(2)

UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

October 6, 1983

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, Units 1 and 2)	Dockets 50-400 OL 50-401 OL ASLBP No. 82-468-01 OL

Wells Eddleman's Response to Applicants'
Interrogatories on Contentions 15AA and 8F1

This response is filed under an extension of time negotiated with Applicants' attorney Hill Carrow who consulted Dale Hollar in doing so. The General Interrogatories on each contention appear the same, and so consolidated answers are given for them.

RESPONSE TO GENERAL INTERROGATORIES

1(a): Documents used in formulating 8F1 have been located; See responses to 8F-1-6 + 7
As to 15AA, the authors of the NRC Harris DES, the compilers and suppliers of data for the NRC Gray Book (NUREG-0020), the authors of the decision in NCUC Docket E-2 sub 203 (certificate of public convenience and necessity for the Shearon Harris Nuclear Power Plant), and various CP&L officials including Wilson Morgan, J.A. Jones (now retired), Bobby L. Montague; NRC I&E Construction officials testifying in the 1979 remand hearing on CP&L's Management Capability for Harris, A. Ronald Jacobstein, Thomas Lam, and myself.

1(b): For 8F1, see above under (a). For 15AA: NRC estimate of Harris capacity factor and analysis therefor (DES); capacity factor of other nuclear power plants (0020); similarity of Harris to Beaver Valley --

D503

I believe this information came originally from CP&L and I am trying to get the transcript to find out. CP&L says it doesn't have a transcript of the NCUC hearing to license construction of Harris; CP&L's role in constructing the Robinson 2 plant (none- it was a Westinghouse turnkey project), Brunswick plants (more substantial; QA/QC failures in constructing Brunswick), and Harris (extensive); CP&L role in operating these plants and NRC comments thereon., see e.g. comments of construction inspectors (names listed in remand hearing on Harris before NRC, 1979, ASLB at Raleigh NC) re CP&L only doing what is required; similar comments by operating inspectors (see same record including Board Exhibit 8 therein) that CP&L put production ahead of safety, did only what was required, and tried to impeded inspector access to Robinson 2; record and comments and testimony on large number of defects in the Brunswick plant and failure to solve these problems (see testimony of FS Cantrell and documents attached thereto, etc); analysis of Brunswick plant by A. Ronald Jacobstein and Thomas Lam for NCUC Public Staff, Dockets E-2 sub 444 and sub 461 before NC Utilities Commission -- avoidable outages, operating problems; comparison of expected and achieved capacity factors of similar plants: Beaver Valley at under 36%, McGuire I at 38.5%, etc.

Taken together, these facts show that (1) the more CP&L has been involved in building a nuclear plant, the worse it runs compared to other nuclear plants or original performance estimates; (2) capacity factors for CP&L's only PWR are declining; (3) Harris is similar to the very worst-performing PWRS with Westinghouse nuclear steam systems; (4) none of this has been analyzed in the DES or taken into account in the cost-benefit analysis for Harris.

2(a) OBJECTION. I have previously objected to having to identify any nonwitness expert providing such information; Applicants informed me previously that they do not wish the identity of those who transmit information used in answering interrogatories. I stand on my objections of 8-19-83 (Applicants' Fifth Set of Interrogatories to me) and First and Second Sets, re G-2(a), and to Applicants' Fourth Set of Interrogatories re similar interrogatories 4-1(a) and (c), 4-2 and 4-3.

(b) See objection to (a) above; information will be identified by a pseudonym where it comes from a nonwitness expert.

3(a) and (b). No expert witnesses identified so far.

4(a) I have no page list for these documents, as to what I relied on in formulating contention 15AA; the documents and substance of what is relied on in them are identified in response to G-1(a) above. As to 8F1, I have located the documents used to formulate this contention. See Response to 8F-1-6&7 (b),(c), see (a) and references therein.

5(a) To the extent such documents can be located without an extensive search, they are identified in response to interrogatories herein. (b) Identification will be in, or referenced in, specific responses.

6(a) Such will be identified in response to the interrogatories, excepting identification of persons objected to above re 2(a). (b) see (a) and see 5(b) above.

7(a) None so far. (b) page citations, if known, will be provided.

RESPONSES ON 15-AA

15AA-1(a). I allege that assuming Harris will operate at 55% capacity factor for NEPA purposes is too high a number to use, particularly if DER rating of the plant is used. The capacity factor for NEPA purposes, to which I assume you refer, is a lifetime capacity factor. Obviously, the capacity factor of Harris could be above 55% for a given period of time (e.g. a few minutes) whenever it operates

above 55% power (DER), if it can do so. Such a situation would not necessarily make the lifetime CF above 55% DER. Obviously, at this point no one knows what capacity factor the Harris plant, if licensed to operate, would actually achieve over its useful lifetime, nor does anyone know its useful lifetime if it were allowed to operate. These things would have to be determined by what actually happens if Harris were licensed to operate. As to estimates, see response to 2(a) below. There is no assurance Harris will operate at 55% CF or above.

(b) See (a) above; see also CP&L's sales contract with NCEMPA, for portion of Harris 1 and 2 (and 3 and 4, etc), wherein no performance guarantee is found.

(c) Not applicable.

2(a) NRC Staff should have used a conservative estimate, e.g. the performance of the worst similar plant. Beaver Valley I, identified in Finding 6, p.18 of the NCUC 2-29-72 Order approving construction of Harris (NCUC Docket E-2 sub 203) I believe is that plant, with 35.8% lifetime capacity factor as of 12-31-82. Similarities between Harris and non-Westinghouse plants, e.g. B&W units, should also be considered.

(b) CP&L's Robinson 2 unit , as of 5-31-83, had a DER capacity factor of 63.0%; CP&L played no role in constructing this plant, but has been its sole operator; the PWR lifetime average is about 61%; the NERC (Equipment Availability Report, 1972-81, publ 6/83, of which I do not have a copy) ten year average MDC gross (roughly comparable to DER net) capacity factor is 62.7%. Thus, Robinson 2 performs better than the PWR average. (The Gray Book PWR lifetime average is about 61%).

Robinson 2 is the best-performing PWR of 700 MWe or higher design rating in the US, in terms of capacity factor over its lifetime so far; larger reactors tend to have lower capacity factors (see Gray Book and analysis by Dr. Lavon Page of NCSU and myself in NCUC Dockets E-100 sub 40

and sub 46; this also owes something to past analyses by David D. Comey and Charles Komanoff, though these are not used directly here). Robinson 2's capacity factor is higher for 2 reasons (1) the low site stringency (strictness of NRC license and operating requirements -- the lowest in Region II according to Board Exhibit 8 of 50-400 remand hearing in 1979), and (2) CP&L management's placing production ahead of safety, as commented on by inspectors in the same Board Exhibit.

Since Robinson 2 is only a bit above the national PWR average in capacity factor, but has less regulatory restrictions on it and arguably a management committed to production first, safety not being decisive. This sums up to the Robinson plant, which CP&L played no part in building, being about average for a PWR in the US. It is about average size (700 Mwe), and is performing just under the best-fit line for Westinghouse PWRs that Dr. Page and I derived. 700 Mwe would correspond to 63.5% CF, all other things being equal, in that analysis. See Table N*CF*83 in Supplemental Testimony of Wells Eddleman in Docket E-100 sub 46 (1983).

Now contrast that with the Brunswick plants, which CP&L played a much greater role in constructing (see 1979 NRC Docket 50-400 remand, testimony of J.A. Jones of CP&L). The national BWR average capacity factor (MDC Gross, roughly comparable to DER net) from NERC's 1972-81 equipment availability report is 60.0 percent. The Brunswick units are the worst-performing BWRs in America, with lifetime capacity factors (DER) of 45.3 and 41.9 percent respectively (47.0 and 43.5% MDC net). (Source is NUREG-0020 Vol 7 #6, June '83, data as of 5-31-83; I do not possess a copy of this). That is, Brunswick performs at only about 2/3 to 3/4 of the average BWR capacity factor. (Of course, the average already includes several years' operation of both Brunswick units. If Brunswick were excluded from the average, their performance would be

even further below average. The performance of the Brunswick plants is significantly worse than any other BWRs with salt-water cooling or Brackish water cooling.

Where Robinson is about average for a PWR, Brunswick is the worst for BWRs in capacity factor. The difference can be attributed to CP&L's involvement in constructing Brunswick, and to added NRC requirements for safety at Brunswick, and to CP&L's mismanagement of the Brunswick plant in construction and operation. The difference puts Brunswick about 15 points below average for a BWR.

CP&L's involvement in constructing Harris is far greater than CP&L's involvement in constructing Brunswick. An extrapolation of the variation of CP&L plant capacity factors from national averages as CP&L involvement in construction of the plant changes from zero (Robinson 2) to substantial (Brunswick) to very extensive (Harris) would indicate Harris could fall 30 or more points below the national PWR average (capacity factor of about 30 percent).

Since it is likely NRC will limit backfits of existing nuclear plants (it has proposed rule changes and law changes to this effect), Harris, as an uncompleted plant, will likely be subject to stricter regulatory requirements than existing plants. This will tend to depress the Harris capacity factor.

Another check, which I have used successfully as a conservative estimator for other plants, is to find a comparable plant and look at actual performance. Beaver Valley has a lifetime capacity factor of 37.4% (5-31-83) and is similar in design to Harris (NCUC Docket E-2 sub 203 Order of 2-29-72, p.18, finding 6).

Harris also has unresolved steam generator problems that could depress its operating capacity factor. McGuire 1, projected by Duke Power Co. to have an early capacity factor of 60% (65% lifetime)

when put into commercial operation, actuall achieved 38.5% through the end of 1982.

Taken together, these estimates suggest that a Harris capacity factor in the 30 to 40 percent range is quite possible. A conservative estimate of Harris operating capacity factor is therefore 30 to 40 percent on a DER basis.

Another check is to take the "all other things equal" figure of 58.1 percent for a Westinghouse PWR of 900 MWe (Page and Eddleman, E-100 sub 46 NCUC case, 1983) and correct for steam generators, added regulation, and CP&L construction involvement. That would suggest a capacity factor in the 25 to 35 percent range, figuring a 30% drop for CP&L involvement (Robinson-Brunswick extrapolated) and a few percent off for later-corrected steam generator problems and for regulation at the low end (58% minus 30% minus 3% is 25%), and a CP&L constr. involvement factor of minus 15% (conservative) with larger impacts from regulation and steam generator problems which might prove intractable or result later in operation (as at Robinson and other PWRs), giving a 20-25% subtraction from the 58% "other things equal", or 35% as the high range.

(c) Estimation is set forth above. I have copies of the computer analysis Dr. Page and I did; it's best-fit by least squares to the NUREG-0020 lifetime CF data with minor adjustments (for refueling and to exclude atypical reactors under 400 MWe) as shown in testimony filed in NCUC Dockets E-100 sub 40 and sub 46. CP&L was served with this testimony.

(d) I have been recognized as an expert in energy systems and energy conservation before the NCUC repeatedly; qualifications are given in testimony and appendices, most of which CP&L has been served with. I have estimated capacity factor in operation, e.g. in NCUC Dockets E-7 sub 289 and sub 314 (Duke Power dropped its 70% claim for McGuire in sub 289 to the 65% I proposed there; I don't suggest

they did so because of my estimate -- see W.S. Lee direct and supplemental testimony in Docket E-7 sub 314 for Duke Power -- but it does show that the power company adjusted its estimates as I'd suggested.

I have also addressed capacity factor in other cases, and am able to estimate it from design, maintenance, repair and performance data. I know of no specific "qualifications to assess capacity factor" which are recognized by any regulatory or other agency, except the qualifications of training, experience and knowledge. The critical factor, I believe, is judgment -- when making NEPA benefit estimates one should be conservative, and neither CP&L's nor NRC Staff's judgments of Harris capacity factor are sufficiently conservative. Overoptimistic benefit estimates lead to erroneous cost-benefit conclusions.

One of the most obvious of these is the determination that Harris was cost-effective versus coal. Sherwood Smith, President, Chairman and CEO of CP&L, admitted that if Harris were started over, it would be a coal-fired plant (Raleigh News & Observer, pp 1D and 7D, 9 May 1982). I have successfully made conservative estimates of capacity factor and other technical matters related to power production and use (e.g. future peak loads and sales) in the past, and so far have avoided creating billion-dollar (or more) mistakes, in contrast to NRC Staff and CP&L.

15-AA-3(a) World survey not complete; for US, see 2(b) above. (b) see 2(b) above; I have not looked up other annual capacity factors in detail, but Beaver Valley's is 36 percent for 1982, while McGuire 1 is about 40 percent for 12 months ending 8-31-83.

(c) Bad design, construction problems, operating problems, steam generator design for McGuire 1, etc. are reasons I understand apply. I have not determined "all reasons" for such poor performance and doubt that anyone can make this determination.

(d) For Beaver Valley -- cited similarity to Harris. I believe this information came from CP&L originally and am seeking the NCUC E-2 sub 203 transcript to verify this belief. For McGuire, steam generator design problems. For both -- being Westinghouse PWRs.

15-AA-4(a) thru (d): See 3(a) above. I understand Krsko and Ringhals3 had some very poor early capacity factors.

15-AA-5(a) McGuire #1 was declared commercial by Duke Power Co. at 0000 hours on December 1, 1981.

(b) Thirteen months.

(c) Of necessity, it is partly predictive. Months since the "fix" have not (per data yet known to me) shown very significant improvement above the 40% C.F. level. The performance of the "fixed" steam generators, and of the plant, is not fully known yet.

(d) It shows the effect steam generator problems can have on capacity factor. This will be predictive (to some extent) of Harris C.F. as Harris steam generator problems exist. McGuire is the first Westinghouse plant with model D steam generators to go into commercial operation in the US.

(e) The lifetime CF is the average of all performance over a unit's whole life. The average over any time period is part of that grand average and necessarily partly predictive of it. Performance of plants with defective steam generators (e.g. McGuire) can be predictive of performance of plants (e.g. Harris) which also have defectively designed steam generators. It is obvious that the performance of steam generators, if inadequate or unsafe, affects PWR capacity factor by reducing it. The performance of McGuire before the 1983 steam generator "fix" is indicative of the effect such problems can have on capacity factor. Similarly designed plants (Harris and McGuire and Beaver Valley are all Westinghouse PWRs)

would be expected to have similar performance, other factors being equal. The performance of McGuire 1 is thus (to 12-31-82 and prior to the SG "fix" of 1983) useful in predicting performance of other plants, and thus to that extent "predictive". It is not determinative of other plants' performance, which cannot be guaranteed.

15-AA-6.(a) The Design Electrical Rating of the Harris units, 900 MWe.

(b) The MDC ("Maximum Dependable Capacity") of the plant will be less than or equal to the DER in virtually all cases. Experience with nuclear plants in the Carolinas and Virginia indicates that MDC ranges 3 to about 6 percent (2 to 4 percentage points on CF) below the DER. Since MDC is likely to be under the DER for Harris, a 55% MDC CF for Harris would be somewhat more reasonable as a conservative lifetime capacity factor (CF) estimate, than is 55% DER. That is what the quoted words mean. For reasons why this is still too high, observe that if MDC is 6% less than DER (hypothetically) 55% MDC is the same as 51.5% DER as a measure of capacity factor. But, as shown under 2(b) above, that's not conservative enough: the conservative range would be 30 to 40% or perhaps somewhat less, as shown there.

15-AA-7. The Design Electrical Rating is the designed net electrical output of the plant. This will be less than the generator capability (whether corrected for power factor or not), and less than the thermal rating of the reactor (or steam output of the NSSS) when adjusted for the thermal efficiency of the plant.

This is a commonly accepted definition. See NUREG-0020 definitions. To my knowledge, CP&L has never disputed this definition or that 900 MWe is the DER of Harris.

15-AA-8. 900 Megawatts electric (MWe). See 7 and 6(a) above.

15-AA-9. Maximum Dependable Capacity (MDC) is the output that can be indefinitely maintained (or almost indefinitely) when the thermal generating unit is limited by warm coolant (thus lowering its ability to reject heat). MDC is a standard definition (see NUREG-0020), though the use of MDC capacity factors by NRC appears to be a way to overstate the actual performance of nuclear plants subtly, thus reducing the nuclear industry's embarrassment at the less-than-predicted performance of its nuclear plants. MDC net, as NRC's NUREG-0020 definitions section notes, is obtained by taking the gross dependable output of the plant under adverse thermal cooling conditions, and subtracting off the normal station service (electrical) loads, giving a net output.

15-AA-10. I understand the MDC of Harris has not been determined. For comparison, the MDC of Robinson 2 is 665 MW (700 DER), of Brunswick MDC is 790 (821 DER), of Oconee 860 MW (887 DER), of North Anna 1 865 MWe (recently uprated to 877) vs 900 MW DER, of North Anna 2, 890 MDC versus 900 DER. The uprated MDC of North Anna 1 was determined by actual unit performance as I understand it.

15-AA-11. Obvious from the answers. Harris doesn't have an established MDC in performance yet, and MDC is almost always less than DER for PWRs in this part of the country (similar summer weather for coolant).

15-AA-12(a). It doesn't matter if the Capacity Factor is MDC or DER so long as the output of the plant (lifetime or annual average) is conservatively determined. I contend the Staff 55% DER CF is too high for NEPA use. There are no net benefits of Harris operation. See 2.758 petition of 6.30,83; WE testimony in NCUC Dkt E-100 sub 46. (b) see (a) above.

15*AA-13(a). Like CP&L (see response to my interrogatory 39 re contention 15, p.8 of 9-16-83 response) (see also response re 22-B-1(i), pp 15 and 17 of their 4-28-83 response), I have not analyzed the impact of specific future regulations in such detail as this asks.

NRC has continued to issue new requirements and regulations and it is likely, even if nothing else changes, that such will continue to ~~x~~ issue. Moreover, both proposed changes in the law (HR 2511/ S 893; HR 2512 / S 894, both of 1983) and rulemakings proposed, make it possible for existing plants to escape regulation and repairs that would be applied to plants (e.g. Harris) still under construction.

Of course, a significant nuclear accident could occur any time and would likely lead to further regulatory requirements (as did TMI-2) and possibly to long term plant shutdowns or phase-outs. In my view, rule changes adopted by the Nuclear Regulatory Commission in the last 3 years, and the attitude of NRC officials, tend to increase that possibility. (Such a minset was criticized by the Kemeny and Rogovin inquiries, but it appears to be very much in charge at NRC these days).

(b) See (a) and cited references; no such detailed analysis was made, but CP&L's 9-16 response to my interrogatory 39 re contention 15 (ibid, p.8) indicates that a 10% CF drop (estimated) resulted from operating experience plus added regulations. CP&L maintains that operating experience gives no reason for a further drop (dubious in my view), but this answer supports the view that something up to 10 percentage points reduction on C.F. could be caused by increased regulation. I have adopted a more conservative view here (see 2(b) above) that the drop will be from a few (2-3) to maybe 4 or 5 points.

PRODUCTION OF DOCUMENTS on 8F1 & 15-AA: I believe CP&L possesses all of the above-referenced documents that I possess, with the possible exception of Duke Power case testimony, which I will produce upon request at a mutually convenient time and place. 8F1 documents below, ditto.

RESPONSES on 8F1

G-2(c) and (d) are identical to those objected to in my response to Applicants' Fourth Set of interrogatories (8/83). I adopt and renew the same objections there cited, here.

8F1-1(a). I do not "contend" this in that it's not part of my contention. I understand that Applicants have misinterpreted a response to a similar question re Eddleman 83/84. I believe it is true that the standards are inadequate to protect public health and safety, e.g. in that they do not now address fine particulates or most carcinogens (including carcinogenic coal particulates). But this is not a "contention" and I do not "contend" it.

(b) See (a) above.

(c) Compliance with these standards does not show protection of the public health and safety. Even if it did, it does not show that the health effects of coal pollutants set forth in Table S-3 of 10 CFR 51.20 have been adequately assessed by NRC Staff. I need discovery of the Staff (which has been pending since 8-31-83) to detail their analysis (if any) but there appears to be none in the DES. Since this NEPA analysis is what the contention 8F1 is about, there is no inconsistency.

8F1-2(a). See 8F1-1(a) above: this is not "contended". It is true that as presently administered, this structure is NOT protecting the health and safety of the public. Death rates as high as 1 in 50 for arsenic emissions, and 1 in 1000 (per human lifetime) for radon emissions have reportedly been proposed by EPA Administrator Ruckelshaus, for example.

(b) Not applicable, see (a) above. At any rate, I don't have time to research all these studies or even dig out all the ones I possess, as they aren't filed that way in general.

(c) See 8F1-c, above.

8F1-3(a). Emissions from a hypothetical plant cannot, logically, violate an actual standard. Perhaps you can rephrase your question so that it makes sense. Emissions of particulates in the amount per 45MWe

given in Table S-3, from a (say) 720-MW plant (16 times as much), would likely violate ambient air quality standards for particulates if the location of such a plant had typical other particulate loadings in its air. See submissions by Duke Power Co. and CP&L in NC Environmental Management Commission rulemaking on coal particulate emissions of 1982-83.

(b) Answer is not affirmative; the question makes no sense.

(c) The question is irrelevant to the contention. Why should a hypothetical plant be able to violate a real air quality standard? I know of no air quality standards for hypothetical power plants. As shown above, the whole question of standards is irrelevant to a factual determination of actual expected health effects from the effluents in Table S-3 from coal-fired power plants. See responses to 8F1-1(a) and (c), 8F1-2(a).

8F1-4. I do not have the materials used to formulate this part of 8F1 located. I believe this statement has been made by, among others, the General Electric Company ("Energy Facts") and the Atomic Industrial Forum.

8F1-5(a) The accuracy of the Table S-3 values is irrelevant to the contention. These values are established by rule, and no contention is allowed to challenge an NRC rule (except via 10 CFR 2.758 petitio petition. Therefore I do not "contend" anything about the accuracy of the release values given in Table S-3 re coal pollutants, which is the subject of this contention.

(b),(c) Not Applicable. See 5(a) above.

8F1-6: Cancer, intestinal disorders, increased incidences and severity of respiratory diseases of most types, premature deaths

due to respiratory disease and worsened effects or respiratory diseases (as well as due to cancer and other causes); irritation of eyes, mucous membranes; see documents listed in 8F1; see also the book Respirable Particles by Perera and Ahmed (Ballinger, 1979) e.g. at 31-44 (esp 40-44), 50-53,55-56,56-57,57-59,59-63,66-69,71,71 -74; see also 84 (food chain effects); see also Health Effects of Air Pollution, report of the American Thoracic Society, Medical Section of American Lung Assn, Carl Shy, M.D. , Chair,1978, particularly at 13-22,27-29, and30-40. See also references cited in the above-cited or listed works.

The indices of the above-cited works detail what is covered where; the above pages discuss health effects. Intestinal absorption effects are included in EHP Vol 33 (1979); data on existence/transport of various harmful substances identified in documents listed/cited above is in the Atmosphere-Biomsphere Interactions (Nat'l Research Council, 1981, David W. Schindler, Chair -- see author list, p. iii).

8F1-7(a): See listing in contention 8F1, 6-20-83; I OBJECT to making an extensive search of what I may possess that isn't filed under coal pollution cases, but from that, the information and sources cited above were found.

(b) I have received all of these studies.

8F1-8. OBJECTION. I don't have to identify such person(s) under the Board's 5-27-83 Order. By Applicants' response to my interrogatory G-5, they have information and expertise available to them on the subject of this contention and have no need, thus, under 10 CFR 2.740, for the identity of any such expert(s).

8F1-9: AH-AQ-79-1, "Variance" for CP&L and Duke Power boilers coal-fired ~~kinin~~ in North Carolina re particulate emissions: Intervenor, cross-examined, argued and proposed findings; Rulemaking, NC Environmental Management Commission, 1982-83, commenter, reviewed data, proposed rules, submitted health effects data for record.

I have not, to my present recollection, directly participated in any other proceedings, although organizations I am a member of or contributor to, e.g. Natural Resources Defense Council, Sierra Club Legal Defense Fund, etc, have participated in many I think, It is burdensome, and probably irrelevant, to list these.

I have made comments on health effects of coal emissions in testimony to the Utilities Commission, in debates and public forums, and so on, but I have no listing of these and no ready way to find the information.

OBJECTION: To making an extensive search (burdensome) for the information covered generally in the above two paragraphs.

8F1-10(a) Yes.

(b) 10 CFR 51.20(e) says they may be included; NEPA requires that costs and benefits be balanced. If radiological health effects of these emissions are litigable, nonradiological health effects logically must be too. (c) Not Applicable.

8F1-11: Holdren et al, ERG 79-3, Risk of Renewable Energy Sources: A critique of the Inhaber Report; AECB-1119 (Ihhaber Report) -- discredited: endorsement withdrawn by Atomic Energy Control Board of Canada; I believe there are many others, including some work by Wolf Hafele et al at the IIASA in Europe.

OBJECTION: To researching what studies on this exist. The above are all I readily recall and/or can lay my hands on. I have a copy only of Holdren et al. Applicants got it with my 2.758 petition.

8F1-12: See 11, 6 and 7 above. OBJECTION: To searching. Burdensome.

8F1-13. OBJECTION: Except for coal emissions health effects of such effluents are irrelevant to contention 8F1. Coal emissions information is listed above, see 8F1-12 and citations therein. I am not obligated to do research work for Applicants; it would be burdensome even if not irrelevant.

PRODUCTION OF DOCUMENTS cited above will be done on request; see p.12

END

UNITED STATES OF AMERICA

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CERTIFICATE OF NEGOTIATIONS

Most of the objections made 10/6 have been made previously; re these October 6 responses I discussed my objection to an extensive document search for coal pollution information (including health effects) today with Hill Carrow. No agreement was reached. Applicants' counsel Hollar was not available when I called for him, nor at later times the afternoon of 10/6.

I agreed to either mail these responses tonight or hand-serve them on Applicants' counsel Hollar and Carrow tomorrow (10/7); this was accepted by Hill Carrow.

I certify the above is true.

6 October 1983

Wells Eddleman

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of CAROLINA POWER & LIGHT CO. Et al.)
Shearon Harris Nuclear Power Plant, Units 1 and 2)

Dockets 50-400 and 50401 O.L.

CERTIFICATEOF SERVICE

I hereby certify that copies of WWE Responses to Applicants re Interrogatories on 15-AA and 8F1; Certificate of negotiations thereon

HAVE been served this 6 day of October 1983, 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 serving only Judge Kelley and CA Barth for Board and Staff, per oral order.

* Judges James Kelley, Glenn bright and James Carpenter (1 copy each)
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