

DOCKETED
USNRC UNITED STATES OF AMERICA

April 12, 1984

NUCLEAR REGULATORY COMMISSION

'84 APR 17 AIO:47

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

Glenn O. Bright
Dr. James H. Carpenter
James L. Kelley, Chairman

In the Matter of

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

Docket 50-400 OL

ASLBP No. 82-468-01
OL

Wells Eddleman's Contentions on the Emergency Plan (2d Set)

These contentions are filed pursuant to extensions of time¹ and are thus timely filed. Eddleman contentions 2, 29D, 30 (part), 56, 57, 63, 81, 88, 97, 99, 100, 103, 117, 118, 121, 124, 137, 139 and 140 were deferred to the Emergency Plan stage. These must now be submitted as is, revised, or withdrawn. All those

for which revisions are not submitted herewith, I am submitting as is for rulings. *Generic 5 factors for all new contentions incl 200-205, p. 3 herein; generic "WHAT'S NEW" etc for some, Revised Contention 2x Because the plan allows offsite radiation release p. 11.*

before a general emergency is declared (Item 4.b, plan Part 1 p. 32: cf Figure 9^{pt 1 p. 33} (cited in part § IV.A.5 p. 32 ^{under}ibid), top row, "site emergency")^{under} and does not begin to study evacuation feasibility until a general emergency in which radiation release may be imminent (Item IV.A.4.c ^{under}ibid; compare row 2 of fig. 9

(pt 1 p. 33) under "General Emergency": loss of 2 of 3 fission product barriers ^{or actual (Row 1), Fig 9 under "Genl Emergency"} with loss of third barrier imminent", evacuation cannot be ordered soon enough ^{to protect the public. This violates the requirement of NUREG-0654 App 1 pg 1-12 mobilize & continuously} to protect the public. (State and/or Local Offsite Authority Actions) item 8 to assess protective actions.

Revised contention 30: The plan's provisions (Part 1 pp 49-50)

for procurement, storage, distribution and decisions to distribute Potassium Iodide or other radiological protective drugs do not comply with the requirements

¹ approved by Applicants' attorney Baxter, Staff counsel Barth, with the knowledge of the Board and the agreement of Judge Kelley (for April 9) and apparent consent of Judge Bright on April 9 (when Judge Kelley was unavailable).

2502

8404170463 840412
PDR ADDCK 05000400
PDR

of NUREG-0654 II.J.10.e (pg 63) that the plans must include "quantities, storage, and means of distribution" for persons whose ^{"immediate} evacuation may be infeasible or ~~very~~ very difficult" who are in the plume EPZ. The plan gives no quantities, provides no means of distribution, and permits up to 30 minutes delay (item 7.c.1 thru 4, pgs 1-49/50) in the decision to distribute these drugs.

Revised contention 30A. The plan's provisions for procurement of radioprotective drugs do not specify the drugs or the quantities thereof (see Part 1 pp 49-50), and do not identify those persons whose "immediate evacuation may be infeasible or very difficult" nor does the plan specify how radioprotective drugs would be distributed to such persons. The only locations of drugs identified are the County Health Departments (plan, p49, item 6a). All these failures violate NUREG-0654 II.J.10.e (p.63) ^{e.g. as quoted} ~~as stated~~ in revised contention 30 above.

Revised contention 2A: The state and local governments must have independent monitoring capability for the Harris plant to meet the requirements of NUREG-0654 Appendix 1 p. 1-12 3d column, items 7 and 8 to "provide offsite monitoring results to licensee" et al and "continuously assess information from licensee and offsite monitoring" at the site emergency level. No such capability is put into action in a site emergency until ~~at least~~ ^{at} about 1 hour after notification of site emergency (Plan pt. 1 p.39 item 5b) There will be only 2 state teams until about 24 hours into the accident (ibid). Accurate assessment of the plume requires independent fixed monitors around the site as well as mobile monitors (Pisello, et al, state that to detect a release of a certain amount of radiation, at least 30 monitors able to detect 10^{-9} of the release must be scattered within 10 miles of the plant).

New contention 206 The plan fails to provide for the sheltering and placing on stored feed of milk animals ~~within~~ ^{within} (i) 2 miles of the plant in a site emergency, NUREG- 0654 Appendix 1, p 1-12, 3d col item 9, with assessment of need to extend that distance, ^{CF ER Table 2.1.3-1 nearest milk cow} (ii) 10 miles of the plant in a general emergency, ibid p. 1-16, 3d col item 10, and assessing the need to extend that distance. ^{1.8 mi from plant}

GENERIC 5 factors for contention 206 and all other new contentions:

These contentions are timely filed under the Board's orders and extensions of time. Therefore I don't think I have to address the 5 factors. but I will for safety's sake. Timeliness is OK per the above. So far as I know, no other party is pursuing the issues in these new contentions, and even if they do there is no guarantee the other parties' contention(s) would be admitted. There are no other means to protect my interest. The thorough incompetence of the responsible state and local agencies is indicated by their massive failures to include required information in this plan that was served on me. CP&L likewise appears incompetent (or in a rush) in serving a plan with so much incompleteness and failure to comply with NRC requirements. There is no guarantee any of these parties will (that's the language of 10 CFR 2.714) protect my interest. There is considerable reason to doubt it.

There is no reason why these contentions would broaden the issues, since emergency planning has been at issue from the start of this proceeding. The new contentions cannot delay the proceeding, since discovery has not begun, the emergency planning hearing is about a year away, and they were timely filed as noted above. Without contentions, there can be no sound record on these issues. I have considerable knowledge of systems theory and practice that is applicable to interactive systems like emergency plans. I can do cross-examination and analyze plans and systems. From the plan as it now stands, it appears the state and county authorities have not demonstrated much, if any, greater capabilities in these areas. My main concern is that if there is to be an operating nuclear plant here, near the State capital and many important facilities and institutions and near lots of people, the plan should work. It appears CP&L would accept just about any plan (this one is pretty atrocious -- so incomplete and full of noncompliances) so they can't be relied on to develop a sound record. NRC Staff has a record of approving just about any plan also, so they can't be relied on. Only by critical examination of the plan can it be assured that it would work if it were needed.

The above 5 factors would also apply to contentions 200 thru 205, previously filed.

Revised contention 57C: The prevailing winds from Harris (i.e. the most frequent winds) blow past the plant in the general direction of Cary and Raleigh.

ER figure 2.3.5-3 (Harris site precipitation wind rose) shows the fastest wind speeds (10 mph) for the directions toward Cary (NE) (NNE), with 9 mph in the direction of Research Triangle Park (N). NUREG-CR-2239 (p2-44 P1) shows that "worst case results for early fatalities are generally caused by rainout of the radioactive plume onto a city further than 10 but less than 25 miles from the reactor." Therefore the EPZ should be extended to 25 miles in the N, NNE and NE sectors. Evacuation in such areas can significantly lower fatalities (NUREG-CR-2239, ibid; cf also pp C-4 and C-5 thereof: Harris mean early SSTI fatalities are $40 \times P_1$; Indian Point, same case, $800 \times P_1$; thus the 42000 lives to be saved per p. 22-42, translate to $\frac{900-}{1120} \times \frac{40}{800}$ as many, i.e. $1/26$ as many, or about 1600 lives).

Revised Contention 57-C-2: Since the most frequent winds from Harris blow towards population centers (Cary, Raleigh) and a work center (Research Triangle Park) more than 10 miles from the plant, it is appropriate to extend the plume exposure EPZ, based on these local conditions, out to 25 miles from the Harris plant in the direction of those cities and the Park. NUREG-CR-2

2239, p. 2-42, shows that worst case results for early fatalities are generally caused by rainout of a radioactive plume onto a city over 10 but less than 25 miles from the plant. Evacuation within 25 miles can

greatly reduce fatalities in such a case (ibid).

NB - all contentions with numbers incorporating a deferred contention # (eg 57, 63, 117, 118) never, are revised contentions

Revised Contention 57-D-1. Because the average Harris site wind speed is about 7.7 mph (Harris ER, sec 2.3), even the unrealistically optimistic evacuation times of Plan Fig. 13 (Pt 1 p 51) in unrealistically good weather, the worst adverse weather being heavy rain) at times when people are awake, do not provide any meaningful possibility of evacuation. E.g. the minimum evacuation time for a 2 mile radius is 1 hr 40 min after notification. In that time the wind (avg) goes 10 miles. Accord, fastest 5 and 10 miles evacs 2 hr 150 min. In that time the wind (avg) goes over 20 miles.

This violates 10 CFR 50.47(a)(1)'s requirement for reasonable assurance of adequate protective measures will be taken. NUREG-CR-2239 (p. 2-43, Table 2.5-2) shows that evacuation can significantly reduce fatalities in a severe accident. Similar logic applies to less severe accidents -- evacuation lowers exposure.

57-D-2. The effective evacuation speeds shown in the Harris plan (Fig. 13, page 51 of part 1) are, at maximum, 2 miles in 1 hr 40 min (1.2 mph) 5 miles in 2 hr 40 minutes (1.9 mph), and 10 miles in 2 hr 50 min (3.5 mph) under unrealistically favorable conditions (all people awake, weather good or, at worst, rain (HMM report on evac times, p. 1-3 item C)). But NUREG-CR-2239 finds (p. 2-40) that an evacuation speed of at least 10 mph is required to avoid affects on early fatalities (i.e. increasing them). This plan is clearly inadequate to provide such an evacuation speed.

57-D-3. The plan does not assure that a plume of radioactive material leaving the Harris site will be accurately located if the wind changes direction. A sudden wind shift could convert a narrow plume into a sweeping "flood" or "wave front" of radioactive material. That plan does not provide for wind shifts at any point I can find in it.

57-C-3. The plan does not have provisions for evacuation at night, e.g. in the hours between 1 am and 6 am when most people living near the plant would normally be asleep. Nor does the plan assure that they would be timely awakened to take sheltering action, as e.g. on a summer night when many might have windows open or air conditioners on. The plan should provide automatic phone-dialing equipment to transmit an emergency message to all households in the EPZ for Harris, asking people to alert their phoneless neighbors. Such equipment is available according to Jesse Riley of Carolina Environmental Study Group. This equipment would also be useful in daytime evacuations.

57-C-4. The plan's provisions for ice, snow or fog are inadequate, consisting as far as I can see of a one-sentence item 8 on page 50 of part 1 saying that state DOT and municipal public works departments will be responsible

* for clearing routes. This is a joke. The equipment is not identified or shown adequate to the task of opening all such routes or keeping same clear. The location of the equipment is not specified. Personnel availability for these tasks ^{is} ~~are~~ not addressed. Yet snow, icy or foggy conditions could include substantial rainout or entrainment of the plume which would make sheltering less effective and ~~ev~~vacuation preferable.

57-C-5. Plan provisions for clearing debris, vehicle wrecks, (e.g. fallen trees from a wind storm, tornado or other storm which may have also caused or contributed to the accident, e.g. via Loss of Offsite Power) are inadequate, see item 8, part 1 p.50. No inventory of equipment, personnel, or estimate of time to clear same, whether the equipment could reach places to clear wrecks or debris in the event of either a panicky or an orderly evacuation, is provided. The planning is clearly inadequate to accomplish the goal, and violates the requirement of NUREG-0654, item II.J.10.k, page 63 to identify and provide means for keeping evac routes open, and to have contingency measures.

207. The plan makes no provisions for accidents involving radioactive material, including spent fuel, high level wastes, and "low level wastes" (which can contain highly radioactive material like CS-137 or damaged reactor control rods) in transit to or from the Harris plant. Thus it doesn't adequately protect the health and safety of the public. (5 factors, see p. 3 supra)

57-C-6. The plan, Part 1 p 635, gives an estimated maximum response time of four hours (!) for the Harris E and E center to respond in radiological sampling. This is far too long. NUREG-CR-2239 shows that a 1 hour delay in evacuating may not increase casualties, but longer delays will (p. 2-43, Table 2.5-1). It is not clear whether Duke University and ~~UNC-Chapel Hill~~ ^{NC State U} also have the four hour response time (estimated maximum), but UNC-Chapel Hill does, as does General Electric at Wilmington, which is a 2½ hour drive from Harris. With a 7.7 mph average site wind speed, a radiation release will go 30 miles before a response from any of these labs is guaranteed.

57-C-7 The plan, Part 1 pp 66, 68-71, does not provide the plans of various hospitals to treat radiation victims, can treat no more than 96 as ~~plans~~ state, and do not provide for training or protection of emergency personnel transporting these victims to hospitals. (50 p4 1 p. 85- howd w G 203)

Quite obviously, more than 96 victims could be contaminated with radiation in an accident at Harris. Cf. NUREG-CR 2239 p 2-43 data as adjusted per numbers on pp C-4 and C-5 thereof (corrections for Indian Pt vs. Harris) gives Harris early injury figures about 5.5% of those in the tables 2.5-1 and 2 (ibid p. 2-43) or 200 or more persons (except with evacuation to 25 miles, 100 early injuries).

57-C-8. The plan, p 68 (part 1) items 2a,c,d, and e are not provided. Yet these are said to be standard procedures and reference materials. The adequacy of the medical facilities in compliance with NUREG-0654 items II.10. L. 1, 3 and 4 cannot be evaluated without the information left out of the plan, as cited above. *The plan thus doesn't comply with 10 CFR 50.47(a)(12)*

57-C-9. The plan for getting the SERT set up (pt. 1, p72) allows 2 or ~~3~~ 3 hours to set up SERT and up to 7-9 hours to get a field command post activated. These times are too long, since at TMI radiation releases occurred within 5-6 ~~hours~~ hours after the accident began and within 2 hours of declaring a general emergency. The state will not be able to respond in a timely way to radiation releases, especially if time delays in alerting them to evaluate radiation releases are made (no alert til general emergency declared, per pp II-34 and I-32) This fails to comply with 10 CFR 50.47(a)(1)'s requirement for timely action for taking adequate protective measures in the event of a radiological emergency and the requirements of 10 CFR 50.47 (a)(9).

57-c-10. The plan does not take account sufficiently of accidents releasing groundlevel plumes or plumes coming rapidly to ground level (e.g. as at Ginna in 1982, NUREG-0909 p. 1-7). *See NUREG/CR 2739 p2-74: ground level releases more dangerous* Inversion conditions are present about 50% of the time near Harris. The plan (pt 1 p 45⁴⁶ and 50-53; Pt. 2 pp 29-30, pt 3 p26, pt 4 pp28-29, pt 5 p 31) provides no useful analysis or information on sheltering effectiveness; but without knowledge of sheltering effectiveness, the decision on that option vs. evacuation will be illinformed and quite possibly wrong. The plan's discussion of protective actions is mostly a list of them and a little handwaving -- it's hopelessly inadequate.

57-C-11. Contrary to the plan's listing of administering potassium

iodide as possible protective action for the public (part 1 p. 46 item 2 c 3), the plan makes no provisions for availability or distribution of KI to the public. This violates NUREG-0654 p 63 which requires KI ^{or other radioprotective drugs} for those "whose immediate evacuation may be infeasible or very difficult". In a sheltering situation, that would be everyone. Delivery of KI through the plume wouldn't be practical. Tennessee (TVA) distributes KI to local residents near N-plants; Harris should.

57-C-12. The plan's lists of protective actions (cited in 57-c-10 above) do not include elementary measures like breathing through a damp cloth or other filter, except for one county. This omission bespeaks a low level of sense and/or preparedness and/or competence among planners. It also violates 10 CFR 50.47(a)(1)'s requirement for appropriate protective action to be assured. In sheltering situations, actions such as breathing through a filtering material are surely appropriate.

57-C-13. The plan, in discussing protective actions, repeatedly refers to "the best Protection Factor" (PF) for sheltering. Yet it nowhere sets up criteria for identifying such protection factors or the highest PF in any structure (eg. schools, hospitals, prisons, day care centers, offices). The highest PF areas need to be determined in advance to comply with 10 CFR 50.47(a)(1)'s requirement for assurance of appropriate protective action. If seeking the highest PF is appropriate action (as the plan states, Pt 2 pp29-30, pt 3 p 26, pt 4 pp 28-29, pt 5 p 31) then that action must be assured.

57-C-14. The plan is inadequate in its treatment of transport (pt 1 p 467, pt 2 pp 29-31, pt 3 pp 27-28, pt 4 p 29, pt 5 pp 32-33 and the non-existent Annex I) and traffic capacities (pt 1 p 48) of evacuation routes, because it does not establish in advance pickup points for people without transport, ^(pt 1 p 47) does not assure adequate transport can get to these points in time, and does not seek to identify in advance those without transport and advise them where to go for pickup. The average person has no idea what "nearest traffic control point" is or where it is (pt 2 p 31, 3 p 28, 4 p 29, 5 p 33) Thus people without transport are deprived of appropriate protective action violating 10 CFR 50.47(a)(1).

57-C-15. The plan as I read it has no provision for further transport of persons without transportation of their own. However, studies such as NUREG-CR-2239 assume that persons once moved 5 miles outside the evacuation zone "have means to avoid further radiation exposure". If these persons are taken to a relocation area or site (e.g. as schoolchildren) and have no further means to move in the event of a radioactive plume coming to or over the site where they are, they are not adequately or appropriately protected (violates 10 CFR 50.47(a)(1)). Plumes can be very dangerous beyond 10 miles. NUREG-cr 2239 pp 2-42/43. 2-74.

57-C-16. The plan fails to meet the requirement of 10 CFR 50.47(a)(1) for reasonable assurance of appropriate protective action in severe accidents. NUREG-CR-2239 (p. 2-48) observes "at short distances each of the seven scenarios (of Table 2.5-6, p 2-47) fails to provide sufficient protection for a substantial number of weather sequences" so that casualties stay high. Using the 1/26 correction factor for Harris vs. Indian Point prompt fatalities (derived from pp C-4 and C-5 P_1 multipliers and 900 vs 1120 MWe), this means about 142 prompt fatalities for Harris (avg) and over 690 in the worst case. Dead people are not appropriately protected.

57-C-17. The plan makes no prepared and clear provisions for protective actions beyond 10 miles. But NUREG-CR-2239 says (p.2-51) that protective actions beyond 10 miles can reduce peak early fatalities by about a factor of 10 and identifies "substantial impact of emergency response beyond 10 miles on peak early fatalities". The state of NC apparently takes a fatalistic attitude about such casualties; not planning for them violates the Atomic Energy Act which places the protection of public health and safety above economic or other considerations.

57-C-18. The plan completely omits the Memorandum of Understanding between CP&L and the state. Filing of the plan without this important part indicates incompetence (or perhaps a desire to avoid making information available to intervenors) on the part of CP&L and/or the State of NC.

The memorandum is part of the plan and the plan is not complete until a memorandum in full compliance with 10 CFR 50.47, ^{es. 50.47(b)(2)} NUREG-0654, the Atomic Energy Act and all other applicable rules and regulations is incorporated in the plan.

57-C-19. The plan takes no account of rainfall distributions or intensities. / But NUREG-CR-2239, e.g. at page 2-9, says "washout of material by rainfall is a very efficient removal mechanism (so) it is important to account for the frequency, intensity and spatial variability of rainfall" in modeling accident consequences for nuclear plants. "High-consequences events", (lots of deaths) are associated with rainfall over population centers during nuclear accidents, NUREG-CR-2239 observes. Without appropriate protective actions thought out and planned and operable before an accident, the public is insufficiently protected from radioactive rainout, in violation of 10 CFR 50.47 (a)(1).

57-C-20. Most ~~roads~~ roads to be used in the evacuation are two lane roads. (See HMM report on evac times, , e.g Figs 5-1 and 5-2). Under conditions of panic accidents can and will happen on these roads in an evacuation. Accidents will happen without panic also. The traffic carrying capacities of these roads have apparently not been assessed by the State. The only reference in Plan Appendix H to such assessment is to Pt 1 p 48 which gives no analysis. NC 751, NC 42, NC 55, parts of US 401, 64 and 1 are 2 lane roads as are all state routes identified per that page. Lack of evaluation violates NUREG-0654 II.J.10.i (approx p 61-65). (NMB all "57" contentions above are revised contentions)

Revised 63: The plan fails to establish care for radiation victims on a mobile basis, in terms of equipment, training, planning, staffing and assuring that staff for such mobile care will report and be continuously available during a nuclear accident. Mobile care is required by NUREG-0654 969 fnl cites

Revised 81. The Harris emergency plan has not been tested or otherwise formally evaluated and shown to provide the assurance of appropriate protective action required by 10 CFR 50.47(a)(1). While NRC does not apparently require the plan to be tested before the plant operates, the State Dept of Crime Control & Public Safety has stated that it learns from each plan test and that a test of the plan should be made to show that it is workable.

208. The Harris emergency ~~plan~~ ^{under} ~~for~~ adverse weather e.g. snow, ice, fog, tornados or severe winds conditions ^{or} evacuation at the times most people are asleep (e.g. 1 am to

6 am). Even notification procedures have not been tested under such conditions.

Thus the plan is a sham in terms of real problem evacuation conditions.

5 factors
on p.3

209. The plan as filed does not contain the information asked for in contention 99 filed 5-14-82, with only a handful of exceptions. Thus the plan isn't proper for filing, and has failed to be sufficiently updated in its first version, violating 10 CFR 50.54(t) and 10 CFR 50 Appendix E IV G and other rules and regulations including failure to fully comply with all requirements of NUREG-0654 including those referenced in plan Appendix H which are mentioned or include matters referenced in contention 99. Failure to produce this information knowing that a contention asking it was filed, would show incompetence by CP&L or the State. (5 factors, p.3)

103 is submitted as is (note that all contentions for which no revised version(s) are given in this submission, have been submitted for ruling. None are withdrawn.)

210. E The plan (pt 1 pp 61-63) fails to establish adequate decontamination or recovery procedures ~~x~~ to comply with 10 CFR 50.47(b)(13). This plan is not "general" for these matters, but virtually nonexistent. The plan also fails to comply with NUREG-0654 items 10.M.1,2 and 3~~x~~ in any meaningful way. (5 factors, p.3)

GENERAL "What's New and Why couldn't file earlier," for contentions 200 thru 210: What's new is the plan, the information in it providing basis for the contention, as cited in ~~x~~ each contention, or (when lack of information is alleged) the lack of information in the plan or lack of sufficient information in the plan. That is, what's new is the basis of each such contention in the plan, and that basis could not be established without the plan in hand.

Why couldn't file earlier; Plan not available so basis not available. Similar contentions to many of these were filed earlier, but could not have precise cites to basis in the plan since the plan did not then exist. Having to file contentions about plans that don't exist is a nuclear Catch-22 as this Board has observed previously. What's amazing to me is how the planners are so good at overlooking matters raised in longstanding contentions. If the planners were subject to the same sort of rules as intervenors (e.g. no plans with mistakes that could have been identified earlier will be accepted), no emergency plan in this case could be ~~fixed~~ accepted; surely not this one.

211 Annex I to the plan does not provide maps which are suitable, accurate and up to date maps for (i) operations (ii) the ingestion pathway as required by NUREG-0654, / II.J.10.a, page 61, "Maps showing evacuation routes, evacuation areas, pre-selected radiological sampling and monitoring points, relocation centers in host areas, and shelter areas" shall be included in the plan. 10.b likewise requires maps showing population distribution around the nuclear facility which "shall be by evacuation areas" (ibid, p.61). This is inexcusably sloppy planning, to leave the maps out (NB the page of Annex I indicating that no maps are in the plan, does not have a page number). *But see p. 44 items 10 a & b. The only maps in the plan are in Annex I, this says.* (Generic 5 factors covering this new contention, p.3; p.11 has generic what's new and why couldn't file earlier which covers this contention also.)

§ Revised 117. The plan does not assess the number and availability of wrecker trucks and equipment to keep evacuation routes clear, either for ordinary accidents or for hazardous cargoes or accidents involving same. What if, for example, a car or truck tries to beat a train to a crossing during evacuation, derailing the train and releasing hazardous material from the train or the truck (or even the car)? The plan violates 10 CFR 50.47 (a)(1) and NUREG-0654, item II.J.10.k for these reasons.

New 212. The plan due to its numerous deficiencies as noted in contentions above and below, gives evidence that the planners have not been properly trained (violation of 10 CFR 50.47(b)(16)), or of dereliction of duty by the planners, which would cast doubt on their ability to respond in a timely or appropriate manner during an accident, in violation of 10 CFR 50.47(a)(1). Properly trained planners would not have filed such a sloppy and incomplete plan, if they were taking their duties seriously.

(5 factors, p.3; what's new etc, p.11)

Revised 117-A. The plan takes no account of train schedules, particularly as they might affect or impede evacuations at any time, but especially at night or under adverse weather of fog, snow, sleet, high winds, tornados, ice etc.

The capacity of trains to block evacuation routes and/or contribute to car or truck wrecks which block such routes has not been analyzed, in violation of NUREG-0654, item II.J.10.k.

Revised 121. The radiological emergency response plans of the State of NC and surrounding counties have been formulated without sufficient reference to the Harris DES and FES, and thus fail to address appropriate protective actions under 10 CFR 50.47(a) for accidents greater than the design basis, which the FES (p 5-61) admits is possible, and the uncertainty of a factor of 10 to 100 admitted on page 5-84 of FES to be inherent in NRC's estimates.

124 is revised to add at the end (page 61), so the last line is:
"other criteria as required under NUR G-0654, Rev.1, at II.J.9., page 61"

New 213: The boater notification plan (part 5, p.15) does not include the Harris lake, does not guarantee sufficient boats or personnel to conduct warnings, and in particular makes no provisions for boat or traffic accidents during evacuation of potentially thousands of boaters from the lake. This violates 10 cfr 50.47(a)(1) which requires appropriate protective measures. Such measures should include limiting the number of boaters on the lake when the Harris reactor is critical or whenever fuel handling operations are in progress at Harris. Logically, adverse consequences to boaters can be reduced by reducing the number of boaters. The same logic applies even more to swimmers and water-skiers who will be harder to get out.

(5 factors, p.3; what's new etc that applies to this is on p.11).(a similar contentions alleging no benefit of use of lakes near Harris due to evac risks etc was filed earlier.

213-a. The plan, p. vii, says that the plan contains so much detail that "separate implementing procedures are not deemed necessary". Thus, the plan contains insufficient information about how it will be implemented. This violates 10 CFR 50.47(a)(2) which requires that plans can be implemented. But it also prevents intervenors from seeing many implementation documents. Thus the plan is incomplete, violating 10 CFR 50.47

5 factors for all the following, p.3; what's new for all, p.11

214. The plan (pt 2 pp29-30, pt 3 p 26, pt 4 pp 28-29, pt 5 pp 32-33) is deficient in its discussion of shielding. It should at minimum comply with items 3.212 and 3.13 of International Atomic Energy Agency (IAEA) "Plans for Offsite Response to Radiation Accidents in Nuclear Facilities", especially with regard to minimal shielding by windows, desirability of staying in basements (which many homes near the Harris plant don't have), and making "a theoretical or experimental determination of shielding factors for the different types of buildings" near Harris. Failure to do this violates NUREG-0654, item II.J.10.m, p.64.

215. In violation of 10 CFR 50.47 (b)(10) CP&L's evacuation time study does not conform to NUREG 0654 Appendix 4 and will not provide accurate and useful guidelines for the choice of protective actions during an emergency because the study

contains numerous so-called "conservatisms" including those referring to recreational populations and vehicle capacity factors (see e.g. sections 3-3 and 3-6) which may force evacuation time estimates upwards and provide inaccurate estimates for decision makers during an emergency, in the opinion of expert Paul Holmbeck. Potential hazards of such "conservatisms" are discussed in the 1984 Byron partial initial decision under emergency planning.

216. In violation of 10 CFR 50.47 (b)(10) and nonconformance with NUREG-0654 Appendix 4, the CP&L evacuation time study ("HMM report") fails to divide population data into subgroups (e.g. those using autos and those not using autos, NUREG-0654, Appendix 4, pp 4-2/3) in any meaningful manner. Those without autos are simply assumed to have access to transport. The exact method and type and availability of transport for those without autos are not specified, except for schoolchildren.

217. In violation of 10 CFR 50.47(b)(10) and NUREG-0654 Appendix 4, the CP&L evacuation time study fails to provide adequate information for choosing protective ~~xxxxxx~~ actions during a nuclear accident because it fails to systematically consider the relative significance of alternative assumptions, e.g. weather conditions, ^{day versus night,} peak transient versus off-peak transient populations in accordance with NUREG-0654 Appendix 4 IV-A, p.4-7,

218. In violation of 10 CFR 50.47(b)(10) and NUREG-0654 Appendix 4, the same study fails to provide adequate information for choosing appropriate protective actions during a nuclear accident because (A) it does not make evacuation time estimates for each special facility on an individual basis ^{violates NUREG-0654, Appendix 4, see xx} (~~xxxxHMMxxxxxx~~ at II-c p.4-3, IV*B p.4-10) (B) it contains no information on industry shut down times consistent with NUREG-0654 App 4 IV-B pp 4-9/10. (See also Byron 1984 initial partial decision, under emergency planning).

219. Further inadequacies threaten the ^{and reliability} credibility of the HMM evacuation time study (if it's incredible ^{or unreliable} it violates 10 CFR 50.47 (a)(2) and (b)(5),(10) and (11)) . The study assumes, sec. 2 pp 2-2/3 that (1) "the auto owning permanent population segment will evacuate from their places of residence." (2) "the public will travel out of the plume exposure EPZ along evacuation routes designated.

(a)(1), Neither of these assumptions, not the assumption (p.3-5) that all school children will be evacuated by bus, can hold true because of the undeniable fact that some parents will go to schools to evacuate their children. Parents cannot be expected to evacuate without their children.

220. The HMM study is further incredible and unreliable in violation of 10 CFR 50.47^{(a)(1) and} (a)(2) and (b)(5), (10), and (11) in that it assumes auto owners will evacuate from residences rather than workplaces (pp 2-2/3), ignoring traffic jams at work places, and it assumes (pp 3-3,4) that sufficient vehicles will be available for the Boy Scout Camp south of the Harris reservoir to evacuate. (In WE's experience as a Scout, the camps had only a few staff cars and maybe one bus, for populations of hundreds of campers, available during week days).

221. The HMM study, in violation of 50.47^{(a)(1) and (2) and} (b)(10) uses the untested and inadequate NETVAC II computer simulation model. The model purports to account for human decision making in route selection through a dynamic route selection model. Driver preference is assumed to be based on ~~xx~~ 2 criteria one of which assumes familiarity with the area (which cannot be assumed for transient population). Further, the impact of human behavior under some degree of stress is not considered nor is the impact of transients' unfamiliarity with the area. Unrealistic assumptions could lead to disastrous mis-decisions by emergency response personnel.

222. The HMM study violates 10 CFR 50.47(a)(1) and (2) and (b)(10) by not describing the special facilities' highly individualized means of transportation or the availability of transportation resources which might be available for the various facilities (violates NUREG-0654 App 4, II-C, p.4-3). At section 3-5, the study discusses school evacuation, but no comparison of resources is made sufficient to determine the capability for single trip evacuation. A second trip would expand time estimates for evacuation tremendously (obviously, it would more than double them, since 3 bus trips would be needed to do two evacuation runs).

2223. In violation of 10 CFR 50.47(a)(1) and (2) and (b)(10) the HMM study fails to^(A) consider highly individualized mobilization times important to emergency decision making (violates NUREG-0654 App 4, IV-B, p.4-9); (B) use time of day considerations (0654 IV-B, p. 4-10) in special facility estimates at pp 3-4, 6-4~~m~~ (etc); (C) consider time of day in ~~n~~ nursing home evacuation times, or visiting hours impacts on ~~ef~~vacuation of nursing homes (violates 0654 App 4 IV-B, p. 4-10, etc). These defects make it an improper guide for decision making ~~for~~ protective action during nuclear accidents.

224. In violation of 10 CFR 50.47(a)(1) and (2) and (b)(10) the HMM study is defective because it (A) does not use area-violating specific weather conditions, NUREG-0654 App 4 IV-A pp 4-6 and 4-7; (B) does not identify the adverse weather frequency used (Id. IV-A, p.4-6) (C) does not give consideration to the impact of peak population including behavioral aspects (Id. IV-B, p.4-10). Such ~~an~~ defective study is unreliable for guiding emergency response personnel in decisionmaking.

225. In violation of NUREG-0654 P.1.e, ^{in the plan,} ongoing communications between, and notification of, emergency response organizations (police, fire, medical etc) relies upon commercial Telephone. Pt. 2 p 42 Pt 3 p 39 pt 4 p 40 pt 5 p 48. Given the likelihood of large numbers of calls intended to confirm the accident, notify friends and relatives, or obtain information on emergency plans or conditions, and given the certainty that many of these calls will be directed to emergency response personnel or persons at sites associated with the plan, it is entirely inappropriate to rely on ^s such an overburdened and unreliable system of communications for critical emergency communications, in Holmbeck's opinion. This violates 10 CFR 50.47(b)(6).

226. The use of commercial telephone for ongoing and notification communications to and among emergency response organizations (plan, pt 2 p 42, pt 3 p 39 pt 4 p 40 pt 5 p 48) violates the requirement of 10 CFR 50.47(b)(6) for "provisions exist(ing) for prompt communications among principal response organizations to emergency personnel". Other means of communication have not been analyzed to show they can handle the traffic of communication necessary among all the emergency response organizations if phone lines are tied up with calls, or inoperable, e.g. due to storms, tornadoes, electromagnetic pulse etc. (Note: the plan, pt 2 p 42 IV D 1 says "communication between Gaston county and the state" (WHOOOPS). Intervenor will accept a 150-mile EPZ)

227. The emergency preparedness brochure, the primary means of public education under 10 CFR 50.47(b)(7) re "how they will be notified and what their initial actions ~~will~~ should be in an emergency" etc, is ~~unfairly~~ inadequate because (A) it's missing from part 1 p.43 of the plan; (B) it lacks ^(E) information about radiation and its effects on humans (C) listing of protective measures to be taken during an emergency including evacuation, sheltering, respiratory protection, radioprotective drugs, etc; (D) specific travel routes and alternative routes from the area; (E) where to listen for or get emergency information; (F) special measures for handicapped people during emergencies.

228. Applicant cannot be deemed to have met the requirements of 10 CFR 50.47(b)(7) regarding public education and information until it is at least demonstrated that the above-requested information (in contention 227 (B) thru (F)) and other required information will be or is in fact made available to the public on a periodic basis.

229. In plan sections ~~designated~~ re public education and information (pt. 1 pp 42-45; Chatham Co. pt 2 pp 26-28; Harnett co. pt 3 pp 22-25; Lee Co. pt 4 pp 24-27; Wake Co. pt 5 pp 27-30), Applicants have failed to demonstrate any means for the dissemination of information to the public that complies with 10 CFR 50.47(b)(7) and NUREG-0654 (pp 50-51) II.G will be verified as having been successful in its task of informing the public. Failure to demonstrate that the public is informed violates 10 CFR 50.47(a)(1) and (2). E.g. the public could be provided with a tearoff mail-in (prepaid postage) card on the brochure with checkoffs for "received and understood" or "not understood".

230. In violation of 10 CFR 50.47(b)(10) and applicable evaluation criteria in NUREG-0654 II.J.10.g (p.63) emergency plans for Shearon Harris fail to demonstrate that adequate transportation ^{all} resources to evacuate [^] schools in the EPZ are available. Plans for providing "means of relocation" (pt 1 p 47, pt 2 pp 29-31, pt 3 pp 27-28, pt 4 p 29, pt 5 pp 32-33) contain no useful information to prove that adequate vehicles will be available and operable for school evacuations. 10 CFR 50.47(b)(1) requires that where evacuation depends on resources other than those of the specific schools involved, the plan must include means to coordinate such action, and those involved must be able to execute the action.

231. In violation of 10 CFR 50.47(b)(10) and applicable evaluation criteria of NUREG-0654 II.J. (pp 60-64) the Harris Emergency Response plans do not adequately address the need for notification of schools in the plume exposure pathway EPZ or the required communications systems to coordinate their evacuation. Two way radios on all school buses are necessary should evacuation be called for during pickup or dropoff times or in the event that buses must make additional trips or change route due to plume shift in changing winds.

232. In violation of 10 CFR 50.47(b)(10) and NUREG-0654 II.J. criteria (pp 60-64), communication with the schools in the plume exposure EPZ is not assured, nor is communication between these schools assured (their phones will be jammed with incoming calls in an emergency -- this happened at TMI). Yet an evacuation may have to be called for after a period of sheltering, so communication that cannot be blocked by phone failures or jammed switchboards has to be assured to all schools in the EPZ.

233. In violation of 10 CFR 50.47(b)(4) and evaluation criteria in NUREG-0654 II.D. (p.42) the Harris emergency plans fail to provide an adequate emergency classification and action level scheme (pt 2 p 34, pt 3 p 31 pt 4 p 32 and pt 5 p 37), give protective response options for each different emergency classification for the counties of Chatham, Lee, Harnett and Wake or other areas in the EPKZ. level
p.1-12 (advocates assessment of sheltering at site em.
Contrary to Appendix 1 of NUREG-0654, these schemes defer assessment
of appropriate protective actions for the public until a "general emergency exists" or until "events have occurred or ~~ix~~ are in progress which involve imminent or actual substantial core degradation or melting with potential of loss of containment".

234. Contrary to NUREG-0654 App 1 p.1-12 that advocates assessment of need for sheltering at the site emergency action level, the Harris plan defers such assessments until too late, i.e. until a general emergency, a meltdown or imminent or actual loss of containment of radioactive poison at Harris is in progress (see page cites in contention 233 above). That's too late and shows a callous disregard for the public health and safety in violation of the Atomic Energy Act, 10 CFR 50.47 (a)(1) and (b), and 10 CFR 50.47 (b)(4).

235. Portions of the Harris emergency plan which purport to assure that the mobility-impaired will be adequately protected (pt 1 p47 pt 2 p 30, pt 3 pp 26-27, pt 4 p 28, pt 5 pp 31-32) fail to assess ^{for} the resources necessary or available ~~in~~ this task.

Means for protecting persons whose mobility is impaired due to institutional or other confinement are required by 10 CFR 50.47(b)(10) and specified in NUREG-0654 evaluation criteria II.J.10.d and g. (pp 61,63 Id.)

236. In violation of 10 CFR 50.47(b)(10), (a)(1) and NUREG-0654 evaluation criteria II.J.10.d. and g, (pp 61,63), the Harris emergency plan for the mobility impaired (see page refs in contention 235 above) does not (A) designate transportation resources for homebound, nursing home and hospital patients (and prisoners and the handicapped); (B) establish self transport capability ~~exists~~ for all facilities for such persons as noted in (A) above in the Harris EPZ (C) Fail to provide timely access to radioprotective drugs (KI) for hospitals and nursing homes in the event of rapid accidents or radioiodine releases (violates NUREG-0654 II.10.3f, p.63).

237. The Harris emergency plans suggest persons without personal vehicles walk to pickup points where school buses will evacuate them (Pt 2 p 31, pt 3 p 28 pt 4 p 29 pt 5 p 33). In violation of 10 CFR 50.47 (b)(10) and NUREG-0654 II.J.10.3g p.63, there is no indication that such vehicles and drivers for them exist, that routes for them without conflict with evacuation traffic flow exist, or that any estimate of the time required for such procedures have ~~been~~ made. Thus evacuation has not been determined superior to sheltering for personnel without vehicles under some evacuation conditions, but the plan does not give planners the information to say which conditions.

238. Provisions for the administration of radiological-protective drugs (KI) to emergency workers and persons in hospitals or nursing homes (pt 1 p 47 pt 2 p30 pt 3 pp 26-27 pt 4 p 28 pt 5 p 30) are inadequate to provide timely protection from radioiodines. KI is mainly to be stored at county health departments and distributed during an emergency. Travel to supply these drugs will surely be difficult during an evacuation, and has not been planned for specifically, e.g. routes, alternative routes, timing.

Predistribution of KI with regular replacement of supplies to ~~assure~~ it remains effective versus radioiodines would be better.

239. Provisions to distribute KI at facilities in the Harris EPZ do not appear to designate individuals to distribute KI or other radioprotective drugs or to make sure each individual at risk receives it. Risks of using KI, and obtaining informed consent in advance to use KI, are not addressed. Patients must be informed of the risks and benefits of KI or any other radioprotective drug they are asked to take, under medical ethics. If this is not done in advance, distribution may be greatly delayed in an accident.

240. Procedures for monitoring evacuees for radiation under 10 CFR 50.47(b)(10) and NUREG-0654 II.J.10 and 12 fail to adequately protect the health and safety of evacuees, emergency personnel and persons in the host community. Local governments are responsible for shelter monitoring (pt 1 p 61, but their capabilities for decontamination have not been delineated. Would contaminated persons have to be turned away from shelters? Locations for evacuee monitoring and decontamination (and availability of materials for decontamination) is unclear in the plan, pts 1, 547-61, pt 2, 33-35, pt 3 pp 30-34, pt 4 pp 30-34, pt 45 -- 36-38.

241. The plan's use of host sites (mainly schools) for decontamination

is entirely inappropriate and ill advised. It would leave schools contaminated, where children susceptible to radiation ^{injury} (more so than adults) will be later. Evacuees should be monitored after they leave the EPZ before they continue to a host area. Facilities and personnel to do this should be provided. Otherwise evacuees may spread contamination, induce panic, and make host areas unable to perform their functions.

242. While benefits of economies of scale should be exploited by the NC Dept of crime control and public safety emergency planners, attention to site specific planning required by 10 CFR 50.47(a)(1), (2) and (b) must not be compromised. Frequent references to the McGuire nuclear plant and its locale, e.g. pt 2 p 42 ("gaston county"), pt 2 p 26, etc, indicate the (A) the SHNPP plan is a copy of the McGuire plan and (2B) officials in the vicinity of SHNPP have not seen this plan yet or they would surely have caught these errors. These errors indicate possible violation of 10 CFR 50.47(b)(16).

243. In violation of 10 CFR 50.47(b)(15) radiological response training has not been provided to all response organizations and individuals who may be called upon to assist in an emergency, e.g. directors and coordinators of the response organizations, first aid and rescue personnel, local support services personnel including fire and police; medical support personnel, and all offsite organizations (and members thereof) having mutual aid agreements with local agencies in the Harris emergency plan.

244. In violation of 10 CFR 50.47 (b)(5) and (b)(6) the Harris emergency response plan does not adequately provide for notification or communication between and among emergency response organizations and personnel so that communications necessary to timely and prompt evacuation can be implemented effectively. Phones will get tied up.

245. The Harris emergency plan relies too heavily on ^{the} volunteer personnel to effect an evacuation. The emergency plans fail to indicate the number of volunteer personnel who are necessary or who will be assuredly available to perform the responsibilities assigned to them. The plans do not take into account personal conflicts between volunteer responsibilities and concern to protect families and relatives in the EPZ, which mean that volunteers may not show up for their emergency jobs or may leave them (cf. Kai Erikson study in Shoreham case). They don't account for volunteers possible fears of radiation which would not apply in other types of emergencies.

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of CAROLINA POWER & LIGHT CO. Et al.)
Shearon Harris Nuclear Power Plant, Unit 1)

Docket 50-400
O.L.

CERTIFICATE OF SERVICE

I hereby certify that copies of Eddleman Contentions on Emergency
Plan (2d set) and WE resp on int re 9, 11, & 132(c)2, + update on JOINT VII
HAVE been served this 12 day of April 1984, by deposit in
the US Mail, first-class postage prepaid, upon all parties whose
names are listed below, except those whose names are marked with
an asterisk, for whom service was accomplished by express mail
(N.B. Applicants have also arranged to physically pick up a copy 4-12-84)

Judges James Kelley, Glenn Bright and James Carpenter (1 copy each)
Atomic Safety and Licensing Board
US Nuclear Regulatory Commission
Washington DC 20555

* George F. Trowbridge (attorney for Applicants)
Shaw, Pittman, Potts & Trowbridge
1800 M St. NW
Washington, DC 20036

Ruthanne G. Miller
ASLB Panel
USNRC Washington DC 20555

Office of the Executive Legal Director
Attn Dockets 50-400/401 O.L.
USNRC
Washington DC 20555

Phyllis Lotchin, Ph.D.
108 Bridle Run
Chapel Hill NC 27514

Docketing and Service Section (3x)
Attn Dockets 50-400/401 O.L.
Office of the Secretary
USNRC
Washington DC 20555

Dan Read
CHANGE/FLP
5707 Wavercross
Raleigh, NC 27606

John Runkle
CCNC
307 Granville Rd
Chapel Hill NC 27514

Dr. Linda W. Little
Governor's Waste Mgt. Bd.
513 Albemarle Bldg.
325 N. Salisbury St.
Raleigh, NC 27611

Travis Payne
Edelstein & Payne
Box 12607
Raleigh NC 27605

Robert Gruber
Exec. Director
Public Staff
Box 991
Raleigh NC 27602

Bradley W. Jones
USNRC Region II
101 Marietta St.
Atlanta GA 30303

Richard Wilson, M.D.
729 Hunter St.
Apex NC 27502

Certified by W. Eddleman

update
ON ANT + etc
re Joint ↗

See 6-28-82
amended WE
Concentrations
PP 10-16

WE

4-12-84