Filed: February 25, 1983

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

before the

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE, et al.	)	Docket Nos. 50-443 OL 50-444 OL
(Seabrook Station, Units 1 & 2)	)	

APPLICANTS' ANSWERS TO
"NECNP FIRST SET OF INTERROGATORIES
AND REQUESTS FOR DOCUMENTS TO APPLICANTS
ON CONTENTIONS III.1, III.2, III.3, III.12 AND III.13"

Pursuant to 10 CFR § 2.740b, the Applicants hereby respond to the "NECNP First Set of Interrogatories and Requests for Documents to Applicants Contentions III.1, III.2, III.3, III.12 and III.13," served on them by mail on February 4, 1982. By agreement with counsel for NECNP, these answers are being filed on Friday, February 25, 1983.

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SPECIFIC INTERROGATORIES

Interrogatory No. 1

Question:

Please identify and produce all documents which contain or refer to any assumptions, methodology or input used in the "preliminary evacuation analyses" set forth in Appendix C to the Seabrook Station Radiological Emergency Plan [hereinafter, "Appendix C"], or the results of those analyses, including but not limited to any maps or aerial photographs of the model traffic network or traffic queue locations, any descriptions of the characteristics of the links in that traffic network, and any sensitivity analyses performed.

Answer:

a. USNRC Letter to Licensees of Plants Under Construction, dated July 2, 1980

b. Nuclear Regulatory Commission and Federal Emergency Management Agency, Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants NUREG-0654/FEMA-REP-1, REV-1, November 1980.

c. 1970 U.S. Census Housing

d. U.S. Census of Population, 1970

e. Massachusetts Department of Public Health, Population Projections 1980-1985, Office of State Health Planning, August 1978

f. NH Office of Comprehensive Planning, Interim Revision, New Hampshire Population Projections for Towns and Cities to the Year 2000, August 1977

g. Rockingham Stratford Census Project, Rockingham and Stratford County Population Data: 1978 Estimates

h. National Research Council, Traffic Flow Theory, Transportation Research Board Special Report 165, Washington, D.C., 1975

i. Highway Research Board of the National Academy of Sciences, Highway Capacity Manual.

j. HMM Associates, NETVAC 2 - A State of the Art Computer Evacuation Simulation Model - Software Description, Rev. 1, April 1982

k. HMM Associates, Seabrook Station EPZ Evacuation Network Map.

The Applicants will produce the foregoing documents at its offices at 1000 Elm Street, Manchester, New Hampshire or at the Education Center, Seabrook Station, Seabrook, New Hampshire, on a date and at an hour agreed upon by counsel for the Applicants and NECNP.

Interrogatory No. 2

Question:

Please identify and produce all documents within the possession, custody, or control of the Applicants which contain or refer to other evacuation analyses for the Seabrook vicinity, whether conducted before or after that set forth in Appendix C, or to any assumptions, methodology, input, or results of such analyses.

Answer:

a. Wilbur Smith and Associates, Roadway Network and Evacuation Study Seabrook, New Hampshire, December 1974

b. Alan M. Voorhees & Associates Seabrook Station Evacuation Analysis, July 1980

c. T. Urbanik II, M. A. McLean, A. E. Desrosiers, Pacific Northwest Laboratory - Battelle Memorial Institute, An Independent Assessment of Evacuation Time Estimates for a Peak Population Scenario in the Emergency Planning Zone of the Seabrook Nuclear Power Station NUREG/CR-2903 PNL-4290, November 1982

d. HMM Associates, NETVAC Model Validation Study, January 1981

e. HMM Associates, Review of Seabrook Station Evacuation Analysis; Final Report, January 1981

f. HMM Associates, NETVAC Model Sensitivity Analysis, February 1981

g. HMM Associates, Seabrook Station Plume Exposure EPZ: Evacuation Traffic Management Plan, July 1982

h. HMM Associates, Preliminary Evacuation Clear Time Estimates for Areas Near Seabrook Station (undated).

The Applicants will produce the foregoing documents at its offices at 1000 Elm Street, Manchester, New Hampshire or at the Education Center, Seabrook Station, Seabrook, New Hampshire, on a date and at an hour agreed upon by counsel for the Applicants and NECNP.

Interrogatory No. 3

Question:

Identify by name, title, profession, and affiliation all individuals who participated in the preparation of Appendix C, or in the conduct of the underlying analyses.

Answer:

The individuals Primarily responsible for the substantial entirety of Appendix C are those set forth below. No attempt has been made to identify each and every person who may have made any contribution to Appendix C or to any study or analysis that formed the basis for some aspect of Appendix C. The Applicants will be happy to identify any additional individuals who may have made such contributions in respect of particular aspects of Appendix C if NECNP will specify the particular aspect in question:

Robert J. Merlino President, HMM Associates Project Manager for work done on Seabrook Station evacuation studies

Robert D. Klimm Transportation Engineer, HMM Associates Project Engineer for work done on Seabrook Station evacuation studies

James A. MacDonald Manager, Radiation Protection Group Yankee Atomic Electric Company

Scott T. McCandless Vice President, HMM Associates

Interrogatory No. 4

Question:

Have the Applicants undertaken or contracted for any further evacuation analyses for the Seabrook vicinity over and above that set forth in Appendix C? If so, identify the contractor(s) and/or employees(s) who have/are/will be participating in the conduct of said analyses and the actual or anticipated completion date(s) therefor.

Answer:

No, not since the Wilbur Smith and Associates analysis in 1974. All other analyses included and reported by applicant are included in the response item 2.

Interrogatory No. 5

Question:

Identify all experts whom the Applicants intend to call as witnesses relative to evacuation of the Seabrook vicinity and state their qualifications.

Answer:

The Applicants have not yet determined who they intend to present as witnesses.

Interrogatory No. 6

Question:

Explain in detail the basis for the use in Appendix C of a 30% reduction in the capacity of the road

network to reflect adverse weather conditions. Identify all documents upon which the Applicants relied in choosing that percentage. Did Applicants assume, in calculating evacuation times for the adverse weather case, that the adverse weather affected travel speed? If so, what effect was assumed? If not, explain in detail the reasons why Applicants believe that effect need not be accounted for.

Answer:

HMM Associates had conducted literature searches on this matter. In general, there are few research studies which address this topic. The few references which have been discovered deal with reductions in capacity due to rainfall. One such study (E.R. Jones et al., The Environmental Influence of Rain on Freeway Capacity) indicates a reduction in freeway capacity of 14% to 19% during rainfall compared to dry conditions. From this information, it was judged appropriate for Seabrook adverse weather analysis to use a capacity reduction of 30% as a conservative assumption.

The use of reduced highway capacity during adverse weather directly affects travel speed. Because of the reduced capacities, lower travel speeds are calculated by the model. This effect is pronounced for those links in which congestion occurs. In addition, free flow speeds are reduced by the same factor as capacity

in the computer model. In this case, free flow speeds are reduced to 70% of the standard value.

Interrogatory No. 7

Question:

Identify the streets which were included in the transportation network for the evacuation analysis set forth in Appendix C. Did the EVAC model, as used for purposes of that analysis, account in any way for travel time from place of origin to a so-called "collector street," including travel time on local roads, or for waiting time in driveways or on local roads? If so, explain in detail the manner in which that model did account for these factors. Identify for each of the beaches within the plume exposure pathway EPZ as drawn in Applicants' FSAR [hereinafter, "the EPZ"] the nearest street thereto which has been included in the evacuation traffic network for the analysis in Appendix C.

Answer:

The map (see response item 1.k) shows the streets which were used in the basic analysis. The effects of travel times on local roads and delay times are accounted for. The NETVAC model loads vehicles onto the road network at designated nodes. For configuration of the transportation analysis, these nodes were selected at logical points, such as exits from large parking lots. For the 0-10 mile evacuation analysis, 138 entry nodes were specified. The model introduces vehicles onto the network at a specified

rate, typically 20 per minute. If the link on which the vehicles are being loaded becomes congested, the vehicles are not allowed to enter that link. For instance, 2500 vehicles are required to enter the network at entry node 30. In the absence of downstream congestion, this would require 125 minutes. However, because congestion does exist, it requires 270 minutes for the 2500 vehicles to enter the network.

The map shows the locations of streets relative to the beaches which were used in the transportation network. (NOTE: EVAC has since been renamed NETVAC)

Interrogatory No. 8

Question:

NUREG-0654, FEMA-REP-1, Rev. 1 [hereinafter, NUREG-0654], App. 4 provides (at p. 4-2) that, in preparing evacuation time estimates, "[t]he number of permanent residents shall be estimated using the U.S. Census data or other reliable data, adjusted as necessary, for growth." [Emphasis supplied.] In the opinion of the Applicants, what is the appropriate target date for adjusting population figures for the Seabrook vicinity for growth? Explain your answer in detail, identifying any documents upon which you rely.

Answer:

A target date has not been set for adjusting evacuation time estimates to population changes in the Seabrook vicinity.

Interrogatory No. 9

Question:

Explain why, in Appendix C, the population distribution for the area between 5 and 10 miles of the Seabrook site was not determined by year-round electric meters.

Answer:

Year-round, electric meter data was used to provide the population distribution between 0 and 5 mile radii because USGS map data could not supply adequate detail for the relatively small zones. Beyond 5 miles, the population zones are larger and USGS maps provide satisfactory detail.

Interrogatory No. 10

Question:

Please produce the 1978-79 electric meter use data and the 1978 weekday-weekend occupancy survey referenced in Appendix C, at page 8.

Answer:

Electric meter use data, which discloses the identity of individual customers, is confidential information provided by two electric companies. In

order to produce that data, the Applicants would be required to obliterate, physically, the names of the individual customers, which would be a substantial and time-consuming task. The Applicants therfore request NECNP to reconsider whether it really desires the production of this data.

The methodology used to analyze composite survey results is described in Section 2.1.3.1 of the FSAR.

Interrogatory No. 11

Question:

Describe in detail the manner in which on-street parking was estimated and transient automobile figures derived therefrom in Appendix C. (See App. C, at 9)

Answer:

See Section 2.1.3.3, d.4 of the Seabrook FSAR.

Interrogatory No. 12

Question:

Explain in detail your reasons for excluding from the calculation of off-season daily transient automobile demand in Appendix C persons in the area by reason of employment with other than "major manufacturers" and your reasons for excluding from summer weekend transient automobile demand non-resident employees. Please identify all documents upon which you have relied in making these exclusions, list by name and address the "major manufacturers" whose

employees were included, and identify any documents within your possession, custody, or control which contain or refer to numbers of non-resident employees who are within the EPZ either during weekdays or on weekends. (See Appendix C, at 10)

Answer:

Employees of firms other than major manufacturers were not included because data were not readily available nor was it considered that this element constituted a significant segment of the total population. It is further considered that this segment of the population would be widely distributed and would, therefore, not have a substantial effect on estimated evacuation time. Furthermore, population increases in the area due to this category are considered to be offset by population decreases for residents of the area who work outside the area.

"Major manufacturers" are described in FSAR Section 2.1.3.3, e.4.

Interrogatory No. 13

Question:

What free-flow speed was assumed for purposes of the evacuation analysis set forth in Appendix C? Explain in detail the bases for that assumption, identifying any documents upon which you relied.

Answer:

The free flow speeds for each of the more than 400 links in the network have been specified and were included on the computer listing. These free flow speeds were specified based on link characteristics, including such factors as posted speed limits and general quality of the radway. These speeds vary between 25 and 70 mph (see response item 2.h.).

Interrogatory No. 14

Question:

Please produce the document Traffic Flow Theory, Transportation Research Board Special Report 165, National Research Council, Washington, D.C., 1975, and the Highway Research Board's Highway Capacity Manual referenced at page A-2 of Appendix C.

Answer:

See answer to Interrogatory No. 1.

Interrogatory No. 15

Question:

Is it not true that the EVAC model provides unrealistically low evacuation time estimates by attributing to evacuees knowledge which they will not have with respect to traffic speeds or downstream links? (See App. C, at p. A-2) If your answer is in the negative, explain the reasons for your answer in detail, identifying any documents upon which you rely.

Answer:

No. The model does not assign a route to vehicles all the way from point of origin (entry node) to the location a vehicle leaves the evacuated area. At various intersections within the network the model simulates driver selection of alternate routes depending on the conditions at that intersection.

See Section 2.2 of the document referred to in response 1.j.

Interrogatory No. 16

Question:

Produce all documents in the Applicants' possession, custody or control which discuss the EVAC model or any other computer model for estimating evacuation times.

Answer:

See response 1.j.

Interrogatory No. 17

Question:

Explain in detail the manner in which roadway capacities were determined for the evacuation analysis set forth in Appendix C.

Answer:

See Section 2.4 of document in response to 1.j.

Interrogatory No. 18

Question:

In the opinion of the Applicants, what actions could be taken to improve significantly evacuation times within the EPZ? How much would it cost to implement each such action? (See NUREG-0654, at 4-10)

Answer:

A wide spectrum of actions could be taken to improve evacuation times within the EPZ, ranging from the practical to the absurd. The most practical action is to implement a traffic control program. The applicants have developed a recommended approach to an evacuation traffic management plan (see response item 2.g). Implementation of such a traffic management plan would improve emergency traffic flow on a system wide basis. Compared with Appendix C, clear time estimates with a traffic management plan could be reduced by as much as 20 percent. The costs associated with implementation of the Traffic Management Plan will depend on which section of the population the work force will be drawn from (i.e., volunteer or public employees).

On the absurd end of the spectrum, evacuation times could be reduced by constructing a four-lane roadway

from the beach directly through the salt marsh to Interstate 95. A crude estimate of the cost of such a facility is on the order of $80 million. Another method would be to close the beaches.

Interrogatory No. 19

Question:

Identify those state and local emergency response officials who have reviewed Appendix C. Produce any written comments prepared by such officials.

Answer:

A meeting was held at the Seabrook Station Visitor's Center in June 1980 at which results of the evacuation time estimate study were presented. This meeting was attended by State and local planning officials. Attachment 1 shows a list of those who have attended the meeting and an outline of the presentation. One letter of comment from the Director of the Massachusetts Civil Defense Agency has been received and is appended to Appendix C. No other written comments have been received to date.

Interrogatory No. 20

Question:

In the opinion of the Applicants what are the bounds of error associated with the evacuation time estimates contained in Table 4 of Appendix C? Explain

the bases for your answer in detail, identifying any documents upon which you rely.

Answer:

The bounds on the error associated with estimates in Appendix C are believed to be small based on the work done on validating the NETVAC model (see response 2.d.). In other words, for the situations which have been modeled, the estimates are believed to be as reliable as can be made at this time.

Interrogatory No. 21

Question:

In Applicants' opinion, if an accident occurs at Seabrook Station on a weekday during working hours what percentage of the permanent population within the EPZ will be working outside that area, leaving other family memebers at home without automobiles? Explain the bases for your answer in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

Applicant has made no study or examined any data which could form the basis for a reliable opinion.

Interrogatory No. 22

Question:

In the Applicants' opinion, how many people within the EPZ are likely to be dependent on public transportation as their means for evacuation in the

event of an accident at Seabrook Station? How many of those people are non-ambulatory? Explain the bases for your answers in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

1970 Federal Census data indicates that the non-car owning permanent population is not a significant component in the Seabrook Station EPZ. Accordingly, for the purposes of this study, it is assumed that those permanent residents without access to an automobile will evacuate with a neighbor.

Statistics on non-ambulatory personnel residing outside of special facilities are not available. It was assumed that the non-institutionalized, non-ambulatory population would evacuate with neighbors or relatives.

Interrogatory No. 23

Question:

In Applicants' opinion, what is the appropriate method for accounting for ambulatory and non-ambulatory public transportation-dependent populations in arriving at evacuation time estimates? How much time will be required to evacuate the public transportation-dependent population within each of the sectors for which evacuation time estimates have been provided in Appendix C for each of the evacuation scenarios analyzed there? Explain the bases for your answers in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

Evacuation time estimates have not been exclusively analyzed for public transportation-dependent populations. As indicated in Appendix C and its' Appendix C, institutional evacuation time estimates are typically less than or equal to the evacuation time estimates of the surrounding area.

Interrogatory No. 24

Question:

Please produce all documents within the Applicants' possession, custody, or control relating to the behavior which might be expected of drivers during the course of an evacuation, including an evacuation due to an accident at a nuclear reactor and, in particular, when within sight of the plume.

Answer:

a. U.S. Environmental Protection Agency, Evacuation Risks - An Evaluation, EPA-520/6-74-002, June 1974.

b. Atomic Safety and Licensing Board, Initial Decision, December 14, 1981 [LBP-81-59, 14 NRC 1211].

These documents are publically available. In the event that NECNP is unable to obtain copies, the Applicants will produce the foregoing documents at

its offices at 1000 Elm Street, Manchester, New Hampshire or at the Education Center, Seabrook Station, Seabrook, New Hampshire, on a date and at an hour agreed upon by counsel for the Applicants and NECNP.

Interrogatory No. 25

Question:

In the opinion of the Applicants, how many persons outside the EPZ might spontaneously evacuate in the event of an accident at Seabrook Station? From what areas would those people evacuate and what would be the effect of such spontaneous evacuation on the evacuation time estimates set forth in Appendix C? Explain your answers in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

Spontaneous evacuation of populations outside the EPZ was not considered in the Appendix C analysis. If spontaneous evacuation did occur, it is assumed that the flow would be away from the EPZ and would, therefore, not affect the evacuation time estimates for those areas within the EPZ. Traffic egress back into affected areas of the EPZ during an evacuation is highly unlikely and, therefore, was not considered. Also, traffic corridors on the outer edges of the EPZ would not be taxed to capacity as the roads near the

beaches, so incoming traffic in those areas would pose less of a problem. In any event, the traffic management plan developed for use in evacuation of the area will provide for access control of traffic into the area.

Interrogatory No. 26

Question:

What, if any, analyses or studies have been conducted by or for the Applicants of past traffic jams within the EPZ? Describe in detail the methodology, findings, and conclusions of any such analysis or study and produce any documents within Applicants' possession, custody, or control related thereto.

Answer:

An extensive traffic analysis study has been prepared by HMM Associates entitled Beach Area Traffic Count Program: Seabrook Station EPZ, December 1982. This traffic count program was conducted to evaluate traffic volume levels and characteristics in the beach areas of Salisbury, MA, and Seabrook and Hampton, NH during the summer months of 1982.

Interrogatory No. 27

Question:

In the opinion of the Applicants, what is the proper way to account for each of the following possibilities in preparing evacuation time estimates:

a. vehicles breaking down or running out of fuel during the evacuation;

b. abandoned vehicles;

c. vehicles having insufficient fuel at the commencement of the evacuation, to the knowledge of their owners;

d. disregard of traffic control devices;

e. evacuees using inbound traffic lanes for outbound travel; and

f. blocking of cross-streets at intersections.

What would be the effect on the evacuation time estimates contained in Appendix C of so accounting for each of these possibilities? How many vehicles will experience the problems listed in a., b., and c. above in each of the evacuation sectors in Appendix C for each of the evacuation scenarios analyzed therein? Explain the bases for your answers in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

Applicants do not believe there is a reasonable way to account for these factors in making estimates of evacuation time. The effect on the evacuation time would depend on the specific situation (e.g., number of

vehicles involved, location of breakdown, time at which the breakdown occurred). In summary, depending on the circumstances, the effect on evacuation time could range from insignificant to substantial.

Applicants have no data for providing the requested estimate of vehicles in categories a., b. and c. These types of considerations should be incorporated in the contingency planning associated with the development of an evacuation traffic management plan.

Interrogatory No. 28

Question:

NUREG-0654 provides (at p. 4-6) that in calculating evacuation time estimates in the case of ". . . a northern site with a high summer tourist population [the applicant] should consider rain, flooding, or fog as the adverse [weather] condition as well as snow with winter population estimates." In Applicants' opinion, what is the appropriate summer adverse weather condition which should be used in estimating evacuation times at Seabrook? What is the estimated evacuation time, assuming that condition, for each of the evacuation sectors analyzed in Appendix C? Explain your answers in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

The impact of adverse weather conditions on peak summer weekend evacuation time estimates was not analyzed. Since the summer tourist population is primarily dependent upon weather conditions it is

assumed that any decreases in evacuability due to road conditions would be offset by the already reduced transient population in the area.

Interrogatory No. 29

Question:

How much time will be required to evacuate simultaneously on a summer weekend all persons on the coastal beaches within the EPZ? the persons on Hampton Beach and Seabrook Beach? the persons on Hampton Beach and Salisbury State Beach? all persons within the EPZ? [See NUREG-0654, App. 4, at 4-4] Explain the bases for your answers in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

The precise geographical areas identified have not been specifically analyzed in all cases. For example, no analysis has been done which limits the study area to "the coastal beaches within the EPZ". For those cases which have been analyzed (including the entire EPZ) see Figure 9 through 21 and Table 4 in the document identified in response item 2.h.

The evacuation time estimates for the 10-mile EPZ during fair weather for summer weekend and weekday are, six hours five minutes and four hours ten minutes, respectively. This data is from the same source as that used to compile Appendix C.

Interrogatory No. 30

Question:

How much time should be added to the evacuation time estimates set forth in Appendix C to account for notification time? Does your answer vary depending on whether notification is staggered? If so, provide figures for both simultaneous and staggered notification. Explain the bases for your answers in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

The evacuation time estimates given in Appendix C are from the point in time the public begins to evacuate. For judgment about the time between the decision to notify the public of the need to evacuate and the time they actually start evacuating, see 10 CFR Part 50, Appendix E, § IV.D.3.

Interrogatory No. 31

Question:

How much time should be added to the evacuation time estimates set forth in Appendix C to account for preparation/mobilization and confirmation times? Explain the bases for your answers in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

Preparation and mobilization times will vary depending on the population segment. For peak summer conditions, a large part of the population (daily

transients) should not require a long time to mobilize, so 15 minutes might be a reasonable estimate. For the permanent population segment a mobilization time of 15 minutes to one hour seems reasonable.

Addition of 15 minutes to account for preparation and mobilization of the early evacuating group seems reasonable.

Confirmation time does not add to the overall evacuation estimates for the Seabrook EPZ.

Interrogatory No. 32

Question:

How much time should be added to the evacuation time estimates set forth in Appendix C to account for work-to-home travel within the evacuation network? Explain the bases for your answer in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

Applicants have no data or studies on which to base a response to this question.

Interrogatory No. 33

Question:

Under the Applicants' Emergency Classification System, as set forth in Chapter 5 of the Seabrook Station Radiological Emergency Plan ["RAP"], will an "Alert" be declared only when there is an actual "substantial degradation of station safety margins . . ." (at 5-1) or also when there is the

potential for such, in accordance with the guidance of NUREG-0654 (at 1-8)? Will the Applicants declare a "Site Area Emergency" or "General Emergency" if expected releases are any greater than "small fractions of the EPA Protective Action Guideline exposure levels"? If your answers deviate in either of these respects from the guidance set forth in NUREG-0654, explain the bases for those deviations in detail, identifying any documents upon which you rely.

Answer:

The classification of emergencies is described in general in Chapter 5 of the RAP, while the specific events that fall into each category are specified in Appendix A.

Interrogatory No. 34

Question:

Under the Applicants' Emergency Classification System as set forth in Chapter 5 of the RAP, will a "General Emergency" be declared any time expected releases exceed EPA Protective Action Guideline Exposure levels offsite for more than the immediate site area, in accordance with the guidance of NUREG-0654 (at 1-12 - 1-16)? Will a General Emergency be declared whenever events are in process or have occurred which involve imminent, as well as actual, substantial degradation or melting with potential for loss of containment integrity, in accordance with the guidance of NUREG-0654 (at 1-16)? If your answers deviate in either respect from the guidance set forth in NUREG-0654, explain the bases for those deviations in detail, identifying any documents upon which you rely.

Answer:

A "General Emergency" will be declared any time releases can be reasonably expected to exceed EPA Protective Action Guideline exposure levels offsite for more than the immediate site area. In accordance with NUREG-0654, a "General Emergency" will be declared when events are in process or have occurred which involve actual or imminent substantial core degradation or melting with loss of containment integrity.

Interrogatory No. 35

Question:

List any example initiating conditions set forth in NUREG-0654, Appendix 1 and any postulated accidents in the Seabrook Station FSAR which have not been included in the initiating conditions set forth in Tables A.1, A.2, A.3, and A.4 of the RAP. (See NUREG-0654, at 42). Explain in detail the bases for each such omission, identifying any documents upon which you rely. In particular, explain in detail the bases for the following apparent deviations from the guidance of NUREG-0654:

a. The designation of only certain radiological effluents the exceeding of technical specifications for which will result in declaration of an Unusual Event. (Compare NUREG-0654, at 1-5, No. 2 and RAP, Table A.1, Nos. 1 and 2.)

b. The limitation of the initiating condition in the RAP, Table A.1, No. 5 to the exceeding of the specified limit "due to steam generator tube failure" (compare to NUREG-0654, at 1-5, No. 5) and the

conditions in Table A.1, Nos. 5 and 6 to certain operational modes (compare to NUREG-0654, at 1-5, No. 5.)

c. The omission from Table A.1 in the RAP of a loss of offsite power or of onsite AC power capability which does not require a plant mode reduction in accordance with technical specifications (compare NUREG-0654, at 1-5, No. 7.)

d. Modification of example initiating condition No. 10 in NUREG-0654, at 1-5, from "Fire within the plant lasting more than 10 minutes" to "Fire that threatens but does not defeat a plant safety train or function." (See RAP, Table A.1, No. 8.)

e. The omission from Table A.1 in the RAP of plant conditions which "involve other than normal controlled shutdown (e.g., cooldown rate exceeding technical specification limits, pipe cracking found during operation)." (See NUREG-0654, at 1-6, No. 15).

f. The omission from Table A.1 in the RAP of "[r]apid depressurization of PWR secondary side." (See NUREG-0654, at 1-6, No. 17.)

g. Characterization of the initiation of the ECCS and discharge to the reactor vessel as an initiating condition for an Alert, rather than an Unusual Event. (Compare NUREG-0654, at 1-5, No. 1 and RAP, Table A.2, No. 1.)

h. The omission from Table A.2in the RAP of example initiating condition No. 6 as set forth in NUREG-0654, at 1-9.

i. The limitation of initiating conditions 7, 8 and 10 as set forth in

Table A.2 of the RAP to "operational modes 1 through 4." (Compare NUREG-0654, at 1-9, Nos. 7, 8 and 10.)

j. The modification of the initiating condition No. 13 as set forth in NUREG-0654, at 1-9, from "[f]ire potentially affecting safety systems" to "[f]ire defeating any safety system train or function" (seeRAP, Table A.2, No. 13.)

k. The omission from Table A.3 in the RAP of initiating condition No. 1 as set forth in NUREG-0654, at 1-13.

l. The modification of initiating condition No. 5 as set forth in NUREG-0654, at 1-13 from "steam line break with greater than 50 gpm primary to secondary leakage . . ." to "steam line break with significant primary secondary steam generator tube break . . . ." (See RAP, Table A.3, No. 3).

m. The omission from Table A.3 in the RAP of the initiating conditions contained in NUREG-0654, at 1-13, Nos. 13, 15, 16(a), 16(b) and 17.

n. The omission from Table A.4 in the RAP of the initiating conditions contained in NUREG-0654, at 1-17, No. 1.a.

Answer:

a. Separate technical specification limits are associated with each of the releases listed in items 1. and 2. of Table A.1.

b. These technical specifications can only be exceeded by a steam generator tube failure.

c. A loss of offsite power or of onsite AC power capability, which does not require a plant mode reduction in accordance with technical specifications, does not produce a potential degradation of the level of safety of the plant.

d. A fire that lasts for more than 10 minutes does not necessarily degrade the safety of the plant.

e. These 0654 initiating conditions are more general than those specified in Table A.1.

f. Initiating events described in item 7. of Table A.1 signify "rapid depressurization of PWR secondary side."

g. An ECCS initiation and actual discharge to the reactor vessel due to a loss of coolant accident is more serious than initiation of ECCS, containment spray and/or emergency feedwater system and is, therefore, classified as an Alert rather than Unusual Event.

h. The initiating conditions which would lead to the levels described in 0654 number 6, at 1-9, are specified in detail in order to provide a more objective indication for operator use.

i. Emergency event conditions described in NUREG-0654, at 1-9, numbers 7, 8 and 10 do not satisfy emergency classification criteria when the plant is in operational modes 5 (cold shutdown) and 6 (refueling).

j. In order to maintain consistency with the fire classifications associated with Unusual Event, the fire conditions for an Alert will "involve an actual or potential substantial degradation of the

level of the safety of the plant" as described in NUREG-0654 at 1-8.

k. A loss of coolant accident greater than makeup pump capacity does not necessarily imply that public safety is threatened as specified by NUREG-0654, at 1-12.

l. The degree of fuel damage determines the significance of the primary to secondary leak rate. Primary to secondary leakage does not, in itself, constitute initiation of a Site Area Emergency.

m. Emergency Action Levels, which satisfy NUREG-0654, at 1-13 number 13, will be developed which address specific parameters associated with item 4 of Table A.3.

The initiating conditions which satisfy NUREG-0654, at 1-13, numbers 15, 16 and 17 are discussed under an "Alert" classification on Table A.2.

n. Those portions of NUREG-0654, at 1-17, number 1.a which are capable of being implemented have been incorporated in Table A.4.

Interrogatory No. 36

Question:

What events or conditions are covered by each of the phrases "[s]evere natural phenomenon incidents," "abnormal occurrences near site or onsite" and "significant loss of assessment or communications capability" contained in Table A.1 of the RAP, No. 13?

Answer:

Initiating conditions for classification of an Unusual Event will be developed in greater detail

in Emergency Action Levels. Some examples of Unusual Event initiating conditions, are as follows:

a. severe natural phenomenon incidents

- any earthquake felt in-plant or detected on station seismic instrumentation
- any tornado or hurricane producing winds in excess of 75 mph.

b. abnormal occurrences near site or on site

- aircraft crash or unusual aircraft activity over the facility
- any near or on-site train derailment or tank truck accident with actual or potential release of toxic or hazardous substances which will likely affect the plant operation

c. significant loss of assessment or communications capability

- loss of all meteorological instrumentation
- loss of plant computer system and Safety Parameter Display System
- loss of on-site of off-site communications capabilities.

Interrogatory No. 37

Question:

What events or conditions are covered by Item No. 19 in Table A.2 of the RAP? Are all events specifically set forth in NUREG-0654, at 1-10, Nos. 17-19 covered?

Answer:

Item 19 of Table A.2 relates directly to those items listed in NUREG-0654, at 1-10, Nos. 17-19.

Interrogatory No. 38

Question:

Explain in detail the bases for your inclusion of condition No. 16 in Table A.2 of the RAP, identifying any documents upon which you rely.

Answer:

Number 16, Table A.2 was included to maintain consistency with No. 1, Table A.2.

Interrogatory No. 39

Question:

Does the word "promptly" in Table A.3, No. 6.d. of the RAP mean within 15 minutes? If not, what does it mean?

Answer:

Yes, the word "promptly" used here means within 15 minutes.

Interrogatory No. 40

Question:

In Applicants' opinion, is the initiating condition of "failure of a safety or relief valve in a safety-related system to close following reduction of applicable pressure" properly characterized as an Unusual Event, rather than a Site Area or General Emergency, even given that such was in part the cause of the accident at

Three Mile Island Unit 2? State the bases for your answer in detail, identifying any documents upon which you rely.

Answer:

The "failure of a safety or relief valve in a safety-related system to close following reduction of applicable pressure" does not in itself constitute a threat to plant or public safety. This type of valve failure would have to be complicated by other initiating events in order to be classified as a Site Area or General Emergency. The accident at Three Mile Island was initiated by inadequate feedwater flow, not a safety valve failure.

Interrogatory No. 41

Question:

In the Applicants' opinion, is it necessary that the Seabrook Station Radiological Emergency Plan demonstrate the Applicants' ability to respond to failures at both units, or a failure at one unit which affects the other's capacity to operate safely? If your answer is in the negative, explain in detail the bases therefore, identifying any documents upon which you rely. If your answer is in the affirmative, is it the opinion of the Applicants that the RAP demonstrates such an ability? Explain the bases for your answer in detail, identifying any provisions of the RAP or other documents upon which you rely.

Answer:

Implementation of emergency response actions by the emergency response organization is indeed geared to an emergency condition or conditions at either of the two units or at both simultaneously. The major response functions of emergency classification, off-site authority notification, company emergency response personnel notification and activation, on-site accident diagnosis and prognosis, and off-site radiological condition assessment and protective action recommendation are all performed regardless of the type of accident and whether one or both units are affected

Interrogatory No. 42

Question:

Will independent emergency response teams provide independent response capability for each Seabrook unit? If not, explain in detail your justification for not having such independent response capability, identifying any documents upon which you rely. If so, describe in detail the means for coordination of response between the two teams and identify the personnel who will comprise the second team.

Answer:

Independent emergency response teams will provide unit specific emergency response under the coordination of the Emergency Director. In the event of an emergency in one of the Seabrook units, the emergency response team will be drawn from the organization discussed in Sections 6 and 8 of the Emergency Response Plan. If the remaining unit also becomes involved in emergency conditions then the alternates of the primary emergency response team will comprise the second units' emergency response team. Two Technical Support Centers (TSC) will be activated, one for each unit. Each TSC will be directed by a Technical Support Coordinator. The Technical Support Coordinator will transmit recommendations to the respective units' Control Room through the unit Operations Manager. Each units Technical Support Coordinator will provide information to and coordinate responses with the Emergency Director.

Interrogatory No. 43

Question:

In Applicants' opinion, how should the Emergency Classification system reflect the possibility of simultaneous failure of both units, or a failure at one unit which affects the other's capacity to operate safely? Explain your answer in detail, identifying any documents upon which you rely.

Answer:

The Emergency Classification System categorizes a wide spectrum of component or system failures or other occurrences that could potentially reduce station safety margins at either unit or at both units simultaneously.

Interrogatory No. 44

Question:

Are the emergency facilities and equipment described in Chapter 6 of the RAP designed to respond simultaneously to accident conditions at both Plants? If not, what changes/additions would be necessary to provide that capability? Explain your answers in detail, identifying any documents upon which you rely.

Answer:

Yes, as per response to question 42, emergency facilities and equipment are designed to respond simultaneously to accident conditions at both units.

Interrogatory No. 45

Question:

Will each unit of the reactor be equipped with all of the radiation protection equipment described in Section 10.4.4 of the RAP? If not, explain in detail your justification for not providing sufficient protection equipment for all personnel at both units, identifying any documents upon which you rely.

Answer:

Yes, the health physics control point will stock all the radiation protection equipment described in Section 10.4.4 of the REP to be used in both units' Radiation Controlled Areas.

Interrogatory No. 46

Question:

In Applicants' opinion, what alterations should be made to the boundaries of the plume exposure pathway and ingestion pathway emergency planning zones for Seabrook Station as set forth in FSAR to account for the possible consequences of an accident at both units? Explain the bases for your answer in detail, disclosing any assumptions made and identifying any documents upon which you rely.

Answer:

None. Emergency Planning Zones are established in accordance with 10 CFR § 50.33(g). The Seabrook Station EPZ has been established accordingly.

Interrogatory No. 47

Question:

Please provide, for each individual whom the Applicants intend to use as an expert witness on the subjects of evacuation or evacuation times, a list of all proceedings of any kind before any tribunal in which said individual has testified and the subject matter of his/her testimony on such occasion. Please produce any documents within the Applicants' possession, custody, or control containing any such testimony.

Answer:

See answer to Interrogatory No. 5.

Interrogatory No. 48

Question:

Please identify, for each individual whom the Applicants intend to call as an expert witness on the subjects of evacuation or evacuation times, all reports, studies, papers, articles, and books, whether published or not, and whether a draft or final, relating in any way to said subjects and prepared, in whole or in part, by said individual or by a corporation, partnership, agency, or other organization of which said individual is (or was at the time of preparation) an employee, officer, director, partner, or agent.

Answer:

See answer to Interrogatory No. 5.

Interrogatory No. 49

Question:

Identify any officer, director, employee or representative of any of the Applicants who dissents from any finding, conclusion, or

statement contained in Appendix C or to any portion of the answer to any of the foregoing interrogatories. Describe in detail the nature of any such dissent.

Answer:

No officers, directors, employees or representatives of the Applicant dissent from any finding, conclusion or statement contained in Appendix C or to any portion of the answer to any of the foregoing interrogatories.

Signatures

As to Answers:

I, Wendell P. Johnson, being first duly sworn, do depose and say that the foregoing answers are true, expect insofar as they are based on information that is available to the Applicants but not within my personal knowledge, as to which I, based on such information, believe them to be true.

Wendell P. Johnson

Sworn to before me this
25th day of February, 1982:

Notary Public
My Commission expires: _____

ROBERT K. GAD, III
NOTARY PUBLIC
My Commission Expires Sept. 5, 19[illegible]

As to Objections:

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CERTIFICATE OF SERVICE

I, R. K. Gad III, one of the attorneys for the Applicants herein, hereby certify that on February 25, 1983, I made service of the within "Applicants' Answers to 'NECNP First Set of Interrogatories and Requests for Documents to Applicants Contentions III.1, III.2, III.3, III.12 and III.13,'" by mailing copies thereof, postage prepaid, to:

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U.S. Nuclear Regulatory Commission
Washington, DC 20555

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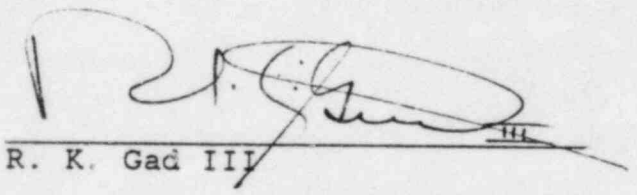

R. K. Gad III

Attachment 1

SEABROOK STATION

OUTLINE OF PRESENTATION ON EVACUATION ANALYSIS

FOR PUBLIC OFFICIALS

June 18, 1980

INTRODUCTION (Slide 1)

Purpose

- Background on work
- Status of efforts
- Possible uses of the technique

Licensing Requirement

Major Issues

- Summer influx
- Limited number of major roads

OVERVIEW OF THE STUDY (Slide 2)

General form of problem

Population data

- People
- Cars

Road network

- Intersections
- Travel links

Computer Model

Results

- Clear time
- Planning data

DESCRIPTION OF STUDY AREA

- Overview (slide 3)
  - NRC - distance criteria
  - Real world - town planning basis

POPULATION

- Permanent population (slide 4)
- Transient population (slide 5)
  - Hampton Beach (slide 6)
  - Seabrook Dog Track (slide 7)
- Combined Population (slide 8)
  - Vehicle estimates derived from population studies
- Blank (slide 9)

ROAD NETWORK

- Major Routes (slide 10)
- Intersection
  - actual (slide 11)
  - data sheet (slide 12)
- Link
  - actual (slide 13)
  - data sheet (slide 14)

RESULTS (slide 15)

- Blank (slide 16)

BEACH AREA EXAMPLE

- Study Area (slide 17)
- Road Netowrk (slide 18)
- Vehicle loading (slide 19)

CONCLUSION

- Recap approach
- Results to date

  .2 miles

  5 miles

  10 miles
- Could begin to refine estimates with detailed input

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Eileen Foley
John A. McIsaac
David N. Cass
Michael J. Nawoj
Norman Hobbs
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EXETER

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HAMPTON FALLS

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Jerry Healy
Harrison Bigge or
Bill Marston

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EAST KINGSTON

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