3/10/83

THE CONSERVATION COUNCIL OF NORTH CAROLINA

307 Granville Road, Chapel Hill, N.C. 27514
(919) 942-7935 or 942-1080 (24 hours)

In the Matter of	
CAROLINA POWER AND LIGHT COMPANY AND NC EASTERN MUNICIPAL POWER AGENCY	Docket No. 50-400 OL 50-401 OL
(Shearon Harris NPP, Units 1 & 2	

CONSERVATION COUNCIL RESPONSE TO NRC STAFF INTERROGATORIES (2/4/83)

Pursuant to the Memorandum and Order dated February 10, 1983, response to the NRC Staff Interrogatories dated February 4, 1983, was postponed until the prehearing conference of February 24, 1983, and subsequently postponed further until March 10, 1983.

To facilitate the answering of these interrogatories, the general interrogatories will be answered first on a particular contention, followed by the specific interrogatories on that same contention, and then general and specific interrogatories on the next contention. As we responded to Applicants' Interrogatories (First Set) on Contentions 12 (Jordan Dam Break) and 14 (Hydrilla) just prior to this response (and filed on the same day), we have taken the liberty of referring to our responses to specific interrogatories to the Applicants' Interrogatories. We will add any additional information required by the NRC Staff's Interrogatories in order to respond fully.

CONTENTION 4 (TRANSSHIPMENT)

General Interrogatories

1. This information is not available until after discovery of the Applicants on routes they expect to transship radioactive wastes and spent fuel, what quality and quantity expected to be transhipped, what casks they expect to use, the number of transshipments, etc. Interrogatories to the Applicants will be shortly forthcoming.

2. See response to Interrogatory 1.

3. See response to Interrogatory 1.

4. We expect to use documents, maps, and other material supplied by the Applicants in response to our discovery.

5. This information will be served on all parties so the Staff will receive the same information. CCNC will make other information available to Staff in accordance with the provisions of 10 CFR 2.741(a)(1); however if the Staff has difficulty in obtaining any material, CCNC will assist them in obtaining copies.

6. At the present time CCNC has not finalized the list of witnesses which we intend to use at the evidentiary hearings.

7. See response to Interrogatory 6.

8. See response to Interrogatory 6.

9. No.

10. Not applicable.

11. Not applicable.

12. Not applicable.

13. We object to this question on the basis that the information is attorney work-product and therefore privileged.

Specific Interrogatories

14. See response to Interrogatory 1 (Contention 4).

15. See response to Interrogatory 1 (Contention 4).

16. See response to Interrogatory 1 (Contention 4).

17. See response to Interrogatory 1 (Contention 4).

18. See response to Interrogatory 1 (Contention 4).

19. See response to Interrogatory 1 (Contention 4).

20. See response to Interrogatory 1 (Contention 4).

21. See response to Interrogatory 1 (Contention 4).

22. See response to Interrogatory 1 (Contention 4).

CONTENTION 12 (JORDAN DAM BREAK)

General Interrogatories

1. Information on each person we relied upon to substantiate our assertions will be provided in each response to specific interrogatories. Please also refer in general to responses to Applicants' Interrogatories.

2. Professional qualifications of each person identified in response to Interrogatory 1 will be provided in each response to specific interrogatories. Please also refer in general to responses to Applicants' Interrogatories.

3. A summary of each person's views will be included in the response to each specific interrogatory.

4. Documents and other material relied on will be referenced in the response to specific interrogatories.

5. No, only those materials in CCNC's custody and control, in accordance with the provisions of 10 CFR 2.741(a)(1). However if the Staff has difficulty in obtaining any material, CCNC will assist them in obtaining copies.

6. At the present time CCNC has not finalized the list of witnesses which we intend to use at the evidentiary hearings.

7. See our response to Interrogatory 6.

8. See our response to Interrogatory 6.

9. Yes.

10. Our principal researcher in this matter was Daniel V. Besse, Attorney-at-Law and Environmental Consultant, 401-C Holt Ave., Greensboro, NC 27405 (919/272-4727). We request that questions to Mr. Besse be submitted through us.

11. A summary of calculations and analysis has been incorporated into responses to the specific interrogatories.

12. No, the calculations or analysis made by Mr. Besse is attorney work-product and therefore privileged.

13. We object to this question on the basis that the information is attorney work-product and therefore privileged.

Specific Interrogatories

23. The catastrophic failure of large dams in the United States is not unknown. Because of this, the possible consequences of such failure are routinely analyzed, and emergency management plans for dealing with them are prepared by responsible agencies. In the case of Jordan Dam, the US Army Corps of Engineers has made a dam break study in 1979, including topographical maps of those areas subject to innundation from the resulting flood (available through Doug Quinn, Hydrologic Engineering Section, Corps of Engineers, PO Box 1890, Wilmington, NC 28402 (919/343-4906) or Jim Weathers, Division of Emergency Management, NC Department of Crime Control and Public Safety, PO Box 27687, Raleigh, NC 27611 (919/733-3867)). The Division of Emergency Management (see above address) also has prepared a NC Dam Failure Plan (revised January 1983), which includes an annex of information and materials for use in the case of a Jordan Dam failure.

Dam failure can result from any one or combination of several factors. These include the following: erosion, geologic activity (primarily earthquakes), structural failure, and hydrologic phenomena (such as a storm more severe than predicted). Structural concerns deserve special attention at the Jordan Dam as it was left dry for an extended time after contruction due to litigation and resultant injunctions. A Freedom of Information request was

made to the US Army Corps of Engineers requesting psiometer pressure readings on the inside of the dam and they have agreed to supply those readings.

Background resources on possible dam breaks include: 1) Ponce, Victor Miguel and Tsivoglon, Andrew J., "Modeling Gradual Dam Breaches," Journal of the Hydraulics Division (American Society of Civil Engineers), Vol. 107, No. 7, July 1981, pp. 829-838. We hope to receive a copy of this paper next week and will make it available to the NRC Staff for copying if they so desire. 2) Gazetas, George, "New Dynamic Model for Earth Dams Evaluated Through Case Histories," Soils and Foundations, Vol. 21, No. 1, March 1981, pp. 67-78. This paper should also be available to the NRC Staff for copying.

24. This information cannot be predicted with any accuracy. A fact sheet prepared by the Army Corps of Engineers contains some of this information, this is attached. The Supplement to the Jordan Dam FEIS (Vol. II Supplemental Studies, dated December 1975, available through the Army Corps of Engineers) also includes the following information, the Standard Project Flood will have a reservoir elevation of 246.2 feet MSL, and will have a reservoir volume of 992,500 acre-feet. The Spillway Design Flood will have a reservoir elevation of 261.5 feet MSL, with a reservoir volume of 1,660,600 acre-feet. The top of the Dam has an elevation of 266.5 feet MSL and a reservoir volume of 1,918,600 acre-feet.

Response to Staff Interrogatory 24

THE B. EVERETT JORDAN DAM AND LAKE PROJECT
ORIGIN AND PURPOSE

A comprehensive study of the Cape Fear River Basin was begun by the Corps of Engineers by direction of the Congress in 1947, and culminated in authorization of the B. Everett Jordan Dam and Lake project by Congress in 1963. Project design and coordination with state and federal environmental agencies began immediately; land acquisition commenced in 1967. Reservoir filling began 1 September 1981 and reached top of conservation pool on 4 February 1982.

B. Everett Jordan Dam and Lake is a multiple-purpose project for flood control, water supply, water quality control, general outdoor recreation and fish and wildlife conservation.

The total acreage acquired for the project was 46,768 acres, of which 13,900 acres are permanently flooded to form the conservation pool at elevation 216' above sea level. Additional capacity is available for restraint of flood waters; the maximum flood control pool, at elevation 240' would cover 31,800 acres. About 32,868 acres above the conservation pool limit are permanently maintained as wildlife habitat, recreation, and green-belt areas, exempted from private development.

B. EVERETT JORDAN DAM AND LAKE PROJECT
CHATHAM, ORANGE, DURHAM AND WAKE COUNTIES
NORTH CAROLINA

FACTS AND FIGURES

THE DAM:

Type:	The B. Everett Jordan Dam and Lake is a zoned earth and rock fill structure with a side-channel, free-flowing chute spillway and a multiple level outlet structure.
Length of Dam:	1330 Feet
Maximum height of Dam:	113 Feet
Base elevation (mean sea level):	154 Feet
Top elevation (mean sea level):	266.5 Feet
Spillway elevation (mean sea level):	240.0 Feet
Length of spillway crest:	800 Feet

THE LAKE:

Elevations (above mean sea level)

Bottom conservation pool:	202.0 Feet
Top of conservation pool:	216.0 Feet
Top of flood control pool:	240.0 Feet
Lower clearing limit:	197.0 Feet
Upper clearing limit:	217.0 Feet
Guide acquisition line:	240 feet contour, plus 300 feet horizontally or 5 feet vertically, whichever is greater

Length of lake at elevation 216.0 feet along,

Haw River:	5 miles
New Hope River:	17 miles
Length of shoreline of lake at 216 feet elevation:	150 miles

SURFACE AREA OF LAKE:

Top of flood control pool (elev. 240.0'):	31,800 acres
Top of conservation pool (elev. 216.0'):	13,900 acres
Bottom of conservation pool (elev. 202.0'):	6,700 acres

STORAGE VALUE:

Top of flood control pool (elev. 240.0'):	753,500 acre-feet
Top of conservation pool (elev. 216.0'):	215,100 acre-feet
Bottom of conservation pool (elev. 202.0'):	74,700 acre-feet

25. To date, we have not made any calculations that the Jordan Dam may fail. Analysis based on the sources listed in our response to Interrogatory 23; conversations with Dr. Miguel Medina, hydrologist, Department of Civil and Environmental Engineering, Duke University, Durham, NC 27706 (919/684-2434); and the persons listed in our response to Interrogatory 23 (Doug Quinn of the Army Corps of Engineers and Jim Weathers of the NC Division of Emergency Management); demonstrates that dam failure is not unknown.

26. Please refer to response to Applicants' Interrogatory 12-2.

27. The 1979 Jordan Dam Break Study (see response to Interrogatory 23) assumes the following conditions: 1) the initial pool elevation of the Jordan Lake is 240 feet MSL (i.e. top of the flood control pool); 2) the natural streamflow is assumed to be average (i.e. 1 cfs/square mile) throughout the basin; and 3) the breach is fully developed in one hour with 40 percent of the dam embankment removed.

Under these conditions, the maximum elevation of the resultant flooding at the Buckhorn Dam is projected to be 184 feet MSL. The arrival time of the flood surge would be 1½ hours after the break, with the peak elevation being reached 11 hours after the break. During one period, the water level would rise more than 30 feet in less than three hours.

28. The physical dimensions of a potential dam break cannot be predicted with any accuracy. Suffice it to say, that a break is possible.

29. Please refer to the response to Staff Interrogatory 27 and US Army Corps of Engineers Jordan Dam Break Study.

30. Please refer to the response to Staff Interrogatory 27 and US Army Corps of Engineers Jordan Dam Break Study. Please note that the Corps study assumes an average natural streamflow, not flood conditions at the time of any failure. Doug Quinn (see response to Interrogatory 23) stated that the Corps assumes no existing flood conditions so as to assume the minimum downstream warning time in its planning. The Project Flood Water Level crest plus the Jordan Dam break crest would be approximately 217 feet MSL at the Harris site.

31. No such assertion was made.

32. See response to Interrogatory 30.

33. Structures in an area of flood innundation are frequently clogged with silt or damaged by floating debris. Charles Gardner, Land Quality Section, NC Department of Natural Resources and Community Development, PO Box 27687, Raleigh, NC 27611 (919/733-4574) confirmed that such structures "take quite a beating."

34. We have not analyzed the actual water conditions at the intake facility except that the flood crest could reach 217 feet MSL.

35. Please refer to Army Corps Jordan Dam Break Study.

36. Please see response to Applicants' Interrogatory 12.3.

37. Please see response to Applicants' Interrogatory 12.3.

38. No such assertion has been made.

39. The Inundation Maps as part of the Army Corps Dam Break Study are available through Doug Quinn or Jim Weathers (see response to Staff Interrogatory 23).

CONTENTION 14 (HYDRILLA)

General Interrogatories

1. Information on each person we relied upon to substantiate our assertions will be provided in each response to specific interrogatories. Please also refer to responses to Applicants' Interrogatories.

2. Professional qualifications of each person identified in response to Interrogatory 1 will be provided in each response to specific interrogatories. Please also refer to responses to Applicants' Interrogatories.

3. A summary of each person's views will be included in the response to each specific interrogatory.

4. Documents and other material relied on will be referenced in the response to specific interrogatories.

5. No, only those materials in CCNC's custody and control, in accordance with the provisions of 10 CFR 2.741(a)(1). However if the Staff has difficulty in obtaining any material, CCNC will assist them in obtaining copies.

6. At the present time CCNC has not finalized the list of witnesses which we intend to use at the evidentiary hearings.

7. See our response to Interrogatory 6.

8. See our response to Interrogatory 6.

9. Yes.

10. Our principal researcher in this matter was Cecial Frost, Botanist, UNC School of Botany, Chapel Hill, NC 27514 (919/962-3775 or 968-9458). We request that questions to Mr. Frost be submitted through us.

11. A summary of calculations and analysis has been incorporated into responses to the specific interrogatories.

12. No, the calculations or analysis made by Mr. Frost is attorney work-product and therefore privileged.

13. We object to this question on the basis that the information is attorney work-product and therefore privileged.

Specific Interrogatories

40. Please see our response to Applicants' Interrogatories 14-2, 14-5, and 14-8.

41. Please see our response to Applicants' Interrogatories 14-2, 14-5, and 14-8.

42. Please see our response to Applicants' Interrogatories 14-2, 14-5, and 14-8.

43. Please see our response to Applicants' Interrogatory 14-2.

44. This information is unknown to us at this time. Discovery of Applicants presently forthcoming should yield this information.

45. This information is unknown to us at this time. Discovery of Applicants presently forthcoming should yield this information.

46. Please see our response to Applicants' Interrogatories 14-2, 14-5, and 14-8.

47. Please see our response to Applicants' Interrogatories 14-2, 14-5, and 14-8.

48. Please see our response to Applicants' Interrogatories 14-2, 14-5, and 14-8.

49. Please see our response to Applicants' Interrogatories 14-2, 14-5, and 14-8.

50. This information is unknown to us at this time. Discovery of Applicants presently forthcoming should yield this information.

51. Hydrilla should be able to grow everywhere in the cooling lake.

52. Please see our response to Applicants' Interrogatory 14-6.

53. Please see our response to Applicants' Interrogatory 14-6.

54. Please see our response to Applicants' Interrogatory 14-6.

55. None, but see IMPACT: TVA--Natural Resources and the Environment, Vol. 5, No. 4, available through Don Rucker, Information Services, TVA Office of Natural Resources, Room 272, 401 Building, Chattanooga, TN 37401 (615/751-3743), which looks at the spread of hydrilla in the Guntersville Reservoir in northeastern Alabama near the Bellefonte Nuclear Plant.

56. Not applicable.

I, John D. Runkle, Esq., have prepared the responses to the NRC Staff's Interrogatories No. 4 (Transshipment), No. 12 (Jordan Dam Break), and No. 14 (Hydrilla).

These answers are true and correct to the best of my knowledge.

So sworn,

John D. Runkle

John D. Runkle, Esq.
Executive Coordinator
Conservation Council of NC

Dated this 10th day of March, 1983