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STATEMENT OF MATERIAL FACTS IN DISPUTE
ON EDDLEMAN CONTENTION 15AA

1. Historical performance of all Westinghouse PWRs in the US is a most inappropriate estimator of Harris 1's performance.

2. Westinghouse units smaller than about 700 MWe have such a different distribution of capacity factors than do larger units (including units more similar to Harris 1) that the smaller-than-700-MWe units are a statistically distinct population to above 99.8% confidence level.

3. CP&L itself has stated that Beaver Valley 1 and North Anna 1 and 2 are units similar to Harris. This was stated in applying for a certificate of convenience and necessity to construct Harris, before the NC Utilities Commission in Docket E-2 sub 203. CP&L admits as much upon discovery. See responses to Interrogatories 15AA-18(e)(f) and (g), 11-17-83 at 14-15. These units are in fact the most similar to Harris, since they were designed and proposed at about the same time.

4. It is appropriate to estimate Harris operating capacity factor based in part on the performance of North Anna 1 and 2 and Beaver Valley 1, the 3 units CP&L originally identified as similar to Harris. There is no way to exclude similar performance by Harris 1.

5. The alleged Harris design improvements include not using phosphates and not being cooled with seawater. It is hard to see why CP&L would have considered cooling a plant so far inland with sea water. Still, North Anna 1 and 2 and Beaver Valley 1 are not cooled with sea water, and at least the North Anna units have always used AVT water treatment, the same that is planned for Harris. See Eddleman 6-28-82 amendments, pages 10 and following.

6. Harris 1 has Westinghouse model D steam generators. Such steam generators are associated with lowered capacity factors in initial operation. There is no way to assure that long-term performance of these steam generators will be better, or as good, as other S.G.s

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nor that they will no further adversely impact Harris operating C.F.

7. Despite claimed improvements in CP&L's Koppe affidavit, pp 10-12, relating to lowering length of outages, CP&L estimates Harris refueling outages will take 15 weeks initially (1st 2 cycles) and 13 weeks (3 months) each, thereafter. 11-17-84 response at 8, ints 17(a) and (b). This is longer than typical nuclear refueling outages scheduled at other plants operating now.

8. 3-loop PWRs are associated with an approximate 11.5 to 11.8% reduction in capacity factor. Komanoft affidavit, item 12, p.2.
Westinghouse
Harris is a 3-loop Westinghouse PWR.

9. Koppe says that CFs should draw closer to the average the longer PWRs (or other nuclear plants) operate, affidavit at 15-16. Yet Beaver Valley 1 is the longest-operating of the 3 plants most similar to Harris, and its CF has dropped from 38.5% to 37.7% at 12-31-83. It is surely not drawing closer to the average. There is not evidence to support Koppe's assertions in this regard, and he presents no studies of CF vs. age to support it.

10. Greater CP&L involvement in designing and building a nuclear plant is associated with a significant drop in performance. The Brunswick plants have a 9 to 11 percent lower C.F. (9 to 11 points lower) which is unique to them and statistically significant at the 95% to 99.5% confidence levels. Komanoft affidavit, item 7. This is true after controlling for the effect of salt water (brackish) cooling. See Komanoft statistical analysis accompanying letter to Edelman.

11. CP&L is more involved in designing and building Harris than it was in Brunswick.

12. CP&L has twice been penalized by the NC Utilities Commission for mismanagement resulting in outages of 70 plus days (each) at Brunswick. Outages, of course, reduce capacity factor. One such outage resulted from 4 years noncompliance with NRC regulations and also resulted in CP&L being fined \$600,000 by NRC.

13. NRC Staff does no checking on how well its past projections of capacity factor have panned out. ^{See objection to Interrogatories 37 etc to NRC Staff 1983} [^] The Staff estimated 80 percent at the CP stage (11-10-83 response to interrogatory #128, p.11 of filing). NRC Staff overestimated^t the capacity of McGuire 1 and on information and belief ~~a~~ has consistently overestimated operating nuclear capacity factors of ^{nuclear} plants licensed to operate in the US.

14. NRC Staff uses statistical bases (NUREG-0020) that exclude reactors permanently shut-down or long-term ~~xxxx~~ shut-down, e.g. TMI 1 and 2. This biases their averages higher. TMI 1 and 2 are in the same size range as Harris.

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~~14~~. The actual capacity factor over a 25 or 30 year operating life can be next to zero for a nuclear plant. Consider TMI-2 on this basis. It ran at 90% CF for 3 months and will never run again. The equivalent 25-year C.F. for it is thus under 1% (less than one percent). Therefore, much lower performance than 55% by a new nuclear plant cannot be excluded.

16. There is no basis for concluding that Harris will perform at a 55% or higher capacity factor in commercial operation. CP&L's record of mismanagement, lower C.F.'s (on average) for similar plants, the NRC's use of statistics that exclude plants inoperable (including PWRs in Harris 1's size range) which biases NRC statistics to the high side, and other matters referred to above show that this is a matter in controversy and not an open-and-shut- case as CP&L claims.

16 April 1984

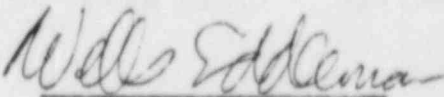

Wells Eddleman

EXHIBIT Q

Qualifications of Wells Eddleman

NC Public Interest Research Group, Staff Scientist 1979- ; Utilities Project Director 1980- .. Work includes investigation, assisting student researchers, and informing the public about issues in energy conservation, toxic wastes, nuclear energy, radioactive waste, and other fields. I advised PIRG in an energy survey of Elon College and in similar work at Guilford College.
General Energy Consulting, 1977- . Independent energy and pollution control consultant with industrial, commercial, residential and institutional clients. Experience ranges from insulating water heaters and buildings, through designing and installing energy-saving control systems, to studies of regional energy needs and the costs and means of achieving them, with emphasis on electric power systems and meeting end uses now met by electricity and oil through renewable energies instead. I have designed, built and tested solar equipment.

Carolina Friends School, Energy Manager 1977-81; Teacher and Energy Consultant 1977- . We achieved a 65% reduction in electricity use and a peak demand reduction of 25%, both adjusted for weather, during the 4 years I was Energy Manager. The demand reduction continues at the same level, though the energy savings are only about 50% to 55% in 1981-82. Ran Community Integrated Energy Systems grant which saved 15% on electricity and much heating fuel, 70 clients. Main speaker on economics of coal, nuclear and solar energy, UNC-Chapel Hill Energy Symposium 1981. Guest lecturer of energy and nuclear issues at Duke University, NC Central University, and UNC*CH classes. Presented paper "The Market Environment for Energy Alternatives: Potential and Actual" to 1983 UNC Environmental Affairs Conf. Expert witness before NC Utilities Commission: Docket No. E-100 sub 40 (load forecast, 1981), E-100 sub 41 (Avoided Cost rates), E-7 sub 314 and sub 338 (Duke Power General Rate Increases); E-2 sub 416 and E-2 sub 444 (CP&L General Rate Increases); E-2 sub 436 and E-44 (nuclear power plant sale); E-7 sub 303 (Duke nuclear plant sale); E-7 sub 343 and E-2 sub 452 (fuel adjustment clause). Fields of energy conservation and energy systems (or some combination thereof, however named). Other testimony duly prefiled and given in E-100 sub 35 (load forecast 1979) in which I stated upon cross-examination that I was testifying as an expert; E-100 sub 36 (PURPA standards for energy-saving, etc); E-100 sub 37 (forming an Alternative Energy Corporation); E-100 sub 41 avoided-cost setting hearing of 1980-81. I am testifying as an expert in NCUC Docket No. E-100 sub 47 (fuel law rulemaking) 1984.

With the help of NC PIRG staff, I produced a 120-page report for the E-100 sub 40 load forecast hearing in 1981. Expert testimony also in NCUC Dockets E-100 sub 48 (1984), E-100 sub 46 (1983 load forecast) E-7 sub 358 and E-2 sub 461 (electric general rate cases), E-100 sub 41 1982 proceeding on avoided cost rates.

Education: S.B., MIT, 1971, Physical Sciences, concentrating on systems, including physics, computer science, management and education

M. Ed., Policy Studies, University of Illinois Urbana-Champaign 1977. Additional coursework in management and educational administration Research on validity of statistical techniques in educational and ability testing.

Diploma in Welding, Gaston College, Dallas NC 1975.

Additional course work at other universities including NC State U.