

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the matter of)

General Electric Company)

Docket No. STN 50-447

Standard Plant)

AMENDMENT NO. 16 TO APPLICATION
FOR REVIEW OF 238 NUCLEAR ISLAND GENERAL ELECTRIC
STANDARD SAFETY ANALYSIS REPORT (GESSAR II)

General Electric Company, applicant in the above captioned proceeding, hereby files Amendment No. 16 to the 238 Nuclear Island General Electric Standard Safety Analysis Report (GESSAR II).

Amendment No. 16 further amends GESSAR II by providing an assessment of design features which reduce sabotage risk. Rather than quantifying the sabotage risk in probabilistic terms, the assessment identifies features which plant operators have available to inhibit or mitigate postulated acts of sabotage. The assessment addresses the balance reached in the GESSAR II design between protecting against sabotage and not interfering with normal and emergency plant operations. The assessment concludes that the design provides protection against sabotage which is compatible with overall safety goals and is consistent with existing design and operational requirements.

Respectfully submitted,

General Electric Company

By: s/Joseph F. Quirk
Joseph F. Quirk, Manager
BWR Systems Licensing

STATE OF CALIFORNIA)
COUNTY OF SANTA CLARA) ss:

On this 15th day of June in the year 1983, before me, Karen S. Vogelhuber, Notary Public, personally appeared Joseph F. Quirk, personally proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to this instrument and acknowledged that he executed it.

By: s/Karen S. Vogelhuber
Notary Public - California
Santa Clara County
My Commission Expires
December 21, 1984
175 Curtner Avenue
San Jose, CA 95125

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INSTRUCTIONS FOR FILING AMENDMENT NO. 16

For uniformity, a new tab for Appendix 1E is provided. A tab is also included for Appendix 1F.

Remove and insert the pages listed below. Dashes (----) in the remove or insert column indicate no action required.

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Appendix 1F

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Chapter 13

13.6-1 through 13.6-14

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13.6-3 through 13.6-14

APPENDIX 1F

DESIGN CONSIDERATIONS REDUCING SABOTAGE RISK

APPENDIX 1F

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APPENDIX 1F

DESIGN CONSIDERATIONS REDUCING SABOTAGE RISK

1F.0 INTRODUCTION

This appendix provides General Electric's description of the 238 Nuclear Island design features that reduce the risk from postulated acts of sabotage. Features are described which both inhibit sabotage and mitigate or lessen the effects on the public health and safety should the saboteur disable safety systems or initiate an event.

The basic required plant safety functions for either transient or sabotage initiated events are those to shut down the reactor, maintain core cooling and remove the decay heat. It will be shown that there are multiple and diverse means to accomplish each of these functions and that component locations are in separated compartments with multiple restrictions on access. Postulated acts of sabotage will be thwarted by these design features used in conjunction with the Applicant's active systems to satisfy 10CFR Section 73.55.

The Applicant will provide additional equipment and procedures to control access to the plant and designated plant systems to further inhibit radiological sabotage in compliance with Section 73.55 of Title 10 to the Code of Federal Regulations. These provisions are in addition to the description herein and will be documented by the Applicant.

1F.0 INTRODUCTION (Continued)

Reducing sabotage risk has been a long-standing and continuing objective for energy-producing as well as other industries. Radiological sabotage, as defined in 10CFR73.2, is the major concern addressed by this appendix. Radiological sabotage is differentiated from war-related or subversive-type sabotage principally by the degree of damage that may be inflicted, i.e., rocket or armored vehicle attacks or damage from high level explosives are sabotage initiators beyond the scope of this appendix.

This appendix considers acts of sabotage which may be postulated to be the work of a single individual or a group of individuals and may be committed by a person on the power plant staff (insider) and/or by other individuals (outsider). Both the insider and outsiders are assumed to be well trained, capable and determined to accomplish their goal within limitations of the design-basis threat as defined in 10CFR73(a)(1).

For those few events where the saboteur is postulated to succeed in disabling one or more components or systems, the symptom-oriented Emergency Procedure Guidelines (EPGs) would aid the operator in achieving the shutdown, core cooling and decay heat removal functions. The combination of the symptom-oriented EPGs and the Nuclenet Control Room, including the Self-Test System, Status Monitoring and the Emergency Response Information System (ERIS), assures that the operator receives clear instructions to restore necessary functions. This is done without any delay in trying to determine which equipment has been sabotaged.

1F.0 INTRODUCTION (Continued)

Additional margin for protecting the public health and safety by having the capability to mitigate the effects of sabotage comes in the Boiling Water Reactor's inherent fission product retention capability. For the scenarios where sabotage is postulated to interrupt core cooling causing the release of fission products, fission product retention mechanisms, such as pool scrubbing and plateout, would act to minimize the transport of fission products beyond the containment barrier.

The 238 Nuclear Island achieves a balance between having adequate access to expeditiously accomplish all normal and emergency actions while also restricting access to lessen the probability of sabotage. In this manner, the potentially conflicting design objectives between safety and sabotage considerations are addressed.

Design considerations to inhibit and mitigate postulated acts of sabotage to the 238 Nuclear Island are described and presented in the following sections. The combination of these multiple features with the Applicant's security system will assure the public health and safety against postulated acts of radiological sabotage.

1F.1 BWR SABOTAGE INHIBITORS

GE PROPRIETARY - provided under separate cover

1F.1-1 through 1F.1-72

1F.2 BWR SABOTAGE MITIGATORS (DAMAGE CONTROL)

GE PROPRIETARY - provided under separate cover

1F.2-1 through 1F.2-15/1F.2-16

1F.3 ASSESSMENT AGAINST NRC SABOTAGE STUDIES

GE PROPRIETARY - provided under separate cover

1F.3-1 through 1F.3-9/1F.3-10

1F.4 BALANCING SAFETY AND SABOTAGE CONSIDERATIONS

GE PROPRIETARY - provided under separate cover

1F.4-1 through 1F.4-4

1F.5 SUMMARY AND CONCLUSIONS

This appendix has provided a description of the 238 Nuclear Island design features that inhibit and mitigate postulated acts of sabotage. The inhibiting aspects of the multiple redundancies in shutdown mechanisms, water supplies and decay heat removal methods are presented. The redundant systems capable of performing these functions are located in separate compartments at several elevations and in different buildings with individual pipe chases for important water supply systems. This physical separation further inhibits postulated acts of sabotage.

There are four separate electrical divisions with off-site power available from three separate sources. Each division has its own batteries for DC power, and three divisions have individual diesel/generators located in two separate buildings to supply emergency on-site AC power. Division cable routing includes separated raceways, cable tunnels plus separated cable rooms in the Control Building.

Access control to important features begins at the protected area boundary, and continues throughout the individual compartments. The Applicants compliance with 10CFR73.55 is aided by the Nuclear Island's provision of key-locked doors, electric-locked doors, vestibules and mounting boxes for access control devices.

The 238 Nuclear Island includes passive features which provide added assurance of protecting the public against postulated acts of sabotage. These passive features include natural circulation within the RPV plus the heat sink and scrubbing capability of the suppression pool. Since these features do not require active components, they are not

1F.5 SUMMARY AND CONCLUSIONS (Continued)

subject to postulated acts of sabotage. Their inhibiting and mitigating capabilities to provide adequate core cooling, accommodate decay heat and retain fission products can be assured for sabotage as well as transient initiated events.

Directions for mitigating postulated acts of sabotage are provided to the operators via the EPGs. These symptom-oriented procedures specify actions for achieving safe shutdown using normal or alternate reactivity controls and water supplies. These damage control type activities are aided by design features of direct water level indications for both the RPV and the suppression pool and by the ERIS and Nuclenet Control Room. Other important features are multiple control locations, multiple power supplies and the capability to manually intertie divisional power supplies and water supply systems.

Further mitigation of extremely severe (and highly unlikely) postulated sabotage scenarios is provided by the fission product retention features of the 238 Nuclear Island. These features include the Condenser Offgas System, the suppression pool, the Containment Spray System and the Standby Gas Treatment System.

Radiological sabotage studies by NRC contractors have concluded that structural changes to a plant similar to the 238 Nuclear Island design would not significantly enhance or provide additional protection against postulated acts of sabotage. Their basis for this conclusion is that current designs include sufficient compartmentalization. The contractor conclusions regarding upgraded security computers and other security matters are the responsibility of the Applicant. Another contractor conclusion is that damage control can be

1F.5 SUMMARY AND CONCLUSIONS (Continued)

effective in sabotage mitigation provided it uses installed systems and components. The EPGs specify damage control type activities and use installed systems and components.

This appendix has provided sufficient information to conclude that the design features of the 238 Nuclear Island plus the Applicant's programs for compliance with 10CFR73.55 will assure the public health and safety against postulated acts of radiological sabotage.

1F.5-3/1F.5-4

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13.6 INDUSTRIAL SECURITY

13.6.1 Preliminary Planning

Not required for an FSAR.

13.6.2 Security Plan

To be provided by Applicant

13.6.3 BOP Interfaces

GE PROPRIETARY - provided under separate cover