



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

JAN 30 1984

MEMORANDUM FOR: File

FROM: J. E. Rosenthal, Section Leader, Section C,  
Reactor Systems Branch, DSI

SUBJECT: MCGUIRE UNIT 2 TECHNICAL SPECIFICATIONS  
PROOF AND REVIEW

My recollection of the review process and technical issues related to the proof and review of the McGuire Unit 2 Technical Specifications is provided. I am writing of events of almost a year ago and to the best of my memory.

Process and Chronology

The RSB review of the McGuire Units, and review of Unit 1 Technical Specifications had been previously performed by others (N. Wagner, F. Orr, S. Israel). Subsequently, Section C was assigned followup work related to the licensing of Unit 2. The SER for Units 1 and 2 had been published. The Units are, in principle, replicates.

Mr. Licciardo was assigned review responsibility for McGuire and provided input to Supplement 6<sup>1</sup> of the SER which completed action on several TMI Action Plan Requirements and approved deletion of the boron injection tank at Unit 2. He was also assigned the RSB review<sup>2</sup> of the proof and review copy of the Technical Specifications for McGuire Units 1 and 2. This work began in early February 1983 following the McGuire SER Supplement. Work was charged to the docket, P.A. 151515. At that time, Bob Licciardo was also assigned to complete his review of the W SPDS which was begun the previous fall (1982). He was soon to be intensely involved in TMI Action Plan Item II.B.1, High Point Vents.

<sup>1</sup> Houston, R. W., to T. Novak, "Staff Review and Input to SER Supplement No. 6 for McGuire Nuclear Station Units 1 and 2," February 8, 1983

<sup>2</sup> Thomas, C., to B. Sheron, "Proof and Review of McGuire - Unit 1 and 2 Technical Specifications," January 14, 1983

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As Bob's review of the McGuire Technical Specifications progressed, he told me that he was concerned about the operability requirements of ESF equipment and boron addition in modes 3 and 4. It was my understanding that Bob was concerned that the technical specifications might not provide adequate protection for LOCA and SLB in these modes. We discussed these issues at length. We agreed that the technical specifications for modes 3, 4, and 5 had, in all likelihood, not been examined as carefully as the technical specifications for standby and power operation (modes 1 and 2). I believed that an investment of staff time to explore these issues was in order. Bob was to continue his review.

On several following occasions, Bob told me that he was discussing changes to the technical specifications with members of the Standard Technical Specification Section. I encouraged Bob to continue discussions. I believed that matters were in hand and that the appropriate staff level contacts had been made. Later, I attended a meeting with Bob and D. Brinkman, et.al. of SSPB. At the meeting, I learned that SSPB did not agree with Bob Licciardo's recommendations. Furthermore, there appeared to have been some friction among the staff over this matter. It was clear that a sounder technical basis had to be developed to support changes than had been presented at our meetings.

I recommended that Bob discuss his criticality concerns with H. Richings, CPB. I independently discussed this issue with H. Richings. I also advised Bob to talk to L. Marsh about low temperature overpressure protection concerns, and ICSB about setpoints. Bob and I discussed SLB and SBLOCA from mode 3 and 4. I recall my blackboard full of cooldown and reactivity curves. Bob made some graphical representations of ESF operability requirements.

The Project Manager, Ralph Birkel, had periodically inquired about the status of the review. In March, I told Ralph Birkel that RSB would approve the proposed technical specifications with documentation to follow. My decision was based on the following:

- (1) I knew of no specific safety issue that had been raised which, in my view, had technical merit related to the safe operation of McGuire.
- (2) The McGuire Units were contemporary units for which it was reasonable to assume that the W standard technical specifications should apply.
- (3) Unit 1 Technical Specifications had previously been approved.
- (4) SSPB, as well as many other branches, were also reviewing the Technical Specifications.

When I spoke with Mr. Birkel, the RSB review was overdue. I had received no written report from Mr. Licciardo, nor did I have an expectation that a technically well founded evaluation report would be forthcoming. I told Bob to set down his concerns in writing, in the form of an SER.

Mr. Licciardo's efforts were redirected by me to work on High Point Vent SERs, which I considered a higher priority effort than documentation of the McGuire Technical Specification review. In April 1983, the branch was reorganized. Mr. Licciardo was assigned to Section A. On June 24, 1983, Mr. Licciardo gave copies of his draft SER on the McGuire Technical Specifications to N. Lauben, his then current supervisor, and myself. His draft SER recommended far more extensive changes to the technical specifications than we had discussed in February and March. At that time, I assumed that these matters would be pursued by others. I went on to work in a newly formed section dedicated to other matters.

#### Technical Comments

I recently read Mr. Licciardo's draft SER and proposed Technical Specification changes, as well as his DPO to Lake Barrett, of January 26, 1984. My general view continues to be that no significant safety issue has been uncovered. I provide the following specific comments:

##### (1) Boron Limits

1.6% delta k/k provides adequate shutdown margin in the event of a main steam line break from hot zero power. W has submitted a topical report, WCAP-9226, on this issue. Given this report, one must assess the relevance of this analysis to modes 3, 4 and 5. I assert that cooldowns from temperatures less than HZP will be less severe in terms of energy extraction than from HZP. In turn, the reactivity insertion and required shutdown margin would be less than at HZP. I also note that as one inserts boron or rods in the core, the moderator coefficient becomes less negative. Hence, a cooldown of a given increment from modes 3, 4 or 5 would cause a smaller reactivity increase than the same incremental cooldown from HZP. For these reasons, I believe that the MSLB from HZP is limiting.

In response to questions, the licensee stated that the plant is borated to cold shutdown concentrations prior to cooldown. This is done for convenience at many plants. Intended practice should not be confused with a requirement.

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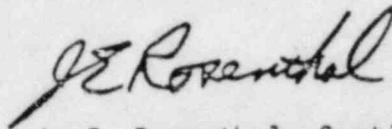
## (2) ECCS Pump Operability

The ECCS systems are designed to remove the sensible and decay heat of the fuel. In modes 3, 4 and 5, UHI is simply not needed. One must simply assure that sufficient equipment is aligned or can be readily aligned to remove the decay heat several hours after shutdown. McGuire references D. C. Cook LOCA calculations. These calculations were requested of D. C. Cook to explore the timing of a LOCA from non-power conditions. One must examine the time for action shown in these calculations. The setpoints are simple artifacts of the numerical computer simulations. The key safety conclusion is that there is ample time and equipment to cope.

## (3)(4) Actuation Setpoints and Response Times

It is not surprising that the values of these parameters shown in the technical specifications are different from those in the FSAR. The Chapter 15 analysis does not include consideration of instrument errors and drift. The Technical Specifications do. ICSB reviewers provide the interface on this subject.

Furthermore, the Technical Specifications are based on setpoint analyses performed by the licensee. These calculations are performed under a Q/A program. The FSAR which may have been prepared years before the technical specifications is not a controlled document. Again, ICSB reviewers, in part, and NRC audit programs provide the required interfaces.



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cc: B. Sheron