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

September 15, 2009
U7-C-STP-NRC-090145

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 May 11, 2009 U7-C-STP-NRC-090042 (ML091340409)

Attached is an amended response to the NRC staff question included in Request for Additional Information (RAI) letter number 247 related to Combined License Application (COLA) Part 5. An amended response was sent by the referenced letter. This amended response is based on a teleconference held on September 10, 2009 with members of the NRC staff.

This submittal, amended response to RAI question 13.03-72 included as Attachment 1, replaces the previously submitted RAI response in its entirety.

When a change to the COLA is indicated, the change will be incorporated into the next routine revision of the COLA following NRC acceptance of the response.

There are no new commitments made in this letter.

If you have any questions regarding the attached responses, please me at (361) 972-7136, or Bill Mookhoek at (361)-972-7274.

D091
NRO

STI 32535214

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

Executed on 9/15/09

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

fjp

Attachment:
1. Question 13.03-72 amended response

Enclosures:
1. STP Section D.3 Emergency Classifications
2. Proposed Initiating Condition SA4
3. Proposed Initiating Condition SS6
4. Proposed Initiating Condition CU5
5. Proposed Initiating Condition CA9
6. Revised COLA Part 5.3-Emergency Action Level

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

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**RAI 13.03-72:**

**QUESTION:**

**SITE-56:** Emergency Classification System
Basis: 10 CFR 52.79(a)(21), 10 CFR 50.47(b)(4), Section IV.B of Appendix E to 10 CFR Part 50; NUREG-0654/FEMA-REP-1 Planning Standard D
ACCEPTANCE CRITERIA: Requirement A; Acceptance Criteria 1 and 3

EALs are discussed in Section D, "Emergency Classification System," of COL application Part 5.

The initial EALs, which are required by 10 CFR 50.47(b)(4) and Section IV.B of Appendix E to 10 CFR Part 50, must be approved by the NRC. The South Texas Project combined license (COL) application does not fully address certain aspects of the required EAL scheme. This is because various equipment set points and other information cannot be determined until the as-built information is available; e.g., head corrections, radiation shine, final technical specifications, and equipment calculations and tolerances. The NRC has been evaluating possible options to ensure applicants address the regulations and provide the following:

Option 1 – Submit an entire EAL scheme, which contains all site-specific information, including set points. Until this information is finalized, EALs would remain an open item.

Option 2 – Submit emergency plan Section D, "Emergency Classification System," which addresses the four critical elements of an EAL scheme (listed below). The NRC will determine the acceptability of the EAL scheme.

- *Critical Element 1* – Applicant proposes an overview of its emergency action level scheme including defining the four emergency classification levels, (i.e., Notification of Unusual Event, Alert, Site Area Emergency, and General Emergency), as stated in NEI 99-01, Revision 5, with a general list of licensee actions at each emergency classification level.

- *Critical Element 2* – Applicant proposes to develop the remainder of its EAL scheme by using a specified NRC endorsed guidance document. In the development of its EALs, the proposed EALs should be developed with few or no deviations or differences, other than those attributable to the specific reactor design. NEI 07-01, if endorsed, will be applicable to the AP1000 and ESBWR (passive) reactor designs, and NEI 99-01 is applicable to all (non-passive) reactor designs. If applicable, EALs related to digital instrumentation and control must be included. The NRC must find in the Safety Evaluation Report that this approach is acceptable for each site.

- *Critical Element 3* – Applicant proposes a License Condition (LC) that the applicant will create a fully developed set of EALs in accordance with the specified guidance document. These fully developed EALs must be submitted to the NRC for confirmation at least 180 days prior to fuel load.

- *Critical Element 4* – The EALs must be kept in a document controlled by 10 CFR 50.54(q), such as the emergency plan; or a lower tier document, such as the Emergency Plan Implementing Procedures.

Please review the two options provided above, identify which option will be chosen, and provide the detailed EAL information in support of the chosen option.

**Responses:**

The South Texas Project Unit 3 & 4 Emergency Action Levels (EAL) Technical Bases Manual for the STP COLA does not address certain aspects of the NRC endorsement of the NEI 99-01 EAL scheme. Specifically, and as noted in the question above, several EAL threshold values cannot be derived until actual as-built information is available. As such, STP will revise STP COLA Part 5 and withdraw the submitted EAL Technical Bases Manual in order to utilize Option 2 of the above RAI. Part 5.3 of the COLA will be revised as included in Enclosure 4 to this Attachment.

Option 2 of the RAI requires the following four critical elements:

1. Applicant proposes an overview of its EAL scheme including defining the four emergency classification levels as stated in NEI 99-01 Rev 5, with a general list of licensee actions at each emergency classification level.

   Response:

   STP Section D.3. Emergency Classifications, of the submitted COLA Part 5 Emergency Plan contains this general information. Enclosure 1 to this Attachment provides a copy of the submitted COLA, Revision 2, Emergency Plan, Section D.3 and the associated subsections for your information.

2. Applicant proposes to develop the remainder of its EAL scheme by using a specified NRC endorsed guidance document.

   Response:

   When design information for the threshold values becomes available, the South Texas Project Units 3 & 4 EAL Technical Bases Manual will be developed using NEI 99-01, Revision 5 endorsed EAL scheme with the exception of the deviations listed below.

- STP Units 3 & 4 proposes the exclusion of NEI 99-01 Revision 5 Initiating Conditions (ICs) SU3, SA4 and SS6. These ICs will not be applicable to STP based on the ABWR Digital Instrumentation and Controls (I & C) design, and

- STP proposes inserting replacement ICs for SA4 and SS6 into the final Emergency Action Level Bases Document for Units 3 & 4. These proposed ICs are provided as Enclosures 2 (SA4) and 3 (SS6) which are applicable to STP Units 3 & 4 Digital Instrumentation and Control, and

- STP proposes the addition of ICs for Cold Shutdown CU5 and CU9 into the final Emergency Action Level Bases Document for Units 3 & 4. These proposed ICs are provided as Enclosures 4 (CU5) and 5 (CA9) which are applicable to STP Units 3 & 4 Digital Instrumentation and Control

3. Applicant proposes a License Condition (LC) that the applicant will create a fully developed set of EALs in accordance with the specified guidance document. These fully developed EALs must be submitted to the NRC for confirmation at least 180 days prior to fuel load.

   Response:

   **STP proposes the following license condition for the COL for STP Units 3 & 4:**

   STP Nuclear Operating Company shall submit a fully developed set of EALs to the NRC in accordance with NEI 99-01 Revision 5 endorsed EAL scheme with the following exceptions:

   - STP Units 3 & 4 proposes the exclusion of NEI 99-01 Revision 5 Initiating Conditions (ICs) SU3, SA4 and SS6. These ICs will not be applicable to STP based on the ABWR Digital Instrumentation and Controls (I & C) design, and

   - STP proposes inserting replacement ICs for SA4 and SS6 into the final Emergency Action Level Bases Document for Units 3 & 4. These proposed ICs are provided as Enclosures 2 (SA4) and 3 (SS6) which are applicable to STP Units 3 & 4 Digital Instrumentation and Control, and

   - STP proposes the addition of ICs for Cold Shutdown CU5 and CU9 into the final Emergency Action Level Bases Document for Units 3 & 4. These proposed ICs are provided as Enclosures 4 (CU5) and 5 (CA9) which are applicable to STP Units 3 & 4 Digital Instrumentation and Control.

   These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.

Enclosure 6 contains a revised COLA Part 5.3 'Emergency Action Level' containing the above proposed commitment.

4. The EALs must be kept in a document controlled by 10 CFR 50.54(q), such as the emergency plan; or a lower tier document, such as the emergency plan implementing procedures.

   Response:

   Section D of the STP Emergency Plan addresses that the EALs are contained in an Emergency Classification Procedure (0ERPO1-ZV-IN0l). Revision to Section D of the Emergency Plan will include a statement for review and approval of this procedure to be controlled in accordance with 10 CFR 50.54(q). The proposed revision of Section D of the submitted COLA, Revision 2, Emergency Plan text is provided below.

   **D.1 Event Classifications**

   The technique for evaluation and classification of emergencies at the Station, based on specific observable data or Control Room instrumentation, is delineated in Emergency Response Procedures for 0ERP01-ZV-IN01, Emergency Classification. Review and approval of this procedure shall be controlled in accordance with 10 CFR 50.54(q).

**Enclosure 1-STP Section D.3 Emergency Classifications**

## D.3 Emergency Classifications

The following subsections describe each emergency classification. The descriptions contained in these subsections are not intended to be totally descriptive nor all inclusive. The Emergency Director will declare an appropriate emergency classification when, in his judgment, the Station status warrants.

### D.3.1 Unusual Event Classification

Unusual Event is the least severe of the four classes of emergency, in that events are in process or have occurred which indicate a potential degradation of the level of safety of the station or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs.

This classification includes those situations which, unless complicated by other factors, pose no harm to the public but for which it is prudent to notify Station personnel, State, local, and Federal officials to provide them with current information on unusual events which are occurring or have occurred at the Station.

Events in this classification will initiate activation of the Emergency Notification and Response System (ENRS) to notify Emergency Response Organization (ERO) Personnel. This is an information only notification and does not require activation of Emergency Facilities.

### D.3.2 Alert Classification

The Alert classification includes events that are in process or have occurred which involve an actual or potential substantial degradation of the level of safety of the station or a security event that involves probable life threatening risk to site personnel or damage to site equipment because of HOSTILE ACTION. Any releases are expected to be limited to small fractions of the Environmental Protection Agency (EPA) Protective Action Guideline exposure levels. This emergency classification includes those situations for which it is prudent to notify Station personnel, and State, Local, and Federal officials in order to assure that emergency personnel are available to respond should the situation become more serious. These situations, unless upgraded to a more severe emergency classification, pose no threat to the public but confirmatory radiological monitoring by the State may be appropriate in order to verify that no harm to the public has occurred.

Events in this classification will initiate activation of the Technical Support Center and Operations Support Center. The Emergency Operations Facility and the Joint Information Center shall be staffed as a precautionary action and may be activated at the discretion of the Emergency Director. The personnel in the Emergency Operations Facility act in a support function to the Technical Support Center. The Emergency Operations Facility Dose Projection capability is activated at an Alert. Any Emergency Response Facility may be activated at the discretion of the Emergency Director.

**D.3.3 Site Area Emergency Classification**

The Site Area Emergency classification includes events that are in process or have occurred which involve an actual or likely major failures of station functions needed for protection of the public or HOSTILE ACTION that results in intentional damage or malicious acts; (1) toward site personnel or equipment that could lead to the likely failure of or; (2) that prevent effective access to equipment needed for the protection of the public. Any releases are not expected to result in exposure levels which exceed Environmental Protection Agency (EPA) Protective Action Guideline exposure levels beyond the site boundary. This emergency classification includes those situations for which it is prudent to notify Station personnel, State, County, and Federal officials to allow emergency response facilities to be ~~manned~~ staffed and personnel required for evacuation of near site areas to prepare and stage should the situation become more serious.

Situations classified under the Site Area Emergency classification are those for which it may be prudent to provide early warning to the general public within the ten (10) mile Emergency Planning Zone to provide an increased state of readiness should the situation become more serious.

Although Protective Action Recommendation are not ~~necessarily~~ required, declaration of a Site Area Emergency will require initiation of emergency response actions by the Station personnel and the State and County authorities.

**D.3.4 General Emergency Classification**

The General Emergency is the most severe emergency classification defined in this Plan. The General Emergency classification includes events that are in process or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or HOSTILE ACTION that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed Environmental Protection Agency (EPA) Protective Action Guideline exposure levels offsite for more than the immediate site area. This emergency classification includes those situations for which it is prudent to notify Station personnel, State, County, and Federal officials to allow the cognizant organizations to take predetermined protective actions, such as shelter or evacuation of the public, in order to minimize the potential for radiological exposure of the public. For these situations, it is prudent to provide early warning to the population within the ten (10) mile Emergency Planning Zone to allow the public to take any necessary protective actions.

## Enclosure 2-Proposed Initiating Condition SA4

**Initiating Condition – ALERT** **SA4**

UNPLANNED Partial Loss of Indicating, Monitoring and Control Functions.

**Operating Mode Applicability: Power Operation, Startup, Hot Standby/Shutdown**

**Example Emergency Action Level Threshold:**

*Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. UNPLANNED Partial Loss of Safety Indicating and Control System (Site specific system to be identified upon final determination of system design and completion of fault analysis) Indicating, Monitoring and Control Functions for 15 minutes or longer.

   OR

2. UNPLANNED Loss of Plant Information and Control System (Site specific system to be identified upon final determination of system design and completion of fault analysis) Indicating, Monitoring and Control Functions for 15 minutes or longer.

**Basis:**

This IC recognizes the difficulty associated with monitoring changing plant conditions without the use of a major portion of the control and indication systems.

The Safety Indicating and Control System provides the functions necessary to protect the plant during normal operations, to shutdown the plant, and to maintain the plant in a safe shutdown condition. Site specific system capabilities to be identified upon final determination of system design

The Plant Information and Control System includes the control functions that provide for the control of the nuclear process, conversion of nuclear energy into heat energy, and transport of the heat energy from the nuclear reactor to the main steam turbine. Site specific system capabilities to be identified upon final determination of system design.

A total loss of the Plant Information and Control and Safety Indicating and Control systems would result in an escalation to SS6.

## Enclosure 3-Proposed Initiating Condition SS6

**SS6**

**Initiating Condition -- SITE AREA EMERGENCY**

Complete loss of all Indicating, Monitoring and Control Functions.

**Operating Mode Applicability: Power Operation, Startup, Hot Standby/Shutdown**

**Example Emergency Action Level Threshold:**

1. a. UNPLANNED Partial Loss of Safety Indicating and Control System (Site specific system to be identified upon final determination of system design and completion of fault analysis) Indicating, Monitoring and Control Functions for 15 minutes or longer.

   AND

   b. UNPLANNED Loss of Plant Information and Control (Site specific system to be identified upon final determination of system design and completion of fault analysis) System Indicating, Monitoring and Control Functions for 15 minutes or longer.

**Basis:**

This IC recognizes the difficulty associated with monitoring changing plant conditions without the use of a major portion of the control and indication systems.

The Safety Indicating and Control System provides the functions necessary to protect the plant during normal operations, to shutdown the plant, and to maintain the plant in a safe shutdown condition. Site specific system capabilities to be identified upon final determination of system design

The Plant Information and Control System includes the control functions that provide for the control of the nuclear process, conversion of nuclear energy into heat energy, and transport of the heat energy from the nuclear reactor to the main steam turbine. Site specific system capabilities to be identified upon final determination of system design.

# Enclosure 4-Proposed Initiating Condition CU9

**CU9**

**Initiating Condition -- ALERT**

UNPLANNED Partial Loss of Indicating, Monitoring and Control Functions.

**Operating Mode Applicability: Cold Shutdown**

**Example Emergency Action Level Threshold:**

*Note: The Emergency Director should not wait until the applicable time has elapsed, but should declare the event as soon as it is determined that the condition will likely exceed the applicable time.*

1. UNPLANNED Partial Loss of Safety Indicating and Control System (Site specific system to be identified upon final determination of system design and completion of fault analysis) Indicating, Monitoring and Control Functions for 15 minutes or longer.

   OR

2. UNPLANNED Loss of Plant Information and Control System (Site specific system to be identified upon final determination of system design and completion of fault analysis) Indicating, Monitoring and Control Functions for 15 minutes or longer.

**Basis:**

This IC recognizes the difficulty associated with monitoring changing plant conditions without the use of a major portion of the control and indication systems.

The Safety Indicating and Control System provides the functions necessary to protect the plant during normal operations, to shutdown the plant, and to maintain the plant in a safe shutdown condition. Site specific system capabilities to be identified upon final determination of system design

The Plant Information and Control System includes the control functions that provide for the control of the nuclear process, conversion of nuclear energy into heat energy, and transport of the heat energy from the nuclear reactor to the main steam turbine. Site specific system capabilities to be identified upon final determination of system design.

A total loss of the Plant Information and Control and Safety Indicating and Control would result in an escalation to CA5.

## Enclosure 5-Proposed Initiating Condition CA5

**CA5**

**Initiating Condition – Alert**

Complete loss of all Indicating, Monitoring and Control Functions.

**Operating Mode Applicability: Cold Shutdown**

**Example Emergency Action Level Threshold:**

1. a. UNPLANNED Partial Loss of Safety Indicating and Control System (Site specific system to be identified upon final determination of system design and completion of fault analysis) Indicating, Monitoring and Control Functions for 15 minutes or longer.

   AND

   b. UNPLANNED Loss of Plant Information and Control (Site specific system to be identified upon final determination of system design and completion of fault analysis) System Indicating, Monitoring and Control Functions for 15 minutes or longer.

**Basis:**

This IC recognizes the difficulty associated with monitoring changing plant conditions without the use of a major portion of the control and indication systems.

The Safety Indicating and Control System provides the functions necessary to protect the plant during normal operations, to shutdown the plant, and to maintain the plant in a safe shutdown condition. Site specific system capabilities to be identified upon final determination of system design

The Plant Information and Control System includes the control functions that provide for the control of the nuclear process, conversion of nuclear energy into heat energy, and transport of the heat energy from the nuclear reactor to the main steam turbine. Site specific system capabilities to be identified upon final determination of system design.

# Enclosure 6-Revised COLA Part 5.3

## 5.3 Emergency Action Level

STP Nuclear Operating Company shall submit a fully developed set of EALs to the NRC in accordance with NEI 99-01 Revision 5 endorsed EAL scheme with the below exceptions:

- STP Units 3 & 4 will exclude NEI 99-01, Revision 5, Initiating Conditions (ICs) SU3, SA4 and SS6. These ICs are not applicable to STP based on the ABWR Digital Instrumentation and Controls (I & C) design, and

- STP will replace ICs SA4 and SS6 into the final Emergency Action Level Bases Document for Units 3 & 4. These ICs will be applicable to STP Units 3 & 4 Digital Instrumentation and Control, and

- STP Units 3 & 4 will include the addition of ICs for Cold Shutdown CU5 and CU9 into the final Emergency Action Level Bases Document for Units 3 & 4. These ICs are applicable to STP Units 3 & 4 Digital Instrumentation and Control.

These fully developed EALs shall be submitted to the NRC for confirmation at least 180 days prior to initial fuel load.