

RELATED CORRESPONDENCE

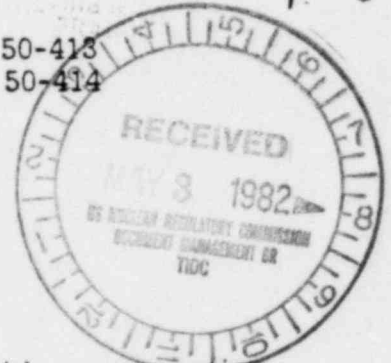
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

DOCKET

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD APR 29 P1:13

In the Matter of  
DUKE POWER COMPANY  
(Catawba Nuclear Station,  
Units 1 and 2)

Docket Nos. 50-413  
50-414



APPLICANTS' RESPONSES TO CMEC "DISCOVERY #1  
-- ROUTINE TRITIUM RELEASES FROM CATAWBA"

Enclosed herewith are Applicants' responses, together with a supporting affidavit, to "Discovery #1 -- Routine Tritium Releases from Catawba", dated March 15, 1982 from the Charlotte-Mecklenburg Environmental Coalition (CMEC):

DISCOVERY #1 -- ROUTINE TRITIUM RELEASES FORM CATAWBA

QUESTION: Table 3.10 in the December 1973 FES for Catawba estimates an annual release of 350 Ci per unit of tritium in liquid effluent.

Table 3.4 in the April 1976 FES for McGuire (NUREG 0063) estimates an annual release of tritium per reactor of 960 Ci.

Table 3.13 in the October 1972 FES for McGuire estimates an annual release of 1000 Ci tritium per reactor. In support of this figure, the FES cites "detailed evaluation of similar reactors." (page 3-42)

Inasmuch as the design of McGuire and Catawba are essentially similar, and inasmuch as there is a large difference between a 350 Ci per unit p.a. release and a 1000 Ci per unit p.a. release, Intervenor requests both Applicant and Staff to account for this three-fold discrepancy, asking specifically:

a. On what facts are these tritium release estimates based?

RESPONSE: In response to the numbers contained in the applicable Final Environmental Statements Applicants would refer the Charlotte-Mecklenburg Environmental Coalition to the response

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by the NRC Staff. However, inasmuch as the request was also made to Applicants, the following constitutes the differences in the tables.

	<u>McGuire</u>	<u>Catawba</u>
Liquid	470 ci/yr/unit (NUREG 0063 Table 3.3)	350 ci/yr/unit (FES CP Table 3.10)
Gaseous	960 ci/yr/unit (NUREG 0063 Table 3.4)	710 ci/yr/unit (ER Table 3.5.3-1)

- QUESTION:
- b. If the discrepancy in the estimates is based on design differences in the two plants, what are these design differences?
  - c. If the discrepancy arises from improved tritium control in the Catawba design, specifically what are the improvements?

RESPONSE: CMEC should note that as operating experience with similar reactors increased (i.e. 1972-1976), the Staff revised the expected release of tritium so that the relative amounts of tritium released are of a consistent nature. (See also response below to d. and e. which applies to liquid as well as gaseous releases.) As explained above, the differences in the numbers would appear to result from inclusion of an expanded data base. There are no differences in tritium control equipment between Catawba and McGuire.

- QUESTION: In respect to the problem of gaseous releases of tritium from Catawba, Intervenor requests the following information:
- d. How many curies of tritium do Applicant and Staff anticipate will be released from Catawba?
  - e. What is the basis of Applicant's and Staff's projections of gaseous tritium releases?

- f. What percentage of gaseous tritium releases does Applicant and Staff project as being returned to the Catawba River through 'rain-out' or other means? Intervenor requests that this information be given for the Catawba River at two points; the Charlotte Water Intake and the dam at Lake Wylie.

RESPONSE: d., e. As noted in the ER, Table 3.5.3-1, Applicants estimate the annual tritium release in gaseous form to be 710 ci/yr/unit. Applicants' estimates of this release is based on NUREG 0017 "Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Pressurized Water Reactors (PWR GALE Code)" and the computer codes discussed therein.

- f. Applicants currently estimate that the percentage of gaseous tritium that will be returned to the Catawba River at the Charlotte Water Intake and the dam at Lake Wylie will be less than 1%.

QUESTION: Intervenor requests the following information about tritium release procedures at Catawba:

- g. How frequently will tritium be released at Catawba in the liquid effluent?
- h. How frequently will tritium be released as gaseous effluent i.e. as tritiated water vapor and how will its radioactivity be monitored?

RESPONSE: g. Current estimates are that on the average, 2.0 curies per day of tritium in the liquid effluent will be

released for each unit. See ER Table 3.5.2-1. Releases will be periodic based on normal operations.

- h. Current estimates are that on the average, 2.0 curies per day of tritium in the gaseous effluent will be released for each unit. Samples are made of gaseous effluent on all releases such that the quantity of tritium is known. See ER Table 3.5.3-1. Releases will be periodic based on normal operations.

QUESTION: Intervenor requests the following information about somatic and genetic effects of ingested tritiated water:

- i. Inasmuch as, owing to the established fact of tritium--hydrogen exchange, tritium will replace normal hydrogen throughout the body fluids and cellular tissue until the tritium/hydrogen ratio in body fluid and cellular tissue is in equilibrium with the tritium/hydrogen ration in the drinking water, on what studies do Applicant and Staff base their contention that further tritiating the drinking water of communities along with Catawba River will result in no adverse genetic and helth effects?

RESPONSE: Applicants will operate Catawba such that releases of tritium are below regulatory limits in 10 CFR Part 20.

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In the Matter of )  
Duke Power Company, et al. )  
(Catawba Nuclear Station, )  
Units 1 and 2) )

Docket Nos. 50-413  
50-414

AFFIDAVIT OF DEALIS WILSON GWYN

I, Dealis Wilson Gwyn, being sworn do depose and state  
that:

1. I am an employee of Duke Power Company. My present  
position is Engineer Associate in the Mechanical Nuclear  
Division. I hold a Bachelor of Science degree in Nuclear  
Engineering. I am familiar with the calculation of effluent  
source terms for nuclear power reactors and participated in  
the preparation of the ER for Catawba.

2. I am duly authorized to participate in answering  
Interrogatory 3a, b, c, d, e, f, g, and h and I hereby certify  
that the answers given are true to the best of my knowledge.

Dealis Wilson Gwyn  
Dealis Wilson Gwyn

Subscribed and sworn before  
me this 13th day of April, 1982.

Marguerite G. Gendron (Watson)  
Notary Public

My Commission Expires: August 1, 1984

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

DOCKETED  
82 APR 29 P1:13

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CERTIFICATE OF SERVICE

I hereby certify that copies of "Applicants' Responses To CMEC 'Discovery #1 -- Routine Tritium Releases From Catawba,'" dated April 13, 1982 in the above-captioned matter, have been served upon the following by deposit in the United States mail this 26th day of April, 1982:

James L. Kelley, Chairman  
Atomic Safety and Licensing Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dr. A. Dixon Callihan  
Union Carbide Corporation  
Post Office Box Y  
Oak Ridge, Tennessee 37830

Dr. Richard F. Foster  
Post Office Box 4263  
Sunriver, Oregon 97701

Chairman  
Atomic Safety and Licensing  
Board Panel  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Chairman  
Atomic Safety and Licensing  
Appeal Board  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

George E. Johnson, Esquire  
Office of the Executive  
Legal Director  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Richard P. Wilson, Esquire  
Assistant Attorney General  
State of South Carolina  
Post Office Box 11549  
Columbia, South Carolina 29211

Robert Guild, Esquire  
Attorney at Law  
314 Pall Mall  
Columbia, South Carolina 29201

Palmetto Alliance  
2135½ Devine Street  
Columbia, South Carolina 29205

Mr. Henry A. Presler  
943 Henley Place  
Charlotte, North Carolina 28207

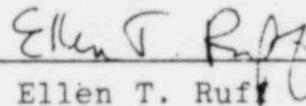
Mr. Jesse L. Riley  
854 Henley Place  
Charlotte, North Carolina 28207

Mr. Donald R. Belk  
Safe Energy Alliance  
2213 East Seventh Street  
Charlotte, North Carolina 28204



Mr. Chase R. Stephens  
Docketing and Service Section  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

J. Michael McGarry, III, Esquire  
Debevoise and Liberman  
1200 Seventeenth Street, N.W.  
Washington, D.C. 20555

  
Ellen T. Ruff