

June 15, 2007

Mr. T. V. Sarma  
Senior Quality Assurance Manager  
Bechtel Nuclear  
5275 Westview Drive  
Frederick, MD 21703-8306

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) REGARDING THE  
BECHTEL TOPICAL REPORT (TR) BQ-TOP-1, 2007 EDITION, REVISION 0,  
"QUALITY ASSURANCE PROGRAM FOR NUCLEAR POWER PLANTS"  
(TAC NO. MD5365)

Dear Mr. Sarma:

By letter dated April 23, 2007, Bechtel submitted for U.S. Nuclear Regulatory Commission (NRC) staff review TR BQ-TOP-1, 2007 Edition, Revision 0, "Quality Assurance Program for Nuclear Power Plants." The NRC staff has completed its preliminary review of your submittal and has identified a number of items for which additional information is needed to continue its review. The NRC staff requires responses to the enclosed RAI questions to continue the review.

In order to support the quality assurance program for nuclear power plants proposed by the TR BQ-TOP-1 methods, we agreed that the NRC staff will receive your response to the enclosed RAI questions by August 30, 2007. Please call me at 301-415-8143, if you have any questions on this issue.

Sincerely,

**/RA/**

Vanice A. Perin, Project Manager  
Special Projects Branch  
Division of Policy and Rulemaking  
Office of Nuclear Reactor Regulation

Project No. 1365

Enclosure: RAI

Mr. T. V. Sarma  
Senior Quality Assurance Manager  
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REQUEST FOR ADDITIONAL INFORMATION

BECHTEL TOPICAL REPORT

BQ-TOP-1, 2007 EDITION, REVISION 0,

"QUALITY ASSURANCE PROGRAM FOR NUCLEAR POWER PLANTS "

PROJECT NO. 1365

1. Bechtel's quality assurance (QA) topical report (TR) that was submitted for review is unique in format. The high-level criteria of Appendix B to Part 50 of Title 10 of the *Code of Federal Regulations* or the guidance of the referenced QA industry standards are not always explicitly detailed in the TR. Bechtel essentially documents the mechanics of how its QA program is implemented and states its commitment to the applicable portion of an industry standard(s). Therefore, the U.S. Nuclear Regulatory Commission (NRC) staff's assumption is that Bechtel, by stating that it is committed to the appropriate industry standards, has ensured the implementing procedures appropriately reflect the necessary quality requirements. The NRC staff's requests for additional information (RAI) questioned focused on any potential missed requirements, conflicting statements and deviations in Bechtel's proposed QA TR from the staff's guidance in Draft Standard Review Plan (SRP) Section 17.5, "Quality Assurance Program Description - Design Certification, Early Site Permit and New License Applicants," of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Report for Nuclear Power Plants." Provide clarification that the staff's understanding on the content of Bechtel's QA TR is accurate.

SECTION 2 - QA PROGRAM

2. Draft SRP Section 17.5, Paragraph II.T.5, states that inspection and test personnel initial qualification requirements are based on education, training and experience, and demonstration of capability in performing the type of inspection or test commensurate with the job. Supplement 2S-2, Section 2.1 of NQA-1/1994 states that the American Society of Nondestructive Testing Recommended Practice No. SNT-TC-1A, June 1980 Edition, and its applicable supplements shall apply as requirements to nondestructive examination (NDE) personnel covered by this Supplement. Section 2, Paragraph 2.6 of the Bechtel QA TR states that personnel performing pressure boundary and structural welding and NDE are required to meet applicable qualification requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), SNT-TC-1A, or other appropriate codes and standards. Additionally, Section 2, Paragraph 2.9 of the Bechtel QA TR states that in establishing qualification and training programs, Bechtel commits to compliance with NQA-1/1994, Basic Requirement 2 and Supplements 2S-1, 2S-2, 2S-3, and 2S-4, with the following clarification and exception. In lieu of Supplement 2S-2, for qualification of NDE personnel, Bechtel will follow the applicable standard cited in the version(s) of Section III and Section XI of the ASME Code approved by the NRC for use at project sites. Provide clarification on the

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apparent conflict between the two paragraphs, or if the QA TR will be made consistent with Section 17.5 of the draft SRP.

3. Draft SRP Section 17.5, Paragraph II.S.4, states the qualification requirements for lead auditors. Section 2, Paragraph 2.9 of the Bechtel QA TR states that the minimum requirement that a prospective lead auditor has participated in a minimum of five audits in the previous three years is replaced by the following: "The prospective lead auditor shall demonstrate his/her ability to properly implement the audit process, as implemented by Bechtel, to effectively lead an audit team, and to effectively organize and report results, including participation in at least one nuclear audit within the year preceding the date of qualification." This satisfies the guidance of draft SRP Section 17.5, Paragraph II.S.4.c. However, provide clarification if the remaining criteria in Paragraph II.S.4 will also be met.
4. Draft SRP Section 17.5, Paragraphs II.S.2.a-e, states that the individual for management of the implementation of the QA plan is qualified as follows: 1) has a baccalaureate in engineering or related science; 2) has a minimum four years experience (three of the four years must include two years of nuclear power plant experience and one year of supervisory or management experience); 3) has management and supervisory experience or training, including leadership, interpersonal communication, management responsibilities, motivation of personnel, problem analysis and decision making, and administrative policies and procedures; 4) has one year experience performing quality verification activities; and 5) individuals who do not possess these formal education and minimum experience requirements should not be eliminated automatically when other factors provide sufficient demonstration of their abilities. These other factors are evaluated on a case-by-case basis and approved and documented by senior management.

The QA TR states the basic qualification requirements for key management positions in the quality groups are an advanced degree with five or more years of appropriate management and QA experience, or a bachelor's degree with eight or more years of appropriate experience. Additional pertinent experience is considered in lieu of a bachelor's degree. Clarify how the QA TR guidance is consistent with Section 17.5 of the draft SRP for QA management qualification.

### SECTION 3 - DESIGN CONTROL

5. Draft SRP Section 17.5, Paragraph II.C.1.g, states that design records, maintained to provide evidence that the design was properly accomplished, include not only the final design output and revisions to the final output, but also the important design steps (e.g., calculations, analyses, and computer programs and the sources of input that support the final output.) Section 3, Paragraph 3.5 of the Bechtel QA TR states that Section 3.0 of NQA-1/1994 implies traceability back from the final design to the source of design input. In practice, a literal interpretation of this is not always possible. For example, final design drawings do not identify the related calculations. Direct traceability from the final design to the source of design input is not always possible; however, it shall be possible to relate the criteria used and analyses performed to the final design documents and that record files will permit location of analyses supporting specific design output documents.

The NRC staff's position is that the design process is documented such that it provides a complete record of the design process. The documentation should provide a traceable chain of documentation from design requirements and inputs through final approval, such that the design rationale and steps would allow reconstitution of the design by a knowledgeable, independent party. Further, the NRC staff interpretation does not intend to require that the final design document itself contain reference to the final design input. Provide clarification on the Bechtel QA TR statement that direct traceability from the final design to the source of design input is not always possible; however, it shall be possible to relate the criteria used and analyses performed to the final design documents and that record files will permit location of analyses supporting specific design output documents.

#### SECTION 4 - PROCUREMENT DOCUMENT CONTROL

6. Draft SRP Section 17.5, Paragraph II.D.4, states that procurement document changes are subject to the same degree of control as utilized in the preparation of the original documents. Section 4 of the Bechtel QA TR states that NQA-1/1994, Section 3 of Supplement 4S-1, requires procurement documents to be reviewed prior to bid or award of contract. The QA review of procurement documents is satisfied through review of the applicable procurement specification, including the technical and quality procurement requirements, prior to bid or award of contract. Procurement document changes will also receive the QA review. Clarify if the procurement document changes will be subject to the same degree of control as utilized in the preparation of the original documents.

#### SECTION 7 - CONTROL OF PURCHASED MATERIAL, EQUIPMENT, AND SERVICES

7. In lieu of Section 8.1 of NQA-1-1994, Supplement 7S-1, regarding documents to be available at the site, the Bechtel QA TR proposed to consider documents that may be stored in approved electronic media under Bechtel's control and not physically located on the plant site, but which are accessible from the respective nuclear facility site as meeting the NQA-1 requirement for documents to be available at the site. Clarify if measures are in place to ensure that documents stored in approved electronic media under Bechtel control and not physically located on site will be reviewed for acceptance. In addition, clarify if measures are in place for timely retrieval of these documents consistent with Section 17.5 of the draft SRP.

#### SECTION 10 - INSPECTION

8. Draft SRP Section 17.5, Paragraph II.J.1, states that a program establishes the inspections to be performed (source, in-process, final, receipt, maintenance, modification, inservice, and operations). The inspection program may be implemented by or for the organization performing the activity inspected. This alternative was not documented in the Bechtel QA TR. Clarify if the QA TR intended to implement this alternative consistent with Section 17.5 of the draft SRP.

#### SECTION 12 - CONTROL OF MEASURING AND TEST EQUIPMENT

9. Draft SRP Section 17.5, Paragraph II.L.3, states that measuring and test equipment are labeled, tagged, or otherwise controlled to indicate its calibration status and to ensure its traceability to calibration test data. This alternative was not documented in the Bechtel QA TR. Clarify if the QA TR intended to implement this alternative consistent with Section 17.5 of the draft SRP.

#### SECTION 13 - HANDLING, STORAGE, AND SHIPPING

10. During construction phase, draft SRP Section 17.5 references the use of Subpart 2.1 of NQA-1-1994. Section 13, Paragraph 13.2 proposes a number of alternatives to Subpart 2.1. Clarify how the proposed alternatives are acceptable during construction phase and are consistent with Section 17.5 of the draft SRP. Additionally, identify if the alternatives are in the current QA program.
11. During construction phase, draft SRP Section 17.5 references the use of Subpart 2.2 of NQA-1-1994. Section 13, Paragraph 13.2 proposes a number of alternatives to Subpart 2.2. Clarify how the proposed alternatives are acceptable during construction phase and are consistent with Section 17.5 of the draft SRP. Additionally, identify if the alternatives are in the current QA program.

#### SECTION 14 - INSPECTION, TEST, AND OPERATING STATUS

12. Draft SRP Section 17.5, Paragraph II.N.5, states that temporary modifications, such as temporary bypass lines, electrical jumpers, lifted electrical leads, and temporary trip point settings are controlled by approved procedures that include a requirement for independent verification. This alternative was not documented in the Bechtel QA TR. Clarify if the QA TR intended to implement this alternative consistent with Section 17.5 of the draft SRP.

#### SECTION 17 - QA RECORDS

13. Draft SRP Section 17.5, Paragraph II.P.3, states that specific responsibilities within the corrective action program may be delegated, but the applicant or holder maintains responsibility for the program's effectiveness. Clarify how the QA TR will provide for corrective action program delegation consistent with Section 17.5 of the draft SRP.
14. Draft SRP Section 17.5, Paragraph II.P.4, states that the corrective action program requires all personnel to identify conditions that are adverse to quality. Clarify how the QA TR will provide measures for all personnel to identify conditions adverse to quality consistent with Section 17.5 of the draft SRP.
15. Draft SRP Section 17.5, Paragraph II.P.5, states that reports of conditions that are adverse to quality are analyzed to identify trends in quality performance. Significant conditions and trends adverse to quality are reported to the appropriate level of management. Clarify how the QA TR will provide measures to analyze and identify conditions adverse to quality consistent with Section 17.5 of the draft SRP.

#### SECTION 18 - AUDITS

16. Draft SRP Section 17.5, Paragraph II.R.11.b.(4), states that if a subsequent contract or a contract modification significantly enlarges the scope of, or changes the methods or controls for activities performed by the same supplier, an audit of the modified requirements is conducted, thus starting a new triennial period. Clarify how the QA TR will provide measures to address audit activities for suppliers following significant scope changes to a contract, consistent with Section 17.5 of the draft SRP.
17. Draft SRP Section 17.5, Paragraph II.R.11.b.(5), states that if the supplier is implementing the same QA program for other customers that is proposed for use on the auditing party's contract, the preaward survey may serve as the first triennial audit. Therefore, when such preaward surveys are employed as the first triennial audits, they must satisfy the same audit elements and criteria as those used on other triennial audits. Clarify how the QA TR will provide measures to ensure that, if a preaward survey is used to take credit for a triennial audit, it will satisfy the same elements as the routine audit consistent with Section 17.5 of the draft SRP.
18. Draft SRP Section 17.5, Paragraph II.R.11.b.(6), states that if more than one purchaser buys from a single supplier, a purchaser may either perform or arrange for an audit of the supplier on behalf of itself and other purchasers to reduce the number of external audits of the supplier. The scope of this audit should satisfy the needs for all of the purchasers, and the audit report should be distributed to all the purchasers for whom the audit was conducted. Nevertheless, each of the purchasers relying on the results of an audit performed on behalf of several purchasers remains individually responsible for the adequacy of the audit. Clarify how the QA TR will provide measures for application of this efficiency of external audits conducted by others for use by Bechtel consistent with Section 17.5 of the draft SRP.
19. Draft SRP Section 17.5, Paragraph II.R.12 (a) and (b), discuss documentation of periodic or ongoing evaluations of supplier performance based on historical information, and that the evaluation results are reviewed periodically to determine that supplier performance has remained adequate. Clarify how the QA TR will provide measures to ensure that periodic or ongoing evaluations are conducted and reviewed to ensure adequate supplier performance consistent with Section 17.5 of the draft SRP.