

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

02-11722 P1:43

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
SOUTH CAROLINA ELECTRIC & GAS COMPANY, <u>et al.</u>)	Docket No. 50-395-OL
)	
(Virgil C. Summer Nuclear Station, Unit 1))	

[Applicants' Supplemental Proposed Findings of Fact
and Conclusions of Law on Intervenor's Contention
A8 Regarding Emergency Planning in the Form of a]
SUPPLEMENTAL PARTIAL INITIAL DECISION

1. This supplemental partial initial decision resolves all remaining portions of those issues in controversy arising under Intervenor Bursey's Contention A8. That contention was as follows:

"The Applicant has made inadequate preparations for the implementation of his emergency plan in those areas where the assistance and cooperation of state and local agencies are required."

2. The record on the emergency planning contention as specified was originally closed on September 24, 1981 (Tr. 4679). However, on November 3, 1981, Intervenor filed "Intervenor's Finding of Facts and Conclusions on Emergency Preparedness" within which he made references to documents¹ and to oral statements² which were not offered or admitted

¹ Richland County-City of Columbia Disaster Operation Procedure No. 4 (DOP #4), Radiation Release Accident, V. C. Summer Nuclear Station, dated October 5, 1981 (Intervenor's Findings at 3); letter, dated October 12, 1981, from Richland County Sheriff Frank Powell to Hugh K. Boyd, Jr. (Intervenor's Findings at 8).

² Conversation between Brett Bursey and Sheriff Powell (Intervenor's Findings at 8).

into evidence during the evidentiary hearings on Intervenor's Contention 8. On December 1, 1981, Applicants submitted reply findings of fact and conclusions of law on the emergency planning issue and moved to strike references in Intervenor's proposed findings to information or documents which were not a part of the evidentiary record. On December 8, 1981, Intervenor moved to reopen the record on Contention 8 in order to introduce some additional, unspecified testimony regarding certain alleged inadequacies in the Applicants' methodology for testing their emergency sirens, and to offer into evidence a document prepared by the Richland County-City of Columbia Office of Civil Defense (dated October 5, 1981), as well as Sheriff Powell's letter (see Footnote 2). Intervenor further proposed to offer testimony concerning the purpose of Sheriff Powell's letter. On December 21, 1981, the NRC Staff filed an answer in support of Applicants' motion to strike extra record material in Intervenor's Proposed Findings and in opposition to his motion to reopen the record. On December 18, 1981, Applicants filed an Answer to Intervenor's Motion to Reopen the Proceedings Opposing that Motion, to which was attached an affidavit from SCE&G's Coordinator for Emergency Planning. That affidavit specified the Applicants' method for testing of the siren system and addressed in detail the concerns raised by Intervenor with regard to the testing of the sirens in his motion to reopen the record.

3. In a Memorandum and Order dated January 5, 1982, we denied in part and granted in part Intervenor's Motion to

Reopen the Record. With regard to Intervenor's concern about the methodology for testing of the sirens, we found that because the proposal by the Applicants for testing of the system apparently met Intervenor's concerns and Intervenor had no specific information that the matters stated by Applicants' Coordinator for Emergency Planning in his Affidavit were incorrect, there was no basis for Intervenor's request on that issue and we denied that portion of his Motion to Reopen. With regard to the remainder of Intervenor's request, which related to proposed evidence regarding the sufficiency of the backup emergency public notification system, we found that the documents and testimony proposed to be introduced by Intervenor apparently contradicted evidence already adduced and that the late date of the revelation of this information to Intervenor made his request timely. We further noted that though there are no specific regulatory requirements for a backup to the siren notification system, if Applicants and Staff were able to present further evidence to support a low likelihood of failure of the siren system, perhaps no backup should be required by us. In any case, we concluded that the matter was substantial enough to require a reopening of the record.

4. As stated further in our Order of January 5, 1982, the Intervenor was responsible for prefiling testimony of Sheriff Powell and Mr. Boyd and the Applicants were responsible for assuring submittal of additional testimony by them or by the Staff regarding the low likelihood of the siren

system failing in the event of a plant emergency, and regarding information that may be available on cost and efficacy of an electronic siren system. The matter was set to be heard following the conclusion of evidence on the Board's seismic questions, scheduled to begin on January 11, 1982.

5. The reconvened hearing on emergency planning took place on January 20, 1982. As will be discussed later, Intervenor presented one witness, and Applicants presented four. Applicants submitted two exhibits for the record. Neither Intervenor nor NRC Staff submitted any exhibits. NRC Staff presented no testimony.

The Legal Standard

6. Nuclear facility licensees and applicants for operating licenses are required by NRC regulations to develop emergency response plans (10 C.F.R. Part 50, §50.47 and Appendix E). Section 50.47 of Part 50 states specifically as follows:

"(a)(1) No operating license for a nuclear power reactor will be issued unless a finding is made by NRC that the state of on-site and off-site emergency preparedness provides reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency."

Section 50.47(b) lists 16 standards which on-site and off-site emergency response plans for nuclear power reactors must meet. As indicated in a Footnote to Section 50.47(b), the standards are complemented by specific criteria in NUREG-0654 (FEMA REP-1), which appeared in its final form as Rev. 1 in October, 1980. As noted in our January 5, 1982

Order, there are no specific requirements in the regulations for a backup to the siren notification system which Applicants have chosen to use. Nevertheless, the reliability of a warning system is implicit in the requirements and in the criteria set forth in NUREG-0654 (see Appendix 3). Since we felt that the record was not complete enough on the issue of reliability of the primary (siren) notification system, it was appropriate that in addition to providing that information, the record should be clear on the efficacy of the backup notification system as well.

The Evidence

7. The Intervenor did, as required in our January 5, 1982 Order, file with the parties testimony of Frank Powell, Sheriff of Richland County. That testimony was in the form of a one page affidavit. Sheriff Powell was subpoenaed by the Board at the request of Mr. Burseley and did appear on January 20, 1982. The affidavit submitted by the Intervenor as prefiled direct testimony of Sheriff Powell was not requested by Intervenor to be admitted into the record in any form, and thus was not admitted. However, Sheriff Powell, during the course of his testimony, for all practical purposes repeated the substance of statements made in the affidavit and thus it was really not necessary that the affidavit be received.

8. Sheriff Powell initially expressed two concerns. The first was that he felt his department could not get sirens into the area of Richland County within the ten mile

EPZ in one hour, which was the time frame which he understood to have been mentioned by the Applicants' witness Beale.³ His second concern was voiced in his opinion that personal notification, i.e., door-to-door canvassing (as later distinguished from alerting) would be the only good way to accomplish [backup] notification (Tr. 6025-6026, 6046, 6051). This, he suggested, would take six to ten hours, assuming the responsibility rested solely with his department to evacuate the people (Tr. 6026).

9. As it eventuated, Sheriff Powell's final position was that his department could get sirens into the area and sound them within one hour (Tr. 6027, 6029, 6030, 6033-6034, 6038).

10. The seeming inconsistencies in position by Sheriff Powell may be attributable in part to a distinction which he later drew between "alerting" the public and "notifying" the public (Tr. 6049-6050). The mere sounding of sirens by emergency vehicles, in Sheriff Powell's view, constitutes "alerting" the public, whereas "notifying" the public is accomplished only through door-to-door, physical notification of all persons (Tr. 6050).

11. Sheriff Powell acknowledged that what he was being requested to do pursuant to existing Richland County-City of Columbia Disaster Preparedness Plans was merely to alert the

³ Mr. Beale had opined earlier that it would take approximately 60 minutes for local sheriffs to get out into the location and sound their sirens. He further stated, however, that the time may be longer or shorter (Tr. 4511).

public through siren sounding (Tr. 6042). As mentioned before, Sheriff Powell acknowledged a likelihood of his ability to accomplish this. He did, however, state that even though his responsibility under the plan may be limited to alerting the public, he would in any case also accomplish physical notification (Tr. 6039), i.e. if he were notified by Civil Defense to do the warning with sirens, he would do that and then go back and get the people out (Tr. 6043).

12. Sheriff Powell did concede, were he faced with a situation calling for personal notification, that if the National Guard were to help, then the notification time could be much less than the six to ten hour estimate which he gave (Tr. 6040). As to exactly how his department would perform in association with other agencies as set forth in the emergency plans for Richland County and the City of Columbia, Sheriff Powell admitted to a lack of familiarity with the plans as they relate to other agencies which also have responsibilities (Tr. 6044). Specifically, he claimed to have nothing to do with the State, but worked only through the County Civil Defense agency (Tr. 6047).

13. Sheriff Powell's lack of familiarity with the emergency plans as they relate to agencies other than his own, and particularly as they relate to the interrelationship between State emergency planning function and his county's emergency planning function, is significant in light of the testimony of the witnesses sponsored by the Applicant: Kenneth E. Beale, Emergency Coordinator for

South Carolina Electric & Gas Company; Hugh K. Boyd, Jr., Coordinator for Richland County-City of Columbia Civil Defense; and George R. Wise, Sr., State Director for the Emergency Preparedness Division, Office of the Adjutant General.

14. Mr. Boyd's testimony was particularly helpful in describing more clearly what Sheriff Powell's department's role would be under the Richland County-City of Columbia emergency plans in the event of an incident at the V. C. Summer Station. The sheriff would apparently have the responsibility of putting his people out into the affected area to sound their sirens (Tr. 6062) and to help control volunteers who go into the area to assist in the notification process (Tr. 6081). Apparently Sheriff Powell is not the individual within his department who works directly with the emergency planning personnel (Tr. 6062, 6081). This is true even though Sheriff Powell's department wrote that part of the emergency plan which pertains to his agency (Tr. 6081).

15. Mr. Boyd put Sheriff Powell's estimate of the time for personal notification into perspective by describing the results of his agency's first testing of an emergency evacuation system in 1979. According to Mr. Boyd, the area to be covered was divided into three ten-mile routes and the test was to determine the time it would take school buses to travel each route, stop at homes, and pick up the residents. In this test it took 45 minutes per route to cover the

entire route (Tr. 6062-6063). When concerned only with alerting the public, Mr. Boyd said they doubled the 45 minutes and added ten minutes as a cushion and came up with a 100 minute time frame which they then reduced to 50 minutes by assuming two vehicles per route operating on a "leapfrog basis from house to house" (Tr. 6063). He testified further that in the next exercise run for the V. C. Summer Station, it is his intention to put four vehicles on each route (Tr. 6063). It seems therefore that Mr. Boyd's time estimate of approximately one to two hours for notification has some basis in experience and has a measure of reliability not present in Sheriff Powell's six to ten hour estimate.

16. There is even more reason to believe that Mr. Boyd's estimate of time is more reliable considering the available manpower and equipment which could be called into service over and above the Sheriff's department's personnel and equipment in the event of a need. Mr. Boyd described the probable use of an operation called STOP which stands for Sheriff's Trained Organization Patrol and which is a volunteer organization trained by the Sheriff's office and the police department to participate in emergency operations (Tr. 6065). Mr. Boyd also referenced volunteer fire departments (Tr. 6070). The South Carolina Department of Wildlife and Marine Resources has personnel and aircraft available as has been mentioned earlier in these proceedings (Tr. 1871). In addition, as pointed out by Mr. Wise, upon the declaration of a state of emergency by the Governor there will also be available, the resources of the State Highway Patrol, the

South Carolina Wildlife Department, the State Law Enforcement Division officers, as well as other State resources such as the Forestry Commission (Tr. 6065). Mr. Wise also points out that the State National Guard has 13,000 members (Tr. 6065) and though it takes some period of time to mobilize the National Guard in full strength, there are some full-time National Guard people who could be available more readily (Tr. 6070).

17. The point was made by Applicants' witness Beale, as we have already reflected on our own, that the emergency notification, or alerting, system which Sheriff Powell's personnel will participate in, will be a "backup" system (Beale Testimony, 2, Tr. 6056). As Mr. Beale further pointed out, that system was at one time an "interim" system. It was interim because the emergency drill required to be performed by the Applicants prior to operation was conducted on May 1, 1981, at a time prior to the complete installation of the siren system upon which the Applicant intends to rely as the primary notification system in meeting the NRC requirements (Tr. 6083, 6056). For the purposes of the exercise, there had to be an existing system addressed in the plans at the time of the exercise for the notification of the public (Tr. 6083).

18. The discussion concerning the "interim" or "backup" nature of the emergency vehicle siren alert system and notification system took an interesting and comforting turn when it was suggested by both Sheriff Powell and Mr. Boyd

that their intention would be not only to implement the alerting process involving emergency vehicles with sirens, but in addition to that, accomplish what Sheriff Powell described as a notification procedure, i.e., door-to-door personal contact. Thus, it seems that there will be a backup to the backup notification system. If for some reason the Applicants' siren system fails, the emergency vehicle siren alert system will go into effect and a door-to-door personal notification effort will go on immediately thereafter or to some extent even concurrently (Tr. 6080, 6081, 6082, 6089, 6090, 6091, 6064, 6039-6040, 6038). Apparently, also the other three counties having area within the ten-mile EPZ intend to take the same course of action (Tr. 6089).

19. Based upon the additional testimony we have heard concerning the efficacy of what has variously been referred to as the "backup" or the "interim" emergency notification (or more properly, "alert") system, it is the opinion of this Board that that system is quite adequate as a backup to Applicants' primary notification system, i.e., acoustic sirens.

Applicants' Siren Notification System

20. The two issues relative to this topic, which we shall take up in reverse order, are the likelihood of Applicant's siren notification system failing in the event of a plant emergency, and the cost and efficacy of an electronic siren system. While we are not required to rule

on the appropriateness of the Applicants' selection of an electromechanical siren system, especially given the Board's evaluation of the "backup" emergency notification system, were we to rule, we would be satisfied with Applicants' choice of the electromechanical siren system as opposed to the electromagnetic siren system. The Board is convinced that there is indeed a low likelihood of a significant failure of the Applicants' siren system in the event of a plant emergency, as will be further discussed below.

21. The approximate cost differential between the electromechanical siren system chosen by Applicants and a totally electronic siren system, according to Applicants' witness Beale, is \$200,000, with the electronic system being the more expensive of the two (Beale Supplemental Testimony, p. 5). For the 104 unit siren system in place, the cost differential is just under \$2,000 per siren (Beale Supplemental Testimony, p. 6). This figure is exclusive of any installation cost differentials or preventive and corrective maintenance cost differential (Beale Supplemental Testimony, pp. 5, 6). This figure also does not account for the fact that even more sirens might have been required for the electronic system as opposed to the electromechanical system had Applicants made that decision at the time they placed the order for the existing system, since at that time electronic siren systems suppliers apparently did not have the larger or more powerful sirens, and thus more sirens may have been required (Tr. 6108). Using cost alone as a

criterion, Applicants made the obvious choice inasmuch as the average siren cost for their system was in the neighborhood of \$3,500 and the approximate average cost per siren of an electronic siren system would have been \$5,500 (Tr. 6082).

22. The major difference between electronic as opposed to electromechanical sirens, which prompted our inquiry into relative efficacy, is the ability of an electronic system to function after loss of alternating current. Both systems require alternating current service, but the electronic system has a battery supplement which will carry the sirens for a period of time after they lose the alternating current system. Applicants' witness Beale testified that a manufacturer of an electronic system claimed a 30 minute battery operated capability for electronic systems (Tr. 6123). In any case, based upon testimony that the Board heard from Applicants' witness Young concerning system reliability in the area, the additional assurance gained through battery operated capability would not appear to be a significant factor in the Board's evaluation of the reliability of Applicants' chosen system. More will be said about this later.

23. As it turned out, according to Applicants' witness Beale, the capability of an electronic system for voice communication appears to have been the main factor in the decision of two other utilities who he is aware purchased electronic sirens. For one of the utilities, two of their plants, at which they have electronic siren systems, are

located in geographic areas which do not have available in the planning zone an emergency broadcast system such as that in place around the V. C. Summer Nuclear Station. Thus, a readily available means for providing message information was critical (Tr. 6111). There were other less important reasons also. None of these reasons appear to be a factor around the V. C. Summer Nuclear Station.

24. Intervenor suggested an alternate notification system which he referred to as a "black box" (Tr. 6075). He questioned Mr. Wise and Mr. Boyd as to their opinion of the use of black boxes as primary means of notification. Mr. Boyd responded that he thought Intervenor was talking about the weather warning system and he felt that every family should have one, but that it should be their responsibility and not necessarily that of the nuclear plant owner (Tr. 6075). Mr. Beale was also asked by Intervenor about black boxes and he responded that Applicants did some investigation into that alternative but that discussions with other utilities and the fact that a large proportion of the population in the area around the V. C. Summer plant are engaged in agricultural and therefore may much of the time be out-of-doors and therefore out of contact with black boxes, persuaded the Applicants against that alternative (Tr. 6077).

25. One other alternative suggested by Intervenor was "an immediate direct dial system to people in the EPZ." Mr. Boyd responded to Intervenor's question concerning that

system and advised that he was aware of it but got a negative response from the telephone company when he asked about its availability in the area (Tr. 6076).

26. Thus, assuming reliability of the system supply of electricity to Applicants' electromechanical siren system, it appears to the Board that their choice is acceptable. This then brings the Board to the question of the reliability of power supply to these sirens.

27. Applicants presented testimony of Mr. James H. Young, Jr., Group Manager of System Operations and Planning for South Carolina Electric & Gas Company. He is the individual within South Carolina Electric & Gas Company responsible for dispatching the Company's generating and bulk transmission system, the Company's relay and communications section, the System Planning Department and the Operations Environmental Compliance section. In his prefiled direct testimony, Mr. Young made the point that the 104 sirens within the siren system were served by four different suppliers: South Carolina Electric & Gas Company (37 sirens), Mid-Carolina Electric Cooperative (13 sirens), Fairfield Electric Cooperative (24 sirens), and Newberry Electric Cooperative (30 sirens) (Young Testimony, p. 1). Also, there were 14 different circuits serving the 104 sirens (Young Testimony, p. 2). The point made by Mr. Young here was that the loss of one distribution circuit would affect only a limited number of sirens (Young Testimony, p. 2). Complementary to this is the fact that the transmission

service to the substations which supply these 14 circuits are from what Mr. Young referred to as "looped" transmission circuits which allow feeds to 11 of these circuits to be fed from two directions, meaning that a loss of the feed from one direction can be quickly compensated for through the feed from the other direction (Young Testimony, p. 3, Tr. 6104).

28. Mr. Young also gave testimony concerning the effect upon this transmission system of the loss of the Summer facility alone as well as the loss of the Summer facility in conjunction with the loss of Monticello Pumped Storage Hydroelectric facility (Young Testimony, p. 3-5, Tr. 6095, 6116-6117). Taking the worst case, i.e., loss of both Summer and Fairfield (which would mean a loss of approximately 1,112 megawatts), Mr. Young concludes that the loss of these two facilities should not have a significant impact on SCE&G's ability to continue to supply service to the siren locations because of adequate reserves available on the adjacent systems (Young Testimony, p. 4). The reserves to which he is referring are those within the Virginias-Carolinas Reliability Group (VACAR) which has total power resources of 40,940 megawatts and reserves of 9,490 megawatts in 1983 (1,354 megawatts of which are spinning reserves and thus immediately available to the extent of SCE&G's import capability, which exceeds 1,100 megawatts) (Young Testimony, pp. 4-5). SCE&G itself normally maintains 151 megawatts of spinning reserve on a daily basis (Young Testimony, pp. 4-5).

29. One concern of the Intervenor which Mr. Young addressed was the possibility of a multiple series of cascading failures which could precipitate the type of outage which occurred in a Northeast power pool. Mr. Young observed that there have been no major blackouts in the Southeast and that because SCE&G is supplied from all three sides by other power companies, their transmission ties to other operating systems are strong relative to load and studies have been done regarding SCE&G's system showing that even with the loss of the Summer Station and the Fairfield Pumped Storage facility at the same time, the system would hold together (Tr. 6107).

30. While an incident at the Summer Station might necessitate evacuation of Monticello and Parr, as well as Summer, this would not necessarily mean the loss of generation from those facilities since they are equipped with remote controls and at least the Parr Hydro facility is routinely operated remotely (Young Testimony, p. 5). There are no major control centers within 20 miles of the V. C. Summer Plant (Young Testimony, p. 5). A very sudden loss of the Summer facility and the Fairfield facility produces a slightly different situation, but one which SCE&G had modelled and determined the result to be a 4% drop in voltage on the entire transmission system and a 37% overload on one transmission line (Tr. 6116) which would need to be corrected within 15 minutes before there was a problem with that circuit (Tr. 6117).

31. The Board is satisfied that the generating and transmission resources for supply of energy to the sirens, even in the event of contingencies such as the loss of two major generating stations, is adequate. The concern then revolves around the question of the reliability of the distribution system which delivers that energy. The conclusion of Mr. Young in that regard is that the service record of the suppliers in this area is good (Tr. 6093). By this he means the average outages on each of the circuits per year is three (Tr. 6093), 75% of which on the SCE&G circuits last less than one hour (Young Testimony, p. 2).

32. Asked by the Board whether in an outage situation, the circuits to the siren system would be given priority as might be the case for other emergency facilities such as hospitals, Mr. Young responded that SCE&G intended to put the siren system on the same status as those emergency facilities and that therefore those circuits will be identified as serving critical facilities and efforts would be made to get those circuits back into operation as quickly as possible (Tr. 6122).

33. The overall position of the Applicants regarding the reliability of the siren system as it relates to power supply is that a power outage is so unlikely that the siren system is a sufficient means of notification (Tr. 6113). Based upon the testimony of the witnesses presented by the Applicants on this point, and controverted by no competent testimony to the contrary, the Board agrees and thus finds

that the Applicants' electromechanical system is reliable and does meet the requirements of 10 CFR Part 50.47 and Appendix E.

ORDER

34. In accordance with Sections 2.754, 2.760, 2.762 and 2.764 of the Commission's Rules of Practice, 10 C.F.R. Part 2, it is ordered that this Partial Initial Decision shall be effective immediately but subject to the provisions of 10 C.F.R. 2.764 and shall constitute the final action of the Commission regarding the issues decided at the time provided by the regulations, subject to any review pursuant to the Rules of Practice. Exceptions to this Partial Initial Decision may be filed by any party within ten (10) days after service of this Partial Initial Decision. A brief in support of the exceptions shall be filed within thirty (30) days thereafter, forty (40) days in the case of the Regulatory Staff. Within thirty (30) days after service of the brief of appellant (forty [40] days in the case of the Regulatory Staff), any other party may file a brief in support of, or in opposition to, the exceptions.

THE ATOMIC SAFETY AND
LICENSING BOARD

Gustave A. Linenberger, Administrative
Law Judge
Dr. Frank F. Hooper, Administrative
Law Judge
Herbert Grossman, Esq., Administrative
Law Judge and Chairman

Dated at Bethesda, Maryland
this _____ day of _____, 1982.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD FEB 22 1982

In the Matter of)
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SOUTH CAROLINA ELECTRIC &)
GAS COMPANY, et al.) Docket No. 50-395-OL
)
(Virgil C. Summer Nuclear)
Station, Unit 1))

CERTIFICATE OF SERVICE

I hereby certify that copies of "[Applicants' Supplemental Proposed Findings of Fact and Conclusions of Law on Intervenor's Contention A8 Regarding Emergency Planning in the Form of a] SUPPLEMENTAL PARTIAL INITIAL DECISION" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class, or, as indicated by an asterisk, by deposit in South Carolina Electric & Gas Company's internal mail system, on this 17th day of February, 1982:

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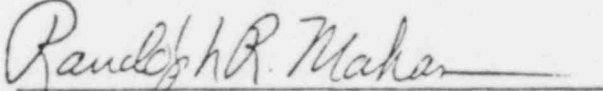
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