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SUBJECT: SUPPLEMENTAL INFORMATION TO SUPPORT JUNE 12, 2020,
PUBLIC MEETING ASSOCIATED WITH ADVANCED REACTOR
CONTENT OF APPLICATION PROJECT

The purpose of this memorandum is to provide supplemental information to support a June 12, 2020, public meeting associated with the Advanced Reactor Content of Application Project (ARCAP). The information in this document supplements the Nuclear Regulatory Commission's (NRC's) handouts that have been developed for the meeting. The handouts are available in the Agencywide Documents Access and Management System (ADAMS) under Accession Number ML20149K637.

As noted in the agenda for the June 12, 2020, public meeting, which is provided in the handouts, the NRC staff intends to provide an overview of the vision on the broad scope and intended benefits of ARCAP. In a previous April 22, 2020, public meeting the staff presented an "Updated Draft Outline for Licensing Modernization Project Advanced Reactor License Applications," (ADAMS Accession No. ML20107J565). The updated draft outline included a proposed Chapter 8, "Control of Routine Plant Radioactive Effluents and Solid Waste." During the June 12, 2020, public meeting the staff will provide a presentation that will include a focused discussion of draft Chapter 8, for insights on a more performance-based approach to regulatory compliance, considering both normal operations and applicable licensing basis events. The enclosure to this memorandum supplements the June 12, 2020, slide presentation, and provides additional background for how the three approaches for the draft Chapter 8 were developed.

Enclosure:
ARCAP Liquid and Gaseous Radioactive Waste Requirements – A Performance-Based Approach

ARCAP Liquid and Gaseous Radioactive Waste Requirements – A Performance-Based Approach

This enclosure provides the following:

- A summary of applicable liquid and gaseous radioactive material effluent and contamination control requirements
- An Approach 1 - Example ARCAP Chapter 8 Guidance based on dialogue in April 22, 2020 public meeting with stakeholders
- An Approach 2 - Reduced SAR Content Based on Performance-Based Approach – Compliance Demonstrated in Application
- An Approach 3 - Limited SAR Content Based on Performance-Based Approach – Compliance Not Demonstrated in Application

These draft content guidelines provide examples of how a performance-based approach could be used for the regulation of liquid and gaseous effluents from routine operation (ARCAP Chapter 8) and for contamination control for compliance with 10 CFR 20 and 10 CFR 50.34a. The intent of Approaches 2 and 3 is to rely as much as possible on performance measures in determining regulatory compliance consistent with the assumptions and analysis from the licensing modernization project (LMP) process. This will reduce the amount and level of design detail required in the application while still requiring full compliance with the release limits in Part 20 and 50.34a.¹

Table 1 - Applicable liquid and gaseous radioactive material effluent and contamination control requirements

10 CFR Section/Paragraph	Regulation Text	Performance Based Approach
10 CFR Part 20 Section/Paragraph		
Subpart B—Radiation Protection Programs		
§ 20.1101 Radiation protection programs	<p>(a) Each licensee shall develop, document, and implement a radiation protection program commensurate with the scope and extent of licensed activities and sufficient to ensure compliance with the provisions of this part. (See § 20.2102 for record keeping requirements relating to these programs.)</p> <p>(b) The licensee shall use, to the extent practical, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonably achievable (ALARA).</p>	<p>Addressed using performance-based requirements. The design descriptions of waste management systems are at the level of detail necessary to support analyses that the effluent release requirements will be met.</p> <p>For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments.</p>

¹ Depending on the final Chapter 8 content guide wording, the current draft ARCAP Chapter 4 may require revision to eliminate repetition.

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10 CFR Section/Paragraph	Regulation Text	Performance Based Approach
Subpart D—Radiation Dose Limits for Individual Members of the Public		
§ 20.1301 Dose limits for individual members of the public	<p>(a) Each licensee shall conduct operations so that -</p> <p>(1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1rem (1 mSv) in a year...</p>	<p>Addressed through the licensing basis event (LBE) and integrated plant analysis conducted under the LMP process.</p> <p>3. LBEs 3.4 AOOs 3.4.2. Provide a summary description of SSC response and end state for each AOO and the associated mechanistic source term for event sequences resulting in a radiological release....against the design objective and associated margin to the F-C target.</p> <p>4. Integrated Plant Analysis 4.2. Analysis to show compliance with Part 20 requirements</p>
§ 20.1301 Dose limits for individual members of the public	<p>(a) Each licensee shall conduct operations so that -</p> <p>(2) The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released in accordance with § 35.75, does not exceed 0.002 rem (0.02 millisievert) in any one hour</p>	<p>Approaches 1 and 2 - An application should provide these calculations based on anticipated releases.</p> <p>Approach 3 – No analysis required for an application.</p> <p>For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments.</p>

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10 CFR Section/Paragraph	Regulation Text	Performance Based Approach
§ 20.1302 Compliance with dose limits for individual members of the public	(a) The licensee shall make or cause to be made, as appropriate, surveys of radiation levels in unrestricted and controlled areas and radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in § 20.1301	An application can provide requirements to perform these surveys. Can be addressed in the Radiation Protection Program.
§ 20.1302 Compliance with dose limits for individual members of the public	(b) A licensee shall show compliance with the annual dose limit in § 20.1301 by— (1) Demonstrating by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit ; or [see (b) below)	Approaches 1 and 2 - An application should provide these calculations based on anticipated releases. Approach 3 – No analysis required for an application. For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments.
§ 20.1302 Compliance with dose limits for individual members of the public	(b) A licensee shall show compliance with the annual dose limit in § 20.1301 by— (2) Demonstrating that— (i) The annual average concentrations of radioactive material released in gaseous and liquid effluents at the boundary of the unrestricted area do not exceed the values specified in table 2 of appendix B to part 20 ; and (ii) If an individual were continuously present in an unrestricted area, the dose from external sources would not exceed 0.002 rem (0.02 mSv) in an hour and 0.05 rem (0.5 mSv) in a year.	Approaches 1 and 2 - An application should provide these calculations based on anticipated releases (using different concentrations for each applicable radionuclide). Approach 3 – No analysis required for an application. For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments.
§ 20.1406 Minimization of contamination	(b)...describe in the application how facility design and procedures for operation will minimize, to the extent practicable, contamination of the facility and the environment , facilitate eventual decommissioning, and minimize, to the extent practicable, the generation of radioactive waste.	The application can provide design and operational performance standards.
Subpart L—Records		

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10 CFR Section/Paragraph	Regulation Text	Performance Based Approach
§ 20.2107 Records of dose to individual members of the public	(a) Each licensee shall maintain records sufficient to demonstrate compliance with the dose limit for individual members of the public (see § 20.1301).	The Radiation Protection Program can provide the necessary programmatic commitments.
10 CFR 50.34.a - Design objectives for equipment to control releases of radioactive material in effluents— nuclear power reactors		
Paragraph (a)	<p>(a) An application for a construction permit shall include a description of the preliminary design of equipment to be installed to maintain control over radioactive materials in gaseous and liquid effluents produced during normal reactor operations, including expected operational occurrences.</p> <p>The guides set out in appendix I to this part provide numerical guidance on design objectives for light-water-cooled nuclear power reactors to meet the requirements that radioactive material in effluents released to unrestricted areas be kept as low as is reasonably achievable.</p>	<p>Approaches 1 and 2 - An application should provide these calculations based on anticipated releases.</p> <p>Approach 1 – design information is similar to that required by RG 1.206, Rev 0.</p> <p>Approach 2 - the design descriptions of waste management systems are at the level of detail necessary to support analyses that the effluent release requirements will be met.</p> <p>Approach 3 – No analysis required for an application. Design description is minimal.</p> <p>For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments.</p>

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10 CFR Section/Paragraph	Regulation Text	Performance Based Approach
Paragraph (b)(2)	(b) Each application for a construction permit shall include: (2) An estimate of: (i) The quantity of each of the principal radionuclides expected to be released annually to unrestricted areas in liquid effluents produced during normal reactor operations; and (ii) The quantity of each of the principal radionuclides of the gases, halides, and particulates expected to be released annually to unrestricted areas in gaseous effluents produced during normal reactor operations.	Approaches 1 and 2 - An application should provide these calculations based on anticipated releases. Approach 3 – No analysis required for an application.
Paragraph (d)	Each application for a combined license under part 52 of this chapter shall include: (1) A description of the equipment and procedures for the control of gaseous and liquid effluents and for the maintenance and use of equipment installed in radioactive waste systems, under paragraph (a) of this section; and (2) The information required in paragraph (b)(2) of this section.	Refer to (a) and (b)(2) above.
Paragraph (e)	Each application for a design approval, a design certification, or a manufacturing license under part 52 of this chapter shall include: (1) A description of the equipment for the control of gaseous and liquid effluents and for the maintenance and use of equipment installed in radioactive waste systems, under paragraph (a) of this section; and (2) The information required in paragraph (b)(2) of this section.	Refer to (a) and (b)(2) above.
10 CFR 50, Appendix A		
Criterion 60	Control of releases of radioactive materials to the environment. The nuclear power unit design shall include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Sufficient holdup capacity shall be provided for retention of gaseous and liquid effluents containing radioactive materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment.	The first part of this requirement is addressed when addressing Part 20 and 50 effluent release requirements. The second part of this criterion (holdup capacity) needs to be addressed separately by providing design and operational performance standards.

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10 CFR Section/Paragraph	Regulation Text	Performance Based Approach
10 CFR 50, Appendix I		
Section II	<p>The applicant shall provide reasonable assurance that the following design objectives will be met.</p> <p>A. The calculated annual total quantity of all radioactive material above background to be released from each light-water-cooled nuclear power reactor to unrestricted areas will not result in an estimated annual dose or dose commitment from liquid effluents for any individual in an unrestricted area from all pathways of exposure in excess of 3 millirems to the total body or 10 millirems to any organ.</p>	<p>Approaches 1 and 2 - An application should provide these calculations based on anticipated releases.</p> <p>Approach 3 – No analysis required for an application.</p> <p>For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments.</p>
Section II	<p>The applicant shall provide reasonable assurance that the following design objectives will be met.</p> <p>B.1. The calculated annual total quantity of all radioactive material above background to be released from each light-water-cooled nuclear power reactor to the atmosphere will not result in an estimated annual air dose from gaseous effluents at any location near ground level which could be occupied by individuals in unrestricted areas in excess of 10 millirads for gamma radiation or 20 millirads for beta radiation.</p>	<p>Approaches 1 and 2 - An application should provide these calculations based on anticipated releases.</p> <p>Approach 3 – No analysis required for an application.</p> <p>For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments</p>
Section II	<p>The applicant shall provide reasonable assurance that the following design objectives will be met.</p> <p>C. The calculated annual total quantity of all radioactive iodine and radioactive material in particulate form above background to be released from each light-water-cooled nuclear power reactor in effluents to the atmosphere will not result in an estimated annual dose or dose commitment from such radioactive iodine and radioactive material in particulate form for any individual in an unrestricted area from all pathways of exposure in excess of 15 millirems to any organ.</p>	<p>Approaches 1 and 2 - An application should provide these calculations based on anticipated releases.</p> <p>Approach 3 – No analysis required for an application.</p> <p>For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments.</p>

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10 CFR Section/Paragraph	Regulation Text	Performance Based Approach
Section II	<p>The applicant shall provide reasonable assurance that the following design objectives will be met.</p> <p>D. In addition to the provisions of paragraphs A, B, and C above, the applicant shall include in the radwaste system all items of reasonably demonstrated technology that, when added to the system sequentially and in order of diminishing cost-benefit return, can for a favorable cost-benefit ratio effect reductions in dose to the population reasonably expected to be within 50 miles of the reactor. As an interim measure and until establishment and adoption of better values (or other appropriate criteria), the values \$1000 per total body man-rem and \$1000 per man-thyroid-rem (or such lesser values as may be demonstrated to be suitable in a particular case) shall be used in this cost-benefit analysis.</p>	<p>Approaches 1 and 2 - An application should provide these calculations based on anticipated releases.</p> <p>Approach 3 – No analysis required for an application.</p>
10 CFR 52, Subpart B-- Standard Design Certifications		
§ 52.47 Contents of applications; technical information	<p>(a) The application must contain a final safety analysis report (FSAR) that describes the facility, presents the design bases and the limits on its operation, and presents a safety analysis of the structures, systems, and components and of the facility as a whole, and must include the following information:</p> <p>.....</p> <p>(5) The kinds and quantities of radioactive materials expected to be produced in the operation and the means for controlling and limiting radioactive effluents and radiation exposures within the limits set forth in part 20 of this chapter;</p>	<p>Addressed using performance-based requirements. The design descriptions of waste management systems are at the level of detail necessary to support analyses that the effluent release requirements will be met.</p> <p>For ongoing compliance, the Radiation Protection Program can provide the necessary programmatic commitments.</p>

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	ARCAP Chapter 8 Approach – FSAR Content Comparisons²		
Approach	1 - Traditional FSAR Content (ARCAP Version Distributed for Apr 22 public meeting)	2 – Reduced FSAR Content (Performance-based Using Analysis to Demonstrate Compliance)	3 – Limited FSAR Content (Based on Use of Performance-Based Regulation)
Analysis	Analyses of anticipated routine liquid and gaseous releases demonstrating compliance with the applicable sections of: <ul style="list-style-type: none"> ● 10 CFR 20 ● 10 CFR 50.34a ● 10 CFR 50, Appendix I 	Same as Approach 1	No analysis required in the FSAR. Analysis required in the applicant’s design documents.
Design Information	Design description of the radioactive waste systems similar to level of detail requested in NUREG-0800, SRP Chapter 11.	Design description of waste systems sufficient to support analysis. Detailed design information in the applicant’s design documents.	Limited design description in the FSAR for the reviewer’s information only, sufficient to allow the reviewer to understand the design and its nexus to safety. Detailed design information in the applicant’s design documents.
Monitoring Program	Described in separate Radiation Protection Program document.	Same as Approach 1	Key attributes described and reviewed in the FSAR. Must be sufficient to determine compliance with applicable requirements after startup.
Compliance with Req’ts at time of Application	Based on review and acceptance of analysis and detailed design information in the FSAR.	Same as Approach 1 except reliance on less design information in the FSAR.	Based on acceptance of the monitoring program described in the FSAR.

² One or more exemptions to existing NRC regulations regarding application content may be necessary in the adoption of Approach 2 or 3.

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Approach 1 - Draft ARCAP Chapter 8 Guidance Presented in April 22 Public Meeting

Refer to annotated outline found in ADAMS at Accession No. ML20107J565

Approach 2 - Revised ARCAP Chapter 8: Reduced SAR Content Based on Performance-Based Approach – Compliance Demonstrated in Application

8. Control of Routine Plant Radioactive Effluents, Plant Contamination and Solid Waste

The routine operation of a nuclear power plant generates liquid, gaseous and solid waste which must be contained and properly stored or disposed of. 10 CFR 20 sets limits on the activity of liquid and gaseous waste which can be released into the environment. 10 CFR 50 contains guidelines for LWR releases of liquid and gaseous waste to the environment that are consistent with the policy of ALARA. 10 CFR 61 describes the classes of low-level waste and acceptable packaging for its disposal, as a function of its composition and activity level. Accordingly, each reactor design must have waste management systems that ensure the requirements of 10 CFR 20, 50 and 61 are met, or propose alternative requirements consistent with the technology of the proposed design.

As required by 10 CFR 50.34.a and 52.47, a combined license application and design certification application should describe the radioactive materials expected to be produced in the operation and the means for controlling and limiting radioactive effluents and radiation exposures to within the limits set forth in the regulations. The guidance provided below summarizes, at a high level, the information that should be provided in the application regarding liquid and gaseous effluent, control of contamination, and solid waste.

8.1. Liquid and Gaseous Effluents

The application should include analyses of anticipated routine liquid and gaseous releases accompanied by sufficient supporting design information of the liquid and gaseous waste management systems that demonstrate that the following effluent release requirements will be satisfied:

- a) The dose in any unrestricted area from external sources does not exceed 0.002 rem (0.02 millisievert) in any one hour [§ 20.1301(a)(2)].
- b) The calculated annual total quantity of all radioactive material above background to be released to unrestricted areas will not result in an estimated annual dose or dose commitment from liquid effluents for any individual in an unrestricted area from all pathways of exposure in excess of 3 millirems to the total body or 10 millirems to any organ [10 CFR 50, Appendix I, Section II, A].
- c) The calculated annual total quantity of all radioactive material above background to be released to the atmosphere will not result in an estimated annual air dose from gaseous effluents at any location near ground level which could be occupied by individuals in unrestricted areas in excess of 10 millirads for gamma radiation or 20 millirads for beta radiation [10 CFR 50, Appendix I, Section II, B.1].
- d) The calculated annual total quantity of all radioactive iodine and radioactive material in particulate form above background to be released in effluents to the atmosphere will not result in an estimated annual dose or dose commitment from such radioactive iodine and

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radioactive material in particulate form for any individual in an unrestricted area from all pathways of exposure in excess of 15 millirems to any organ [10 CFR 50, Appendix I, Section II, C].

When demonstrating compliance with the above requirements, the applicant should address the guidelines specified in 10 CFR 50, Appendix I, Section III. Regulatory Guides 1.109, 1.112, and 1.113 provide acceptable methods for performing this analysis.

8.2. Other Liquid and Gaseous Radioactive System Performance Standards

8.2.1. Holdup Capacity

Provide performance standards that ensure sufficient holdup capacity for retention of gaseous and liquid effluents containing radioactive materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment (10 CFR 50, Appendix A, Criterion 60). These standards should ensure that adequate capacity is provided to process liquid wastes during periods when major processing equipment may be down for maintenance and during periods of excessive waste generation.

8.2.2. System Leakage

The application should provide design and operational performance standards for liquid waste processing systems with a potential for leakage during normal operation and anticipated operational occurrences to control and contain this leakage to prevent contamination of building floors and interconnected systems [§20.1406(b)].

8.2.3. Minimizing Contamination

The application should describe design and operational performance standards to minimize, to the extent practicable, contamination of the facility and environment; facilitate eventual decommissioning; and minimize, to the extent practicable, the generation of radioactive waste [§20.1406(b)]. [Refer to information, as applicable to the technology, contained in the Memorandum from Larry W. Camper to David B. Matthews and Elmo E. Collins, dated October 10, 2006 (ADAMS Accession No. ML0619201830) and NUREG/CR-3587, as it relates to the design issues that should be addressed to meet the requirements of 10 CFR 20.1406(b).]

8.3. Solid radioactive waste [Changes to be proposed later]

Approach 3 - Revised ARCAP Chapter 8: Limited SAR Content Based on Performance-Based Approach – Compliance Not Demonstrated in Application

8. Control of Routine Plant Radioactive Effluents, Plant Contamination and Solid Waste

The routine operation of a nuclear power plant generates liquid, gaseous and solid waste which must be contained and properly stored or disposed of. General Design Criterion #60, contained in 10 CFR 50, Appendix A, requires reactor designs control the release of radioactive materials to the environment produced during normal operation and AOOs. 10 CFR 20 sets limits on the activity of liquid and gaseous waste which can be released into the environment. 10 CFR 50 contains guidelines for LWR releases of liquid and gaseous waste to the environment that are consistent with the policy of as low as reasonably achievable (ALARA). 10 CFR 52.47 requires designs to control radioactive effluents and exposures to the limits set forth in 10 CFR 20. 10 CFR 61 describes the classes of low-level waste and acceptable packaging for its disposal as a function of its composition and activity level. Accordingly, each reactor must have waste management systems that ensure the requirements of 10 CFR 20, 50, 52 and 61 are met, or propose alternate requirements consistent with the technology of the proposed design.

The guidance below summarizes the information that should be provided in an application that proposes to use performance monitoring to demonstrate compliance with the applicable regulations.

8.1. Liquid and Gaseous Effluents

Limits on the release of radioactive liquid and gaseous effluents during normal operation (including expected occurrences) are governed by the requirements in 10 CFR 20 and 10 CFR 50. Specifically:

- 10 CFR 20.1101 requires the licensee to use engineering controls and procedures to achieve doses to members of the public that are ALARA.
- 10 CFR 20.1301(a) specifies the allowable annual dose and allowable hourly dose to members of the public from routine operation.
- 10 CFR 20.1302(b) provides an alternative to 20.1301 by allowing the designer to show that the concentrations of radionuclides in liquid and gaseous effluents (contained in 10 CFR 20, Appendix B, Table 2) are not exceeded and specified annual and hourly doses to an individual in an unrestricted area are not exceeded.
- 10 CFR 20.1302(c) contains a provision allowing for adjustment of the concentrations contained in 10 CFR 20, Appendix B, Table 2, with Commission approval.
- 10 CFR 20.1406 requires that the design and operation minimize contamination of the facility and the environment.
- 10 CFR 50.34a requires the design objectives for the release of radioactive material in effluents be ALARA. Reference is made to 10 CFR 50, Appendix I, for numerical guidelines for ALARA doses for LWRs and Section IID of Appendix I for the use of cost-benefit analysis for further reductions in the numerical guidelines.

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- Sufficient holdup capacity shall be provided for retention of gaseous and liquid effluents containing radioactive materials (10 CFR 50, Appendix A, Criterion 60).

Compliance with the above requirements may be determined by monitoring the performance of the design features that control the liquid and gaseous effluents and by monitoring the releases themselves.

However, to support the use of a performance monitoring approach, the application should include information sufficient to allow the reviewer to understand the design and its nexus to safety. This would include a brief description of the design features that collect, process, release and monitor the radioactive liquid effluents as well as features to control spills and minimize contamination. This information should include:

- The sources of radioactive liquid and gaseous waste.
- The quantities and composition of liquid and gaseous radioactive waste contained in the components and systems.
- The instrumentation to be used to monitor the liquid and gaseous effluents.
- Design provisions to minimize contamination and control and collect any spillage.

It is expected that the radioactive liquid and gaseous waste systems will be analyzed as part of LBE analysis to determine their risk significance and contribution to LBE identification. Specifically, as stated in NEI 18-04, Section 3.2.1:

“The LBEs identified in the PRA can identify important events that have the potential to release radioactivity to the public. Thus, LBEs can inform the determination of the limiting source terms and potential releases to be considered for operational protection in normal operations as well as AOOs and DBEs that can then be used to identify design-specific shielding, filtering capability of the heating, ventilation, and air conditioning system, monitoring, and other requirements for different types of non-LWRs.”

Therefore, the LBE analysis may provide additional insights on the importance of the waste systems and help establish their design conditions, such as:

- Risk significance
- Safety classification
- Seismic classification
- Quality group for design and construction

These insights and design conditions should also be described in the application. Other areas that should be addressed in the application are:

- Any proposed adjustments to the radioactive concentration criteria contained in 10 CFR 20, Appendix B, Table 2, to be consistent with the reactor technology described in the application.
- For non-LWRs, ALARA doses may be proposed, including their bases, applicable to the design using an approach similar to that in 10 CFR 50, Appendix I, Section IID.

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- How the performance monitoring program will ensure that releases of radioactive liquid and gaseous effluents are consistent with the requirements in 10 CFR 20.1101, 1301 and 1302 and 10 CFR 50.34a (including Appendix I), or any proposed adjustments to the release criteria or concentrations. This description would include how the monitoring is to be done, how often it is to be done, the instrumentation to be used and the process for reviewing the results and determining compliance with the applicable requirements. The performance monitoring should be consistent with the guidance contained in NUREG/BR-0303, “Guidance for Performance-Based Regulation”, December 2002.

8.2. Solid Waste (Later)