



South Texas Project Electric Generating Station P.O. Box 282 Wadsworth, Texas 77483

February 15, 2010  
U7-C-STP-NRC-100041

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  
Supplemental Response to Request for Additional Information

- References:
1. "The Evaluation Report for Net Positive Suction Head of Pump in Emergency Core Cooling System," STP Doc. U7-RHR-M-RPT-DESN-0001, Rev. B, February 10, 2010.
  2. "The supplementary document for the head loss evaluation report of Japanese ABWR ECCS suction strainer," STP Doc. U7-RHR-M-RPT-DESN-0002, Rev. C, February 10, 2010.
  3. Letter, Scott Head to Document Control Desk, "Supplemental Response to Request for Additional Information" for the South Texas Combined License Application, dated October 29, 2009 (U7-C-STP-NRC-090179), ML # 093130317.

Attached is a supplemental response to an NRC staff question included in Request for Additional Information (RAI) letter number 236 related to Combined License Application (COLA) Part 2, Tier 2 Appendix 6C.

Attachment 1 provides the response to the RAI question indicated below:

RAI 06.02.02-14 Supp 2

STI 32612594

DO91  
NRC

This response provides proprietary and non-proprietary versions of two referenced reports used to size the STP 3 & 4 Emergency Core Cooling System (ECCS) suction strainers. Since this letter contains information proprietary to Toshiba Corporation, an affidavit requesting the withholding of this information in accordance with 10 CFR 2.390 is provided in Attachment 2. The proprietary and non-proprietary versions of these reports are provided in Attachments 3 through 6. These reports replace those transmitted in Reference 3. When separated from the proprietary material, this letter is not proprietary.

There are no commitments in this letter.

If you have any questions regarding these responses, please contact Scott Head 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 2/15/2010



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

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Attachments:

1. Question 06.02.02-14 Supp 2
2. Affidavit
3. U7-C-RHR-M-RPT-DESN-0001 (proprietary)
4. U7-C-RHR-M-RPT-DESN-0001 (non-proprietary)
5. U7-C-RHR-M-RPT-DESN-0002 (proprietary)
6. U7-C-RHR-M-RPT-DESN-0002 (non-proprietary)

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

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CPS Energy

**RAI 06.02.02-14 Supp 2:****QUESTION:**

This RAI supplements RAI 06.02.02-6.

The staff has reviewed The Evaluation Report for Net Positive Suction Head of Pump in Emergency Core Cooling System (ECCS) (Report 1), The Supplementary Document for the Head Loss Evaluation Report of Japanese ABWR ECCS Suction Strainer (Report 2), and The Evaluation example of the Head Loss of the ECCS Suction Strainer and Pipe in the ECCS Pump Run-Out Flow Condition (Report 3) which were submitted to support STP in showing they have a bounding head loss analysis. In accordance with 10 CFR 50.46(a)(1)(i) and Regulatory Guide 1.82 Revision 3, the NRC staff requests that the applicant provide the following information to assist the staff in completing their safety evaluation. According to Report 1 it appears that the Small Scale Test, which is reported on pages 10 and 11, is being used to determine correction coefficient for bed thickness (empirical shape factor) of a cassette shaped strainer. Report 2 also appears to explain that the Small Scale Test was used to determine the correction coefficient for bed thickness (empirical shape factor) and also the specific surface area used for the cassette-shaped strainer:

- a.) The staff finds this to be confusing. The applicant should provide clarification for the use of the small scale testing and whether or not this testing is being used to not only determine the various parameters to be used in the theoretical head loss correlation, but also to determine empirical head loss data to be used in comparison of the theoretical calculation of head loss. Also provide information which describes what makes this small scale test conservative or prototypical.
- b.) If STP is suggesting that the small scale testing used to show NPSH predicted under debris loading is conservative, the applicant should also provide clarification of why the four pocket vertical small scale test was chosen to be conservative or prototypical.
- c.) The applicant provided in page 24 of Report 2 'Test Case' at the top of the page. The applicant did not distinguish if the three test cases are used to determine the theoretical correction parameters for the NUREG/CR-6224 correlation or if they were used to determine empirical head loss data to be used in comparison of the theoretical calculation of head loss. The applicant should distinguish the uses of these test cases and provide a description of what makes them prototypical or conservative with respect to the Reference Japanese ABWR plant scenario Loss of Coolant Accident (LOCA). The applicant should also provide detailed procedures along with a description of what makes the procedures conservative or prototypical with respect the Reference Japanese ABWR plant scenario LOCA. In addition:

i.) The applicant should provide detailed information along with the procedures explaining why the debris selection, (i.e. size and density), debris loading, and debris preparation (I.e. crushing or shredding) was chosen as conservative or prototypical.

ii.) The applicant should also address the conservativeness or prototypicality with respect to settling and approach velocity for the testing used to determine empirical head loss data.

iii.) The applicant should clarify how it determined the thin bed effect cases and discuss what guidance was used in determining the appropriateness of this being acceptable for a thin bed effect.

d.) The staff finds the reports to be difficult to follow. The staff and the members of the public need be able to understand the logic used to determine the methods selected and how the evaluation was performed. The applicant should be sure that the logic is clear throughout the reports.

**RESPONSE:**

**RAI 06.02.02-14 Supplemental Response 2**

STPNOC response to RAI 06.02.02-14 was provided to the NRC on January 13, 2010 in letter U7-C-STP-NRC-100007. This response committed to provide the following items in supplemental responses:

- Submit proprietary and non-proprietary versions of Reports 1 and 2 by February 15, 2010.
- Provide a discussion, which will be included in the Report 2 revision, of the shape factor (fg) and the two types of small-scale testing. Additionally, provide a discussion of differences between confirmatory small-scale testing results and analytically predicted head loss.

The discussion described in the second bullet was provided previously in a supplemental response, letter # U7-C-STP-NRC-100028, dated January 28, 2010. This second supplemental response provides proprietary and non-proprietary versions of the attached Reports 1 and 2:

- **Report 1:** The Evaluation Report for Net Positive Suction Head of Pump in Emergency Core Cooling System, Proprietary, STP Doc. U7-RHR-M-RPT-DESN-0001, Rev. B, February 10, 2010.
- **Report 2:** The Supplementary Documentation for the Head Loss Evaluation Report of Japanese ABWR ECCS Suction Strainer, Proprietary, STP Doc. U7-RHR-M-RPT-DESN-0002, Rev. C, February 10, 2010.

Affidavit

Affidavit for Withholding Confidential and Proprietary Information from Public Disclosure  
under 10 CFR § 2.390

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of

STP Nuclear Operating Company

Docket Nos. 52-012

52-013

South Texas Project  
Units 3 and 4

AFFIDAVIT

I, Keisuke Kitsukawa, being duly sworn, hereby depose and state that I am Senior Manager, Plant Design & Engineering Department, Nuclear Energy Systems & Services Division, Power Systems Company, Toshiba Corporation; that I am duly authorized by Toshiba Corporation to sign and file with the Nuclear Regulatory Commission the following application for withholding Toshiba Corporation's confidential and proprietary information from public disclosure; that I am familiar with the content thereof; and that the matters set forth therein are true and correct to the best of my knowledge and belief.

In accordance with 10 CFR § 2.390(b)(ii), I hereby state, depose, and apply as follows on behalf of Toshiba Corporation:

- (A) Toshiba Corporation seeks to withhold from public disclosure the documents listed in Attachment 1 of this affidavit, and all information identified as "Proprietary Class 2" therein (collectively, "Confidential Information").
- (B) The Confidential Information is owned by Toshiba Corporation. In my position as Senior Manager, Plant Design & Engineering Department, Nuclear Energy Systems & Services Division, Power System Company, Toshiba Corporation, I have been specifically delegated the function of reviewing the Confidential Information and have been authorized to apply for its withholding on behalf of Toshiba Corporation.
- (C) The report listed in Attachment 1 provide the licensing basis for STP 3 & 4 strainer sizing, which support the response to Request for Additional Information (RAI) 06.02.02-14. The confidential information which is entirely confidential and proprietary to Toshiba Corporation is indicated in the document using brackets, or the statement "The remaining pages in this document contain proprietary information, and are therefore omitted from this Non-Proprietary version of the report."
- (D) Consistent with the provisions of 10 CFR § 2.390(a)(4), the basis for proposing that the Confidential Information be withheld is that it constitutes Toshiba Corporation's trade

secrets and confidential and proprietary commercial information.

Toshiba Corporation has a rational basis for determining the types of information customarily held in confidence by it, and utilizes a system to determine when and whether to hold certain types of information in confidence.

The basis for claiming the information so designated as proprietary is as follows:

- (a) The information reveals the distinguishing aspects of a process (or component, structure, tool, method, etc.) where prevention of its use by any of Toshiba Corporation's competitors without license from Toshiba Corporation constitutes a competitive economic advantage over other companies.
- (b) It consists of supporting data, including test data, relative to a process (or component, structure, tool, method, etc.), the application of which data secures a competitive economic advantage, e.g., by optimization or improved marketability.
- (c) Its use by a competitor would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing a similar product.
- (d) It reveals cost or price information, production capacities, budget levels, or commercial strategies of Toshiba Corporation, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Toshiba Corporation or customer funded development plans and programs of potential commercial value to Toshiba Corporation.
- (f) It contains patentable ideas, for which patent protection may be desirable.

There are sound policy reasons behind the Toshiba Corporation system which include the following:

- (a) The use of such information by Toshiba Corporation gives Toshiba Corporation a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Toshiba Corporation competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Toshiba Corporation ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Toshiba Corporation at a competitive disadvantage by reducing his expenditure of resources at our expense.
- (d) Each component of proprietary information pertinent to a particular competitive advantage is potentially as valuable as the total competitive advantage. If competitors acquire components of proprietary information, any one component may be the key to the entire puzzle, thereby depriving Toshiba Corporation of a competitive advantage.

Affidavit

- (e) Unrestricted disclosure would jeopardize the position of prominence of Toshiba Corporation in the world market, and thereby give a market advantage to the competition of those countries.
- (f) The Toshiba Corporation capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.

Further, on behalf of Toshiba Corporation, I affirm that:

- (i) The Confidential Information is confidential and proprietary information of Toshiba Corporation.
- (ii) The Confidential Information is information of a type customarily held in confidence by Toshiba Corporation, and there is a rational basis for doing so given the sensitive and valuable nature of the Confidential Information as discussed above in paragraphs (D).
- (iii) The Confidential Information is being transmitted to the NRC in confidence.
- (iv) The Confidential Information is not available in public sources.
- (v) Public disclosure of the Confidential Document is likely to cause substantial harm to the competitive position of Toshiba Corporation, taking into account the value of the Confidential Information to Toshiba Corporation, the amount of money and effort expended by Toshiba Corporation in developing the Confidential Information, and the ease or difficulty with which the Confidential Information could be properly acquired or duplicated by others.

Keisuke Kitsukawa

Keisuke Kitsukawa  
Senior Manager  
Plant Design & Engineering Department  
Nuclear Energy Systems & Services Division  
POWER SYSTEMS COMPANY  
TOSHIBA CORPORATION

Feb. 10, '10  
Date



**Attachment 1 to the Toshiba Affidavit to the NRC  
(Proprietary Information)**

DOCUMENTS ENCLOSED (TO BE WITHHELD FROM PUBLIC DISCLOSURE PER 2.390)

<u>Item</u>	<u>Document Description</u>	<u>Document Number</u>	<u>Rev</u>
1.	The Evaluation Report for Net Positive Suction Head of Pump in Emergency Core Cooling System (Proprietary Version)	U7-RHR-M-RPT-DESN-0001	B
2.	The supplementary document for the head loss evaluation report of Japanese ABWR ECCS suction strainer (Proprietary Version)	U7-RHR-M-RPT-DESN-0002	C



Affidavit



嘱託人株式会社東芝部長橘川敬介は、公証人の前で、添付書面に署名した。

よって、これを認証する。

平成 22 年 2 月 10 日、本公証人役場において

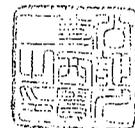
横浜市中区羽衣町2丁目7番10号

横浜地方法務局所属

公 証 人

Notary

Handwritten signature of Kenji Teranishi



KENJI TERANISHI

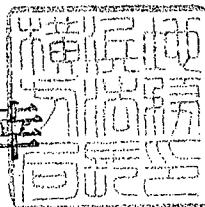
証 明

上記署名は、横浜地方法務局所属公証人の署名に相違ないものであり、かつ、その押印は、真実のものであることを証明する。

平成 22 年 2 月 10 日

横浜地方法務局長

紺野清幸



APOSTILLE

(Convention de La Haye du 5 octobre 1961)

- 1. Country : JAPAN  
This public document
- 2. has been signed by KENJI TERANISHI
- 3. acting in the capacity of Notary of the Yokohama District  
Legal Affairs Bureau
- 4. bears the seal/stamp of KENJI TERANISHI , Notary

Certified

- 5. at Tokyo
- 6. FEB. 10. 2010
- 7. by the Ministry of Foreign Affairs
- 8. 10- NO 300493
- 9. Seal/stamp :
- 10. Signature :



Handwritten signature of Kazutoyo Oyabe

Kazutoyo OYABE

For the Minister for Foreign Affairs

Affidavit



Registered No. 21 of 2010.

Certificate of Acknowledgment of Notary

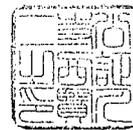
On this 10<sup>th</sup> day of February, 2010, before me, KENJI TERANISHI, a notary in and for YOKOHAMA District Legal Affairs Bureau, appeared Keisuke KITSUKAWA, Senior Manager of TOSHIBA Corporation, who is personally known to me, affixed his signature to the attached document.

Witness, I set my hand and seal.

Notary

Notary's official seal

*Kenji Teranishi*



KENJI TERANISHI

Kannai-odori Notary office

2-7-10, Hagoromo-cho, Naka-ku, Yokohama-city, Japan.

Attached to the Yokohama District Legal Affairs Bureau.