

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

August 10, 2010 U7-C-STP-NRC-100190

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

Attached is the STP Nuclear Operating Company (STPNOC) response to Request for Additional Information Letter Number 351 related to Combined License Application (COLA) Part 2, Tier 2, Section 2.5.4, "Stability of Subsurface Materials and Foundations." This letter provides the complete response to RAI Letter Number 351. The attachment provides the response to the following RAI:

02.05.04-37

When a change to the COLA is required, it will be incorporated into 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, please contact Scott Head at (361) 972-7136, or Bill Mookhoek at (361) 972-7274.

NRT STI 32720202

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

Executed on <u>8/10/2010</u>

MAM. Bunty

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

rhb

Attachment: RAI 02.

RAI 02.05.04-37

cc: w/o attachments and enclosure except* (paper copy)

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02.05.04-37

QUESTION:

In your response to RAI 2.5.4-36 you provided updated ITAACS for backfill, shear wave velocity and settlement in Table 3.0-11, "Backfill Under Seismic Category 1 Structures" and Table 3.0-13, "Settlement." With respect to the third ITAAC regarding the engineering properties of backfill, and in accordance with 10 CFR 100.23, please specify the tests to be performed, frequency of testing, and test standard employed (ASTM, USACE), in the "Inspections, Tests, and Analyses" column of the ITAAC.

RESPONSE:

STPNOC's response to RAI's 02.05.04-33, Supplement 1 (STPNOC letter U7-C-STP-NRC-100057 dated March 15, 2010 (ML100770389)) and RAI 02.05.04-36 (STPNOC letter U7-C-STP-NRC-100123 dated June 3, 2010 (ML101590397)) provided ITAAC related to the engineering properties of backfill (COLA, Part 9, Section 3.0, Table 3.0-11, Backfill Under Seismic Category I Structures). This RAI response revises the previously proposed ITAAC to provide more specificity consistent with the NRC position discussed in this RAI. The following ITAAC does not include references to test standards but does include an identification of the tests to be conducted. STPNOC believes that the content of this ITAAC is consistent with Standard Review Plan 14.3, which recommends against inclusion of codes and standards in ITAAC. As described in STPNOC's response to RAI 02.05.04-36, reference to test standards for specific laboratory tests will be included in COLA Part 2 Section 2.5S.4.5.3, "Compaction Specifications."

For clarity, Table 3.0-11, Backfill Under Seismic Category I Structures, is provided below in its entirety, including or superseding changes to this table proposed in the previous RAI responses discussed above. The additional detail requested by RAI 02.05.04-37 is included in item 3 of Table 3.0-11. The STP Units 3 and 4 COLA will be revised as indicated in the COLA markup below:

COLA Part 9, Section 3

Table 3.0-11 Backfill	uUnder	Seismic Ca	tegory 1	I Structures
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Design Requirement	Inspections, Tests, and Analyses	Acceptance Criteria
1. Backfill material under Seismic Category I structures is compacted to not less than 95% of maximum dry density and within plus or minus 3% of the optimum moisture content installed to meet a minimum of 95 percent of the Modified Proctor density.	1. Testing will be performed during placement of the backfill materials.	1. Installed backfill under Category I structures meets the minimum soil density design requirements. A report exists that concludes the installed backfill material under Seismic Category I structures meets a minimum of 95 percent of the Modified Proctor density.
2. The shear wave velocity of backfill under Seismic Category I structures meets the value used in the site-specific design analyses.	2. Field measurements and analyses of shear wave velocity in backfill will be performed when backfill placement is at approximately, the elevations corresponding to: (1) half the backfill thickness to be placed below the foundation level, (2) the foundation depth (i.e., base of concrete fill), and (3) the finish grade around the structure.	2. An engineering report exists that concludes that the shear wave velocity within the backfill material placed under Seismic Category I structures at their foundation depth and below is greater than or equal to 600 feet/second for the RSW Tunnels and Diesel Generator Fuel Oil Storage Vaults and 470 feet/second for the Diesel Generator Fuel Oil Storage Vault Tunnels.

U7-C-STP-NRC-100190 Attachment Page 3 of 3

Design Requirement	Inspections, Tests, and Analyses	Acceptance Criteria	
3. The engineering properties of backfill to be used under Seismic Category I structures bound the values used in the site-specific design analyses.	 3. Laboratory tests, field measurements and analyses of engineering properties of the backfill to be used under Seismic Category I structures will be performed. These tests will include: Test: Grain Size Distribution Frequency: 1 per material type per borrow source 	3. An engineering report exists that concludes that the engineering properties of backfill to be used under Seismic Category I structures (unit weight, phi angle, shear strength, shear modulus, shear modulus degradation and damping ratio) meet the values used in the site-specific design analyses.	
	Test: Specific Gravity Frequency: 1 per material type per borrow source	· · · · · · · · · · · · · · · · · · ·	
	Test: Modified Proctor Frequency: 1 per material type per borrow source		
	Test: Drained Triaxial Shear Frequency: 1 per material type per borrow source		
	Test: Consolidation Frequency: 1 per material type per borrow source		
	Test: Resonant Column/ Torsional Shear Frequency: 1 per material type per borrow source		