

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
DUKE POWER COMPANY) Docket Nos. 50-369
) 50-370
(William B. McGuire Nuclear)
Station, Units 1 and 2))

STATEMENT OF MATERIAL FACTS AS TO WHICH
THERE IS NO GENUINE ISSUE TO BE HEARD

1. On August 1, 1980, Duke Power Company ("Applicant") moved the Atomic Safety and Licensing Board ("Licensing Board") to authorize:

... a license authorizing Applicant, with respect to McGuire Unit 1, to (i) load fuel, (ii) proceed to initial criticality, (iii) perform startup testing at zero power, and (iv) operate, for testing purposes only, at reactor core power levels not in excess of five percent of its rated power (i.e., 171 megawatts thermal).

The fuel loading phase, conducted in accordance with approved procedures, is scheduled to be completed in one week.

Affidavit of K.S. Canady. See also McGuire FSAR Section 14.1.4.1 and Table 14.1.4-1 (page 2). The initial criticality phase consists of activities such as installing the reactor head, filling and venting the system, initial precritical testing and finally achieving criticality.

This phase is scheduled to be completed in approximately six weeks. Affidavit of K.S. Canady. See also McGuire FSAR Section 14.1.4.2 and Table 14.1.4-1 (page 3-15).

The zero power physics testing phase, designed to

verify the basic nuclear characteristics of the reactor core, begins with a determination of the "onset of recognizable nuclear heat." Affidavit of K.S. Canady. All subsequent tests in this phase are conducted significantly below "the point of recognizable nuclear heat." Id. This phase is scheduled to be completed in approximately two weeks. Id. The final phase, low power testing, will consist of six tests at power levels ranging from approximately 0-3% of full power. Affidavit of W.H. Rasin. This phase is scheduled to be completed in approximately two weeks. Id.

2. On August 15, 1980, the Nuclear Regulatory Commission ("NRC" or "Commission") Staff filed a response to Applicant's motion concluding as follows:

Accordingly, based upon the status of the present record, the Staff does not oppose the Applicant's request that the Licensing Board issue the appropriate decision relating to the issues in controversy and authorize the Director of Nuclear Reactor Regulation to make the necessary findings for a fuel loading and low power testing license. We point out, however, that further procedures must abide the Licensing Board's rulings on the pending CESG motion to reopen the McGuire record.

3. On August 15, 1980, Carolina Environmental Study Group ("CESG") filed a response in opposition to Applicant's motion. As the apparent basis of its opposition, CESG alleges as follows:

Fuel loading in this contested proceeding should be deferred until and unless an ID favorable to licensee, based on an updated record, issues. CESC has learned from the Applicant that core activation by no more than 5 percent full power operation can result in sufficient decay activity to heat the exposed core to the temperature required for the zirconium-water reaction (p. 2). The physical possibility of hydrogen generation, CESC believes, is sufficient basis for deferring the fuel loading of a low pressure containment reactor until the record is supplemented and unless a favorable finding is made.

4. The issues raised by CESC in response to the June 14, 1974 notice of receipt of Applicant's operating license application for McGuire Units 1 and 2 (i.e., the need for power, cost benefit analysis of alternative generation, seismology, stud bolts, 1/ financial qualifications, and solar power) have no bearing on the instant application regarding issuance of a license authorizing fuel loading, initial criticality, zero power physics testing and low power testing (i.e., up to 5% full power) ("low-power operating license") for McGuire Unit 1. In any event, the Licensing Board, on April 18, 1979, issued an Initial Decision in this proceeding, inter alia, resolving all contested issues in favor of issuance of a full term operating license.

1/ By Order of April 24, 1976, the Licensing Board dismissed CESC's stud bolt contention.

5. On June 9, 1980, CESH moved to reopen the proceeding and add contentions regarding the possibility of excessive hydrogen generation resulting from a TMI-type accident. CESH revised its motion on August 15, 1980.

6. Excessive hydrogen generation can only result from the reaction of water and fuel cladding in the presence of high temperatures. Affidavit of K.S. Canady. Such high temperatures inside a reactor can only occur when the following conditions are present: (1) a loss of coolant accident ("LOCA") has occurred which results in the core becoming uncovered; (2) the ECCS, due to failure or premature operator termination, is not available to make up the water lost during the LOCA; and (3) the fission product inventory within the core is great enough to result in decay heat that cannot be removed by adequate heat transfer mechanisms. Affidavit of K.S. Canady.

7. During activities involving fuel load, achievement of initial criticality and low power physics testing, even in the extremely unlikely event of a LOCA coupled with a failure or premature termination by the operator of the ECCS, the extremely small buildup of fission products resulting in little or no heat generation, precludes excessive hydrogen generation. Affidavit of K.S. Canady.

8. There is an extremely remote possibility that hydrogen in excess of design quantities could be generated during low power (up to 5% full power) testing. Affidavit of W.H. Rasin. For such hydrogen to be generated there must be a LOCA, a failure or premature operator termination of the ECCS, and failure to restore cooling water to the reactor prior to generation of hydrogen. Id.

9. The ECCS must be designed in accordance with strict criteria contained in 10 CFR §50.46 and Appendix A and K to 10 CFR Part 50, which includes the criteria that (1) the ECCS must be able to perform its function even assuming "the most damaging single failure of ECCS equipment has taken place" (Section D.1, Appendix K to 10 CFR Part 50) and (2) the ECCS must be able "to transfer heat from the reactor core following any loss of reactor coolant at a rate such that. . . (3) clad metal-water reaction is limited to negligible amounts." (Criterion 35, Appendix A to 10 CFR Part 50). The NRC Staff has evaluated the McGuire ECCS and concluded that it meets all relevant criteria. See NUREG-0422, "Safety Evaluation Report Related To Operation of McGuire Nuclear Station, Units 1 and 2," Section 6.3 (March 1978); Supplement 2 to NUREG-0422 (March 1979).

10. During the construction permit hearings regarding the McGuire facility, of which CESG was a party, a significant amount of testimony was introduced regarding the adequacy of the ECCS. LBP-73-7, 6 AEC 92, 104-106 (1973). In the Licensing Board's Initial Decision issued in that proceeding, the Licensing Board found that "the emergency core cooling system" ("ECCS") will be designed to provide emergency core cooling during those postulated accident conditions where it is assumed that mechanical failures occur in the reactor coolant system piping resulting in a loss of coolant from the reactor vessel greater than the available coolant makeup capacity using normal operating equipment." Id. at 104.

11. Excessive hydrogen generation during the TMI accident was a direct result of operator interference with the ECCS. Metropolitan Edison Company (Three Mile Island Nuclear Station, Unit 1), CLI-80-16, 11 NRC 674, 675 (1980). The Commission explicitly stated that the critical issue regarding excessive hydrogen generation is a "likelihood of an operator interfering with the ECCS operation." Id. at p. 676.

12. At the McGuire station, procedures have been established and extensive training has been initiated to assure that the operators will not prematurely terminate

operation of the ECCS. Affidavit of K.S. Canady attached to "Applicant's Response to CESG's Revised Motions to Reopen the Operating License Proceeding and to Raise New Contentions" (September 3, 1980) incorporated herein by reference. In addition, many other system, procedure, and personnel changes have been made to further assure that a TMI-type accident resulting in excessive hydrogen generation will not occur at the McGuire facility. Id.

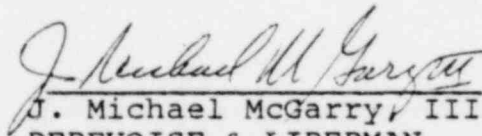
13. In light of the actions taken at the McGuire facility in the wake of the TMI accident, in the event of a loss-of-coolant accident, there will not be a premature operator termination of the ECCS. Id.

14. During a hypothetical design basis LOCA, even if the ECCS fails to operate or is prematurely terminated by operator action, there will be a minimum of 3900 seconds until hydrogen generation begins. Affidavit of W.H. Rasin. During such conditions, a flow of water into the core of only 15 gallons per minute would assure that the core remains covered and excessive hydrogen is not generated. Id. Such flow could easily be supplied by even partial operation of any one of the following safety grade systems each of which is seismically designed with redundant power sources and diverse multiple flow path water sources: (1) the reciprocating charging pump (rated at 98 gpm); (2) either of two centrifugal charging pumps (rated at 150 gpm each), or (3) either of two safety injection pumps (rated at 400 gpm each).

15. The Commission has clearly set forth as a matter of policy that "the TMI-related operating license requirements list [NUREG-0694] . . . must be the principal basis for consideration of TMI-related issues and thus adjudicatory process." 45 Fed. Reg. 41738, 41739-40 (June 20, 1980). In the operating license requirements list, the Commission has determined that the issue of hydrogen control is to be resolved prior to "issuance of a full-power license." NUREG-0694 at p. 27. The NRC has defined such "full power license issues" as those which "are under way, and are scheduled to be completed prior to any near-term operating plant licensee being permitted to operate beyond the low-power testing range." (emphasis added) NUREG-0694 at p. 9.

16. Subsequent to the TMI accident the Commission has granted Sequoyah, Salem Unit 2 and North Anna Unit 2 low-power operating licenses such as requested here. NUREG-0694 at p. 7 (June 1980).

Respectfully submitted,



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