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Your ref: Project Number 740
Our ref: DCP/NRC1838

February 23, 2007

Subject: AP1000 COL Standard Technical Report Submittal of APP-GW-GLR-073, Revision 0

In support of Combined License application pre-application activities, Westinghouse is submitting AP1000 Standard Combined License Technical Report Number 93. This report identifies and justifies standard changes to the AP1000 Design Control Document (DCD). These changes impact DCD Tier 1, Table 2.2.1-1 and are related to changes to the Electrical Penetrations. The changes to the DCD identified in Technical Report 93 are intended to be incorporated into FSARs referencing the AP1000 Design Certification or incorporated into the design certification by an amendment to the design certification. This report is submitted as part of the NuStart Bellefonte COL Project (NRC Project Number 740). The information included in this report is generic and is expected to apply to all COL applications referencing the AP1000 Design Certification.

The purpose for submittal of this report was explained in a March 8, 2006 letter from NuStart to the NRC.

Pursuant to 10 CFR 50.30(b), APP-GW-GLR-073, Revision 0, "Tier 1, Table 2.2.1-1 Electrical Penetration Changes," (Technical Report Number 93), is submitted as Enclosure 1 under the attached Oath of Affirmation.

It is expected that when the NRC review of Technical Report Number 93 is complete, the changes to the DCD identified in Technical Report 93 will be considered approved generically for COL applicants referencing the AP1000 Design Certification.

Westinghouse is hereby requesting review and approval of the penetration number changes associated with the Electrical Penetrations.

Questions or requests for additional information related to content and preparation of this report should be directed to Westinghouse. Please send copies of such questions or requests for additional information 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.



D079

Very truly yours,

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

/Attachment

1. "Oath of Affirmation," dated February 23, 2007

/Enclosures

1. APP-GW-GLR-073, Revision 0, "Tier 1, Table 2.2.1-1 Electrical Penetration Changes," Technical Report Number 93

| | | | | | |
|---|---|---|---|---|---|
| cc: | S. Bloom | - | U.S. NRC | 1E | 1A |
| | S. Coffin | - | 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 |

ATTACHMENT 1

"Oath of Affirmation"

ATTACHMENT 1

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

W. E. Cummins
Vice President
Regulatory Affairs & Standardization

Subscribed and sworn to
before me this 23rd day
of February 2007.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Debra McCarthy, Notary Public
Monroeville Boro, Allegheny County
My Commission Expires Aug. 31, 2009
Member, Pennsylvania Association of Notaries

Debra McCarthy

Notary

ENCLOSURE 1

APP-GW-GLR-073, Revision 0

"Tier 1, Table 2.2.1-1 Electrical Penetration Changes"

Technical Report 93

# AP1000 Standard Combined License Technical Report

## Tier 1, Table 2.2.1-1 Changes

## Technical Report 93

## Revision 0

Westinghouse Electric Company LLC
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## 1.0 INTRODUCTION

During work to support the Combined Operating Licensing, Westinghouse has determined that the electrical penetration tag numbers in DCD Tier 1 Table 2.2.1-1 are not numbered in accordance with the AP1000 numbering system. According to the AP1000 numbering system, penetrations' tag numbers should start with the system designation code. For example, electrical penetration 21 is in the non-class 1E DC system (EDS); its penetration number should be EDS-EY-P21Z and not ECS-EY-P21Z as listed. Additionally, all penetrations are identified as being class 1E in Tier 1 Table 2.2.1-1 of the ITAAC. Some of the electrical penetrations are non-class 1E. The class 1E penetrations are those electrical penetrations carrying class 1E power or instrumentation signals, the rest of the penetrations are non-class 1E. The purpose of this technical report is to correct the penetrations' tag numbers and their classification to match the AP1000 design documentation. These changes do not change the AP1000 design; they correct Tier 1 Table 2.2.1-1 to meet the current design. The DCD markups are shown in Section three of this report. Additionally, a proposed Tier 1 change to add a new DAS penetration to Table 2.2.1-1 will be addressed in the technical report 97, APP-GW-GLN-022.

## 2.0 TECHNICAL BACKGROUND

The design of the AP1000 plant is such that the electrical penetrations required to be class 1E are those supporting the IDS (class 1E 125 VDC) system. The other electrical penetrations are classified as non-class 1E and are tagged as part of the ECS (main AC) system and EDS (non-class 1E 125 VDC) system.

The electrical penetrations connected to non-class 1E circuits need to be classified as non-class 1E to meet the independence requirements of IEEE 603. The electrical penetrations are designed in accordance with IEEE 317.

ITAAC 6b of section 2.2.1 requires that a simulated test signal exist at class 1E penetrations when the assigned class 1E Division is provided the test signal. The penetrations that carry the non-class 1E power would not pass the ITAAC.

## 3.0 DCD MARK-UP

| Table 2.2.1-1 (cont.) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Equipment Name** | **Tag No.** | **ASME Code Section III** | **Seismic Cat. I** | **Remotely Operated Valve** | **Class 1E/ Qual. for Harsh Envir.** | **Safety-Related Display** | **Control PMS/ DAS** | **Active Function** | **Loss of Motive Power Position** |
| Maintenance Hatch | CNS-MY-Y02 | Yes | Yes | - | -/- | - | -/- | - | - |
| Personnel Hatch | CNS-MY-Y03 | Yes | Yes | - | -/- | - | -/- | - | - |
| Personnel Hatch | CNS-MY-Y04 | Yes | Yes | - | -/- | - | -/- | - | - |
| Containment Vessel | CNS-MV-01 | Yes | Yes | - | -/- | - | -/- | - | - |
| Electrical Penetration P01 | ECS-EY-P01X | Yes | Yes | - | No~~Yes~~/Yes | - | -/- | - | - |
| Electrical Penetration P02 | ECS-EY-P02X | Yes | Yes | - | No~~Yes~~/Yes | - | -/- | - | - |
| Electrical Penetration P06 | ECS-EY-P06Y | Yes | Yes | - | No~~Yes~~/Yes | - | -/- | - | - |
| Electrical Penetration P09 | ECS-EY-P09W | Yes | Yes | - | No~~Yes~~/Yes | - | -/- | - | - |
| Electrical Penetration P10 | ECS-EY-P10W | Yes | Yes | - | No~~Yes~~/Yes | - | -/- | - | - |
| Electrical Penetration P11 | IDSA~~ECS~~-EY-P11Z | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P12 | IDSA~~ECS~~-EY-P12Y | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P13 | IDSA~~ECS~~-EY-P13Y | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P14 | IDSD~~ECS~~-EY-P14Z | Yes | Yes | - | Yes/Yes | - | -/- | - | - |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Electrical Penetration P15 | **IDSD~~ECS~~**-EY-P15Y | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P16 | **IDSD~~ECS~~**-EY-P16Y | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P18 | ECS-EY-P18X | Yes | Yes | - | **No~~Yes~~**/Yes | - | -/- | - | - |
| Electrical Penetration P21 | **EDS~~CS~~**-EY-P21Z | Yes | Yes | - | **No~~Yes~~**/Yes | - | -/- | - | - |
| Electrical Penetration P22 | ECS-EY-P22X | Yes | Yes | - | **No~~Yes~~**/Yes | - | -/- | - | - |
| Electrical Penetration P23 | ECS-EY-P23X | Yes | Yes | - | **No~~Yes~~**/Yes | - | -/- | - | - |

**Table 2.2.1-1 (cont.)**

| Equipment Name | Tag No. | ASME Code Section III | Seismic Cat. I | Remotely Operated Valve | Class 1E/ Qual. for Harsh Envir. | Safety-Related Display | Control PMS/ DAS | Active Function | Loss of Motive Power Position |
|---|---|---|---|---|---|---|---|---|---|
| Electrical Penetration P24 | ECS-EY-P24 | Yes | Yes | - | No~~Yes~~/Yes | - | -/- | - | - |
| Electrical Penetration P25 | ECS-EY-P25W | Yes | Yes | - | No~~Yes~~/Yes | - | -/- | - | - |
| Electrical Penetration P26 | ECS-EY-P26W | Yes | Yes | - | No~~Yes~~/Yes | - | -/- | - | - |
| Electrical Penetration P27 | **IDSC~~ECS~~**-EY-P27Z | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P28 | **IDSC~~ECS~~**-EY-P28Y | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P29 | **IDSC~~ECS~~**-EY-P29Y | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P30 | ~~ECS~~**IDSB**-EY-P30Z | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P31 | **IDSB~~ECS~~**-EY-P31Y | Yes | Yes | - | Yes/Yes | - | -/- | - | - |
| Electrical Penetration P32 | **IDSB~~ECS~~**-EY-P32Y | Yes | Yes | - | Yes/Yes | - | -/- | - | - |

## 4.0 REGULATORY IMPACT

| | | | |
|---|---|---|---|
| A. | Does the proposed change include a change to: | | |
| | 1. Tier 1 of the AP1000 Design Control Document APP-GW-GL-700 | ☐ NO ☒ YES | (If YES prepare a report for NRC review of the changes) |
| | 2. Tier 2* of the AP1000 Design Control Document, APP-GW-GL-700 | ☒ NO ☐ YES | (If YES prepare a report for NRC review of the changes) |
| | 3. Technical Specification in Chapter 16 of the AP1000 Design Control Document, APP-GW-GL-700 | ☒ NO ☐ YES | (If YES prepare a report for NRC review of the changes) |
| B. | Does the proposed change involve: | | |
| | 1. Closure of a Combined License Information Item identified in the AP1000 Design Control Document, APP-GW-GL-700 | ☒ NO ☐ YES | (If YES prepare a COL item closure report for NRC review.) |
| | 2. Completion of an ITAAC item identified in Tier 1 of the AP1000 Design Control Document, APP-GW-GL-700 | ☒ NO ☐ YES | (If YES prepare an ITAAC completion report for NRC review.) |

☐ The questions above are answered no, therefore the departure from the DCD in a COL application does not require prior NRC review unless review is required by the criteria of 10 CFR Part 52 Appendix D Section VIII B.5.b. or B.5c

C. FSER IMPACT

There is no impact on the FSER. The changes in Tier 1 Table 2.2.1-1 have no effect on design function.

D. SCREENING QUESTIONS (Check correct response and provide justification for that determination under each response)

1. Does the proposed change involve a change to an SSC that adversely affects a DCD described design function? ☐ YES ☒ NO

   There is no change to a design function of any safety related equipment.

2. Does the proposed change involve a change to a procedure that adversely affects how DCD described SSC design functions are performed or controlled? ☐ YES ☒ NO

   The proposed changes in Tier 1 Table 2.2.1-1 have no effect on operation of the reactor coolant system. The changes have no effect on the initiation or operation of the passive core cooling system.

3. Does the proposed activity involve revising or replacing an DCD described evaluation methodology that is used in establishing the design bases or used in the safety analyses? ☐ YES ☒ NO

   The proposed changes in Tier 1 Table 2.2.1-1 do not require changes to the evaluation of the response to postulated accident conditions. The changes to the design do not require changes to the structural or safety analysis of any safety related equipment.

4. Does the proposed activity involve a test or experiment not described in the DCD, where an SSC is utilized or controlled in a manner that is outside the reference bounds of the design for that SSC or is inconsistent with analyses or descriptions in the DCD? ☐ YES ☒ NO

   The proposed changes in Table 2.2.1-1 do not require an additional test or experiment or changes to testing.

E. EVALUATION OF DEPARTURE FROM TIER 2 INFORMATION (Check correct response and provide justification for that determination under each response)

10 CFR Part 52, Appendix D, Section VIII. B.5.a. provides that an applicant for a combined licensee who references the AP1000 design certification may depart from Tier 2 information, without prior NRC approval, if it does not require a license amendment under paragraph B.5.b. The questions below address the criteria of B.5.b.

| | |
|---|---|
| 1. Does the proposed activity result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD? | ☐ YES ☒ NO |
| Since there is no change from the proposed changes in Tier 1 Table 2.2.1-1 that could affect the plant design or operations, there are no new accident initiators and no effect on the frequency of evaluated accidents. | |
| 2. Does the proposed activity result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety and previously evaluated in the plant-specific DCD? | ☐ YES ☒ NO |
| Since there is no change from the proposed changes in Tier 1 Table 2.2.1-1 that could affect the plant design or operations, there is no effect on malfunctions of structures, systems, or components. The operating conditions for the reactor coolant system and passive core cooling system are not altered. | |
| 3. Does the proposed activity result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD? | ☐ YES ☒ NO |
| The Proposed changes in Tier 1 Table 2.2.1-1 have no effect on the operation, performance, and pressure boundary integrity of the safety related equipment. Therefore, there is no increase in the calculated release of radioactive material during postulated accident conditions. | |
| 4. Does the proposed activity result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the plant-specific DCD? | ☐ YES ☒ NO |
| The Proposed changes in Tier 1 Table 2.2.1-1 have no effect on the design functions or reliability of the safety related equipment or other components and operation of the passive core cooling system. Therefore, there is no increase in the calculated release of radioactive material due to a malfunction of an SSC. | |
| 5. Does the proposed activity create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD? | ☐ YES ☒ NO |
| The proposed changes in Tier 1 Table 2.2.1-1 have no effect on the operation, performance, and pressure boundary integrity of the plant equipment. The response of the safety related equipment and the passive core cooling system to postulated accident conditions is not altered by the proposed changes. The proposed changes do not introduce any additional failure modes; therefore, there is no | |

| | |
|---|---|
| possibility of an accident of a different type than any evaluated previously in the DCD. | |
| 6. Does the proposed activity create a possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously in the plant-specific DCD? | ☐ YES ☒ NO |
| The design changes have no effect on the design functions of the safety related equipment or operation of the passive core cooling system. There are no additional failure modes or the possibility for a malfunction of an SSC important to safety with a different result than any evaluated previously. | |
| 7. Does the proposed activity result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered? | ☐ YES ☒ NO |
| There is no change to the design function of the safety related equipment. The criteria to provide for pressure boundary integrity are not exceeded or altered. | |
| 8. Does the proposed activity result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses? | ☐ YES ☒ NO |
| The proposed changes in Tier 1 Table 2.2.1-1 will apply for all plants, They have no impact on the design bases and the safety analyses. | |
| ☒ The answers to the evaluation questions above are "NO" and the proposed departure from Tier 2 does not require prior NRC review to be included in plant specific FSARs as provided in 10 CFR Part 52, Appendix D, Section VIII. B.5.b<br>☐ One or more of the answers to the evaluation questions above are "YES" and the proposed change requires NRC review. | |

F. IMPACT ON RESOLUTION OF A SEVERE ACCIDENT ISSUE

10 CFR Part 52, Appendix D, Section VIII. B.5.a. provides that an applicant for a combined licensee who references the AP1000 design certification may depart from Tier 2 information, without prior NRC approval, if it does not require a license amendment under paragraph B.5.c. The questions below address the criteria of B.5.c.

| | |
|---|---|
| 1. Does the proposed activity result in an impact features that mitigate severe accidents. If the answer is Yes answer Questions 2 and 3 below. | ☐ YES ☒ NO |
| The systems and components identified in the DCD Subsection 1.9.5 and Appendix 19 B that mitigate severe accidents are not impacted by the alternate Steam and Power Conversion design. | |
| 2. Is there is a substantial increase in the probability of a severe accident such that a particular severe accident previously reviewed and determined to be not credible could become credible? | ☐ YES ☒ NO<br>☐ N/A |
| | |
| 3. Is there is a substantial increase in the consequences to the public of a particular severe accident previously reviewed? | ☐ YES ☒ NO<br>☐ N/A |
| | |

☒ The answers to the evaluation questions above are "NO" or are not applicable and the proposed departure from Tier 2 does not require prior NRC review to be included in plant specific FSARs as provided in 10 CFR Part 52, Appendix D, Section VIII. B.5.c

☐ One or more of the he answers to the evaluation questions above are "YES" and the proposed change requires NRC review.

G. SECURITY ASSESSMENT

1. Does the proposed change have an adverse impact on the security assessment of the AP1000. ☐ YES ☒ NO

The proposed changes in Tier 1 Table 2.2.1-1 will not alter barriers or alarms that control access to protected areas of the plant. The design changes will not alter requirements for security personnel; therefore, the proposed changes do not have an adverse impact on the security assessment of the AP1000.

## 5.0 REFERENCES

1. APP-GW-GL-700, AP1000 Design Control Document, Revision 15.