

Sta 5 JUL 28 2000	12	ENGINEERING DATA TRANSMITTAL	Page 1 of <u>1</u> 1. EDT 627571
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2. To: (Receiving Organization) Plutonium Finishing Plant (PFP)				3. From: (Originating Organization) Fluor Federal Services				4. Related EDT No.: 627571			
5. Proj./Prog./Dept./Div.: Annual Update of PFP FSAR				6. Design Authority/Design Agent/Cog. Engr.: A. L. Ramble/M. K. Ullah				7. Purchase Order No.:			
8. Originator Remarks: The PFP FSAR was initially prepared to the format and content guidance to Nuclear Regulatory Guide 3.39. This compares and evaluates the current FSAR with the guidance of DOE-STD-3009-94. The comparison table provides areas of compliance and discrepancies.								9. Equip./Component No.: N/A			
11. Receiver Remarks: None								10. System/Bldg./Facility: N/A			
11A. Design Baseline Document? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No								12. Major Assem. Dwg. No.: N/A			
								13. Permit/Permit Application No.: N/A			
								14. Required Response Date:			
15. DATA TRANSMITTED								(F)	(G)	(H)	(I)
(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted				Approval Designator	Reason for Transmittal	Originator Disposition	Receiver Disposition
1	HNF-6533		0	Comparison Evaluation of the PFP FSAR (HNF-SD-CP-SAR-021) and NRC Regulatory Guide 3.39 with DOE-STD-3009-94.				ESQ			
16. KEY											
Approval Designator (F)			Reason for Transmittal (G)					Disposition (H) & (I)			
E, S, Q, D OR N/A (See WHC-CM-3-5, Sec. 12.7)			1. Approval 2. Release 3. Information		4. Review 5. Post-Review 6. Dist. (Receipt Acknow. Required)			1. Approved 2. Approved w/comment 3. Disapproved w/comment		4. Reviewed no/comment 5. Reviewed w/comment 6. Receipt acknowledged	
17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)											
(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN
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Comparison Evaluation of the PFP FSAR and NRC Regulatory Guide 3.39 with DOE-STD-3009-94

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

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Comparison Evaluation of the PFP FSAR and NRC Regulatory Guide 3.39 with DOE-STD-3009-94

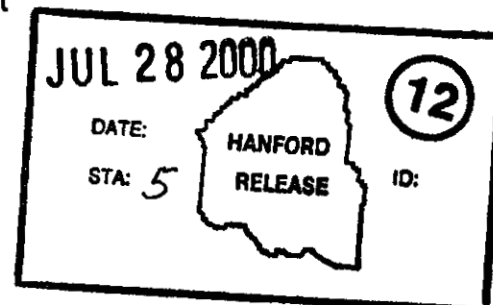
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Date Published
June 2000

Prepared for the U.S. Department of Energy
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U.S. Department of Energy under Contract DE-AC06-96RL13200

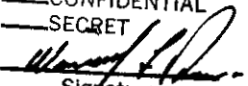
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Printed in the United States of America

Total Pages 112

Comparison Evaluation of the PFP FSAR (HNF-SD-CP-SAR-021) and NRC Regulatory Guide 3.39 with DOE-STD-3009-94

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Date Published
June 2000

Approved by:
Fluor Hanford, Inc.

Prepared for the U. S. Department of Energy

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Richland, Washington

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U.S. Department of Energy under Contract DE-AC06-96RL13200

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PREFACE

This comparison evaluation of the Plutonium Finishing Plant (PFP) Final Safety Analysis Report (FSAR) with the format and content guidance of U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide 3.39 and DOE-STD-3009-94, was prepared by Fluor Federal Services (FFS) for the Plutonium Finishing Plant. The following analysts participated in the development and review of this document: Eric E. Oscarson; Jay C. Lavender; James E. Shapley; and M. Kaleem Ullah.

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Comparison Evaluation of the PFP FSAR and NRC Regulatory Guide 3.39 with DOE-STD-3009-94

1.0 INTRODUCTION

One of the Plutonium Finishing Plant's (PFP) current Authorization Basis (AB) documents is the Final Safety Analysis Report (FSAR). This FSAR (HNF-SD-CP-SAR-021) was prepared to the format and content guidance specified in U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide 3.39, *Standard Format and Content of License Applications for Plutonium Processing and Fuel Fabrication Plants* (RG 3.39). In April 1992, the U.S. Department of Energy (DOE) issued DOE Order 5480.23 which established the FSAR requirements for DOE nonreactor nuclear facilities. In 1994, DOE issued DOE-STD-3009-94, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports*, which is a format and content guide addressing the preparation of FSARs in accordance with DOE Order 5480.23.

During the initial preparation and issuance of the PFP FSAR the format and content guidance contained in NRC Regulatory Guide 3.39 was utilized, since it was the most applicable guidance at the time for the preparation of Safety Analysis Reports for plutonium processing plants. With the adoption of DOE Order 5480.23 and DOE-STD-3009-94, DOE required the preparation of SARs to meet the format and content of those DOE documents. The PFP was granted an exemption to continue with RG 3.39 format for future FSAR revisions. PFP modifications and additions have required PFP FSAR modifications that have typically been prepared to the same NRC Regulatory Guide 3.39 format and content, to provide consistency with the PFP FSAR.

This document provides a table comparison between the 3009 and RG 3.39 formats to validate the extent of PFP FSAR compliance with the intent of DOE Order 5480.23 and DOE-STD-3009-94. This evaluation was initially performed on Revisions 1 and 1A of the PFP FSAR. With the preparation of a Revision 2 draft to the FSAR, sections with significant changes were reevaluated for compliance and the tables were updated, as appropriate. The tables resulting from this comparison provide a "road map" between the RG 3.39 format of the PFP FSAR and the requirements of 3009, to verify compliance with 3009 and identify any discrepancies. Because of the format differences between the RG 3.39 and 3009 guidance, the extent to which the PFP FSAR complies with 3009 is not entirely clear. No comparative evaluation of the existing PFP OSRs to the requirements contained in Chapter 5 of 3009 was performed.

2.0 METHODOLOGY

This comparison evaluation between the safety analysis requirements in DOE-STD-3009-94, those in NRC Regulatory Guide 3.39, and the implementation of RG 3.39 guidance in the PFP FSAR began with a tabular listing of the 3009 requirements. Next a team of

Safety Analysts, utilizing good engineering judgement and knowledge of both the NRC and DOE SAR guidance documents, reviewed the Regulatory Guide 3.39 guidance against each of the 3009 requirements, or topics, and correlate the various sections of RG 3.39 with the corresponding 3009 requirement section. The correlation of the requirements of RG 3.39 to 3009 is presented in Appendix A. Since the PFP FSAR was prepared to the requirements of RG 3.39, the evaluation of the level of compliance of the FSAR with the intent of 3009 guidance is based upon the comparison between the requirements of RG 3.39 and 3009 contained in Appendix A. The evaluation team considered the change in facility mission from plutonium material processing to material stabilization and facility transition to decontamination and decommissioning (D&D). The team focused on current operations and those 3009 requirements necessary to ensure safe facility operations. The results of the comparative evaluation of the FSAR with the two guidance documents are tabulated in Table 1.

The compliance evaluation in Table 1 was developed by assigning one of three categories of compliance (i.e., Meets intent of 3009; Partially meets 3009; or Does not meet 3009) to those RG 3.39 and related PFP FSAR sections, which correspond to each section or subsection of 3009.

“Meets intent of 3009” refers to those RG 3.39 or PFP FSAR sections that adequately describe or summarize the required material within a 3009 section. The evaluation that the referenced sections meet the intent of 3009 guidance is based upon a direct comparison of each section against the specific 3009 section. The RG 3.39 or PFP FSAR chapters/sections applicable to each evaluation are contained in the appropriate columns of Table 1.

“Partially meets 3009” refers to those RG 3.39 or PFP FSAR sections that do not fully meet the intent of 3009 guidance, either through omissions of information or lack of adequate detail in the presentation. Where more than one subtopic is covered in a 3009 section, lack of coverage of all the subtopics may be considered as partially meeting the requirements. If too much information is lacking the level of compliance may be considered as “Does not meet 3009.”

“Does not meet 3009” refers to those sections (topics) of 3009 which are either not addressed at all, or that were not adequately addressed within RG 3.39 or the PFP FSAR. Certain major topics or chapters of 3009 have very few or no sections that are not at least partially met by RG 3.39 or the PFP FSAR, while other chapters are essentially missing from the FSAR.

The results of this comparative evaluation are summarized in the following section.

3.0 RESULTS

This section presents the results of the comparative evaluation of the PFP FSAR (which was prepared to the requirements of RG 3.39) with the format and content guidance contained in DOE-STD-3009-94, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports*. This comparative evaluation applies to the main body of the

PFP FSAR, and not necessarily to the various addenda and appendices. The more recent addenda, and those in preparation, have been structured and formatted to comply with chapters 2, 3, 4, and 5 of the 3009 guidance document. No comparative evaluation of the existing PFP OSRs to the requirements contained in Chapter 5 of 3009 was performed.

Table 1 is a detailed listing of the approximately two hundred (200) DOE-STD-3009-94 topics (sections or subsections), the corresponding RG 3.39 and PFP FSAR sections, and the level of compliance with 3009 along with the rationale, where appropriate. A summary description of each level of compliance follows.

1. Meets intent of 3009.

Of the approximately 200 topics or sections addressed in 3009, there were 92 that were evaluated as being fully met by the PFP FSAR. The referenced sections were considered to at least meet the minimum requirements of 3009, and in many cases contained more information than was required. For example, most of the sections that address the chapter on "Site Characteristics" contain more detail and description than is required by either RG 3.39 or 3009. However, some sections may be considered to marginally meet the 3009 requirements. This category includes several sections relating to "Hazard Analysis" which utilize data and analysis in the appendices to supplement the chapter text.

There were Introduction and Requirements sections for each of the 17 chapters in 3009. Due to adherence to the format and content structure of RG 3.39, the PFP FSAR has no directly comparable sections. However, because each chapter and major subsection in the PFP FSAR contains introductory material in each of its chapters and major discussions or subsections, and has requirements embedded in the text, it was determined that the PFP FSAR meets the intent of 3009 for these sections. Although the material is structured in a different format, and the relevant references to requirements documents are contained within the body of the document text, the intent of 31 more sections of 3009 are considered to be met.

2. Partially meets 3009.

There were 48 topics in which the PFP FSAR was evaluated as only partially meeting the intent of 3009 guidance. Lack of adequate detail in some sections occurs when the required information is contained in supporting documents and only referenced in the FSAR without summarizing the information contained in the supporting document. As required in the 3009 SAR guidance, these chapters/sections need to contain summaries of the referenced information to be considered as fully meeting the intent of 3009. An example of this type of partial compliance would be the chapters on the "Derivation of Technical Safety Requirements" and "Quality Assurance," and the section on "Conduct of Operations." In those cases the reader is directed to PFP administrative procedures and supporting documents for both the summary and details of the programs. These procedures and supporting documents were not reviewed for compliance.

3. Does not meet 3009.

Out of the approximately 200 topics evaluated for compliance with 3009, there were 22 that were considered not to meet the requirements in 3009. Approximately one half of missing or inadequate information relates to the following two chapters: Chapter 8 - Hazardous Material Protection and Chapter 13 - Human Factors. These two chapters accounted for 10 of the 22 "Does not meet 3009" items. Hazardous material protection is addressed in several administrative procedures and supporting documents which are not summarized and/or referenced in the PFP FSAR. These documents contain adequate information to satisfy the requirements of 3009, however, 3009 requires a reasonable description or summary of the programs (topics) within the FSAR itself, and adequate references to the external documents. Therefore, the preparation of more complete summary sections for the Hazardous Material Protection program would move most of the inadequate sections into the category of "Meets or partially meets the intent of 3009." Chapter 13 - Human Factors has not been addressed at all within RG 3.39 or the PFP FSAR.

4.0 CONCLUSIONS

Of the approximately 200 topics or sections addressed in 3009, there were 92 that were evaluated as being fully met in the PFP FSAR. The compliant sections were considered to at least meet the minimum requirements of 3009, and in some cases contained more information than was required. In addition, there are 31 Introduction and Reference sections that are considered to meet the intent of 3009.

There were 48 topics in which the PFP FSAR was evaluated as only partially meeting the intent of 3009 guidance. The following 3009 chapters/sections contain the majority of requirements that are only partially met in the PFP FSAR:

- Chapter 5 – Derivation of Technical Safety Requirements,
- Chapter 8 – Hazardous Material Protection,
- Chapter 14 – Quality Assurance,
- Section 11.3 – Conduct of Operations.

There were 22 sections of the 3009 guidance document which were not adequately addressed in the PFP FSAR. Approximately one half of missing or inadequate information relates to the following 3009 chapters:

- Chapter 8 – Hazardous Material Protection,
- Chapter 13 – Human Factors.

The addition of a new section, "10.4.5 Chemical Management Programs," to Revision 2 of the PFP FSAR addresses about half of the Hazardous Material Protection sections or subsections (8 out of 13) in Chapter 8 of 3009 which had previously been considered not to be met. The degree of compliance addressed in those sections of 10.4.5 vary from "Partially meets" to "Meets the intent of 3009."

The comparative evaluation results and conclusions may change somewhat based upon results of the review of Revision 2 and the final incorporation of comments. It is anticipated that the changes resulting from comment incorporation will be small.

5.0 RECOMMENDATIONS

There are several areas where additions or modifications to the PFP FSAR text would result in closer compliance with the intent of DOE-STD-3009-94 guidance. These are identified as recommendations. Following is a listing of these recommendations, ranked according to the estimated order of importance:

1. The topic of hazardous material protection is not adequately addressed in the PFP FSAR. In Revision 1 of the FSAR there are only fragments of the hazardous material protection program, and they are scattered throughout various chapters and sections. There is a need to summarize in one place those aspects of the PFP hazardous material protection program, which are currently contained in administrative procedures. The draft of Revision 2 moves 8 of 13 sections from the "Does not meet 3009" category to the "Meets intent of 3009" (2) or "Partially meets 3009" (6) (see 4.0 Conclusions, regarding Revision 2).
2. Chapter 10.0, "Conduct of Operations," of the PFP FSAR is not structured to address the topics listed in Section 11.3 of 3009. Those listed topics are identified in Section 10.8, "Compliance with DOE Order 5480.19." However, there are no topic summaries, but only references to PFP administrative procedures and to DOE Order 5480.19. It is recommended that this FSAR section be revised to summarize the PFP Conduct of Operations program.
3. The PFP FSAR does not address the topic of Quality Assurance (Chapter 12.0) in sufficient detail to fully meet the intent of 3009 guidance. This chapter needs to be expanded to summarize those aspects of the QA program contained in FSP-PFP-5-8, Section 15.1, relating to: requirements; organization; quality improvement; documents and records; and QA performance, as specified in Chapter 14 of 3009.
4. Another potential area for improvements in the PFP FSAR relates to the organization and content of the Hazard and Accident Analysis chapter/sections. There exist numerous inconsistencies in format and content between recent and older analyzed accidents; and between FSAR Chapter 9 and the Chapter 9 appendices and addenda. This revision should include sections addressing or providing additional clarification regarding the selection of engineered and administrative barriers for accident mitigation, and to provide consistent bases for derivation of OSRs (TSRs).

PFP FSAR Chapter 11.0, "Operational Safety Requirements" (OSRs) was prepared to point the reader to the OSR document, WHC-SD-CP-OSR-010. This FSAR chapter currently does not address the "Derivation of Technical Safety Requirements" (DOE-

STD-3009, Chapter 5), provide their bases, or summarize the OSR program. This chapter should be expanded to support and provide the information necessary for the separate TSR (OSR) document, and should consist of summaries and references to pertinent sections of the FSAR in which design and administrative features are needed to prevent or mitigate the consequences of accidents. This chapter should also include brief abstracts of any referenced documentation to provide an understanding of their relation to this chapter. The bases for individual OSRs and summaries of the OSR program could be extracted from the OSR document. However, a discussion of the process for the derivation of OSRs would need to be developed.

5. It is not recommended that a new chapter on "Human Factors" be created for the FSAR, considering the age of the plant and equipment, current plant operations, and the limited remaining plant lifetime. Although there has been no structured Human Factors review of all equipment and processes, human factors are considered in the PFP Integrated Environmental, Safety and Health Management System (ISMS) Plan. In addition, work processes are routinely subjected to pre-job briefings, Job Hazard Analyses, and subject matter expert reviews. Hands-on operations and worker involvement are a major emphasis of the multi-disciplined work teams, which include management, engineering, operations, and safety personnel.

Current plans call for these recommendations to be addressed in the next PFP FSAR annual update (FY 2001).

6.0 REFERENCES

References within text of document

- BWHC, 1999, *Plutonium Finishing Plant Final Safety Analysis Report*, HNF-SD-CP-SAR-021, Rev 1, B&W Hanford Company, Richland, Washington.
- NRC, 1976, *Standard Format and Content of License Applications for Plutonium Processing and Fuel Fabrication Plants*, Regulatory Guide 3.39, NUREG-0010, U.S. Nuclear Regulatory Commission, Washington, D.C.
- DOE, 1992, *Nuclear Safety Analysis Reports*, DOE Order 5480.23, U.S. Department of Energy, Washington, D.C.
- DOE, 1994, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports*, DOE-STD-3009-94, U.S. Department of Energy, Washington, D.C.
- FH, 2000, *Plutonium Finishing Plant Operational Safety Requirements*, WHC-SD-CP-OSR-010, Revision 0-M, Fluor Hanford, Inc., Richland, Washington.

References within Table 1

- DOE Order 430.1A, *Life Cycle Asset Management*, dated November 14, 1998, U.S. Department of Energy, Washington, D.C.
- DOE Order 5480.19, Change 1, *Conduct of Operations Requirements for DOE Facilities*, dated May 18, 1992, U.S. Department of Energy, Washington, D.C.
- DOE Order 6430.1A, *General Design Criteria*, dated April 6, 1989, U.S. Department of Energy, Washington, D.C.
- FSP-PFP-0760, Rev. 13, Change 0, *Authorization Listing of the Emergency Response Organization for PFP*, dated April 5, 2000, B&W Hanford Company, Richland, Washington.
- FSP-PFP-0821, *PFP Conduct of Operations*, B&W Hanford Company, Richland, Washington.
- FSP-PFP-5-8, *Plutonium Finishing Plant Administration*, B&W Hanford Company, Richland, Washington.
- FSP-PFP-1121, *Plutonium Finishing Plant Training Administration*, B&W Hanford Company, Richland, Washington.

HNF-IP-0263-PFP, *Building Emergency Plan for the Plutonium Finishing Plant Complex*, B&W Hanford Company, Richland, Washington.

HNF-MP-0031, Rev. 3, *"Integrated Environment, Safety, and Health Management System Description"*, Fluor Hanford, Inc., Richland, Washington.

HNF-PRO-587, Rev. 1, *Laboratory Safety*, dated October 20, 1999, Fluor Hanford, Inc., Richland, Washington.

HNF-PRO-1819, Rev. 4, *PHMC Engineering Requirements*, dated January 24, 2000, Fluor Hanford, Inc., Richland, Washington.

HNF-PRO-2258, Rev. 0, *Chemical Management*, dated August 31, 1998, Fluor Hanford, Inc., Richland, Washington.

HSRCM-1, *Hanford Site Radiological Control Manual*, DOE/RL-96-109, Rev. 0, DOE Richland Operations Office, Richland, Washington.

ZAP-000-002, Rev. B, Change 0, *PFP Configuration Management Plan*, dated July 8, 1999, B&W Hanford Company, Richland, Washington.

ZAP-000-010, Rev. A, Mod 2, *"PFP Chemical Hygiene Plan"*, dated March 1, 2000, B&W Hanford Company, Richland, Washington.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾		PFP FSAR, Revision 1, January 1999 Compliance w/ 3009⁽³⁾	
	Chapter 1 Site Characteristics		Chapter/Section	Compliance w/ 3009⁽³⁾
1.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.		Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
1.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.		No corresponding section in the PFP FSAR.	N/A
1.3 SITE DESCRIPTION.	Meets intent of 3009.		3.1	Meets intent of 3009. The PFP FSAR adequately addresses both geography and demography.
1.3.1 Geography.	N/A. (See subsections below)		1.1.2, 1.2.1, Fig 1-1 thru 1-4	Meets intent of 3009. The PFP FSAR adequately addresses all of the topics listed below.
• State and county	Meets intent of 3009.		3.1.1 & 5.1.2.1	Meets intent of 3009. (See 3009 Section 1.3.1, PFP FSAR, Compliance)
• Location of site	Meets intent of 3009.		3.1.1 & 5.1.2.1	Meets intent of 3009. (See 3009 Section 1.3.1, PFP FSAR, Compliance)
• Map of site boundary	Meets intent of 3009.		3.1.1, 3.1.2, Fig 3-3, & Fig 3-4	Meets intent of 3009. (See 3009 Section 1.3.1, PFP FSAR, Compliance)
• Exclusion areas	Meets intent of 3009.		3.1.2, 5.1.2.2, & 5.1.2.3	Meets intent of 3009. (See 3009 Section 1.3.1, PFP FSAR, Compliance)
• Point where Evaluation Guidelines applied	Does not meet 3009. No corresponding section in RG 3.39.		Tables 9-37, 9-38, 9-39, & 9-40	Meets intent of 3009. (See 3009 Section 1.3.1, PFP FSAR, Compliance)
• Additional maps	Not required.		3.1.2, Fig 3-4	Meets intent of 3009. (See 3009 Section 1.3.1, PFP FSAR, Compliance)
1.3.2 Demography.	Meets intent of 3009.		3.1.3 & 3.1.4	Meets intent of 3009. There is no mention of major institutions in the PFP FSAR, however, towns/cities within a 50 mile radius of the HMS are provided. (See subsections below)
1.4 ENVIRONMENTAL DESCRIPTION	N/A. (See subsections below)		(See subsections below)	
1.4.1 Meteorology.	Meets intent of 3009. More detail in 3.39 than required by 3009.		3.3, 3.3.1, 3.3.2, 3.3.3, 3.4.5, & 3.6.6	Meets intent of 3009. More meteorology detail in PFP FSAR than required by 3009.
1.4.2 Hydrology.	Meets intent of 3009.		3.4 & 3.5	Meets intent of 3009. Both the surface and subsurface hydrology of the Hanford Site and the PFP are described in the PFP FSAR.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
1.4.3 Geology.	Meets intent of 3009. More detail in 3.39 than required by 3009.	3.6	Meets intent of 3009. More geological detail in PFP FSAR than required by 3009.
1.5 NATURAL PHENOMENA THREATS.	Meets intent of 3009.	2.1.1	Meets intent of 3009. The natural phenomena threats considered applicable to the PFP are addressed in the PFP FSAR.
1.6 EXTERNAL MAN-MADE THREATS.	Meets intent of 3009.	2.1.3 & 3.2	Meets intent of 3009. Potential threats from nearby facilities comprise the man-made threats considered applicable to the PFP.
1.7 NEARBY FACILITIES.	Meets intent of 3009.	3.2 & 3.1.4	Partially meets intent of 3009. Potential impacts from nearby facilities are described in the listed sections. There is no analysis of impacts from the PFP on other facilities.
1.8 VALIDITY OF EXISTING ENVIRONMENTAL ANALYSES.	Does not meet 3009. No corresponding section in RG 3.39.	3.1.4, 3.6.1.3, 3.6.1.3.1, & 3.6.2.5	Does not meet 3009. The EIS and EA are referenced in the sections on "Site Geography and Demography" and on "Hanford Site Geology," however, there is no assessment of the validity of existing environmental analyses.
Chapter 2 Facility Description			
2.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
2.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	N/A	
2.3 FACILITY OVERVIEW.	Meets intent of 3009.	1.1, 1.1.1, 1.1.2, & 1.1.3	Meets intent of 3009. These sections of the PFP FSAR provide an overview of the Safety Analysis Report, the Facility, and the Operations.
2.4 FACILITY STRUCTURE.	Meets intent of 3009.	5.1.1, 5.2, & 6.5.6	Meets intent of 3009. These sections of the PFP FSAR provide an overview of the facility buildings and structures.
2.5 PROCESS DESCRIPTION.	Meets intent of 3009.	6.0	Meets intent of 3009. This chapter of the PFP FSAR adequately describes the PFP processes.
2.6 CONFINEMENT SYSTEMS.	Meets intent of 3009.	5.1.2.6, 5.2, & 5.4.1	Meets intent of 3009. These sections of the PFP FSAR adequately describe the PFP confinement systems.
2.7 SAFETY SUPPORT SYSTEMS.	Meets intent of 3009.	5.3, 5.4.10, 5.4.11, & 5.4.14	Meets intent of 3009. These sections of the PFP FSAR adequately describe the PFP safety support systems.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
2.8 UTILITY DISTRIBUTION SYSTEMS.	Meets intent of 3009.	5.1.2.4, 5.4.2, 5.4.3, 5.4.4, 5.4.5, 5.4.6, 5.4.7, & 5.4.8	Meets intent of 3009. These sections of the PFP FSAR adequately describe the PFP utility distribution systems.
2.9 AUXILIARY SYSTEMS AND SUPPORT FACILITIES.	Meets intent of 3009.	5.1.2.5, 5.4.9, 5.4.12, 5.4.13, & 5.4.14	Meets intent of 3009. These sections of the PFP FSAR adequately describe the PFP auxiliary systems and support facilities.
Chapter 3 Hazard and Accident Analysis			
3.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
3.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	
3.3 HAZARD ANALYSIS.	Does not meet 3009. RG 3.39 addresses Abnormal Operations and Accident Analyses, but does not provide a systematic Hazards Identification and Evaluation process.	9.0, 9.0.2 Preliminary Analysis, Appendix 9A, Appendix 9D, and Appendix 9F	Partially meets 3009. Except for the Hazard Evaluation and Hazard Classification processes, the PFP FSAR hazards analyses developed in chapter 9 and the associated appendices meet the intent of 3009.
3.3.1 Methodology.		9.0.2, Appendix 9A (Methodology), Appendix 9D (1.1 Methodology), & Appendix 9F (9F.2 PHA Methodology)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.3.1.1 Hazard Identification.		Appendix 9A & Appendix 9D (1.1.1)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.3.1.2 Hazard Evaluation.	Does not meet 3009. No corresponding section in RG 3.39.	Appendix 9D (1.3)	Partially meets 3009. There is no Hazard Evaluation methodology subsection in Chapter 9 or Appendix 9A.
3.3.2 Hazard Analysis Results.	Does not meet 3009. No corresponding section in RG 3.39.	Appendix 9A.1, Appendix 9D (1.4), & Appendix 9F (9F.4)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.3.2.1 Hazard Identification.	Does not meet 3009. No corresponding section in RG 3.39.	Appendix 9A, Appendix 9D, & Appendix 9F (See Tables)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.3.2.2 Hazard Classification.	Does not meet 3009. No corresponding section in RG 3.39.	Existing facility, no formal DOE-STD-1027 Hazard Classification. Facility is stated to be Haz Cat 2.	Does not meet 3009. There is no documented Hazard Classification in the PFP FSAR.
3.3.2.3 Hazard Evaluation.	Does not meet 3009. No corresponding section in RG 3.39.	Appendix 9A, Appendix 9D, & Appendix 9F (9F.4.3) (See Tables)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
3.3.2.3.1 Planned Design and Operational Safety Improvements.	Does not meet 3009. No corresponding section in RG 3.39.	Appendix 9A, Appendix 9D, & Appendix 9F (See Tables)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.3.2.3.2 Defense in Depth.	The listed RG 3.39 sections discuss items important to safety, but do not differentiate between Defense-in-Depth, Safety Significant, and Safety Class items.	Appendix 9A, Appendix 9D, & Appendix 9F (See Tables)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.3.2.3.3 Worker Safety.	Same as 3.3.2.3.2 above.	Appendix 9A, Appendix 9D, & Appendix 9F (See Tables)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.3.2.3.4 Environmental Protection.	Does not meet 3009. No corresponding section in RG 3.39.	Appendix 9D (1.5), Appendix 9F (9F.5), & Tables for 9A, 9D, & 9F	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.3.2.3.5 Accident Selection.	Partially meets 3009. There is no systematic Hazards Analysis required by RG 3.39.	Appendix 9A, Appendix 9D, & Appendix 9F (See Tables)	Meets intent of 3009. (See 3009 Section 3.3, PFP FSAR, Compliance)
3.4 ACCIDENT ANALYSIS.	Meets intent of 3009.	9.0, 9.0.1, & 9.2	Meets intent of 3009. The analysis of accidents presented in the PFP FSAR is summarized in section 9.0.1 and developed in detail for the DBAs in section 9.2.
3.4.1 Methodology.	Meets intent of 3009.	9.2, 9.3, & 9.4	Meets intent of 3009. These sections of the PFP FSAR adequately describe the accident methodology, dosimetry calculations, and risk guidelines & evaluation.
3.4.2 Design Basis Accidents.	Meets intent of 3009.	9.2	Meets intent of 3009. This section of the PFP FSAR describes and analyzes each of the PFP design basis accidents (DBAs).
3.4.2.X [Applicable DBA.	Meets intent of 3009.	9.2.X	Meets intent of 3009. (See 3.4.2.X.Y subsections below)
3.4.2.X.1 Scenario Development.	Meets intent of 3009.	9.2.X	Meets intent of 3009. The scenarios for each of the DBAs are developed in the applicable subsections of section 9.2.C.
3.4.2.X.2 Source Term Analysis.	Meets intent of 3009.	9.2.X & 9.3	Meets intent of 3009. The PFP source term analyses were developed in section 9.2.C based upon the dosimetry calculation methodology in section 9.3.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
3.4.2.X.3 Consequence Analysis.	Meets intent of 3009.	9.2.X, 9.3, Tables 9-1, 9-20, 9-21, 9-22, 9-32, 9-33, 9-34, & 9-36	Meets intent of 3009. The PFP accident consequence analyses were performed in Section 9.2.X based upon the dosimetry calculation methodology in section 9.3. The results are summarized in the referenced tables.
3.4.2.X.4 Comparison to Guidelines.	Partially meets 3009. Evaluation Guidelines are not required by RG 3.39.	9.2.X, 9.4, Tables 9-1, 9-49, 9-50, & 9-53	Meets intent of 3009. The results of the consequence analyses were evaluated against the risk guidelines, as described in section 9.4. The results are summarized in the referenced tables.
3.4.2.X.5 Summary of Safety-Class SSCs and TSR Controls.	Partially meets 3009. Evaluation Guidelines are not required by RG 3.39.	4.5, 9.2.X (Mitigation sections & Conclusion sections), Table 4-7, Table 4-8, and Tables 5-1 & 5-2 of the Thermal Stabilization Addendum to the PFP FSAR, Rev OK	Meets intent of 3009. Since the SSCs and Controls are dispersed throughout Section 9.2 of the PFP FSAR, it is easier to review the summaries contained in Tables 4-7 & 4-8 of the FSAR and in Tables 5-1 & 5-2 of the referenced addendum.
3.4.3 Beyond Design Basis Accidents.	Does not meet 3009. No corresponding section in RG 3.39.	Not covered by PFP FSAR	Does not meet 3009. There is no discussion of "beyond design basis accidents" in the PFP FSAR.
Chapter 4 Safety Structures, Systems, and Components			
4.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
4.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	N/A	
4.3 SAFETY-CLASS SYSTEMS, STRUCTURES, AND COMPONENTS.	Partially meets 3009. There is no distinction between Safety Class and Safety Significant SSCs in RG 3.39.	4.5 & Tables 4-7 & 4-8	Partially meets 3009. The System Evaluation subsection does not meet 3009. The development of PFP Safety Class SSCs is described in Section 4.5 and they are listed in Tables 4-7 and 4-8.
4.3.X [Applicable Safety-class System, Structure, or Component].	Meets intent of 3009.	4.4, 4.5	Partially meets 3009. The System Evaluation subsection does not meet 3009. The development of PFP Safety Class SSCs is described in Section 4.5 and applies to the safety protection systems in Section 4.4. (See 4.3.X.Y subsections below)
4.3.X.1 Safety Function.	Meets intent of 3009.	4.3, 4.4, 4.5, & Tables 4-7 & 4-8	Meets intent of 3009. The criteria and methodology for designating systems as Safety Class SSCs are developed in Sections 4.3, 4.4, & 4.5. The functions for individual systems are in Tables 4-7 & 4-8.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
4.3.X.2 System Description.	Meets intent of 3009. SSCs are described in detail in chapters 5, 6, and others, as necessary.	4.4, 5.0, & 6.0	Meets intent of 3009. The PFP safety protection systems are described in the referenced sections of the PFP FSAR.
4.3.X.3 Functional Requirements.	Meets intent of 3009. SSCs are described in detail in chapters 5, 6, and others, as necessary.	4.3, 4.4, 4.5, & Tables 4-7 & 4-8	Meets intent of 3009. The criteria and methodology for designating systems as Safety Class SSCs are developed in Sections 4.3, 4.4, & 4.5. The functions for individual systems are in Tables 4-7 & 4-8.
4.3.X.4 System Evaluation.	Meets intent of 3009.	4.5 & Tables 4-7 & 4-8	Does not meet 3009. The PFP FSAR does not contain specific criteria or methodology for system evaluations. It may be argued that SSCs must be designed to satisfy the Functional Requirements in Tables 4-7 & 4-8, but no evaluation is documented.
4.3.X.5 Controls (TSRs).	Meets intent of 3009.	5.2.1.2.3, 5.2.2.2.3, 5.2.4.2.3, 6.2.9, 6.4.1.4.4, 6.5.1.1.1, 6.6.1.2, & 11.0	Meets intent of 3009. The controls required for the SSCs are developed and documented in WHC-SD-CP-OSR-010.
4.4 SAFETY-SIGNIFICANT STRUCTURES, SYSTEMS, AND COMPONENTS.	Same evaluation as for the comparable Safety Class SSC section above.	4.5 & Tables 4-7 & 4-8	Partially meets 3009. The System Evaluation and the Controls subsections do not meet 3009. The development of PFP Safety Significant SSCs is described in Section 4.5 and they are listed in Tables 4-7 and 4-8.
4.4.X [Applicable Safety-significant System, Structure, or Component.	Partially meets 3009.	4.4, 4.5	Partially meets 3009. The System Evaluation and the Controls subsections do not meet 3009. The development of PFP Safety Significant SSCs is described in Section 4.5 and applies to the safety protection systems in Section 4.4. (See subsections below)
4.4.X.1 Safety Function.	Partially meets 3009.	4.3, 4.4, 4.5, & Tables 4-7 & 4-8	Meets intent of 3009. The criteria and methodology for designating systems as Safety Significant SSCs are developed in Sections 4.3, 4.4, & 4.5. The functions for individual systems are in Tables 4-7 & 4-8.
4.4.X.2 System Description.	Partially meets 3009.	4.4, 5.0, & 6.0	Meets intent of 3009. The PFP safety protection systems are described in the referenced sections of the PFP FSAR.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
4.4.X.3 Functional Requirements.	Partially meets 3009.	4.3, 4.4, 4.5, & Tables 4-7 & 4-8	Meets intent of 3009. The criteria and methodology for designating systems as Safety Significant SSCs are developed in Sections 4.3, 4.4, & 4.5. The functions for individual systems are in Tables 4-7 & 4-8.
4.4.X.4 System Evaluation.	Partially meets 3009.	4.5 & Tables 4-7 & 4-8	Does not meet 3009. The PFP FSAR does not contain specific criteria or methodology for system evaluations. It may be argued that SSCs must be designed to satisfy the Functional Requirements in Tables 4-7 & 4-8, but no evaluation is documented.
4.4.X.5 Controls (TSRs).	Partially meets 3009.	No corresponding section in the PFP FSAR.	Does not meet 3009. OSR level controls are not developed for Safety Significant SSCs.
Chapter 5 Derivation of Technical Safety Requirements			
5.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
5.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	N/A
5.3 TSR COVERAGE.	Meets intent of 3009. Chapters 5 & 6 provide bases for establishing controls, SSCs, & programmatic (admin.) requirements.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010.
5.4 DERIVATION OF FACILITY MODES.	Meets intent of 3009.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010.
5.5 TSR DERIVATION.	Meets intent of 3009. Chapters 5 & 6 provide bases for establishing controls, SSCs, & programmatic (admin.) requirements.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010.
5.5.X [Applicable Hazard/Feature/TSR "X"].	Meets intent of 3009.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
5.5.X.1 Safety Limits, Limiting Control Settings, and Limiting Conditions for Operation.	Meets intent of 3009.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010. (Sections 1.7, 1.8, 1.9, 2.0 & 3.0)
5.5.X.2 Surveillance Requirements.	Meets intent of 3009.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010. (Sections 1.10 & 3.0)
5.5.X.3 Administrative Controls.	Meets intent of 3009.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010. (Section 5.0)
5.6 DESIGN FEATURES.	Meets intent of 3009.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010. (Appendix B)
5.7 INTERFACE WITH TSRS FROM OTHER FACILITIES.	Does not meet 3009. No corresponding section in RG 3.39.	11.0	Partially meets 3009. Operational Safety Requirements (OSRs) are developed for the PFP rather than TSRs. The entire development process and detailed OSRs are contained in WHC-SD-CP-OSR-010. (AC 5.19)
Chapter 6 Prevention of Inadvertent Criticality			
6.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
6.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	N/A	
6.3 CRITICALITY CONCERNS.	Does not meet 3009.	Meets intent of 3009. Section 5.2.1.2.2 of the PFP FSAR indicates locations of fissile material in the facility and Table 5-5 contains the total plutonium limits by room and building.	
6.4 CRITICALITY CONTROLS.	Partially meets 3009. Not to level of detail required by 3009.	Meets intent of 3009. These sections of the PFP FSAR adequately address criticality safety design limits, bases, and design configurations.	

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
6.4.1 Engineering Controls.	Partially meets 3009. Not to level of detail required by 3009.	4.4.4.1, 4.5.4, 5.2.1.2.2, 5.2.1.2.3, 5.2.2.2.3, 5.2.8.7, & 6.2.9.1	Meets intent of 3009. These sections of the PFP FSAR adequately address those engineering controls used for maintaining subcritical conditions under normal, abnormal, and accident conditions.
6.4.2 Administrative Controls.	Partially meets 3009. Not to level of detail required by 3009.	4.4.4.1, 5.2.1.2.2, 5.2.2.2.3, 5.2.4.2.2, 5.2.8.3.2, & 6.2.9.1	Meets intent of 3009. These sections of the PFP FSAR adequately address those administrative controls used to prevent criticality.
6.4.3 Application of Double Contingency Principle.	Partially meets 3009. Not to level of detail required by 3009.	4.4.4.2, 6.2.9, 6.2.9.1.1, 6.3.9, 6.4.1.9, 6.4.1.9.1, & 6.5.1.9	Meets intent of 3009. These sections of the PFP FSAR adequately address the application of double contingency principles to ensure that no single failure can result in a criticality accident.
6.5 CRITICALITY PROTECTION PROGRAM.	Partially meets 3009. Not to level of detail required by 3009.	4.4.4	Partially meets 3009. The PFP FSAR does not contain the level of detail required by 3009. Other administrative procedures may contain details of the Criticality Safety program.
6.5.1 Criticality Safety Organization.	Partially meets 3009. Not to level of detail required by 3009.	10.1	Partially meets 3009. The PFP FSAR does not contain the level of detail required by 3009. Section B of FSP-PFP-5-8 does contain the organizational structure and responsibilities.
6.5.2 Criticality Safety Plans and Procedures.	Partially meets 3009. Not to level of detail required by 3009.	5.2.2.2.3, 6.2.3.2.1, 6.2.9.1.1, 6.2.9.1.2, 6.4.2.3.1, 6.5.4.4.1, 6.6.1.3.1, 10.4.1, 10.4.2, 10.4.3, & 10.4.4	Partially meets 3009. The PFP FSAR does not contain a comprehensive description of PFP criticality safety plans and procedures. Other administrative procedures may contain the required details.
6.5.3 Criticality Safety Training.	Meets intent of 3009.	6.2.9.1.1, 10.1.6, 10.3	Partially meets 3009. The PFP FSAR does not contain the level of detail required by 3009. FSP-PFP-1121, Chapter 1.0, contains Criticality Safety training requirements for personnel in fissionable material facilities.
6.5.4 Determination of Operational Nuclear Criticality Limits.	Partially meets 3009. Not to level of detail required by 3009.	4.4.4.3, 6.2.9.1.2, 6.3.9.1.1, 6.4.1.4.4, 6.4.1.9.1, & Table 5-5	Meets intent of 3009. These sections of the PFP FSAR address those administrative controls used to prevent criticality and the development of Criticality Prevention Specifications.
6.5.5 Criticality Safety Inspections/Audits.	The inspections/audits in these sections are generic and not criticality specific.	12.3	Does not meet 3009. The inspections/audits in this section are generic and not criticality specific.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾		PFP FSAR, Revision 1, January 1999	
	Meets intent of 3009.	Chapter/Section	Compliance w/ 3009⁽³⁾	
6.5.6 Criticality Infraction Reporting and Follow-Up.	Meets intent of 3009.	10.4.4.2	Does not meet 3009. The occurrence reporting and follow-up in this section, and in FSP-PFP-5-8 (Section 1.4) are generic and not criticality specific.	
6.6 CRITICALITY INSTRUMENTATION.	Meets intent of 3009.	4.4.5.3, 5.2.1.2.3, 5.2.2.2.3, 5.4.2.1.9, 5.4.2.1.10, 5.4.2.2.11, 5.4.10.1.7, 5.4.10.2.1, 6.2.5.1, 6.4.1.4.4, 6.4.2.3.2, 6.6.1.3.1, & 8.3.4.1	Meets intent of 3009. These sections of the PFP FSAR adequately describe the PFP Criticality Alarm System and personnel dosimetry.	
Chapter 7 Radiation Protection				
7.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.		Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
7.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.		No corresponding section in the PFP FSAR.	N/A
7.3 RADIATION PROTECTION PROGRAM AND ORGANIZATION.	Meets intent of 3009.	8.0, 8.1.1, 8.5, & 10.0	Meets intent of 3009. These sections of the PFP FSAR provide an adequate description of the PFP Radiation Protection (Control) Program and organization. Additional details of organizational structure are contained in FSP-PFP-5-8 (Section B)	
7.4 ALARA POLICY AND PROGRAM.	Meets intent of 3009.	8.1.1, 8.1.2, 8.1.3, 8.3.3.1.1, 8.4, 8.5.2.2, & 8.5.2.5.4	Meets intent of 3009. These sections of the PFP FSAR describe the ALARA policy and program for the PFP facility.	
7.5 RADIOLOGICAL PROTECTION TRAINING.	Meets intent of 3009.	8.5.2.5, 8.5.2.5.1, & 10.3	Partially meets 3009. These sections of the PFP FSAR briefly describe plans and procedures for training. Additional details of general employee, radiation worker, RPT, and manager training for work in radiological areas are contained in FSP-PFP-1121.	
7.6 RADIATION EXPOSURE CONTROL.	Meets intent of 3009.	8.1.3, 8.3.1.7, 8.3.2, 8.3.3, 8.3.5, 8.5, 8.5.1, & 8.5.2	Meets intent of 3009. These sections of the PFP FSAR describe the plans and procedures for controlling radiation exposure, spread of contamination, and internal deposition of radioactive materials.	

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
7.6.1 Administrative Limits.	Partially meets 3009. Related only to ALARA and NRC limits.	8.1.2, 8.1.3, 8.3.2, 8.5.2, 8.5.2.7, Tables 8-10, 8-11, 8-12, & 8-14	Meets intent of 3009. These sections of the PFP FSAR describe the facility administrative control levels and dose limits for the PFP facility. Additional details are contained in FSP-PFP-5-8 (Section 1.1) and HSRCM-1.1.
7.6.2 Radiological Practices.	Meets intent of 3009.	8.0, 8.1.1, 8.1.2, 8.2, 8.2.1, 8.2.1.3.3, 8.3.1, 8.3.1.6, 8.3.1.7, 8.3.2, 8.3.3.1.4, 8.4, 8.5, 8.5.1.9.1, 8.5.1.10, 8.5.1.11, 8.5.2.3, & 8.5.2.9	Meets intent of 3009. These sections of the PFP FSAR summarize the exposure controls directly associated with radiological activities at the PFP facility. Additional practices are contained in HSRCM-1.1.
7.6.3 Dosimetry.	Meets intent of 3009.	8.1.1, 8.5.1.11, 8.5.1.12, 8.5.2.3, 8.5.2.6.1, 8.5.2.7, & 8.5.2.8	Meets intent of 3009. These sections of the PFP FSAR describe the dosimetry program for monitoring the internal and external radiation exposure of PFP employees. Additional dosimetry practices are contained in HSRCM-1.1.
7.6.4 Respiratory Protection.	Meets intent of 3009.	8.2.2, 8.3.3.1, 8.3.5.2, 8.4, 8.5.1.8, 8.5.2.9, & 8.5.2.10	Meets intent of 3009. These sections of the PFP FSAR summarize the plans and procedures for respiratory protection of workers at the PFP facility.
7.7 RADIOLOGICAL MONITORING.	Meets intent of 3009.	8.0, 8.1.2, 8.2.1.2.1, 8.2.2, 8.3.1.7, 8.3.3.2.5, 8.3.4, 8.3.4.1.1, 8.3.4.1.2, 8.3.4.2, 8.3.5, 8.3.5.1, 8.3.5.2, 8.3.5.3, 8.4, 8.5.1, 8.5.1.2, 8.5.1.3, 8.5.1.4, 8.5.2.1, 8.5.2.4, 8.5.2.7, 8.5.2.9, 8.6, & 8.6.1	Meets intent of 3009. These sections of the PFP FSAR summarize the programs and equipment used to monitor and/or sample both airborne and nonairborne radioactive material within the facilities and the environs.
7.8 RADIOLOGICAL PROTECTION INSTRUMENTATION.	Meets intent of 3009.	8.2.1.2.2, 8.2.2, 8.3.1.7, 8.3.4, 8.3.5.2.2, 8.3.5.3, 8.4, 8.5, 8.5.1, 8.5.1.2, 8.5.2.4, 8.5.2.5.2, 8.5.2.9, & Table 8-13	Meets intent of 3009. These sections of the PFP FSAR summarize the programs and procedures for fixed, portable, and laboratory radiological instruments.
7.9 RADIOLOGICAL PROTECTION RECORD KEEPING.	Meets intent of 3009.	8.3.5.1, 8.5.1.4, 8.5.1.5, 8.5.1.6, 8.5.1.11, 8.5.2, 8.5.2.5 (RIDS), 10.4.4, & 10.4.4.1	Meets intent of 3009. These sections of the PFP FSAR summarize the plans and procedures for control and disposition of radiological protection records.
7.10 OCCUPATIONAL RADIATION EXPOSURES.	Meets intent of 3009.	8.4, Tables 8-14 & 8-15	Meets intent of 3009. This section of the PFP FSAR describes the process for estimating Person-Rem exposure to PFP operating personnel. Table 8-15 lists the annual worker exposures for a calendar year.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	Chapter/Section	PFP FSAR, Revision 1, January 1999 Compliance w/ 3009⁽³⁾
Chapter 8 Hazardous Material Protection			
8.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	4.4.8, 5.4.13, 5.4.13.1.2, 5.4.13.3.4, 5.4.13.5, 5.4.13.6, 5.4.14, 5.4.14.1, Tables 5-30 & 5-31, 6.2.9.2, 6.4.1.9.2, 6.4.2.9.2, 6.5.9.2, 6.6.1.3, & 6.6.1.3.3	The PFP FSAR does not adequately address this chapter of 3009; however, the FSAR does reference those documents that do contain an adequate Hazardous Material Protection program. In particular, ZAP-000-010 is the PFP Chemical Hygiene Plan. (See HNF-MP-003, HNF-PRO-2258, HNF-PRO-587, & ZAP-000-010)
8.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	N/A
8.3 HAZARDOUS MATERIAL PROTECTION AND ORGANIZATION.	Partially meets 3009. Generic organization, not specific to hazardous material protection.	10.4.5.1, 10.4.5.2, & 10.4.5.3 Draft Revision 2 sections.	Partially meets 3009. These draft sections to the PFP FSAR describe the basic structure of the Hazardous Material Protection Organization, but lack some of the details desired. There is lack of an adequate summary of the program, including management policies and philosophies.
8.4 ALARA POLICY AND PROGRAM.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	Does not meet 3009.
8.5 HAZARDOUS MATERIAL TRAINING.	Partially meets 3009. Not to level of detail required by 3009.	10.4.5.3.1, 10.4.5.3.2 (3), & 10.4.5.3.3 (2) Draft Revision 2 sections.	Partially meets 3009. These draft sections to the PFP FSAR specify the type of training that is required, but do not summarize the plans and procedures for hazardous material training.
8.6 HAZARDOUS MATERIAL EXPOSURE CONTROL.	Partially meets 3009. No requirement for IH program.	See subsections below	Partially meets 3009.
8.6.1 Hazardous Material Identification Program.	Partially meets 3009. Not clear if plant or people are protected.	10.4.5.3.1 & 10.4.5.3.2 (1) & (4) Draft Revision 2 sections.	Meets intent of 3009. These draft sections of the PFP FSAR adequately summarize the Hazardous Material Identification Program.
8.6.2 Administrative Limits.	Partially meets 3009. Specific to process control.	No corresponding section in the PFP FSAR.	Does not meet 3009.
8.6.3 Occupational Medical Programs.	Does not meet 3009. No corresponding section in RG 3.39.	10.4.5.3.3 Draft Revision 2 section.	Partially meets 3009. This draft section to the PFP FSAR identifies occupational medical programs for chemical hazards and references other administrative procedure documents, but does not summarize their components.

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DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	Chapter/Section	PFP FSAR, Revision 1, January 1999 Compliance w/ 3009⁽³⁾
8.6.4 Respiratory Protection.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	Does not meet 3009. See PFP FSAR Chapter 8 (Section 8.5.1.8) for the respiratory protection program for radioactive materials
8.7 HAZARDOUS MATERIAL MONITORING.	Does not meet 3009. No corresponding section in RG 3.39.	10.4.5.3.3 (Exposure Monitoring) Draft Revision 2 section.	Partially meets 3009. This draft section to the PFP FSAR exposure monitoring programs for chemical hazards and references other administrative procedure documents, but does not summarize their components. Does not meet 3009.
8.8 HAZARDOUS MATERIAL PROTECTION INSTRUMENTATION.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	
8.9 HAZARDOUS MATERIAL PROTECTION RECORD KEEPING.	Partially meets 3009. Not specific to hazardous chemicals.	10.4.5.3.1 & 10.4.5.3.2 (1) & (4) Draft Revision 2 sections.	Meets intent of 3009. These draft sections of the PFP FSAR adequately summarize the Hazardous Material Protection Record Keeping Program.
8.10 HAZARD COMMUNICATION PROGRAM.	Partially meets 3009. Not specific to hazardous chemicals.	10.4.5.3.1 & 10.4.5.3.3 Draft Revision 2 sections.	Partially meets 3009. These draft sections to the PFP FSAR specify the components of the Hazard Communication program, but do not summarize the plans and procedures for the program.
8.11 OCCUPATIONAL CHEMICAL EXPOSURES.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	Does not meet 3009.
Chapter 9 Radioactive and Hazardous Waste Management			
9.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
9.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	N/A
9.3 RADIOACTIVE AND HAZARDOUS WASTE MANAGEMENT PROGRAM AND ORGANIZATION.	Meets intent of 3009.	7.0, & 10.1	Partially meets 3009. There does not appear to be a well-defined Radioactive and Hazardous Waste Management program and organization presented in the PFP FSAR. Additional details are found in Section B of FSP-PFP-5-8.
9.4 RADIOACTIVE AND HAZARDOUS WASTE STREAMS AND SOURCES.	Meets intent of 3009.	7.1, 7.2, 7.3, 7.4, & 7.5	Meets intent of 3009. These sections of the PFP FSAR summarize the solid, liquid, and gaseous waste streams and sources. The handling and treatment processes are described in these sections.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999 Compliance w/ 3009⁽³⁾	
		Chapter/Section	Compliance
9.4.1 Waste Management Process.	Meets intent of 3009.	7.1.1, 7.2.1, 7.2.3, 7.2.4, 7.3.1, 7.3.3, 7.4, & 7.5	Meets intent of 3009. These sections of the PFP FSAR describe the waste management processes, and the administrative and operational practices employed at PFP.
9.4.2 Waste Sources and Characteristics.	Meets intent of 3009.	7.1.2, 7.1.3, 7.2.2, 7.3.6, Tables 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, & 7-7	Meets intent of 3009. These sections of the PFP FSAR summarize the waste sources (streams) and the appropriate waste treatment or handling systems. The referenced tables list the releases by waste stream.
9.4.3 Waste Handling or Treatment Systems.	Meets intent of 3009.	7.1.1, 7.2.1, 7.2.3, 7.3.1, 7.3.4, 7.3.5, 7.3.7, 7.3.8, 7.4, & 7.5	Meets intent of 3009. These sections of the PFP FSAR describe the waste handling and treatment processes used in the PFP facilities.
Chapter 10 Initial Testing, In-service Surveillance, and Maintenance			
10.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
10.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	N/A
10.3 INITIAL TESTING PROGRAM.	Meets intent of 3009.	10.2	Meets intent of 3009. This section of the PFP FSAR summarizes the Preoperational Testing and Operation programs. Additional details are contained in FSP-PFP-5-8, HNF-PRO-055, and HNF-PRO-1819.
10.4 IN-SERVICE SURVEILLANCE PROGRAM.	Meets intent of 3009.	No corresponding section in the PFP FSAR.	Does not meet 3009. There are no sections in the PFP FSAR which describe the in-service surveillance program.
10.5 MAINTENANCE PROGRAM.	Meets intent of 3009.	5.4.12, 5.4.12.1, 5.4.12.2, 6.4.1.9.5, 10.1.5, 10.3, 10.4, & 12.3	Meets intent of 3009. The management structure for maintenance is defined in 10.1.5 and reference is made to FSP-PFP-5-8 for details. Maintenance training is referenced in 10.3, Training Programs. Procedures for Normal Operations (including maintenance) are addressed in 10.4.
Chapter 11 Operational Safety			
11.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
11.2 REQUIREMENTS.	Partially meets 3009.	No corresponding section in the PFP FSAR.	N/A

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
11.3 CONDUCT OF OPERATIONS.	Partially meets 3009. Specific points in 3009 not identified in 3.39.	10.8	Partially meets 3009. This section of the PFP FSAR lists all of the topical areas of DOE Order 5480.19 and provides reference to a "road map" where those items are presented. Additional details are contained in , FSP- PFP-5-8 (Section 1.0 Conduct of Operations), & FSP- PFP-0821 (PFP Conduct of Operations)
11.4 FIRE PROTECTION.			
11.4.1 Fire Hazards.	Meets intent of 3009.	2.4.2, 5.4.11.1, 5.4.11.1.1, 6.4.1.4.4, & 9.2.2	Meets intent of 3009. These sections of the PFP FSAR identify fire hazards and combustible materials within the PFP facilities.
11.4.2 Fire Protection Program and Organization.	Meets intent of 3009.	4.4.6, 10.5.1.3, & 10.6.1.3	Partially meets 3009. There is no clearly defined fire protection program or overall organizational structure in the PFP FSAR. Fire inspections, FHAs, and fire protection assessments are identified in the Key Functions and Responsibilities of the H&S team, and the Hanford Fire Department is identified in section 10.6.1.3.
11.4.3 Combustible Loading Control.	Does not meet 3009.	4.4.6, 5.4.11.1, 6.2.3.2.3, & 6.4.1.4.4	Meets intent of 3009. These sections of the PFP FSAR summarizes the programs for preventing unnecessary combustible loading and identifies the maximum fires and fire hazards in PFP.
11.4.4 Fire Fighting Capabilities.	Meets intent of 3009.	5.2.1.2.3, 5.2.8.3.2, 5.4.7, 5.4.11.2, 5.4.11.3, 5.4.11.5, 6.2.3.2.3, 6.4.1.4.4, 6.4.1.5.3A, 6.7, 10.6.1.3, Tables 5-21, & 5-32	Meets intent of 3009. These sections of the PFP FSAR identify the fire fighting capabilities, including equipment, procedures, training, and qualifications.
11.4.5 Fire Fighting Readiness Assurance.	Meets intent of 3009.	5.4.11.4	Partially meets 3009. Only covers Inspection and Testing Requirements.
Chapter 12 Procedures and Training			
12.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
12.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR. N/A	

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
12.3 PROCEDURE PROGRAM.	Meets intent of 3009.	10.4, 10.4.1, 10.4.2, & 10.4.3	Meets intent of 3009. The PFP FSAR section on Normal Operations (10.4) and its subsections describe how all operations are defined, controlled and conducted by written procedures. These sections describe the program for preparation, validation, revision, documentation, and control of the procedure process.
12.3.1 Development of Procedures.	Meets intent of 3009.	10.4.1, 10.4.2, & 10.4.3	Meets intent of 3009. These sections of the PFP FSAR summarize how procedures are selected for development; and the process for development, verification, and validation. Additional details may be found in FSP-PFP-5-8 (Sections 13.5 & 13.6).
12.3.2 Maintenance of Procedures.	Meets intent of 3009.	10.4.1, 10.4.2, & 10.4.3	Meets intent of 3009. These sections of the PFP FSAR summarize the provisions for documenting and controlling procedures and providing the necessary training before introduction. Additional details may be found in FSP-PFP-5-8 (Sections 13.5, 13.6, & 13.7).
12.4 TRAINING PROGRAM.	Meets intent of 3009.	10.1.6, 10.3, & 10.6.6	Partially meets 3009. These sections of the PFP FSAR briefly describe the training program, but do not provide sufficient detail to fully satisfy the requirements of 3009. Additional details may be found in FSP-PFP-5-8 (Section 2.3) and FSP-PFP-1121.
12.4.1 Development of Training	Meets intent of 3009.	10.3 & 10.6.6	Partially meets 3009. These sections of the PFP FSAR briefly describe the training program, but do not provide sufficient detail to fully satisfy the requirements of 3009. Additional details may be found in FSP-PFP-1121, which summarize the processes by which the technical content of training programs is developed, verified, and validated.
12.4.2 Maintenance of Training.	Meets intent of 3009.	10.3	Partially meets 3009. This section of the PFP FSAR briefly describes the training program, but does not provide sufficient detail to fully satisfy the requirements of 3009. Additional details may be found in FSP-PFP-1121, which summarize the provisions that ensure that the training programs reflect actual plant conditions and procedures.

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DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	Chapter/Section	PFP FSAR, Revision 1, January 1999 Compliance w/ 3009⁽³⁾
12.4.3 Modification of Training Materials.	Partially meets 3009. Human factor deficiencies are not addressed.	10.3	Partially meets 3009. This section of the PFP FSAR briefly describes the training program, but does not provide sufficient detail to fully satisfy the requirements of 3009. Additional details may be found in FSP-PFP-1121, which addresses "Training Assessment." These assessments/evaluations should determine the effectiveness of the program.
Chapter 13 Human Factors			
13.1 INTRODUCTION	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR	Does not meet 3009.
13.2 REQUIREMENTS.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR	Does not meet 3009.
13.3 HUMAN FACTORS PROCESS.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR	Does not meet 3009.
13.4 IDENTIFICATION OF HUMAN-MACHINE INTERFACES.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR	Does not meet 3009.
13.5 OPTIMIZATION OF HUMAN-MACHINE INTERFACES.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR	Does not meet 3009.
Chapter 14 Quality Assurance			
14.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
14.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	N/A
14.3 QUALITY ASSURANCE PROGRAM AND ORGANIZATION.	Meets intent of 3009.	12.0, 12.1, & 12.3	Partially meets 3009. These sections of the PFP FSAR do not contain the level of detail required by 3009. FSP-PFP-5-8 (Section 15.1) summarizes the QA program and provides a "road map" to the applicable implementing procedures.

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DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
14.4 QUALITY IMPROVEMENT.	Meets intent of 3009.	12.3	Partially meets 3009. This section of the PFP FSAR does not describe the quality improvement program. FSP-PFP-5-8 (Sections 15.1 & 15.2) briefly describe the program and processes to correct adverse conditions affecting quality and provide a "road map" to the applicable implementing procedures.
14.5 DOCUMENTS AND RECORDS.	Meets intent of 3009.	12.3	Partially meets 3009. This section of the PFP FSAR does not describe the quality requirements for documents and records. FSP-PFP-5-8 (Section 15.1) describes the document control and records management program for QA and provides a "road map" to the applicable implementing procedures.
14.6 QUALITY ASSURANCE PERFORMANCE.	Meets intent of 3009.	12.3	Partially meets 3009. This section of the PFP FSAR does not describe quality assurance performance. FSP-PFP-5-8 (Section 15.1) provides an overview of processes to ensure that performed work meet quality requirements.
14.6.1 Work Processes.	Meets intent of 3009.	12.3	Partially meets 3009. This section of the PFP FSAR does not describe the quality work processes. FSP-PFP-5-8 (Section 15.1) describes the programs that ensure work processes are adequately controlled and provides a "road map" to the applicable implementing procedures.
14.6.2 Design.	Meets intent of 3009.	12.3	Partially meets 3009. This section of the PFP FSAR does not describe the implementation of QA into design activities. FSP-PFP-5-8 (Section 15.1) describes how QA is integrated into design activities and provides a "road map" to the applicable implementing procedures.
14.6.3 Procurement.	Meets intent of 3009.	12.3	Partially meets 3009. This section of the PFP FSAR does not describe the implementation of QA into procurement activities. FSP-PFP-5-8 (Section 15.1) describes how QA is integrated into the procurement process and provides a "road map" to the applicable implementing procedures.

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DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
14.6.4 Inspection and Testing for Acceptance.	Meets intent of 3009.	12.3	Partially meets 3009. This section of the PFP FSAR does not describe the integration of QA into inspection and testing. FSP-PFP-5-8 (Section 15.1) describes how QA is integrated into inspection and testing of programs and provides a "road map" to the applicable implementing procedures.
14.6.5 Independent Assessment.	Meets intent of 3009.	12.3	Partially meets 3009. This section of the PFP FSAR does not describe the QA independent assessment program. FSP-PFP-5-8 (Section 15.1) describes management assessments and corrective actions for the QA program and provides a "road map" to the applicable implementing procedures.
Chapter 15 Emergency Preparedness Program			
15.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.	Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.	
15.2 REQUIREMENTS.	Partially meets 3009.	No corresponding section in the PFP FSAR.	
15.3 SCOPE OF EMERGENCY PREPAREDNESS.	RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.	10.5	Meets intent of 3009. This section of the PFP FSAR adequately summarizes the scope of the emergency preparedness program. In addition, HNF-IP-0263-PFP & FSP-PFP-0760 provide a "road map" to the applicable implementing documents/procedures.
15.4 EMERGENCY PREPAREDNESS PLANNING.	See above.	10.6	Meets intent of 3009. This section of the PFP FSAR adequately summarizes the PFP facility emergency preparedness planning.
15.4.1 Emergency Response Organization.	See above.	10.6.1	Meets intent of 3009. This section of the PFP FSAR adequately summarizes all components of those emergency response organizations that would respond to PFP emergencies.
15.4.2 Assessment Actions.	See above.	10.6.2 & 10.6.1.5.3.3	Meets intent of 3009. These sections of the PFP FSAR adequately summarize the program for emergency onsite and offsite dose assessment projections.
15.4.3 Notification.	See above.	10.6.3	Meets intent of 3009. This section of the PFP FSAR adequately summarizes the provisions for prompt notification of emergency response personnel.

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DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	Chapter/Section	Compliance w/ 3009⁽³⁾
15.4.4 Emergency Facilities and Equipment.	See above.		10.6.4	Meets intent of 3009. This section of the PFP FSAR adequately summarizes the maintenance of emergency response equipment and facilities.
15.4.5 Protective Actions	See above.		10.6.5	Meets intent of 3009. This section of the PFP FSAR adequately summarizes the protective actions that will be taken to prevent or minimize exposure to hazardous or radioactive materials.
15.4.6 Training and Exercises.	See above.		10.6.6	Meets intent of 3009. This section of the PFP FSAR adequately summarizes the PFP emergency training and exercise program.
15.4.7 Recovery and Reentry.	See above.		10.6.7	Meets intent of 3009. This section of the PFP FSAR adequately summarizes the program for recovery and reentry following termination of an operational emergency.
Chapter 16 Provisions for Decontamination and Decommissioning				
16.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.			Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.
16.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.		4.6 & 10.7.1	Meets intent of 3009. These sections of the PFP FSAR contain specific references to documents containing D&D requirements, which include DOE Order 6430.1A and DOE Order 430.1.
16.3 DESCRIPTION OF CONCEPTUAL PLANS.	Meets intent of 3009.		4.6, 10.7, 10.7.1, & 10.7.2	Meets intent of 3009. These sections of the PFP FSAR summarize the PFP specific plans for D&D activities.
Chapter 17 Management, Organization, and Institutional Safety Provisions				
17.1 INTRODUCTION	N/A. No corresponding section in RG 3.39.			Due to the structures of RG 3.39 FSAR vs. STD-3009 there are no comparable Introduction sections, however, the PFP FSAR does contain introductory material for each of its chapters.
17.2 REQUIREMENTS.	N/A. No corresponding section in RG 3.39.			N/A
17.3 ORGANIZATIONAL STRUCTURE, RESPONSIBILITIES, AND INTERFACES.	Meets intent of 3009.		10.0	Partially meets 3009. The PFP FSAR addresses the topics listed below.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009⁽³⁾
17.3.1 Organizational Structure.	Meets intent of 3009.	10.1	Partially meets 3009. This section of the PFP FSAR does not contain the level of detail required by 3009. FSP-PFP-5-8 (Sections A & B) summarizes the overall PFP management organizational structure, including key interfaces.
17.3.2 Organizational Responsibilities.	Meets intent of 3009.	10.0 & 10.1	Partially meets 3009. These sections of the PFP FSAR do not contain the level of detail required by 3009. FSP-PFP-5-8 (Section B) summarizes the organizational responsibilities for the PFP operating, support, and safety organizations, and the interfaces with outside organizations.
17.3.3 Staffing and Qualifications.	Meets intent of 3009.	10.1.10 & 10.1.11	Meets intent of 3009. These sections of the PFP FSAR summarize the PFP staffing requirements, and personnel qualifications and responsibilities.
17.4 SAFETY MANAGEMENT POLICIES AND PROGRAMS.	Meets intent of 3009.	No corresponding section in the PFP FSAR.	Does not meet 3009. The PFP FSAR does not contain a section addressing the overall safety management policies and programs. The PFP Administrative procedures manual (FSP-PFP-5-8) contains procedures describing the PFP Integrated Environmental, Safety and Health Management System, and the Safety Policy.
17.4.1 Safety Review and Performance Assessment.	Meets intent of 3009.	No corresponding section in the PFP FSAR.	Does not meet 3009. The PFP FSAR does not contain a section addressing the safety review and performance assessment process. The PFP Administrative Procedures FSP-PFP-5-8 (Section 2.23, Section 2.36 & Section 15.1, App B, Sect 9) summarize the programs and procedures for independent oversight, safety review, USQ evaluations, and other appraisals of safety performance.
17.4.2 Configuration and Document Control.	Meets intent of 3009.	10.4.4.1 & 10.4.4.4	Partially meets 3009. These sections of the PFP FSAR only discuss records maintenance and retention. FSP-PFP-5-8 (Section 15.1, App B, Sect 4), & ZAP-000-002 summarize the organizational responsibilities for the PFP operating, support, and safety organizations, and the interfaces with outside organizations.

TABLE 1. Evaluation of PFP FSAR and NRC Regulatory Guide 3.39 Compliance with the Safety Analysis Format and Content Requirements in DOE-STD-3009-94

DOE-STD-3009-94 Requirements ⁽¹⁾	Regulatory Guide 3.39 Compliance w/ 3009 ⁽¹⁾⁽²⁾	PFP FSAR, Revision 1, January 1999	
		Chapter/Section	Compliance w/ 3009 ⁽³⁾
17.4.3 Occurrence Reporting.	Meets intent of 3009.	10.4.4.2 & 10.4.4.3	Meets intent of 3009. These sections of the PFP FSAR summarize the occurrence reporting and environmental reporting systems. FSP-PFP-5-8 (Section 1.4) provides additional details on the programs for investigation of abnormal events and occurrence reporting.
17.4.4 Safety Culture.	Does not meet 3009. No corresponding section in RG 3.39.	No corresponding section in the PFP FSAR.	Does not meet 3009.

(1) See Appendix A for the Chapter/Section summary descriptions.

(2) This column contains an evaluation of how compliance with the requirements presented in NRC Regulatory Guide 3.39, *Standard Format and Content of License Applications for Plutonium Processing and Fuel Fabrication Plants*, satisfy the requirements contained in DOE-STD-3009-94, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports*.

(3) This column contains an evaluation of how well the PFP FSAR satisfies the requirements contained in DOE-STD-3009-94, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Safety Analysis Reports*.

N/A – Indicates that there is no corresponding section in the PFP FSAR; however, this does not imply that the relevant information is not provided elsewhere within the document (see Section 3.0, 1. Meets intent of 3009).

Appendix A

Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

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**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements		Comparable Regulatory Guide 3.39 Requirements	
Chapter 1 Site Characteristics			
1.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.		Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.	
1.2 REQUIREMENTS. This section lists the design codes, standards, regulations, and DOE Orders which are required for establishing the safety basis of the facility. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria. Standards and Requirements Identification Documents (SRIDs) may be referenced as appropriate.		Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.	
1.3 SITE DESCRIPTION. This section describes the site boundary and facility area boundary. Includes Geography 1.3.1 and Demography 1.3.2.		3.1 Geography and Demography of Site Selected. Information concerning the site, geography, population, and land usage should be provided in support of the safety evaluation.	
1.3.1 Geography. This section provides basic geographic information, such as: <ul style="list-style-type: none"> • State and county in which the site is located. • Location of the site relative to prominent natural and man-made features... • General location map to define the boundary... • Public exclusion areas and access control areas. • Identification of the point where Evaluation Guidelines are applied. • Additional detail maps, as needed.... 		3.1.1 Site Location. The location of the plant site should be described ... 3.1.2 Site Description. A map of the site should be included ... to clearly define the boundary of the site and the distance from significant facility features to the site boundary. The area to be considered as the exclusion area should be delineated clearly if its boundaries are not the same as the boundaries of the plant site.... The topography of the site and vicinity should be described by suitable contour maps that indicate the character of surface drainage patterns and potential impact on surface winds. 3.1.2.1 Site Boundary. identify the boundaries within which the applicant will control such activity.	

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>1.3.2 Demography. Population information based on recent census data is included to show the population distribution as a function of distance and direction from the facility. Demographic information emphasizes worker populations and nearby residences, major population centers, and major institutions such as schools, hospitals, etc., to the degree warranted by potential offsite consequences.</p>	<p>3.1.3 Population Distribution and Trends. Population information based on the most recent census data should be presented to show the population distribution as a function of distance and direction.... Significant transient or seasonal population variations should also be identified and discussed.</p> <p>3.1.4 Uses of Nearby Land and Waters. Uses of nearby lands and waters within at least a 5-mile radius should be described. Sufficient characterization of farming, dairy, industrial, residential, and recreation activities should be presented to permit estimates to be made of potential population radiation dose commitments resulting from plant effluents. The localized population in facilities such as schools and institutions should be identified with respect to location and number of persons. Identify the nature of activities conducted, if any, within the site boundaries other than those directly related to the operation of the facility. Explain the interrelation of these activities to the plant.</p>
<p>1.4 ENVIRONMENTAL DESCRIPTION. This section describes the site's meteorology 1.4.1, hydrology 1.4.2, and geology 1.4.3.</p> <p>1.4.1 Meteorology. This section provides the meteorological information necessary to understand the regional weather phenomena of concern for facility operation and to understand the dispersion analyses performed.</p>	<p>See subsections below.</p>
<p>1.4.2 Hydrology. This section provides the hydrological information necessary to understand any regional hydrological phenomena of concern for facility operation and to understand any dispersion analyses performed. Include information on groundwater aquifers, drainage plots, soil porosity, and other aspects of the hydrological character of the site.</p>	<p>3.3 Meteorology. meteorological description of the site and its surrounding area. conditions that influence the design and operation of the facility Sufficient information.... to permit an independent evaluation of atmospheric diffusion characteristics of the local area.</p> <p>3.3.1 Regional Climatology</p> <p>3.3.2 Local Meteorology</p> <p>3.3.3 Onsite Meteorological Measurement Program</p> <p>3.4.5.1 Probable Maximum Wind and Associated Meteorological Parameters. deemed "reasonably possible" based on meteorological reasoning. and historical storm events...</p> <p>3.4 Surface Hydrology. description characterizing the features relating to hydrology of the region, area, and site....</p> <p>3.4.1 Hydrologic Description.</p> <p>3.4.2 Floods.</p> <p>3.4.3 Probable Maximum Flood (PMF) on Streams and Rivers.</p> <p>3.5 Subsurface Hydrology.</p> <p>3.5.1 Regional and Area Characteristics... groundwater aquifers, formations, sources, and sinks in relation to the site location.</p> <p>3.5.2 Site Characteristics... groundwater levels, flow, permeability, porosity, flow, and gradients at the site, as well as chemical analysis ...</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>1.4.3 Geology. This section provides the geological information necessary to understand any regional geological phenomena of concern for facility operation. Describe the nature of investigations performed and provide the results of the investigations. Include geologic history, soil structures, and other aspects of the geologic character of the site.</p>	<p>3.6 Geology and Seismology. <i>(All subsections)</i> The geologic and seismic characteristics of the area and site, the nature of investigations performed, results of investigations, conclusions, and identification of information sources should be provided. Supplement the written description with tables and legible graphics as appropriate.</p>
<p>1.5 NATURAL PHENOMENA THREATS. This section provides identification of specific natural phenomena events, such as design basis earthquakes considered to be potential accident initiators.</p>	<p>2.1.1 Natural Phenomena. ...summarize the frequency and severity or magnitude of natural phenomena which characterize the site and influence design features and design criteria selected.....</p>
<p>1.6 EXTERNAL MAN-MADE THREATS. This section provides identification of specific external man-made phenomena associated with the site— events such as explosions from natural gas lines or accidents from nearby transportation activities—considered to be potential accident initiators, exclusive of sabotage and terrorism.</p>	<p>2.1.3 Effect of Nearby Industrial, Transportation, and Military Facilities. Summarize items that have been considered which may present a hazard to the plant facilities from nearby activities. Section 3.1.4 identifies typical activities to be analyzed. 3.2 Nearby Industrial, Transportation, and Military Facilities. Provide the location and identification of nuclear facilities within a 50-mile radius... Identify nearby industrial, transportation, and military installations on a map which clearly shows their distance and relationship to the plant.</p>
<p>1.7 NEARBY FACILITIES. This section identifies any nearby facilities that could be affected by accidents within the facility being evaluated. Conversely, this section also identifies any hazardous operations or facilities onsite or offsite that could adversely impact the facility under evaluation.</p>	<p>3.2 Nearby Industrial, Transportation, and Military Facilities. Provide the location and identification of nuclear facilities within a 50-mile radius... Identify nearby industrial, transportation, and military installations on a map which clearly shows their distance and relationship to the plant. 3.1.4 Uses of Nearby Land and Waters. Uses of nearby lands and waters within at least a 5-mile radius should be described. Sufficient characterization of farming, dairy, industrial, residential, and recreation activities should be presented to permit estimates to be made of potential population radiation dose commitments resulting from plant effluents. The localized population in facilities such as schools and institutions should be identified with respect to location and number of persons.</p>
<p>1.8 VALIDITY OF EXISTING ENVIRONMENTAL ANALYSES. This section assesses the validity of site characteristic assumptions for existing environmental analyses and impact statements based on the more recent SAR effort. Simply state that no significant discrepancies exist or indicate the need to revise and update assumptions used in facility environmental statements through brief discussions summarizing major discrepancies.</p>	<p>No corresponding section in RG 3.39.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
Chapter 2 Facility Description	
2.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.	Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.
2.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.	Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>2.3 FACILITY OVERVIEW. This section includes a brief overview of the current and historical use of the facility, projected future uses, facility configuration, and the basic processes performed therein.</p>	<p>1.2 General Plant Description. Include a summary description of the principal characteristics of the site and a concise description of the plant. The plant description should include a brief discussion of the principal design criteria, operating systems, fuels handling, cooling water and other auxiliary systems, and the radioactive waste management system. The arrangement of major structures and equipment should be indicated on plan and elevation drawings in sufficient number and detail to provide a reasonable understanding of the general layout of the plant. Any additional features of the plant likely to be of special interest because of their relationship to safety should be identified.</p> <p>1.3 General Process Description. A summary description of the process to be used in the plant including process origin and background should be included. Identify reactants and products as well as waste streams. Provide sufficient detail in the discussion and accompanying charts and tables to provide an understanding of the processes involved.</p> <p>5. PLANT DESIGN. 5.1 Summary Description. 5.1.1 Location and Plant Layout. Identify the location of the plant buildings and other installed plant facilities on a map or drawing to scale. Also include in this presentation roadways, railroad lines, and utility and water service locations.</p> <p>6. PROCESS SYSTEMS. 6.1 Process Description. 6.1.1 Narrative Description. Describe the proposed process and relate it to the equipment and associated controls. Include in this discussion ancillary activities as pertinent to the use of the main process, i.e., preparation of reactants, offgas handling, volume reduction of wastes, and decontamination. In the description, identify the interfaces between systems and discuss the safety aspects of the interfaces.</p>
<p>2.4 FACILITY STRUCTURE. This section provides an overview of the basic facility buildings and structures, including construction details such as basic floor plans, equipment layout, construction materials, controlling dimensions, and dimensions significant to the hazard and accident analysis activity.</p>	<p>5. PLANT DESIGN.... descriptive information on the buildings and other installed features of the plant and their locations on the site.... Describe and evaluate each part of the plant with emphasis on those features that serve a confinement function. special design features employed to withstand environmental forces and accident forces. ... Reference those features which require inclusion in the quality assurance program. identify areas which have been changed or added, the reasons for the changes, and the safety implications of the changes....results of research and development activities that relate to the construction and/or operating criteria.</p> <p>5.2 Process Building.</p> <p>5.2.1 Structural Specifications.</p> <p>5.2.2 Building Layout.</p> <p>5.2.3 Individual Facility Description.</p> <p>6.6 Control Room and/or Control Areas. Discuss how a control room and/or control areas are to be designed to permit occupancy and actions to be taken to operate the plant safely under normal conditions and to maintain the plant in a safe condition under accident or other abnormal conditions. Describe the redundancy which allows the plant to be put into a safe condition if any control room or control area is removed from service.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>2.5 PROCESS DESCRIPTION. This section describes the individual processes within the facility. Include details on basic process parameters, including summary of types and quantities of hazardous materials, process equipment, instrumentation and control systems and equipment, basic flow diagrams, and operational considerations associated with individual processes or the entire facility, including major interfaces and relationships between SSCs. The intent is to supply information to provide an understanding of the assessment of normal operations, the safety analysis and its conclusions, and insight into the types of operations for which a safety management program must be devised.</p>	<p>6.1 Process Description.....detailed description of all processes, including systems, equipment and instrumentation, their operating characteristics, and identification of potentially hazardous process systems. Provisions made for process safety features to ensure against a hazard should be so designated in the details presented.....listing systems necessary for safe shutdown under normal and abnormal conditions, maintenance of the plant in a safe shutdown condition, secondary confinement, and backup or standby features..... include reference to the items that will require attention for the quality assurance program..... describe the considerations used to achieve as low as is reasonably achievable levels of radioactivity in the plant effluents and to ensure nuclear safe conditions at all times.</p> <p>6.1.1 Narrative Description.</p> <p>6.1.2 Flowsheets.</p> <p>6.3 Mechanical Process Systems. 6.3.1 Fissile Materials Receiving, Storage, Handling, and Transfer.</p> <p>6.4 Chemical Process Systems. 6.4.1 Process System.</p> <p>6.5 Process Support Systems. 6.5.1 Instrumentation and Control Systems.</p> <p>6.7 Analytical Sampling.</p> <p>6.8 Product Handling.</p>
<p>2.6 CONFINEMENT SYSTEMS. This section identifies and describes the set of structures, systems, and components that perform confinement functions such as process vessels, glove boxes, ventilation systems, and facility walls.</p>	<p>5.2 Process Building. Provide the design bases for the process building...</p> <p>5.2.1 Structural Specifications. Establish the bases and engineering design required to maintain the confinement integrity of the building....</p> <p>5.2.2.3 Confinement Features.... layout criteria for the process building.... ensure confinement of radioactivity... ventilation, filters, piping, and other physical means such as barriers, encasements, liners, and protective coatings.... interfaces between the systems and discuss the safety aspects of the interfaces....</p> <p>5.4.1 Building Ventilation... design bases, operating features, and limitations for performance of the ventilation-filtration systems... show that there will be sufficient backup, excess capacity, repair and replacement capability, and structural integrity to ensure controlled continuous airflow in all credible circumstances to minimize release of radioactive particulates....</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>2.7 SAFETY SUPPORT SYSTEMS. This section identifies and describes the principal systems that perform safety support functions (i.e., safety functions not part of specific processes). State the purpose of each system and provide an overview of each system, including principal components, operations, and control function. Examples of systems under this heading might include fire protection, criticality monitoring, radiological monitoring (e.g., air monitoring, contamination prevention), chemical monitoring (e.g., hydrogen concentration monitoring), effluent monitoring, etc.</p>	<p>5.3 Support Systems.... systems which are in support to the main process and confinement features.... provisions for coping with unscheduled occurrences in a manner which will preclude an unsafe condition.... design bases, codes, specifications, and standards that will provide a safety margin to ensure that a single failure within a support system will not result in the release of radioactivity. (<i>All subsections</i>)</p> <p>5.4.8 Safety Communications and Alarms.</p> <p>5.4.9 Fire Protection System. <i>Contains the "Design Bases," "System Description," "System Evaluation," "Inspection and Testing Requirements," and "Personnel Qualifications and Training." (All subsections)</i></p> <p>4.3 Safety Protection Systems.</p> <p>4.3.1 General. Identify items requiring special consideration in design because of site selection, process selection, and safe shutdown requirements.</p> <p>4.3.2 Protection by Multiple Confinement Barriers and Systems. 4.3.2.1 Confinement Barriers and Systems. Discuss each method of confinement which will be used to ensure that there will be no uncontrolled release of radioactivity to the environment.</p> <p>4.3.3 Protection by Equipment and Instrument Selection.</p> <p>6.1.3 Identification of Items for Safety Analysis. Provide identification of areas or items for safety analysis....6.1.3.1 Criticality Prevention.... 6.1.3.2 Chemical Safety.... 6.1.3.3 Process Shutdown Modes.... 6.1.3.4 Instrumentation.... 6.1.3.5 Remote and Contact Maintenance Techniques....</p> <p>6.3.1 Fissile Material Receiving, Storage, Handling, and Transfer.... Describe the systems associated with fissile materials receipt, storage, and transfer. From the design criteria present the provisions for cooling, when used, maintaining fissile materials in subcritical form, and provisions for shielding....6.3.1.1 Functional Description.... 6.3.1.2 Safety Features....</p> <p>8.3.4 Area Radiation and Airborne Radioactivity Monitoring Instrumentation.... describe the fixed area radiation and criticality monitors and continuous airborne radioactivity monitoring instrumentation and the criteria for placement.</p> <p>8.6.1 Effluent and Environmental Monitoring Program. (<i>All subsections</i>)... 8.6.1.1 Gas Effluent Monitoring.... 8.6.1.2 Liquid Effluent Monitoring.... 8.6.1.3 Solid Waste Monitoring... 8.6.1.4 Environmental Monitoring</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>2.8 UTILITY DISTRIBUTION SYSTEMS. This section provides a schematic outline of the basic utility distribution systems, including a description of the offsite power supplies and onsite components of the system. Details of systems are given, to the level necessary, for understanding the utility distribution philosophy and facility operation.</p>	<p>5.3.2 Arrangement of Support Systems.... Discuss the location of the various support facilities in relation to their functional objectives....</p> <p>5.4 Description of Service and Utility Systems. <i>This section includes subsections which describe the design bases, design operating features and components. Each subsection also discusses the safety considerations and controls for the specified system.</i></p> <p>5.4.2 Electrical.</p> <p>5.4.3 Compressed Air.</p> <p>5.4.5 Water Supply.</p> <p>5.4.6 Cooling Water.</p>
<p>2.9 AUXILIARY SYSTEMS AND SUPPORT FACILITIES. This section provides information on the remaining portions of the facility that have not been covered by the preceding sections and which are necessary to create a conceptual model of the facility as it pertains to the hazard and accident analyses.</p>	<p>5.2.3 Individual Facility Description.... List each facility sequentially from the receiving facility through the various operations.</p> <p>5.4 Description of Service and Utility Systems.</p> <p>5.4.7 Sewage Treatment.</p> <p>5.4.8 Safety Communications and Alarms.</p> <p>5.4.10 Maintenance Systems.</p> <p>5.4.11 Cold Chemical Systems.</p> <p>6.6 Control Room and/or Control Areas.... Discuss how a control room and/or control areas are to be designed to permit occupancy and actions to be taken to operate the plant safely under normal conditions and to maintain the plant in a safe condition under accident or other abnormal conditions. Describe the redundancy which allows the plant to be put into a safe condition if any control room or control area is removed from service.</p>
<p>Chapter 3 Hazard and Accident Analysis</p> <p>3.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p> <p>3.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p> <p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>3.3 HAZARD ANALYSIS. This section describes the hazard identification and evaluation performed for the facility. The purpose of this information is to present a comprehensive evaluation of potential process related, natural phenomena, and external hazards that can affect the public, workers, and the environment due to single or multiple failures. Consideration will be given to all modes of operation, including startup, shutdown, and abnormal testing or maintenance configurations. As is standard industrial practice, examination of all modes of operation considers the potential for both equipment failure and human error.</p> <p>3.3.1 Methodology. This section presents the methodology used to identify and characterize hazards (3.3.1.1) and to perform a systematic evaluation of basic accidents (3.3.1.2).</p> <p>3.3.1.1 Hazard Identification. This subsection identifies the method used by analysts to identify and inventory hazardous materials and energy sources (in terms of quantity, form, and location) associated with the facility processes or associated operations (e.g., waste handling).</p>	<p>9.1 Abnormal Operations.... events which could occur from malfunctions of systems, operating conditions, or operator error should be presented... events discussed in this section would not have a significant effect beyond the exclusion area....</p>
	<p>9.1.1 Event. Identify the occurrence including the location of event, type of failure or maloperation, and system or systems involved.</p>
	<p>2.1.1 Natural Phenomena... summarize the frequency and severity or magnitude of natural phenomena which characterize the site and influence design features and design criteria selected. Include earthquakes, lightning, tornado- or hurricane type winds, missiles, inundation by water from possible sources, loss of water supply, and ice and/or snow load. Include in the summary the methods used to cope with the impact of those phenomena.</p> <p>2.1.2 Site Characteristics Affecting the Safety Assessment... site characteristics which have a bearing on the safety assessment and show how these have been considered to develop suitable margins of safety.</p> <p>2.1.3 Effect of Nearby Industrial, Transportation, and Military Facilities... items that have been considered which may present a hazard to the plant facilities from nearby activities...</p> <p>2.2 Radiological Impact of Normal Operations. For the gaseous, liquid, and solid wastes.....</p> <p>2.3 Radiological Impact from Abnormal Operations. The capability of the plant to operate safely within the range of anticipated process variations, malfunctions of process equipment, and operator error should be shown.</p> <p>2.4 Accidents. Provide analyses to cover those credible situations which create demands beyond the possible capability of the process, equipment, or confinement features, whether or not mitigated by operation of standby or engineered protection features, and state the estimated radiological consequences.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
3.3.1.2 Hazard Evaluation. This subsection presents, in summary fashion, the basic approach and guidance used for generating the largely qualitative consequence and likelihood estimates in hazard evaluation. Reference detailed guidance as necessary. Additionally, present any screening logic used for binning accidents.	No corresponding section in RG 3.39.
3.3.2 Hazard Analysis Results. This section contains subsections on the results of Hazard Identification (3.3.2.1), Hazard Classification (3.3.2.2), and Hazard Evaluation (3.3.2.3). Hazard analysis worksheets are typically included in this section.	No corresponding section in RG 3.39.
3.3.2.1 Hazard Identification. This subsection presents the results of the hazard identification activity, either by direct inclusion of or by reference to the hazard identification data sheets. As a minimum, provide a summary table identifying hazards by form, type, location, and total quantity.	No corresponding section in RG 3.39.
3.3.2.2 Hazard Classification. This subsection presents the results of the final hazard classification activity specified in DOE-STD-1027-92. Include the facility hazard classification and, where segmentation has been employed, the segment boundaries and individual segment classifications.	No corresponding section in RG 3.39.
3.3.2.3 Hazard Evaluation. Hazard evaluation characterizes the identified hazards in the context of the actual facility and process. Hazard evaluation presents potential accidents in terms of hazards, energy sources, causes, preventive and mitigative features, consequence estimates, and frequency estimates. Where a large number of scenarios are involved, present simple summaries in the text of this chapter with detailed tables generated in the performance of the hazard evaluation included as an appendix to the SAR.	No corresponding section in RG 3.39.

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>3.3.2.3.1 Planned Design and Operational Safety Improvements. If the SAR preparer wants to make commitments to planned improvements not yet implemented (as a result of the hazard evaluation), this section will identify those major design and operational improvements. Summarize the basis for committing to the improvement and, if needed, any interim controls proposed until the improvement is implemented.</p>	<p>No corresponding section in RG 3.39.</p>
<p>3.3.2.3.2 Defense in Depth. This section summarizes significant aspects of defense in depth, and identifies associated safety-significant SSCs and other items needing TSR coverage. Include both the facility design and administrative features of defense in depth.</p>	<p>4.3 Safety Protection Systems 4.4. Classification of Structures, Components, and Systems 5.2.3.2 Components. Discuss the components in the area under discussion. Use individual equipment sketches, layouts of equipment location to identify aspects of the components that must be relied upon, and limits that may be imposed on the design to achieve safety. 5.3 Support Systems. Provide information on those systems which are in support to the main process and confinement features. Emphasis should be placed on provisions for coping with unscheduled occurrences in a manner which will preclude an unsafe condition. Define the design bases, codes, specifications, and standards that will provide a safety margin to ensure that a single failure within a support system will not result in the release of radioactivity. 5.4 Description of Service and Utility Systems 5.4.X.2 Safety Considerations and Controls 6. PROCESS SYSTEMS 6.1.3.1 Criticality Prevention. Provide a summary description of the principal design guidance, procedures, and special techniques used to preclude criticality in various portions of the plant. 6.1.3.2 Chemical Safety. Provide a summary description of the principal chemical hazards and the approaches used to preclude associated accidents. 6.4.1.4 Safety Criteria and Assurance. From the parameters discussed in the preceding sections, summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained. Summarize those limit(s) selected for commitment to action. Also identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control. Emphasis should be placed on criticality control and radiological considerations. 6.5.1.5 Safety Criteria and Assurance.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>3.3.2.3.3 Worker Safety. This section summarizes the major features protecting workers from the hazards of facility operation, exclusive of standard industrial hazards.</p>	<p>4.3 Safety Protection Systems</p> <p>4.3.1 General. Identify items requiring special consideration in design because of site selection, process selection, and safe shutdown requirements.</p> <p>4.3.2 Protection by Multiple Confinement Barriers and Systems</p> <p>4.3.3 Protection by Equipment and Instrumentation Selection</p> <p>4.3.4 Nuclear Criticality Safety</p> <p>4.3.5 Radiological Protection</p> <p>4.3.6 Fire and Explosion Protection. Provide the design criteria selected to ensure that all safety functions will successfully withstand credible fire and explosion conditions.</p> <p>4.3.7 Materials Handling and Storage</p> <p>4.3.8 Industrial and Chemical Safety. Any specific design criteria should be described that is important to personnel and plant safety.</p> <p>4.4. Classification of Structures, Components, and Systems. Provide a classification of the structures, components, and systems selected in the design according to their importance as to the safety function they perform, the seismic considerations, and the relationship of the quality of an item with respect to its function and performance....</p>
<p>3.3.2.3.4 Environmental Protection. This subsection summarizes the design and operational features that reduce the potential for large material releases to the environment.</p> <p>3.3.2.3.5 Accident Selection. Accident analysis entails the formal quantification of a limited subset of accidents (i.e., DBAs). These accidents represent, as noted in DOE 5480.23, "a complete set of bounding conditions." The identification of DBAs results from the hazard evaluation ranking of the complete spectrum of facility accidents.</p>	<p>No corresponding section in RG 3.39.</p>
<p>3.4 ACCIDENT ANALYSIS. This section presents the formal development of the potential accidents identified in Section 3.3.2.3.5, "Accident Selection," beginning with a formal sequence of developing connecting initiating events to preventive feature and mitigative feature responses. The principal purpose of the accident analysis is to identify any safety-class SSCs and TSRs needed for protection of the public. Each accident sequence needs to be analyzed through the use of a documented, deterministic, DBA.</p>	<p>9.2 Accidents. Provide in this section analyses of situations where primary and/or secondary confinement may credibly be breached to the extent of releasing radioactive materials beyond the exclusion area or in such quantity as to seriously endanger personnel within the exclusion and restricted area. Include consideration of industrial-type accidents that would not result in a release of radioactivity but could endanger onsite personnel.</p> <p>9.2.1 Accident Analyzed. Identify the accident, the location or portion of the facility involved, and the type accident. Discuss each accident sequentially (e.g., 9.2.2, 9.2.3 ..)</p> <p>9.2 Accidents. Provide in this section analyses of situations where primary and/or secondary confinement may credibly be breached to the extent of releasing radioactive materials beyond the exclusion area or in such quantity as to seriously endanger personnel within the exclusion and restricted area. Include consideration of industrial-type accidents that would not result in a release of radioactivity but could endanger onsite personnel.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>3.4.1 Methodology. This section summarizes the methods used to quantify the consequences of operational accidents, natural phenomena events, and external events selected in Section 3.3.2.3.5, "Accident Selection."</p>	<p>9.2.1.2 Accident Analysis. Analyze the effects and particularly any radiological consequences of each accident. As with the abnormal event analysis, show the methods, assumptions, and conditions used in estimating the consequences, the recovery from the consequences, and steps used to mitigate each accident. Assess the consequences of the accident to persons and property offsite.</p>
<p>3.4.2 Design Basis Accidents. This section analyzes DBAs for each of the major categories to quantify consequences and compare them to Evaluation Guidelines. The major categories are: internally initiated operational accidents (e.g., fires, explosions, spills, criticality); natural phenomena events for the site (e.g., earthquakes, tornadoes) that could affect the facility; and externally initiated, man-made events such as airplane crashes, transportation accidents, adjacent facility events, etc., that can either cause releases at the facility under examination or have a major impact on facility operations.</p>	<p>9.2 Accidents. Provide in this section analyses of situations where primary and/or secondary confinement may credibly be breached to the extent of releasing radioactive materials beyond the exclusion area or in such quantity as to seriously endanger personnel within the exclusion and restricted area. Include consideration of industrial-type accidents that would not result in a release of radioactivity but could endanger onsite personnel.</p>
<p>3.4.2.X [Applicable DBA]. Identify the DBA by individual title, category (i.e., operational, natural phenomena, external) and general type (e.g., fire, explosion, spill, earthquake, tornado).</p>	<p>9.2.1 Accident Analyzed. Identify the accident, the location or portion of the facility involved, and the type accident. Discuss each accident sequentially (e.g., 9.2.2, 9.2.3 ...)</p>
<p>3.4.2.X.1 Scenario Development. This subsection describes accident progression linking initiating events with preventive and mitigative events and other contributing phenomena to formally define the accidents identified in Section 3.3.2.3.5, "Accident Selection." Document the rationale used in hazard analysis for binning the DBA in a broad frequency range.</p>	<p>9.2.1.1 Cause of Accident. For each accident analyzed, describe and list the sequence of events leading to the initiation of the accident. Identify, with respect to natural phenomena, human error, equipment malfunction, or equipment failure. Include an estimate of probability and how this probability estimate was determined.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>3.4.2.X.2 Source Term Analysis. This subsection determines the accidental material or energy released through the pathways of concern. Define all parameters and phenomenological models used to derive the source term. As a minimum, this definition includes the material at risk (as derived from the hazard identification), the release fraction or rate that determines the initial source term, and the overall facility leakpath factors that determine the final source term released external to the facility. The degree of conservatism believed to be present in the calculation needs to be consistent with Evaluation Guideline definitions. Detailed quantification of uncertainty is not required.</p>	<p>9.2.1.2 Accident Analysis.</p> <p>3. Describe the physical or mathematical models used in the analyses and the bases for their use with specific reference to the following:</p> <ol style="list-style-type: none"> The distribution and fractions of plutonium and transplutonium isotopes and of fission product inventory assumed to be released from the source material into offgas systems, The concentrations of plutonium and transplutonium isotopes and of radioactive or fission product inventory airborne in the confinement atmosphere and buildup on filters during the postaccident time intervals analyzed, and The conditions of meteorology, topography, or other circumstances, and combinations of adverse conditions considered in the analyses. <p>4. Identify the time-dependent characteristics, activity, and release rate of the plutonium and transplutonium isotopes and of the fission products, or other transmissible radioactive materials within the confinement system that could escape to the environment via leakages in the confinement boundaries and leakage through lines that could exhaust to the environment.</p> <p>6. Explain the conditions and assumptions associated with the events analyzed, including any reference to published data or research and development investigations in substantiation of the assumed or calculated conditions.</p>
<p>3.4.2.X.3 Consequence Analysis. This subsection determines the receptor doses/exposures associated with the relevant pathways. Derive the exposures and doses in accordance with the definition of Evaluation Guidelines.</p>	<p>9.2.1.2 Accident Analysis.</p> <ol style="list-style-type: none"> The mathematical or physical models employed, describing any simplification introduced to perform the analyses. Identification of any digital computer program or analog simulation used in the analysis with principal emphasis upon the input data and the extent or range of variables investigated. This information should include figures showing the analytical models, flow path identification, actual computer listing, and complete listing of input data. The detailed description of mathematical models and digital computer programs or listings may be included by available reference with only summaries provided in the application. The considerations of uncertainties in calculational methods, equipment performance, instrumentation response characteristics, or other indeterminate effects taken into account in the evaluation of the results. Explain the conditions and assumptions associated with the events analyzed, including any reference to published data or research and development investigations in substantiation of the assumed or calculated conditions.

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>3.4.2.X.4 Comparison to Guidelines. This subsection compares the receptor dose/exposure for the accident sequence to the Evaluation Guidelines. If Evaluation Guidelines cannot be met, provide a summary assessment of the significance of the failure to meet Evaluation Guidelines and administrative and/or engineered controls whose implementation would allow guidelines to be met.</p>	<p>3.1.2.2 Boundaries for Establishing Effluent Release Limits. Identify the restricted area as defined in 10 CFR Part 20, section 20.3(a)(14) to show the boundary line which will be used to establish effluent release limits.</p> <p>9.2.1.2 Accident Analysis....</p> <p>9. For the accidents, provide and discuss the results of calculations of potential integrated whole body and critical organ doses from exposure to radiation as a function of distance and time after the accident. Present in terms of a 50-year dose commitment. Discuss the results and consequences derived from the analysis and the margin of protection provided by whatever system is depended on to limit the extent or magnitude of the consequences.</p>
<p>3.4.2.X.5 Summary of Safety-Class SSCs and TSR Controls. This subsection identifies the safety-class SSCs and assumptions judged to require TSR coverage to meet Evaluation Guidelines. Any TSR assumption not directly related to exceeding of Evaluation Guidelines should be defined in section 3.3.2.3.2, "Defense in Depth." For details, refer to Chapter 4, "Safety Structures, Systems, and Components," and Chapter 5, "Derivation of Technical Safety Requirements."</p>	<p>4.4. Classification of Structures, Components, and Systems. Provide a classification of the structures, components, and systems selected in the design according to their importance as to the safety function they perform, the seismic considerations, and the relationship of the quality of an item with respect to its function and performance....</p> <p>9.2.1.2 Accident Analysis. Analyze the effects and particularly any radiological consequences of each accident. As with the abnormal event analysis, show the methods, assumptions, and conditions used in estimating the consequences, the recovery from the consequences, and steps used to mitigate each accident. Assess the consequences of the accident to persons and property offsite....</p> <p>7. Discuss the extent of system interdependency (confinement system and other engineered safety features) contributing directly or indirectly to controlling or limiting leakages from the confinement systems or other sources as the contribution of (a) confinement air systems, (b) air purification and cleanup systems, etc.... (Same as 3.3.2.3.2 of 3009 above)</p>
<p>3.4.3 Beyond Design Basis Accidents. DOE 5480.23 requires the evaluation of accidents beyond the design basis to provide a perspective of the residual risk associated with the operation of the facility (see Attachment 1, paragraph 4.f.(3)(d)11c, of the Order). Such beyond DBAs are not required to provide assurance of public health and safety. Accordingly, they serve as bases for cost-benefit considerations if consequences exceeding Evaluation Guidelines are identified in the beyond DBA range. However, such cost-benefit analysis would be performed outside the SAR with the concurrence of DOE.</p>	<p>No corresponding section in RG 3.39.</p>

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Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
Chapter 4 Safety Structures, Systems, and Components	
4.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.	Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.
4.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.	Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.
4.3 SAFETY-CLASS SYSTEMS, STRUCTURES, AND COMPONENTS. Relevant information is provided, in the following SSC specific subsections, for safety-class SSCs with descriptions sufficiently detailed to provide an understanding of the safety function of safety-class SSCs. Descriptions for each safety-class SSC must be complete enough to indicate suitability of safety analysis inputs and assumptions. Provide a summary list of safety-class SSCs. This summary list should identify, in tabular form, safety-class SSCs, the accidents from Chapter 3 for which safety-class designation was made, safety functions, functional requirements, and performance criteria judged to require TSR coverage. The remaining subsections provide details that correlate to the summary list.	4.4. Classification of Structures, Components, and Systems.... classification of the structures, components, and systems selected in the design according to their importance as to the safety function they perform, the seismic considerations, and the relationship of the quality of an item with respect to its function and performance classification presentation should relate to details in Chapter 5, "Plant Design" and Chapter 6, "Process Systems." Define the criteria for selecting the categories used for the classifications related to safety, seismic considerations, and quality assurance. 12.1.2 Quality Assurance Program. ... identify the safety-related structures, systems, and components to be controlled by the QA program. 12.1.3 Design Control.... describe the design control measures to ensure that (1) applicable regulatory requirements and design bases for safety-related structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions; (2) appropriate quality standards are specified in design documents; and (3) deviations from such standards are controlled.....describe measures that ensure that adequate review and selection for application suitability is conducted for materials, parts, equipment, and processes that are essential to safety-related functions of the structures, systems, and components....

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
4.3.X [Applicable Safety-class System, Structure, or Component]. Identify the safety-class SSC.	9.2.1.2 Accident Analysis....
4.3.X.1 Safety Function. This subsection states the reason for designating the SSC as a safety-class SSC, followed by specific identification of its preventive or mitigative safety function(s) as determined in the hazard and accident analysis. Do not discuss nonsafety functions.	<p>7. Discuss the extent of system interdependency (confinement system and other engineered safety features) contributing directly or indirectly to controlling or limiting leakages from the confinement systems or other sources as the contribution of (a) confinement air systems, (b) air purification and cleanup systems, etc.</p> <p>4.3 Safety Protection Systems</p> <p>4.4. Classification of Structures, Components, and Systems</p> <p>5.2.3.2 Components. Discuss the components in the area under discussion. Use individual equipment sketches, layouts of equipment location to identify aspects of the components that must be relied upon, and limits that may be imposed on the design to achieve safety.</p> <p>5.3 Support Systems. Provide information on those systems which are in support to the main process and confinement features. Emphasis should be placed on provisions for coping with unscheduled occurrences in a manner which will preclude an unsafe condition. Define the design bases, codes, specifications, and standards that will provide a safety margin to ensure that a single failure within a support system will not result in the release of radioactivity.</p> <p>5.4 Description of Service and Utility Systems</p> <p>5.4.X.2 Safety Considerations and Controls</p> <p>6. PROCESS SYSTEMS</p> <p>6.1.3.1 Criticality Prevention. Provide a summary description of the principal design guidance, procedures, and special techniques used to preclude criticality in various portions of the plant.</p> <p>6.1.3.2 Chemical Safety. Provide a summary description of the principal chemical hazards and the approaches used to preclude associated accidents.</p> <p>6.3.1.2 Safety Features. Describe all safety-related features, systems or special handling techniques included in the system to provide for the safety of the operation under both normal and abnormal conditions. Include the limit(s) selected for a commitment to action.</p> <p>6.4.1.4 Safety Criteria and Assurance. From the parameters discussed in the preceding sections, summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained. Summarize those limit(s) selected for commitment to action. Also identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control. Emphasis should be placed on criticality control and radiological considerations.</p> <p>6.5.1.5 Safety Criteria and Assurance.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>4.3.X.2 System Description. This subsection provides a description of the safety-class SSC and the basic principles by which it performs its safety function (e.g., sensor and interlock for hydrogen detector discussed in section 4.3.X.1). Describe its boundaries and interface points with other SSCs relevant to the safety function. Identify SSCs whose failure would result in a safety-class SSC losing the ability to perform its required safety function. These SSCs would also be considered safety-class SSCs for the specific accident conditions for which the safety-class designation was made originally.</p>	<p>4.2 Structural and Mechanical Safety Criteria. Based on the site selected, identify and quantify the environmental and geologic features that are used as design criteria.</p> <p>4.3 Safety Protection Systems. 4.3.1 General. Identify items requiring special consideration in design because of site selection, process selection, and safe shutdown requirements.</p> <p>4.4. Classification of Structures, Components, and Systems. Provide a classification of the structures, components, and systems selected in the design according to their importance as to the safety function they perform, the seismic considerations, and the relationship of the quality of an item with respect to its function and performance....</p> <p>5.2.3.2 Components. Discuss the components in the area under discussion. Use individual equipment sketches, layouts of equipment location to identify aspects of the components that must be relied upon, and limits that may be imposed on the design to achieve safety.</p> <p>5.2.3.3 Design Bases and Safety Assurance. Present the developed design codes used and additional specifications necessary to provide a sufficient margin of safety between normal and accident conditions to ensure that a single failure will not result in the release of significant radioactivity....</p> <p>5.3 Support Systems. Provide information on those systems which are in support to the main process and confinement features....</p> <p>5.4 Description of Service and Utility Systems</p> <p>5.4.X.2 Safety Considerations and Controls</p> <p>5.4.9.3 System Evaluation. Provide an evaluation for those fires identified in Section 5.4.9.1. This evaluation should consider the quantities of combustible materials present, the plant design, and the fire protection systems provided....</p> <p>6. PROCESS SYSTEMS...6.1.3.1 Criticality Prevention. Provide a summary description of the principal design guidance, procedures, and special techniques used to preclude criticality in various portions of the plant.</p> <p>6.1.3.2 Chemical Safety. Provide a summary description of the principal chemical hazards and the approaches used to preclude associated accidents.</p> <p>6.3.1.2 Safety Features. Describe all safety-related features, systems or special handling techniques included in the system to provide for the safety of the operation...</p> <p>6.3.2.1 Safety Features</p> <p>6.4.1.4 Safety Criteria and Assurance.... summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained..., identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control....</p> <p>6.5.1.5 Safety Criteria and Assurance.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>4.3.X.3 Functional Requirements. This subsection identifies requirements that are specifically needed to fulfill safety functions. Such functional requirements are specified for both the safety-class SSC and any needed support safety-class SSCs.</p>	<p>4.2 Structural and Mechanical Safety Criteria. Based on the site selected, identify and quantify the environmental and geologic features that are used as design criteria.</p> <p>4.4. Classification of Structures, Components, and Systems. Provide a classification of the structures, components, and systems selected in the design according to their importance as to the safety function they perform, the seismic considerations, and the relationship of the quality of an item with respect to its function and performance.....</p> <p>5.2.3.3 Design Bases and Safety Assurance. Present the developed design codes used and additional specifications necessary to provide a sufficient margin of safety between normal and accident conditions to ensure that a single failure will not result in the release of significant radioactivity....</p> <p>5.4 Description of Service and Utility Systems</p> <p>5.4.X.2 Safety Considerations and Controls</p> <p>5.4.9.3 System Evaluation. Provide an evaluation for those fires identified in Section 5.4.9.1. This evaluation should consider the quantities of combustible materials present, the plant design, and the fire protection systems provided....</p> <p>6. PROCESS SYSTEMS...</p> <p>6.3.1.2 Safety Features. Describe all safety-related features, systems or special handling techniques included in the system to provide for the safety of the operation...</p> <p>6.3.2.1 Safety Features</p> <p>6.4.1.4 Safety Criteria and Assurance.... summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained..., identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control....</p> <p>6.5.1 Instrumentation and Control Systems. By reference to instrumentation engineering flowsheet(s) and the process, discuss the instrumentation and control features associated with process control, process monitors and alarms, and the relationship of one to the other. Identify aspects that must be relied upon to establish that adequate reliability is provided and that provisions have been included in the design to ensure continued safe operation or safe shutdown under accident conditions....</p> <p>6.5.1.5 Safety Criteria and Assurance.</p>
<p>4.3.X.4 System Evaluation. This subsection provides performance criteria imposed on the safety-class SSC so it can meet functional requirement(s) and thereby satisfy its safety function. Performance criteria characterize the specific operational responses and capabilities necessary to meet functional requirements.</p>	<p>9.2.1.2 Accident Analyses....</p> <p>8. The results and consequences derived from each analysis and the margin of protection provided by whatever system is depended on to limit the extent or magnitude of the consequences.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
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DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>4.3.X.5 Controls (TSRs). This subsection identifies those assumptions requiring TSRs to ensure performance of the safety function.</p>	<p>5.2.3.3 Design Bases and Safety Assurance. Present the developed design codes used and additional specifications necessary to provide a sufficient margin of safety between normal and accident conditions to ensure that a single failure will not result in the release of significant radioactivity. Detail on backup provisions and interface with other areas should be included. Also include a discussion of the features used to ensure radiation protection and that criticality will not occur.</p> <p>5.4.1.2 Safety Considerations and Controls. Relate the following in such a manner that the provisions for structural integrity, design velocity, flow and flow direction, control instrumentation, and features for testing and monitoring of the system establish continued performance integrity.</p> <p>6.4.1.5 Operating Limits. Identify limits, conditions, and performance requirements in sufficient detail to make possible an evaluation as to whether a Technical License Condition may be necessary. The interface relation to other systems should be clearly described.</p> <p>11.2 Proposed Operating Controls and Limits.... contain technical operating limits, conditions, and requirements imposed upon plant operation in the interest of the health and safety of the public.... A statement of the bases or reasons for all controls or limits, other than those dealing with administrative controls, should be included... but does not become part of the operating controls and limits....</p> <p>11.4 Bases for Operating Controls and Limits. When an operating control and limit has been selected, the bases for its selection and its significance to safety of operation should be defined.... fully develop, through analysis and evaluation, the details of these bases....</p>

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DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>4.4 SAFETY-SIGNIFICANT STRUCTURES, SYSTEMS, AND COMPONENTS. Relevant information is provided, in the following SSC specific subsections, with descriptions sufficiently detailed to provide an understanding of the safety function of safety-significant SSCs. Descriptions for each safety-significant SSC must be complete enough to allow for verification of the accuracy of the safety analysis inputs and assumptions. Provide a summary list of safety-significant SSCs. This summary list should identify, in tabular form, which safety-significant designations was made, safety functions, functional requirements, and performance criteria judged to require TSR coverage. The remaining subsections provide details that correlate to the summary list.</p>	<p>4.4. Classification of Structures, Components, and Systems.... classification of the structures, components, and systems selected in the design according to their importance as to the safety function they perform, the seismic considerations, and the relationship of the quality of an item with respect to its function and performance.... classification presentation should relate to details in Chapter 5, "Plant Design" and Chapter 6, "Process Systems."Define the criteria for selecting the categories used for the classifications related to safety, seismic considerations, and quality assurance.</p> <p>12.1.2 Quality Assurance Program. ... identify the safety-related structures, systems, and components to be controlled by the QA program.</p> <p>12.1.3 Design Control....describe the design control measures to ensure that (1) applicable regulatory requirements and design bases for safety-related structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions; (2) appropriate quality standards are specified in design documents; and (3) deviations from such standards are controlled.....describe measures that ensure that adequate review and selection for application suitability is conducted for materials, parts, equipment, and processes that are essential to safety-related functions of the structures, systems, and components.....</p>
<p>4.4.X [Applicable Safety-significant System, Structure, or Component]. Identify the safety-significant SSC.</p> <p>4.4.X.1 Safety Function. This subsection states the reason for designating the SSC as a safety-significant SSC, followed by specific identification of its preventive or mitigative safety function(s) as determined in the hazard and accident analysis. Do not discuss nonsafety functions.</p>	<p>9.2.1.2 Accident Analysis....</p> <p>7. Discuss the extent of system interdependency (confinement system and other engineered safety features) contributing directly or indirectly to controlling or limiting leakages from the confinement systems or other sources as the contribution of (a) confinement air systems, (b) air purification and cleanup systems, etc.</p>
<p>4.4.X.2 System Description. This subsection provides a description of the safety-significant SSC and the basic principles by which it performs its safety function (e.g., sensor and interlock for hydrogen detector discussed in section 4.3.X.1). Describe its boundaries and interface points with other SSCs relevant to the safety function. Identify SSCs whose failure would result in a safety-significant SSC losing the ability to perform its required safety function. These SSCs would also be considered safety-significant SSCs for the specific accident conditions or general rationale for which the safety-significant designation was made originally.</p>	<p>4.4. Classification of Structures, Components, and Systems. Provide a classification of the structures, components, and systems selected in the design according to their importance as to the safety function they perform, the seismic considerations, and the relationship of the quality of an item with respect to its function and performance. As appropriate, this classification presentation should relate to details in Chapter 5, "Plant Design" and Chapter 6, "Process Systems." Define the criteria for selecting the categories used for the classifications related to safety, seismic considerations, and quality assurance.</p>

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Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>4.4.X.3 Functional Requirements. This subsection identifies requirements that are specifically needed to fulfill safety functions. Such functional requirements are specified for both the safety-significant SSC and any needed support safety-significant SSCs.</p>	<p>4.4. Classification of Structures, Components, and Systems. Provide a classification of the structures, components, and systems selected in the design according to their importance as to the safety function they perform, the seismic considerations, and the relationship of the quality of an item with respect to its function and performance. As appropriate, this classification presentation should relate to details in Chapter 5, "Plant Design" and Chapter 6, "Process Systems." Define the criteria for selecting the categories used for the classifications related to safety, seismic considerations, and quality assurance.</p>
<p>4.4.X.4 System Evaluation. This subsection provides performance criteria imposed on the safety-significant SSC so it can meet functional requirement(s) and thereby satisfy its safety function. Performance criteria characterize the specific operational responses and capabilities necessary to meet functional requirements.</p>	<p>9.2.1.2 Accident Analyses.... 8. The results and consequences derived from each analysis and the margin of protection provided by whatever system is depended on to limit the extent or magnitude of the consequences.</p>
<p>4.4.X.5 Controls (TSRs). This subsection identifies those assumptions requiring TSRs to ensure performance of the safety function.</p>	<p>11.4 Bases for Operating Controls and Limits. When an operating control and limit has been selected, the bases for its selection and its significance to safety of operation should be defined. This can be done by the provision of a summary statement of the technical and operational considerations justifying the selection. The license application should fully develop, through analysis and evaluation, the details of these bases. Therefore, the physical format for operating controls and limits assumes importance, since the collection of controls or limits and their written bases form a document which delineates plant features that are important to safety of operation, the reasons for their importance, and their relations to each other. 11.5 Development of Operating Controls and Limits.... refer to section .36, "Technical Specifications," of 10 CFR Part 50, "Licensing of Production and Utilization Facilities," for a description of the categories of technical specifications applicable to operating controls and limits. Additional categories may be designated by the applicant.</p>
Chapter 5 Derivation of Technical Safety Requirements	
<p>5.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p>
<p>5.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>5.3 TSR COVERAGE. This section provides assurances that TSR coverage for the facility is complete. This section lists the features identified in Chapters 3 and 4 that are needed to:</p> <ol style="list-style-type: none"> 1. Provide significant defense in depth. 2. Provide for significant worker safety. 3. Maintain consequences of facility operations below Evaluation Guidelines. 	<p>(Same as 3.3.2.3.2 of 3009 above)</p> <p>11.1 Preliminary Operating Controls and Limits..... The preliminary operating controls and limits and bases proposed by an applicant for a plant should be included in Chapter 11 of the application. The preliminary operating controls and limits should be complete, i.e., to the fullest extent possible, numerical values and other pertinent data should be provided. For each control or limit the applicable sections that develop, through analysis and evaluation, the details and bases for the control or limit should be referenced.</p> <p>11.2 Proposed Operating Controls and Limits.... contain technical operating limits, conditions, and requirements imposed upon plant operation in the interest of the health and safety of the public.... A statement of the bases or reasons for all controls or limits, other than those dealing with administrative controls, should be included.... but does not become part of the operating controls and limits.... Except for the controls and limits covering design features and administrative controls, each control or limit selected should be provided... with bases in the form of a summary statement of the technical and operational considerations justifying the selection....</p> <p>11.3 Content of Operating Controls and Limits. Operating controls and limits should include both technical and administrative matters. Operating controls and limits related to technical matters should consist of those features of the plant that are of controlling importance to safety (process variables, systems, or components). In addition, operating controls and limits related to technical matters should include effluent and environmental monitoring and controls or limits addressed to the attainment of "as low as is reasonably achievable" levels of releases and exposures. Operating controls and limits related to administrative matters should be addressed to those organizational and functional requirements that are important to the achievement and maintenance of safe operation of the plant.</p>
<p>5.4 DERIVATION OF FACILITY MODES. This section derives basic operational modes (e.g., startup, operation, shutdown) used by the facility that are relevant to derivation of TSRs. The definition of modes required in this subsection expands and formalizes the information provided in Chapter 3, "Hazard and Accident Analyses," regarding operational conditions associated with accidents.</p>	<p>6.1.3.3 Process Shutdown Modes. Describe the general plant conditions and surveillance needs in various shutdown modes (extended, short-term, emergency). Indicate the time required to shut down and start up for each mode.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>5.5 TSR DERIVATION.</p> <p>NOTE: This information can be organized by the hazard protected against, specific features, or even actual TSRs if desired. The choice of a specific method of organization is left to the discretion of the SAR preparer. The following format is repeated sequentially for each TSR ("X").</p>	<p>(Same as 3.3.2.3.2 of 3009 above)</p> <p>9.2.1.2 Accident Analysis. Analyze the effects and particularly any radiological consequences of each accident. As with the abnormal event analysis, show the methods, assumptions, and conditions used in estimating the consequences, the recovery from the consequences, and steps used to mitigate each accident. Assess the consequences of the accident to persons and property offsite.</p> <p>11.2 Proposed Operating Controls and Limits.technical operating limits, conditions, and requirements imposed upon plant operation in the interest of the health and safety of the public. A statement of the bases or reasons for all controls or limits, other than those dealing with administrative controls, should be included in the application but does not become part of the operating controls and limits.</p> <p>Except for the controls and limits covering design features and administrative controls, each control or limit selected should be provided with bases in the form of a summary statement of the technical and operational considerations justifying the selection. For each control or limit the sections of the application that fully develop, through analysis and evaluation, the details and bases for the control or limit should be referenced.</p> <p>11.4 Bases for Operating Controls and Limits. When an operating control and limit has been selected, the bases for its selection and its significance to safety of operation should be defined. This can be done by the provision of a summary statement of the technical and operational considerations justifying the selection. The license application should fully develop, through analysis and evaluation, the details of these bases.</p> <p>(Same as 3.3.2.3.2 of 3009 above)</p>
<p>5.5.X [Applicable Hazard/Feature/TSR "X"]. This subsection identifies the specific feature(s) listed in Section 5.3 and the relevant modes of operation.</p>	

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>5.5.X.1 Safety Limits, Limiting Control Settings, and Limiting Conditions for Operation. This section provides the basis and identifies information sufficient to derive SLs, LCSs, and LCOs to support the facility TSR documentation required by DOE 5480.22. SLs, if used, are reserved for a small set of extremely significant features that prevent potentially major offsite impact. LCSs are developed for any SL that is protected by an automatic device with setpoints. LCSs/LCOs act to keep normal operating conditions below the SLs and are developed for each SL identified, thereby providing a margin of safety. Most LCOs are assigned without an accompanying SL. Generally SLs are applicable only for protection of passive barriers as close to the accident source as possible whose failure, due to the occurrence of a specific event, will result in exceeding Evaluation Guidelines. Mitigation of releases is generally not amenable to useful definition of SLs.</p>	<p>11.5.1 Safety Limits and Limiting Control Settings. Controls or limits of this category apply to safety-related process variables which are observable and measurable (e.g., pressures, temperatures, flow rates, concentrations, volumes, and quantities). Control of such variables is directly related to the performance and integrity of equipment and confinement barriers.</p> <p>11.5.2 Limiting Conditions for Operation. This category of operating controls and limits covers two general classes, (a) equipment and (b) technical conditions and characteristics of the plant necessary for continued operation, as discussed below.</p> <p>11.5.2.1 Equipment. Operating controls and limits must establish the lowest acceptable level of performance for a system or component and the minimum number of components or the minimum portion of the system that must be operable or available.</p> <p>11.5.2.2 Technical Conditions and Characteristics. Technical conditions and characteristics should be stated in terms of allowable quantities, e.g., temperature, pressure, mass of fissionable material in certain systems, concentration of radioactive material in certain systems, volume of fluid required in a system, chemical constitution of certain fluids, or allowable configurations of equipment.</p> <p>11.5.6 Suggested Format for Operating Controls and Limits</p>
<p>5.5.X.2 Surveillance Requirements. This section provides the basis and identifies information necessary to derive Surveillance Requirements that address testing, calibration, or inspection requirements to maintain operation of the facility within SLs, LCSs, and LCOs.</p>	<p>11.5.3 Surveillance Requirements. Major emphasis in surveillance specifications should be placed on those systems and components which are essential to safety during all modes of operation or are necessary to prevent or mitigate the consequences of accidents. Tests, calibrations, or inspections are necessary to verify performance and availability of important equipment and detect incipient deficiencies.</p> <p>11.5.6 Suggested Format for Operating Controls and Limits</p>
<p>5.5.X.3 Administrative Controls. This section provides the basis and identifies information necessary to derive TSR administrative controls. This section is the only applicable section for those features listed in Section 5.3, "TSR Coverage," that are provided with only TSR administrative controls. The rationale for assigning TSR administrative controls need to be clearly and briefly stated.</p>	<p>11.5.5 Administrative Controls. The license application should contain a full description and discussion of organization and administrative systems and procedures for operation of the plant.</p> <p>11.5.6 Suggested Format for Operating Controls and Limits</p>
<p>5.6 DESIGN FEATURES. This section identifies and briefly describes the passive design features not specifically required to have TSRs in accordance with the definition in DOE 5480.22. Simply reference Chapter 2, "Facility Description" if that chapter contains the desired information.</p>	<p>11.5.4 Design Features. These operating controls and limits cover design characteristics of special importance to each of the physical barriers and to the maintenance of safety margins in the design. The principal objective of this category is to control changes in design of vital equipment.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>5.7 INTERFACE WITH TSRS FROM OTHER FACILITIES. This section summarizes TSRSs from other facilities that affect this facility's safety basis and briefly summarize the provisions of those TSRSs.</p>	<p>No corresponding section in RG 3.39.</p>
<p>Chapter 6 Prevention of Inadvertent Criticality</p> <p>6.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p> <p>6.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p> <p>6.3 CRITICALITY CONCERNS. This section identifies the fissile material available within the facility and provides information on the location of potential criticality hazards (e.g., description, drawing), the fissile material form (e.g., chemical and/or physical, including isotopic content, concentration, densities), and the maximum quantities involved. This information should be summarized from Chapter 3, "Hazard and Accident Analyses."</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p> <p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p> <p>4.3.4 Nuclear Criticality Safety. Supply all pertinent criteria relating to the appropriate safety margins provided to ensure that a subcritical situation exists at all times.</p>
<p>6.4 CRITICALITY CONTROLS. This section summarizes information relevant to criticality control. Include a general discussion of the criticality safety design limits, their bases, and any design criteria used to ensure subcritical configurations under all normal, abnormal, and accident conditions (i.e., ensure criticality limits are not exceeded); the parameters used for the prevention and control of criticality and the methods for the application and validation of these parameters; and the application of the double contingency principle in criticality safety. It is not the intention of this section to individually list all criticality safety design limits.</p>	<p>4.3.4.1 Control Methods for Prevention of Criticality. Present the methods to be used to ensure subcritical situations in operations and storage under the worst credible conditions.</p> <p>4.3.4.2 Error Contingency Criteria. To support the above information, define the error contingency criteria selected for the plant.</p> <p>4.3.4.3 Verification Analyses. Present the criteria for establishing verification.</p> <p>6.4.1.4 Safety Criteria and Assurance. From the parameters discussed in the preceding sections, summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained. Summarize those limit(s) selected for commitment to action. Also identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control. Emphasis should be placed on criticality control and radiological considerations.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>6.4.1 Engineering Controls. This section summarizes the safety design limits on engineered controls, either passive or active, and the bases placed on equipment designs or operations to ensure subcritical conditions under all normal, abnormal, and accident conditions. This section also summarizes the configuration control program as it relates to the configuration of the equipment used to store, handle, transport, or process fissile material, as required by DOE 5480.24 Sections 7.c and 7.e.</p>	<p>4.3.4 Nuclear Criticality Safety. Supply all pertinent criteria relating to the appropriate safety margins provided to ensure that a subcritical situation exists at all times.</p> <p>4.3.4.1 Control Methods for Prevention of Criticality. Present the methods to be used to ensure subcritical situations in operations and storage under the worst credible conditions.</p> <p>4.3.7.1 Fuel Handling and Storage. Describe the design criteria for fuel materials and storage. Include the criteria for cooling requirements, criticality, and contamination control.</p> <p>5.2.3 Individual Facility Descriptions.</p> <p>5.2.3.3 Design Bases and Safety Assurance. Present the developed design codes used and additional specifications necessary to provide a sufficient margin of safety between normal and accident conditions to ensure that a single failure will not result in the release of significant radioactivity. Detail on backup provisions and interface with other areas should be included. Also include a discussion of the features used to ensure radiation protection and that criticality will not occur.</p> <p>6.1.3.1 Criticality Prevention. Provide a summary description of the principal design guidance, procedures, and special techniques used to preclude criticality in various portions of the plant.</p> <p>6.4.1.3 Design Description. Discuss the design bases, including materials of construction; pressure and temperature limits; detailed dimensions, especially as related to criticality consideration if not discussed elsewhere; corrosion allowances; and standards or codes used. ...</p> <p>6.4.1.4 Safety Criteria and Assurance. From the parameters discussed in the preceding sections, summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained. Summarize those limit(s) selected for commitment to action. Also identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control. Emphasis should be placed on criticality control and radiological considerations.</p>

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Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>6.4.2 Administrative Controls. This section summarizes the administrative controls used to prevent accidental criticality. Include in the discussion the administrative controls on nuclear material safety limits such as mass, moderators, changes in geometry configurations, and procedures for handling, storing, and transporting fissile materials. Discuss also the administrative controls for reviewing and approving changes to process or system configurations.</p>	<p>4.3.4 Nuclear Criticality Safety. Supply all pertinent criteria relating to the appropriate safety margins provided to ensure that a subcritical situation exists at all times.</p> <p>4.3.4.1 Control Methods for Prevention of Criticality.</p> <p>4.3.4.2 Error Contingency Criteria.</p> <p>4.3.4.3 Verification Analysis.</p> <p>6.1.3.1 Criticality Prevention. Provide a summary description of the principal design guidance, procedures, and special techniques used to preclude criticality in various portions of the plant.</p> <p>6.4.1.4 Safety Criteria and Assurance. From the parameters discussed in the preceding sections, summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained. Summarize those limit(s) selected for commitment to action. Also identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control. Emphasis should be placed on criticality control and radiological considerations.</p> <p>6.4.1.5 Operating Limits. Identify limits, conditions, and performance requirements in sufficient detail to make possible an evaluation as to whether a Technical License Condition may be necessary. The interface relation to other systems should be clearly described.</p>
<p>6.4.3 Application of Double Contingency Principle. This section summarizes the methods used to ensure that at least more than one unlikely, independent, and concurrent changes in process conditions would be necessary before a criticality accident is possible (e.g., contingency or criticality safety evaluation). The contingency or criticality safety evaluation will identify how the double contingency principle, as defined in DOE 5480.24, is being met (i.e., control of two independent process parameters or a system of multiple controls on a single parameter). It is not the intention of this section to individually present all facility contingency or criticality safety evaluations.</p>	<p>4.3.4.2 Error Contingency Criteria. To support the above information, define the error contingency criteria selected for the plant.</p> <p>4.3.4.3 Verification Analyses. Present the criteria for establishing verification.</p>
<p>6.5 CRITICALITY PROTECTION PROGRAM. This section presents an overview of the organizational structure and interfaces, and the technical and administrative practices of the criticality protection policy and programs.</p>	<p>4.3.4 Nuclear Criticality Safety. Supply all pertinent criteria relating to the appropriate safety margins provided to ensure that a subcritical situation exists at all times.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
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DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>6.5.1 Criticality Safety Organization. This section summarizes the organizational structure that administers the criticality safety program. Include information about staffing levels, positions of authority and responsibilities, and staff qualifications. Discuss the interfaces and interrelationships with other safety organizations and facility operations. Reference the administrative plans and procedures that implement the criticality safety program.</p>	<p>10.1.2 Operating Organization. This section should describe the structure, functions, and responsibilities of the operating organization. 10.1.2.1 Plant Organization. Provide a comprehensive description of the organizational arrangement of the plant showing the title of each position, the flow of responsibility as depicted by an organization chart, and the number of personnel in each unit. Describe the organizational arrangement for ensuring safe operation, the personnel assigned to the safety committee, its mode of operation, and its responsibilities. 10.1.3 Personnel Qualification Requirements....minimum requirements for onsite plant personnel....</p>
<p>6.5.2 Criticality Safety Plans and Procedures. This section summarizes the criticality safety plans and procedures for governing operations involving fissile materials. Discuss the document control measures employed to ensure that plans and procedures, including changes, are reviewed for adequacy, approved for release by authorized personnel, and distributed to and used at the locations where fissile materials are used, processed, or stored.</p>	<p>4.3.4.1 Control Methods for Prevention of Criticality. Present the methods to be used to ensure subcritical situations in operations and storage under the worst credible conditions. 8.5.3 Procedures.... Describe the methods and plans for neutron, gamma and x-ray personnel dosimetry for normal operations and criticality accidents including methods for recording and reporting results.... 10.4.1 Plant Procedures.... commitment to conduct safety-related operations by providing detailed written procedures....include a list of procedures that, by title or subject, clearly indicates their purpose and applicability....include a description of the review, change, and approval practices for all plant operating, maintenance, and testing procedures. 10.4.2 Plant Records.... detailed management system for maintaining records relating to the historical operation of the plant: the quality assurance records required...operating records including principal maintenance, alteration, or additions made; records of abnormal occurrences and events associated with radioactive releases; and environmental survey records. 10.3 Training Programs.</p>
<p>6.5.3 Criticality Safety Training. This section summarizes the scope of facility wide criticality safety training as well as the specific training requirements for personnel associated with the operation of the facility. Discuss specifically the training of personnel on the configuration of the equipment used to store, handle, transport, or process fissile material. Reference, as appropriate, Chapter 12, "Procedures and Training" if that chapter presents requested information.</p>	<p>10.3.1 Program Description. Describe the proposed training program including the scope of training in (1) plant operations and design, instrumentation and control, methods of dealing with process malfunctions, decontamination procedures, and emergency procedures and (2) in health physics subjects such as nature and sources of radiation, methods of controlling contamination, interactions of radiation with matter, biological effects of radiation, use of monitoring equipment, and principles of criticality hazards control. Identify personnel classification with level of instruction.</p>

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DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>6.5.4 Determination of Operational Nuclear Criticality Limits. This section summarizes the analytical approach (i.e., methods, codes, and analysis techniques) used to derive operational nuclear criticality limits, including the error contingency criteria or margin of error (uncertainty), the use of contingency analyses, and the basic justification of the appropriateness of such an approach (i.e., bases and design criteria). This section should not include detailed calculations and limits for the facility. This section explains and demonstrates the relationship between operational nuclear criticality limits and their TSR designations.</p>	<p>4.1.1 Plant Feed. A detailed description of the physical, chemical, and radiological characteristics of the feed materials to be processed in the plant should be provided. Include feed specifications such as fissile material limits, plutonium isotopic composition limits, forms of the material, and packaging.</p> <p>4.3.4 Nuclear Criticality Safety. Supply all pertinent criteria relating to the appropriate safety margins provided to ensure that a subcritical situation exists at all times.</p> <p>4.3.4.2 Error Contingency Criteria. To support the above information, define the error contingency criteria selected for the plant.</p> <p>4.3.4.3 Verification Analyses. Present the criteria for establishing verification.</p> <p>6.4.1.5 Operating Limits. Identify limits, conditions, and performance requirements in sufficient detail to make possible an evaluation as to whether a Technical License Condition may be necessary. The interface relation to other systems should be clearly described.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>6.5.5 Criticality Safety Inspections/Audits. This section summarizes the criticality safety inspection and audit programs which verify the established procedures used for preventing inadvertent criticalities. This includes their responsibilities and authorizations and the criteria used to select items, functions, analysis, etc., for inspections and audits. This section also provides a discussion of associated facility record keeping.</p>	<p>12.1.10 Inspection. describe the measures to ensure that a program for inspection is established and implemented by or for the organization performing the activities to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity.... describe measures to ensure that (1) inspection personnel are appropriately qualified and are independent of the individual or group performing the activity being inspected; (2) inspections or tests are performed for each work operation as necessary to verify quality; (3) indirect control by monitoring processing methods, equipment, and personnel is used if direct inspection of processed material or products is impossible or disadvantageous, and (4) both inspection and process monitoring are used when control is inadequate without both... describe measures to ensure that (1) inspection procedures and instructions are made available with necessary drawings and specifications for use prior to performing the inspections; (2) inspectors' qualifications or certifications are kept current; and (3) replaced or reworked items are inspected by methods with original inspection requirements and modified or repaired items are inspected in accordance that are equivalent to the original inspection method.... describe the system whereby appropriate documents will identify any mandatory inspection hold points that require witnessing or inspecting by the applicants' designated representative and beyond which work may not proceed without the consent of its designated representatives.</p> <p>12.1.18 Audits. describe the program of the applicant and of his principal contractors for conducting comprehensive planned and periodic audits to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program. describe the program features that cover the functions listed identify the positions or organizations which perform these functions....</p> <p>3. The planning and scheduling of audits to ensure that they are regularly scheduled on the basis of the status and safety importance of the activities being performed and are initiated early enough to ensure effective quality assurance during design, procurement, manufacturing, construction and installation, inspection, and test.</p>
<p>6.5.6 Criticality Infraction Reporting and Follow-Up. This section provides a brief summary of the criticality infraction program for reporting and follow-up of criticality infractions. Include in the discussion provisions for the recovery from criticality infractions. Provide brief assurances that program results and lessons learned are incorporated into the safety analysis.</p>	<p>10.4 Normal Operations</p> <p>10.4.2 Plant Records. present the detailed management system for maintaining records relating to the historical operation of the plant: records of abnormal occurrences and events associated with radioactive releases; and environmental survey records.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
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DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>6.6 CRITICALITY INSTRUMENTATION. This section summarizes the criticality alarm system and detection systems used to mitigate exposures from a criticality event. Include in the summary the methods and procedures used to determine the placement of the monitoring equipment and the selection of the equipment functions and sensitivity, if required.</p>	<p>4.3.5.3 Radiation Alarm Systems. Describe the criteria used for action levels from radiation alarm systems.</p> <p>8.3.4 Area Radiation and Airborne Radioactivity Monitoring Instrumentation.describe the fixed area radiation and criticality monitors and continuous airborne radioactivity monitoring instrumentation and the criteria for placement.</p> <p>....provide information on the auxiliary and/or emergency power supply, range, sensitivity, accuracy, calibration methods and frequency, alarm set points, recording devices, and location of detectors, readouts, and alarms for the monitoring instrumentation. Provide the location of the criticality detectors and describe or reference the readout system and neutron dose assessment technique to be used.</p>
Chapter 7 Radiation Protection	
<p>7.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p>	<p>8. RADIATION PROTECTION.provide information on methods for radiation protection and on estimated occupational radiation exposures to operating personnel during normal operation and anticipated operational occurrences (including radioactive material handling, use, storage, and disposal; maintenance; routine operational surveillance; inservice inspection; and calibration). provide information on plant and equipment design, the planning and procedures programs, and the techniques and practices employed by the applicant in meeting the standards for protection against radiation</p>
<p>7.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>7.3 RADIATION PROTECTION PROGRAM AND ORGANIZATION. This section summarizes the program, including the safety management policies and philosophies used as a basis for the program. Reference facility documents detailing the program.</p>	<p>8. RADIATION PROTECTION.provide information on methods for radiation protection and on estimated occupational radiation exposures to operating personnel during normal operation and anticipated operational occurrences (including radioactive material handling, use, storage, and disposal; maintenance; routine operational surveillance; inservice inspection; and calibration). provide information on plant and equipment design, the planning and procedures programs, and the techniques and practices employed by the applicant in meeting the standards for protection against radiation</p> <p>8.1.1 Policy Considerations. Describe the management policy and organizational structure related to ensuring that occupational radiation exposures are ALARA. Describe the applicable activities to be conducted by the individuals having responsibility for radiation protection....</p> <p>8.5 Health Physics Program</p> <p>8.5.1 Organization.describe the administrative organization of the health physics program including the authority and responsibility of each position identified.describe the experience and qualification of the personnel responsible for the health physics program and for handling and monitoring radioactive materials.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>7.4 ALARA POLICY AND PROGRAM. This section summarizes the ALARA policy and program for the facility.</p>	<p>8.1 Ensuring That Occupational Radiation Exposures Are As Low As Is Reasonably Achievable (ALARA).</p> <p>8.1.1 Policy Considerations. Describe the management policy and organizational structure related to ensuring that occupational radiation exposures are ALARA. Describe the applicable activities to be conducted by the individuals having responsibility for radiation protection.....</p> <p>8.1.2 Design Considerations.describe plant and equipment design considerations that are directed toward ensuring that occupational radiation exposures are ALARA. Describe how experience from any past designs is utilized to develop improved design for ensuring that occupational radiation exposures are ALARA and that plutonium contamination incidents are negated.....</p> <p>8.1.3 Operational Considerations.describe the methods used to develop the detailed plans and procedures for ensuring that occupational radiation exposures are ALARA and that operational safeguards are provided to ensure that contamination levels are as low as achievable. Describe how these plans, procedures, and safeguards will impact on the design of the plant and how such planning has incorporated information from other designs and follows the applicable guidance.....identify and describe procedures and methods of operation that are used to ensure that occupational radiation exposures are ALARA....</p> <p>8.5.3 Procedures.... describe the methods, frequencies, and plans for conducting radiation surveys. Describe the health physics plans that have been developed for ensuring that occupational radiation exposures will be ALARA. Describe the physical and administrative measures for controlling access and stay time for radiation areas.... Describe the bases and methods for monitoring and controlling personnel, equipment, and surface contamination. Describe radiation protection training programs...Describe the methods and plans for neutron, gamma and x-ray personnel dosimetry for normal operations and criticality accidents including methods for recording and reporting results. Describe how dosimetric results are used as a guide to operational planning. The criteria for performing whole body and/or lung counting and bioassays should be provided. Describe the methods and procedures for evaluating and controlling potential airborne radioactivity concentrations, including any requirements for special air sampling. Discuss the use of respiratory protective devices including the respiratory protective equipment fitting programs and training of personnel.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>7.5 RADIOLOGICAL PROTECTION TRAINING. This section summarizes plans and procedures for training general employees, radiation workers, radiation protection technicians, supervisors, and managers who are involved in operations or maintenance activities in any area where radiological protection is required. Reference, as appropriate, Chapter 12, "Procedures and Training" if that chapter presents requested information.</p>	<p>8.5.3 Procedures. Describe radiation protection training programs.Discuss the use of respiratory protective devices including the respiratory protective equipment fitting programs and training of personnel. 10.3 Training Programs. 10.3.1 Program Description. Describe the proposed training program including the scope of training in (1) plant operations and design, instrumentation and control, methods of dealing with process malfunctions, decontamination procedures, and emergency procedures and (2) in health physics subjects such as nature and sources of radiation, methods of controlling contamination, interactions of radiation with matter, biological effects of radiation, use of monitoring equipment, and principles of criticality hazards control. Identify personnel classification with level of instruction.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>7.6 RADIATION EXPOSURE CONTROL. This section summarizes the plans and procedures for controlling: 1) external occupational exposure to radiation; 2) spread of contamination; and 3) inhalation or ingestion of radioactive materials.</p>	<p>4.3.5 Radiological Protection. A portion of the radiological protection design criteria will have been discussed earlier in this chapter under Section 4.3.2, "Protection by Multiple Confinement Barriers and Systems." Present the additional radiological protection design criteria.</p> <p>4.3.5.1 Access Control... methods and procedures to be designed into the facility for limiting access, as necessary, to minimize exposure to people.</p> <p>4.3.5.2 Shielding... estimate of personnel exposures in man-rem per year in each area. Where special provisions such as time and distance are to be included, determine the design dose rate in occupancy areas. Show that further reduction of exposure is not practicable in terms of cost per man-rem reduction.</p> <p>4.3.5.3 Radiation Alarm Systems... criteria used for action levels from radiation alarm systems.</p> <p>8.1.2 Design Considerations.... Describe how the design is directed toward reducing the (1) need for maintenance of equipment, (2) radiation levels and time spent where maintenance is required, and (3) contamination control in handling, transfer, and storage of plutonium and mixed oxides.</p> <p>8.1.3 Operational Considerations.....methods used to develop the detailed plans and procedures for ensuring that occupational radiation exposures are ALARA and that operational safeguards are provided to ensure that contamination levels are as low as achievable.</p> <p>8.3.1 Plant Design Features... equipment and plant design features used for ensuring that occupational radiation exposures are ALARA and confinement of radioactive material is maintained as high as achievable.</p> <p>8.3.2 Shielding... protective features that use shielding, geometric arrangement (including equipment separation), or remote handling to ensure that occupational radiation exposures will be ALARA in normally occupied areas.</p> <p>8.3.3 Ventilation....the personnel protection features incorporated in the design of the ventilation system should be described by amplifying the discussions on building ventilation and offgas treatment in Chapters 5 and 6 to show that the designs selected will satisfy the ALARA provisions of 10 CFR Part 20,.....</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>7.6.1 Administrative Limits. This section summarizes facility administrative control levels and dose limits, including process for planned special exposures.</p>	<p>8.1.3 Operational Considerations.describe the methods used to develop the detailed plans and procedures for ensuring that occupational radiation exposures are ALARA and that operational safeguards are provided to ensure that contamination levels are as low as achievable. Describe how these plans, procedures, and safeguards will impact on the design of the plant and how such planning has incorporated information from other designs and follows the applicable guidance.....Identify and describe procedures and methods of operation that are used to ensure that occupational radiation exposures are ALARA....</p> <p>8.5.3 Procedures.... describe the methods, frequencies, and plans for conducting radiation surveys. Describe the health physics plans that have been developed for ensuring that occupational radiation exposures will be ALARA. Describe the physical and administrative measures for controlling access and stay time for radiation areas.... Describe the bases and methods for monitoring and controlling personnel, equipment, and surface contamination.... Describe how dosimetric results are used as a guide to operational planning.... Describe the methods and procedures for evaluating and controlling potential airborne radioactivity concentrations, including any requirements for special air sampling....</p> <p><i>See requirements listed in 7.6.</i></p>
<p>7.6.2 Radiological Practices. This section summarizes exposure controls directly associated with radiological activities. Include in this summary generic precautions for conduct of radiological tasks, special personnel protective equipment, and permanent shielding used to control exposures.</p>	

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>7.6.3 Dosimetry. This section summarizes the basis of the dosimetry program for external and internal radiation monitoring of workers. Include in the summary basis for use of various types of dosimeters including accident dosimetry and bioassay requirements (i.e., bases for selecting personnel, frequency of routine in vivo and in vitro and any nonroutine bioassay conducted). Briefly discuss the program in terms of issuance, control, and monitoring of dosimeters and documentation of dosimetry results including combining internal and external dosimetry results.</p>	<p>8.5.2 Equipment, Instrumentation, and Facilities.... provide the criteria for selection of portable and laboratory technical equipment and instrumentation for (1) performing radiation and contamination surveys, (2) airborne radioactivity sampling, (3) area radiation monitoring, and (4) personnel monitoring during normal operation, anticipated operational occurrences, and accident conditions. Describe the instrument storage, calibration, and maintenance facilities. Also describe the health physics facilities, laboratory facilities for radioactivity analyses, protective clothing, respiratory protective equipment, decontamination facilities (for equipment and personnel), and other contamination control equipment and areas that will be available.... provide the location of ... portable and laboratory technical equipment and instrumentation. Describe the type of detectors and monitors and the quantity, sensitivity, range, and frequency and methods of calibration for all of the technical equipment and instrumentation mentioned above.</p> <p>8.5.3 Procedures.....Describe the methods and plans for neutron, gamma and x-ray personnel dosimetry for normal operations and criticality accidents including methods for recording and reporting results. Describe how dosimetric results are used as a guide to operational planning....</p> <p>8.3.4 Area Radiation and Airborne Radioactivity Monitoring Instrumentation. ... describe the fixed area radiation and criticality monitors and continuous airborne radioactivity monitoring instrumentation and the criteria for placement.... provide information on the auxiliary and/or emergency power supply, range, sensitivity, accuracy, calibration methods and frequency, alarm set points, recording devices, and location of detectors, readouts, and alarms for the monitoring instrumentation. Provide the location of the criticality detectors and describe or reference the readout system and neutron dose assessment technique to be used....provide the location of the continuous airborne monitor sample collectors, and give details of sampling lines pump location and criteria for obtaining representative samples of effluent monitors.</p>
<p>7.6.4 Respiratory Protection. This section summarizes plans and procedures for respiratory protection for workers. Include in this summary types of respiratory protection equipment and their usage in normal, abnormal, and accident conditions; control and issuance of respirators (training; fitness and medical testing); inspection of equipment (cleaning, maintenance, and repair); and documentation of associated records.</p>	<p>4.3.3 Protection by Equipment and Instrumentation Selection.</p> <p>4.3.3.1 Equipment. Itemize design criteria for key equipment items which have been specifically selected to provide protection.</p> <p>8.5.2 Equipment, Instrumentation, and Facilities..... provide the location of the respiratory protective equipment, protective clothing, and portable and laboratory technical equipment and instrumentation.</p> <p>8.5.3 Procedures.....Discuss the use of respiratory protective devices including the respiratory protective equipment fitting programs and training of personnel.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>7.7 RADIOLOGICAL MONITORING. This section summarizes the radioactive material sampling and monitoring program conducted internal and external to the facility. This summary should address overall facility monitoring to prevent the spread of radioactive contamination, operational monitoring of workers, and monitoring and sampling for detection of material release by airborne and other pathways (e.g., water, soil), programs for continuing collection of relevant meteorological data, and records, and reports generated in the monitoring program.</p>	<p>8.5.2 Equipment, Instrumentation, and Facilities.provide the criteria for selection of portable and laboratory technical equipment and instrumentation for (1) performing radiation and contamination surveys, (2) airborne radioactivity sampling, (3) area radiation monitoring, and (4) personnel monitoring during normal operation, anticipated operational occurrences, and accident conditions.</p> <p>8.5.3 Procedures.....describe the methods, frequencies, and plans for conducting radiation surveys.bases and methods for monitoring and controlling personnel, equipment, and surface contamination... methods and procedures for evaluating and controlling potential airborne radioactivity concentrations, including any requirements for special air sampling...</p> <p>8.6 Estimated Man-Rem Offsite Dose Assessment. ...8.6.1 Effluent and Environmental Monitoring Program.the program for monitoring and estimating the contribution of radioactivity to the environment should be described.determining the background levels and the estimate of subsequent contribution of the plant.</p> <p>8.6.1.1 Gas Effluent Monitoring.</p> <p>8.6.1.2 Liquid Effluent Monitoring.</p> <p>8.6.1.3 Solid Waste Monitoring.</p> <p>8.6.1.4 Environmental Monitoring.</p>
<p>7.8 RADIOLOGICAL PROTECTION INSTRUMENTATION. This section summarizes plans and procedures governing radiation protection instrumentation. Such instrumentation, whether fixed, portable, or laboratory use, includes instruments for radiation and contamination surveys; sampling; area radiation monitoring; and personnel monitoring during normal operations and accidents. Include in the summary selection and placement criteria for technical equipment and instrumentation, types of detectors and monitors, and their quantity, sensitivity, and range. This section also summarizes plans and procedures for control of calibration processes and for quality assurance for calibration and maintenance. Reference Chapter 2, "Facility Description," Chapter 10, "Initial Testing, In-Service Surveillance, and Maintenance," and Chapter 14, "Quality Assurance," if those chapters contain requested information.</p>	<p>8.3.4 Area Radiation and Airborne Radioactivity Monitoring Instrumentation.describe the fixed area radiation and criticality monitors and continuous airborne radioactivity monitoring instrumentation and the criteria for placement.....provide information on the auxiliary and/or emergency power supply, range, sensitivity, accuracy, calibration methods and frequency, alarm set points, recording devices, and location of detectors, readouts, and alarms for the monitoring instrumentation. Provide the location of the criticality detectors and describe or reference the readout system and neutron dose assessment technique to be used.provide the location of the continuous airborne monitor sample collectors, and give details of sampling lines pump location and criteria for obtaining representative samples of effluent monitors.</p> <p>8.5.2 Equipment, Instrumentation, and Facilities.provide the criteria for selection of portable and laboratory technical equipment and instrumentation for (1) performing radiation and contamination surveys, (2) airborne radioactivity sampling, (3) area radiation monitoring, and (4) personnel monitoring during normal operation, anticipated operational occurrences, and accident conditions. Describe the instrument storage, calibration, and maintenance facilities...describe the health physics facilities, laboratory facilities for radioactivity analyses, protective clothing, respiratory protective equipment, decontamination facilities (for equipment and personnel), and other contamination control equipment and areas that will be available.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>7.9 RADIOLOGICAL PROTECTION RECORD KEEPING. This section summarizes plans and procedures for retention, and disposition of records and reports. Discuss document control measures used to ensure that records are reviewed for adequacy, approved for release by authorized personnel, and distributed to and used at the locations where required and when needed.</p>	<p>8.5.3 Procedures..... Indicate whether, and if so how, the guidance given in Regulatory Guides 8.7, "Occupational Radiation Exposure Records Systems," 8.9, and 8.10 will be followed. If it will not be followed, describe the specific alternative approaches to be used.....Describe the methods and plans for neutron, gamma and x-ray personnel dosimetry for normal operations and criticality accidents including methods for recording and reporting results....</p> <p>10.4.2 Plant Records... present the detailed management system for maintaining records relating to the historical operation of the plant..... records of abnormal occurrences and events associated with radioactive releases; and environmental survey records.</p>
<p>7.10 OCCUPATIONAL RADIATION EXPOSURES. This section summarizes the predicted annual exposures to workers from radiation sources. Worker exposure information will be based on historical facility radiation data if the operations have not changed.</p>	<p>8.4 Estimated Man-Rem Onsite Dose Assessment. provide the estimated occupancy of the plant radiation areas during normal operation and anticipated operational occurrences. For areas with expected airborne radioactivity concentrations (as required by Section 8.2.2), provide estimated man-hours of occupancy. Also provide the objectives and criteria for design dose rates in various areas and an estimate of the annual man-rem doses associated with major functions such as process operations, and ancillary activities (e.g., offgas handling, volume reduction of wastes), maintenance, radwaste handling, decontamination and inservice inspection. Supply the basis, models, and assumptions for the above values.....the estimated annual occupancy for each radiation zone in the plant should be tabulated and the bases for the values provided. Provide updated estimates of annual man-rem doses for the functions listed above and the assumptions used in determining these values.</p>
Chapter 8 Hazardous Material Protection	
<p>8.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p>
<p>8.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>8.3 HAZARDOUS MATERIAL PROTECTION AND ORGANIZATION. This section summarizes the program, including the safety management policies and philosophies used as a basis for the program. Reference facility documents detailing the program. Identify the organizational structure of the hazardous material protection program including staffing levels and qualifications, positions of authority and responsibilities, and interfaces with other safety organizations and facility operations. The organizational summary may be provided in this chapter or Chapter 17, "Management, Organization, and Institutional Safety Provisions."</p>	<p>10.1.2 Operating Organization. This section should describe the structure, functions, and responsibilities of the operating organization. The following specific information should be included.</p> <p>10.1.2.1 Plant Organization. Provide a comprehensive description of the organizational arrangement of the plant showing the title of each position, the flow of responsibility as depicted by an organization chart, and the number of personnel in each unit. Describe the organizational arrangement for ensuring safe operation, the personnel assigned to the safety committee, its mode of operation, and its responsibilities.</p> <p>10.1.2.2 Personnel Functions, Responsibilities, and Authorities. Describe the functions, responsibilities, and authorities of all personnel positions, including a discussion of specific succession to responsibility for overall operation of the plant in event of absences, incapacitation, or other emergencies.</p>
<p>8.4 ALARA POLICY AND PROGRAM. This section summarizes the ALARA policy and program for the facility. Historically, hazardous materials, unlike radioactive materials, have often been evaluated assuming de minimis level below which little harm is associated with exposures (e.g., OSHA Permissible Exposure Limits). Where this is the case for given subject matter, ALARA needs to be considered a qualitative concept evaluated against OSHA and industrial hygiene exposure standards and guidelines.</p>	<p>No corresponding section in RG 3.39</p>
<p>8.5 HAZARDOUS MATERIAL TRAINING. This section summarizes plans and procedures for general training of employees on hazardous material safety, training of workers, supervisors, and managers who are involved in activities involving hazardous materials protection, and training of industrial hygiene technicians. Reference, as appropriate, Chapter 12, "Procedures and Training" if that chapter presents requested information.</p>	<p>10.3 Training Programs.</p> <p>10.3.1 Program Description. Describe the proposed training program including the scope of training in (1) plant operations and design, instrumentation and control, methods of dealing with process malfunctions, decontamination procedures, and emergency procedures and (2) in health physics subjects such as nature and sources of radiation, methods of controlling contamination, interactions of radiation with matter, biological effects of radiation, use of monitoring equipment, and principles of criticality hazards control. Identify personnel classification with level of instruction.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>8.6 HAZARDOUS MATERIAL EXPOSURE CONTROL. This section summarizes the plans and procedures for controlling: (1) occupational exposure to hazardous materials; and (2) spread of hazardous material contamination.</p>	<p>4.3.8 Industrial and Chemical Safety. Any specific design criteria should be described that is important to personnel and plant safety. Effects of various industrial accidents (e.g., fire and explosion) and hazardous chemical reactions (e.g., vigorous chemical reactions and hydrogen explosions) should be presented.</p> <p>5.4.11 Cold Chemical Systems. Describe the major components and operating characteristics of facilities that will be used in association with cold chemical operations. Where hazardous chemicals or materials are involved, discuss the provisions that will be made to mitigate accidents. Itemize the chemicals and materials that will be used, their quantities, and where they will be used; and codify with respect to hazard.</p> <p>6.1.3.2 Chemical Safety. Provide a summary description of the principal chemical hazards and the approaches used to preclude associated accidents. (Refer to Section 6.2.)</p> <p>6.4.1.4 Safety Criteria and Assurance.... summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained. Summarize those limit(s) selected for commitment to action. Also identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control. Emphasis should be placed on criticality control and radiological considerations.</p>
<p>8.6.1 Hazardous Material Identification Program. Summarize the plans and procedures the facility uses for the identification and evaluation of material hazards, (e.g., toxicity, flammability, reactivity). Include in this summary overall industrial hygiene programs, plans, and procedures, and hazard elimination or control measures. Reference and abstract any relevant site manuals detailing these programs.</p>	<p>5.4.11 Cold Chemical Systems. Describe the major components and operating characteristics of facilities that will be used in association with cold chemical operations. Where hazardous chemicals or materials are involved, discuss the provisions that will be made to mitigate accidents. Itemize the chemicals and materials that will be used, their quantities, and where they will be used; and codify with respect to hazard.</p> <p>4.1.1 Plant Feed. A detailed description of the physical, chemical, and radiological characteristics of the feed materials to be processed in the plant should be provided. Include feed specifications such as fissile material limits, plutonium isotopic composition limits, forms of the material, and packaging.</p> <p>6.1.3.2 Chemical Safety. Provide a summary description of the principal chemical hazards and the approaches used to preclude associated accidents. (Refer to Section 6.2.)</p> <p>6.2 Process Chemistry and Physical Chemical Principles. Present in detail the process chemistry and physical chemical data appropriate to characterize the process. Where side reactions may occur, present the chemistry and discuss the extent to which such reactions will be expected under normal and abnormal conditions.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
8.6.2 Administrative Limits. This section summarizes facility administrative control levels and exposure limits.	6.1.3.2 Chemical Safety. Provide a summary description of the principal chemical hazards and the approaches used to preclude associated accidents. (Refer to Section 6.2.) 6.4.1.4 Safety Criteria and Assurance.... summarize the criteria for the means of ensuring a safe system as constructed, operated, and maintained. Summarize those limit(s) selected for commitment to action. Also identify those items that can be characterized as being process safety features which are considered additionally necessary beyond normal process operation and control. Emphasis should be placed on criticality control and radiological considerations. 6.4.1.5 Operating Limits. Identify limits, conditions, and performance requirements in sufficient detail to make possible an evaluation as to whether a Technical License Condition may be necessary. The interface relation to other systems should be clearly described.
8.6.3 Occupational Medical Programs. This section summarizes the components of the occupational medical program relevant to hazardous material protection, including physical examinations, medical evaluations, medical surveillance (including bioassay), and medical record keeping.	No corresponding section in RG 3.39
8.6.4 Respiratory Protection. This section summarizes plans and procedures for respiratory protection for workers. Include in this summary types of respiratory protection equipment and their usage in normal, abnormal, and accident conditions; control and issuance of respirators (training; fitness and medical testing); inspection of equipment (cleaning, maintenance, and repair); and documentation of associated records. If no special distinctions exist with regard to the respiratory protection program described in section 7.6.4, simply reference that section.	No corresponding section in RG 3.39
8.7 HAZARDOUS MATERIAL MONITORING. This section summarizes the hazardous material sampling and monitoring program conducted internal and external to the facility. This summary should address overall facility monitoring to prevent the spread of hazardous materials, operational monitoring of workers, and monitoring and sampling for detection of material release by airborne and other pathways (e.g., water, soil), programs for continuing collection of relevant meteorological data, and records, and reports generated in the monitoring program.	No corresponding section in RG 3.39

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>8.8 HAZARDOUS MATERIAL PROTECTION INSTRUMENTATION. This section summarizes plans and procedures governing hazardous protection instrumentation.. Include in the summary selection and placement criteria for technical equipment and instrumentation, types of detectors and monitors, and their quantity, sensitivity, and range. This section also summarizes plans and procedures for control of calibration processes and for quality assurance for calibration and maintenance. Reference Chapter 2, "Facility Description," Chapter 10, "Initial Testing, In-Service Surveillance, and Maintenance," and Chapter 14, "Quality Assurance," if those chapters contain requested information.</p>	<p>No corresponding section in RG 3.39</p>
<p>8.9 HAZARDOUS MATERIAL PROTECTION RECORD KEEPING. This section summarizes plans and procedures for retention, and disposition of records and reports. Discuss document control measures used to ensure that records are reviewed for adequacy, approved for release by authorized personnel, and distributed to and used at the locations where required and when needed.</p>	<p>10.4.2 Plant Records...present the detailed management system for maintaining records relating to the historical operation of the plant:.....</p>
<p>8.10 HAZARD COMMUNICATION PROGRAM. This section summarizes the facility's hazard communication program for obtaining material safety data sheets, providing for employee information and training, directions for nonroutine tasks and outside contractor, and information for multi employer worksites and hazardous material labeling.</p>	<p>10.3 Training Programs. 10.3.1 Program Description. Describe the proposed training program including the scope of training in (1) plant operations and design, instrumentation and control, methods of dealing with process malfunctions, decontamination procedures, and emergency procedures..... Identify personnel classification with level of instruction.</p>
<p>8.11 OCCUPATIONAL CHEMICAL EXPOSURES. This section summarizes the predicted annual exposures to workers from hazardous material sources. Worker exposure information will be based on historical facility data if the operations have not changed. Identify the methods, and assumptions used in estimating occupational exposures. Finally, this section provides a comparison of the measured, estimated (calculated), or both, worker exposures with the maximum allowable limits. Any discrepancies among these estimated, measured, or allowed values need to be discussed.</p>	<p>No corresponding section in RG 3.39</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
Chapter 9 Radioactive and Hazardous Waste Management	
9.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.	Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.
9.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.	Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.
9.3 RADIOACTIVE AND HAZARDOUS WASTE MANAGEMENT PROGRAM AND ORGANIZATION. This section summarizes the program, including the safety management policies and philosophies used as a basis for the program. Reference facility documents detailing the program. Identify the organizational structure that administers the radioactive and hazardous waste management program. This summary includes the plans, procedures, and training for governing radioactive and hazardous waste management activities. The organizational summary may be provided in this chapter or Chapter 17, "Management, Organization, and Institutional Safety Provisions."	<p>8.1.1 Policy Considerations. Describe the management policy and organizational structure related to ensuring that occupational radiation exposures are ALARA. Describe the applicable activities to be conducted by the individuals having responsibility for radiation protection. describe policy with respect to designing the plant. emphasize policy with respect to the operation of the plant.</p> <p>8.5 Health Physics Program8.5.1 Organization.describe the administrative organization of the health physics program including the authority and responsibility of each position identified.describe the experience and qualification of the personnel responsible for the health physics program and for handling and monitoring radioactive materials.</p> <p>7.5 Liquid Waste Treatment and Retention....7.5.1 Design Objectives. Describe the design objectives for the system under discussion. Identify, in particular, criteria which incorporate backup and special features to ensure that the waste will be safely contained.</p> <p>7.6 Liquid Waste Solidification....7.6.1 Design Objectives. Describe objectives of the system(s) consistent with the processes selected.</p> <p>7.7 Solid Wastes....7.7.1 Design Objectives. Describe the objectives of the methods and the equipment selected for minimizing the generation of solid wastes and for safe management of that solid waste which is generated.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>9.4 RADIOACTIVE AND HAZARDOUS WASTE STREAMS AND SOURCES. Summarize the solid, liquid, and gaseous waste streams and sources, including estimated inventories. Identify the waste management and waste handling process or treatment system for each of the following waste types:</p> <ol style="list-style-type: none"> 1. Radioactive waste. 2. Mixed waste. 3. Hazardous waste. <p>Simply reference the hazard identification of Chapter 3, "Hazard and Accident Analysis," and information in Chapter 2, "Facility Description," if these chapters contain requested information.</p>	<p>7.2 Radiological Wastes. Classify all anticipated radioactive wastes with respect to source, chemical and radiological composition, method and design for handling, and mode of storage (temporary or permanent)....</p> <p>7.3 Nonradiological Wastes. Similar to 7.2, waste sources other than those containing radioactivity should be identified. Account for combustion products as well as all chemicals leaving the plant.</p> <p>7.4 Offgas Treatment and Ventilation. For all offgas and ventilation systems, indicate those radioactive wastes that will be produced as a result of removal from the gases cleaned by those systems....</p> <p>7.5 Liquid Waste Treatment and Retention. Show how all liquid wastes are generated and enter liquid treatment systems.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>9.4.1 Waste Management Process. This section summarizes the overall waste management plan, including an overall management policy or philosophy. Summarize the administrative and operational practices important to the effective management of each of the waste types, such as waste segregation.</p>	<p>7.5 Liquid Waste Treatment and Retention.</p> <p>7.5.1 Design Objectives. Describe the design objectives for the system under discussion. Identify, in particular, criteria which incorporate backup and special features to ensure that the waste will be safely contained.</p> <p>7.5.3 Operating Procedures. Describe the procedures associated with operation of the system(s). Include performance tests, action levels, action to be taken under normal and abnormal conditions, and methods for testability to ensure functional operation.</p> <p>7.6 Liquid Waste Solidification.</p> <p>7.6.1 Design Objectives. Describe objectives of the system(s) consistent with the processes selected.</p> <p>7.6.3 Operating Procedures. Describe the procedures associated with operation of the equipment including performance tests, process limits, and means for controlling and monitoring to those limits.</p> <p>7.7 Solid Wastes</p> <p>7.7.1 Design Objectives. Describe the objectives of the methods and the equipment selected for minimizing the generation of solid wastes and for safe management of that solid waste which is generated.</p> <p>7.7.3 Operating Procedures. Describe the procedures associated with operation of the equipment including performance tests, process limits, and means for monitoring and controlling to these limits.</p> <p>7.1 Waste Management Criteria... provide the primary design bases and supporting analysis for demonstrating that all radioactive waste materials will be contained safely over the life of the plant. The considerations for offsite disposal of solid waste materials and contaminated equipment should also be included. The waste confinement objectives, equipment, and program should implement, in part, the considerations necessary for protection against radiation as described in Chapter 8, "Radiation Protection."</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>9.4.2 Waste Sources and Characteristics. This section summarizes how and where the waste is generated (i.e., waste streams) and how it enters the appropriate waste handling or treatment system. For each waste type (i.e., radioactive, mixed, or hazardous) discuss by characteristics, composition, and waste material form (i.e., gaseous, liquid, or solid) the effluent discharges, emission limits, and permitting.</p>	<p>7.2 Radiological Wastes. Classify all anticipated radioactive wastes with respect to source, chemical and radiological composition, method and design for handling, and mode of storage (temporary or permanent)....</p> <p>7.3 Nonradiological Wastes. Similar to 7.2, waste sources other than those containing radioactivity should be identified. Account for combustion products as well as all chemicals leaving the plant.</p> <p>7.4 Offgas Treatment and Ventilation. For all offgas and ventilation systems, indicate those radioactive wastes that will be produced as a result of removal from the gases cleaned by those systems.....</p> <p>7.5 Liquid Waste Treatment and Retention. Show how all liquid wastes are generated and enter liquid treatment systems.</p> <p>7.6 Liquid Waste Solidification...7.6.4 Characteristics, Concentrations, and Volumes of Solid Wastes. Describe the physical, chemical, and thermal characteristics of the solid wastes and provide an estimate of concentrations and volumes generated.</p> <p>7.7 Solid Wastes...7.7.4 Characteristics, Concentrations, and Volumes of Solid Wastes. Describe the physical, chemical, and thermal characteristics of the solid wastes and provide an estimate of concentrations and volumes generated.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>9.4.3 Waste Handling or Treatment Systems. This section summarizes the processes to treat different waste types and forms produced in the facility. This brief summary should include system function, and basic chemical or physical operating principles (e.g., sedimentation, ion exchange, decanting). Also include or reference simplified process flow diagrams that show the location of equipment and instrumentation (including monitoring equipment).</p>	<p>7.4 Offgas Treatment and Ventilation. For all offgas and ventilation systems, indicate those radioactive wastes that will be produced as a result of removal from the gases cleaned by those systems. Such items as filters and scrubbers, which collect wastes, should be discussed to indicate the destination of the wastes upon regeneration or replacement. If the wastes enter other waste treatment systems, indicate how such transfers are made and any possible radiological effects of the transfer. The actual operation of the gas-cleaning equipment and its minimum expected performance should be discussed and included in this section.</p> <p>7.5 Liquid Waste Treatment and Retention. Show how all liquid wastes are generated and enter liquid treatment systems. Include such items as laboratory wastes, liquid spills, and cleanup solutions. A statement should be made as part of the design objectives concerning the inventory levels expected, provisions for interim and long-term storage, and identification of those streams which will be processed to achieve volume reduction or solidification. Relate the discussion on process and equipment to the radioactivity level.</p> <p>7.5.2 Equipment and Systems Description</p> <p>7.6 Liquid Waste Solidification. A description of the process and equipment to be used for volume reduction and/or solidification of the liquid wastes identified in Section 7.5 should be provided.</p> <p>7.6.2 Equipment and Systems Description</p> <p>7.7 Solid Wastes. List and characterize all solid wastes that are produced during plant operation. Describe the system(s) used to treat, package, and contain these solid wastes.</p> <p>7.7.2 Equipment and Systems Description.</p> <p>8.3.3 Ventilation.</p>
Chapter 10 Initial Testing, In-service Surveillance, and Maintenance	
<p>10.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p>
<p>10.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>10.3 INITIAL TESTING PROGRAM. This section briefly summarizes the initial testing program. This summary includes the initial testing program that ensures operability of a facility modification prior to service and information to ensure that adequate testing activities exist to support facility safety management. Reference relevant site manuals as appropriate.</p>	<p>10.2 Preoperational Testing and Operation. ...describe the preoperational testing and operating startup plans. Emphasize those plans which demonstrate that the plant, equipment, and processes meet safety and design criteria discussed in previous chapters. Test plans should be presented to verify the integrity of the plant, equipment, and process and to substantiate the safety analysis. ...</p> <p>10.2.1 Administrative Procedures for Conducting the Test Program. Describe the system used for (1) preparing, reviewing, approving, and executing all testing procedures and instructions and (2) for evaluating, documenting, and approving the test results, including the organizational responsibilities and personnel qualifications, for the applicant and his contractors....</p> <p>10.2.2 Test Program Description. Describe the test objectives and the general methods for accomplishing these objectives, the acceptance criteria that will be used to evaluate the test results, and the general prerequisites for performing the tests, including special conditions to simulate normal and abnormal operating conditions of the tests listed.</p> <p>10.2.3 Test Discussion. 10.2.3.1 Test Name or System Under Test. For each preoperational test provide the following information: 1. Describe the purpose of the test (Purpose). 2. Define the response expected in terms of design bases and criteria discussed in previous chapters and indicate the margin of difference acceptable for safe operation. When the results of the preoperational test do not confirm the expected response, discuss in detail the changes required and provide a justification that the change will correct the problem (Response and Acceptance Criteria).</p> <p>12.1.11 Test Control.describe the measures that establish a test program which (1) identifies all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service and (2) is conducted by trained or appropriately qualified personnel in accordance with written test procedures which incorporate or reference the requirements and acceptance limits contained in applicable design documents.</p> <p>12.1.14 Inspection, Test, and Operating Status....describe measures established to indicate by the use of marking such as stamps, tags, labels, routing cards, or other suitable means the status of inspections and tests performed on individual items of the plant throughout fabrication, installation, and test....describe the measures which provide for the identification of items that have satisfactorily passed required inspections and tests, where necessary, to preclude inadvertent bypassing of such inspections and tests....describe the measures established for indicating the operating status of structures, systems, and components of the plant such as tagging valves and switches to prevent inadvertent operation.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>10.4 IN-SERVICE SURVEILLANCE PROGRAM. This section summarizes the in-service surveillance program. The summary should cover provisions for testing and calibrations, control and calibration of test equipment, trending of surveillance test results, programmatic review, and training of personnel performing surveillance. Reference relevant site manuals as appropriate.</p>	<p>12.1.11 Test Control.describe the measures that establish a test program which (1) identifies all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service and (2) is conducted by trained or appropriately qualified personnel in accordance with written test procedures which incorporate or reference the requirements and acceptance limits contained in applicable design documents.</p> <p>12.1.12 Control of Measuring and Test Equipment.describe the measures established to ensure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly identified, controlled, adjusted, and calibrated at specified periods to maintain accuracy within necessary limits.describe measures to ensure that (1) these devices are adjusted and calibrated against certified equipment or reference or transfer standards having known valid relationships to nationally recognized standards or (2) if no national standards exist, the basis for calibration is documented.describe the measures to ensure that the error of calibration standards is less than the error of production measuring and test equipment.</p> <p>12.1.14 Inspection, Test, and Operating Status....describe measures established to indicate by the use of marking such as stamps, tags, labels, routing cards, or other suitable means the status of inspections and tests performed on individual items of the plant throughout fabrication, installation, and test....describe the measures which provide for the identification of items that have satisfactorily passed required inspections and tests, where necessary, to preclude inadvertent bypassing of such inspections and tests....describe the measures established for indicating the operating status of structures, systems, and components of the plant such as tagging valves and switches to prevent inadvertent operation.</p> <p>12.2 Quality Assurance During the Operation Phase.describe the QA program that will ensure the quality of all safety-related items and activities during the operations phase. These activities include plant operation, maintenance, repair, inservice inspection, modifications, testing, and inspections under the materials license.....</p> <p>10.3 Training Programs. 10.3.1 Program Description. Describe the proposed training program including the scope of training in (1) plant operations and design, instrumentation and control, methods of dealing with process malfunctions, decontamination procedures, and emergency procedures.....</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>10.5 MAINTENANCE PROGRAM. This section summarizes the maintenance program supporting safe operation of the facility. The summary should include the maintenance organization, training of maintenance personnel, maintenance facilities and equipment, post maintenance testing; control and calibration of measuring equipment, and maintenance history and trending. Reference relevant site manuals as appropriate.</p>	<p>10.1.3.1 Minimum Qualification Requirements. The minimum qualification requirements should be stated for all plant operating, technical, and maintenance support personnel.</p> <p>10.4 Normal Operations. 10.4.1 Plant Procedures.include a commitment to conduct safety-related operations by providing detailed written procedures.include a list of procedures that, by title or subject, clearly indicates their purpose and applicability. ... include a description of the review, change, and approval practices for all plant operating, maintenance, and testing procedures.</p> <p>12.2 Quality Assurance During the Operation Phase. ...describe the QA program that will ensure the quality of all safety-related items and activities during the operations phase. These activities include plant operation, maintenance, repair, inservice inspection, modifications, testing, and inspections under the materials license....</p> <p>5.4.10 Maintenance Systems. 5.4.10.1 Major Components and Operating Characteristics. Provide the design bases, locations, and modes of operation which will relate to the maintenance programs for the plant. Emphasis should be placed on provisions for remote work, decontamination and disposal of equipment, piping and valves, quality control, and testing.</p> <p>5.4.10.2 Safety Considerations and Controls. Discuss the means for conducting required maintenance with a minimum of personnel radiation exposure or injury ensuring confinement of process materials and radioactive wastes as necessary.</p> <p>6.1.3.5 Remote and Contact Maintenance Techniques. Discuss the rationale and outline the techniques to be used. This should include a statement of areas where specific techniques apply. Include system and component spares.</p> <p>6.4.2 Component/Equipment Spares. Describe in detail design features which include installation of spare or alternate equipment to provide continuity of safety under normal and abnormal conditions. This may include vessels, jets, pumps, spool pieces, heaters or coolers, valves, and standby blanket gas supplies. Particular emphasis is needed on design selection to minimize radiation exposure for maintenance operations. Also describe the bases for inspection, preventive maintenance, and testing programs to ensure continued safe functioning</p>
<p>Chapter 11 Operational Safety</p> <p>11.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p> <p>11.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p> <p>5.4.9 Fire Protection System. 5.4.9.1 Design Bases.</p> <p>5. List the codes and standards considered and used for the design of the fire protection systems including published standards of the National Fire Protection Association.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>11.3 CONDUCT OF OPERATIONS. This section summarizes applicability of conduct of operations to the facility and briefly identifies salient features of the conduct of operations program. Specific topical areas from DOE 5480.19 that should be considered are:</p> <ol style="list-style-type: none"> 1. Shift routines and operating practices. 2. Control area activities. 3. Communications. 4. Control of onshift training. 5. Control of equipment and system status. 6. Lockouts and tagouts. 7. Independent verification. 8. Log keeping. 9. Operations turnover. 10. Operations aspects of facility chemistry and unique processes. 11. Required reading. 12. Timely orders to operators. 13. Operator aid postings. 14. Equipment and piping labeling. 	<p>10. CONDUCT OF OPERATIONS.</p> <p>10.4 Normal Operations.</p> <p>10.4.1 Plant Procedures.include a commitment to conduct safety-related operations by providing detailed written procedures.include a list of procedures that, by title or subject, clearly indicates their purpose and applicability.include a description of the review, change, and approval practices for all plant operating, maintenance, and testing procedures.</p>
<p>11.4 FIRE PROTECTION.</p> <p>11.4.1 Fire Hazards. This section provides a realistic discussion of the magnitude of facility fire hazards in terms of overall combustible and explosive loading in proximity to hazardous materials being protected. This information should be based on and correlate with accident descriptions in Chapter 3, "Hazard and Accident Analyses."</p>	<p>5.4.9 Fire Protection System</p> <p>5.4.9 Fire Protection System. 5.4.9.1 Design Bases.</p> <ol style="list-style-type: none"> 1. Identify ... the fires that could indirectly or directly affect safety-related structures, systems, and components. ... 2. Discuss in the initial submittal fire characteristics, such as maximum fire intensity, flame spreading, smoke generation, production of toxic contaminants, and the contribution of fuel to the fire for all individual plant areas that have combustible materials and are associated with safety-related structures, systems, and components.... <p>5.4.9.3 System Evaluation. Provide an evaluation for those fires identified in Section 5.4.9.1. This evaluation should consider the quantities of combustible materials present, the plant design, and the fire protection systems provided. Describe the estimated severity, intensity, and duration of the fires and the hazards created by the fires. Indicate for each of the postulated events the total time involved and the time for each step from the first alert of the fire hazard until safe control or extinguishment and safe shutdown of the plant is accomplished....</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>11.4.2 Fire Protection Program and Organization. This section summarizes the program, including the safety management policies and philosophies used as a basis for the program. These elements should include the overall conceptual approach to fire and explosion prevention, and the means used to identify facility fire and explosive hazards, including periodic update reviews. Reference facility documents detailing the program.</p>	<p>5.4.9.4 Inspection and Testing Requirements. List and discuss the installation, testing, and inspection planned during construction of the fire protection systems to demonstrate the integrity of the systems as installed.describe the operational checks, inspection, and servicing required to maintain this integrity.discuss the testing necessary to maintain a highly reliable alarm detection system.</p> <p>5.4.9.5 Personnel Qualification and Training. State the qualification requirements for the fire protection engineer or consultant who will assist in the design and selection of equipment inspect and test the completed physical aspects of the system, develop the fire protection program, and assist in the firefighting training for the operating plant.discuss the initial training and the updating provisions such as fire drills provided for maintaining the competence of the station firefighting and operating crew, including personnel responsible for maintaining and inspecting the fire protection equipment.</p>
<p>11.4.3 Combustible Loading Control. This section summarizes the program used to prevent unnecessary combustible loading in the facility. The bases for the program, storage practices for allowed flammable, combustible, and reactive materials loading, the main mechanisms for limiting combustible loading during operations, maintenance, etc. for the types of activities performed, and the frequency of inspections are noted here.</p>	<p>No corresponding section in RG 3.39</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>11.4.4 Fire Fighting Capabilities. Based on the fire hazards, this section summarizes available fire fighting equipment, fire response procedures, basic training and personnel qualifications for fire fighters, and special precautions taken for fire fighting in radiological and hazardous chemical environments. Reference, as appropriate, Chapter 12, "Procedures and Training" if that chapter presents requested information.</p>	<p>5.4.9.1 Design Bases. 3. Discuss and list ... the features of building and plant arrangements and the structural design features that provide for fire prevention, fire extinguishing, fire control, and control of hazards created by fire. List and describe in the discussion the egress, fire barriers, fire walls, and the isolation and containment features provided for flame, heat, hot gases, smoke, and other contaminants....4. Specify the seismic design requirements for each type of fire protection system incorporated in the plant and the plant site and the fire protection system requirements used in the basic design in the general areas of water supply, water distribution systems, and fire pump capacity.</p> <p>5.4.9.5 Personnel Qualification and Training. State the qualification requirements for the fire protection engineer or consultant who will assist in the design and selection of equipment inspect and test the completed physical aspects of the system, develop the fire protection program, and assist in the firefighting training for the operating plant. discuss the initial training and the updating provisions such as fire drills provided for maintaining the competence of the station firefighting and operating crew, including personnel responsible for maintaining and inspecting the fire protection equipment.</p> <p>5.4.9.2 System Description....1. Provide a general description of the system including preliminary drawings showing the physical characteristics of the plant location which outline the fire prevention and fire suppression systems to be provided for all areas associated with safety-related structures, systems, and components....2. Discuss the protection and suppression systems provided in the control room and other operating areas containing safety-related equipment3. Describe the design features of detection systems, alarm systems, automatic fire suppression systems, and manual, chemical, and gas systems for fire detection, confinement, control, and extinguishing. Discuss the relationship of the fire protection system to the onsite a.c. and d.c. power sources....4. Discuss smoke, heat, and flame control; combustible and explosive gas control; and toxic contaminant control, including the operating functions of the ventilating and exhaust systems during the period of fire extinguishing and control. Discuss the fire annunciator warning system, the appraisal and trend evaluation systems provided with the alarm detection system in the proposed fire protection systems, and the backup or public fire protection if this is to be provided in the installation....</p> <p>5.4.9.3 System Evaluation. Provide an evaluation for those fires identified in Section 5.4.9.1. This evaluation should consider the quantities of combustible materials present, the plant design, and the fire protection systems provided. Describe the estimated severity, intensity, and duration of the fires and the hazards created by the fires. Indicate for each of the postulated events the total time involved and the time for each step from the first alert of the fire hazard until safe control or extinguishment and safe shutdown of the plant is accomplished....</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements		Comparable Regulatory Guide 3.39 Requirements
11.4.5 Fire Fighting Readiness Assurance. This section summarizes: (1) the fire prevention inspection program, including basic scheduling and resolution of inspection findings; (2) types and frequencies of fire safety drills and exercises; and 3) the fire protection program record keeping requirements.		5.4.9.4 Inspection and Testing Requirements... installation, testing, and inspection planned during construction of the fire protection systems to demonstrate the integrity of the systems as installed. operational checks, inspection, and servicing required to maintain this integrity. testing necessary to maintain a highly reliable alarm detection system. 5.4.9.5 Personnel Qualification and Training..... discuss the initial training and the updating provisions such as fire drills provided for maintaining the competence of the station firefighting and operating crew, including personnel responsible for maintaining and inspecting the fire protection equipment.
Chapter 12 Procedures and Training		
12.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.		Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.
12.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.		Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.
12.3 PROCEDURE PROGRAM. This section summarizes the facility procedures program, including brief statements addressing the safety management policies and philosophies used as a basis for the program. Reference facility documents detailing the program. Do not list specific procedures.		10.4 Normal Operations. 10.4.1 Plant Procedures.include a commitment to conduct safety-related operations by providing detailed written procedures. include a list of procedures that, by title or subject, clearly indicates their purpose and applicability. include a description of the review, change, and approval practices for all plant operating, maintenance, and testing procedures.
12.3.1 Development of Procedures. This section summarizes how procedures are selected for development and describes the processes by which the technical content of procedures is developed, verified, and validated for normal, abnormal, and emergency operations; and for surveillance testing and maintenance.		10.4.1 Plant Procedures.include a commitment to conduct safety-related operations by providing detailed written procedures. include a list of procedures that, by title or subject, clearly indicates their purpose and applicability. include a description of the review, change, and approval practices for all plant operating, maintenance, and testing procedures
12.3.2 Maintenance of Procedures. This section summarizes provisions for documenting and controlling procedures and providing the necessary training and coordination before the introduction of new procedures, or the introduction of changes in the human-machine interface covered by procedures.		10.4.1 Plant Procedures.include a commitment to conduct safety-related operations by providing detailed written procedures. include a list of procedures that, by title or subject, clearly indicates their purpose and applicability. include a description of the review, change, and approval practices for all plant operating, maintenance, and testing procedures

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
12.4 TRAINING PROGRAM. This section summarizes the facility training program, including brief statements addressing the safety management policies and philosophies used as a basis for the program. Reference facility documents detailing the program.	10.3 Training Programs. 10.3.1 Program Description. Describe the proposed training program...
<p>12.4.1 Development of Training. This section summarizes the processes by which the technical content of training programs is developed, verified, and validated. This summary includes training methods and qualification requirements for:</p> <ol style="list-style-type: none"> 1. Conduct of normal, abnormal, and emergency operations. 2. Onshift and classroom training. 3. Criticality training. 4. Radiation and hazardous material protection training. 5. Surveillance testing and maintenance training. 6. Fire protection training. 7. Quality assurance training. 8. Emergency preparedness training. 	<p>10.3 Training Programs.</p> <p>10.3.1 Program Description. Describe the proposed training program including the scope of training in (1) plant operations and design, instrumentation and control, methods of dealing with process malfunctions, decontamination procedures, and emergency procedures and (2) in health physics subjects such as nature and sources of radiation, methods of controlling contamination, interactions of radiation with matter, biological effects of radiation, use of monitoring equipment, and principles of criticality hazards control. Identify personnel classification with level of instruction.</p>
12.4.2 Maintenance of Training. This section summarizes the provisions that ensure training programs reflect actual plant conditions and current procedures, and that necessary coordination is done before introducing new training programs or introducing changes in procedures covered by training programs.	<p>10.3.2 Retraining Program. Describe the program for continued training that provides additional materials and refresher training.</p> <p>10.3.3 Administration and Records. Identify personnel in the organization responsible for the training programs and maintaining up-to-date records on the status of trained personnel, training for new employees, and refresher or upgrading training of present personnel.</p>
12.4.3 Modification of Training Materials. This section summarizes the process by which technical or human factors deficiencies in training programs are identified and corrected.	10.3.3 Administration and Records. Identify personnel in the organization responsible for the training programs and maintaining up-to-date records on the status of trained personnel, training for new employees, and refresher or upgrading training of present personnel.
Chapter 13 Human Factors	
13.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.	No corresponding section in RG 3.39

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Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
13.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.	No corresponding section in RG 3.39
13.3 HUMAN FACTORS PROCESS. This section summarizes the human factors process for systematically evaluating the importance of human factors in facility safety. This summary includes the process features to provide assurance that the importance of human-machine interfaces is considered in facility safety.	No corresponding section in RG 3.39
13.4 IDENTIFICATION OF HUMAN-MACHINE INTERFACES. This section summarizes the safety SSCs requiring human-machine interfaces to function, and the required human-machine interface. These are identified in conjunction with the results of the hazard analysis and accident analysis in Chapter 3 that identifies safety SSCs. Include human-machine interfaces necessary for the surveillance and maintenance of safety SSCs during normal operations, and the human-machine interfaces required for ensuring safety function during normal, abnormal, and emergency operations. Describe the actions identified so that the reviewer can understand what the humans are expected to do (i.e., close isolation valves) and the importance to facility safety of their action (e.g., ensures confinement, actuates a protective response system, etc.).	No corresponding section in RG 3.39

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>13.5 OPTIMIZATION OF HUMAN-MACHINE INTERFACES. This section summarizes a systematic inquiry into the optimization of human-machine interfaces with safety SSCs to enhance human performance. Checklists serve to document the systematic inquiry. Discussions will be proportionate to the importance to safety and may consider the following design elements:</p> <ol style="list-style-type: none"> 1. Furnished instrumentation, provisions for communication and operational aids to support timely, reliable performance for safety functions. 2. Layout and design of controls and instrumentation, and provision for labeling that apply the principles of ergonomics and human engineering. 3. Work environments, including physical access, need for protective clothing or breathing apparatus, noise levels, temperature, humidity, distractions, and other factors bearing upon physical comfort, alertness, fitness, etc. 4. Staffing considerations (e.g., minimum staffing levels, allocation of control functions, overtime restrictions, facility status turnover between shifts, procedures, training, etc.). 	<p>No corresponding section in RG 3.39</p>
<p>Chapter 14 Quality Assurance</p> <p>14.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p> <p>14.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p> <p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>14.3 QUALITY ASSURANCE PROGRAM AND ORGANIZATION. This section summarizes the program, including the safety management policies and philosophies used as a basis for the program. Reference facility documents detailing the program. Identify the organizational structure of the quality assurance program including staffing levels and qualifications, positions of authority and responsibilities, and interfaces with other safety organizations and facility operations.</p>	<p>12.1.1 Organization.describe clearly the authority and duties of persons and organizations performing quality assurance (QA) functions for ensuring that the QA program is established and executed or for verifying that an activity has been correctly performed. Organization charts and functional responsibility descriptions should be provided that denote the lines of responsibility and areas of authority within each of the major organizations in the project.... describe those measures to ensure that persons and organizations performing QA functions have sufficient authority and organizational freedom to (1) identify quality problems; (2) initiate, recommend, or provide solutions; and (3) verify implementation of solutions.....</p> <p>12.1.2 Quality Assurance Program. identify the safety-related structures, systems, and components to be controlled by the QA program.</p> <p>.... describe how the QA program is documented by written policies, procedures, or instructions and how it will be implemented in accordance with these policies, procedures, or instructions.</p> <p>....describe the program providing adequate indoctrination and training of the personnel performing activities that affect quality so that suitable proficiency is achieved and maintained.</p> <p>12.1.5 Instructions, Procedures, and Drawings.describe measures to ensure that activities affecting quality such as design, procurement, manufacturing, construction and installation, testing, inspection, and auditing are prescribed by appropriately documented instructions, procedures, or drawings and that these activities will be conducted in accordance with the documented instructions and procedures.</p> <p>12.1.7 Control of Purchased Material, Equipment, and Services.....describe those measures to ensure that material, equipment, and services purchased directly by the applicant or by his contractors and subcontractors will conform to procurement document requirements....</p> <p>12.1.8 Identification and Control of Materials, Parts, and Components.... describe measures established to identify and control items such as materials, parts, and components, including partially fabricated assemblies, to prevent use of incorrect or defective items....</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>14.4 QUALITY IMPROVEMENT. This section briefly describes management's programs and processes used to correct adverse conditions affecting quality. Specifically include identification of control and disposal of nonconforming materials, parts, and components.</p>	<p>12.1.3 Design Control.... describe the design control measures to ensure that (1) applicable regulatory requirements and design bases for safety-related structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions; (2) appropriate quality standards are specified in design documents; and (3) deviations from such standards are controlled....</p> <p>12.1.14 Inspection, Test, and Operating Status. describe measures established to indicate by the use of marking such as stamps, tags, labels, routing cards, or other suitable means the status of inspections and tests performed on individual items of the plant throughout fabrication, installation, and test. Describe the measures which provide for the identification of items that have satisfactorily passed required inspections and tests, where necessary, to preclude inadvertent bypassing of such inspections and tests.</p> <p>.... describe the measures established for indicating the operating status of structures, systems, and components of the plant such as tagging valves and switches to prevent inadvertent operation.</p> <p>12.1.15 Nonconforming Materials, Parts, or Components. describe the measures established to control materials, parts, or components that do not conform to requirements in order to prevent their inadvertent use or installation.</p> <p>12.1.16 Corrective Action. ... describe the measures to ensure that conditions adverse to quality such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.</p> <p>12.1.18 Audits. ... describe the program of the applicant and of his principal contractors for conducting comprehensive planned and periodic audits to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program....</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>14.5 DOCUMENTS AND RECORDS. This section briefly describes the document control and records management program associated with quality assurance.</p>	<p>12.1.4 Procurement Document Control.... describe measures to ensure that documents (and changes thereto) for procurement of material, equipment, and services purchased by the applicant, his contractors, or subcontractors, correctly include or reference the following, as necessary, to achieve required quality: 1. Applicable regulatory, code, and design requirements; 2. Quality assurance program requirements; 3. Requirements for supplier documents such as instructions, procedures, drawings, specifications, inspection and test records, and supplier QA records to be prepared, submitted, or made available for purchaser review or approval; 4. Requirements for the retention, control, and maintenance of supplier QA records; 5. Provision for purchaser's right of access to suppliers' facilities and work documents for inspection and audit; and 6. Provision for supplier reporting and disposition of nonconformances from procurement requirements....</p> <p>12.1.6 Document Control.... The initial application should describe those measures established to control the issuance of documents, e.g., instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality....</p> <p>12.1.17 Quality Assurance Records. describe the measures to ensure that sufficient records are maintained for furnishing evidence of activities affecting quality. Describe how the content of such records (1) includes at a minimum the following: test logs, results of reviews, inspections, tests, audits, monitoring of work performance, and materials analyses; and such data as qualifications of personnel, procedures, and equipment; (2) identifies the type of operation, the inspector or data recorder, the results, the acceptability, and action taken in connection with any deficiencies noted; and (3) provides sufficient information to permit identification of the record with the item(s) or activity to which it applies.</p> <p>.... describe the system to ensure that records will be identifiable and retrievable. describe the measures that establish requirements, consistent with regulatory requirements and responsibilities, concerning record submittal and retention, security, and storage facilities for protecting records from destruction by fire, flooding, tornadoes, insects, and rodents and from deterioration by extremes in temperature and humidity.</p>
<p>14.6 QUALITY ASSURANCE PERFORMANCE. This section presents an overview of process to ensure that the performed work meets requirements.</p>	<p>12.1.2 Quality Assurance Program. identify the safety-related structures, systems, and components to be controlled by the QA program.</p> <p>.... describe how the QA program is documented by written policies, procedures, or instructions and how it will be implemented in accordance with these policies, procedures, or instructions.</p> <p>.... describe the program providing adequate indoctrination and training of the personnel performing activities that affect quality so that suitable proficiency is achieved and maintained.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>14.6.1 Work Processes. Briefly describe management's programs that ensure performance of tasks under controlled conditions, with applicable calibrated instrumentation, and in accordance with established technical standards and administrative controls.</p>	<p>12.1.10 Inspection.describe the measures to ensure that a program for inspection is established and implemented by or for the organization performing the activities to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity. ... describe measures to ensure that (1) inspection personnel are appropriately qualified and are independent of the individual or group performing the activity being inspected; (2) inspections or tests are performed for each work operation as necessary to verify quality; (3) indirect control by monitoring processing methods, equipment, and personnel is used if direct inspection of processed material or products is impossible or disadvantageous, and (4) both inspection and process monitoring are used when control is inadequate without both.describe the system whereby appropriate documents will identify any mandatory inspection hold points that require witnessing or inspecting by the applicants' designated representative and beyond which work may not proceed without the consent of its designated representatives.</p>
<p>14.6.2 Design. This section briefly describes how quality assurance is integrated into design activities.</p>	<p>12.1.3 Design Control.describe the design control measures to ensure that (1) applicable regulatory requirements and design bases for safety-related structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions; (2) appropriate quality standards are specified in design documents; and (3) deviations from such standards are controlled.....</p>
<p>14.6.3 Procurement. This section briefly describes how quality assurance is integrated into the procurement process. Describe also how prospective suppliers are evaluated, selected, and their acceptability monitored.</p>	<p>12.1.4 Procurement Document Control.describe measures to ensure that documents (and changes thereto) for procurement of material, equipment, and services purchased by the applicant, his contractors, or subcontractors, correctly include or reference the following, as necessary, to achieve required quality:</p> <ol style="list-style-type: none"> 1. Applicable regulatory, code, and design requirements; 2. Quality assurance program requirements; 3. Requirements for supplier documents such as instructions, procedures, drawings, specifications, inspection and test records, and supplier QA records to be prepared, submitted, or made available for purchaser review or approval; 4. Requirements for the retention, control, and maintenance of supplier QA records; 5. Provision for purchaser's right of access to suppliers' facilities and work documents for inspection and audit; and 6. Provision for supplier reporting and disposition of nonconformances from procurement requirements..... <p>12.1.7 Control of Purchased Material, Equipment, and Services.describe those measures to ensure that material, equipment, and services purchased directly by the applicant or by his contractors and subcontractors will conform to procurement document requirements.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>14.6.4 Inspection and Testing for Acceptance. This section briefly describes how quality assurance is integrated into inspection and testing of programs.</p>	<p>12.1.7 Control of Purchased Material, Equipment, and Services.describe those measures to ensure that material, equipment, and services purchased directly by the applicant or by his contractors and subcontractors will conform to procurement document requirements.</p> <p>12.1.10 Inspection.describe the measures to ensure that a program for inspection is established and implemented by or for the organization performing the activities to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity.</p> <p>12.1.11 Test Control.describe the measures that establish a test program which (1) identifies all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service and (2) is conducted by trained or appropriately qualified personnel in accordance with written test procedures which incorporate or reference the requirements and acceptance limits contained in applicable design documents.</p> <p>12.1.14 Inspection, Test, and Operating Status.describe measures established to indicate by the use of marking such as stamps, tags, labels, routing cards, or other suitable means the status of inspections and tests performed on individual items of the plant throughout fabrication, installation, and test.describe the measures which provide for the identification of items that have satisfactorily passed required inspections and tests, where necessary, to preclude inadvertent bypassing of such inspections and tests.</p>
<p>14.6.5 Independent Assessment. This section briefly describes how internal independent assessments and external verifications and audits of the quality assurance program are performed.</p>	<p>12.1.18 Audits.describe the program of the applicant and of his principal contractors for conducting comprehensive planned and periodic audits to verify compliance with all aspects of the quality assurance program and to determine the effectiveness of the program.</p> <p>....describe the program features that cover the functions listed below and should identify the positions or organizations which perform these functions.</p> <ol style="list-style-type: none"> 1. External audits to be performed by the applicant and his principal contractors on their respective suppliers. 2. Internal audits to be performed by the applicant and his principal contractors within their respective organizations. 3. The planning and scheduling of audits to ensure that they are regularly scheduled on the basis of the status and safety importance of the activities being performed and are initiated early enough to ensure effective quality assurance during design, procurement, manufacturing, construction and installation, inspection, and test. 4. Conduct of audits in accordance with written procedures or check lists by appropriately trained and qualified personnel not having direct responsibility in the area being audited. 5. Documentation of audit results with review by management responsible for the area audited and, where indicated, followup action taken, including re-audit of deficient areas.

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
Chapter 15 Emergency Preparedness Program	
15.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.	Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.
15.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.	10.5 Emergency Planning. The application should describe the applicant's preliminary plans for coping with emergencies. The applicant should refer to 10 CFR Part 50, Appendix E, "Emergency Plans for Production and Utilization Facilities," Section II, for a description of the kind of information to be provided. The completed application should contain the plans for coping with emergencies. The applicant should refer to 10 CFR Part 50, Appendix E, Sections III and IV, for a description of the minimum information to be included in the emergency plan.
15.3 SCOPE OF EMERGENCY PREPAREDNESS. This section summarizes the spectrum of emergencies that the EPP is designed to encompass. Focus discussions on demonstrating that emergency preparedness planning adequately encompasses the facility hazards discerned in the hazard analysis. Use of bounding categories of emergencies (i.e., fire, spills, criticality) and bounding consequences from emergencies should be sufficient for documenting the scope of emergency preparedness.	RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.
15.4 EMERGENCY PREPAREDNESS PLANNING. This section summarizes facility emergency preparedness planning. The summary should include activation of emergency organizations, assessment actions, notification processes, emergency facilities and equipment, protective actions, training and exercises, and recovery actions.	RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>15.4.1 Emergency Response Organization. This section summarizes the emergency response organization that is activated in case of onsite and offsite operational emergencies. Delineate authorities and responsibilities of key individuals and groups, and identify the communication chain for notifying, alerting, and mobilizing the necessary personnel. Identify the position of the person with the overall responsibility for directing emergency responses. Describe interrelationships with federal, state, tribal, and local organizations for offsite emergency response and for the protection of the environment and the public. Briefly summarize and reference any prearranged plans, agreements, understandings, and/or other arrangements for mutual assistance by non-DOE entities.</p>	<p>RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.</p>
<p>15.4.2 Assessment Actions. This section summarizes the processes by which the onset of an operational emergency is recognized. The methodology used to obtain meteorological information and estimate release rates and source terms needs to be identified. If computer models are used for consequence assessment, identify the specific models used and the plume methodologies employed (e.g., Gaussian plume).</p>	<p>RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.</p>
<p>15.4.3 Notification. This section summarizes the provisions for prompt initial notification of emergency response personnel and response organizations, including appropriate DOE elements and other federal, state, tribal, and local organizations. Summarize the follow-up notification processes, and how emergency public information is integrated into the emergency management program.</p>	<p>RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.</p>
<p>15.4.4 Emergency Facilities and Equipment. This section summarizes pertinent aspects of emergency facilities (i.e., location, function) and equipment (i.e., communication capabilities, hazardous material detection instrument ranges and types, dosimetry) required to support the facility emergency responses.</p>	<p>RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.</p>

TABLE A-1. Comparison Between Safety Analysis Format Requirements Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>15.4.5 Protective Actions. This section summarizes the protective actions that are required to minimize the exposure of workers and the public. Discussions should include provisions made for medical support and decontamination. Important elements of population evacuations should be summarized including evacuation times, routes, methods of alerting.</p>	<p>RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.</p>
<p>15.4.6 Training and Exercises. This section summarizes the emergency training program, including initial and annual retraining for all facility emergency response personnel. Include a summary of the drills and exercises that are an integral part of the emergency management program. The summary should address the range of different populations exposed to facility hazards (e.g., public, general facility population, facility visitors).</p>	<p>RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.</p>
<p>15.4.7 Recovery and Reentry. This section summarizes the provisions for the recovery from an operational emergency and planned reentry provisions for the affected facility. Indicate the recovery organization and how the facility will transition from the emergency response organization to the recovery organization.</p>	<p>RG 3.39 does not adequately address the Emergency Preparedness Program, but 10CFR50 does.</p>
Chapter 16 Provisions for Decontamination and Decommissioning	
<p>16.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p>
<p>16.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>16.3 DESCRIPTION OF CONCEPTUAL PLANS. This section summarizes conceptual plans for D&D. This summary documents that planning of operations and design or modifications minimizes the potential for spread of contamination that would complicate or reduce effectiveness of future D&D or environmental restoration activities. Assessment of future D&D activities must be based on an evaluation of the type and magnitude of hazards and the complexity of processes. The evaluation considers the vulnerabilities to normal and abnormal events and operational plans to minimize contamination and prevent an increase in residual risk during or after decommissioning in a manner similar to the hazard analysis described in Section 3.3, "Hazard Analysis." The evaluation, however, is conceptual in nature and does not require the extent of documentation required of a SAR hazard analysis. The description of design features to facilitate D&D operations is limited to major modifications of existing facilities.</p>	<p>4.5 Decommissioning. Arrangements must be included for safe decommissioning of the plant. Provide in this section the design criteria incorporated in the plant for fulfilling this requirement. Discuss the design philosophy to be used for allowing ease of plant decontamination and future isolation of all radioactive materials from the public while maximizing the land area returned to the public domain.</p> <p>10.6 Decommissioning. The license application should describe provisions for decommissioning the plant.</p> <p>10.6.1 Decommissioning Program. Present the planned program for decommissioning the plant.</p> <p>10.6.2 Decontamination. Discuss the procedures and arrangements to decontaminate the facility so that it will not present a hazard for an interminable period.</p> <p>10.6.3 Arrangements with Outside Organizations. Present the arrangements and agreements with other organizations that will ensure the continued safe decommissioning of the plant.</p> <p>10.6.4 Arrangements for Funding. Discuss the means for funding the decommissioning of the plant and maintaining its continued isolation from the public.</p>
Chapter 17 Management, Organization, and Institutional Safety Provisions	Chapter 17 Management, Organization, and Institutional Safety Provisions
<p>17.1 INTRODUCTION. This section provides an introduction to the contents of this chapter based on the graded approach and includes objectives and scope specific to the chapter as developed.</p>	<p>Although the chapters in RG 3.39 do not specifically contain an introduction section, the beginning of each chapter does contain introductory material summarizing the contents of the chapter, as is done in DOE-STD-3009.</p>
<p>17.2 REQUIREMENTS. The intent is to provide only the requirements that are specific for this chapter and pertinent to the safety analysis, and not a comprehensive listing of all industrial standards or codes or criteria.</p>	<p>Although the chapters of RG 3.39 do not always contain specific sections which list the design codes, standards, and regulations required to be addressed in the FSAR, the applicable requirements are generally contained within the text of each chapter.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>17.3 ORGANIZATIONAL STRUCTURE, RESPONSIBILITIES, AND INTERFACES. This section summarizes the overall structure of the organizations. Include in the summary the separate and distinct entities that are organized into a safety conscious and responsive organization to ensure and enhance the facility safety.</p>	<p>10.1 Organizational Structure. The following format should be used to present the organizational structure as it will be at the time the initial application submittal is made through the construction phase. The organization as it will function through preoperational testing, startup, and plant operation should be updated in the completed license application.</p> <p>10.1.2 Operating Organization. This section should describe the structure, functions, and responsibilities of the operating organization. The following specific information should be included.</p> <p>10.1.2.1 Plant Organization. Provide a comprehensive description of the organizational arrangement of the plant showing the title of each position, the flow of responsibility as depicted by an organization chart, and the number of personnel in each unit. Describe the organizational arrangement for ensuring safe operation, the personnel assigned to the safety committee, its mode of operation, and its responsibilities.</p> <p>10.1.2.2 Personnel Functions, Responsibilities, and Authorities. Describe the functions, responsibilities, and authorities of all personnel positions, including a discussion of specific succession to responsibility for overall operation of the plant in event of absences, incapacitation, or other emergencies.</p>
<p>17.3.1 Organizational Structure. This section summarizes the organization, including the interfaces with respect to the management of the facility beyond the operating organization.</p>	<p>10.1.1 Corporate Organization. Describe the corporate arrangement or organization related to the processing and fabrication activity. Indicate the information required by section 70.22(a)(1) if the corporation is made up from two or more existing identities, the relationship and responsibilities between each should be explained. As required in section 70.22, provide sufficient information to demonstrate the financial capabilities for construction, operation, and decommissioning of the plant.</p> <p>10.1.2 Operating Organization. This section should describe the structure, functions, and responsibilities of the operating organization</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>17.3.2 Organizational Responsibilities. This section summarizes the organization's responsibilities and authorities; its interfaces with other organizations described in this chapter or other chapters of the SAR, including the line operating organization; and the general safety programs and issues for which it is responsible. Also discuss:</p> <ol style="list-style-type: none"> 1. Technical and engineering support, maintenance, and modifications. 2. Safety issue discovery, communication, management, and resolution. 3. Independent safety review, audit, and compliance determination. 4. Safety analysis services, including USQ evaluation. 5. Support services such as utilities and other offsite support. 	<p>10.1.2 Operating Organization....describe the structure, functions, and responsibilities of the operating organization. The following specific information should be included.</p> <p>10.1.2.1 Plant Organization. Provide a comprehensive description of the organizational arrangement of the plant showing the title of each position, the flow of responsibility as depicted by an organization chart, and the number of personnel in each unit. Describe the organizational arrangement for ensuring safe operation, the personnel assigned to the safety committee, its mode of operation, and its responsibilities.</p> <p>10.1.2.2 Personnel Functions, Responsibilities, and Authorities. Describe the functions, responsibilities, and authorities of all personnel positions, including a discussion of specific succession to responsibility for overall operation of the plant in event of absences, incapacitation, or other emergencies.</p> <p>10.1.4 Liaison with Outside Organizations. Discuss arrangements made with outside organizations including those providing expertise on technical facets of details concerning site selection and evaluation, plant design and construction, process and equipment selection or development, and safety evaluations.... any arrangements made with other government agencies should be presented and the method or system used to monitor the interfaces between each participant.</p>
<p>17.3.3 Staffing and Qualifications. This section summarizes the bases for the staffing levels and the knowledge, skills, and abilities of facility personnel in organizations covered in this chapter. Describe the programs and provisions for monitoring safety performance of the staff.</p>	<p>10.1.3 Personnel Qualification Requirements. Describe in this section the proposed minimum requirements for onsite plant personnel. The application should specify the minimum qualification requirements and, as known, the qualifications of assigned plant personnel. The completed application should present any changes in required qualifications and the description of staff personnel finally selected. The following specific information should be included.</p> <p>10.1.3.1 Minimum Qualification Requirements. The minimum qualification requirements should be stated for all plant operating, technical, and maintenance support personnel.</p> <p>10.1.3.2 Qualifications of Plant Personnel. The qualifications of the individuals assigned to the managerial and technical positions described should be presented in resume form. The resumes should identify individuals by position title and, as a minimum, should describe the formal education, training, and experience of the individuals. Complete staff qualifications should be provided in the completed license application.</p>
<p>17.4 SAFETY MANAGEMENT POLICIES AND PROGRAMS. This section identifies and describes programs to enhance facility safety.</p>	<p>10.1.2.1 Plant Organization. Provide a comprehensive description of the organizational arrangement of the plant showing the title of each position, the flow of responsibility as depicted by an organization chart, and the number of personnel in each unit. Describe the organizational arrangement for ensuring safe operation, the personnel assigned to the safety committee, its mode of operation, and its responsibilities.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>17.4.1 Safety Review and Performance Assessment. This section summarizes the programs and procedures used to ensure independent oversight, safety review, USQ determination, and appraisal of the safety performance of all of the organizations involved in the management of safety, such as industrial safety, fire inspections, and hazardous material control.</p>	<p>10.4.1 Plant Procedures.include a commitment to conduct safety-related operations by providing detailed written procedures.include a list of procedures that, by title or subject, clearly indicates their purpose and applicability.include a description of the review, change, and approval practices for all plant operating, maintenance, and testing procedures..</p> <p>12.1.2 Quality Assurance Program.....describe the measures to ensure that there is regular management review of the QA program to assess the adequacy of its scope, implementation, and effectiveness.describe the provisions for reviews by management above or outside the QA organization to ensure achieving an objective program assessment.</p> <p>5.4.9 Fire Protection System....5.4.9.4 Inspection and Testing Requirements. List and discuss the installation, testing, and inspection planned during construction of the fire protection systems to demonstrate the integrity of the systems as installed... describe the operational checks, inspection, and servicing required to maintain this integritydiscuss the testing necessary to maintain a highly reliable alarm detection system.</p> <p>10.1.2.1 Plant Organization. Provide a comprehensive description of the organizational arrangement of the plant showing the title of each position, the flow of responsibility as depicted by an organization chart, and the number of personnel in each unit. Describe the organizational arrangement for ensuring safe operation, the personnel assigned to the safety committee, its mode of operation, and its responsibilities.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>17.4.2 Configuration and Document Control. This section summarizes programs for controlling modifications to the facility or to its operation. Describe the programs for control of all documentation serving a safety related function, such as as-built facility drawings, operating procedures, training manuals, etc.</p>	<p>12.1.5 Instructions, Procedures, and Drawings.... describe measures to ensure that activities affecting quality such as design, procurement, manufacturing, construction and installation, testing, inspection, and auditing are prescribed by appropriately documented instructions, procedures, or drawings and that these activities will be conducted in accordance with the documented instructions and procedures.... describe the system whereby the documented instructions and procedures will include appropriate quantitative (e.g., dimensions, tolerances, and operating limits) and qualitative (e.g., workmanship samples and weld radiographic acceptance standards) acceptance criteria for determining that prescribed activities have been satisfactorily accomplished.</p> <p>12.2 Quality Assurance During the Operation Phase. describe the QA program that will ensure the quality of all safety-related items and activities during the operations phase. These activities include plant operation, maintenance, repair, inservice inspection, modifications, testing, and inspections under the materials license....</p> <p>10. CONDUCT OF OPERATIONS. The framework for conducting the operation of the plant should be described. Quality Assurance (QA) applies to all safety aspects of nuclear activities: design, fabrication, construction, operation, maintenance, modifications, and decommissioning.</p> <p>10.2.1 Administrative Procedures for Conducting the Test Program. Describe the system used for (1) preparing, reviewing, approving, and executing all testing procedures and instructions and (2) for evaluating, documenting, and approving the test results, including the organizational responsibilities and personnel qualifications, for the applicant and his contractors.</p> <p>The administrative procedures should be described for incorporating any needed system modifications or procedure changes, based on the results of the tests (e.g., test procedure inadequacies or test results contrary to expected test results).</p>
<p>17.4.3 Occurrence Reporting. This section summarizes provisions for investigating abnormal events and reporting procedures to DOE; selection and analysis of information for occurrence reports; the evaluation of operational experience and trends; and for the development of feedback, corrective action, and communicating lessons learned.</p>	<p>10.4.2 Plant Records. ... present the detailed management system for maintaining records relating to the historical operation of the plant: the quality assurance records; operating records including principal maintenance, alteration, or additions made; records of abnormal occurrences and events associated with radioactive releases; and environmental survey records.</p>

**TABLE A-1. Comparison Between Safety Analysis Format Requirements
Contained in DOE-STD-3009-94 and NRC Regulatory Guide 3.39**

DOE-STD-3009-94 Requirements	Comparable Regulatory Guide 3.39 Requirements
<p>17.4.4 Safety Culture. This section summarizes the policies and programs used to: promote an interest in and involvement of all associated workers in facility safety; facilitate a questioning attitude toward safety related activities and equipment; and ensure that workers understand the potential risks to the facility and fellow workers as well the rewards and sanctions associated with personal safety performance.</p>	<p>No corresponding section in RG 3.39</p>

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