



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 25, 1984

Docket Nos: 50-413
and 50-414

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

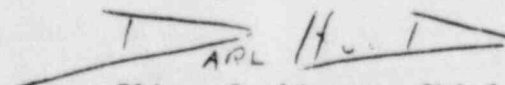
Subject: Requests for Additional Information -
Catawba Nuclear Station

As part of the NRC staff's review of the steam generator tube rupture events, the staff has identified the need for additional information in this area (Enclosure 1). Enclosure 2 is a request for additional information regarding the financial qualification of government-owned utilities such as North Carolina Municipal Power Agency No. 1.

In order for the NRC staff to review, in a timely manner, your responses to the above issues, which have previously been discussed with your staff, we request that you provide your responses no later than June 13, 1984. If you require any clarification of this matter, please contact the project manager, Kahtan Jabbour, at (301) 492-7800.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,


Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Enclosures:
As stated

cc: See next page

DESIGNATED ORIGINAL

Certified By 

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CATAWBA

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REQUEST FOR ADDITIONAL INFORMATION
STEAM GENERATOR TUBE RUPTURE QUESTIONS
CATAWBA

Steam generator tube rupture (SGTR) events at R. E. Ginna and other PWRs indicate the need for a more detailed review of the analysis for this accident. Our review of the Catawba FSAR section 15.6.3 in view of this plant experience has resulted in a need for the following additional information and clarification:

- 1). FSAR Section 15.6.3 indicates equalization of primary and secondary pressure 30 minutes after the SGTR event, with consequent termination of steam generator tube leakage. Justify that this can be achieved under loss of offsite power/natural circulation conditions under which a steam bubble might form in the reactor vessel head.

- 2). Discuss whether as a result of possible modification to your analysis including consideration of longer leak times, liquid can enter the main steam lines. If so, discuss the effects on the integrity of the steam piping and supports. Consider both the liquid dead weight and the possibility of water hammer. Also discuss whether the steam generator safety valves would function properly if their actuation pressures are reached with the main steam lines filled with liquid and whether they would reseal at the proper pressure.

- 3). Describe the sequence of events which includes an identification of all operator actions and when these actions are expected to occur. Justify the analytical assumptions regarding operator action to (1) open steam line atmospheric relief valves and (2) open a pressurizer PORV. Also include descriptions of the automatic initiations and actuation as they occur chronologically.

- 4). Provide the following parameters as a function of time, until releases from the ruptured steam generator are terminated:
 - (a) the primary system pressure;
 - (b) intact and ruptured hot leg fluid temperature;
 - (c) the secondary liquid water mass and level in each steam generator;
 - (d) the primary system liquid mass;
 - (e) the secondary system pressure in each steam generator;
 - (f) the integrated mass released out of the atmospheric relief valves or safety valves for the intact steam generators and for the ruptured steam generator:

- (g) pressurizer level;
 - (h) the tube rupture flow rate and integrated tube rupture flow;
 - (i) the extent of upper head voiding if predicted, and
 - (j) the steam flow rate for all steam generators.
- 5). Describe or reference the computer code utilized to calculate the primary and secondary system response. Justify that the code is appropriate for SGTR analysis.
- 6). Provide the noding diagram used in the analysis. Justify that sufficient noding is provided to predict head bubble formation or loss of natural circulation in loops for which the steam and feedwater flow has been isolated.
- 7). Include in the analysis of the SGTR accident the most limiting single active failure. If the most limiting single active failure is failure of an atmospheric relief valve to close, operator action to close the block valve may be assumed if justified. The analysis should assume that the accident

begins with the primary coolant iodine concentrations at the technical specification limit and that an iodine spike occurs as a result of the primary system depressurization.

- 8). Identify all equipment which is relied upon to mitigate a design basis SGTR event. Justify that this equipment meets NRC requirements for safety related equipment. If reliance on the pressurizer PORVs and/or steam generator ADVs is essential for the SGTR mitigation, the applicant should develop and propose appropriate Technical Specification limits to ensure the continued operability of this equipment.

REQUEST FOR FINANCIAL INFORMATION
OPERATING LICENSES - GOVERNMENT-OWNED UTILITIES
(Municipal, State and Federal Agencies, and Public Utility Districts)

Questions Applicable to All OL Applicants:

1. a. Indicate the estimated annual cost by year to operate each unit of the subject facility for the first five full years of each unit's commercial operation. The types of costs included in the estimates should be indicated and include (but not necessarily be limited to) operation and maintenance expense (with fuel costs shown separately), depreciation, taxes and a reasonable return on investment or margin. (Enclosed is a form which should be used for each unit for each year of the five year period.) Indicate the projected plant capacity factor (in percent) for each unit during each of the five years. Provide separate estimates using 50 percent and 60 percent plant capacity factors.
- b. Indicate the unit price per kWh experienced by each applicant on system-wide sales of electric power to all customers for the most recent 12-month period.
2. Indicate the estimated costs of permanently shutting down each unit of the facility (decommissioning costs), stating what is included in such costs, the assumptions made in estimating the costs, the type of shutdown contemplated, and the intended source of funds to cover these costs.

3. Provide an estimate of the annual cost to maintain each unit of the shutdown facility in a safe condition. Indicate what is included in the estimate, assumptions made in estimating costs, and the intended source of funds to cover these costs.

4. Have future decommissioning costs for any nuclear and/or non-nuclear facility owned by the applicant been collected through rates during the useful life of the facility? If so, cite specific examples and describe the methodology used for inclusion in rates. Provide the citation and relevant excerpts from any decisions providing for such decommissioning cost recovery. Indicate the total amount of decommissioning funds accumulated thus far, if any.

5. a. If the facility is jointly-owned provide copies of the joint participation agreement setting forth the procedures by which the applicants will share operating expenses and decommissioning costs.

5. b. Is each participant's percentage ownership share in the facility equal to its percentage entitlement in the electrical capacity and output of the plant? If not, explain the difference(s) and any resultant effect on any participant's obligation to provide its share of operating costs.

5. c. If a membership organization is participating as a joint owner, explain the contractual arrangement among the members that assures that funds will be available to meet the entity's obligations to the project. Provide sample copies of the power sales contract.

Questions Applicable to Government-Owned Applicants:

6. Provide citations and relevant excerpts from state and/or Federal statutes, rules or regulations (if any) that designate and require the applicant to establish rates such that the applicant may recover all reasonable costs of operation incurred in the providing of utility service to customers. Also provide the citations and relevant excerpts from any administrative rulings or court decisions interpreting such statutes, rules, or regulations in the establishing of rates to allow recovery of costs incurred in the providing of utility service.
7. Describe the rate-setting authority of each applicant and how that authority may be used to ensure the satisfaction of financial obligations related to operating costs and eventual shutdown costs of the facility. Describe any restrictions on such rate-setting authority and how this may affect the applicant's ability to satisfy its obligations to the project. Describe the nature and amount of each applicant's most recent rate relief action and the anticipated effect on revenues. Indicate the nature and amount of any pending rate relief actions(s).

8. Describe the nature, amount, ratings and success of each applicant's most recent revenue and general obligation bond sales. Indicate the current total outstanding indebtedness in each category for each entity.

9. Provide copies of the official statement for the most recent bond issue. Provide copies of the preliminary statement for any pending security issue. Provide copies of the most recent annual financial report and the most recent interim financial statements.

ATTACHMENT FOR ITEM NO. 1.a.

ESTIMATED ANNUAL COST OF OPERATING NUCLEAR GENERATING

UNIT: FOR THE CALENDAR YEAR 19__

(thousands of dollars)

Operation and maintenance expenses

Nuclear power generation

Nuclear fuel expense (plant factor _____%) \$ _____
Other operating expenses. _____
Maintenance expenses. _____
Total nuclear power generation. _____

Transmission expenses _____

Administrative and general expenses

Property and liability insurance. _____
Other A.&G expenses _____
Total A.&G expenses _____

TOTAL O&M EXPENSES. _____

Depreciation expense. _____

Taxes other than income taxes

Property taxes. _____
Other _____
Total taxes other than income taxes _____

Income taxes - Federal. _____

Income taxes - other. _____

Deferred income taxes - net _____

Investment tax credit adjustments - net _____

Return or margin (rate of return: _____%) _____

TOTAL ANNUAL COST OF OPERATION \$ _____