

Seabrook Station Evacuation Analysis

Technical Memorandum # 1

SUMMARY OF LOCAL MEETINGS

Prepared for
**FEDERAL EMERGENCY MANAGEMENT
AGENCY**

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INTRODUCTION

This Technical Memorandum reports on the series of meetings that was held with local officials in the Seabrook, New Hampshire, area. These meetings were part of the process of estimating the evacuation times for the Seabrook Station Nuclear Power Plant. Intended primarily to determine the local plans for evacuation, these meetings usually ranged into discussion of emergency preparedness in general.

This paper first discusses the STRENGTHS AND WEAKNESSES of local preparedness planning throughout the Seabrook Emergency Planning Zone (EPZ).

Next, LOCAL CONCERNS of town officials in the Seabrook EPZ are summarized. It should be noted that the local perception of problems can differ sharply from that of the outside observer; specifically, some locally perceived problems may in fact resolve themselves through actions already underway, while on the other hand certain problem areas are not yet felt by the local officials.

Finally, RECOMMENDATIONS for the improvement of the preparedness planning in the Seabrook Station EPZ are made.

CHAPTER I. STRENGTHS AND WEAKNESSES OF
LOCAL PREPAREDNESS PLANNING

- Local officials are capable of directing a successful evacuation.
- Some of the resources needed for a successful evacuation are in place.
- On the other hand, some costly resources are not now in place, and there is no assurance that they will be provided by 1983.
- The funding question is totally unanswered. Until it is answered, local officials are not likely to take evacuation planning seriously.
- Local officials are frustrated by funding issues and the planning process itself.
- There is considerable confusion over what actually constitutes an evacuation plan.

STRENGTHS OF THE LOCAL PREPAREDNESS PLANNING EFFORT

Capable Local Direction

Local Civil Defense directors are uniformly capable of planning for and operating an effective evacuation of the 10-mile radius of the Seabrook Station. Persons commanding the manpower resources needed for such an evacuation (that is, the Police and Fire Chiefs) are also uniformly capable of directing their respective manpower in the evacuation effort. The level of professionalism among local Civil Defense directors and Fire and Police Chiefs is high; one interesting sign of this professionalism is the number of such officials who stated that they were opposed to the Seabrook plant but now see their job as cooperating in every way toward an effective evacuation plan for the EPZ.

The small size of the typical New Hampshire town and the status of many officials as part-time or fully volunteer has no bearing on the competence of these officials to direct an effective evacuation. To the contrary,

there seems to be no noticeable difference in level of planning competence between the typical New Hampshire town official and their full-time counterpart in much larger jurisdictions elsewhere.

Resources Already in Place

A significant amount of the resources needed to conduct an effective evacuation are already in place. Some other resources, while inadequate for an evacuation, are nevertheless a sound base from which the resources can be expanded (for example, the number of fire department auxiliaries can be greatly expanded within the existing administrative overhead of the department). Some of the important resources already in place or already having a sound nucleus include:

- (1) Local Fire Departments
- (2) Local Police Departments
- (3) Local Civil Defense Directors
- (4) Town Government
- (5) Notification system for fire emergencies
- (6) Rescue squads
- (7) Fire Department vehicles
- (8) Police Department vehicles
- (9) Dispatching networks
- (10) School buses and bus drivers
- (11) Radio stations in the Emergency Broadcast System (EBS)
- (12) Buildings for collection points and headquarters

State Agency with EPZ-Wide View

The New Hampshire State Civil Defense Agency has staff with the necessary overview of the entire Seabrook EPZ. The State Civil Defense Agency has established itself as the coordinator of planning for the EPZ, and it is so regarded by the local jurisdictions. For the most part, local jurisdictions are willing to take their direction from the State Civil Defense Agency, and are not insisting on local plan components at variance with the EPZ-wide viewpoint held by the state.

Vocal Opponents of the Power Station

Paradoxically, the continuous and vocal opposition to the Seabrook Station is a force for improving the quality of the planning for evacuation of the plant. Specifically, this opposition activity forces the collection of precise data, conservative estimates of available resources, adequate projections of needed resources and, ultimately, a thorough shaking down of detailed operating procedures for evacuation. In one respect, the anti-plant population serves as a continuing review committee on the evacuation plan development process, and will not hesitate to call attention to shortcomings in the emerging evacuation plan.

WEAKNESSES OF THE LOCAL PREPAREDNESS PLANNING EFFORT

Lack of Resources

Although some substantial resources needed for an evacuation are already in place in the Seabrook EPZ, there is a long way to go in the area of securing resources. Some resources, particularly those that are mainly organizational and do not involve the spending of funds (for example, developing advisory messages, enlisting more fire or Civil Defense auxiliaries), can be developed prior to the opening of the Seabrook Station in 1983. However, other resources which require the spending of substantial funds are not likely to be secured by 1983, given the existing sources of funds. Some of these resources are:

- (1) Buses (school and public transit)
- (2) Ambulances
- (3) Siren systems
- (4) Mobile public address equipment
- (5) Supplemental VHF radio equipment

Lack of Funding Assurance

Local governments are receiving no clear assurance that any support (other than local taxes) will be available for securing the resources needed for

an effective evacuation. At the same time, local officials are receiving clear direction that absolutely no local funds will be made available for radiological preparedness. The net effect on the local official caught in this funding squeeze is to dismiss preparedness planning as something that is unrealistic since it will never be paid for.

Throughout the U.S. there is an existing pattern of state and utility involvement in the local preparedness planning, with this participation formalized by law in several states. While this pattern may or may not be applicable to the Seabrook Station EPZ, it would be helpful if it were at least communicated. At present this information is not being communicated to local officials. For example, at a recent large meeting of local officials of the Seabrook EPZ, the question of utility participation in preparedness planning was raised. The answer (by out-of-state persons knowledgeable with evacuation planning in other areas) did not acknowledge that any funding assistance was being received elsewhere, and then raised the counter-question: "Why should the utility's ratepayers subsidize your towns?" That this did not produce a public disorder is a reflection of the even temper of the local officials in the EPZ.

Frustrated Local Officials

Local government officials responsible for conducting an evacuation (Civil Defense, Fire and Police Departments, for example) are frustrated in various ways in their attempt to develop an effective evacuation capability:

- (1) Budget -- Knowing that substantial costs will be needed for resources, but that local funding will not be sufficient, while not being assured of any other means of resource development, has resulted in local officials discounting the likelihood of doing anything about evacuation. It is difficult to interest a local official in planning for the detailed use of resources which he feels are unlikely to ever be secured by the Town.
- (2) Evacuation Routes -- Local officials associate evacuation with the designation of routes and reception centers. Local interest is focused on this element of the evacuation plan, and not on the background elements of organization and basic response. Typically, the local official works

Inductively, from the immediate and concrete toward the more abstract. For example, it is more natural for the local Civil Defense director (or Fire or Police Chief) to start with the issue of where the evacuation routes are and who will use them. Once this specific issue is settled, the planning attention will turn to the less immediate issue of how these routes are policed. Finally, the planning attention will turn to the most abstract elements such as chain-of-command for mobilizing manpower for the evacuation routes. Local officials find it frustrating to have their attention directed to Basic Plans and organizational issues when their real interest is in more tangible matters, such as evacuation routes.

- (3) Planning Process -- Local officials do not feel confident that workable evacuation plans will be developed for the Seabrook Station EPZ. Specifically, they feel that the planning process itself will not produce the desired result. Local officials do not have a clear idea of a concept plan for evacuation; that is, a plan that describes in broad detail how the evacuation will operate. There is no model for what constitutes the ultimate Operational Procedure, which is the document that, in an actual evacuation, the official would want to have in hand. There is a bewildering number of preparedness elements which are not yet sorted out in the local perception; for example, the concept plan, the operating plan, and the development of resources -- totally different parts of the preparedness effort -- are all confused in the single image of an evacuation plan.

Local officials are dismayed by mass meetings of all EPZ officials, and find that local concerns cannot be voiced in such a meeting.

Mixing of Local and EPZ Concerns

At present, local officials are concerned over preparedness matters that are beyond their scope of activity. For example, some local officials see their responsibilities as extending to traffic flow outside their Town boundary, or to the securing of buses from school districts or companies outside the EPZ.

The two distinctly different viewpoints of preparedness planning must be recognized:

- (1) The EPZ viewpoint which addresses issues too large for local decision, and which are beyond the scope of local authority and resources. Examples are the detouring of through traffic around the EPZ or the securing of school buses for the transportation of non-auto owning population in the EPZ.
- (2) The local viewpoint, which addresses issues too local to be handled at the EPZ viewpoint, involving resources under the sole control of the Town. Examples include the method for mobilizing Fire and Police manpower, and the stationing of this manpower within the Town.

Confusion Over Elements of the Preparedness Planning

Throughout all EPZ's (including those with reportedly complete evacuation plans) there is a great degree of confusion about the different elements of the preparedness planning:

- Evacuation Concept Plan -- This plan states in general terms HOW the evacuation will be accomplished. For instance, the concept plan describes the mode of travel for various population groups, and gives evacuation routes and reception centers. The evacuation plan is not an operating procedure -- for example, it does not tell a resource (e.g., Fire Chief) how to perform an action (e.g., direct traffic at a critical intersection). Nor does the concept plan address resource development -- for example, the concept plan states that sirens will be used for notification but makes no mention of how these sirens are to be obtained, located, etc.
- Operating Procedures -- This element states, in complete detail, HOW each Action Resource combination is to be performed, by WHOM, and WHEN. To most locals, operating procedures are the plan. Operating Procedures are the document that an emergency worker (e.g., policeman) would want with him in the midst of an emergency.
- Resource Development -- At the present time not all of the resources needed to run the evacuation are present in the Seabrook EPZ. As part of the preparedness process, these resources need to be obtained. For some of the resources needed, the procurement is a complicated process, and needs to be planned. This planning for the required resources is in no way a part of the evacuation Concept Plan or Operating Procedures, however. Rather, it is a process that should be completed as soon as possible and which is a necessary prerequisite to the Concept Plan and Operating Procedures.

At the present time, these elements have not been sorted out in the Seabrook EPZ planning effort. Focusing local attention on the proper planning activities is not likely to be successful until the planning elements are correctly recognized.

CHAPTER II. LOCAL CONCERNS

- With respect to evacuation planning, the predominant local concern in the Seabrook EPZ is the lack of resources and the uncertainties surrounding the funding of needed resources.
- With enough resources, the feasibility of an effective evacuation is not an important local concern.
- Local officials are concerned over the process for planning the evacuation and feel that they need direction.
- Local officials are concerned that they will not receive timely notification of events at the Seabrook Station that might lead to an evacuation order.

DESCRIPTION OF LOCAL CONCERNS IN RANKED ORDER

A number of specific concerns were voiced by local officials who were interviewed. Some of these concerns have been discussed above (in the "Problems" section). Other concerns, more apparent than real, may in fact not be an actual problem that can be addressed by action on anyone's part.

The following list summarizes the areas of concern as they were reported in the local meetings. These concerns are arranged according to the frequency that they were mentioned. The illustrative quotes are verbatim comments from local officials.

No Funds for Preparedness

(All towns but one expressed this concern.) Budgets for entire Civil Defense operation are typically less than \$1,000 yearly. Budget increases for more fire and police manpower for evacuation purposes are impossible. Regardless of their position on the Seabrook plant, selectmen are uniformly not making any increases in Civil Defense budgets. "We asked Public Service if (funds) were coming for evacuation ... no answer." "This Town has done fine for 300 years without a siren system, and we don't see why we should pay for one now."

No Equipment Resources

(All towns but one expressed this concern.) Not enough sirens, spotty paging or alerting of potential evacuation workers, poor field communications, limited or non-existent vehicles, no headquarters space, no radiological measuring devices, no ambulances, no tow trucks, fragile telephone system.

Frustrated With Planning Process

"Meetings are donnybrooks," "... too many people at meetings," "... the wrong (local) people are at the meetings," "they (state) are wasting time and money on meetings," "we're not going to anymore of those (planning) meetings," "we don't understand these evacuation time estimates," "this evacuation time estimate is (expletive deleted)," "we can't get through the material that is sent to us."

School Population

There is an inadequate number of buses to carry out the school population in a single trip. Some children are in schools in neighboring towns. Parents will not heed instructions on finding children at reception centers. School bus drivers will not be located in a reasonable time after notification. School bus drivers will refuse to enter or remain in the EPZ because of the radiation exposure danger. "No way will you keep parents from coming to the schools." "Parents are fanatics (about picking up children at school)."

Town Security After the Evacuation

Who will protect property? Local fire and police are inadequate for patrolling property. Local fire and police forces will not want to stay in the EPZ and remain exposed to radiation danger. Local fire and police have families that they will need to evacuate. Who will take care of farm animals remaining behind?

Need Direction

There is no clear idea of how the evacuation will operate. There is not a clear channel of notifying the Town and its evacuation workers. It is not clear who is responsible for what; in particular, who will notify the population out of range of the sirens, who will transport non-auto owning population and how, etc. "We don't know how much time we have to evacuate." "We need expertise (on detailed planning)."

Other Towns' Traffic Coming Through Area

Local roads are adequate for this Town but not for all the other traffic that will want to use it. Local traffic directors (fire and police) can't handle the amount of through traffic that will enter the town. Through traffic (i.e., traffic originating outside the Town) is a security problem. "We don't want any of that beach traffic coming through here." "Already we can't handle the traffic coming through here on a Sunday afternoon; how can we handle the evacuation traffic,?"

Not Enough Manpower to Run an Evacuation

There are not enough firemen, policemen and auxiliaries to man all the duties in an evacuation. Much of the nominal strength of the fire and police forces cannot be fielded at any time due to absence from the EPZ or inability to communicate with them. Some manpower assumed to be available for evacuation duty will in fact evacuate immediately with their families. Paging and notification systems are weak and unreliable. Almost no manpower is trained in radiological preparedness.

Inadequate Siren Coverage

Can't hear sirens in the Winter. Can't hear sirens when the wind is wrong. Only a small fraction of the area is covered with sirens. People would not know what a notification signal meant.

Timing of the Evacuation Order

The evacuation will not be ordered in time. The utility will not inform the state soon enough after an event to permit an evacuation. The state has no orderly procedure for ordering the evacuation. "... long chain of decision and delay, particularly in getting the state to act."

No Confidence in Utility

Utility will not notify state and locals of an event requiring evacuation. Utility evacuation time estimates are unrealistic. Local towns were not consulted in the process of preparing evacuation time estimates.

Mutual Aid Not Effective

Standing mutual aid agreements with neighboring towns are meaningless in an evacuation, since the neighboring towns will also need all their resources for their own evacuation and will not have any equipment or manpower to spare for mutual aid.

CHAPTER III. RECOMMENDATIONS

- Inform local officials about the possible sources of funding for resources needed for evacuation.
- Identify the actions that must be planned, and the resources needed for each action.
- Recognize those Action/Resource combinations that should be planned first.
- Assign evacuation routes in detail, so that locals can proceed with planning elements of local interest.

INFORM LOCAL OFFICIALS ABOUT FUNDING POSSIBILITIES

Bring the funding issue out in the open, inform the local officials about preparedness plan funding arrangements in other places, and give a frank appraisal of the funding possibilities in the Seabrook EPZ.

RECOGNIZE THE ACTION/RESOURCE COMBINATIONS THAT NEED TO BE PLANNED

Figures 1 through 3 illustrate:

- (1) All ACTIONS included in an effective evacuation.
- (2) All RESOURCES needed for performing these actions.
- (3) Which resources are needed to do any particular action.
- (4) Which Action/Resource combinations are the most important, that is, which ones represent the large users of resources or move large numbers of people.

Orderly planning will not proceed until this planning framework is assimilated and responsibility for each Action/Resource combination "assigned" to a local or state official for detailed planning.

RECOGNIZE IMPORTANT ACTION/RESOURCE COMBINATIONS FOR EARLY PLANNING

As indicated in Figures 1 through 3, there are a number of Action/Resource combinations that should be planned early. These are combinations that

(1) use large amounts of resource, (2) move large numbers of people, or (3) involve both of the above factors. It is essential that these important Action/Resource combinations be addressed first in the detailed planning process. Otherwise, it is likely that a significant portion of the planning effort will be expended on actions that do not move many people, and on relatively minor areas of resources.

The directing of the planning effort to the important Action/Resource combinations is done at the EPZ level, by the plan writing team. It is done through the mechanism of assigning the writing of detailed operating procedures to individuals responsible for the resources, under the continual supervision of this process by the plan writing team.

Clearly, complete discipline in this process is not possible, and is not even desirable. A relatively unimportant Action/Resource combination, but one of intense local concern, should be addressed at the early stage of the detailed plan writing phase. The important point is that the overall direction from the plan writing team constantly steer the local participation toward the more important Action/Resource combinations, and that unnecessary spending of planning energy on relatively unimportant Action/Resource combinations be avoided.

ASSIGN EVACUATION ROUTES

Many of the locals feel that they cannot make further progress on their evacuation planning until they have a firm identification of their evacuation routes and the reception centers to which they will proceed.

On the other hand, the response at the state level has been to prepare a basic plan first, then move on to the specifics such as individual evacuation routes.

Unfortunately, while this "top-down" approach has an appeal to planners with the EPZ viewpoint, it is not at all appealing to the local viewpoint.

To locals, preparedness planning means evacuation, and evacuation means primarily routes and reception centers.

Local involvement should begin with those things that the locals are most interested in, namely, evacuation routes and reception centers. Other aspects of preparedness will flow inductively from this starting point. For instance, once locals receive a detailed evacuation route and begin to address how to police it, they will naturally encounter the "Basic Plan" issues of command chain, communications, mobilization of Town manpower, etc. When the planning flows in this manner, there is no need to force attention to areas that locals have not yet thought of; instead, locals themselves will recognize the need to continue with the detailed planning in these areas.

The process for this would involve:

- (1) An initial assignment of evacuation routes. This would be done at the EPZ level, based on information already known about the road system, location of population and degree of balance that can reasonably be expected. In this step, Towns would be assigned an evacuation route (or routes) and a corresponding reception center.
- (2) Local review of assigned evacuation routes. The local Civil Defense director, together with Fire and Police Chiefs and other interested persons, would review the suggested evacuation route. Specific criteria include appropriateness of roads designated as major evacuation routes, ability to feed the Town population onto these roads, and ability of the Town to maintain orderly flow of traffic on these roads. Instances in which the suggested evacuation route "doesn't make sense" to locals need to be noted.
- (3) Refined assignment of evacuation routes. The detailed evacuation routes are adjusted according to the reactions obtained from the local review (above). Likely changes are additions of some road sections to the evacuation network, deletion of some roads as inappropriate for evacuation traffic, splitting of the evacuation traffic onto more than one road and designation of an entirely different evacuation route (or routes) for a Town.

It is important that the EPZ viewpoint be maintained throughout this process. Some decisions involve the trade-off between the preferences of two or more Towns; for

Instance, several towns may prefer to use a single evacuation route which would become overloaded if so used. A decision needs to be made, at the EPZ level, as to what towns are to be assigned to the preferred routes and what are to be reassigned to less appealing routes. This resolving of conflicting desires can be approached only on a case-by-case basis. In all cases, the overriding criterion is the most rapid evacuation of the entire EPZ population.

FIGURE 1

ACTIONS & RESOURCES NOTIFICATION

	MANPOWER				VEHICLES				EQUIPMENT				MEDIA		
	CIVIL DEFENSE FIREMEN POLICE	STATE POLICE COAST GUARD FIRE VEHICLES HELICOPTERS BOATS	SIRENS MOBILE PUBLIC ADDR. RADIO ALERT VHF RADIO TELEPHONE	EMERGENCY OTHER RADIO TELEVISION RADIO MATERIAL T.V. MATERIAL											
NOTIFY ALL PERSONS CONDUCTING EVACUATION	○						○	○							
NOTIFY PUBLIC THROUGH SIRENS	○				○										
NOTIFY POPULATION IN ISOLATED RURAL AREAS		○		○			○		○						
NOTIFY POPULATION IN ISOLATED RECREATION AREAS			○		○										
NOTIFY INDUSTRIAL COMPLEXES	○						○								
NOTIFY POPULATION ON WATERWAYS			○	○		○	○								
NOTIFY HOSPITALS	○						○								
NOTIFY NURSING HOMES	○						○								
NOTIFY PRISONS	○						○								
NOTIFY SCHOOLS	○						○								
INFORM NEWS MEDIA	○														
BROADCAST TO PUBLIC										○	○	○	○	○	

○ MAJOR ACTION/RESOURCE COMBINATIONS

○ LESS IMPORTANT ACTION/RESOURCE COMBINATIONS

FIGURE 2

ACTIONS & RESOURCES TRAFFIC CONTROL

	MANPOWER										VEHICLES				
	CIVIL DEFENSE POLICE	FIREMEN	RICE AUXILIARIES	ROAD MAINTENANCE	WHEELER OPERATOR	STATE POLICE	NATIONAL GUARD	RICE CARS	NATIONAL GUARD VEH	MUNICIPAL CARS, VANS	SNOW REMOVAL VEHICLES	TOW TRUCKS			
DIRECT TRAFFIC AT KEY LOCATIONS		○	○					○		○					
CLEAR SNOW											○				
TOW VEHICLES BLOCKING TRAFFIC															○
SPECIAL TRAFFIC CONTROL MEASURE		○	○	○				○		○					
MONITOR TRAFFIC FLOW	○	○	○												
CONTROL TRAFFIC AT SCHOOLS		○						○							
DETOUR THROUGH TRAFFIC								○		○					
SECURE PERIMETER OF EPZ								○		○					

○ MAJOR ACTION/RESOURCE COMBINATIONS

○ LESS IMPORTANT ACTION/RESOURCE COMBINATIONS

FIGURE 3

ACTIONS & RESOURCES CARLESS POPULATION

	MANDOWER										VEHICLES								
	CIVIL DEFENSE	RIKE AUXILIARY	OTHER AUXILIARY	BUS DRIVERS	RESERVE BUS DRIVERS	SCHOOL BUS DRIVERS	MUNICIPAL VEH DRIVERS	SCHOOL VEH DRIVERS	INSTITUTIONAL EMPLOYEES	SC. SCH. EMPLOYEES	PUBLIC BUSES	PRIVATE TRANSIT BUSES	MUNICIPAL CARRIER BUSES	POLICE CARS, VANS	AMBULANCES	TELEPHONE	RADIO ALERT SYSTEM	VHF RADIO	BUILDINGS
MOBILIZE BUS FLEET			○	○						○	○			○	○				
COLLECT RURAL CARLESS POPULATION						○						○							○
COLLECT URBAN CARLESS POPULATION																			○
LOAD BUSES AT COLLECTION POINTS		○																	
TRANSPORT CARLESS POPULATION FROM EPZ		○	○	○					○	○									
UNLOAD BUSES AT RECEPTION CENTERS		○																	
DISPATCH BUSES	○																		○
MOBILIZE SCHOOL BUSES						○									○	○			
MOBILIZE SCHOOL POPULATION							○												
REGISTER SCHOOL POPULATION							○												
PICK UP SCHOOL POPULATION (PARENTS)		○					○					○							
TRANSPORT SCHOOL POPULATION BY BUS						○			○										
UNLOAD SCHOOL POPULATION			○																
DISPATCH SCHOOL BUSES	○																		
MOBILIZE HANDICAPPED POPULATION								○											
COLLECT HANDICAPPED POPULATION							○					○	○						
MOBILIZE VEHICLE FLEET FOR HANDICAPPED			○	○		○													
TRANSPORT HANDICAPPED POPULATION			○	○		○					○	○							
DISPATCH VEHICLES FOR HANDICAPPED	○																		