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Activation Analysis  
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April 11, 2005

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555  
Attn: Dan Hughes

Subject: Revision to Technical Specification 5.3, "Primary Coolant System"  
Docket No. 50-20, License No. R-37

Gentlemen:

This is to verify our conversation that the typographical errors in the above mentioned proposed technical specification revision should be corrected to read:

"All materials, including those of the reactor vessel, in contact with primary coolant (H<sub>2</sub>O), shall be aluminum alloys, stainless steel, or titanium alloys except small non-corrosive components such as gaskets, filters, and valve diaphragms."

Enclosed is a copy of the proposed wording of MITR Technical Specification No. 5.3.

Your earliest attention to this request would be most appreciated.

Sincerely,

Thomas H. Newton, Jr.  
Reactor Engineer  
MIT Research Reactor

John A. Bernard  
Director of Reactor Operations  
MIT Research Reactor

I declare under penalty of perjury that the foregoing is true and correct.

Executed 4-11-05  
Date

[Signature]  
Signature

TN/gw

A020

### 5.3 Primary Coolant System

#### Applicability

The specification applies to the design of the primary coolant system.

#### Objective

To assure compatibility of the primary coolant system with the safety analysis.

#### Specification

The reactor coolant system shall consist of a reactor vessel, a single cooling loop containing three heat exchangers, and appropriate pumps and valves. All materials, including those of the reactor vessel, in contact with primary coolant (H<sub>2</sub>O), shall be aluminum alloys, stainless steel, or titanium alloys except small non-corrosive components such as gaskets, filters and valve diaphragms. The reactor vessel shall be designed in accordance with the ASME Code for Unfired Pressure Vessels. It shall be designed for a working pressure of 24 psig and 150°F. Heat exchangers shall be designed for 75 psig and a temperature of 150°F. The connecting piping shall be designed to withstand a 60 psig hydro test.

#### Basis

The reactor coolant system has been described and analyzed in the Safety Analysis Report as a single loop system containing two heat exchangers. Additional analysis based on the use of three heat exchangers, has been described in the NRC staff's Safety Evaluation of Amendment No. 14 to these Technical Specifications. Materials of construction, being primarily stainless steel, are chemically compatible with the H<sub>2</sub>O coolant. The stainless steel pumps are heavy-walled members in areas of low stress and should not be susceptible to chemical attack or stress corrosion failures. The failure of the gaskets and valve bellows, although undesirable, would not result in catastrophic failure of the primary system; hence, strict material limitations