

RELATED CORRESPONDENCE

DOCKETED
USNRC

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

Served ⁽²⁾
by 3/3/86
on all parties
MS

MAR -7 AM 11:51

OFFICE OF SPECIAL ATTORNEY BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
)
CAROLINA POWER AND LIGHT CO. et al)
(Shearon Harris Nuclear Power Plant,))
Unit 1)

Docket No. 50-400 OL

TESTIMONY OF JESSE L. RILEY RE ALERTING AND NOTIFICATION

1. Q: WHAT IS YOUR NAME?
A: My name is Jesse L. Riley.
2. Q: WHERE DO YOU LIVE?
A: In Charlotte at 854 Henley Place.
3. Q: WHOM DO YOU REPRESENT?
A: I am appearing as a witness for the intervenor. I am not representing any organization.
4. Q: ARE YOU A MEMBER OF ANY ORGANIZATIONS WITH RELATED INTERESTS?
5. A: Yes. I am a member of the Emergency Management Citizens Advisory Review Committee of Charlotte/Mecklenburg County, the Sierra Club national Nuclear Energy Subcommittee, and the Carolina ^{Environmental} Study Group.
6. Q: IS THERE ANY RELEVANCE OF THESE ASSOCIATIONS TO THE PRESENT PROCEEDING?

A: Yes.

7. Q. PLEASE EXPLAIN.

A: The Citizens Advisory Committee is charged with a review of emergency planning by the Emergency Management Office in regard to all hazards. These range from floods to nuclear plant releases. The McGuire nuclear station EPZ lies partly within Charlotte. The EPZ for the Catawba station lies in part in Mecklenburg County and borders the city limit.

The EMCAC is acting on recommendations made by a predecessor blue ribbon committee appointed by the County Commission. These include specifically the evaluation of alternative means of alerting and notification including the siren/EBS system and a telephone alert and notification system.

The Sierra Club Nuclear Energy Subcommittee, of which I have been a member since 1974, serving as chair for six years, has reviewed matters from the fuel cycle on through decommissioning.

The Carolina Environmental Study Group, of which I have been a member since 1970, and for which I have *chaired intervention activities during that time, was a party in both the McGuire and Catawba licensing

proceedings. In each of these, emergency planning was a subject of contention. In the Catawba hearing CESHG contended that at least a portion of Charlotte should have been included in the NRC/FEMA approved emergency plan.

8. Q: HAVE THE VIEWS OF CESHG BEEN WRITTEN DOWN?

A: Yes. They were offered as testimony in the Catawba proceeding, but the proposed remedies were stricken from the record on the motion of Applicant.

9. Q: CAN YOU PROVIDE THESE VIEWS FOR THIS PROCEEDING?

A: Yes. They are available for attachment to this testimony.

10. Q: WHAT ARE YOUR VIEWS IN REGARD TO THE EMERGENCY ALERT AND NOTIFICATION PROVISIONS FOR THE SHEARON HARRIS PLANT?

A: I do not think the siren system by itself can be relied on to effect 100% notification within a 5 mile radius of the plant in 15 minutes or, depending on conditions, substantially longer times. The system is tested for outdoor audibility for people who are not only awake but who are alert for the signal. A large variety of commonly encountered circumstances will act to lessen the likelihood of effective notification indoors. It is common experience that many people can sleep under noisy conditions. Particularly, as the location is more

remote from a siren, ordinary sounds: television, stereo, lively activity, will prevent the hearing of the intermittently peaking siren sound.

This is not to say the siren system will not alert anyone. During daylight on a pleasant spring day with windows open and many working or playing outdoors the incidence of siren perception will be high. But even then it will not be effective for all those who have heard. People with poor reading habits or poor memories will not recall that they are to turn on an EBS broadcast.

In addition to these defects the siren system has a major defect. It is doubly dependent on the availability of AC power. The sirens operate off AC power. There is a well recognized connection between the use of AC and safe shutdown of a reactor. If the AC trunk is knocked out by a tornado, an event that has already occurred, the plant can shut down only if the emergency Diesel generators work. If they fail a serious accident will probably result. But the siren system won't work. The few EBS stations with emergency power supplies will be able to broadcast. It does not require a formal survey to establish that the vast majority of home radios and TV's are line powered. Even if, somehow, a person wanted to tune in, it would not be possible.

It is for these reasons, among others, that I advocate a telephone alerting and notification system with the sirens and EBS system as a valuable supplement. In an emergency in which AC power is not down persons away from home, school, factory or office will be alerted by the sirens. Passengers of automobiles may not be able hear the sirens, but have a reasonable likelihood of hearing the EBS broadcast on the radio.

Telephones operate from a 48 volt DC battery system. The batteries are normally charged by a line operated charger. However liquid fuel powered generators are installed to cover AC outage emergencies.

A further advantage of the phone alert is that the individual installations have been adjusted to the requirements. Loud ringers are available for the hearing impaired. Subscribers are habituated through long use to responding to a ringing telephone.

From conversations with an engineering representative from Southern Bell I have learned that a computerized ringdown can be provided. It would make 1400 calls a minute per central station. It could be made to preempt other calls. Depending on design, it could provide place specific information in a recorded message stating the nature of the incident, the level of

hazard, and, depending on location and weather, instructions on what action should be taken. Those not downwind from the plant could be told that it would be to their best interest to stay where they were. Those downwind could be told how long they had to get out and what escape route would be least hazardous. Unlike the information on an EBS broadcast, the information could be tailored to the actual situation.

11. Q. HOW FAR WOULD YOU EXTEND TELEPHONE ALERTING FROM THE PLANT IF IT WERE INSTALLED?

A. At a minimum I would cover the 400 persons in the 5 mile EPZ radius. These people would have the least time in which to act and, depending on the trajectory of the release, might be exposed to the highest dose rate. I would recommend serious consideration for those 7000 persons between 5 and 10 miles from the plant. For the 35,000 persons in Cary, 11 or more miles out and the 150,000 in Raleigh, 16 or more miles out I would suggest a telephone ringdown installation would be the proper concern of the local governments as it is in Charlotte.

12. Q. WOULD NOT TONE ALERT RADIOS BE PREFERABLE TO TELEPHONE RINGDOWN?

A. No. The emergency planners in Charlotte, for example,

favor ringdown over tone alert for emergency workers. Like all other electrical devices, both telephones and tone alert radios can become inoperative. With a phone, which is in daily use, this will soon be found out and corrected. Not with a tone alert radio which is only to operate in hopefully rare emergencies. An arguable advantage of the tone alert radio is that it can be carried with a person. It is not realistic to expect this--certainly not if an appreciable time goes by without an alert.

13. Q. DO ALL THOSE DWELLING IN THE EPZ HAVE TELEPHONES?

A. I do not know. If there are some homes or places of business that lack them, it would be relatively inexpensive to provide them. The same would be true of additional phones in which the sleeping area was remote from the living area.

14. Q. DOES THIS COMPLETE YOUR TESTIMONY?

A. Yes.

Attachment 1
Riley Testimony
50-4100

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
DUKE POWER COMPANY, <u>et al.</u>)	Dockets Nos. 50-413
)	50-414 <i>OL</i>
(Catawba Nuclear Station)	
Units 1 and 2)	April 16, 1984

TESTIMONY OF JESSE L. RILEY

1. Q: WHAT IS YOUR NAME?
A: My name is Jesse L. Riley.
2. Q: WHERE DO YOU LIVE?
A: In Charlotte at 854 Henley Place.
3. Q: WHOM DO YOU REPRESENT?
A: I am the spokesperson for the Carolina Environmental Study Group, a party in this proceeding.
4. Q: WITH WHAT WILL YOUR TESTIMONY DEAL?
A: With the need for emergency planning, for at the least, southwest Charlotte.
5. Q: WHY?
A: Information provided by the NRC, or by contractors for the NRC, indicates that as the result of a serious accident people of Charlotte, people not in the present Emergency Planning Zone, would be subject to a great number of early fatalities, early injuries, and latent cancer cases. The planning

~~50-413~~ 247P

basis document, NUREG-0396, Figure 1-17, indicates that lacking immediate protective action, a one-day exposure in the radial interval of 10 to 25 miles from the Catawba Plant would, for the mean population density of Charlotte of 2500 persons per square mile, be expected to result in 5 to 40 early fatalities, 350 early injuries. The Siting guidance study, NUREG/CR-2239, specifically projects for the Catawba Plant 100 mean early fatalities for an SST-1 accident and release and 710 mean early injuries. The NRC staff, in the Final Environmental Statement, does a worst case analysis sampling weather sequences actually observed at the Catawba Plant. They find, the possibility of exposing 44,000 persons to over 200 REM, 270,000 persons to over 25 REM, Table 5.11. Under these conditions I anticipate 19,000 fatalities if only the present EP2 is evacuated. However, if there is relocation from 10 to 25 miles from the plant, early fatalities would be reduced to 470, a savings of 18,530. The 19,000 fatalities are conditioned on availability of moderate medical treatment. As there are only 10 radiation beds in Charlotte, it seems that medical treatment would be minimum and 24,000 fatalities projected for minimal medical treatment are a more realistic indication of what would happen in the event of such a release.

Because of the demographics and prevailing wind direction, by far the largest part of these 24,000 fatalities would occur in Charlotte. Another confirmation of high level consequences of an SST-1 accident is given by studies made at Sandia. The worst case SST-1 accident is estimated to result in 42,000 early fatalities, 88,000 early injuries, again presumably the largest part in Charlotte. (Letter report of Committee on Interior and Insular Affairs, Sub-committee on Oversight and Investigations, November 1, 1982.)

6. Q: DOES THE FES ASSERT THAT PEAK CONSEQUENCES OF SUCH MAGNITUDE ARE ACCEPTABLE IN A COST BENEFIT WAY?

A: Yes. A variety of accident scenarios and weather situations are averaged, after being converted to "risks". In this context risk is the probability of the calculated consequences by an assumed probability of occurrence of the event. The "risk" of the most serious consequence is put as 1 in 100 million reactor operating years.

Summation of this very small product with other small products leads to the conclusion that there would be about .1 of an early fatality in the full anticipated 80 reactor year operation of the plant.

7. Q: DO WE FIND REASONABLE AND ACCEPTABLE THIS FINDING BY THE STAFF?

A: No. While I believe that the consequence estimates are reasonable and based on actual experience such as the inventories of reactor cores, measurements of half-lives, and radiation intensities for different isotopes and the dosage consequences at Hiroshima and Nagasaki, the same is not true for the probabilities.

I believe that it is generally recognized there are three types of "probabilities". One type is postulational, chances are one in two with a flipped coin will be a head or a tail. Similarly the mathematics of the chance occurrence in a given combination of cards in a deck may be expressed as a probability. Another type of probability is actuarial, based on experience. One's chances of death by automobile accident or injury are well established by many years of actuarial data. The "probability" in the present context differs from these. It reflects on analysis and an estimate. Probabilities of the reactor safety study are based on fault-tree analyses. The accident at TMI-2 invalidates the RSS assumption of no multiple failures including operator error. The fallacy of this approach to "probability" has been shown by actual experience. Before it happened the probability of the TMI-2 accident was zero--it had not been envisaged.

Similarly, the probabilities of Brown's Ferry fire and the FERMI-1 partial meltdown were unenvisaged and hence, had a probability of zero. We simply have no knowledge of all possible scenarios which may lead to a serious release though it must be said that since the occurrence of the aforesaid events the staff has greatly enlarged its contemplation of severe accident sequences. Given only 800 years or so reactor operated experience it is very non-conservative to project 100,000,000 year spans. An additional point ignored by the FES is that even where valid probabilities relating events to time spans are available, indication has been given as to when in the time span the event will occur. Although death by vehicular accident has a probability of about one in 2,000, none of us knows beforehand whether he is going to be one of the victims nor at what moment this will occur.

8. Q: ARE THERE OTHERS WHO SHARE YOUR CONCERNS?

A: Members of the Carolina Environmental Study Group and numerous others who have spoken to me who are not members share this view. I think that it is particularly significant that this concern was expressed by Judge James McMillan of the United States District Court for the Western District of North Carolina in declaring the Price-Anderson Act unconstitutional, CESG v. AEC, Case No.

C-C-73-139, March 31, 1977. Judge McMillan noted that parties to the case, the Atomic Energy Commission, Duke Power Company, and CESG all agreed that severe accidents were possible. The remaining question was one of probability. In regard to probability the Judge concluded "the court is not a bookie:"

The significant conclusion is that under the odds quoted by either side a nuclear catastrophe is a real, not fanciful possibility.

The Court finds without being as rosily optimistic as the Reactor Safety Study, nor as pessimistic as Dr. Kendall, that a core melt at McGuire or Catawba can reasonably be expected to produce hundreds or thousands of fatalities, numerous illnesses, genetic effects of unpredictable degree in nature for succeeding generations, thyroid ailments, and cancers in numerous people, damage to other life and widespread damage to property. Areas as large as several thousand square miles might be contaminated and require evacuation. Since life of individual human beings, as shown in a number of publicized cases involving death or disability, is now being valued in some cases at sums greatly exceeding a million dollars, it would not require death of or serious injury to many people to exceed the \$560,000,000 Price-Anderson Act limitation now in effect, in a day when failure of an earthen dam in sparsely populated Idaho can produce property damage reported by the press at about a billion dollars, is it unreasonable to conclude, as I do, that radioactive pollution of a few hundred square miles of heavily populated Piedmont North Carolina or South Carolina could well produce property damage vastly exceeding the Price-Anderson ceiling.

9. Q: CONSIDERING THESE VIEWS, DO YOU EXPECT THE CATAWBA PLANT TO BE LICENSED TO OPERATE?

A: Yes.

10. Q: WHAT REMEDY DO YOU SEEK?

A: An effective emergency plan for Charlotte. The initial Atomic Safety and Licensing Board admitted CESG/Palmetto Contention 11. This contention permits us to consider an emergency plan which would reach approximately 17 miles from the Catawba Plant but not to 25 miles, the farthest city limit. This 17 mile radius may well be within the purview of the "about ten miles" radius referred to in NUREG 0396. This matter is given consideration by the initial Catawba ASLB's Memorandum and Order of September 29, 1983, pp. 1-5, and in a Memorandum and Order dated December 30, 1983, pp.1 through 5. It should be noted in this connection that the present EPZ reaches to about 13.8 miles south of the Catawba Plant including all of the City of Rock Hill and some of the environs. To the northeast of the Catawba Plant, the EPZ stops at the Charlotte city limit, 9.7 miles from the plant. The prevailing wind direction from the Catawba Plant toward Charlotte is approximately twice the random frequency, which, together with the demography argue for such protection.

CESG would like to see the Planning Zone extend to the 17 mile radius from the plant through Charlotte. This would delineate almost the same area used in the Board's example, an EPZ reaching U.S. 74 and N.C. 16. In the alternative, CESG would choose N.C. 27 in lieu of U.S. 74. A 17 mile radius would also be acceptable and incidentally not reach as far as the Board's example did at its farthest point. At the 17 mile radius, an area of 73 square miles would be added to the present EPZ area of 332 square miles. The present EPZ has a population of 95,000 people. The area proposed for addition has a population of 136,000. The population density in the initial EPZ is 286 people per square mile, that in the southwest Charlotte area under consideration is 1863 people per square mile, or 6.5 times as high a population density. An increase of 22% in area covered results in an increase of 143% in persons covered by the emergency plan. It is clearly the people in the area of southwest Charlotte who contribute most heavily to the estimated early deaths in FES Table 5.1.2. In order to accomplish the relocation which would save the largest proportion of these lives, effective planning will be required.

11. Q: ARE THERE OBSTACLES TO EFFECTIVE PLANNING IN THIS REGION?
- A: There is a prospect of high traffic density and possible panic. It is generally recognized that radiation hazard is not identifiable by visual or olfactory indications. At a hint of radioactive disaster, people will tend to flee. There will be confusion and if their panic is a serious one, it will be paid for with a loss of lives.
12. Q: WHAT EMERGENCY PLAN IS USED AT THE PRESENT EMERGENCY PLANNING ZONE?
- A: It is defined and described in the brochure sent to EPZ residents. A siren system has been installed. Instructions have been given that on hearing a steady three-minute siren signal, an individual is to turn on an emergency broadcast and follow the instructions that they are given. Evacuation routes are shown and shelter procedures are described.
13. Q: WOULD YOU LIKE TO SEE THIS SYSTEM EXTENDED IN CHARLOTTE TO A SEVENTEEN MILE DISTANCE FROM CATAWBA?
- A: This would be an improvement over present plans for an emergency response.
14. Q: WHAT IS THE PRESENT PLAN?

A: The "All Hazards Plan for Charlotte" has deficiencies. Foremost is probably the lack of information and instructions for the public. An accident would be dealt with on an ad hoc basis. I cannot visualize providing the necessary instructions to hundreds of thousands of people in a timely way during the course of the accident. It is even less likely for appropriate, individualized instructions, which would relate to location, the time of the release, the magnitude of the release, wind speed and direction indicated.

In a recent successful evacuation for a chemical fire generating toxic fumes and complicated by wind shifts, door-to-door warnings and instructions were given. This is not feasible for up to 136,000 people. It did work for the several thousand people involved. An all-hazards plan is described in seven pages. This contrasts with the hundreds of pages in the North Carolina and South Carolina Emergency Plans for Catawba. A Mecklenburg County Plan alone takes up 50 pages and deals with a much smaller area and a very much smaller number of people than we have under consideration.

15. Q: THEN YOU ADVOCATE THE EXTENSION OF THE PRESENT SYSTEM TO SOUTHWEST CHARLOTTE?
- A: No, not if a better system can be devised.
16. Q: WHAT DO YOU SEE AS FAULTS IN THE PRESENT SYSTEM IF IT WERE APPLIED TO SOUTHWEST CHARLOTTE?
- A: There are deficiencies in the siren system of notification. The primary deficiency is that it will only operate when there is AC power. Several sequences of serious plant accidents result in the absence of off-site and on-site power. Under such conditions there would be no notification and the majority of radio and television sets would not play. There would be neither alerting nor adequate emergency broadcast system instruction.
- When sirens do sound, they cannot be depended upon always to reach targets in their normal operating area. In a FEMA sponsored study, Bolt, Beranek, and Neuman point to lens and sound refraction effects which depend on the temperature gradient in the atmosphere and which will determine whether the siren sound propagates in a plane or bends upward, out of hearing. It points out that persons in an automobile are not likely to hear a siren.

It is obvious that weather conditions, howling winds, heavy rain, dense snow layers, well sealed and insulated structures do not conduce to a siren being heard. Deep sleep and impaired hearing reduce a likeliness of effective siren notification. Playing radio, stereo or television, or normal family activities may result in a siren signal being ignored. The CESH survey shows that 20% of the residents of the McGuire EPZ have not heard the siren sound during tests. Other answers show that 60% of a sample of McGuire residents do not know the significance of the siren sound; namely, to seek shelter and tune to the EBS broadcast. Fairly general information which would be required in an EBS message will not make clear to a person near the plume pathway whether it is better to evacuate to, say, the northwest, or the southeast where both options are possible. In a narrow plume, which will develop under conditions of relatively stable air, the plume pathway may be less than two miles wide in Charlotte. The direction of the evacuation could be critical for persons near the pathway. The general EBS message will not make clear which people would be better off sheltering or, being prospectively exposed to no hazard, staying where they are.

17. Q: CAN YOU PROPOSE A MORE SATISFACTORY ALTERNATIVE?

A: Yes. It involves a system of telephonic alerting and notification in which messages would be individually tailored to suit the needs of respondents. It would be supplemented by the EBS system for those away from the phone or unable to reach a phone.

In order to make possible instructions of individual utility, I propose dividing the plan area into quarter sectors, 5.63° of arc at one-mile intervals. Between 10 and 11 miles from the plant the area of such a subdivision would be 1.03 square miles; between 16 and 17 miles from the plant, it would be 1.62 square miles. Superimposing this grid on a map of Charlotte shows that at least one major road, or feeder, runs through each of these approximate square mile areas.

Southern Bell Telephone Company is able to access the phones in each such small area with a specific recorded message. There are four or five central stations in southwest Charlotte, each having the potential for automatically dialing as many as 1700 calls per minute. There are 247,000 telephone subscribers in Mecklenburg County. It is reasonable to estimate 50,000 to 60,000 phones in the proposed planning area. The time to ring these phones will be less than 10 minutes.

Facilities include a special ring as an alert signal. It is possible to preempt all normal calls for an emergency message. The two systems under consideration would be computer actuated. Up to a 17 mile radius, there would be 56 subdivisions as described in the foregoing. Each of these subdivisions could receive an individual message. These messages could be taped or the specific instructions would be pre-taped. In the first system the computer would dial. It would play, as appropriate, either an alerting message, or an instructional message. In the second system the computer would send a non-voice signal to actuate a multi-functional "black box" installed at the subscriber's phone. The actuating signal would be effective whether or not the phone were in use.

18. Q: WOULD PHONE NOTIFICATION BE MORE EFFICIENT THAN SIREN ALERTING AND NOTIFICATION?

A: I think so. As long as a person is near the phone, whether waking or sleeping, listening to radio, stereo or TV, it would be heard and, most probably, answered.

19. Q: WOULD PHONE NOTIFICATION BE MORE EFFECTIVE?

A: Yes. It would make clear which subsections should evacuate and at what time, and in which direction, and which subsections should shelter and for how long and when to leave shelter and relocate. Preferred departure routes would be specified.

20. Q: WOULD WEATHER BE ELIMINATED AS AN ALERTING AND NOTIFICATION FACTOR?
- A: Yes.
21. Q: WHAT ABOUT THE HARD OF HEARING?
- A: Hardness of hearing is already compensated for by amplifier setups or light setups.
22. Q: WOULD PHONE NOTIFICATION BE MORE RELIABLE THAN A SYSTEM DEPENDENT ON AC POWER?
- A: Yes. As said previously, both sirens and most radios and TVs depend on AC power. The phone system is independent of AC power. It operates on a battery supply at 48 volts. These storage batteries can be kept charged by the phone company's generators.
23. Q: WHAT WOULD SUCH A SYSTEM COST?
- A: A computer-dialed, real time system has not been priced by Southern Bell. My impression is that it may cost between 5 and 10 million dollars. The second system would be adapted for multiple uses which would contribute to paying for it. Uses include fire-alarm, burglar alarm, utility meter reading, electrical demand reading, load shedding, and cable TV use monitoring. Southern Bell's part of the system, I am told, would cost about 5.5 million dollars. To use this system,

a subscriber would need the black box which, installed, it is estimated it would cost between \$100 and \$150.

24. Q: HOW SOON COULD SUCH A SYSTEM BE PLACED IN OPERATION?

A: I have been told by the third quarter of 1985.

25. Q: ARE THERE OTHER ADVANTAGES FOR A PHONE NOTIFICATION?

A: Alerting and notification would compensate for the fact that a substantial fraction of the public would not have read instructional material or not remembered the instructions at the time of the event. The messages would be repeated at least once to improve retention. As the accident progressed, and the wind changed, the instructions would be updated. Between updating messages, the phone could receive normal use. During messages, such use would be preempted. The specificity of the messages would also be of reassuring value. A clearly specific message would reduce the likelihood of panic responses, irresponsible rush to cars by people who did not need to evacuate.

26. Q: WOULD THIS BE THE SOLE MEANS OF ALERTING AND INSTRUCTION?

A: No. As said previously, the Emergency Broadcasting System would alert many of those in cars. Other means considered in the Emergency Plan, helicopters with loud speakers, patrol cars with bull horns, etc. could notify those away from phone and radio.

27. Q: DOES THIS COMPLETE YOUR TESTIMONY?

A: It does.

50-400

3/3786

RELATED CORRESPONDENCE

DOCKETED
USMC

2-28-86

'82 MAR -7 AM 1:51

Dale, re Q10

OFFICE OF THE ASSISTANT
DOCKETING & SERVICE
BRANCH

I intend to
ask Riley
add direct
whether these
views also
apply w/in 10
miles of the
plant (outside
5 mi)
Wells

107

62-400 (2)
3/03/86 Question Areas for Bob Black, CPL 3/3/86 Sheet 1
FRONT

His resume + experience, jobs held, & positions held w/ CPL + when, his present position + how acquired it

Is he Goodwin's boss? What is his role(s) (Black's) in emergency planning? (all things he's done re alerting, sirens, alternatives to sirens) what is Goodwin's job description - is that in G's Attachment A accurate + complete?

What is your role in designing or creating the emergency alert/notify system for Harris? Are there any matters re this, CPL counsel has asked, cautioned or communicated to you not to discuss? Not to volunteer any info about? Not to volunteer certain specific things - your opinions, certain facts, experience of CPL or other utilities w/ sirens?

Do you know Dr Bassiouni? Has he expressed any opinions re people in the Harris EPZ not hearing sirens at night? Re people indoors in the Harris EPZ not hearing sirens? Has he urged or advocated upgrading or adding to the SH emergency alert & notification system?

Experience of other utils w/ tone-alert - What do you know of its use as a primary notif. system (or part of one)? Has PSE+G IN NJ put 5000 tone-alerts up for sale?

←
(over)

Have you ever heard Dr Bassouni say he wouldn't lie about this ^{controversy}?

What was your role in the decision to supplement the SH sirens w/ tone-alert radios? What alternatives were considered? What did you specifically do & say about supplementing the system? About alternatives?

When? To whom? Under what circumstances?

Read Bassouni's review (TV 9868 & following)? Did it influence yr opinion in any way re adequacy of existing siren system at SH? Are more (than 70 or 71) sirens needed, in yr opinion? In Dr Bassouni's? Same answer for daytime notif as for nighttime ^{notif} (re whether more sirens needed)?

What is yr own opinion as to the adequacy of the existing SH siren system for nighttime (1 AM - 6 AM) (or 12M - 6AM) notification??

or potential issues or difficulty with In your opinion, ~~what~~ are there problems etc re tone-alert radios? Do the same problems apply to telephones? In what ways? What are ~~the~~ ~~key~~ necessary elements of an effective public info program for use of phone alerting? For tone-alert radios? What are the chances people will take the radios with them when they move from the EPZ? ^{How often} do the backup batteries in the radios last? How do you know?

Conf from top Did this ^{professional} Cor any disagreement Dr Bassouni had w/ CP&L's existing siren system, have ~~anything~~ to do with nighttime alert/notification effectiveness? What was the disagreement(s) & how did you, others at CP&L ^{were} other persons, & Dr B & his firm propose to resolve them? Were backup systems recommended by Dr B?

Bob Black questions cont

Which ones? Was cost a factor in deciding not to use backup systems initially (in 1985 or earlier?)

How was cost taken into account in selecting backup systems to the SH EPZ sirens? Was cost a reason (the reason?) why the radios are only ~~offered~~ ^{given} w/in 5 miles of the plant (400 households) but not to the 5-10 mile "doughnut" (about 6000 more households)? What would the cost be to give tone alert radios to the whole EPZ ~~area~~ (all households) - was this considered? Why or how was it rejected?

What alternate backup alerting systems were considered for the SH EPZ? Did you use FEMA-43 as a guide? Who advocated looking into these systems? What is the cost of phone alerting for the whole EPZ?

+ for the 5 miles radius nearest plant

The cost of giving phone service (basic) or multiparty to households in the EPZ that lack it? What is the cost of the alternate systems - for 5 mi & whole 10 mi radius?

Will OPL use tone-alert radios for institutions (nursing homes, hospitals, ~~or~~ factories, ^{esp. plants} on 3 shifts) w/in the EPZ? What is the experience of other utilities w/ this use of tone-alert radios?

In considering the need for backup alerting/notify systems in the Harris EPZ, what % of households not being alerted by the sirens did you take as likely or probable? Did you use any of Dr B's field test data in determining this? (are

of households not being alerted? How?
~~Did you~~ Did your consideration of back-up alerting include any allowance for sirens not sounding? What % of sirens are expected to fail ^{to sound} in an actual emergency? 10 or 15%? What %? Did Dr Bever tell you or others at CP&L that 10-15% of the SA Sirens could be expected to fail to sound? (in an emergency occurring at an unknown time) ~~or~~ otherwise?

How did any allowance for sirens failing to sound impact your consideration of off-time alerting tone-alert radios, or other backup systems?

In the context of the meeting Did you compare Harris' siren system to other plants? *Did Dr B or anyone else?*

Is it true that Seabrook's EPZ has about 140 sirens in about half the land area where CP&L has 70 sirens + similar topography? Is it true that the Limerick plant has about 215 sirens in its E. E., with phone + other backup systems being considered. Are either of these plants dealing w/ nighttime notification (Seabrook, Limerick)?

What ~~other~~ plants' systems did you consider? Did you ^{or you} look at operating phone alerting systems? Operating tone-alert systems? What plants use tone-alert other backup systems? Which?

radios as primary alerting systems?

What is their experience? How did

you consider this? Have you ever heard Dr B say ^{anywhere in his firm or at CP&L or at another utility} tone alert radios are ^{not} workable, a nationwide failure, or inadequate backup to sirens, or words to that effect? Has anyone else said anything like this to you or to CP&L? Which other utilities did CP&L

contact re tone alert radios? Re phone alerting *What info was this info ~~used~~ used in your decision that*

New piece of equipment in the public's hands
requires more education to use than
a phone? Also, is it subject to ~~loss~~ being
~~lost~~ ~~by the householder?~~ taken away
by the householder?

What is public acceptance of
phone alerting? of tone alert radios?
Any test results (Do ^{household's} alerted) of
tone alerts at other plants?
Got data or documents? Will you
produce a copy of each?

How was this taken into acc't
in your (CP&L's) decision making
on backup alerting systems

Why didn't CP&L ~~give~~ tone
alert radios to the whole EPZ?

What's the harm in being safer?

Are you familiar w/ field tests
of backup alerts at other plants?

What are the results? Got documents?
Will you produce them?

What about false actuations of
tone-alerts? Experience of Indian
Point re this taken into acc't by CP&L.
What effect do false actuations
have on public acceptance of
tone alert radios? Got any data
or documents on this? Please
produce them.

[Of course, I'll have following
on documents + possibly on
answers to ?'s above,
+ below if I write more ?'s]

W5

Bob Black questions

53 1/2 (2)
Sheet 3
front

to use tone-alert radios at Harris? Who made this decision? Do you fully concur in it? ~~or~~ would you oppose additional backup systems? Would you oppose phone alerting in the Harris EPZ? Does anyone else in CPIL oppose it, (whether or not you do)?

Were the criteria for selecting the backup system for the SH sirens maximum ~~of~~ alerting (# of households) at least cost? What were the criteria actually used? How was cost-effectiveness of tone alerts, ^{radio} phone alerting, & other alternatives assessed by CPIL for the 5-to-10 mile "donut" in the EPZ, more than 5 mi from the plant (≥ 5 mi out)? Who did that assessment? Is it written? Do you have a copy? Will you produce it for the record (recall the subpoena was duces tecum as requested)?

Do you have a copy of any documents relating to the selection of tone-alerts, or the limitation of their use to ^{initially} 3 mi from Harris? Will you produce those? Do you normally have access to these documents?

How was loss of offsite power considered in your decisionmaking process for ^{selection} backup to the sirens?

What field tests has been done of signal reception in the EPZ between 1 AM + 6 AM?

Isn't it true that the tone-alert, as a