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PROPOSED CHANGES FOR MAIN STEAM LINE ISOLATION AND  
SUPPRESSION CHAMBER INSTRUMENTATION REQUIREMENTS,  
BROWNS FERRY UNITS 1, 2 AND 3

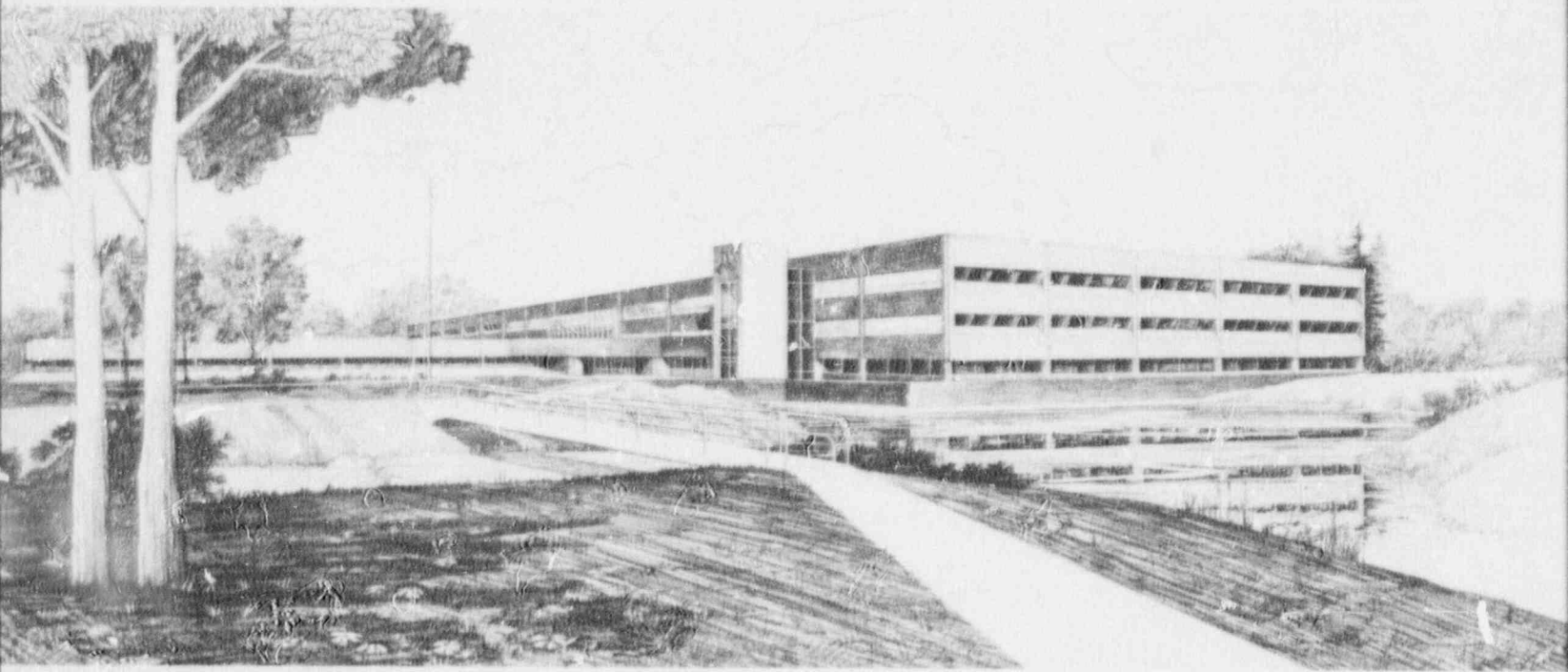
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NRC Research and Technical  
Assistance Report



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## INTERIM REPORT

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This document was prepared primarily for preliminary or internal use. It has not received full review and approval. Since there may be substantive changes, this document should not be considered final.

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## INTERIM REPORT

PROPOSED CHANGES FOR MAIN STEAM LINE ISOLATION AND  
SUPPRESSION CHAMBER INSTRUMENTATION REQUIREMENTS

BROWNS FERRY UNITS 1, 2, AND 3

Docket Nos. 50-259, 50-260, 50-296

March 1981

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EG&G Idaho, Inc.

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#### ABSTRACT

The Tennessee Valley Authority requested, by letter dated August 12, 1980, design and technical specification changes to the Browns Ferry Units 1, 2, and 3. The proposed changes included removal of the high temperature in the main steam line tunnels as a cause for main steam line isolation for Units 1, 2, and 3; and reducing the technical specification suppression chamber high-level instrument channel requirements from two to one for Unit 3.

After review of the reference material in Section 4.0 of this report, it was recommended that the proposed changes be rejected.

#### FOREWORD

This report is supplied as part of the "Selected Operating Reactor Issues Program (III)" being conducted for the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation, Division of Licensing, by EG&G Idaho, Inc., Reliability and Statistics Branch.

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PROPOSED CHANGES FOR MAIN STEAM LINE ISOLATION AND  
SUPPRESSION CHAMBER INSTRUMENTATION REQUIREMENTS

BROWNS FERRY UNITS 1, 2, AND 3

1.0 Introduction

The Tennessee Valley Authority (TVA) requested, by letter dated August 12, 1980, design and technical specification changes to Browns Ferry Units 1, 2, and 3. One change consisted of removing the main steam line isolation by high-temperature in the main steam line tunnels. It was also requested to change the Browns Ferry Unit 3 technical specifications reducing the required minimum number of suppression chamber high-level instrument channels for Unit 3 from two channels to one channel.

2.0 Evaluation

The TVA has proposed the following design and technical specification changes for Browns Ferry Units 1, 2, and 3:

1. Presently, the main steam line tunnel, reactor core injection coolant (RCIC) steam line space, and the high-pressure coolant injection (HPCI) steam line space instrument channels have high-temperature, high-flow, and low-pressure actions which can initiate steam line isolation. TVA proposes to remove the high-temperature isolation functions and use the instruments for alarms. Technical specification changes are also proposed to reflect these alterations.

The TVA justified these changes by stating that the consequences of an isolation from the steam line space high-temperature functions could cause nonconservative reactor water level fluctuations, and other instrument channels are available which can initiate isolation in the event of a steam line break. The TVA also stated that, after the change and in the event of a steam space high-temperature alarm on the HPCI, RCIC, or main steam line system, the operator will be directed, through operating instructions, to verify the validity of the alarm by:

- a. Other instrumentation such as steam flows, pressure, and radiation monitors
- b. Direct observation of the area involved.

After review of the TVA submittals and other referenced documents, I have determined that the original General Electric design of the BWR and the Browns Ferry FSAR have provided a water level margin to compensate for this type of fluctuation. The review of Licensee Event Reports (LERs) for Browns Ferry Units 1, 2, and 3 from 1978 through 1980 have not shown any operational problems or occurrences of steam line isolations from high-temperature actions.

The present Standard Technical Specifications for General Electric BWRs (NUREG-0123, Rev. 1) requires main steam line tunnel high-temperature isolation action. Analysis has not been provided by TVA to show that high-temperature isolation is not required. Removal of high-temperature isolation could decrease safety as the steam line high-temperature instrumentation would most likely be the first to detect a leak of any size.

2. The TVA has also proposed to change Browns Ferry Unit 3 technical specifications for the minimum required suppression chamber high-level instrument channels to agree with Units 1 and 2. Presently, Unit 3 technical specifications require the minimum number of operable instrument channels to be two, while Units 1 and 2 technical specifications require only one.

The Standard Technical Specifications for General Electric BWRs (NUREG-0123, Rev. 1) requires the minimum number of operable channels per trip system to be two. No analysis or justification has been provided by TVA to demonstrate that this change would not lower the safety capabilities.

### 3.0 Conclusions

As discussed in Section 2.0, the TVA-proposed design and technical specification changes will not correct any operational problems or improve reactor safety. Present design agrees with the current NRC licensing requirements. Therefore, it is recommended that the TVA-proposed changes be rejected.

### 4.0 References

1. General Electric Standard Technical Specifications for Boiling Water Reactors, NUREG-0124, Rev. 1.
2. Licensee Event Reports for BWRs (LERs), 1978 through 1980.