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

FEB 2 1979

Docket No: 50-358

Mr. Earl A. Borgmann
Vice President - Engineering
Cincinnati Gas & Electric Company
P. O. Box 960
Cincinnati, Ohio 45201

Dear Mr. Borgmann:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - WM. H. ZIMMER, UNIT NO. 1

In order that we may continue our review of your application for a license to operate the Zimmer Nuclear Power Station, Unit No. 1, your responses to the enclosed positions (and requests for additional information) are needed. The positions (and requests) are based upon information contained in your application as amended through Revision 50 and your response to our previous requests.

We will need your response to these positions (and requests) by February 28, 1979. If you cannot meet this date, please advise us within two weeks of receipt of this letter of your date for complete response.

Please contact us if you desire information or clarification regarding the enclosure.

Sincerely,

John F. Stolz

John F. Stolz, Chief
Light Water Reactors Branch No. 1
Division of Project Management

Enclosure:
Request for Additional
Information

cc:
See next page

cc: Troy B. Conner, Jr., Esq.
Conner, Moore & Corber
1747 Pennsylvania Avenue, N. W.
Washington, D. C. 20006

Mr. William J. Moran
General Counsel
The Cincinnati Gas and Electric Company
P. O. Box 960
Cinnati, Ohio 45201

Mr. William G. Porter, Jr.
Porter, Stanley, Arthur and Platt
37 West Broad Street
Columbus, Ohio 43215

Mr. Peter H. Forster, Vice President
Energy Resources
The Dayton Power and Light Company
P. O. Box 1247
Dayton, Ohio 45401

J. Robert Newlin, Counsel
The Dayton Power and Light Company
P. O. Box 1247
Dayton, Ohio 45401

Mr. James D. Flynn
Manager, Licensing Environmental Affairs
The Cincinnati Gas and Electric Company
P. O. Box 960
Cincinnati, Ohio 45201

Mr. J. P. Fenstermaker
Senior Vice President-Operations
Columbus and Southern Ohio Electric Company
215 North Front Street
Columbus, Ohio 43215

David B. Fankhauser, PhD
3569 Nine Mile Road
Cincinnati, Ohio 45230

Thomas A. Luebbers, Esq.
Cincinnati City Solicitor
Room 215, City Hall
Cincinnati, Ohio 45202

Mr. Stephen Schumacher
Miami Valley Power Project
P. O. Box 252
Dayton Ohio 45401

Ms. Augusta Prince, Chairperson
601 Stanley Avenue
Cincinnati, Ohio 45226

Charles Bechhoefer, Esq., Chairman
Atomic Safety & Licensing Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

ENCLOSURE

REQUEST FOR ADDITIONAL INFORMATION

WM. H. ZIMMER ROUND-TWO QUESTIONS

Introduction

This enclosure consists of the twenty-first in a series of positions (and requests for additional information). We will need your response to them in order to complete our safety evaluation of your Zimmer OL application. The position (and requests) are in the area of:

423.0 Initial Test Program

It will be helpful to us if your responses are in a "Position and Response" format using the same number designation as the position. The first number designated the review area and the second (in parentheses) designated the associated section of the FSAR. Of course, your responses should include revision to the FSAR wherever appropriate.

NOTE: The enclosed positions have been discussed with and provided to you informally. You may desire to meet with the staff for further discussion before responding to them. If you do, please advise us.

STAFF POSITIONS

William H. Zimmer Nuclear Power Station Unit No. 1

423.0 INITIAL TEST PROGRAM

423.12 (14.1) Modify Table 14.1-S1A to indicate tests which you intend to conduct between test conditions. (See Table 14.1-S1B).

423.13 (14.1) Modify preoperational test abstracts as necessary to indicate that all control rod drive tests that were listed as preoperational tests in Table 14.1-S6 prior to Amendment 46 will be performed.

423.14 (14.1) Modify Table 14.1-S1B (Control Rod Drives Startup Test section) to be consistent with Table 14.1-S6 for scram tests with minimum accumulator pressure.

423.15 (14.1) Modify Table 14.1-S1D and/or Figure 14.1-7 to be consistent for test conditions 1 and 5. Define "lower power corner" as used in definition of test condition 2 in Table 14.1-S1D.

423.16 (14.1) Modify Table 14.1-S6 to state acceptance criteria for mean scram time for the three fastest control rods of "each" group of four control rods in a two-by-two array. Provide the bases for the scram time acceptance criteria at vessel dome pressure less than 950 psig.

423.17 (14.1) Explain the "rod groups" referred to in Table 14.1-S7, last paragraph of "Description."

423.18 (14.1) Expand Table 14.1-S12, Process Computer Startup Test, to provide acceptance criteria for calculated values of MAPLHGR and LPRM calibration factors.

423.19 (14.1) Provide Figure 14.1.3.1 of the Startup Test Procedure which is referenced in Table 14.1-S13.

423.20 (14.1) Modify Table 14.1-S16, Core Power Distribution Startup Test, to provide assurance that the process computer properly calculates core power distribution for both symmetric and non-symmetric rod patterns.

423.21 (14.1) Modify Table 14.1-S21, Feedwater Control System Startup Test, to (a) clarify the meaning of "adjusting the feedwater control system settings for seconds"; (b) identify the method of initiating the feedwater heating loss; (c) identify which heater or heaters are involved; (d) discuss how this loss of feedwater heating differs from the worst case limiting feedwater heating loss for your

plant that could result from a single operator error or equipment failure; and (e) provide the bases for the acceptance criteria. Also modify Table 14.1-S1B to indicate that this transient will be conducted with the recirculation flow control system in the local position command mode.

423.22 (14.1) Modify level 1 acceptance criterion number 1 of Table 14.1-S23, Main Steam Isolation Valves Startup Test, to be consistent with your technical specifications or provide the bases for the criterion as stated. Provide the basis for level 1 acceptance criterion number 2 and provide the level 2 acceptance criteria to which it refers. It is our position that the full isolation be performed at 100% power. Modify Table 14.1-S1B to state that the full isolation will be performed at test condition 6. Modify the test description to state that full closure times of the MSIV's will be measured, or provide technical justification for, and a description of, the extrapolation method to be used.

423.23 (14.1) Modify Table 14.1-S24, Relief Valves Startup Test, to (a) indicate that the response time of each valve will be recorded; (b) provide the bases for the acceptance criteria on valve capacities and on delay and stroke times; and (c) provide acceptance criteria that will ensure that operation and capacities of the valves used for ADS are in accordance with accident analysis assumptions.

423.24 (14.1) Modify Table 14.1-S25, Turbine Trip and Generator Load Rejections Startup Test, to (a) state how the generator breaker will be opened for the load rejection test, (b) provide bases for acceptance criteria on bypass valve opening times; (c) discuss how "appropriate upper limits" for dome pressure, increase in dome pressure, and increase in heat flux are selected and how these compare to the predicted analytical results for the test case, (d) reference or provide the information from "Test 30" that is used as level 1 acceptance criterion number 3, (e) provide acceptance criteria and their bases for response time to recirculation pump trip and time to closed position of turbine valves, and (f) provide assurance that grid voltage and frequency will be monitored during the load rejection test. Also modify Table 14.1-S1A, Table 14.1-S1B, and the response to item 423.11 (Part 20) to show initial test conditions consistent with the test abstract (turbine trip at 75% power, generator load rejection at 100% power).

423.25 (14.1) Modify Table 14.1-S26, Shutdown from Outside the Main Control Room Startup Test, to state (a) that the test will demonstrate, rather than simulate, the ability to conduct a reactor shutdown following control room evacuation, (b) that the initial conditions for the test include normal electrical lineups for power operation, and (c) generator output $\geq$ 10% power. Describe what operator actions will be performed in the control room.

423.26 (14.1) Provide the bases for the acceptance criteria in Table 14.1-S27, Recirculation Flow Control System Startup Test.

423.27 (14.1) Modify Table 14.1-S28, Recirculation System Startup Test, to provide the following: (a) Describe how you will verify that the limits which are designed to prevent operation where recirculation pump or jet pump cavitation occurs are proper; (b) Describe how you will verify that there is no cavitation at the control valves; (c) Provide double-bounded acceptance criteria for flow coastdown that will assure that your coastdown flow is within the limits assumed in your accident analyses for LOCA and turbine trip; (d) Provide the basis for Figure 14.1-9; and (e) Provide acceptance criteria for the allowable range of pump speeds for the transfer of the pumps to the low frequency motor-generator sets.

423.28 (14.1) Modify Table 14.1-S29, Loss of Turbine Generator and Offsite Power, to state the duration of the loss of offsite power. It is our position that the duration should be at least 30 minutes in order to demonstrate proper operation of equipment and support systems (e.g., ventilation and pump seal water systems) that are powered from onsite emergency power sources. Provide acceptance criteria for diesel generator start and load times.

423.29 (14.1) Modify Table 14.1-S31, Drywell Piping Vibration, to include testing of the feedwater lines or provide technical justification for not including them.

423.30 (14.1) Modify your response to item 423.3 to make the figures consistent with those submitted in Chapter 14 in Amendment 46.

423.31 (14.1) We have determined that Regulatory Guides 1.68.2 (Revision 1, July 1978) "Initial Startup Test Program to Demonstrate Remote Shutdown Capability for Water-Cooled Nuclaer Power Plants" and Regulatory Guide 1.108 (Revision 1, July 1977) "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants" are to be used in the review of your plant's initial test program. Modify your FSAR to address these guides, provide technical justification for exceptions to any regulatory positions in them which address initial testing and modify your preoperational and startup test abstracts as necessary.

423.32 (14.1) Identify any startup tests listed in Table 14.1 that are not considered "essential" to demonstrate the operability of structures, systems, and components that meet any of the criteria listed below:

a. Those that will be used for safe shutdown and conldown of the reactor under normal plant conditions and for

maintaining the reactor in a safe condition for an extended shutdown period; or

b. Those that will be used for safe shutdown and cooldown of the reactor under transient (infrequent or moderately frequent events) conditions and postulated accident conditions and for maintaining the reactor in a safe condition for an extended shutdown period following such conditions; or

c. Those that will be used for establishing conformance with safety limits or limiting conditions for operation that will be included in the facility technical specifications; or

d. Those that are classified as engineered safety features or will be used to support or ensure the operations of engineered safety features within design limits; or

e. Those that are assumed to function or for which credit is taken in the accident analysis for the facility, as described in the FSAR; or

f. Those that will be used to process, store, control, or limit the release of radioactive materials.

423.33 (14.1) Several of your preoperational tests have as a prerequisite that the system has been turned-over for preoperational testing in accordance with site administrative procedures. Describe these procedures in sufficient detail to provide assurance that they will require that construction testing of the system is completed and that necessary instrumentation (including special test instruments) is calibrated.

423.34 (14.1) Modify Table 14.1-4, Standby Liquid Control System Preoperational Test, to require demonstration of proper sparger operation and proper mixing in the storage tank.

423.35 (14.1) The title of Table 14.1-27, Main Power 69KV, Portions of 6.9KV and Portions of 4.16KV System Preoperational Test, implies that some portions of the distribution system may not be covered by preoperational tests. Modify Table 14.1-27 to clarify that all portions of these distribution systems which are not covered by other preoperational tests (e.g., Essential 4160-VAC Distribution System Preoperational Test) will be included in this test.

423.36 (14.1) Modify Table 14.1-45, Containment Local Leak Rate Tests, to provide acceptance criteria for MSIV leakage which are consistent with your accident analysis assumptions.

423.37 (14.1) Provide assurance that the data analysis and acceptance criteria for tests of the ventilation systems for each area that houses ESF equipment will demonstrate or verify design heat removal capability.

423.38 (14.1) Modify Table 14.1-33, 125-VDC Distribution System Preoperational Test, to describe tests that will verify that the system loads will operate at the lowest voltage at which they could be expected to operate under design basis accident conditions. If operability is to be demonstrated at > 105 volts, provide the bases for the demonstration voltage level.

423.39 (14.1) We have observed a number of reactor core isolation cooling system failures during cold starts. The acceptance criteria of Table 14.1-S13, Reactor Core Isolation Cooling System Startup Test, should be modified to provide assurance of a reliable system. It is our position that an acceptance criterion of at least five consecutive successful cold starts of the RCIC system be established for the initial test program.