

Shearon Harris Nuclear Power Plant Units 2 and 3

COL Application

Part 7

Departures and Exemption Requests

Revision 4

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**Shearon Harris Nuclear Power Plant Units 2 and 3
COL Application
Part 7, Departures and Exemptions**

A. STD and HAR Departures

This Departure Report includes deviations in the Shearon Harris Nuclear Power Plant, Units 2 and 3 COLA FSAR from the information in the applicable Design Control Document (DCD), pursuant to 10 CFR Part 52, Appendix D, Section VIII and Section X.B.1.

The following Departure is described and evaluated in detail in this report.

<u>Departure Number</u>	<u>Description</u>
STD DEP 1.1-1	Administrative departure for organization and numbering for the FSAR sections
STD DEP 8.3-1	Class 1E voltage regulating transformer current limiting features

A.1 Departures That Can Be Implemented Without Prior NRC Approval

<u>Departure Number</u>	<u>Description</u>
STD DEP 1.1-1	Administrative departure for organization and numbering for the FSAR sections
STD DEP 8.3-1	Class 1E voltage regulating transformer current limiting features

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Departure Number: STD DEP 1.1-1

Affected DCD/FSAR Sections: 2.1.1; 2.1.4; 2.2.1; 2.2.4; 2.4.1; 2.4.15; 2.5; 2.5.6; 9.2.11; 9.2.12; 9.2.13; 9.2.14; 9.5.1.8; 9.5.1.9; 13.1; 13.1.1; 13.1.4; 13.5; 13.5.3; 13.7; 17.5; 17.6; 17.7; 17.8 (Note the affected sections may vary in subsequent COL applications, but the departure is standard.).

Summary of Departure:

This FSAR generally follows the AP1000 DCD organization and numbering. Some organization and numbering differences are adopted where necessary to include additional material, such as additional content identified in Regulatory Guide 1.206.

Scope /Extent of Departure:

The renumbered sections and subsections associated with this Departure are identified in the FSAR (at the sections and subsections identified above).

Departure Justification:

An administrative departure is established to identify instances where the renumbering of FSAR sections and subsections is necessary to effectively include content consistent with Regulatory Guide 1.206, as well as NUREG-0800, Standard Review Plan.

Departure Evaluation:

This Departure is an administrative change that affects only section and subsection numbering of the indicated FSAR sections and subsections. Accordingly, it does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;
2. 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;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;
4. 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;
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD;
6. 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;
7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered; or
8. 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.

This Departure does not affect resolution of a severe accident issue identified in the plant-specific DCD.

Therefore, this Departure has no safety significance.

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Departure Number: STD DEP 1.1-1 (continued)

NRC Approval Requirement:

This departure does not require NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

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Departure Number: STD DEP 8.3-1

Affected DCD/FSAR Sections: 8.3.2.2

Summary of Departure:

The DCD states that the Class 1E battery chargers and Class 1E voltage regulating transformers are designed to limit the input (ac) current to an acceptable value under faulted conditions on the output side. However, the AP1000 voltage regulating transformers do not have active components to limit current.

Scope/Extent of Departure:

This departure is identified in FSAR Subsection 8.3.2.2.

Departure Justification:

DCD Subsection 8.3.2.2 states that the Class 1E voltage regulating transformers have built-in circuit breakers at the input and output sides for protection and isolation. The circuit breakers are coordinated and periodically tested to verify their designed coordination and isolation function. They are qualified as isolation devices between Class 1E and non-Class 1E circuits in accordance with IEEE 384 and Regulatory Guide 1.75. Since the isolation and protection function is provided by the breakers, there is no need for the voltage regulating transformers to have current limiting capability. This departure does not adversely affect any safety-related system, nor does it conflict with applicable regulatory guidance.

Departure Evaluation:

This Tier 2 departure is associated with isolation between Class 1E loads and the non-Class 1E ac power source. The departure results in a change to the DCD that does not impact the required design function (i.e., isolation). Accordingly, it does not:

1. Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;
2. 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;
3. Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;
4. 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;
5. Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD;
6. 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;

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Departure Number: STD DEP 8.3-1 (continued)

7. Result in a design basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered; or
8. 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.

This Tier 2 departure does not affect resolution of an ex-vessel severe accident design feature identified in the plant-specific DCD.

Therefore, this departure has no safety significance.

NRC Approval Requirement:

This departure does not require NRC approval pursuant to 10 CFR Part 52, Appendix D, Section VIII.B.5.

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A.2 Departures that Require NRC Approval Prior to Implementation

<u>Departure Number</u>	<u>Description</u>
None	

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B. Shearon Harris Nuclear Power Plant, Units 2 and 3 Exemption Requests

Progress Energy Carolinas, Inc (PEC) requests the following exemptions related to:

1. Not used, and
2. Combined License (COL) Application Organization and Numbering
3. Special Nuclear Material (SNM) Material Control and Accounting Program Description

Discussion and justification for each of these requests is provided in the following pages.

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1) Fitness for Duty Program (FFD) Description (Part 26)

Withdrawn – this exemption is no longer required.

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2) Combined License (COL) Application Organization and Numbering (Part 52, Appendix D)

Applicable Regulation(s): 10 CFR Part 52, Appendix D, Section IV.A.2.a

Specific wording from which exemption is requested:

“IV. Additional Requirements and Restrictions A. An applicant for a combined license that wishes to reference this appendix shall, in addition to complying with the requirements of 10 CFR 52.77, 52.79, and 52.80, comply with the following requirements:

1. Incorporate by reference, as part of its application, this appendix.
2. Include, as part of its application:
 - a. A plant-specific DCD containing the same type of information and using the same organization and numbering as the generic DCD for the AP1000 design, as modified and supplemented by the applicant's exemptions and departures;”

Pursuant to 10 CFR 52.7 and 52.93 (as amended and promulgated effective Sept. 27, 2007), Progress Energy Carolinas (PEC) requests an exemption from the requirement of 10 CFR 52, Appendix D, Section IV.A.2.a, to include a plant-specific Design Control Document (DCD) “containing the same type of information and using the same organization and numbering as the generic DCD for the AP1000 design....” While the Shearon Harris Nuclear Power Plant, Units 2 and 3 (HAR 2 and 3) plant-specific DCD (i.e., the final safety analysis report [FSAR]) does contain the same type of information and generally follows the same organization and numbering as the generic DCD for the AP1000 design, some limited sections and subsections of the FSAR (as identified in the departures report as item STD DEP 1.1-1) do not follow the “same organization and numbering as the generic DCD for the AP1000 design.” PEC proposes to provide the plant-specific DCD (i.e., FSAR) with some administrative revisions to the organization and numbering of the AP1000 DCD.

Discussion:

The AP1000 DCD generally has an organization and numbering format that provides text by subject in general conformance with the Standard Review Plans (SRP) in effect at the time the DCD was written. Generally, COL information items are included at the end of a chapter, section, or subsection. In some cases, such as DCD Sections 2.1 and 2.2, the section may consist solely of a short description of the topic and the COL information item subsection. This organization and numbering does not allow for the detailed discussion of these topics that is to be included in a complete FSAR section. As such, it is necessary to include numerous additional sections and subsections to fully address the topic as identified in the guidance of Regulatory Guide 1.206 and the applicable SRP. In other cases, the organization and numbering must be modified slightly to allow for inclusion of plant-specific discussions within the appropriate section of the FSAR, such as including an additional water system description in Section 9.2. In these cases, the COL information item discussions are retained at the end of the DCD corresponding chapter, section, or subsection (to maintain the organization), but the numbering may be different.

These differences are well identified in the FSAR as STD DEP 1.1-1 at each location where the departure is taken and are considered to be purely administrative to support a logical construction of the document. Where the departure from the DCD organization and numbering is taken, the revised organization and numbering generally follows the guidance provided in

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Regulatory Guide 1.206 and the applicable SRP. As such, there are no significant departures from the expected organization and numbering of a typical FSAR, and the information is readily identifiable to facilitate NRC review.

In view of the above, we believe that it would be less efficient for both PEC and the NRC to fully comply with the regulation of 10 CFR Part 52, Appendix D, Section IV.A.2.a, that requires strict adherence to the “same organization and numbering as the generic DCD for the AP1000 design.” Accordingly, PEC hereby submits a request for an exemption from the regulations of 10 CFR 52, Appendix D, Section IV.A.2.a, pursuant to 10 CFR 52.7, “Specific Exemptions,” and 10 CFR 52.93, “Exemptions and Variances.”

Granting this request, which is authorized by law, would facilitate the NRC review of the HAR 2 and 3 COL application. For this and other reasons, granting this exemption request will not present an undue risk to the public health and safety, and is consistent with the common defense and security.

Moreover, compliance with the current rule would cause undue hardship for PEC and would also be inefficient and burdensome for the NRC staff. That approach would require PEC to prepare, and NRC to review, information with an organization and numbering that is unfamiliar and inconsistent with the current guidance for format and content of a COL application.

Additionally, compliance with Appendix D, Section IV.A.2.a is not necessary to achieve its underlying purpose. Most of the FSAR conforms to the organization and numbering of the referenced DCD. The exceptions are limited and do not lead to confusion regarding the incorporation of the DCD into the FSAR.

For these reasons, PEC requests approval of the requested exemption from current regulations of 10 CFR 52, Appendix D, Section IV.A.2.a, as identified herein and in the application departures report.

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3) Special Nuclear Material (SNM) Material Control and Accounting (MC&A) Program Description [Part 70, Subpart D and Part 74, Subparts C, D, and E]

Applicable Regulation(s): 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51

Specific wording from which exemption is requested:

10 CFR 70.22(b), Contents of applications:

- (b) Each application for a license to possess special nuclear material, to possess equipment capable of enriching uranium, to operate an uranium enrichment facility, to possess and use at any one time and location special nuclear material in a quantity exceeding one effective kilogram, except for applications for use as sealed sources and for those uses involved in the operation of a nuclear reactor licensed pursuant to part 50 of this chapter and those involved in a waste disposal operation, must contain a full description of the applicant's program for control and accounting of such special nuclear material or enrichment equipment that will be in the applicant's possession under license to show how compliance with the requirements of §§ 74.31, 74.33, 74.41, or 74.51 of this chapter, as applicable, will be accomplished.

10 CFR 70.32, Conditions of licenses:

- (c) (1) Each license authorizing the possession and use at any one time and location of uranium source material at an uranium enrichment facility or special nuclear material in a quantity exceeding one effective kilogram, except for use as sealed sources and those uses involved in the operation of a nuclear reactor licensed pursuant to part 50 of this chapter and those involved in a waste disposal operation, shall contain and be subject to a condition requiring the licensee to maintain and follow:
 - (i) The program for control and accounting of uranium source material at an uranium enrichment facility and special nuclear material at all applicable facilities as implemented pursuant to § 70.22(b), or §§ 74.31(b), 74.33(b), 74.41(b), or 74.51(c) of this chapter, as appropriate;
 - (ii) The measurement control program for uranium source material at an uranium enrichment facility and for special nuclear material at all applicable facilities as implemented pursuant to §§ 74.31(b), 74.33(b), 74.45(c), or 74.59(e) of this chapter, as appropriate; and
 - (iii) Other material control procedures as the Commission determines to be essential for the safeguarding of uranium source material at an uranium enrichment facility or of special nuclear material and providing that the licensee shall make no change that would decrease the effectiveness of the material control and accounting program implemented pursuant to § 70.22(b), or §§ 74.31(b), 74.33(b), 74.41(b), or 74.51(c) of this chapter, and the measurement control program implemented pursuant to §§ 74.31(b), 74.33(b), 74.41(b), or 74.59(e) of this chapter without the prior approval of the Commission. A licensee desiring to make changes that would decrease the effectiveness of its material control and accounting program or its measurement control program shall submit an application for amendment to its license pursuant to § 70.34.

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10 CFR 74.31, Nuclear material control and accounting for special nuclear material of low strategic significance:

- (a) General performance objectives. Each licensee who is authorized to possess and use more than one effective kilogram of special nuclear material of low strategic significance, excluding sealed sources, at any site or contiguous sites subject to control by the licensee, other than a production or utilization facility licensed pursuant to part 50 or 70 of this chapter, or operations involved in waste disposal, shall implement and maintain a Commission approved material control and accounting system that will achieve the following objectives:

10 CFR 74.41, Nuclear material control and accounting for special nuclear material of moderate strategic significance:

- (a) General performance objectives. Each licensee who is authorized to possess special nuclear material (SNM) of moderate strategic significance or SNM in a quantity exceeding one effective kilogram of strategic special nuclear material in irradiated fuel reprocessing operations other than as sealed sources and to use this material at any site other than a nuclear reactor licensed pursuant to part 50 of this chapter; or as reactor irradiated fuels involved in research, development, and evaluation programs in facilities other than irradiated fuel reprocessing plants; or an operation involved with waste disposal, shall establish, implement, and maintain a Commission-approved material control and accounting (MC&A) system that will achieve the following performance objectives:

10 CFR 74.51, Nuclear material control and accounting for strategic special nuclear material:

- (a) General performance objectives. Each licensee who is authorized to possess five or more formula kilograms of strategic special nuclear material (SSNM) and to use such material at any site, other than a nuclear reactor licensed pursuant to part 50 of this chapter, an irradiated fuel reprocessing plant, an operation involved with waste disposal, or an independent spent fuel storage facility licensed pursuant to part 72 of this chapter shall establish, implement, and maintain a Commission-approved material control and accounting (MC&A) system that will achieve the following objectives:

Discussion:

Progress Energy Carolinas, Inc. (PEC) requests an exemption from the requirements of 10 CFR § 70.22(b) and, in turn, §§ 70.32(c), 74.31, 74.41, and 74.51. Section 70.22(b) requires an application for a license for special nuclear material to contain a full description of the applicant's program for material control and accounting (MC&A) of special nuclear material under §§ 74.31, 74.33, 74.41, and 74.51.^a Section 70.32(c) requires a license authorizing the use of special nuclear material to contain and be subject to a condition requiring the licensee to maintain and follow a special nuclear material control and accounting program, measurement

a. While not containing an explicit exception for Part 50 reactors, § 74.33 applies only to uranium enrichment facilities and thus is not directly implicated in this exemption request.

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control program, and other material control procedures, including the corresponding records management requirements. However, §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 contain exceptions for nuclear reactors licensed under 10 CFR Part 50. The regulations applicable to the MC&A of special nuclear material for nuclear reactors licensed under 10 CFR Part 50 are provided in 10 CFR Part 74, Subpart B, §§ 74.11 through 74.19, excluding § 74.17. The purpose of this exemption request is to seek a similar exception for this combined license (COL) under 10 CFR Part 52, such that the same regulations will be applied to the special nuclear material MC&A program as nuclear reactors licensed under 10 CFR Part 50.

Nuclear reactors licensed under Part 50 are explicitly excepted from the requirements of §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51. There is no technical or regulatory reason to treat nuclear reactors licensed under Part 52 differently than reactors licensed under Part 50 with respect to the MC&A provisions in 10 CFR Part 74. As indicated in the Statement of Considerations for 10 CFR § 52.0(b) (72 Fed. Reg. 49352, 49372, 49436 [Aug. 28, 2007]), applicants and licensees under Part 52 are subject to all of the applicable requirements in 10 CFR Chapter I, whether or not those provisions explicitly mention a COL under Part 52. This regulation clearly indicates that plants licensed under Part 52 are to be treated no differently than plants licensed under Part 50 with respect to the substantive provisions in 10 CFR Chapter I (which includes Parts 70 and 74). In particular, the exception for nuclear reactors licensed under Part 50, as contained in §§ 70.22(b), 70.32(c), 74.31, 74.41, or 74.51, should also be applied to reactors licensed under Part 52.

An exemption from the requirements of §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 would not mean that a MC&A program would be unnecessary or that the COL application would be silent regarding MC&A. To the contrary, the MC&A requirements in Subpart B to Part 74 would still be applicable to the COL just as they are to licenses issued under Part 50. Additionally, the COL application will describe the MC&A program for satisfying Subpart B to Part 74.

This exemption request is evaluated under 10 CFR § 52.7, which incorporates the requirements of § 50.12. That section allows the Commission to grant an exemption if 1) the exemption is authorized by law, 2) will not present an undue risk to the public health and safety, 3) is consistent with the common defense and security, and 4) special circumstances are present as specified in 10 CFR § 50.12(a)(2). The criteria in § 50.12 encompass the criteria for an exemption in 10 CFR §§ 70.17(a) and 74.7, the specific exemption requirements for Parts 70 and 74, respectively. Therefore, by demonstrating that the exemption criteria in § 50.12 are satisfied, this request also demonstrates that the exemption criteria in §§ 52.7, 70.17(a) and 74.7 are satisfied.

Evaluation Against Exemption Criteria

1. This exemption is not inconsistent with the Atomic Energy Act or any other statute and is therefore authorized by law.
2. An exemption from the requirements of 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 would not present an undue risk to public health and safety. The exemption would treat the COL applicant similarly to Part 50 license applicants, who are excepted from the regulations in question. Furthermore, the COL application will contain a description of the applicant's MC&A program under Subpart B to Part 74. Therefore, the exemption

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from 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 would not present an undue risk to public health and safety.

3. An exemption from the requirements of 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 would not be inconsistent with the common defense and security. The exemption would treat the COL applicant similarly to Part 50 license applicants, who are excepted from the regulations in question. Furthermore, the COL application will contain a description of the applicant's MC&A program under Subpart B to Part 74. Therefore, the exemption from §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 is consistent with the common defense and security.
4. The exemption request involves special circumstances under 10 CFR § 50.12(a)(2)(ii). That subsection defines special circumstances as when "[a]pplication of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule." Since the Commission determined that the requirements in 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51 are unnecessary for Part 50 applicants, those requirements are also unnecessary for Part 52 applicants.

As demonstrated above, the exemption complies with the requirements of 10 CFR §§ 50.12, 52.7, 70.17, and 74.7. For these reasons, approval of the requested exemption is requested from the regulations of 10 CFR §§ 70.22(b), 70.32(c), 74.31, 74.41, and 74.51, as described herein.