

EDO Principal Correspondence Control

FROM: DUE: 06/23/11

EDO CONTROL: G20110374  
DOC DT: 05/19/11  
FINAL REPLY:

Said Abdel-Khalik, ACRS

TO:

Borchardt, EDO

FOR SIGNATURE OF :

\*\* GRN \*\*

CRC NO:

Borchardt, EDO

DESC:

ROUTING:

Final Safety Evaluation Report Associated with the  
Amendment to the AP1000 Design Control Document  
(EDATS: OEDO-2011-0366)

Borchardt  
Weber  
Virgilio  
Ash  
Muessle  
OGC/GC  
Frazier, OEDO

DATE: 05/23/11

ASSIGNED TO:

CONTACT:

NRO

Johnson

SPECIAL INSTRUCTIONS OR REMARKS:

Please prepare response to ACRS for the signature  
of the EDO. Add the Commission and SECY as cc's.  
Also, include: RidsAcrsAcnw\_MailCTR to your  
distribution on the concurrence page. USE SUBJECT  
LINE IN RESPONSE.

Template: EDO-001

E-RIDS: EDO-01

# EDATS

Electronic Document and Action Tracking System



**EDATS Number:** OEDO-2011-0366

**Source:** OEDO

## General Information

**Assigned To:** NRO

**OEDO Due Date:** 6/23/2011 11:00 PM

**Other Assignees:**

**SECY Due Date:** NONE

**Subject:** Final Safety Evaluation Report Associated with the Amendment to the AP1000 Design Control Document

**Description:**

**CC Routing:** NONE

**ADAMS Accession Numbers - Incoming:** NONE

**Response/Package:** NONE

## Other Information

**Cross Reference Number:** G20110374

**Staff Initiated:** NO

**Related Task:**

**Recurring Item:** NO

**File Routing:** EDATS

**Agency Lesson Learned:** NO

**OEDO Monthly Report Item:** NO

## Process Information

**Action Type:** Letter

**Priority:** Medium

**Signature Level:** EDO

**Sensitivity:** None

**Urgency:** NO

**Approval Level:** No Approval Required

**OEDO Concurrence:** NO

**OCM Concurrence:** NO

**OCA Concurrence:** NO

**Special Instructions:** Please prepare response to ACRS for the signature of the EDO. Add the Commission and SECY as cc's. Also, include: RidsAcrcAcnw\_MailCTR to your distribution on the concurrence page. Use SUBJECT LINE IN RESPONSE.

## Document Information

**Originator Name:** Said Abdel-Khalik

**Date of Incoming:** 5/19/2011

**Originating Organization:** ACRS

**Document Received by OEDO Date:** 5/23/2011

**Addressee:** R. W. Borchardt, EDO

**Date Response Requested by Originator:** NONE

**Incoming Task Received:** Letter



initiation of stress corrosion cracks. This test method has been found to be unreliable for all but highly susceptible materials. For example, testing of hundreds of bent beam specimens for thousands of hours by the General Electric Company in the early 1960s failed to predict the susceptibility of welded Type 304 stainless steel components to SCC in boiling water reactors (BWRs). The crack growth rate (CGR) tests proposed by Westinghouse can provide a sensitive assessment of susceptibility, but the test protocols are not easily standardized. Slow strain rate tests (SSRT) demonstrated SCC susceptibility for BWR environments consistent with in-reactor performance. Today, the SSRT method is widely used to demonstrate resistance to SCC initiation, and a standard protocol is available (ASTM G129-00). Passing this test provides a high degree of assurance that a material is highly resistant to SCC initiation, and SSRT are generally easier and quicker to perform than CGR tests. Furthermore, we consider SSRT to be the most appropriate method for demonstrating SCC resistance of the retaining ring material.

In our December 13, 2010, letter, we also identified a concern that allowing both the automatic and manual modes of actuation of the Diverse Actuation System (DAS) to be out of service at the same time would result in an unnecessary and significant reduction in diversity of the protection capability, which is credited in the AP1000 probabilistic risk assessment (PRA). Thus, we recommended that the staff seek commitments from combined license holders to not allow both automatic and manual DAS to be out of service at the same time. Following review of the staff's response to our letter, we continue to make this recommendation for all the reasons enumerated in our letter. Some compensatory actions should be taken, if both automatic and manual DAS are out of service.

While we understand the logic described by the staff, common cause failure of the Protection and Safety Monitoring System is poorly understood, and no credible reliability models or data are available. Therefore, there is substantial unquantified uncertainty in the PRA results used to evaluate the importance of DAS. We consider both automatic and manual DAS as defense-in-depth measures against a poorly understood set of "common cause" failure mechanisms that could disable a reactor trip. To ensure that the defense-in-depth role is fulfilled, unavailability of manual DAS should be minimized, limited to on the order of no more than 72 hours. The current limiting condition for operation on manual DAS of 30 days is too long. This is in addition to requiring compensatory action in the event that both automatic and manual DAS are out of service, as indicated above.

Sincerely,

/RA/

Said Abdel-Khalik  
Chairman

References:

1. Letter to Chairman Jaczko, AP1000 DCD Amendment Review, 12/13/2010, (ML103410351)
2. Package: NRC EDO letter, Report on the Final Safety Evaluation Report Associated with the Amendment to the AP1000 Design Control Document, 02/05/2011, (ML103560411)