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Docket Nos.: 52-025  
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ND-13-1835  
10 CFR 50.90

U.S. Nuclear Regulatory Commission  
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Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Units 3 and 4  
Second Supplement to Request for License Amendment:  
Revision to AP1000 Human Factors Engineering  
Discrepancy Resolution Process / GEH-420 (LAR-13-012S2)

Ladies and Gentlemen:

Southern Nuclear Operating Company (SNC), the licensee for Vogtle Electrical Generating Plant (VEGP) Units 3 and 4, previously submitted a license amendment request (LAR-13-012) for the Combined Licenses for VEGP Units 3 and 4, Numbers NPF-91 and NPF-92, respectively. The original LAR was dated April 5, 2013, and its ADAMS Accession Number is ML13098A727. SNC submitted its first supplement to the LAR by letter dated May 21, 2013, ADAMS Accession Number ML13144A125.

This second supplement to the LAR addresses concerns raised by the NRC Staff regarding the scope of the claim of proprietary information in the original LAR submittal. Specifically, the NRC Staff requested that certain portions of the original LAR not be considered proprietary. Further, SNC proposes additional modifications to the original LAR, including replacing Revision 0 of APP-OCS-GEH-420 with a new Revision 1.

Enclosed with this letter are replacements for the LAR's Enclosure 1A (proprietary) and Enclosure 1B (nonproprietary) previously submitted on April 5, 2013, ADAMS Accession Number is ML13098A727. These are, respectively, **Enclosure 8 (proprietary)** and Enclosure 9 (nonproprietary). Enclosure 10 contains the proposed changes to the Updated Final Safety Analysis Report (UFSAR) for VEGP Units 3 and 4 and replaces Enclosure 2. **Enclosure 11 (proprietary)** is a copy of APP-OCS-GEH-420, Revision 1. Enclosure 12 is the nonproprietary version of Enclosure 11 and is labeled APP-OCS-GEH-422. **Enclosure 13 (proprietary)** is a redline generated by Microsoft Word between Revision 1 and Revision 0 of APP-OCS-GEH-420. Enclosures 14 and 15 are affidavits supporting withholding requests (discussed below).

The information provided in Enclosure 8 does not materially change the scope of the LAR. Consequently, this supplement does not require a revised Significant Hazards Consideration determination.

This letter contains no regulatory commitments.

Enclosures 8, 11, and 13 contain proprietary information that Westinghouse and SNC request to be withheld from public disclosure under 10 CFR 2.390. Enclosures 14 and 15 support this request and are affidavits signed by appropriate representatives of Westinghouse and SNC. The affidavits set forth the bases upon which the information may be withheld from public disclosure by the Commission and address the considerations in 10 CFR 2.390(b)(4).

Correspondence with respect to the copyright or proprietary aspects of the items listed above or the supporting affidavits should reference CAW-13-3777 and should be addressed to J.A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 428, 1000 Westinghouse Drive, Cranberry Township, PA 16066, and also to Brian H. Whitley, SNC, at the contact information within this letter.

SNC requests staff approval of the license amendment by October 30, 2013, to support the timelines for executing the Integrated System Validation. Delayed approval of this license amendment may result in a delay of the licensing of the operators, thereby delaying SNC's ability to operate VEGP Units 3 and 4. SNC expects to implement the proposed amendment (through incorporation into the UFSAR) within 30 days of approval of the requested changes.

In accordance with 10 CFR 50.91, SNC is notifying the State of Georgia of this LAR by transmitting a copy of this letter and enclosures to the designated State Official.

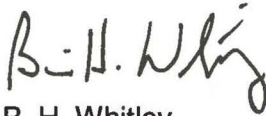
Should you have any questions, please contact Brian Meadors at (205) 992-7331.

(Affirmation and signature are provided on the following page)

Mr. B. H. Whitley states that he is the Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

SOUTHERN NUCLEAR OPERATING COMPANY



B. H. Whitley

BHW/CBM/kms

Sworn to and subscribed before me this 22<sup>nd</sup> day of August, 2013

Notary Public: Kristen Marie Sabret

My commission expires: August 16, 2016



- Enclosures: 8) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment, Revision to AP1000 Human Factors Engineering Discrepancy Resolution Process / GEH-420 (LAR-13-012S2) **(proprietary)**
- 9) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Request for License Amendment, Revision to AP1000 Human Factors Engineering Discrepancy Resolution Process / GEH-420 (LAR-13-012S2) (nonproprietary)
- 10) Vogtle Electric Generating Plant (VEGP) Units 3 and 4 – Proposed Changes to the Updated Final Safety Analysis Report (UFSAR) (LAR-13-012S2) (nonproprietary)
- 11) APP-OCS-GEH-420, "AP1000 Human Factors Engineering Discrepancy Resolution Process," Revision 1 **(proprietary)**
- 12) APP-OCS-GEH-422, "AP1000 Human Factors Engineering Discrepancy Resolution Process," Revision 1 (nonproprietary)
- 13) Redline generated by Microsoft Word between Revision 1 and Revision 0 of APP-OCS-GEH-420 **(proprietary)**
- 14) Affidavit of Brian H. Whitley, Southern Nuclear Operating Co.
- 15) Westinghouse Authorization Letter CAW-13-3777, its accompanying affidavit, Proprietary Information Notice, and Copyright Notice

cc:

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**Southern Nuclear Operating Company**

**ND-13-1835**

**Enclosure 9 replacing Enclosure 1B**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Request for License Amendment**

**Revision to AP1000 Human Factors Engineering**

**Discrepancy Resolution Process / GEH-420**

**(LAR-13-012S2)**

**(nonproprietary)**

ND-13-1835

Enclosure 9 replacing Enclosure 1B

Request for License Amendment Revision to AP1000 Human Factors Engineering Discrepancy Resolution Process / GEH-420 (LAR-13-012S2) (nonproprietary)

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ND-13-1835

Enclosure 9 replacing Enclosure 1B

Request for License Amendment Revision to AP1000 Human Factors Engineering Discrepancy Resolution Process / GEH-420 (LAR-13-012S2) (nonproprietary)

## 1. Summary Description

Pursuant to 10 CFR 50.90, Southern Nuclear Operating Company (SNC) requests an amendment to Combined License (COL) Nos. NPF-91 and NPF-92 for Vogtle Electric Generating Plant (VEGP) Units 3 and 4, respectively. The amendment arises from a proposed revision to a Tier 2\* reference document, APP-OCS-GEH-420, "AP1000 Human Factors Engineering Discrepancy Resolution Process," from Revision B to Revision 1. The Human Factors Engineering (HFE) discrepancy resolution process is used in support of the verification and validation (V&V) activities performed on human-system interface (HSI) resources and the Operation and Control Centers Systems (OCS). The changes would be reflected in the Updated Final Safety Analysis Report (UFSAR) as a revision to Tier 2\* reference document APP-OCS-GEH-420, "AP1000 Human Factors Engineering Discrepancy Resolution Process." The proposed changes would revise the COLs in regard to a Tier 2\* reference listed in UFSAR Chapter 1, Table 1.6-1 (sheet 20 of 21), and Chapter 18, Section 18.11.2, Reference 6.

In the HFE Discrepancy Resolution Process document, a number of changes need to be made in order to refine the process for capturing and resolving Human Engineering Discrepancies (HEDs) from that process document as described in Revision B. The execution of the discrepancy resolution process is required in order to close Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) 3.2.00.01d.

## 2. Detailed Description and Technical Evaluation

### Overview

The Human Factors Engineering (HFE) discrepancy resolution process is used in support of the verification and validation (V&V) activities performed on human-system interface (HSI) resources and the OCS. Formal V&V activities are an integral part of the overall HFE design process. The AP1000 V&V activities will result in the identification of a number of human engineering discrepancies (HEDs). The HEDs will be prioritized and categorized per APP-OCS-GEH-420. When the HEDs are entered into the SmartPlant Foundation (SPF) Human Factors (HF) tracking system, an HFE Specialist is assigned to ensure the HED is resolved. The tracking system can be used to categorize and sort the categorized HEDs, therefore allowing a cumulative effect analysis to be performed. Each HED is resolved by providing a justification (i.e., an exception) or by changing the HSI design, OCS design, operator training, operating procedures, or staffing aspects. When a HED is resolved using a design change, the cumulative effect analysis is used in conjunction with the design change to determine the best overall resolution.

These discrepancy resolution process activities are used to support the overall final check of the adequacy of the HFE design of the HSI resources and the OCS design. The discrepancy resolution process is part of the overall HFE V&V activities performed against the final configuration and control documentation, simulator, or installed system.

A license amendment is necessary because a Tier 2\* reference document, APP-OCS-GEH-420, is being revised. The existing document is Revision B; the new document will be Revision 1. The proposed changes would revise the COLs in regard to a Tier 2\* reference listed in

ND-13-1835

Enclosure 9 replacing Enclosure 1B

Request for License Amendment Revision to AP1000 Human Factors Engineering Discrepancy Resolution Process / GEH-420 (LAR-13-012S2) (nonproprietary)

UFSAR Chapter 1, Table 1.6-1 (sheet 20 of 21) and Chapter 18, Section 18.11.2, Reference 6. Subsequent to the NRC approving the AP1000 Design Control Document (DCD), more detailed information has become available resulting in changes to the details of the implementation of the HED resolution process. This includes administrative, organizational and process changes. No changes were made to the overall scope and methodology. These changes impact the HFE Discrepancy Resolution Process. Changing APP-OCS-GEH-420 does not result in any physical changes to the plant, nor plant operations.

#### References to other documents

The summary of the proposed changes to APP-OCS-GEH-420 detailed below frequently make reference to other Westinghouse documents. All the Westinghouse documents referenced are proprietary documents and are withheld from the public pursuant to 10 CFR 2.390. Other documents discussed in this license amendment request and referenced by the proposed changes to APP-OCS-GEH-420, while available to support the NRC's review of this license amendment request, are not being submitted for NRC approval. This is because NRC approval is only required for APP-OCS-GEH-420 itself, as it is incorporated by reference as Tier 2\* information in the UFSAR.

#### Tier 2\*

UFSAR Chapter 1, Section 1.6, Table 1.6-1 (sheet 20 of 21), Material Referenced, APP-OCS-GEH-420, will be changed from Revision B to Revision 1. This document is a Tier 2\* reference.

UFSAR Chapter 18, Section 18.11.2, Reference 6, APP-OCS-GEH-420 will be changed from Revision B to Revision 1. This document is a Tier 2\* reference.

#### Justification for all changes

The changes below share a common licensing justification. That justification is as follows: The proposed changes to APP-OCS-GEH-420 (detailed below) are justified because the proposed changes to APP-OCS-GEH-420 are consistent with the guidance in NUREG-0711, Revision 2, Human Factors Engineering Program Review Model. The proposed changes are intended to better align the HED resolution process with the AP1000 processes. Revision 2 of NUREG-0711 provides guidance for definition and execution of a human factors program. In the development of APP-OCS-GEH-420, Revision 1, the guidance of NUREG-0711, Revision 2 was followed, and APP-OCS-GEH-420, Revision 1 is consistent with NUREG-0711, Revision 2.

1. "Bibliography" is updated for document revision numbers for APP-OCS-GEH-120, APP-OCS-GEH-220, APP-OCS-GEH-320 and APP-OCS-GEH-520. Updated other revision numbers, as required, in-line with current approved documents. NSNP 3.3.3 is changed to WEC 3.3.3 in the Reference section.

Updated document revision numbers for the related HF V&V plan in order for the revision numbers to be consistent throughout the documents.

2. "Glossary of Terms" and Section 2.8, "Verifying HED Solutions," are revised to reflect the changed definition of Independent Verifier and add a new reference. This is a change to



In AP1000, HEDs are identified from HF V&V only. Any issues from the design stage are termed "HF General Items", and tracked via the same formal Human Factors Tracking System, with the same Work Instruction (i.e., WNA-WI-00207-WAPP, Rev. 0, "Human Factors Tracking System Work Instruction"). This tracking system addresses human factors issues that are identified throughout the lifecycle of AP1000. It is just a difference in terminology.

9. There are several other minor editorial changes in sections not expressly listed above. These changes make the document more clear and have no effect on the objectives and scope of the Human Factors Engineering Discrepancy Resolution Process.

### Summary

The requested amendment reflects a proposed revision to a Tier 2\* reference document, APP-OCS-GEH-420 from Revision B to Revision 1. The proposed revision of this document changes the Discrepancy Resolution Process, and those changes will be reflected in the Updated Final Safety Analysis Report (UFSAR) as a revision to Tier 2\* reference document APP-OCS-GEH-420. The proposed changes would revise the COLs in regard to a Tier 2\* reference listed in UFSAR Chapter 1, Table 1.6-1 and Chapter 18, Section 18.11.2 by changing the revision number of the APP-OCS-GEH-420 document from Revision B to Revision 1.

As detailed above, the changes to the Discrepancy Resolution Process for the Human Factors Engineering do not adversely affect any design function described in the UFSAR. The new revision of APP-OCS-GEH-420 more accurately reflects how the discrepancy resolution process will be implemented to satisfy Revision 2 of NUREG-0711, "Human Factors Engineering Review Model." The new process continues to be consistent with Revision 2 of NUREG-0711. There is no physical change to the plant itself. For these reasons, the proposed changes to the process are acceptable.

### **3. Technical Evaluation (Incorporated into Section 2, above)**

### **4. Regulatory Evaluation**

#### **4.1 Applicable Regulatory Requirements/Criteria**

10 CFR 50.34 (f)(2)(iii) requires a control room design that reflects state-of-the-art human factors principles. As further examples, 50.34 also requires: a safety parameter display system (SPDS) console, automatic indication of bypassed and operable status of safety systems, and monitoring capability in the control room of a variety of system parameters. The revisions to APP-OCS-GEH-420 do not impact the requirements of 10 CFR 50.34(f)(2)(iii).

10 CFR 55.46 requires a plant-referenced simulator capability. The revisions to APP-OCS-GEH-420 do not impact the requirements of 10 CFR 55.46.

The revisions to the referenced document continue to meet the requirements of 10 CFR 50.34(f)(2)(iii) and 10 CFR 55.46.

#### **4.2 Precedent**

No precedent is identified.

#### **4.3 Significant Hazards Consideration Determination**

The requested change(s) would revise the Combined Licenses for Vogtle Electrical Generating Plant (VEGP) Units 3 and 4, Numbers NPF-91 and NPF-92, respectively, by revising a Tier 2\* reference that implements part of the Human Factor Engineering program. There is no physical change to the plant itself.

Since the reference is a Tier 2\* reference, changing the technical information contained in the Discrepancy Resolution Process constitutes a Tier 2\* change, and NRC approval is required prior to implementation. An evaluation to determine whether or not a significant hazards consideration is involved with the proposed amendment was completed by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

##### **4.3.1 Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No

The HFE Discrepancy Resolution Process is used to capture and resolve Human Engineering Discrepancies (HEDs) identified during the Human Factors Engineering (HFE) verification and validation (V&V) activities. These discrepancy resolution process activities are used to support the final check of the adequacy of the HFE design of the Human-System Interface (HSI) resources and the Operation and Control Centers Systems (OCS) design. The discrepancy resolution process activities are performed as part of the V&V activities against the final configuration and control documentation, simulator or installed target system. The changes are to the Discrepancy Resolution Process to clarify the scope and amend the details of the methodology. The Discrepancy Resolution Process does not affect the plant itself. Changing the Discrepancy Resolution Process does not affect prevention and mitigation of abnormal events, e.g., accidents, anticipated operational occurrences, earthquakes, floods and turbine missiles, or their safety or design analyses. No safety-related structure, system, component (SSC) or function is adversely affected. The document revision does not involve nor interface with any SSC accident initiator or initiating sequence of events, and thus the probabilities of the accidents evaluated in the Updated Final Safety Analysis Report (UFSAR) are not affected. Because the changes do not involve any safety-related SSC or function used to mitigate an accident, the consequences of the accidents evaluated in the UFSAR are not affected. Therefore, there is no significant increase in the probability or consequences of an accident previously evaluated.

**4.3.2 Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No

The changes to the Discrepancy Resolution Process information are related to discrepancy resolution of HEDs during the HFE V&V activities on the HSI and the OCS. Therefore, the changes do not affect the safety-related equipment itself, nor do they affect equipment which, if it failed, could initiate an accident or a failure of a fission product barrier. No analysis is adversely affected. No system or design function or equipment qualification will be adversely affected by the changes. This activity will not allow for a new fission product release path, nor will it result in a new fission product barrier failure mode, nor create a new sequence of events that would result in significant fuel cladding failures. In addition, the changes do not result in a new failure mode, malfunction or sequence of events that could affect safety or safety-related equipment. Therefore, this activity does not create the possibility of a new or different kind of accident than any accident previously evaluated.

**4.3.3 Does the proposed amendment involve a significant reduction in a margin of safety?**

Response: No

The changes to the Discrepancy Resolution Process affect discrepancy resolution of HEDs during the HFE V&V activities on the HSI and the OCS. Therefore, the changes do not affect the assessments or the plant itself. These changes do not affect the design or operation of safety-related equipment or equipment whose failure could initiate an accident, nor does it adversely interface with safety-related equipment or fission product barriers. No safety analysis or design basis acceptance limit/criterion is challenged or exceeded by the requested change. Therefore, the changes do not involve a significant reduction in a margin of safety.

Based on the above, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

**4.4 Conclusion**

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and

security or to the health and safety of the public. Pursuant to 10 CFR 50.92, the requested change does not involve a significant hazards consideration.

## 5. Environmental Considerations

The requested change(s) would revise the Combined Licenses (COLs) for Vogtle Electrical Generating Plant (VEGP) Units 3 and 4, Numbers NPF-91 and NPF-92, respectively. There is no physical change to the plant itself. The requested amendment reflects a proposed revision to a Tier 2\* reference document, APP-OCS-GEH-420, "AP1000 Human Factors Engineering Discrepancy Resolution Process," from Revision B to Revision 1. The proposed changes would revise the COLs in regard to a Tier 2\* reference listed in UFSAR Chapter 1, Table 1.6-1 (sheet 20 of 21), and Chapter 18, Section 18.11.2, Reference 6.

The HFE discrepancy resolution process is one of several V&V activities performed on HSI resources and the OCS. The proposed changes to the discrepancy resolution process do not directly affect the plant itself nor its operation. The changes to the HFE discrepancy resolution process are needed to support the closure of ITAAC 3.2.00.01d.

The proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9), in that:

(i) *There is no significant hazards consideration.*

As documented in Section 4.3, Significant Hazards Consideration Determination, of this license amendment request, an evaluation was completed to determine whether or not a significant hazards consideration is involved by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment." As mentioned above, the changes affect the resolution process for discrepancies identified during verification and validation activities of the HSI and the OCS. The discrepancy resolution process does not affect the plant itself nor its operation. The significant hazards consideration determined that (1) the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated; (2) the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated; and (3) the proposed amendment does not involve a significant reduction in a margin of safety. Therefore, it is concluded that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

(ii) *There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.*

The proposed amendment changes a Tier 2\* reference for APP-OCS-GEH-420, "AP1000 Human Factors Engineering Discrepancy Resolution Process." As mentioned above, the proposed changes will not affect how the plant is designed, constructed, or operated, as the changes affect the resolution process for discrepancies identified during verification and validation of the HSI and the OCS. The Discrepancy Resolution

Process, including changes, is unrelated to any aspects of plant construction or operation that would introduce any changes to effluent types (e.g., effluents containing chemicals or biocides, sanitary system effluents, and other effluents) or affect any plant radiological or non-radiological effluent release quantities. Furthermore, these changes do not diminish the functionality of any design or operational features that are credited with controlling the release of effluents during plant operation. Therefore, the proposed amendment does not involve a significant change in the types or a significant increase in the amounts of any effluents that may be released offsite.

- (iii) *There is no significant increase in individual or cumulative occupational radiation exposure.*

The proposed changes to the Tier 2\* referenced document is acceptable because it continues to comply with Revision 2 of NUREG-0711. As mentioned above, the proposed changes will not affect how the plant is designed, constructed, or operated, as the changes affect the resolution process for discrepancies identified during verification and validation of the HSI and the OCS. The Human Factors Engineering Discrepancy Resolution Process does not affect the plant itself nor its operation. Consequently, the changes to the referenced document details of implementation have no effect on individual or cumulative occupational radiation exposure during plant operation. Therefore, the proposed amendment does not involve a significant increase in individual or cumulative occupational radiation exposure.

Based on the above review of the proposed amendment, it has been determined that there are no anticipated construction and operational effects of the proposed amendment involving (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in the individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment of the proposed amendment is not required.

## **6. References**

None.

**Southern Nuclear Operating Company**

**ND-13-1835**

**Enclosure 10 replacing Enclosure 2**

**Vogtle Electric Generating Plant (VEGP) Units 3 and 4**

**Proposed Changes to the Updated Final Safety Analysis Report (UFSAR)  
(LAR-13-012S2)**

**(nonproprietary)**

ND-13-1835  
Enclosure 10 replacing Enclosure 2  
Revision to AP1000 Human Factors Engineering  
Discrepancy Resolution Process / GEH-420 (LAR-13-012S2) (nonproprietary)

**UFSAR Tier 2, Chapter 1, Table 1.6-1 (sheet 20 of 21)**

Revise the title of Tier 2\* Westinghouse Topical Report Number APP-OCS-GEH-420 as shown below.

*AP1000 Human Factors Engineering Discrepancy Resolution Process, Revision ~~B-1~~,  
Westinghouse Electric Company LLC]\**

**UFSAR Tier 2, Chapter 18, Section 18.11.2**

Revise Tier 2\* Reference 6 as shown below.

*APP-OCS-GEH-420, "AP1000 Human Factors Engineering Discrepancy Resolution Process,"  
Revision ~~B-1~~, Westinghouse Electric Company LLC.]\**

**Southern Nuclear Operating Company**

**ND-13-1835  
(LAR-13-012S2)**

**Enclosure 12**

**APP-OCS-GEH-422, "AP1000 Human Factors Engineering  
Discrepancy Resolution Process," Revision 1**

**(nonproprietary)**

**Note: The following enclosure is a sixteen page stand-alone document.**



Westinghouse Non-Proprietary Class 3

## AP1000

# Human Factors Engineering Discrepancy Resolution Process

APP-OCS-GEH-422,  
Rev. 1

August 2013

### APPROVALS

Function	Name and Signature
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	Robert W. Beasley* Acting Project Manager, Human Factors Engineering
Approver	Steve P. Kerch* Acting Manager, Human Factors & Operations

\*Electronically approved records are authenticated in the electronic document management system.

**WESTINGHOUSE NON-PROPRIETARY CLASS 3**

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0	Deidrick R. Capers Senior Engineer, Human Factors & Operations
0	Zhonghai Li Senior Engineer, Human Factors & Operations
0	Roberta A. Ravey Senior Technical Editor, Technical Communications
1	Marsha A. White Senior Technical Writer, Technical Communications

**REVISION HISTORY****RECORD OF CHANGES**

<b>Revision</b>	<b>Author</b>	<b>Description</b>	<b>Completed</b>
A	Todd W. Van Meter	Preliminary Issue	06/2008
B	Todd W. Van Meter	Revision was created to prepare the document with proprietary markings for transmittal.	04/2009
0	Julie I. Reed	<p>Incorporation of APP-GW-GEE-4137, Rev. 0.</p> <p>Numerous updates to the References and Bibliography in accordance with latest documents and revisions.</p> <p>Minor editorial clarifications throughout the document.</p> <p>“Glossary of Terms”: Updated the definition of Independent Verifier.</p> <p>Section 2.1, “General Process,” Section 2.4, “Human Factors Tracking System” and Section 2.5, “The Analysis of the Cumulative Effects of Priority 1 and Priority 2 HEDs”: Updated “HFE design issue tracking database” to “Human Factors Tracking System”, and updated the reference to WNA-WI-00207-WAPP “Human Factors Tracking System Work Instruction.”</p> <p>Section 2.1, “General Process,” Section 2.2, “Prioritization,” and Section 2.6, “Analyzing and Resolving Priority 1 and Priority 2 HEDs”: Changed “HFE Design Engineer” to “HF Specialist” in order to align with the organizational structure.</p> <p>Section 2.1, “General Process,” Section 2.6, “Analyzing and Resolving Priority 1 and Priority 2 HEDs,” and Section 2.8, “Verifying HED Solutions”: Clarified that HEDs may involve HSI design, OCS design, operator training, operating procedures, or staffing and work organization aspects. Modified the description of the resolution process.</p> <p>Section 2.1, “General Process,” Section 2.2, “Prioritization,” and Section 2.8, “Verifying HED Solutions”: Changed “OCS Product Manager” to “Human Factors Manager” in order to align with the organizational structure.</p> <p>Section 2.2, “Prioritization,” Section 2.7 “Analyzing and Resolving Priority 3 HEDs”: Deleted statement that Priority 3 HEDs are not required to be entered into the HF Tracking System.</p>	03/2013

AP1000

**Human Factors Engineering  
Discrepancy Resolution Process****REVISION HISTORY (cont.)****RECORD OF CHANGES (cont.)**

<b>Revision</b>	<b>Author</b>	<b>Description</b>	<b>Completed</b>
0 (cont.)	Julie I. Reed	Section 2.8, "Verifying HED Solutions": Added reference to NSNP 3.3.3, "Design Verification by Independent Review or Alternate Calculations." Added description of the mechanism to deal with design and procedure changes post-HED resolution, and added references APP-GW-G0Y-002, "AP1000 Configuration Management Plan" and WNA-PC-00005-WAPP, "AP1000 I&C Projects Configuration Management Plan."	3/2013
1	Julie I. Reed	Incorporation of APP-GW-GEE-4523, Rev. 0. Updated document revision numbers in the Bibliography. Section 2.8, "Verifying HED Solution": Corrected proprietary markings in the first paragraph. Note: An alternative document number is APP-OCS-GEH-420 (proprietary version).	See EDMS

**DOCUMENT TRACEABILITY & COMPLIANCE**

<b>Created to Support the Following Document(s)</b>	<b>Document Number</b>	<b>Revision</b>
AP1000 Human Factors Engineering Program Plan	APP-OCS-GBH-001	1

**OPEN ITEMS**

<b>Item</b>	<b>Description</b>	<b>Status</b>
None		

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None.		

## ACRONYMS AND TRADEMARKS

Acronyms used in the document are defined in APP-GW-J9Y-001 (WNA-PS-00016-GEN), “Standard Acronyms and Definitions” (Reference 1), or included below to ensure unambiguous understanding of their use within this document.

<b>Acronym</b>	<b>Definition</b>
HF	Human Factors

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All other product and corporate names used in this document may be trademarks or registered trademarks of other companies, and are used only for explanation and to the owners’ benefit, without intent to infringe.

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**GLOSSARY OF TERMS**

Standard terms used in the document are defined in APP-GW-J9Y-001 (WNA-PS-00016-GEN), “Standard Acronyms and Definitions” (Reference 1), or included below to ensure unambiguous understanding of their use within this document.

<b>Term</b>	<b>Definition</b>
Design Solution	The process of modifying human-system interface (HSI) resources or the Operation and Control Center System (OCS) to comply with design guidance and criteria.
Exception	A justified (i.e., documented and approved) departure from specified guidance or requirements.
Human Engineering Discrepancy	A departure of the AP1000 <sup>®</sup> design from Human Factors Engineering (HFE) design guidance and/or human performance criteria as identified during the execution of HFE verification and validation activities.
Independent Verifier	Any competent individual(s) or group(s) other than those who performed the original design work, but who may be from the same organization or group.

## REFERENCES

Following is a list of references used throughout this document.

1. APP-GW-J9Y-001, Rev 0 (WNA-PS-00016-GEN, Rev 5), “Standard Acronyms and Definitions,” Westinghouse Electric Company LLC. (Proprietary)
2. APP-OCS-GBH-001, Rev. 1, “AP1000 Human Factors Engineering Program Plan,” Westinghouse Electric Company LLC. (Proprietary)
3. APP-OCS-GEH-020, Rev. 2 (WCAP-15860), “Programmatic Level Description of the AP1000 Human Factors Verification and Validation Plan,” Westinghouse Electric Company LLC.
4. NUREG-0711, Rev. 2, “Human Factors Engineering Program Review Model,” U.S. Nuclear Regulatory Commission.
5. WEC 3.3.3, Rev. 0.0, “Design Verification,” Westinghouse Electric Company LLC, effective March 26, 2013.
6. APP-GW-G0Y-002, Rev. 3, “AP1000 Configuration Management Plan,” Westinghouse Electric Company LLC. (Proprietary)
7. WNA-PC-00005-WAPP, Rev. 2, “AP1000 I&C Projects Configuration Management Plan,” Westinghouse Electric Company LLC. (Proprietary)

## BIBLIOGRAPHY

Following is a list of sources that were considered in preparing this document, or that provide additional information.

1. APP-GW-GL-700, Rev. 19, "AP1000 Design Control Document," Westinghouse Electric Company LLC.
2. APP-OCS-GEH-120, Rev. 1, "AP1000 Human Factors Engineering Design Verification Plan," Westinghouse Electric Company LLC. (Proprietary)
3. APP-OCS-GEH-220, Rev. 1, "AP1000 Human Factors Engineering Task Support Verification Plan," Westinghouse Electric Company LLC. (Proprietary)
4. APP-OCS-GEH-320, Rev. 3, "AP1000 Human Factors Engineering Integrated System Validation Plan," Westinghouse Electric Company LLC. (Proprietary)
5. WNA-WI-00207-WAPP, Rev. 0, "Human Factors Tracking System Work Instruction," Westinghouse Electric Company LLC. (Proprietary)
6. APP-OCS-GEH-520, Rev. 2, "AP1000 Plant Startup Human Factors Engineering Design Verification Plan," Westinghouse Electric Company LLC. (Proprietary).

(Last Page of Front Matter)

## **SECTION 1 INTRODUCTION**

### **1.1 OVERVIEW**

The purpose of this document is to define the procedure for the Human Factors Engineering (HFE) Discrepancy Resolution Process for the AP1000<sup>®</sup> plant.

This document is based on the requirements and guidance described in APP-GW-GL-700, “AP1000 Design Control Document” (Bibliog 1); APP-OCS-GBH-001, “AP1000 Human Factors Engineering Program Plan” (Reference 2); APP-OCS-GEH-020, “Programmatic Level Description of the AP1000 Human Factors Verification and Validation Plan” (Reference 3); and NUREG-0711, “Human Factors Engineering Program Review Model” (Reference 4).

### **1.2 SCOPE**

The scope of this document is limited to the Human Engineering Discrepancies (HEDs) identified by the following AP1000 HFE verification and validation (V&V) activities and associated documents:

1. APP-OCS-GEH-120, “AP1000 Human Factors Engineering Design Verification Plan” (Bibliog 2)
2. APP-OCS-GEH-220, “AP1000 Human Factors Engineering Task Support Verification Plan” (Bibliog 3)
3. APP-OCS-GEH-320, “AP1000 Human Factors Engineering Integrated System Validation Plan” (Bibliog 4)

### **1.3 OBJECTIVE**

The overall objective of this document is to ensure that HEDs are documented, tracked, and adequately addressed in the final AP1000 HFE design configuration.

(Last Page of Section 1)

## **SECTION 2 RESOLUTION PROCESS**

### **2.1 GENERAL PROCESS**

The AP1000 HFE V&V activities will result in the identification of a number of HEDs. The HEDs will be prioritized per Section 2.2, "Prioritization," of this document. [

] <sup>a,c</sup>

### **2.2 PRIORITIZATION**

A safety (or risk-significance) assessment for each HED is performed by the HF group, and approved by the HF Manager or designee. The purpose of this is to prioritize the HEDs such that HEDs that are significant, important or related to safety receive the highest priority. [

] <sup>a,c</sup>

[

] <sup>a,c</sup>

### **2.3 CATEGORIZING PRIORITY 1 AND PRIORITY 2 HEDS**

In order to analyze the cumulative effects of priority 1 and priority 2 HEDs, each HED is categorized (as applicable) by:

[

] <sup>a,c</sup>

### **2.4 HUMAN FACTORS TRACKING SYSTEM**

The HEDs are entered into the Human Factors Tracking System in accordance with WNA-WI-00207-WAPP, “Human Factors Tracking System Work Instruction” (Bibliog 5).

**2.5 THE ANALYSIS OF THE CUMULATIVE EFFECTS OF PRIORITY 1 AND PRIORITY 2 HEDS**

[

] <sup>a,c</sup>

**2.6 ANALYZING AND RESOLVING PRIORITY 1 AND PRIORITY 2 HEDS**

[

] <sup>a,c</sup>

The HED resolutions are verified in accordance with Section 2.8, "Verifying HED Resolutions."

**2.7 ANALYZING AND RESOLVING PRIORITY 3 HEDS**

[

] <sup>a,c</sup>

[ ]<sup>a,c</sup>

## 2.8 VERIFYING HED SOLUTIONS

For HED design resolutions that are associated with the HFE Design Verification Plan (Bibliog 2) or the HFE Task Support Verification Plan (Bibliog 3), independent verifiers will evaluate the HSI design changes using the same standards, guidance and methodology as described in the applicable verification plan. The purpose of the evaluation is to provide reasonable assurance that the HSI resources and OCS designs satisfy the applicable criteria. See WEC 3.3.3, “Design Verification” (Reference 5), for additional guidance on personnel independence and qualifications.

For HED design resolutions that are associated with the HFE Integrated System Validation Plan (Bibliog 4), the HF group will determine the appropriate evaluation processes, using a graded approach, based on the complexity and impact of the changes. [ ]

] <sup>a,c</sup>

The evaluation processes and associated results will be documented as part of the “Human Factors Engineering Resolution Verification Report.”

For each HED that cannot be resolved until the plant is built, the HF Manager ensures that the plant startup HFE verification plan (APP-OCS-GEH-520, Bibliog 6) includes a mechanism to check and resolve the issue. [ ]

] <sup>a,c</sup>

## **2.9 HFE DISCREPANCY RESOLUTION REPORT REQUIREMENTS**

“Human Factors Engineering Resolution Verification Report” will contain the following information:

[

] <sup>a,c</sup>

(Last Page of Section 2)

**Southern Nuclear Operating Company**

**ND-13-1835  
(LAR-13-012S2)**

**Enclosure 14**

**Affidavit of Brian H. Whitley, Southern Nuclear Operating Co.**

**Prepared in Accordance with 10 CFR 2.390**

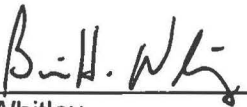
**Note: The following enclosure is a two page stand-alone document.**

## **Affidavit of Brian H. Whitley**

1. My name is Brian H. Whitley. I am the Regulatory Affairs Director, Nuclear Development, for Southern Nuclear Operating Company (SNC). I have been delegated the function of reviewing proprietary information sought to be withheld from public disclosure and am authorized to apply for its withholding on behalf of SNC.
2. I am making this affidavit on personal knowledge, in conformance with the provisions of 10 CFR Section 2.390 of the Commission's regulations, and in conjunction with SNC's filings and supplement(s) on dockets 52-025 and 52-026, Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Request for License Amendment, Revision to AP1000 Human Factors Engineering Discrepancy Resolution Process / GEH-420 (LAR-13-012S2). I have personal knowledge of the criteria and procedures used by SNC to designate information as a trade secret, privileged or as confidential commercial or financial information.
3. Based on the reason(s) at 10 CFR 2.390(a)(4), this affidavit seeks to withhold from public disclosure Enclosures 8, 11, and 13 of Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Request for License Amendment, Revision to AP1000 Human Factors Engineering Discrepancy Resolution Process / GEH-420 (LAR-13-012S2).
4. The following is furnished for consideration by the Commission in determining whether the information sought to be withheld from public disclosure should be withheld.
  - a. The information sought to be withheld from public disclosure has been held in confidence by SNC and Westinghouse Electric Company.
  - b. The information is of a type customarily held in confidence by SNC and Westinghouse and not customarily disclosed to the public.
  - c. The release of the information might result in the loss of an existing or potential competitive advantage to SNC and/or Westinghouse.

- d. Other reasons identified in Enclosure 15 of Vogtle Electric Generating Plant (VEGP) Units 3 and 4, Request for License Amendment, Revision to AP1000 Human Factors Engineering Discrepancy Resolution Process / GEH-420 (LAR-13-012S2) (dockets 52-025 and 52-026), and those reasons are incorporated here by reference.
5. Additionally, release of the information may harm SNC because SNC has a contractual relationship with the Westinghouse Electric Company regarding proprietary information. SNC is contractually obligated to seek confidential and proprietary treatment of the information.
6. 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.
7. To the best of my knowledge and belief, 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.

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

  
\_\_\_\_\_  
Brian H. Whitley

Executed on 8/22/13  
Date

**Southern Nuclear Operating Company**

**ND-13-1835  
(LAR-13-012S2)**

**Enclosure 15**

**Westinghouse Authorization Letter CAW-13-3777,  
its accompanying affidavit, Proprietary Information Notice, and Copyright Notice**

**Note: The following enclosure is a seven page stand-alone document.**

### **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.



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Project letter: SVP\_SV0\_001997

Our ref: CAW-13-3777

August 14, 2013

APPLICATION FOR WITHHOLDING PROPRIETARY  
INFORMATION FROM PUBLIC DISCLOSURE

Subject: Transmittal of APP-OCS-GEH-420 Revision 1, AP1000 Human Factors Engineering Discrepancy Resolution Process (Proprietary) and APP-OCS-GEH-422 Revision 1, AP1000 Human Factors Engineering Discrepancy Resolution Process (Non-Proprietary)

The proprietary information for which withholding is being requested in the above-referenced letter is further identified in the affidavit signed by Westinghouse Electric Company LLC. The affidavit accompanying this letter, sets forth the basis on which the information may be withheld from public disclosure by the Commission and address with specificity the considerations listed in paragraph (b) (4) of 10 CFR Section 2.390 of the Commission's regulations.

Accordingly, this letter authorizes the utilization of the accompanying affidavit by **Southern Nuclear Company**.

Correspondence with respect to the proprietary aspects of this application for withholding or the accompanying affidavit should reference CAW-13-3777 and should be addressed to J. A. Gresham, Manager, Regulatory Compliance, Westinghouse Electric Company, Suite 428, 1000 Westinghouse Drive, Cranberry Township, Pennsylvania 16066.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Robert B. Sisk'.

Robert B. Sisk  
Program Manager APR1400 Licensing Support

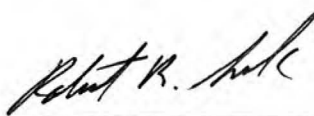
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COMMONWEALTH OF PENNSYLVANIA:

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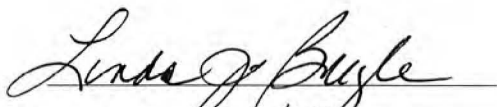
COUNTY OF BUTLER:

Before me, the undersigned authority, personally appeared **Robert B. Sisk**, 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:



Robert B. Sisk  
Program Manager APR1400 Licensing Support

Sworn to and subscribed  
before me this 14<sup>th</sup> day  
of August 2013.

  
Notary Public

COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Linda J. Bugle, Notary Public  
City of Pittsburgh, Allegheny County  
My Commission Expires June 18, 2017  
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

- (1) I am Program Manager APR1400 Licensing Support, 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 constitute Westinghouse policy and provide 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 from within the APP-OCS-GEH-420, Revision 1, AP1000 Human Factors Engineering Discrepancy Resolution Process, and may be used only for that purpose.

The information requested to be withheld reveals details of the AP1000 design; sequence and method of construction; and timing and content of inspection and testing. This information was developed and continues to be developed by Westinghouse. The information is part of that which enables Westinghouse to manufacture and deliver products to utilities based on proprietary designs.

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 commercial power reactors without commensurate expenses.

The information requested to be withheld 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.