



South Texas Project Electric Generating Station P.O. Box 289 Wadsworth, Texas 77483

January 21, 2010
U7-C-STP-NRC-100027

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
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Rockville, MD 20852-2738

South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Revised Response to Request for Additional Information

Reference: Letter, Scott Head to Document Control Desk, "Response to Request for Additional Information," dated September 24, 2009, U7-C-STP-NRC-090162 (ML092710226)

Attached is a revised response to an NRC staff question included in Request for Additional Information (RAI) letter number 252 related to Combined License Application (COLA) Part 2, Tier 2 Chapter 7, Instrumentation and Controls.

The attachment revises the response provided in the referenced letter to the RAI question listed below:

RAI 07-5

The COLA changes provided in this response will be incorporated in the next routine revision of the COLA following NRC acceptance of the RAI response.

There are no commitments in this letter.

If you have any questions regarding this response, please contact Scott Head at (361) 972-7136, or Bill Mookhoek at (361) 972-7274.

DO91
MLW

STI 32601780

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

Executed on 1/21/2010



Mark McBurnett
Vice President, Oversight & Regulatory Affairs
South Texas Project Units 3 & 4

jwc

Attachment:

Revised Response to RAI 07-5

cc: w/o attachment except*
(paper copy)

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RAI 07-5**QUESTION:**

COLA FSAR Tier 1 Section 2.7.5 design description has been replaced in its entirety based on STD DEP T1 3.4-1. In the design description for ECF, it is stated, "The ECFs are implemented through the use of divisionally dedicated networks and/or data links provided with the safety related digital system platforms. Some of the platforms use data links only or networks only and some of the platforms use a combination of both data links and networks." Whereas in the subsequent paragraph, it is stated, "Data communication is provided between redundant safety related divisions to support coincident logic functions. The data communication is implemented through fiber optic based data links to ensure interdivisional isolation." How does the interdivisional communication take place for the platforms that do not use data links? Also, define the terms "data link" and "network" and explain the differences.

RESPONSE:

This response revises and replaces in entirety the response submitted in letter, Scott Head to Document Control Desk, "Response to Request for Additional Information," dated September 24, 2009, U7-C-STP-NRC-090162 (ML092710226). This revised response clarifies that none of the digital I&C platforms use networks only.

Both the Reactor Trip and Isolation System (RTIS) and Engineered Safety Feature Logic and Control System (ELCS) utilize data links for interdivision communication. ELCS utilizes a network within a division, but that network does not cross division boundaries.

The Reactor Trip and Isolation System (RTIS) utilizes only data links. A data link is defined as having a point to point communication connection between the sending unit and the receiving unit.

A network is defined as a communication method that connects multiple devices together to allow communication between the devices.

The ELCS utilizes an intra-division network to communicate between multiple processors and human-machine interfaces within a single division. The intra-division network communication is buffered from the ELCS controller by a communication module contained in the same rack that houses the ELCS controller. The intra-division communication module also performs communication diagnostics. The ELCS intra-division network is a deterministic network that utilizes a bus master. Each ELCS division includes an independent intra-division network. The intra-division network does not communicate outside the ELCS division. Each controller will send and receive periodic messages from the intra-division network communication modules. It allows communication between the control room safety displays, the Maintenance and Test Panel (MTP), and ELCS controllers for one division. This bus is used to communicate status and diagnostic data from the ELCS controllers for display on the safety displays and MTP. It is also used to communicate test signals and data from the MTP and control room safety displays to the

ELCS controllers. Each ELCS division includes an independent intra-division network. The intra-division network does not communicate outside the ELCS division.

High Speed Serial Link Communication

Each ELCS controller contains two processors. One processor is dedicated to performing the safety functions. The second processor is responsible for performing the unidirectional high speed serial link communications. The safety function processor shares a dual ported memory with the communications processor to allow data exchange. The ELCS communication processor has two independent receive communication ports and one independent transmit port.

The ELCS utilizes a high speed serial link (HSL) to communicate Class 1E safety function actuation information. The HSL is a true broadcast link that meets the communication isolation requirements of IEEE-Std-7.4.3-2. The HSL is utilized in a multi-drop communication method. In this method the transmission source is sent to multiple fiber optic modems which convert the HSL signal to utilize fiber optic communication media. The identical unidirectional signals are then connected to multiple receivers. An example of multi-drop communication is the transmission of a single division's Digital Trip Function (DTF) output actuation status signals to the other three divisions of Safety Logic Functions (SLFs).

For STP 3&4, the HSL communication is utilized for the following ELCS communication paths:

- DTF remote input/output (I/O) to DTF
- DTF to SLF
- SLF safety function actuation to SLF remote I/O

STP 3 & 4 COLA, Rev. 3, Tier 1, Subsection 2.7.5 will be revised as shown below in a future revision. Gray highlighting shows the changes.

2.7.5 Multiplexing System Data Communication

The Design Description is replaced in its entirety with the following.

STD DEP T1 3.4-1

Essential Communication Functions (ECF)

The ECFs support the control and monitoring of the plant protection and safety systems. The ECFs are implemented through the use of divisionally dedicated networks and/or data links provided with the safety related digital system platforms. Some of the platforms use data links only ~~or networks only~~ and some of the platforms use a combination of both data links and networks. The networks and data links provide remote and local communication between the safety system modules. Information from remote units, typically input and output signals and digital based controllers, is sent to equipment that processes the data according to the system logic functions to determine the control output signals. The system signal inputs and outputs of the controllers connect to the process sensors and discrete devices located within the plant. The resulting control signals are sent back to the remote controllers, which distribute the signals to the final control elements of the supported systems. In addition, the dedicated networks and data links support the acquisition and transmission of safety-related signals for display and recording.