUMVEL=        30 NLANES=          1 NRSEC=        0
ZONE:  6 POPZN=     2235. NROS=          9 LENROS=     18600.
ZNRD:       12 LINK=       14 LEN=         900 RADIS=          6 NUMVEL=        55 NLANES=          4 NRSEC=        0
ZNRD:       13 LINK=       15 LEN=         800 RADIS=          6 NUMVEL=        55 NLANES=          2 NRSEC=        0
ZNRD:       14 LINK=       18 LEN=        1400 RADIS=          6 NUMVEL=        30 NLANES=          1 NRSEC=       16
ZNRD:       15 LINK=       19 LEN=        1300 RADIS=          6 NUMVEL=        55 NLANES=          3 NRSEC=       17
ZNRD:       16 LINK=       18 LEN=        2300 RADIS=          6 NUMVEL=        30 NLANES=          1 NRSEC=       14
ZNRD:       17 LINK=       19 LEN=         800 RADIS=          7 NUMVEL=        30 NLANES=          1 NRSEC=       15
ZNRD:       18 LINK=       22 LEN=        1900 RADIS=          7 NUMVEL=        30 NLANES=          1 NRSEC=        0
ZNRD:       19 LINK=       20 LEN=        1800 RADIS=          7 NUMVEL=        55 NLANES=          3 NRSEC=        0
ZNRD:       20 LINK=       21 LEN=        1800 RADIS=          8 NUMVEL=        55 NLANES=          3 NRSEC=        0
ZONE:  7 POPZN=     4440. NROS=          5 LENROS=     13000.
ZNRD:       21 LINK=       26 LEN=        2500 RADIS=         10 NUMVEL=        55 NLANES=          3 NRSEC=        0
ZNRD:       22 LINK=       23 LEN=        1900 RADIS=          8 NUMVEL=        30 NLANES=          1 NRSEC=        0
ZNRD:       23 LINK=       24 LEN=        2000 RADIS=          9 NUMVEL=        30 NLANES=          1 NRSEC=        0
ZNRD:       24 LINK=       27 LEN=        2000 RADIS=         10 NUMVEL=        30 NLANES=          1 NRSEC=        0
ZNRD:       25 LINK=        8 LEN=         500 RADIS=          6 NUMVEL=        30 NLANES=          1 NRSEC=        0
ZONE:  8 POPZN=      222. NROS=          2 LENROS=      3500.
ZNRD:       26 LINK=       28 LEN=        1000 RADIS=         11 NUMVEL=        55 NLANES=          3 NRSEC=        0
ZNRD:       27 LINK=       28 LEN=        1000 RADIS=         11 NUMVEL=        30 NLANES=          1 NRSEC=        0
ZONE:  9 POPZN=        0. NROS=          1 LENROS=      9999.
ZNRD:       28 LINK=       28 LEN=        9999 RADIS=         13 NUMVEL=         3 NLANES=        999 NRSEC=        0
**ISTG: ROAD=        10 LENSTG=       400 POPSTG=       3077 PVSTG=       1
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ZNRD:          37 LINK=         45 LEN=        3300 RADIS=          5 NOMVEL=          40 NLANES=          1 NRSEC=       42
ZONE: 17 POPZN=      1491. NRDS=          8 LENRDS=     15400.
ZNRD:          38 LINK=         40 LEN=         400 RADIS=          3 NOMVEL=          35 NLANES=          1 NRSEC=       39
ZNRD:          39 LINK=         40 LEN=         800 RADIS=          3 NOMVEL=          35 NLANES=          1 NRSEC=       38
ZNRD:          40 LINK=         43 LEN=         700 RADIS=          3 NOMVEL=          35 NLANES=          1 NRSEC=       41
ZNRD:          41 LINK=         43 LEN=        1800 RADIS=          3 NOMVEL=          55 NLANES=          3 NRSEC=       40
ZNRD:          42 LINK=         45 LEN=        3000 RADIS=          4 NOMVEL=          30 NLANES=          1 NRSEC=       37
ZNRD:          43 LINK=         44 LEN=        1000 RADIS=          4 NOMVEL=          55 NLANES=          3 NRSEC=        0
ZNRD:          44 LINK=         52 LEN=        1700 RADIS=          5 NOMVEL=          55 NLANES=          4 NRSEC=       45
ZNRD:          45 LINK=         52 LEN=         800 RADIS=          5 NOMVEL=          35 NLANES=          1 NRSEC=       44
ZONE: 18 POPZN=      4822. NRDS=          1 LENRDS=      3800.
ZNRD:          46 LINK=         27 LEN=         800 RADIS=          6 NOMVEL=          25 NLANES=          1 NRSEC=        0
ZONE: 19 POPZN=         0. NRDS=          4 LENRDS=      7600.
ZNRD:          47 LINK=         48 LEN=        1900 RADIS=          7 NOMVEL=          55 NLANES=          4 NRSEC=        0
ZNRD:          48 LINK=         49 LEN=        1900 RADIS=          8 NOMVEL=          55 NLANES=          4 NRSEC=        0
ZNRD:          49 LINK=         50 LEN=        1900 RADIS=          9 NOMVEL=          55 NLANES=          4 NRSEC=        0
ZNRD:          50 LINK=         52 LEN=        1900 RADIS=         10 NOMVEL=          55 NLANES=          4 NRSEC=        0
ZONE: 20 POPZN=         0. NRDS=          1 LENRDS=      2500.
ZNRD:          51 LINK=         47 LEN=        2500 RADIS=          6 NOMVEL=          55 NLANES=          4 NRSEC=        0
ZONE: 21 POPZN=       291. NRDS=          1 LENRDS=      3000.
ZNRD:          52 LINK=         53 LEN=        1000 RADIS=         11 NOMVEL=          55 NLANES=          4 NRSEC=        0
ZONE: 22 POPZN=         0. NRDS=          1 LENRDS=      9999.
ZNRD:          53 LINK=         53 LEN=        9999 RADIS=         12 NOMVEL=           3 NLANES=        999 NRSEC=        0
**ISTG: ROAD=          15 LENSTG=       600 POPSTG=       2000 PVSTG=          1
**ISTG: ROAD=          40 LENSTG=       800 POPSTG=        500 PVSTG=          1
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EVACUATION TREE NUMBER SEVEN FOR SEABROOK   NO.7A

```
5            CLEAR            MOELLER            CLEAR            BATTELLE            CLEAR            MOELLER            CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.2K MAXDEP=  3600 POPVEH=  1 LGCODE=  5 FLORAT=  1500 MINSPD=  15
ZTWO=  17 ZFIV=  17 ZTEN=  20 ZEPZ=  21 ISTG=   2 EX=  55 EPZ=  10
ZONE:  1 POPZN=     4711. NRDS=        2 LENRDS=     1000.
ZNRD:     [illegible] LINK=      1 LEN=       500 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:     [illegible] LINK=     21 LEN=       500 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  2 POPZN=     4107. NRDS=        2 LENRDS=     1500.
ZNRD:     [illegible] LINK=      2 LEN=       700 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:     [illegible] LINK=      3 LEN=       400 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  3 POPZN=  [illegible] NRDS=     3 LENRDS=     1600.
ZNRD:     [illegible] LINK=      5 LEN=      1000 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      4
ZNRD:      4 LINK=      5 LEN=       300 RADIS=       2 NOMVEL=      20 NLANES=      1 NRSEC=      3
ZNRD:      5 LINK=     22 LEN=       400 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  4 POPZN=       42. NRDS=        1 LENRDS=      600.
ZNRD:      6 LINK=      4 LEN=       600 RADIS=       2 NOMVEL=      20 NLANES=      1 NRSEC=      0
ZONE:  5 POPZN=       39. NRDS=        1 LENRDS=      400.
ZNRD:      7 LINK=      8 LEN=       400 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  6 POPZN=      236. NRDS=        1 LENRDS=     1300.
ZNRD:      8 LINK=      9 LEN=      1300 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  7 POPZN=      271. NRDS=        2 LENRDS=     1100.
ZNRD:      9 LINK=     33 LEN=       600 RADIS=       2 NOMVEL=      30 NLANES=      1 NRSEC=      0
ZNRD:     10 LINK=     32 LEN=       500 RADIS=       2 NOMVEL=      30 NLANES=      1 NRSEC=      0
ZONE:  8 POPZN=      134. NRDS=        2 LENRDS=     2000.
ZNRD:     11 LINK=     10 LEN=      1500 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:     12 LINK=     38 LEN=       500 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  9 POPZN=      122. NRDS=        2 LENRDS=     3300.
ZNRD:     13 LINK=     11 LEN=       800 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:     14 LINK=     41 LEN=      1100 RADIS=       2 NOMVEL=      55 NLANES=      3 NRSEC=      0
ZONE: 10 POPZN=      408. NRDS=        3 LENRDS=     3900.
ZNRD:     15 LINK=     17 LEN=      1300 RADIS=       2 NOMVEL=      35 NLANES=      1 NRSEC=     16
ZNRD:     16 LINK=     17 LEN=       800 RADIS=       2 NOMVEL=      55 NLANES=      4 NRSEC=     15
ZNRD:     17 LINK=     14 LEN=       300 RADIS=       2 NOMVEL=      55 NLANES=      3 NRSEC=      0
ZONE: 11 POPZN=       24. NRDS=        2 LENRDS=     3100.
ZNRD:     18 LINK=     15 LEN=       600 RADIS=       1 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:     19 LINK=     16 LEN=       900 RADIS=       2 NOMVEL=      55 NLANES=      4 NRSEC=      0
ZONE: 12 POPZN=     3336. NRDS=        2 LENRDS=     4300.
ZNRD:     20 LINK=     21 LEN=       300 RADIS=       3 NOMVEL=      35 NLANES=      1 NRSEC=      1
ZNRD:     21 LINK=      2 LEN=       400 RADIS=       3 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE: 13 POPZN=     1327. NRDS=        3 LENRDS=     3000.
ZNRD:     22 LINK=     23 LEN=       900 RADIS=       3 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:     23 LINK=     25 LEN=       800 RADIS=       3 NOMVEL=      50 NLANES=      1 NRSEC=      0
ZNRD:     24 LINK=     26 LEN=      1300 RADIS=       3 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE: 14 POPZN=     5452. NRDS=        6 LENRDS=     7700.
ZNRD:     25 LINK=      7 LEN=      1000 RADIS=       3 NOMVEL=      50 NLANES=      1 NRSEC=      0
ZNRD:     26 LINK=     28 LEN=      2200 RADIS=       4 NOMVEL=      40 NLANES=      1 NRSEC=     27
ZNRD:     27 LINK=     28 LEN=      1500 RADIS=       5 NOMVEL=      30 NLANES=      1 NRSEC=     26
ZNRD:     28 LINK=     30 LEN=       400 RADIS=       5 NOMVEL=      35 NLANES=      1 NRSEC=     29
ZNRD:     29 LINK=     30 LEN=      1500 RADIS=       5 NOMVEL=      30 NLANES=      1 NRSEC=     28
ZNRD:     30 LINK=     31 LEN=      1100 RADIS=       5 NOMVEL=      40 NLANES=      1 NRSEC=      0
ZONE: 15 POPZN=     1149. NRDS=        1 LENRDS=     2200.
ZNRD:     31 LINK=     36 LEN=      2200 RADIS=       5 NOMVEL=      40 NLANES=      1 NRSEC=     35
ZONE: 16 POPZN=      518. NRDS=        6 LENRDS=    10100.
ZNRD:     32 LINK=     34 LEN=       300 RADIS=       3 NOMVEL=      30 NLANES=      1 NRSEC=     33
ZNRD:     33 LINK=     34 LEN=       400 RADIS=       3 NOMVEL=      30 NLANES=      1 NRSEC=     32
ZNRD:     34 LINK=     39 LEN=       700 RADIS=       3 NOMVEL=      30 NLANES=      1 NRSEC=      0
ZNRD:     35 LINK=     36 LEN=      3500 RADIS=       4 NOMVEL=      40 NLANES=      1 NRSEC=     31
ZNRD:     36 LINK=     37 LEN=       300 RADIS=       5 NOMVEL=      30 NLANES=      1 NRSEC=      0
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RZBEAT.LOG12                 15-NOV-1981 10:44:26.08          PAGE 3
RERUN OF EVACUATION TREE NUMBER SEVEN FOR SEABROOK   NO.7B

5            CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.2X MAXDEP=  3600 POPVEH=  1 LGCODE=  5 FLORAT=  1500 MINSPD=  15
ZTWO=  10 ZFIV=  15 ZTEN=  18 ZEPZ=  19 ISYG=   2 EX=  53 EPZ=  10
ZONE:  1 POPZN=     4107. NRDS=        1 LENRDS=      1400.
ZNRD:          2 LINK=        3 LEN=      200 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE:  2 POPZN=     1969. NRDS=        3 LENRDS=      1600.
ZNRD:          3 LINK=        5 LEN=     1000 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=      4
ZNRD:          4 LINK=        5 LEN=      300 RADIS=          2 NOMVEL=      20 NLANES=       1 NRSEC=      3
ZNRD:          5 LINK=       22 LEN=      400 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE:  3 POPZN=       92. NRDS=        1 LENRDS=       600.
ZNRD:          6 LINK=        4 LEN=      600 RADIS=          2 NOMVEL=      20 NLANES=       1 NRSEC=      0
ZONE:  4 POPZN=       39. NRDS=        1 LENRDS=       400.
ZNRD:          7 LINK=        8 LEN=      400 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE:  5 POPZN=      236. NRDS=        1 LENRDS=      1300.
ZNRD:          8 LINK=        9 LEN=     1300 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE:  6 POPZN=      271. NRDS=        2 LENRDS=      1100.
ZNRD:          9 LINK=       33 LEN=      600 RADIS=          2 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:         10 LINK=       32 LEN=      500 RADIS=          2 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZONE:  7 POPZN=      334. NRDS=        2 LENRDS=      2000.
ZNRD:         11 LINK=       10 LEN=     1500 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZNRD:         12 LINK=       38 LEN=      500 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE:  8 POPZN=      322. NRDS=        2 LENRDS=      3300.
ZNRD:         13 LINK=       11 LEN=      800 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZNRD:         14 LINK=       41 LEN=     1100 RADIS=          2 NOMVEL=      55 NLANES=       3 NRSEC=      0
ZONE:  9 POPZN=      408. NRDS=        3 LENRDS=      3900.
ZNRD:         15 LINK=       17 LEN=     1300 RADIS=          2 NOMVEL=      35 NLANES=       1 NRSEC=     16
ZNRD:         16 LINK=       17 LEN=      800 RADIS=          2 NOMVEL=      55 NLANES=       4 NRSEC=     15
ZNRD:         17 LINK=       14 LEN=      300 RADIS=          2 NOMVEL=      55 NLANES=       3 NRSEC=      0
ZONE: 10 POPZN=       28. NRDS=        2 LENRDS=      3100.
ZNRD:         18 LINK=       15 LEN=      600 RADIS=          1 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZNRD:         19 LINK=       16 LEN=      900 RADIS=          2 NOMVEL=      55 NLANES=       4 NRSEC=      0
ZONE: 11 POPZN=     1327. NRDS=        3 LENRDS=      3000.
ZNRD:         22 LINK=       23 LEN=      900 RADIS=          3 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZNRD:         23 LINK=       25 LEN=      800 RADIS=          3 NOMVEL=      50 NLANES=       1 NRSEC=      0
ZNRD:         24 LINK=       26 LEN=     1300 RADIS=          3 NOMVEL=      35 NLANES=       1 NRSEC=      0
ZONE: 12 POPZN=     5482. NRDS=        6 LENRDS=      7700.
ZNRD:         25 LINK=        7 LEN=     1000 RADIS=          3 NOMVEL=      50 NLANES=       1 NRSEC=      0
ZNRD:         26 LINK=       28 LEN=     2200 RADIS=          4 NOMVEL=      40 NLANES=       1 NRSEC=     27
ZNRD:         27 LINK=       28 LEN=     1500 RADIS=          5 NOMVEL=      30 NLANES=       1 NRSEC=     26
ZNRD:         28 LINK=       30 LEN=      400 RADIS=          5 NOMVEL=      35 NLANES=       1 NRSEC=     29
ZNRD:         29 LINK=       30 LEN=     1500 RADIS=          5 NOMVEL=      30 NLANES=       1 NRSEC=     28
ZNRD:         30 LINK=       31 LEN=     1100 RADIS=          5 NOMVEL=      40 NLANES=       1 NRSEC=      0
ZONE: 13 POPZN=     1149. NRDS=        1 LENRDS=      2200.
ZNRD:         31 LINK=       36 LEN=     2200 RADIS=          5 NOMVEL=      40 NLANES=       1 NRSEC=     35
ZONE: 14 POPZN=      518. NRDS=        6 LENRDS=     10100.
ZNRD:         32 LINK=       34 LEN=      300 RADIS=          3 NOMVEL=      30 NLANES=       1 NRSEC=     33
ZNRD:         33 LINK=       34 LEN=      400 RADIS=          3 NOMVEL=      30 NLANES=       1 NRSEC=     32
ZNRD:         34 LINK=       39 LEN=      700 RADIS=          3 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:         35 LINK=       36 LEN=     3500 RADIS=          4 NOMVEL=      40 NLANES=       1 NRSEC=     31
ZNRD:         36 LINK=       37 LEN=      300 RADIS=          5 NOMVEL=      30 NLANES=       1 NRSEC=      0
ZNRD:         37 LINK=       45 LEN=     3300 RADIS=          5 NOMVEL=      40 NLANES=       1 NRSEC=     42
ZONE: 15 POPZN=     1091. NRDS=        8 LENRDS=     15400.
ZNRD:         38 LINK=       40 LEN=      800 RADIS=          3 NOMVEL=      35 NLANES=       1 NRSEC=     39
ZNRD:         39 LINK=       40 LEN=      800 RADIS=          3 NOMVEL=      35 NLANES=       1 NRSEC=     38
ZNRD:         40 LINK=       43 LEN=      700 RADIS=          3 NOMVEL=      35 NLANES=       1 NRSEC=     41
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ZNRD:          41 LINK=        43 LEN=       1800 RADIS=          3 NOMVEL=        55 NLANES=        3 NRSEC=       40
ZNRD:          42 LINK=        45 LEN=       3000 RADIS=          4 NOMVEL=        30 NLANES=        1 NRSEC=       37
ZNRD:          43 LINK=        44 LEN=       1000 RADIS=          4 NOMVEL=        55 NLANES=        3 NRSEC=        0
ZNRD:          44 LINK=        52 LEN=       1700 RADIS=          5 NOMVEL=        55 NLANES=        4 NRSEC=       45
ZNRD:          45 LINK=        52 LEN=        800 RADIS=          5 NOMVEL=        35 NLANES=        1 NRSEC=       44
ZONE: 16 POPZN=      4322. NRDS=            1 LENRDS=      3800.
ZNRD:          46 LINK=        27 LEN=        800 RADIS=          6 NOMVEL=        25 NLANES=        1 NRSEC=        0
ZONE: 17 POPZN=         0. NRDS=            4 LENRDS=      7600.
ZNRD:          47 LINK=        48 LEN=       1900 RADIS=          7 NOMVEL=        55 NLANES=        4 NRSEC=        0
ZNRD:          48 LINK=        49 LEN=       1900 RADIS=          8 NOMVEL=        55 NLANES=        4 NRSEC=        0
ZNRD:          49 LINK=        50 LEN=       1900 RADIS=          9 NOMVEL=        55 NLANES=        4 NRSEC=        0
ZNRD:          50 LINK=        52 LEN=       1900 RADIS=         10 NOMVEL=        55 NLANES=        4 NRSEC=        0
ZONE: 18 POPZN=         0. NRDS=            1 LENRDS=      2500.
ZNRD:          51 LINK=        47 LEN=       2500 RADIS=          6 NOMVEL=        55 NLANES=        4 NRSEC=        0
ZONE: 19 POPZN=       291. NRDS=            1 LENRDS=      3000.
ZNRD:          52 LINK=        53 LEN=       1000 RADIS=         11 NOMVEL=        55 NLANES=        4 NRSEC=        0
ZONE: 20 POPZN=         0. NRDS=            1 LENRDS=      9999.
ZNRD:          53 LINK=        53 LEN=       9999 RADIS=         12 NOMVEL=         3 NLANES=      999 NRSEC=        0
**ISTG: ROAD=         15 LENSTG=        600 PUPSTG=       2000 PVSTG=          1
**ISTG: ROAD=         46 LENSTG=        800 PUPSTG=        500 PVSTG=          1
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EVACUATION TREE NUMBER EIGHT FOR SEABROOK NO.8

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4             CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.25 MAXVEP=  3500 POPVEH=  1 LGCODE=  4 FLOWAT=  1500 MINSPD=  15
ZTWO=   0 ZFIV=   1 ZIFS=   5 ZEPZ=   8 ISTG=   0 EX=  25 EPZ=  11
ZONE:  1 POPZN=        516. NROS=          1 LENROS=     10100.
ZNRD:        1 LINK=         8 LEN=         1600 RADIS=         5 NOMVEL=        40 NLANES=        1 NRSEC=        0
ZONE:  2 POPZN=       4322. NROS=          2 LENROS=     3800.
ZNRD:       26 LINK=         2 LEN=         1500 RADIS=         6 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZNRD:        2 LINK=         5 LEN=         1500 RADIS=         6 NOMVEL=        30 NLANES=        1 NRSEC=        3
ZONE:  3 POPZN=       3358. NROS=          5 LENROS=     15000.
ZNRD:        3 LINK=         5 LEN=         1600 RADIS=         7 NOMVEL=        30 NLANES=        1 NRSEC=        2
ZNRD:        4 LINK=         5 LEN=         1200 RADIS=         7 NOMVEL=        30 NLANES=        1 NRSEC=        2
ZNRD:        5 LINK=         9 LEN=         4750 RADIS=         7 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZNRD:        6 LINK=         7 LEN=         4200 RADIS=         8 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZNRD:        7 LINK=        21 LEN=         3300 RADIS=        10 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZONE:  4 POPZN=       3941. NROS=         11 LENROS=     23600.
ZNRD:        8 LINK=        10 LEN=         2100 RADIS=         6 NOMVEL=        40 NLANES=        1 NRSEC=        9
ZNRD:        9 LINK=        10 LEN=         1400 RADIS=         6 NOMVEL=        30 NLANES=        1 NRSEC=        8
ZNRD:       10 LINK=        13 LEN=          800 RADIS=         7 NOMVEL=        40 NLANES=        1 NRSEC=       11
ZNRD:       11 LINK=        13 LEN=         2200 RADIS=         7 NOMVEL=        30 NLANES=        1 NRSEC=       10
ZNRD:       12 LINK=         6 LEN=         1400 RADIS=         7 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZNRD:       13 LINK=        17 LEN=         1100 RADIS=         7 NOMVEL=        40 NLANES=        1 NRSEC=        0
ZNRD:       14 LINK=        15 LEN=         2700 RADIS=         8 NOMVEL=        40 NLANES=        1 NRSEC=        0
ZNRD:       15 LINK=        21 LEN=         2700 RADIS=         9 NOMVEL=        40 NLANES=        1 NRSEC=        0
ZNRD:       16 LINK=        17 LEN=         3500 RADIS=         8 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZNRD:       17 LINK=        21 LEN=         3500 RADIS=         9 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZNRD:       18 LINK=        19 LEN=         2500 RADIS=         6 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZONE:  5 POPZN=       2255. NROS=          2 LENROS=     18600.
ZNRD:       19 LINK=        20 LEN=         2500 RADIS=         7 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZNRD:       20 LINK=        21 LEN=         2500 RADIS=         8 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZONE:  6 POPZN=          0. NROS=          1 LENROS=      1000.
ZNRD:       21 LINK=        25 LEN=         1000 RADIS=        11 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZONE:  7 POPZN=        541. NROS=          2 LENROS=      3000.
ZNRD:       22 LINK=        25 LEN=         1000 RADIS=        11 NOMVEL=        40 NLANES=        1 NRSEC=        0
ZNRD:       23 LINK=        25 LEN=         1000 RADIS=        11 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZONE:  8 POPZN=        155. NROS=          1 LENROS=      1000.
ZNRD:       24 LINK=        25 LEN=         1000 RADIS=        11 NOMVEL=        30 NLANES=        1 NRSEC=        0
ZONE:  9 POPZN=          0. NROS=          1 LENROS=       999.
ZNRD:       25 LINK=        25 LEN=          999 RADIS=        13 NOMVEL=         3 NLANES=      999 NRSEC=        0
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Evacuation Tree NO. 1 FOR SEABROOK- NRC DATA

4 CLEAR MOELLER CLEAR BATTELLE CLEAR MOELLER CLEAR

LU= 3 DELT= 12 TYP= 25 FRACT= 0.25 MAXDEP= 3600 POPVEH= 1 LGCODE= 4 FLORAT= 1500 MINSPD= 15
ZT*O= 0 ZFIV= 3 ZTEN= 6 ZEPZ= 8 ISTG= 0 EX= 85 EPZ= 13
ZONE: 1 POPZN= 2027. NRDS= 3 LENRDS= 18800.
ZNRD: 1 LINK= 2 LEN= 600 RADIS= 5 NOMVEL= 45 NLANES= 1 NRSEC= 3
ZNRD: 2 LINK= 16 LEN= 600 RADIS= 5 NOMVEL= 45 NLANES= 1 NRSEC= 0
ZNRD: 3 LINK= 2 LEN= 300 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 1
ZONE: 2 POPZN= 1725. NRDS= 9 LENRDS= 22800.
ZNRD: 4 LINK= 8 LEN= 800 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 7
ZNRD: 5 LINK= 7 LEN= 600 RADIS= 4 NOMVEL= 30 NLANES= 1 NRSEC= 6
ZNRD: 6 LINK= 7 LEN= 2000 RADIS= 4 NOMVEL= 30 NLANES= 1 NRSEC= 5
ZNRD: 7 LINK= 8 LEN= 1200 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 4
ZNRD: 8 LINK= 10 LEN= 300 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 9 LINK= 19 LEN= 500 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 10 LINK= 22 LEN= 800 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 11 LINK= 12 LEN= 300 RADIS= 4 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 12 LINK= 24 LEN= 1800 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZONE: 3 POPZN= 6905. NRDS= 3 LENRDS= 10300.
ZNRD: 13 LINK= 15 LEN= 300 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 14
ZNRD: 14 LINK= 15 LEN= 1300 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 13
ZNRD: 15 LINK= 54 LEN= 600 RADIS= 5 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZONE: 4 POPZN= 1685. NRDS= 3 LENRDS= 36200.
ZNRD: 16 LINK= 18 LEN= 600 RADIS= 6 NOMVEL= 45 NLANES= 1 NRSEC= 17
ZNRD: 17 LINK= 18 LEN= 300 RADIS= 6 NOMVEL= 35 NLANES= 1 NRSEC= 16
ZNRD: 18 LINK= 28 LEN= 1300 RADIS= 6 NOMVEL= 45 NLANES= 1 NRSEC= 0
ZONE: 5 POPZN= 2601. NRDS= 35 LENRDS= 47300.
ZNRD: 19 LINK= 21 LEN= 400 RADIS= 6 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 20 LINK= 17 LEN= 1000 RADIS= 6 NOMVEL= 35 NLANES= 1 NRSEC= 0
ZNRD: 21 LINK= 26 LEN= 1200 RADIS= 6 NOMVEL= 35 NLANES= 1 NRSEC= 22
ZNRD: 22 LINK= 26 LEN= 500 RADIS= 6 NOMVEL= 30 NLANES= 1 NRSEC= 21
ZNRD: 23 LINK= 25 LEN= 600 RADIS= 6 NOMVEL= 30 NLANES= 1 NRSEC= 24
ZNRD: 24 LINK= 25 LEN= 600 RADIS= 6 NOMVEL= 35 NLANES= 1 NRSEC= 23
ZNRD: 25 LINK= 26 LEN= 1100 RADIS= 6 NOMVEL= 35 NLANES= 1 NRSEC= 22
ZNRD: 26 LINK= 33 LEN= 2400 RADIS= 6 NOMVEL= 30 NLANES= 1 NRSEC= 29
ZNRD: 27 LINK= 31 LEN= 2500 RADIS= 6 NOMVEL= 30 NLANES= 1 NRSEC= 30
ZNRD: 28 LINK= 32 LEN= 900 RADIS= 7 NOMVEL= 45 NLANES= 1 NRSEC= 0
ZNRD: 29 LINK= 33 LEN= 2300 RADIS= 7 NOMVEL= 30 NLANES= 1 NRSEC= 26
ZNRD: 30 LINK= 31 LEN= 1000 RADIS= 7 NOMVEL= 30 NLANES= 1 NRSEC= 27
ZNRD: 31 LINK= 33 LEN= 1000 RADIS= 7 NOMVEL= 30 NLANES= 1 NRSEC= 26
ZNRD: 32 LINK= 39 LEN= 2500 RADIS= 8 NOMVEL= 45 NLANES= 1 NRSEC= 35
ZNRD: 33 LINK= 40 LEN= 2800 RADIS= 8 NOMVEL= 30 NLANES= 1 NRSEC= 36
ZNRD: 34 LINK= 37 LEN= 1100 RADIS= 8 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 35 LINK= 39 LEN= 1300 RADIS= 8 NOMVEL= 30 NLANES= 1 NRSEC= 32
ZNRD: 36 LINK= 40 LEN= 1700 RADIS= 8 NOMVEL= 30 NLANES= 1 NRSEC= 33
ZNRD: 37 LINK= 41 LEN= 1000 RADIS= 8 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 38 LINK= 61 LEN= 800 RADIS= 8 NOMVEL= 30 NLANES= 1 NRSEC= 47
ZNRD: 39 LINK= 48 LEN= 2500 RADIS= 9 NOMVEL= 45 NLANES= 1 NRSEC= 47
ZNRD: 40 LINK= 42 LEN= 1900 RADIS= 9 NOMVEL= 30 NLANES= 1 NRSEC= 41
ZNRD: 41 LINK= 42 LEN= 1100 RADIS= 9 NOMVEL= 30 NLANES= 1 NRSEC= 41
ZNRD: 42 LINK= 50 LEN= 400 RADIS= 10 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 43 LINK= 63 LEN= 1000 RADIS= 9 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 44 LINK= 46 LEN= 600 RADIS= 10 NOMVEL= 30 NLANES= 1 NRSEC= 45
ZNRD: 45 LINK= 46 LEN= 1600 RADIS= 10 NOMVEL= 30 NLANES= 1 NRSEC= 44
ZNRD: 46 LINK= 68 LEN= 1000 RADIS= 10 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 47 LINK= 48 LEN= 2400 RADIS= 10 NOMVEL= 30 NLANES= 1 NRSEC= 39
ZNRD: 48 LINK= 69 LEN= 1000 RADIS= 10 NOMVEL= 35 NLANES= 1 NRSEC= 0
ZNRD: 49 LINK= 52 LEN= 1300 RADIS= 10 NOMVEL= 30 NLANES= 1 NRSEC= 0
ZNRD: 50 LINK= 73 LEN= 1700 RADIS= 10 NOMVEL= 30 NLANES= 1 NRSEC= 52

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ZNRD:        51 LINK=        53 LEN=       900 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZNRD:        52 LINK=        73 LEN=      1300 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=      50
ZNRD:        53 LINK=        74 LEN=       500 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZONE:   6 POPZN=     4386. NRDS=        13 LENRDS=    13600.
ZNRD:        54 LINK=        56 LEN=      1500 RADIS=        6 NOMVEL=      30 NLANES=       1 NRSEC=      55
ZNRD:        55 LINK=        56 LEN=      1500 RADIS=        6 NOMVEL=      35 NLANES=       1 NRSEC=      54
ZNRD:        56 LINK=        60 LEN=      2700 RADIS=        7 NOMVEL=      30 NLANES=       1 NRSEC=      59
ZNRD:        57 LINK=        59 LEN=       500 RADIS=        7 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZNRD:        58 LINK=        34 LEN=      1000 RADIS=        8 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZNRD:        59 LINK=        60 LEN=       800 RADIS=        7 NOMVEL=      30 NLANES=       1 NRSEC=      54
ZNRD:        60 LINK=        62 LEN=      1600 RADIS=        8 NOMVEL=      30 NLANES=       1 NRSEC=      61
ZNRD:        61 LINK=        62 LEN=       800 RADIS=        8 NOMVEL=      30 NLANES=       1 NRSEC=      60
ZNRD:        62 LINK=        64 LEN=      1200 RADIS=        9 NOMVEL=      30 NLANES=       1 NRSEC=      63
ZNRD:        63 LINK=        64 LEN=       600 RADIS=        9 NOMVEL=      30 NLANES=       1 NRSEC=      62
ZNRD:        64 LINK=        66 LEN=      2000 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=      65
ZNRD:        65 LINK=        66 LEN=       500 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=      64
ZNRD:        66 LINK=        83 LEN=       700 RADIS=       10 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZONE:   7 POPZN=     6374. NRDS=        16 LENRDS=    28700.
ZNRD:        67 LINK=        44 LEN=       700 RADIS=       11 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZNRD:        68 LINK=        72 LEN=      3400 RADIS=       11 NOMVEL=      30 NLANES=       1 NRSEC=      71
ZNRD:        69 LINK=        71 LEN=      1900 RADIS=       11 NOMVEL=      35 NLANES=       1 NRSEC=      70
ZNRD:        70 LINK=        71 LEN=      2400 RADIS=       12 NOMVEL=      30 NLANES=       1 NRSEC=      69
ZNRD:        71 LINK=        72 LEN=      1600 RADIS=       12 NOMVEL=      35 NLANES=       1 NRSEC=      68
ZNRD:        72 LINK=        85 LEN=      1900 RADIS=       12 NOMVEL=      40 NLANES=       1 NRSEC=       0
ZNRD:        73 LINK=        78 LEN=       900 RADIS=       11 NOMVEL=      30 NLANES=       1 NRSEC=      75
ZNRD:        74 LINK=        76 LEN=      2100 RADIS=       11 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZNRD:        75 LINK=        78 LEN=      1000 RADIS=       11 NOMVEL=      30 NLANES=       1 NRSEC=      73
ZNRD:        76 LINK=        79 LEN=       500 RADIS=       12 NOMVEL=      30 NLANES=       1 NRSEC=      77
ZNRD:        77 LINK=        79 LEN=       800 RADIS=       12 NOMVEL=      30 NLANES=       1 NRSEC=      76
ZNRD:        78 LINK=        82 LEN=      1800 RADIS=       12 NOMVEL=      30 NLANES=       1 NRSEC=      81
ZNRD:        79 LINK=        81 LEN=      1300 RADIS=       12 NOMVEL=      30 NLANES=       1 NRSEC=      80
ZNRD:        80 LINK=        81 LEN=      2000 RADIS=       13 NOMVEL=      30 NLANES=       1 NRSEC=      79
ZNRD:        81 LINK=        82 LEN=      1300 RADIS=       12 NOMVEL=      30 NLANES=       1 NRSEC=      78
ZNRD:        82 LINK=        85 LEN=       700 RADIS=       12 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZONE:   8 POPZN=     6374. NRDS=         2 LENRDS=    28700.
ZNRD:        83 LINK=        77 LEN=      2000 RADIS=       11 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZNRD:        84 LINK=        80 LEN=      2400 RADIS=       12 NOMVEL=      30 NLANES=       1 NRSEC=       0
ZONE:   9 POPZN=        0. NRDS=         1 LENRDS=     9999.
ZNRD:        85 LINK=        85 LEN=      9999 RADIS=       15 NOMVEL=       5 NLANES=     999 NRSEC=       0
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EVACUATION TREE NO. 28 FOR SEABROOK- NRC DATA

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5            CLEAR         MOELLER         CLEAR         BATTELLE         CLEAR         MOELLER         CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.25 MAXDEP=  3600 POPVEH=  1 LGCODE=  5 FLORAT=  1500 MINSPD=  15
ZTWO=   5 ZFIV=  10 ZTEN=  11 ZEPZ=  12 ISTG=   0 EX=  49 EPZ=  12
ZONE:  1 POPZN=       126. NRDS=         1 LENRDS=      3700.
ZNRD:         1 LINK=        4 LEN=      1200 RADIS=          2 NOMVEL=      55 NLANES=      4 NRSEC=      0
ZONE:  2 POPZN=        93. NRDS=         1 LENRDS=      1400.
ZNRD:         2 LINK=        6 LEN=       500 RADIS=          2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  3 POPZN=       200. NRDS=         1 LENRDS=       800.
ZNRD:         3 LINK=       34 LEN=       800 RADIS=          2 NOMVEL=      20 NLANES=      1 NRSEC=      0
ZONE:  4 POPZN=      5279. NRDS=         3 LENRDS=      1000.
ZNRD:        50 LINK=       51 LEN=       300 RADIS=          2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:        51 LINK=       52 LEN=       300 RADIS=          2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:        52 LINK=       56 LEN=       400 RADIS=          2 NOMVEL=      35 NLANES=      1 NRSEC=     55
ZONE:  5 POPZN=      4304. NRDS=         3 LENRDS=      1400.
ZNRD:        53 LINK=       54 LEN=       400 RADIS=          2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:        54 LINK=       55 LEN=       400 RADIS=          2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:        55 LINK=       56 LEN=       400 RADIS=          2 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  6 POPZN=       280. NRDS=         1 LENRDS=      5200.
ZNRD:         4 LINK=        5 LEN=      2800 RADIS=          3 NOMVEL=      55 NLANES=      4 NRSEC=      0
ZONE:  7 POPZN=      2027. NRDS=         8 LENRDS=     18800.
ZNRD:         5 LINK=       11 LEN=      2800 RADIS=          4 NOMVEL=      55 NLANES=      4 NRSEC=     10
ZNRD:         6 LINK=      , 8 LEN=       900 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=      7
ZNRD:         7 LINK=        8 LEN=      1000 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=      6
ZNRD:         8 LINK=       10 LEN=      3000 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=      9
ZNRD:         9 LINK=       10 LEN=      2700 RADIS=          4 NOMVEL=      40 NLANES=      1 NRSEC=      8
ZNRD:        10 LINK=       11 LEN=      2300 RADIS=          5 NOMVEL=      20 NLANES=      1 NRSEC=      5
ZNRD:        11 LINK=       37 LEN=       400 RADIS=          5 NOMVEL=      55 NLANES=      4 NRSEC=      0
ZNRD:        12 LINK=       38 LEN=      2000 RADIS=          5 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  8 POPZN=      1725. NRDS=        16 LENRDS=     22800.
ZNRD:        13 LINK=        7 LEN=      1000 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=     14
ZNRD:        14 LINK=        7 LEN=       800 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=     13
ZNRD:        15 LINK=       19 LEN=      1200 RADIS=          3 NOMVEL=      30 NLANES=      1 NRSEC=      0
ZNRD:        16 LINK=       20 LEN=      1100 RADIS=          3 NOMVEL=      30 NLANES=      1 NRSEC=     17
ZNRD:        17 LINK=       20 LEN=       500 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=     16
ZNRD:        18 LINK=       20 LEN=       700 RADIS=          4 NOMVEL=      30 NLANES=      1 NRSEC=     17
ZNRD:        19 LINK=       24 LEN=      1300 RADIS=          3 NOMVEL=      30 NLANES=      1 NRSEC=     20
ZNRD:        20 LINK=       24 LEN=      1000 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=     19
ZNRD:        21 LINK=       26 LEN=      1200 RADIS=          4 NOMVEL=      30 NLANES=      1 NRSEC=     25
ZNRD:        22 LINK=       23 LEN=       800 RADIS=          4 NOMVEL=      30 NLANES=      1 NRSEC=      0
ZNRD:        23 LINK=       27 LEN=       500 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=     24
ZNRD:        24 LINK=       27 LEN=       800 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=     23
ZNRD:        25 LINK=       26 LEN=       800 RADIS=          4 NOMVEL=      30 NLANES=      1 NRSEC=     21
ZNRD:        26 LINK=       28 LEN=       600 RADIS=          4 NOMVEL=      30 NLANES=      1 NRSEC=     27
ZNRD:        27 LINK=       28 LEN=       700 RADIS=          4 NOMVEL=      30 NLANES=      1 NRSEC=     26
ZNRD:        28 LINK=       12 LEN=      1500 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE:  9 POPZN=      6905. NRDS=         4 LENRDS=     10300.
ZNRD:        29 LINK=       13 LEN=      1800 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:        30 LINK=       15 LEN=      2800 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:        31 LINK=       32 LEN=      1800 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:        32 LINK=       17 LEN=      1700 RADIS=          4 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE: 10 POPZN=      3910. NRDS=         6 LENRDS=      4300.
ZNRD:        56 LINK=       57 LEN=       400 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=     52
ZNRD:        57 LINK=       33 LEN=       500 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZNRD:        33 LINK=       35 LEN=       500 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=     34
ZNRD:        34 LINK=       35 LEN=       700 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=     33
ZNRD:        35 LINK=       29 LEN=       900 RADIS=          3 NOMVEL=      15 NLANES=      1 NRSEC=      0
ZNRD:        36 LINK=       30 LEN=      1300 RADIS=          3 NOMVEL=      35 NLANES=      1 NRSEC=      0
ZONE: 11 POPZN=      1685. NRDS=         9 LENRDS=     36200.
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ZNRD:        37 LINK=        44 LEN=       2600 RADIS=          6 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZNRD:        38 LINK=        40 LEN=       3000 RADIS=          6 NOMVEL=         55 NLANES=          1 NRSEC=         39
ZNRD:        39 LINK=        40 LEN=       2500 RADIS=          7 NOMVEL=         35 NLANES=          1 NRSEC=         38
ZNRD:        40 LINK=        41 LEN=       3000 RADIS=          8 NOMVEL=         55 NLANES=          1 NRSEC=          0
ZNRD:        41 LINK=        43 LEN=       2200 RADIS=          9 NOMVEL=         55 NLANES=          1 NRSEC=         42
ZNRD:        42 LINK=        43 LEN=       2500 RADIS=         10 NOMVEL=         50 NLANES=          1 NRSEC=         41
ZNRD:        43 LINK=        46 LEN=        700 RADIS=         10 NOMVEL=         55 NLANES=          1 NRSEC=          0
ZNRD:        44 LINK=        45 LEN=       3000 RADIS=          8 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZNRD:        45 LINK=        47 LEN=       3000 RADIS=          9 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZONE: 12 POPZN=       1908. NRDS=          3 LENRDS=      6100.
ZNRD:        46 LINK=        48 LEN=       2600 RADIS=         11 NOMVEL=         55 NLANES=          1 NRSEC=         47
ZNRD:        47 LINK=        48 LEN=       2500 RADIS=         11 NOMVEL=         55 NLANES=          4 NRSEC=         46
ZNRD:        48 LINK=        49 LEN=       1000 RADIS=         12 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZONE: 13 POPZN=          0. NRDS=          1 LENRDS=      9999.
ZNRD:        49 LINK=        49 LEN=       9999 RADIS=         14 NOMVEL=          3 NLANES=        999 NRSEC=          0
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EVACUATION TREK NO. 3 FOR SEABROOK- NRC DATA

2            CLEAR        MOELLER        CLEAR        BATTELLE        CLEAR        MOELLER        CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.10 MAXDEP=  5400 POPVEH=  1 LGCODE=  2 FLORAT=  1500 MINSPD=  15
ZTWO=   0 ZFIV=   0 ZTEN=   3 ZEPZ=   4 ISTG=   0 EX=  33 EPZ=  12
ZONE:  1 POPZN=     4054. NRDS=         3 LENRDS=     29600.
ZNRD:          1 LINK=         4 LEN=      1600 RADIS=          8 NOMVEL=        35 NLANES=          1 NRSEC=         0
ZNRD:          2 LINK=         3 LEN=      1600 RADIS=          9 NOMVEL=        35 NLANES=          1 NRSEC=         0
ZNRD:          3 LINK=        18 LEN=      1600 RADIS=          9 NOMVEL=        35 NLANES=          1 NRSEC=         0
ZONE:  2 POPZN=     1122. NRDS=        15 LENRDS=     28400.
ZNRD:          4 LINK=         7 LEN=       600 RADIS=          8 NOMVEL=        35 NLANES=          1 NRSEC=         6
ZNRD:          5 LINK=         6 LEN=      2400 RADIS=          7 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:          6 LINK=         7 LEN=      2400 RADIS=          7 NOMVEL=        30 NLANES=          1 NRSEC=         4
ZNRD:          7 LINK=        11 LEN=      2500 RADIS=          8 NOMVEL=        35 NLANES=          1 NRSEC=        10
ZNRD:          8 LINK=         9 LEN=      1600 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:          9 LINK=        10 LEN=      1600 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         10 LINK=        11 LEN=      1600 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         7
ZNRD:         11 LINK=        17 LEN=      1400 RADIS=          9 NOMVEL=        35 NLANES=          1 NRSEC=        16
ZNRD:         12 LINK=        14 LEN=      2400 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=        13
ZNRD:         13 LINK=        14 LEN=      1800 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=        12
ZNRD:         14 LINK=        16 LEN=      1200 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=        15
ZNRD:         15 LINK=        16 LEN=      1700 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=        14
ZNRD:         16 LINK=        17 LEN=       800 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=        11
ZNRD:         17 LINK=        28 LEN=      1400 RADIS=         10 NOMVEL=        35 NLANES=          1 NRSEC=         0
ZNRD:         18 LINK=        27 LEN=      2500 RADIS=         10 NOMVEL=        35 NLANES=          1 NRSEC=         0
ZONE:  3 POPZN=     1685. NRDS=         8 LENRDS=     36200.
ZNRD:         19 LINK=        22 LEN=      1800 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=        20
ZNRD:         20 LINK=        22 LEN=       300 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=        19
ZNRD:         21 LINK=        23 LEN=      1500 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         22 LINK=        12 LEN=       300 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         23 LINK=        13 LEN=       300 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         24 LINK=        26 LEN=      2300 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=        25
ZNRD:         25 LINK=        26 LEN=       800 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=        24
ZNRD:         26 LINK=        29 LEN=      1800 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZONE:  4 POPZN=      311. NRDS=         6 LENRDS=      8600.
ZNRD:         27 LINK=        32 LEN=      2700 RADIS=         11 NOMVEL=        35 NLANES=          1 NRSEC=        31
ZNRD:         28 LINK=        31 LEN=       300 RADIS=         12 NOMVEL=        35 NLANES=          1 NRSEC=        30
ZNRD:         29 LINK=        30 LEN=      1600 RADIS=         11 NOMVEL=        30 NLANES=          1 NRSEC=         0
ZNRD:         30 LINK=        31 LEN=      2000 RADIS=         11 NOMVEL=        25 NLANES=          1 NRSEC=        28
ZNRD:         31 LINK=        32 LEN=      1000 RADIS=         11 NOMVEL=        35 NLANES=          1 NRSEC=        27
ZNRD:         32 LINK=        33 LEN=      1000 RADIS=         12 NOMVEL=        35 NLANES=          1 NRSEC=         0
ZONE:  5 POPZN=        0. NRDS=         1 LENRDS=      9999.
ZNRD:         33 LINK=        33 LEN=      9999 RADIS=         14 NOMVEL=         3 NLANES=        999 NRSEC=         0
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EVACUATION TREE NO. 4 FOR SEABROOK- NRC DATA

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4             CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.10 MAXDEP=  5400 POPVEH=  1 LGCODE=  4 FLORAT=  1500 MINSPD=  15
ZTWO=   4 ZFIV=   8 ZTEN=  12 ZEPZ=  13 ISTG=   0 EX=  42 EPZ=  11
ZONE:  1 POPZN=        59. NRDS=         1 LENRDS=      3100.
ZNRD:          1 LINK=          7 LEN=       1600 RADIS=          2 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZONE:  2 POPZN=       126. NRDS=         2 LENRDS=      3700.
ZNRD:          2 LINK=          5 LEN=       1200 RADIS=          2 NOMVEL=        35 NLANES=         1 NRSEC=         4
ZNRD:          3 LINK=          1 LEN=       1300 RADIS=          2 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZONE:  3 POPZN=       170. NRDS=         2 LENRDS=      2300.
ZNRD:          4 LINK=          5 LEN=       1000 RADIS=          2 NOMVEL=        35 NLANES=         1 NRSEC=         2
ZNRD:          5 LINK=         10 LEN=       1300 RADIS=          2 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZONE:  4 POPZN=        93. NRDS=         1 LENRDS=      1400.
ZNRD:          6 LINK=          4 LEN=        900 RADIS=          2 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZONE:  5 POPZN=       285. NRDS=         3 LENRDS=      7100.
ZNRD:          7 LINK=          8 LEN=       2100 RADIS=          3 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZNRD:          8 LINK=          9 LEN=       2300 RADIS=          4 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZNRD:          9 LINK=         17 LEN=       1700 RADIS=          5 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZONE:  6 POPZN=       724. NRDS=         3 LENRDS=      5600.
ZNRD:         10 LINK=         11 LEN=       1900 RADIS=          3 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZNRD:         11 LINK=         12 LEN=       1900 RADIS=          4 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZNRD:         12 LINK=         21 LEN=       1800 RADIS=          5 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZONE:  7 POPZN=       280. NRDS=         2 LENRDS=      5200.
ZNRD:         13 LINK=         30 LEN=       1700 RADIS=          5 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZNRD:         14 LINK=         33 LEN=        800 RADIS=          5 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZONE:  8 POPZN=      2027. NRDS=         2 LENRDS=     18800.
ZNRD:         15 LINK=         13 LEN=       1300 RADIS=          5 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZNRD:         16 LINK=         14 LEN=        900 RADIS=          5 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZONE:  9 POPZN=       717. NRDS=         4 LENRDS=      2400.
ZNRD:         17 LINK=         18 LEN=       1900 RADIS=          6 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZNRD:         18 LINK=         23 LEN=       1900 RADIS=          7 NOMVEL=        30 NLANES=         1 NRSEC=        19
ZNRD:         19 LINK=         23 LEN=       2400 RADIS=          8 NOMVEL=        30 NLANES=         1 NRSEC=        18
ZNRD:         20 LINK=         24 LEN=       2300 RADIS=          9 NOMVEL=        25 NLANES=         1 NRSEC=         0
ZONE: 10 POPZN=      4054. NRDS=         9 LENRDS=     29600.
ZNRD:         21 LINK=         35 LEN=       2800 RADIS=          6 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZNRD:         22 LINK=         25 LEN=       2400 RADIS=          7 NOMVEL=        35 NLANES=         1 NRSEC=        23
ZNRD:         23 LINK=         25 LEN=       3300 RADIS=          8 NOMVEL=        30 NLANES=         1 NRSEC=        22
ZNRD:         24 LINK=         25 LEN=       4400 RADIS=          8 NOMVEL=        25 NLANES=         1 NRSEC=        22
ZNRD:         25 LINK=         27 LEN=       2000 RADIS=          9 NOMVEL=        35 NLANES=         1 NRSEC=        26
ZNRD:         26 LINK=         27 LEN=        600 RADIS=          9 NOMVEL=        35 NLANES=         1 NRSEC=        25
ZNRD:         27 LINK=         29 LEN=       2500 RADIS=          9 NOMVEL=        35 NLANES=         1 NRSEC=        28
ZNRD:         28 LINK=         29 LEN=       3300 RADIS=          9 NOMVEL=        55 NLANES=         1 NRSEC=        27
ZNRD:         29 LINK=         41 LEN=       1000 RADIS=         10 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZONE: 11 POPZN=      1122. NRDS=         8 LENRDS=     28400.
ZNRD:         30 LINK=         32 LEN=       1800 RADIS=          6 NOMVEL=        35 NLANES=         1 NRSEC=        31
ZNRD:         31 LINK=         32 LEN=       1900 RADIS=          6 NOMVEL=        30 NLANES=         1 NRSEC=        30
ZNRD:         32 LINK=         37 LEN=       2700 RADIS=          6 NOMVEL=        35 NLANES=         1 NRSEC=        36
ZNRD:         33 LINK=         34 LEN=       1200 RADIS=          6 NOMVEL=        30 NLANES=         1 NRSEC=         0
ZNRD:         34 LINK=         36 LEN=       1200 RADIS=          6 NOMVEL=        35 NLANES=         1 NRSEC=        35
ZNRD:         35 LINK=         36 LEN=        300 RADIS=          7 NOMVEL=        35 NLANES=         1 NRSEC=        34
ZNRD:         36 LINK=         37 LEN=       1100 RADIS=          7 NOMVEL=        35 NLANES=         1 NRSEC=        32
ZNRD:         37 LINK=         28 LEN=       2300 RADIS=          8 NOMVEL=        55 NLANES=         1 NRSEC=         0
ZONE: 12 POPZN=      1685. NRDS=         3 LENRDS=     36200.
ZNRD:         38 LINK=         40 LEN=       1000 RADIS=          6 NOMVEL=        30 NLANES=         1 NRSEC=        39
ZNRD:         39 LINK=         40 LEN=       1000 RADIS=          6 NOMVEL=        30 NLANES=         1 NRSEC=        38
ZNRD:         40 LINK=         31 LEN=        900 RADIS=          6 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZONE: 13 POPZN=       283. NRDS=         1 LENRDS=      2500.
ZNRD:         41 LINK=         42 LEN=       1000 RADIS=         11 NOMVEL=        35 NLANES=         1 NRSEC=         0
ZONE: 14 POPZN=         0. NRDS=         1 LENRDS=      9999.
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ZNRD: 42 LINK= 42 LEN= 9999 RADIS= 14 NOMVEL= 3 NLANES= 999 NRSEC= 0

EVACUATION TREE NO. 5 FOR SEABROOK- NRC DATA

```
2              CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.10 MAXDEP=  5400 POPVEH=  1 LGCODE=  2 FLORAT=  1500 MINSPD=  15
ZI*O=   0 ZFIV=   2 ZTEN=   6 ZEPZ=   9 ISTG=   0 EX=  33 EPZ=  11
ZONE:  1 POPZN=        414. NRDS=          4 LENRDS=        9700.
ZNRD:          1 LINK=          4 LEN=       3500 RADIS=          3 NOMVEL=        35 NLANES=          1 NRSEC=          2
ZNRD:          2 LINK=          4 LEN=       1800 RADIS=          4 NOMVEL=        30 NLANES=          1 NRSEC=          1
ZNRD:          3 LINK=          4 LEN=        500 RADIS=          4 NOMVEL=        30 NLANES=          1 NRSEC=          1
ZNRD:          4 LINK=         11 LEN=       2400 RADIS=          5 NOMVEL=        35 NLANES=          1 NRSEC=          0
ZONE:  2 POPZN=        285. NRDS=          1 LENRDS=        3700.
ZNRD:          5 LINK=          3 LEN=       1000 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=          0
ZONE:  3 POPZN=       4298. NRDS=          3 LENRDS=       13000.
ZNRD:          6 LINK=          9 LEN=       2300 RADIS=          6 NOMVEL=        30 NLANES=          1 NRSEC=          0
ZNRD:          7 LINK=         14 LEN=       1000 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         13
ZNRD:          8 LINK=         28 LEN=        800 RADIS=         10 NOMVEL=        35 NLANES=          1 NRSEC=          0
ZONE:  4 POPZN=        996. NRDS=         12 LENRDS=       22200.
ZNRD:          9 LINK=         12 LEN=       2700 RADIS=          7 NOMVEL=        30 NLANES=          1 NRSEC=          0
ZNRD:         10 LINK=         23 LEN=       3700 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=         21
ZNRD:         11 LINK=         21 LEN=       1700 RADIS=          6 NOMVEL=        35 NLANES=          1 NRSEC=          0
ZNRD:         12 LINK=         20 LEN=       3300 RADIS=          8 NOMVEL=        35 NLANES=          1 NRSEC=         19
ZNRD:         13 LINK=         14 LEN=       1500 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=          7
ZNRD:         14 LINK=         16 LEN=        600 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         15
ZNRD:         15 LINK=         16 LEN=        800 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         14
ZNRD:         16 LINK=         18 LEN=        300 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=         17
ZNRD:         17 LINK=         18 LEN=       1600 RADIS=         10 NOMVEL=        35 NLANES=          1 NRSEC=         16
ZNRD:         18 LINK=          8 LEN=        800 RADIS=         10 NOMVEL=        35 NLANES=          1 NRSEC=          0
ZNRD:         19 LINK=         20 LEN=       1500 RADIS=          9 NOMVEL=        35 NLANES=          1 NRSEC=         12
ZNRD:         20 LINK=         29 LEN=       3700 RADIS=          9 NOMVEL=        35 NLANES=          1 NRSEC=         24
ZONE:  5 POPZN=        717. NRDS=          6 LENRDS=       24000.
ZNRD:         21 LINK=         23 LEN=       2700 RADIS=          7 NOMVEL=        35 NLANES=          1 NRSEC=         10
ZNRD:         22 LINK=         23 LEN=       3000 RADIS=          8 NOMVEL=        30 NLANES=          1 NRSEC=         21
ZNRD:         23 LINK=         24 LEN=       2600 RADIS=          8 NOMVEL=        35 NLANES=          1 NRSEC=          0
ZNRD:         24 LINK=         29 LEN=       2600 RADIS=          9 NOMVEL=        35 NLANES=          1 NRSEC=         20
ZNRD:         25 LINK=         26 LEN=       2100 RADIS=          9 NOMVEL=        25 NLANES=          1 NRSEC=          0
ZNRD:         26 LINK=         30 LEN=       2100 RADIS=         10 NOMVEL=        30 NLANES=          1 NRSEC=          0
ZONE:  6 POPZN=       4054. NRDS=          1 LENRDS=       29600.
ZNRD:         27 LINK=         32 LEN=       2500 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=          0
ZONE:  7 POPZN=        187. NRDS=          1 LENRDS=        3500.
ZNRD:         28 LINK=         33 LEN=       1500 RADIS=         11 NOMVEL=        35 NLANES=          1 NRSEC=          0
ZONE:  8 POPZN=        759. NRDS=          3 LENRDS=        5400.
ZNRD:         29 LINK=         31 LEN=       1800 RADIS=         11 NOMVEL=        35 NLANES=          1 NRSEC=         30
ZNRD:         30 LINK=         31 LEN=       2600 RADIS=         11 NOMVEL=        35 NLANES=          1 NRSEC=         29
ZNRD:         31 LINK=         33 LEN=       1000 RADIS=         11 NOMVEL=        35 NLANES=          1 NRSEC=          0
ZONE:  9 POPZN=        283. NRDS=          1 LENRDS=        2500.
ZNRD:         32 LINK=         33 LEN=       1500 RADIS=         11 NOMVEL=        30 NLANES=          1 NRSEC=          0
ZONE: 10 POPZN=          0. NRDS=          1 LENRDS=        9999.
ZNRD:         33 LINK=         33 LEN=       9999 RADIS=         13 NOMVEL=         3 NLANES=        999 NRSEC=          0
```

EVACUATION TREE NO. 6 FOR SEABROOK- NRC DATA

```
4             CLEAR          MOELLER          CLEAR           BATTELLE          CLEAR           MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.10 MAXDEP=  5400 POPVEH=  1 LGCODE=  4 FLORAT=  1500 MINSPD=  15
ZTWO=   2 ZFIV=   5 ZTEN=   7 ZEPZ=   8 ISTG=   1 EX=  28 EPZ=  11
ZONE:  1 POPZN=        369. NRDS=          1 LENRDS=      3300.
ZNRD:          1 LINK=          3 LEN=       1400 RADIS=           2 NOMVEL=         55 NLANES=          1 NRSEC=          0
ZONE:  2 POPZN=       3277. NRDS=          1 LENRDS=      3900.
ZNRD:          2 LINK=          1 LEN=       1500 RADIS=           2 NOMVEL=         55 NLANES=          1 NRSEC=          0
ZONE:  3 POPZN=       1374. NRDS=          4 LENRDS=     15400.
ZNRD:          3 LINK=          4 LEN=       1500 RADIS=           3 NOMVEL=         55 NLANES=          1 NRSEC=          0
ZNRD:          4 LINK=          5 LEN=       1000 RADIS=           4 NOMVEL=         55 NLANES=          1 NRSEC=          0
ZNRD:          5 LINK=         13 LEN=       1800 RADIS=           5 NOMVEL=         40 NLANES=          1 NRSEC=          0
ZNRD:          6 LINK=         12 LEN=        500 RADIS=           5 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZONE:  4 POPZN=       1383. NRDS=          3 LENRDS=      3700.
ZNRD:          7 LINK=          9 LEN=       2400 RADIS=           5 NOMVEL=         30 NLANES=          1 NRSEC=          8
ZNRD:          8 LINK=          9 LEN=       1000 RADIS=           5 NOMVEL=         30 NLANES=          1 NRSEC=          7
ZNRD:          9 LINK=         16 LEN=        300 RADIS=           5 NOMVEL=         30 NLANES=          1 NRSEC=          0
ZONE:  5 POPZN=        414. NRDS=          2 LENRDS=      9700.
ZNRD:         10 LINK=          2 LEN=        400 RADIS=           3 NOMVEL=         35 NLANES=          1 NRSEC=          0
ZNRD:         11 LINK=          7 LEN=       1100 RADIS=           5 NOMVEL=         30 NLANES=          1 NRSEC=          0
ZONE:  6 POPZN=       1935. NRDS=          9 LENRDS=     18600.
ZNRD:         12 LINK=         14 LEN=        900 RADIS=           6 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZNRD:         13 LINK=         15 LEN=        800 RADIS=           6 NOMVEL=         55 NLANES=          2 NRSEC=          0
ZNRD:         14 LINK=         18 LEN=       1400 RADIS=           6 NOMVEL=         30 NLANES=          1 NRSEC=         16
ZNRD:         15 LINK=         19 LEN=       1900 RADIS=           6 NOMVEL=         55 NLANES=          3 NRSEC=         17
ZNRD:         16 LINK=         18 LEN=       2300 RADIS=           6 NOMVEL=         30 NLANES=          1 NRSEC=         14
ZNRD:         17 LINK=         19 LEN=        800 RADIS=           7 NOMVEL=         30 NLANES=          1 NRSEC=         15
ZNRD:         18 LINK=         22 LEN=       1900 RADIS=           7 NOMVEL=         30 NLANES=          1 NRSEC=          0
ZNRD:         19 LINK=         20 LEN=       1800 RADIS=           7 NOMVEL=         55 NLANES=          3 NRSEC=          0
ZNRD:         20 LINK=         21 LEN=       1600 RADIS=           8 NOMVEL=         55 NLANES=          3 NRSEC=          0
ZONE:  7 POPZN=       4296. NRDS=          5 LENRDS=     13000.
ZNRD:         21 LINK=         26 LEN=       2500 RADIS=          10 NOMVEL=         55 NLANES=          3 NRSEC=          0
ZNRD:         22 LINK=         23 LEN=       1900 RADIS=           8 NOMVEL=         30 NLANES=          1 NRSEC=          0
ZNRD:         23 LINK=         24 LEN=       2000 RADIS=           9 NOMVEL=         30 NLANES=          1 NRSEC=          0
ZNRD:         24 LINK=         27 LEN=       2000 RADIS=          10 NOMVEL=         30 NLANES=          1 NRSEC=          0
ZNRD:         25 LINK=          8 LEN=        500 RADIS=           6 NOMVEL=         30 NLANES=          1 NRSEC=          0
ZONE:  8 POPZN=        187. NRDS=          2 LENRDS=      3500.
ZNRD:         26 LINK=         28 LEN=       1000 RADIS=          11 NOMVEL=         55 NLANES=          3 NRSEC=          0
ZNRD:         27 LINK=         28 LEN=       1000 RADIS=          11 NOMVEL=         30 NLANES=          1 NRSEC=          0
ZONE:  9 POPZN=          0. NRDS=          1 LENRDS=      9999.
ZNRD:         28 LINK=         28 LEN=       9999 RADIS=          13 NOMVEL=          3 NLANES=        999 NRSEC=          0
**ISTG: ROAD=          10 LENSTG=         400 POPSTG=        3100 PVSTG=          1
```

EVACUATION TREE NO. 7B FOR SEABROOK- NRC DATA

```
5              CLEAR          MOELLER          CLEAR          BATTELLE          CLEAR          MOELLER          CLEAR

LU= 3 DELT=   12 TYP=  25 FRACT= 0.25 MAXDEP=  3600 POPVEH=  1 LGCODE=  5 FLORAT=  1500 MINSPD=  15
ZTWO=  10 ZFIV=  15 ZTEN=  18 ZEPZ=  19 ISTG=   2 EX=  53 EPZ=  10
ZONE:  1 POPZN=       4304. NRDS=          1 LENRDS=       1400.
ZNRD:           2 LINK=          3 LEN=        200 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZONE:  2 POPZN=       2225. NRDS=          3 LENRDS=       1600.
ZNRD:           3 LINK=          5 LEN=       1000 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=        4
ZNRD:           4 LINK=          5 LEN=        300 RADIS=          2 NOMVEL=        20 NLANES=          1 NRSEC=        3
ZNRD:           5 LINK=         22 LEN=        400 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZONE:  3 POPZN=         63. NRDS=          1 LENRDS=        600.
ZNRD:           6 LINK=          4 LEN=        600 RADIS=          2 NOMVEL=        20 NLANES=          1 NRSEC=        0
ZONE:  4 POPZN=         44. NRDS=          1 LENRDS=        400.
ZNRD:           7 LINK=          8 LEN=        400 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZONE:  5 POPZN=        244. NRDS=          1 LENRDS=       1300.
ZNRD:           8 LINK=          9 LEN=       1300 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZONE:  6 POPZN=        177. NRDS=          2 LENRDS=       1100.
ZNRD:           9 LINK=         33 LEN=        600 RADIS=          2 NOMVEL=        30 NLANES=          1 NRSEC=        0
ZNRD:          10 LINK=         32 LEN=        500 RADIS=          2 NOMVEL=        30 NLANES=          1 NRSEC=        0
ZONE:  7 POPZN=       1335. NRDS=          2 LENRDS=       2000.
ZNRD:          11 LINK=         10 LEN=       1500 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZNRD:          12 LINK=         38 LEN=        500 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZONE:  8 POPZN=        369. NRDS=          2 LENRDS=       3300.
ZNRD:          13 LINK=         11 LEN=        800 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZNRD:          14 LINK=         41 LEN=       1100 RADIS=          2 NOMVEL=        55 NLANES=          3 NRSEC=        0
ZONE:  9 POPZN=       1277. NRDS=          3 LENRDS=       3900.
ZNRD:          15 LINK=         17 LEN=       1300 RADIS=          2 NOMVEL=        35 NLANES=          1 NRSEC=       16
ZNRD:          16 LINK=         17 LEN=        800 RADIS=          2 NOMVEL=        55 NLANES=          4 NRSEC=       15
ZNRD:          17 LINK=         14 LEN=        300 RADIS=          2 NOMVEL=        55 NLANES=          3 NRSEC=        0
ZONE: 10 POPZN=         59. NRDS=          2 LENRDS=       3100.
ZNRD:          18 LINK=         15 LEN=        600 RADIS=          1 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZNRD:          19 LINK=         16 LEN=        900 RADIS=          2 NOMVEL=        55 NLANES=          4 NRSEC=        0
ZONE: 11 POPZN=       1443. NRDS=          3 LENRDS=       3000.
ZNRD:          22 LINK=         23 LEN=        900 RADIS=          3 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZNRD:          23 LINK=         25 LEN=        800 RADIS=          3 NOMVEL=        50 NLANES=          1 NRSEC=        0
ZNRD:          24 LINK=         26 LEN=       1300 RADIS=          3 NOMVEL=        35 NLANES=          1 NRSEC=        0
ZONE: 12 POPZN=       5533. NRDS=          6 LENRDS=       7700.
ZNRD:          25 LINK=          7 LEN=       1000 RADIS=          3 NOMVEL=        50 NLANES=          1 NRSEC=        0
ZNRD:          26 LINK=         28 LEN=       2200 RADIS=          4 NOMVEL=        40 NLANES=          1 NRSEC=       27
ZNRD:          27 LINK=         28 LEN=       1500 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=       26
ZNRD:          28 LINK=         30 LEN=        400 RADIS=          5 NOMVEL=        35 NLANES=          1 NRSEC=       29
ZNRD:          29 LINK=         30 LEN=       1500 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=       28
ZNRD:          30 LINK=         31 LEN=       1100 RADIS=          5 NOMVEL=        40 NLANES=          1 NRSEC=        0
ZONE: 13 POPZN=       1272. NRDS=          1 LENRDS=       2200.
ZNRD:          31 LINK=         36 LEN=       2200 RADIS=          5 NOMVEL=        40 NLANES=          1 NRSEC=       35
ZONE: 14 POPZN=        641. NRDS=          6 LENRDS=      10100.
ZNRD:          32 LINK=         34 LEN=        300 RADIS=          3 NOMVEL=        30 NLANES=          1 NRSEC=       33
ZNRD:          33 LINK=         34 LEN=        400 RADIS=          3 NOMVEL=        30 NLANES=          1 NRSEC=       32
ZNRD:          34 LINK=         39 LEN=        700 RADIS=          3 NOMVEL=        30 NLANES=          1 NRSEC=        0
ZNRD:          35 LINK=         36 LEN=       3500 RADIS=          4 NOMVEL=        40 NLANES=          1 NRSEC=       31
ZNRD:          36 LINK=         37 LEN=        300 RADIS=          5 NOMVEL=        30 NLANES=          1 NRSEC=        0
ZNRD:          37 LINK=         45 LEN=       3300 RADIS=          5 NOMVEL=        40 NLANES=          1 NRSEC=       42
ZONE: 15 POPZN=       1374. NRDS=          8 LENRDS=      15400.
ZNRD:          38 LINK=         40 LEN=        800 RADIS=          3 NOMVEL=        35 NLANES=          1 NRSEC=       39
ZNRD:          39 LINK=         40 LEN=        800 RADIS=          3 NOMVEL=        35 NLANES=          1 NRSEC=       38
ZNRD:          40 LINK=         43 LEN=        700 RADIS=          3 NOMVEL=        35 NLANES=          1 NRSEC=       41
ZNRD:          41 LINK=         43 LEN=       1800 RADIS=          3 NOMVEL=        55 NLANES=          3 NRSEC=       40
ZNRD:          42 LINK=         45 LEN=       3000 RADIS=          4 NOMVEL=        30 NLANES=          1 NRSEC=       37
ZNRD:          43 LINK=         44 LEN=       1000 RADIS=          4 NOMVEL=        55 NLANES=          3 NRSEC=        0
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ZNRD:          44 LINK=         52 LEN=        1700 RADIS=          5 NOMVEL=         55 NLANES=          4 NRSEC=         45
ZNRD:          45 LINK=         52 LEN=         800 RADIS=          5 NOMVEL=         35 NLANES=          1 NRSEC=         44
ZONE: 16 POPZN=       5242. NRDS=          1 LENRDS=      3800.
ZNRD:          46 LINK=         27 LEN=         800 RADIS=          6 NOMVEL=         25 NLANES=          1 NRSEC=          0
ZONE: 17 POPZN=          0. NRDS=          4 LENRDS=      7600.
ZNRD:          47 LINK=         48 LEN=        1900 RADIS=          7 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZNRD:          48 LINK=         49 LEN=        1900 RADIS=          8 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZNRD:          49 LINK=         50 LEN=        1900 RADIS=          9 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZNRD:          50 LINK=         52 LEN=        1900 RADIS=         10 NOMVEL=         55 NLANES=          4 NRSEC=          0
ZONE: 18 POPZN=          0. NRDS=          1 LENRDS=      2500.
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ZNRD:          52 LINK=         53 LEN=        1000 RADIS=         11 NOMVEL=         55 NLANES=          4 NRSEC=          0
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**ISTG: ROAD=          15 LENSTG=         600 POPSTG=       2000 PVSTG=          1
**ISTG: ROAD=          46 LENSTG=         800 POPSTG=        970 PVSTG=          1
```

EVACUATION THEE NO. 8 FOR SEABROOK- NRC DATA

```
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LU= 3 DELT=   12 TYP=  25 FRACT= 0.25 MAXDEP=  3600 POPVEH=  1 LGCODE=  4 FLORAT=  1500 MINSPD=  15
ZTWO=   0 ZFIV=   1 ZTEN=   5 ZEPZ=   8 ISTG=   0 EX=  25 EPZ=  11
ZONE:  1 POPZN=        641. NRDS=          1 LENRDS=     10100.
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ZNRD:         17 LINK=         23 LEN=       3500 RADIS=          9 NOMVEL=        30 NLANES=          1 NRSEC=          0
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ZNRD:         19 LINK=         20 LEN=       2500 RADIS=          7 NOMVEL=        30 NLANES=          1 NRSEC=          0
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ZONE:  6 POPZN=          0. NRDS=          1 LENRDS=      1000.
ZNRD:         21 LINK=         25 LEN=       1000 RADIS=         11 NOMVEL=        30 NLANES=          1 NRSEC=          0
ZONE:  7 POPZN=        276. NRDS=          2 LENRDS=      3000.
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ZNRD:         24 LINK=         25 LEN=       1000 RADIS=         11 NOMVEL=        30 NLANES=          1 NRSEC=          0
ZONE:  9 POPZN=          0. NRDS=          1 LENRDS=       999.
ZNRD:         25 LINK=         25 LEN=        999 RADIS=         13 NOMVEL=         3 NLANES=        999 NRSEC=          0
```

APPENDIX IV

This appendix contains off-season scenario evacuation time estimates and corresponding vehicle demand estimates for the Seabrook Nuclear Power Station.

Evacuation time estimates (ETEs) for an off-season scenario in the Seabrook Nuclear Power Plant EPZ were calculated by PNL using the CLEAR model. Following are the results and a discussion of both the vehicle demand estimates used as input data and the ETEs.

Most of the demand data used for the ETE calculations were taken from the NRC's draft demand estimate.(2) The vehicle demand estimates for the off-season scenario include contributions from permanent resident, schools, employment sources, recreation, shopping centers, seasonal housing and overnight acommodations. Table IV-1 shows the off-season vehicle demand estimates for seasonal housing and for rooms in yearly overnight accommodations. Estimates from seasonal housing refer to units (houses, apartments, etc.) that are normally occupied during the summer season which are occasionally occupied during the off-season (non-summer) either by owners or renters. Rooms in yearly overnight accomodations refer to hotels, motels, and guest houses that are open during the entire year. In both instances, an estimate of 1 vehicle per unit was assumed. (Note that no data was available for distances greater than 10 miles.)

Table IV-2 shows the off-season vehicle demand estimates for U.S. Highway 1, manufacturing and industrial employment, and educational facilities. U.S. Highway 1 is a major north-south artery in the Seabrook EPZ. The vehicle demand estimates are based on 100 percent occupancy of the parking capacity of shopping centers, restaurants, municipal parking lots, and large stores found along it. An assumption of one auto per employee was used in determinng the vehicle demand estimates for employment. In addition, an estimate of 2,000 vehicles on the Seabrook station site was included in the employment category. A vehicle demand estimate factor of 20 students per vehicle was used for educational facilities. This factor is based upon the assumptions that these facilities would be evacuated by bus, with 40 students per bus, and one bus being equivalent to two vehicles. (This is the assumption used for non-auto owning residents.)

Table IV-3 shows the vehicle demand estimates for the permanent resident population of the Seabrook EPZ. These demand estimates are identified to those for a peak population scenario (summer weekend case). Table IV-3 contains data for the auto owning and non-auto owning population categories.

Table IV-4 shows the total vechicle demand estimates that were used to calculate ETEs for an off-season scenario in the Seabrook EPZ. Included in this table are demand estimates for the Seabrook Greyhound Park. Note that the demand estimates for the Greyhound Park differ from the NRC's draft. The NRC's report stated that the estimate of 3100 vehicles (which was for a 100 percent occupancy of the parking lot) could occur during a summer or a non-summer day. Instead an estimate of 873 vehicles is used in the present ETE calculations. This is based upon attendance data received from the Greyhound Park and an assumption of one vehicle per two people. Following is a description of this attendance data.

Seabrook Greyhound Park Demand Estimate

Yearly average attendance = 1813 people/performance

June thru October average attendance = 1905 people/performance

8 performances per week at 52 weeks per year equals 416 performances/year

June thru October equals 22 weeks times 8 performances per week equals 176 performances

$$1905 \ \frac{\text{people}}{\text{performance}} \times 176 \text{ performances} = 335{,}280 \text{ people for June thru October}$$

$$1813 \ \frac{\text{people}}{\text{performance}} \times (416) \text{ performances} = 754{,}208 \text{ people for year}$$

```
  754,208
- 335,280
  418,928  people for November thru May
```

418,928 people ÷ (416 - 176 =) 240 performances for November thru May

Equals 1746 people/performance for November thru May.

It is assumed November thru May is equivalent to the off-season and therefore:

$$1746 \ \frac{\text{people}}{\text{performance}} \div \frac{2 \text{ people}}{\text{vehicle}} = 873 \text{ vehicles/performance}$$

Table IV-5 shows the ETEs calculated by the CLEAR model for each evacuation tree in the Seabrook EPZ. Table IV-6 shows comparison between the off-season and peak population scenarios in the Seabrook EPZ, using NRC's vehicle demand estimates as input data. The major results are large reductions in ETEs for evacuation trees no. 1, 2B, and 7B. These three trees include the main evacuation routes for the transient beach population of the peak population scenario. These results were expected since the vehicle demand estimates for the off-season scenario are significantly less than the peak population estimates for these evacuating trees. There was little or no reduction in ETEs of the remaining evacuation trees for the off-season scenario, mainly because the increase in vehicle demand estimates from the manuafacturing and industrial employment category offset decreases in transient population estimates.

TABLE IV-1

OFF-SEASON VEHICLE DEMAND ESTIMATES FOR SEASONAL HOUSING AND FOR ROOMS IN YEARLY OVERNIGHT ACCOMMODATIONS

	0-2 Mile		2-5 Mile		5-10 Mile		10-EPZ		0-EPZ	
Sector	Seasonal Housing	Overnight: Year Round	Seasonal Housing	Overnight: Year Round	Seasonal Housing	Overnight: Year Round	Seasonal Housing	Overnight: Year Round	Seasonal Housing	Overnight: Year Round
N	1	0	5	196	17	0	0	0	23	196
NNW	3	36	4	0	15	0	0	0	22	36
NW	1	0	5	0	16	90	0	0	22	90
WNW	0	0	3	0	15	0	0	0	18	0
W	2	136	4	0	16	0	0	0	22	136
WSW	3	46	7	0	10	0	0	0	20	46
SW	3	44	8	88	3	0	0	0	14	132
SSW	1	0	4	36	38	11	0	0	43	47
S	1	0	13	32	53	25	0	0	67	57
SSE	1	0	128	202	112	7	0	0	241	209
SE	3	0	44	0	0	0	0	0	47	0
ESE	72	0	0	0	0	0	0	0	72	0
E	69	208	0	0	0	0	0	0	69	208
ENE	95	740	120	540	0	0	0	0	215	1,280
NE	12	0	174	168	23	88	0	0	209	256
NNE	0	0	12	0	15	77	0	0	27	77
Total	267	1,210	531	1,262	333	298	0	0	1,131	2,770

TABLE IV-2

OFF-SEASON VEHICLE DEMAND ESTIMATES FOR U.S. HIGHWAY 1,
MANUFACTURING & INDUSTRIAL EMPLOYMENT, AND EDUCATIONAL FACILITIES

Sector	0-2 Mile			2-5 Mile			5-10 Mile			10-EPZ			0-EPZ		
	U.S. 1	Employ-ment	Education	U.S. 1	Employ-ment	Education	U.S. 1	Employ-ment	Education	U.S. 1	Employ-ment	Education	U.S. 1	Employ-ment	Education
N	58	30	0	792	387	0	148	87	21.2	0	0	0	998	504	21.2
NNW	24	0	0	0	0	0	0	500	13.6	0	0	0	24	500	13.6
NW	43	9	10.9	0	0	0	0	1,616	287.5	0	0	0	43	1,625	298.4
WNW	35	0	0	0	0	8.1	0	0	8.3	0	0	0	35	0	16.4
W	803	2,56[illegible](a)	0	0	20	1.6	0	0	2.3	0	0	0	803	2,580	3.9
WSW	37	93[illegible]	0	0	257	33.9	0	220	65.9	0	0	0	37	1,407	99.8
SW	975	146	0	0	970	18.7	0	864	112.9	0	0	0	975	1,980	131.6
SSW	0	0	0	0	15	0	50	3,025	115.6	0	0	0	50	3,040	115.6
S	0	75	35.3	92	64	34.0	794	395	108.2	0	0	0	886	534	117.5
SSE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ESE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ENE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NE	0	0	0	266	0	0	1,031	0	0	0	0	0	1,297	0	0
NNE	0	0	0	0	84	151.0	0	0	48.7	0	0	0	0	84	199.7
Total	1,975	3,750	46.2	1,150	1,797	247.3	2,023	6,707	784.2	0	0	0	5,148	12,254	1,077.7

(a) Includes the vehicle demand estimate from the Seabrook Nuclear Power Plant site for the year 2000.

TABLE IV-3
VEHICLE DEMAND ESTIMATES FOR PERMANENT RESIDENT POPULATION

Sector	0-2 Mile Auto Own	0-2 Mile Non-auto Own	2-5 Mile Auto Own	2-5 Mile Non-auto Own	5-10 Mile Auto Own	5-10 Mile Non-auto Own	10-EPZ Auto Own	10-EPZ Non-auto Own	0-EPZ Auto Own	0-EPZ Non-auto Own	Total Resident
N	22	0.3	571	4.4	1,144	10.1	1,868.6	39.3	3,605.6	54.1	3,659.7
NNW	76	1.1	227	2.0	920	12.2	306.9	4.5	1,529.9	19.8	1,549.7
NW	64	0.9	109	1.7	3,541	84.8	278.1	4.5	3,992.1	91.9	4,084
WNW	21	0.3	235	3.5	520	7.2	749.2	9.7	1,525.2	20.7	1,545.9
W	306	4.0	363	5.2	792	11.5	824.2	8.8	2,285.2	29.5	2,314.7
WSW	248	3.3	1,262	34.9	3,566	93.8	183.5	3.4	5,259.5	135.4	5,394.9
SW	276	3.7	1,141	35.1	1,835	52.8	118.0	4.6	3,370	96.2	3,466.2
SSW	160	2.1	455	14.0	3,155	91.0	273.1	3.0	4,043.1	110.1	4,153.2
S	149	2.0	731	20.1	2,459	55.4	0	0	3,339	77.5	3,416.5
SSE	35	0.5	380	11.2	473	11.5	0	0	888	23.2	911.2
SE	20	0.3	191	4.3	0	0	0	0	211	4.6	215.6
ESE	350	4.2	0	0	0	0	0	0	350	4.2	354.2
E	184	1.5	0	0	0	0	0	0	184	1.5	185.5
ENE	172	1.4	360	2.9	0	0	0	0	532	4.3	536.3
NE	25	0.2	1,135	8.8	821	2.8	174.6	0.6	2,155.6	12.4	2,168
NNE	0	0	1,533	11.8	2,299	35.1	6,063.9	134.6	9,895.9	181.5	10,077.4
Total	2,108	25.8	8,693	159.9	21,525	468.2	10,840.1	213	43,166.1	866.9	44,033

TABLE IV-4

VEHICLE DEMAND ESTIMATES FOR AN OFF-SEASON SCENARIO IN THE SEABROOK EPZ

Sector	0-2 Mile Total	2-5 Mile Total	5-10 Mile Total	10-EPZ Total	0-EPZ Total
N	111	1,955	1,427	1,908	5,401
NNW	140	233	1,461	311	2,145
NW	129	116	5,635	283	6,163
WNW	56	250	551	759	1,616
W	3,811	1,267[a]	822	833	6,733
WSW	1,267	1,595	3,956	187	7,005
SW	1,448	2,261	2,868	123	6,700
SSW	163	524	6,486	276	7,449
S	262	986	3,890	0	5,138
SSE	37	721	603	0	1,361
SE	23	239	0	0	262
ESE	426	0	0	0	426
E	463	0	0	0	463
ENE	1,009	1,023	0	0	2,032
NE	37	1,752	1,966	175	3,930
NNE	0	1,792	2,475	6,198	10,465
TOTAL	9,382	14,714	32,140	11,053	67,289

(a) Includes the vehicle demand estimate of 873 for the Seabrook Greyhound Park.

TABLE IV-5

Calculation of Evacuation Time Estimates Using the CLEAR Model for an Off-Season population scenario in the Seabrook EPZ. (NRC Data)

Evacuation Tree	Evacuation Time Estimates * (Hours:Minutes)	(Minutes)
1	6:45	405
2B	3:20	200
3	2:35	155
4	6:10	370
5	2:30	150
6	3:55	235
7B	2:55	175
8	4:25	265

* Includes 15 minute notification time.

TABLE IV-6

Comparison of Evacuation Time Estimates as Calculated by the CLEAR Model for a Peak Population and an Off-Season Population Scenario in the Seabrook EPZ. (NRC Data)

Evacuation Tree	Peak Population ETE* (Hours:Minutes)	Off-Season Population ETE* (Hours:Minutes)
1	9:40	6:45
2B	11:40	3:20
3	2:20	2:35
4	6:15	6:10
5	2:45	2:30
6	3:40	3:55
7B	10:25	2:55
8	6:25	4:25

* Includes 15 minute notification time.

NRC FORM 335 (11-81)

U.S. NUCLEAR REGULATORY COMMISSION

BIBLIOGRAPHIC DATA SHEET

1. REPORT NUMBER (Assigned by DDC)
NUREG/CR-2903
PNL-4290

4. TITLE AND SUBTITLE (Add Volume No., if appropriate)
An Independent Assessment of Evacuation Time Estimates for a Peak Population Scenario in the Emergency Planning Zone of the Seabrook Nuclear Power Station

2. (Leave blank)

3. RECIPIENT'S ACCESSION NO.

7. AUTHOR(S)
M. P. Moeller   M. A. McLean
T. Urbanik II   A. E. Desrosiers

5. DATE REPORT COMPLETED
MONTH October YEAR 1982

DATE REPORT ISSUED
MONTH November YEAR 1982

9. PERFORMING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)
Battelle Pacific NorthWest Laboratories
P. O. Box 999
Richland, WA 99352

6. (Leave blank)

8. (Leave blank)

12. SPONSORING ORGANIZATION NAME AND MAILING ADDRESS (Include Zip Code)
Division of Emergency Preparedness
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

10. PROJECT/TASK/WORK UNIT NO.

11. FIN NO.
NRC FIN B2311

13. TYPE OF REPORT
Technical

PERIOD COVERED (Inclusive dates)

15. SUPPLEMENTARY NOTES

14. (Leave blank)

16. ABSTRACT (200 words or less)

This study comprises two major tasks: (1) an assessment of the methods and assumptions used in calculating evacuation time estimates (ETEs) applicable to the general population for a peak population scenario in the emergency planning zone of the Seabrook Nuclear Power Station, consisting of a review and analysis of previous work by Public Service of New Hampshire (PSNH) and the Federal Emergency Management Agency (FEMA), as well as an independent calculation of ETEs using the CLEAR model for the demographic data reported by PSNH; (2) independent estimations of the ETEs for the peak population scenario, developed using demographic data prepared by the U. S. Nuclear Regulatory Commission (NRC) and the CLEAR model. The results of this study reveal the importance of the assumptions used for calculating ETEs. Because traffic routings and management plans have not been prepared for the area, the CLEAR calculations utilized independently prepared traffic routings and assumptions. A detailed analysis of the results suggests that the ETEs submitted by PSNH are consistent with the methods and assumptions which provide the bases for PSNH's ETEs. Differences among ETEs stem largely from differences in the assumed size of the evacuating population and the estimated effectiveness of traffic controls.

17. KEY WORDS AND DOCUMENT ANALYSIS

17a. DESCRIPTORS

Evacuation Time Estimates
Independent Assessments
Seabrook Nuclear Power Station

17b. IDENTIFIERS/OPEN-ENDED TERMS

18. AVAILABILITY STATEMENT
Unlimited

19. SECURITY CLASS (This report)
Unclassified

20. SECURITY CLASS (This page)
Unclassified

21. NO. OF PAGES

22. PRICE
$

NRC FORM 335 (11-81)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

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WASHINGTON DC 20555

NUREG/CR-2903 AN INDEPENDENT ASSESSMENT OF EVACUATION TIME ESTIMATES FOR A PEAK POPULATION SCENARIO IN THE EMERGENCY PLANNING ZONE OF THE SEABROOK NUCLEAR POWER STATION NOVEMBER 1982