



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

June 1, 2010  
U7-C-STP-NRC-100126

U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
One White Flint North  
11555 Rockville Pike  
Rockville, MD 20852-2738

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

Reference: Letter, Scott Head to Document Control Desk, "Response to Request for Additional Information", dated January 4, 2010: U7-C-STP-NRC-100002 (ML100060693).

Attached is a revised response to an NRC staff question included in Request for Additional Information (RAI) letter number 292, related to Combined License Application (COLA) Part 2, Tier 2, Sections 12.3 and 12.4. This submittal completes the response to letter 292.

The Attachment revises the response to RAI 12.03-12.04-13, previously responded to in the referenced letter.

The indicated change to the COLA will be incorporated in the next routine revision submitted following NRC acceptance of the revised response.

There are no commitments in this letter.

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

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

Executed on 6/1/10

Scott Head  
Manager, Regulatory Affairs  
South Texas Project Units 3 & 4

scs  
Attachment: 12.03-12.04-13 Revised Response

DO91  
NRC

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

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**QUESTION:**

The response to RAI 12.03-12.04-4 (Letter U7-C-STP-NRC-090121, ADAMS Document Number ML092430071) does not address the information required by COL Information Item 12.3.7.2. STP stated in the response that FSAR subsection 12.3.4 discusses the ARM system including location, alarms, and sensitivity, and that Subsection 14.2.12.1.24 discusses ARM preoperational test requirements. The response also states that COLA Subsection 12.3.7.2, and incorporation of NEI 07-03 as the operational radiation protection program basis in COLA Subsection 12.5S, fully addresses the required information concerning the operational considerations for STP 3 & 4 fixed area and airborne monitors, including calibration methods and frequency. In the RAI response discussion STP also stated that calibration procedures for preoperational testing operational calibration will be in accordance with the vendor instructions and the guidance in ANSI/ANI 6.8.1. ANSI/ANI 6.8.1 discusses basic ARM calibration methods and frequency.

However, calibration methods and frequency of fixed area and airborne monitors are not discussed in COLA Subsection 12.3.4, 12.3.7.2, 12.5S, ABWR DCD subsection 14.2.12.1.24, or NEI 07-03. ABWR DCD subsection 14.2.12.1.24 only identifies the manufacturer's technical manuals for calibration and that "Proper calibration of detector assemblies and associated equipment using a standard radiation source or portable calibration unit" will be completed during testing. NEI 07-03 states that instrumentation and equipment used to perform surveys will be calibrated prior to initial use and at least annually, but it does not include ARM's or airborne monitors. In addition to vendor technical manuals there are numerous national and industry standards (ANS, IEEE, ANSI, NCSL, etc.) that address ARM and airborne monitor maintenance and calibration programs and methods, and calibration frequency determination methods, which are not referenced in the response.

In order to make a determination of reasonable assurance that the FSAR contains sufficient information concerning ARM and airborne monitor calibration methods and frequencies that will be utilized during operation of STP 3 & 4, the staff requests that the applicant include the following supplemental information in FSAR Section 12.3.7.2 or 12.5S:

1. Clearly state the calibration methods that will be utilized for ARM and airborne monitors during operation of STP 3 & 4, including whether national or industry standards will be used in conjunction with the manufacturer's technical manuals.
2. Clearly state the calibration frequency requirements that will be applied to ARM and airborne monitors during operation of STP 3 & 4, including any national or industry standards will be utilized to establish or determine ARM and airborne monitor calibration frequencies.
3. Provide a markup of the proposed FSAR changes in the response.

**REVISED RESPONSE:**

STPNOC submitted a response to RAI 12.03-12.04-13 in U7-C-STP-NRC-100002, dated January 4, 2010. This revision to that response provides NRC-requested additional information regarding ARM calibration and frequency of calibration in the markup to Part 2, Tier 2, Subsection 12.3.7.2.

STPNOC's response to RAI 12.03-12.04-4 stated that STP 3&4 COLA Part 2, Tier 2, Section 12.5S discusses the STP 3&4 Operational Radiation Protection Program based on NEI 07-03. The response did not state that NEI 07-03 was the basis for consideration for the STP 3&4 fixed area and airborne monitors, including calibration methods and frequency. In that response, STP 3&4 COLA Part 2, Tier 2, Subsection 12.3.7.2 was revised to distinguish between the fixed area radiation monitoring system and portable monitors that are included in Part 2, Tier 2, Section 12.5S, which is based on the provisions of NEI 07-03.

STP 3&4 COLA Part 2, Tier 2, Subsection 12.3.4 discusses the area radiation and airborne radioactivity monitoring instrumentation, including the detectors and their location and sensitivity, signals, alarms, and self-test feature. Part 2, Tier 2, Subsection 14.2.12.1.24 provides the ABWR DCD general test methods and acceptance criteria, including calibration, for the area radiation monitoring system that is incorporated into the STP 3&4 COLA by reference with no departures or supplements.

The following information regarding calibration of area radiation monitors (ARM) and airborne monitors is provided in response to this RAI.

1. The calibration methods to be used for the STP 3&4 airborne monitors will be based on the appropriate manufacturer's technical instruction manuals consistent with the certified ABWR DCD and intent of ANSI/ANS-6.8-1 and other industry standards. ANSI/ANS-6.8-1 in Sections 4.4 and 5.6, Calibration, discusses primary calibration for each detector decade range, including accuracy and drift, to be documented by the manufacturer. It further discusses the secondary calibration, which is a typical two-point calibration verification over the range of the detector. ARM system detector ranges are listed in COLA Part 2, Tier 2, Subsection 12.3.4.2. Lastly, the identified channel functional test performed concurrently with the secondary calibration verification or calibration check is an operability verification, and in the case of ARMs, tests for alarms using a check source. Because the ARM equipment for STP 3&4 has not yet been procured, the detailed calibration method and frequency cannot be provided at this time.

There is no known standard that explicitly prescribes the manufacturer's use of source, geometry and line-of-sight, fixtures, and procedural requirement for calibration. STPNOC will develop the necessary procedures to perform the above described calibration verification and channel functional tests based on procedures developed for the preoperational tests as discussed in COLA Part 2, Tier 2, Subsection 14.2.12.1.24.

Additional standards and guidance used include the following. It is noted these do not provide explicit calibration methods, but instead guidance to ensure ALARA.

- ANSI N323-1978, "Radiation Protection Instrumentation Test and Calibration."
  - ANSI N13.1-1969, "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities."
  - NCRP Report No. 57, "Instrumentation and Monitoring Methods for Radiation Protection," May 1, 1978.
  - "Proposed Guidance for Calibration and Surveillance Requirements for Equipment Provided to Meet Item II.F.1, Attachments 1, 2, and 3, NUREG-0737," memorandum from D.G. Eisenhut, NRR, to Regional Administrators, August 16, 1982, with enclosures.
2. As discussed in ANSI/ANS-6.8.1, Section 4.4, the frequency and scope of calibrations are governed by the rate at which components age or become damaged. Annual or refueling intervals are normally sufficient for the fixed monitors. STPNOC expects the manufacturer's recommended frequencies to be adopted in the plant procedures.
3. STP COLA Rev. 3, Part 2, Tier 2, Subsection 12.3.7.2 will be revised in a future revision as shown below. Gray highlighting indicates the changes.

### **12.3.7.2 Operational Considerations**

The following site specific supplement addresses COL License Information Item 12.7.

Alarm setpoints are established based on design background radiation levels, which are then, confirmed during the Startup Test Program. The Preoperational Test Program will check for proper calibration of the detectors, and then check the proper functioning of alarms (local and remote, audible and visual) and protective features including alarm setpoints. The Preoperational Test Program will also check for proper response to various loss of power conditions.

Airborne radiation monitoring operational considerations, such as procedures for operation and calibration of monitors and placement of portable monitors, are established in accordance with the Operational Radiation Protection Program described in Section 12.5S.

The ARMs and airborne radioactivity monitors are calibrated using one or more reference standards, such as ANSI/ANS 6.8.1, with radioactive sources traceable to the National Institute for Standards and Technology (NIST). The instruments are calibrated at one or more points within the response range. A channel calibration that includes a channel functional test is performed periodically on the non-safety related area monitors. A channel calibration that includes a channel functional test is

performed on the safety-related area monitors at least once every 18 months or during the refueling outage if the detector is not readily accessible. In the event a calibration is questionable, the channel can be isolated and a more thorough calibration performed. Calibration is also performed after maintenance or replacement of any components that could affect calibration.