

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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

AFFIDAVIT OF K. S. CANADY

I, K. S. Canady, being first duly sworn, do depose and state:
I am employed by Duke Power Company in the position of Manager of the Project Coordination and Licensing Section of the Steam Production Department. As such I am responsible for coordinating the McGuire Nuclear Station (McGuire) licensing effort required to satisfy both the established NRC regulations and those that have evolved following the accident at Three Mile Island Unit 2 (TMI-2).

This Affidavit addresses the issue of hydrogen generation and control following a postulated TMI-type accident at McGuire. Specifically, this Affidavit demonstrates that the action implemented by Duke Power Company with respect to McGuire effectively precludes the generation of excess hydrogen resulting from a TMI-type accident.

McGuire will have an Emergency Core Cooling System (ECCS). The ECCS for McGuire has been designed to meet the low concentration limits required by 10 CFR 50.44. The NRC Staff confirmed this point in its Safety Evaluation Report, Supplement No. 2, March 1979, p. 6-4. Accordingly, operation of the ECCS

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as designed, will not result in the generation of substantial quantities of hydrogen (in excess of the design basis of 10 CFR 50.44).

With respect to the actual operation of the ECCS in a TMI-type accident, such is assured by meeting the requirements for the Near Term Operating License plants set forth in NUREG-0694. These requirements which are addressed below, have resulted in (1) changes in McGuire administrative procedures, (2) hardware modifications of the plant, (3) increased and more comprehensive training programs, and (4) additional and better informed control room personnel.

ADMINISTRATIVE PROCEDURES

The most direct of these requirements was originally issued in the NRC/OI. ~~Directives~~ which explicitly instructed the operators not to prematurely turn off the ECCS. To implement this requirement Duke has taken the following actions to assure that the shift personnel will properly operate the ECCS:

- procedures require that the operators not terminate ECCS unless an adequate subcooling margin is verified.
- checklists for valves, power supplies, and pumps are incorporated into the procedures to assure readiness of the ECCS.
- shift turnover checklists are utilized to assure that oncoming operators are knowledgeable of ECCS equipment operating conditions.

- emergency procedures involving operation of the ECCS have been written or revised in accordance with the latest technological information from Westinghouse concerning TMI-type accidents.

EQUIPMENT AND INSTRUMENTATION

In addition to the above procedural changes, instrumentation will be installed at McGuire to provide additional information to the operator regarding the cooling condition of the reactor core. This instrumentation includes safety-grade auxiliary feedwater system flow indication and the installation of a reactor coolant subcooling monitor. Both provide the operator with advance warning of conditions which would lead to an inadequate core cooling situation. In such a circumstance, the procedures noted above will be implemented to assure that quantities of hydrogen in excess of design will not be generated. Further, a reactor coolant system vent will be provided to vent from the primary coolant any non-condensable gases which could interfere with cooling the reactor core.

TRAINING

To augment procedural and equipment changes, the McGuire operators have received intensive academic and simulator training in the TMI accident sequences. In addition, these operators will receive regular retraining in responses to accident conditions including ECCS operations. These training programs are reviewed and approved by the NRC staff.

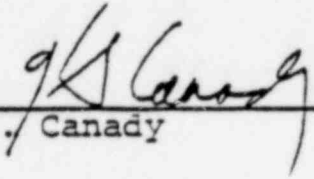
CONTROL ROOM PERSONNEL

Additional post-TMI licensing requirements which serve to improve nuclear plant safety and ECCS performance include (1) a technical advisor to the shift supervisor to aid in the diagnosis and control of transients, including ECCS operation, (2) a shift staffing change which provides for the continuous presence of a senior reactor operator in the control room, and (3) improvements to the McGuire control room which facilitate presentation of information, including ECCS equipment status, to the operators.

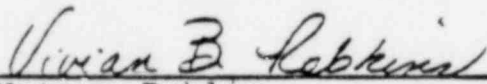
In addition, the McGuire design has been modified to further reduce the possibility of a TMI-type accident. Position indication of the pressurizer power-operated relief valves (PORV) and pressurizer safety relief valves will be provided in the McGuire control room. This indication was not available to the operators of TMI Unit 2. Furthermore, Duke has performed full scale steam flow testing of PORV and PORV block valves identical to those used at McGuire. These tests and the subsequent modifications to the valves provide additional assurance that the McGuire PORV and PORV block valves will operate as designed.

These actions which I have briefly described above, in conjunction with the existing McGuire design and Duke Power Company experience, assure that in the unlikely event of a TMI-type accident hydrogen would not be generated in excess of concentration limits set forth in 10 CFR 50.44.

I hereby certify that the above statements are true and correct to the best of my knowledge and belief.


K. S. Canady

Subscribed and sworn to before me on this 9th day of July, 1979.


Notary Public