Florida Power
CORPORATION

December 13, 1983
3F1283-18

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Crystal River Unit 3
Docket No. 50-302
Operating License No. DPR-72
Request for Additional Information
IE Bulletin 80-11, Masonry Wall Design

Dear Sir:

Your letter of November 29, 1983 requested additional information in order to complete your review of Florida Power Corporation's (FPC's) responses to IE Bulletin 80-11 dated November 7 and 17, 1980. In addition, you requested that FPC provide this information within 30 days of receipt of your letter.

FPC requires more time to respond to your request for additional information and will provide your office with the requested information by February 29, 1984.

Sincerely,

G. R. Westafer

G. R. Westafer
Manager, Nuclear Operations
Licensing and Fuel Management

RHT/feb

cc: Mr. James P. O'Reilly
Regional Administrator, Region II
Office of Inspection & Enforcement
U.S. Nuclear Regulatory Commission
101 Marietta Street N.W., Suite 2900
Atlanta, GA. 30303

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Citizens Against Nuclear Power

Mail: P.O. Box 6625, Chicago IL 60680
Office: 220 S. State, Suite 1202, Chicago IL 60604
Telephone: (312) 786-9041
July 7, 1983

FREEDOM OF INFORMATION ACT REQUEST
FOIA-83-384
Rec'd 7-11-83

U.S. Nuclear Regulatory Commission
Director, Division of Rules and Records
Office of Administration
Washington DC 20555

Director:

Pursuant to the Freedom of Information Act, as amended, 5 USC 552, and the Privacy Act of 1974, 5 USC 552A, I hereby request a copy of any and all of the following documents, both NRC and non-NRC, which are in the NRC's possession:

1. All test data collected during all containment system leakage tests done at Dresden 2 and 3, Zion 1 and 2, Quad Cities 1 and 2, LaSalle 1 and 2, Palisades, and Donald Cook 1 and 2, according to Section 5.3 of ANSI/ANS-56.8-1981 - "American National Standard Containment System Leakage Testing Requirements", or according to similar provisions of earlier drafts thereof. A copy of Section 5.8 is appended and incorporated as part of this request.

2. Photocopies of all the logs of individual temperature sensor readings collected during these tests.

3. Photocopies of all the logs of backup individual pressure sensor readings collected during these tests.

We are especially concerned about the Integrated Leakage Rate Test conducted at LaSalle Unit 2 recently, since this reactor is to start soon and since the LaSalle plant has a history of serious quality control problems. Please provide the raw data collected during the test, even if the report is not completed. Early disclosure of possible problems or mistakes with this test can only serve the public interest.

In the event that some of the information requested above is not docketed, please request such information from the owner(s) and forward same to me. Section 5.8.8 of the document referred to above requires that such data be preserved by the owner(s).

As you know, the amended act permits you to waive or reduce the fees if that "is in the public interest because furnishing the information can be considered as primarily benefitting the public". This request plainly fits this category; accordingly, please waive any fees. As provided by law, please reply within ten (10) working days. Thank you for your cooperation.

Sincerely,

Edward Gogol

Edward M. Gogol, Research Director
Citizens Against Nuclear Power

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cc. Harold Denton, Director of the Office of Nuclear Reactor Regulation
James Keppler, Director, Region III

R — Gas constant for air, 53.35 ft lbf/lbm °R (8.3144 joules/gm − mole °K)

S — Estimate of standard deviation of a measured mass from least squares line

S_A — Estimate of standard deviation of slope of least squares line

T — Mean absolute temperature of containment air, °R (°K)

t — Time interval of measurement after initial measurement, hr

t_{95} — 95th percentile (one sided test) of Student's t distribution[9]

UCL — Calculated value constructed from sample data with the intention of placing an upper bound on the true leakage rate.

V — Internal free volume of the containment (assumed to remain constant for the duration of the test), cu ft (cu meters)

W — Measured mass of contained air, lbm (kg)

$\hat{W} = At + B$ — Least squares line relating measured masses to corresponding times of measurement

5.7.2 Analysis Method. The analysis method consists of determining the mass of air in the containment, absolutely, utilizing the ideal gas law, at each time point during the test and using a straight-line least squares analysis to estimate the leakage rate. Errors in the determined masses are assumed to be equally variable (i.e., the slope and intercept of the line are estimated by "ordinary" as opposed to "weighted" least squares) and uncorrelated. An upper one-sided confidence limit for the leakage rate is based upon normal regression theory (i.e., the masses are related by a straight line and deviations from that line are normally distributed) and a method due to Fieller[10] for finding confidence limits for ratios of means of normally distributed random variables.[11]

5.7.3 Absolute Test Method. For each time point (t_i), the corresponding mass of contained air (W_i) is determined directly from the application of the ideal gas law:

$$W_i = \frac{144V}{R}\left[\frac{(P_i - P_{v_i})}{T_i}\right]$$

5.7.4 Data Analysis and Confidence Limit. A linear least square fit of the data points shall be made according to the equation:

$$\hat{W}_i = At_i + B$$

The estimate of the leakage rate is a function of both the slope and the intercept of the regression line and shall be computed according to the equation:

$$L_{am} = -2400\ A/B$$

An upper confidence limit (UCL) shall be set such that there is only a five percent chance that the actual containment leakage rate exceeds the reported UCL value. This is expressed as the upper limit of the 95 percent confidence level on the leakage rate.[11] An approximation of this value is generally adequate and shall be determined as follows:

Upper confidence Limit of the Leakage =

$$L_{am} + 2400 t_{.95}\frac{S_A}{B}$$

5.8 Reporting of Results

5.8.1 Introduction. Adequate data for an independent review of the containment system leakage rate test results shall be provided. This section lists information required for reporting Type A test results; similar information is required for test equipment used in performing Type B and Type C test results. The information listed below shall be recorded and the following format is suggested.

5.8.2 General Data

(a) Owner
(b) Docket No.
(c) Location
(d) Containment Description
(e) Date Test is Completed

5.8.3 Technical Data

(a) Containment net free volume cu ft (cu meters)
(b) Design pressure (psig)
(c) Design Temperature (°F) (°C)
(d) Calculated Accident Peak Pressure, Pac (psig) (N/m^2)
(e) Calculated Accident Peak Temperature (°F) (°C)

[9]See Table B-1 for values of $t_{.95}$ corresponding to selected values of "degrees of freedom" = df (one-sided tables)

[10]Students t distribution see "The Biological Standardization of Insulin," E. C. Fieller, Supplement to the Journal of the Royal Statistical Society, 1940, p. 1.

[11]See Appendix B for detailed calculations and equations.

5.8.4 Test Data

(a) Test Method (Absolute or Reference)

(b) Data Analysis Technique (Mass Point or Leakage Rate Point)[12]

(c) Test Pressure(s)

(d) Maximum allowable leak rate L_a (%/24 hours)

(e) Calculated leakage rate at upper confidence limit (UCL)

(f) Measured Leak Rate (L_{am})

5.8.5 Verification Tests

(a) Calibrated leak superimposed (%/24 hrs)

(b) Mass step change metered volume (%L_a)

(c) Mass step change measure by Type A Test instrumentation

5.8.6 Analysis and Interpretation. The analysis of leak rate data by the owner or his consultant and the interpretation of the test results as necessary to show the relationship to the acceptance criteria.

5.8.7 Summary of Events. A summary of all local leak rate test failures that were repaired.

5.8.8 Test Backup Data. The following information shall be retained by the owner and shall be made available for review at the facility.

(a) Access Procedure. When not included in test procedure the owner should have available procedures that were established to limit ingress to containment during testing.

(b) Containment Penetrations. A listing of all containment penetrations, including the total number of like penetrations, penetration size and function. Furnish index where data is filed.

(c) Operating Instrument Status. A listing of normal operating instrumentation used for the leakage rate test.

(d) Systems Status (at time of test). A system line-up, showing required valve positions and status of piping systems, i.e., "Valve open -line filled" or "System in normal service," monitoring of liquid levels required, etc.

(e) Event Log. A continuous, sequential log of events from initial survey of containment to restoration of all tested systems.

(f) Instrumentation Validation. Documentation of instrumentation calibrations and standards. Included with documentation should be any ISG calculations.

(g) Temperature Stabilization. Data to verify temperature stabilization criteria as established by test procedure.

(h) Test Procedure. The working copy of test procedure that would include signature sign-off of procedural steps. (If the procedure does not contain test control requirements, these should be provided separately.)

(i) Local Leak Rate Tests. The procedure and all data that would verify completion of penetrations and valve testing (B & C type tests) including as found leak rates - corrective action taken, and final leak rate.

(j) Integrated Leak Rate Data. Computer printouts, manual data accumulation along with summary description of computer program, when applicable.

(k) Quality Assurance. The quality assurance audit plan or checklist that was used to monitor ILRT with proper sign-offs.

(l) Test Exceptions. A listing of all test exceptions including changes in containment system boundaries instituted by licensee to conclude successful testing.

(m) Instrumentation Malfunctions. Description of sensor malfunctions, repairs, and methods used to redistribute volume fractions to operating instrumentation.

(n) Confidence Limits. A review of confidence limits of test results with accompanying computer printouts where applicable.

(o) Verification Leak Rates. Description of methods used, step change or superimposed leakage, with calibration information on totalizers and flowmeters along with calculations that were used to measure the verification leakage rate.

(p) Graphs. Plots presenting data obtained during the test.

(q) The P&ID's of systems readily available.

6. Test Procedures for Type B and Type C Tests

6.1 General Considerations. This section describes acceptable methods to determine the leakage rates of isolation valves and other isolation barriers.

Typical methods for measuring leakage rates are:

(a) Pressure decay (air or nitrogen)

(b) Flow rate (air, nitrogen or water)

(c) Water collection

(d) Vacuum retention (air or nitrogen)

[12]See Appendix A for mass point and leakage rate point analyis.