



Westinghouse Electric Company  
Nuclear Power Plants  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230-0355  
USA

U.S. Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, D.C. 20555

Direct tel: 412-374-6306  
Direct fax: 412-374-5005  
e-mail: sterdia@westinghouse.com

Your ref: Project Number 740  
Our ref: DCP/NRC1914

June 8, 2007

Subject: AP1000 COL Response to Requests for Additional Information (TR #31)

In support of Combined License application pre-application activities, Westinghouse is submitting responses to NRC requests for additional information (RAIs) on AP1000 Standard Combined License Technical Report 31, APP-GW-GLN-015, Rev. 1, Reactor Internals Materials Changes. These RAI responses are submitted as part of the NuStart Bellefonte COL Project (NRC Project Number 740). The information included in the responses is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification.

Responses are provided for requests TR31-1 and TR31-2, transmitted in NRC letter dated March 11, 2007 from Steven D. Bloom to Andrea Sterdis, Subject: Westinghouse AP1000 Combined License (COL) Pre-application Technical Report 31 – Request for Additional Information (TAC No. MD2695).

Pursuant to 10 CFR 50.30(b), the proprietary and non-proprietary responses to requests for additional information on Technical Report 31 are submitted as Enclosures 3 and 4 under the attached Oath of Affirmation.

Also enclosed is one copy of the Application for Withholding, AW-07-2293 (non-proprietary) with Proprietary Information Notice, and one copy of the associated Affidavit (non-proprietary).

This submittal contains proprietary information of Westinghouse Electric Company, LLC. In conformance with the requirements of 10 CFR Section 2.390, as amended, of the Commission's regulations, we are enclosing with this submittal an Application for Withholding from Public Disclosure and an affidavit. The affidavit sets forth the basis on which the information identified as proprietary may be withheld from public disclosure by the Commission.

Correspondence with respect to the affidavit or Application for Withholding should reference AW-07-2293 and should be addressed to James A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, LLC, P.O. Box 355, Pittsburgh, Pennsylvania 15230-0355.

063  
D079  
HRO

Questions or requests for additional information related to the content and preparation of this response should be directed to Westinghouse. Please send copies of such questions or requests to the prospective applicants for combined licenses referencing the AP1000 Design Certification. A representative for each applicant is included on the cc: list of this letter.

Very truly yours,



A. Sterdis, Manager  
Licensing and Customer Interface  
Regulatory Affairs and Standardization

/Attachment

1. "Oath of Affirmation," dated June 8, 2007

/Enclosures

1. AW-07-2293 "Application for Withholding Proprietary Information from Disclosure," dated June 8, 2007
2. AW-07-2293, Affidavit, Proprietary Information Notice, Copyright Notice dated June 8, 2007
3. Response to Requests for Additional Information on Technical Report No. 31, RAI-TR31-001 and RAI-TR31-002 (Proprietary)
4. Response to Requests for Additional Information on Technical Report No. 31, RAI-TR31-001 and RAI-TR31-002 (Non-Proprietary)

cc:	D. Jaffe	- U.S. NRC	1E	1A
	E. McKenna	- U.S. NRC	1E	1A
	G. Curtis	- TVA	1E	1A
	P. Grendys	- Westinghouse	1E	1A
	P. Hastings	- Duke Power	1E	1A
	C. Ionescu	- Progress Energy	1E	1A
	D. Lindgren	- Westinghouse	1E	1A
	A. Monroe	- SCANA	1E	1A
	M. Moran	- Florida Power & Light	1E	1A
	C. Pierce	- Southern Company	1E	1A
	E. Schmiech	- Westinghouse	1E	1A
	G. Zinke	- NuStart/Entergy	1E	1A
	D. Forsyth	- Westinghouse	1E	1A

ATTACHMENT 1

“Oath of Affirmation”

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of: )  
NuStart Bellefonte COL Project )  
NRC Project Number 740 )

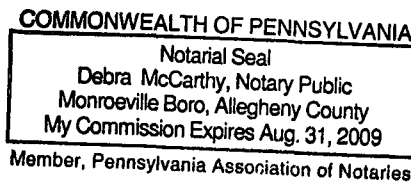
APPLICATION FOR REVIEW OF  
"AP1000 GENERAL COMBINED LICENSE INFORMATION"  
FOR COL APPLICATION PRE-APPLICATION REVIEW

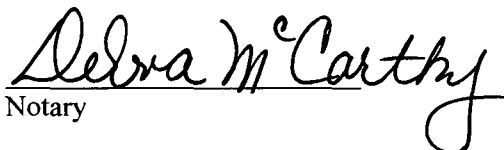
W. E. Cummins, being duly sworn, states that he is Vice President, Regulatory Affairs & Standardization, for Westinghouse Electric Company; that he is authorized on the part of said company to sign and file with the Nuclear Regulatory Commission this document; that all statements made and matters set forth therein are true and correct to the best of his knowledge, information and belief.



W. E. Cummins  
Vice President  
Regulatory Affairs & Standardization

Subscribed and sworn to  
before me this 8<sup>th</sup> day  
of June 2007.



  
Notary

ENCLOSURE 1

AW-07-2293

APPLICATION FOR WITHHOLDING  
PROPRIETARY INFORMATION FROM DISCLOSURE



Westinghouse Electric Company  
Nuclear Services  
P.O. Box 355  
Pittsburgh, Pennsylvania 15230-0355  
USA

U.S. Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, D.C. 20555

Direct tel: 412-374-6306  
Direct fax: 412-374-5005  
e-mail: sterdia@westinghouse.com

Your ref: Project Number 740  
Our ref: AW-07-2293

June 8, 2007

APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Transmittal of Proprietary Information, AP1000 COL Response to Requests for Additional Information (TR #31)

The Application for Withholding is submitted by Westinghouse Electric Company, LLC (Westinghouse), pursuant to the provisions of Paragraph (b) (1) of Section 2.390 of the Commission's regulations. It contains commercial strategic information proprietary to Westinghouse and customarily held in confidence.

The proprietary material for which withholding is being requested is identified in the proprietary version of the subject report. In conformance with 10 CFR Section 2.390, Affidavit AW-07-2293 accompanies this Application for Withholding, setting forth the basis on which the identified proprietary information may be withheld from public disclosure.

Accordingly, it is respectfully requested that the subject information which is proprietary to Westinghouse be withheld from public disclosure in accordance with 10 CFR Section 2.390 of the Commission's regulations.

Correspondence with respect to this Application for Withholding or the accompanying affidavit should reference AW-07-2293 and should be addressed to James A. Gresham, Manager, Regulatory Compliance and Plant Licensing, Westinghouse Electric Company, LLC, P.O. Box, Pittsburgh, Pennsylvania, 15230-0355.

Very truly yours,

A handwritten signature in black ink, appearing to read 'James W. Winters', written over a white background.

James W. Winters  
Manager  
Standardization and Configuration Management

cc: J. Thompson - U.S. NRC

AW-07-2293  
June 8, 2007

bcc:	J. A. Gresham	- Westinghouse, Pittsburgh, PA, EC E4-7A	1L
	R. Bastien	- Nivelles, Belgium	1L
	C. Brinkman	- Westinghouse, Rockville, MD	1L
	RCPL Admin	- Westinghouse, Pittsburgh, PA, EC E4-7A	1L

ENCLOSURE 2

Affidavit



AFFIDAVIT

COMMONWEALTH OF PENNSYLVANIA:

ss

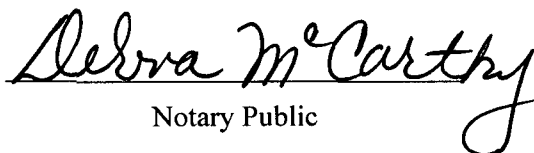
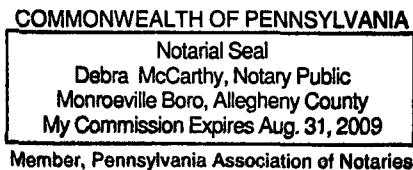
COUNTY OF ALLEGHENY:

Before me, the undersigned authority, personally appeared James W. Winters, who, being by me duly sworn according to law, deposes and says that he is authorized to execute this Affidavit on behalf of Westinghouse Electric Company LLC (Westinghouse), and that the averments of fact set forth in this Affidavit are true and correct to the best of his knowledge, information, and belief:



James W. Winters  
Manager  
Standardization and Configuration Management

Sworn to and subscribed  
before me this 8<sup>th</sup> day  
of June 2007.



Notary Public

- (1) I am Manager, Standardization and Configuration Management, Westinghouse Electric Company, LLC (Westinghouse), and as such, I have been specifically delegated the function of reviewing the proprietary information sought to be withheld from public disclosure in connection with nuclear power plant licensing and rule making proceedings, and am authorized to apply for its withholding on behalf of Westinghouse.
- (2) I am making this Affidavit in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations and in conjunction with the Westinghouse "Application for Withholding" accompanying this Affidavit.
- (3) I have personal knowledge of the criteria and procedures utilized by Westinghouse in designating information as a trade secret, privileged or as confidential commercial or financial information.
- (4) Pursuant to the provisions of paragraph (b)(4) of Section 2.390 of the Commission's regulations, the following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
  - (i) The information sought to be withheld from public disclosure is owned and has been held in confidence by Westinghouse.
  - (ii) The information is of a type customarily held in confidence by Westinghouse and not customarily disclosed to the public. Westinghouse has a rational basis for determining the types of information customarily held in confidence by it and, in that connection, utilizes a system to determine when and whether to hold certain types of information in confidence. The application of that system and the substance of that system constitutes Westinghouse policy and provides the rational basis required.

Under that system, information is held in confidence if it falls in one or more of several types, the release of which might result in the loss of an existing or potential competitive advantage, 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 Westinghouse's competitors without license from Westinghouse 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 Westinghouse, its customers or suppliers.
- (e) It reveals aspects of past, present, or future Westinghouse or customer funded development plans and programs of potential commercial value to Westinghouse.
- (f) It contains patentable ideas, for which patent protection may be desirable.

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

- (a) The use of such information by Westinghouse gives Westinghouse a competitive advantage over its competitors. It is, therefore, withheld from disclosure to protect the Westinghouse competitive position.
- (b) It is information that is marketable in many ways. The extent to which such information is available to competitors diminishes the Westinghouse ability to sell products and services involving the use of the information.
- (c) Use by our competitor would put Westinghouse 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 Westinghouse of a competitive advantage.

- (e) Unrestricted disclosure would jeopardize the position of prominence of Westinghouse in the world market, and thereby give a market advantage to the competition of those countries.
  - (f) The Westinghouse capacity to invest corporate assets in research and development depends upon the success in obtaining and maintaining a competitive advantage.
- (iii) The information is being transmitted to the Commission in confidence and, under the provisions of 10 CFR Section 2.390, it is to be received in confidence by the Commission.
- (iv) The information sought to be protected is not available in public sources or available information has not been previously employed in the same original manner or method to the best of our knowledge and belief.
- (v) The proprietary information sought to be withheld in this submittal is that which is appropriately marked in RAI-TR31-001 and RAI-TR31-002(Proprietary), in support of Combined License application pre-application activities for the NuStart Bellefonte COL Project being transmitted by Westinghouse letter (DCP/NRC1914) and Application for Withholding Proprietary Information from Public Disclosure, to the Document Control Desk. The proprietary information as submitted by Westinghouse for the AP1000 NuStart Bellefonte plant is expected to be applicable in other licensee submittals in response to certain NRC requirements for justification of compliance of the safety system to regulations.

This information is part of that which will enable Westinghouse to:

- (a) Manufacture and deliver products to utilities based on proprietary system designs.
- (b) Advance the AP1000 Design and reduce the licensing risk for the application of the AP1000 Design Certification

- (c) Determine compliance with regulations and standards
- (d) Establish design requirements and specifications for the system.

Further this information has substantial commercial value as follows:

- (a) Westinghouse plans to sell the use of similar information to its customers for purposes of plant construction and operation.
- (b) Westinghouse can sell support and defense of safety systems based on the technology in the reports.
- (c) The information requested to be withheld reveals the distinguishing aspects of an approach and schedule which was developed by Westinghouse.

Public disclosure of this proprietary information is likely to cause substantial harm to the competitive position of Westinghouse because it would enhance the ability of competitors to provide similar digital technology safety systems and licensing defense services for commercial power reactors without commensurate expenses. Also, public disclosure of the information would enable others to use the information to meet NRC requirements for licensing documentation without purchasing the right to use the information.

The development of the technology described in part by the information is the result of applying the results of many years of experience in an intensive Westinghouse effort and the expenditure of a considerable sum of money.

In order for competitors of Westinghouse to duplicate this information, similar technical programs would have to be performed and a significant manpower effort, having the requisite talent and experience, would have to be expended.

Further the deponent sayeth not.

### **PROPRIETARY INFORMATION NOTICE**

Transmitted herewith are proprietary and/or non-proprietary versions of documents furnished to the NRC in connection with requests for generic and/or plant-specific review and approval.

In order to conform to the requirements of 10 CFR 2.390 of the Commission's regulations concerning the protection of proprietary information so submitted to the NRC, the information which is proprietary in the proprietary versions is contained within brackets, and where the proprietary information has been deleted in the non-proprietary versions, only the brackets remain (the information that was contained within the brackets in the proprietary versions having been deleted). The justification for claiming the information so designated as proprietary is indicated in both versions by means of lower case letters (a) through (f) located as a superscript immediately following the brackets enclosing each item of information being identified as proprietary or in the margin opposite such information. These lower case letters refer to the types of information Westinghouse customarily holds in confidence identified in Sections (4)(ii)(a) through (4)(ii)(f) of the affidavit accompanying this transmittal pursuant to 10 CFR 2.390(b)(1).

### **COPYRIGHT NOTICE**

The reports transmitted herewith each bear a Westinghouse copyright notice. The NRC is permitted to make the number of copies of the information contained in these reports which are necessary for its internal use in connection with generic and plant-specific reviews and approvals as well as the issuance, denial, amendment, transfer, renewal, modification, suspension, revocation, or violation of a license, permit, order, or regulation subject to the requirements of 10 CFR 2.390 regarding restrictions on public disclosure to the extent such information has been identified as proprietary by Westinghouse, copyright protection notwithstanding. With respect to the non-proprietary versions of these reports, the NRC is permitted to make the number of copies beyond those necessary for its internal use which are necessary in order to have one copy available for public viewing in the appropriate docket files in the public document room in Washington, DC and in local public document rooms as may be required by NRC regulations if the number of copies submitted is insufficient for this purpose. Copies made by the NRC must include the copyright notice in all instances and the proprietary notice if the original was identified as proprietary.

ENCLOSURE 4

Response to Requests for Additional Information on Technical Report No. 31

RAI-TR31-001 and RAI-TR31-002

(Non-Proprietary)

**AP1000 TECHNICAL REPORT REVIEW**  
Response to Request For Additional Information (RAI)

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RAI Response Number: RAI-TR31-001  
Revision: 0

**Question:**

1. Westinghouse's WCAP-16624-P report, "Reactor Internals Materials Changes for the AP1000 Plant," Revision 1, proposes to change the materials for certain reactor vessel internals (RVI) components to include "high" carbon stainless steels (SS), Type 304 and Type 304H, as well as low carbon Type 304L SS. The applicant has proposed markups to the AP1000 Design Control Document (DCD), Section 4.5.2.1, to include these additional stainless steel materials for use in the construction of RVI components. DCD Section 4.5.2.1 does not currently specify Type 304, 304H, and 304L SS as constructional materials for RVI components.

**Question:**

a. Section 1.2 of WCAP-16624-P states that DCD Section 4.5.2.1 currently specifies Type 304LN SS for construction of RVI components; however, RVI components were designed using Types 304, 304H, and 304L SS. Please clarify whether the AP1000 design was changed after the issuance of the DCD to include Types 304, 304H, and 304 L SS.

**Westinghouse Response:**

***DCD, Revision 15, Section 4.5.2.1 does not specify Type [ ]<sup>a,c,e</sup> SS as materials of construction for RVI components. The AP1000 RVI design was changed after the issuance of the DCD, Revision 15 to include Types [ ]<sup>a,c,e</sup> SS. WCAP-16624-P proposes to include these stainless steels as constructional materials for RVI components.***

**Question:**

b. Based on the proposed RVI materials changes, please list the materials of construction (Type 304, 304H, 304L, 304LN SS, or other) for each RVI component.

**Westinghouse Response:**

***Table 1 provides the present materials of construction for the Reactor Vessel Internal Components.***

**Design Control Document (DCD) Revision:**

None

**PRA Revision:**

None

**Technical Report (TR) Revision:**

None



**AP1000 TECHNICAL REPORT REVIEW**  
Response to Request For Additional Information (RAI)

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**Table 1 - AP1000 Reactor Vessel Internals Materials**

COMPONENT	MATERIAL OF CONSTRUCTION
Core Barrel Hold Down Spring	
Core Barrel	
Clevis Insert (reactor vessel)	
Lower Core Support	
Secondary Core Support and Vortex Suppression	

a,c,e

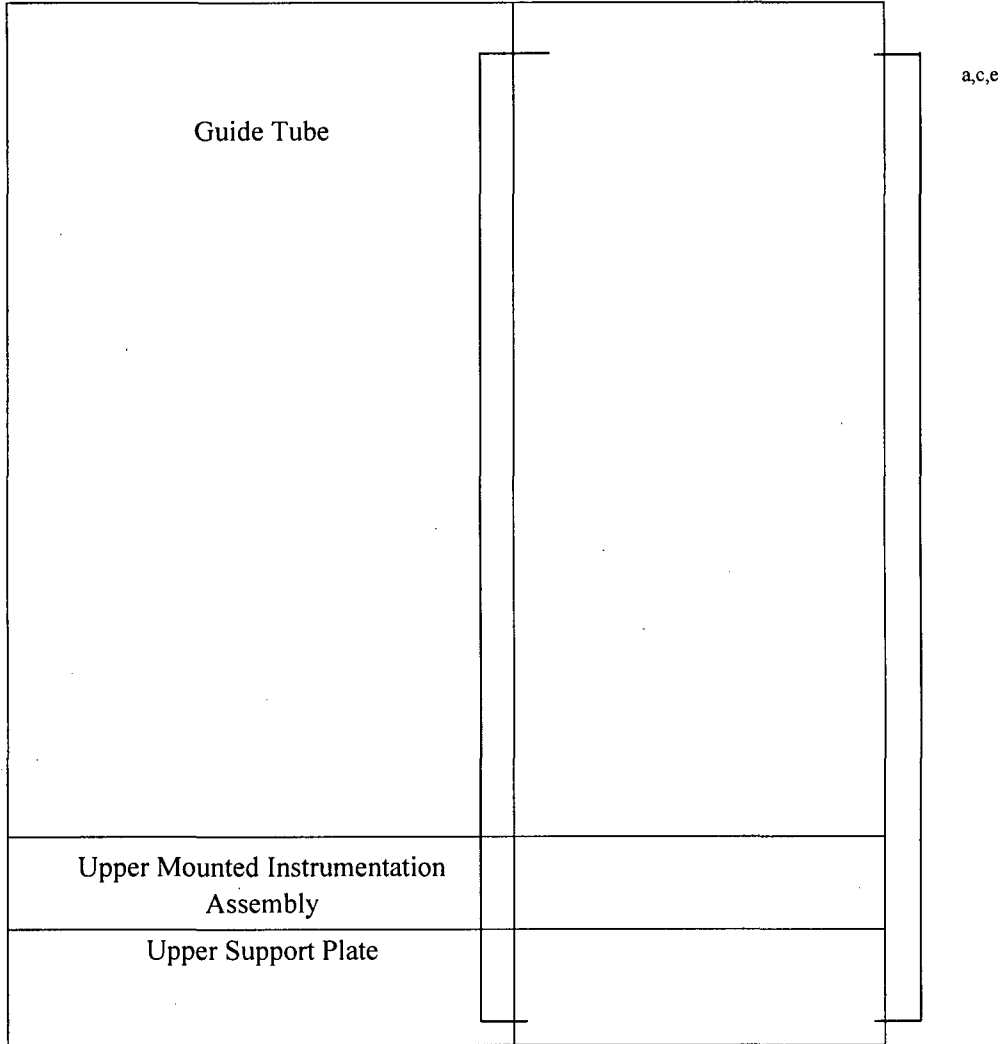
**AP1000 TECHNICAL REPORT REVIEW**  
Response to Request For Additional Information (RAI)

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Core Shroud			a,c,e
Alignment Plates			
Upper Core Plate			
Upper Support Column			

**AP1000 TECHNICAL REPORT REVIEW**  
Response to Request For Additional Information (RAI)

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**AP1000 TECHNICAL REPORT REVIEW**  
Response to Request For Additional Information (RAI)

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Neutron Panels		a,c,e
Irradiation Specimen Baskets		
Head and Vessel Alignment Pin		
Roto Lock (lifting rig interface)		

**AP1000 TECHNICAL REPORT REVIEW**  
Response to Request For Additional Information (RAI)

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RAI Response Number: RAI-TR31-002  
Revision: 0

**Question:**

2. Section 3 of WCAP-16624-P states that Westinghouse has not experienced stress corrosion cracking (SCC) issues with Type 304, 304H, and 304L SS. High carbon SS, Type 304 and 304H may experience greater sensitization to environmental degradation due to welding. Please discuss whether other forms of environmental degradation have been assessed for Type 304 and 304H SS, where welding would result in grain boundary sensitization.

**Westinghouse Response:**

***As described in Section 3 of WCAP-16624-P, these materials have been used extensively in Westinghouse reactor designs in the currently operating nuclear plants. Therefore, the available technical data on environmental degradation applicable to the current operating Westinghouse nuclear power plants are also applicable to the AP1000 RVI design. Westinghouse has assessed these materials for the 60 year design life of the AP1000 RVI.***

***Welding of Type [ ]<sup>a,c,e</sup> and [ ]<sup>a,c,e</sup> SS for AP1000 design will be controlled by two additional requirements. First, as stated in WCAP-16624-P Type [ ]<sup>a,c,e</sup> is allowed with a maximum carbon content of [ ]<sup>a,c,e</sup>, which is chemically equivalent to grade [ ]<sup>a,c,e</sup> with a minimum carbon content of [ ]<sup>a,c,e</sup>. Second, reactor vessel internal fabricators performing welding of any of these materials are required to qualify the welding procedures for maximum carbon content and heat input for each welding process in accordance with Regulatory Guide 1.44. These requirements on welding will add more assurance to keep Type [ ]<sup>a,c,e</sup> and [ ]<sup>a,c,e</sup> materials as minimum to the same level of the experiences of the current operating plants.***

**Design Control Document (DCD) Revision:**  
None

**PRA Revision:**  
None

**Technical Report (TR) Revision:**  
None