



Department of Energy

Washington, DC 20585

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Regulatory Publications Branch
Division of Freedom of Information and Publications Services
Office of Administration
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: U.S. DEPARTMENT OF ENERGY COMMENTS ON U.S. NUCLEAR
REGULATORY COMMISSION DRAFT REGULATORY GUIDE, DG-3003,
FORMAT AND CONTENT FOR THE LICENSE APPLICATION FOR THE
HIGH-LEVEL WASTE REPOSITORY

Gentlemen:

Enclosed are the U.S. Department of Energy's (DOE) comments on the U.S. Nuclear Regulatory Commission's (NRC) Draft Regulatory Guide, DG-3003, Format and Content for the License Application for the High-Level Waste Repository (FCRG). This is the second set of comments transmitted from DOE, the first comments were sent to NRC on September 6, 1991. Many of these comments were generated during DOE's preparation and internal review of iterative revisions of the Mined Geologic Disposal System (MGDS) Annotated Outline (AO) for the Preparation of a License Application, three versions of which have been transmitted to NRC for information and guidance to DOE. Other comments were generated as a result of an extensive cross reference to 10 CFR Part 60.

Enclosure 1 provides comments pertaining to the text as currently drafted in the FCRG. The comments were generated by authors of the MGDS AO during preparation of specific sections of the AO. These include comments on the appropriateness or accuracy of the material and suggestions for improvement. Overall, experience gained from use of the draft FCRG as the basis for AO development suggests that guidance provided in the FCRG can assist in the development of a successful license application. Several changes were suggested in the organization of material and to improve the clarity of interpretations and definitions.

Enclosure 2 provides several hundred comments and recommended modifications to Appendix A of the FCRG, the cross-index between the regulations in 10 CFR Part 60 and the sections and subsections of the FCRG. The implementation of these recommendations will help to ensure that the license application demonstrates complete compliance with 10 CFR Part 60.

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We appreciate the opportunity to comment on this draft regulatory guide. If you have any questions about our comments, contact Dwight Shelor of my staff at 202-586-6046.

Sincerely,



Lake H. Barrett
Acting Director
Office of Civilian Radioactive
Waste Management

Enclosures: As Stated *in the shelf*

cc:

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rec'd with memo dtd
7/20/93

Enclosure 1

General Comment

Specific system and sub-system performance objectives from 10 CFR 60 are presented throughout the document which do not have appropriate traceability to an EPA health and safety standard. Several sections properly caveat these performance objectives, however, the bulk of the document does not acknowledge the necessity to review 10 CFR 60 and reissue (as required) upon the repromulgation of the EPA standard.

Suggested Resolution:

Appropriately caveat each reference to performance objectives, both system and subsystem, which should be derived from the EPA health and safety standard with a statement similar to that found in section 6.3.5; "Additional guidance will be provided (if necessary) when the final EPA standards are issued".

General Comment

The draft guide does not appear to address the effect, if any, on the rock of prolonged exposure to radiation. The license application should address this subject at least for the sake of robustness/completeness.

3.1

Section 3.1 is supposed to be a discussion of the state of the site's natural systems. There is no natural home in 3.1 for all of the engineering data being required - see section 3.1.1.2.7 as an example.

3.1.1

This section asks for description of the geologic conditions of both the geologic setting and the region of the site. The definition of "geologic setting" in 10 CFR 60 is "the geologic, hydrologic, and geochemical systems of the region in which a geologic repository operations area is or may be located." The FCRG is confusing, since by definition of "geologic setting," a description of the geologic setting includes a description of the region of the site. Please reword this section to remove the apparent redundancy.

Enclosure 1

3.1.1.1.3, 3.1.1.1.4, 3.1.1.2.3 & 3.1.1.2.4

The order of discussion (presentation) for "Seismology" and "Structural Geology and Tectonics" in both the regional Geology and site Geology sections should be reversed. A complete discussion of the geology, especially the structure and tectonics of the region and site, should come before the discussion of seismology. This is due to the dependence of the seismicity discussion on that portion (structure/tectonics) of the geologic setting discussion.

3.1.1.1.5.

This section discusses natural resources on a regional scale, far removed from the controlled area and could not have bearing on waste isolation potential. This context should be deleted from sentence 1. Section 3.1.1.2.5 discusses potential natural resources at the site, and this section warrants explicit reference to potential impacts on waste isolation arising from their occurrence.

3.1.1.1.6 and 3.1.1.2.6

Two separate sections on geophysics, 3.1.1.1.6 and 3.1.1.2.6 are not necessary. "Geophysics" is the study of the earth by various remote sensing technologies and quantitative methods that measure its physical properties. It is a discipline of study and not an inherent, or empirical, aspect of the natural system which section 3.1 is supposed to be about. The application of various geophysical techniques to help describe the various natural systems at issue should be a part of the discussion under each relevant section of 3.1 .

3.1.1.2.3

Section 3.1.1.2.3 should not discuss "potential earthquakes" that produce the maximum ground motion. The term, maximum ground motion and the concepts behind it come from 10 CFR 100 appendix A. The same term appears in Section 3.1.1.2.3.3 and possibly elsewhere.

Due to the location of the Nevada Test Site, Section 3.1.1.2.3 should mention the "simulated earthquakes" caused by underground nuclear explosions.

Enclosure 1

3.1.1.2.7

FCRG asks for engineering properties of each rock discontinuity. That implies the need for a set of properties for every individual discontinuity (i.e., joint, fracture, fault, etc). The intent is a set of properties for each type of rock discontinuity present and possible variation in these properties as related to stratigraphic interval. Please reword this section to better identify the intended use of the requested information.

3.1.3.1

Geochemistry investigations for a geologic repository are focused on the nearfield environment and on transport pathways from the host rock to the accessible environment. The requirement for a section on regional geochemistry, including detailed data requirements from the region, is inappropriate. This section should be deleted.

3.1.3.2.2

That aspect of Section 3.1.3.2.2 that discusses ground water chemistry should be moved to Section 3.1.2.2 "Regional Hydrogeology".

3.1.5.

Section 3.1.5. A discussion of thermal loading (a perturbed natural setting) is pertinent to natural systems and is highly relevant to an LA. However, it does not belong in Section 3.1. It is recommended that the content of Section 3.1.5 be moved to Chapter 6.

3.2.1.2, pg. 3-27

This section, entitled "Characteristics of the Emplaced Waste", requests information which may be more appropriately presented elsewhere in the License Application.

Suggested Resolution: Move this section to Chapter 5.

Enclosure 1

3.3

This section (Assessment of Compliance with 10 CFR Part 60) is subdivided into the natural systems of the geologic setting of the site. Each subsystem contains a list of favorable and potentially adverse conditions to be considered for that subsystem. In some cases, a specific favorable or potentially adverse condition may apply to more than one subsystem of the geologic setting. For example, 60.122 (c)(20) considers rock and groundwater conditions that may require complex engineering measures. This condition is listed in the FCRG under the hydrologic system, but not under the geologic system. Section 3.3 could be reorganized into two subsections (favorable and potentially adverse conditions) applied to the geologic system.

This would clarify the intent of the section and reduce the need for cross references among the various subsystems of the geologic setting.

3.3.1.2

Potentially adverse condition 60.122(v)(20), "Rock or groundwater conditions that would require complex engineering measures in the design and construction of the underground facility or in the sealing of boreholes and drifts", is listed as a potentially adverse condition in Section 3.3.2 (Hydrologic System), but is not included in section 3.3.1 (Geologic System). Since this potentially adverse condition applies to the hydrogeologic system as well as the geologic system, Section 3.3.1.2 should forward reference Section 3.3.2.2 for completeness.

Chapter 4

The layout of Chapter 4 is internally inconsistent. Section 4.1 is the descriptive material and sections 4.2 through 4.5 address compliance as follows:

- 4 Geologic Operations Area: Physical Facilities
 - 4.1 Description of the GROA Structures, Systems, and Components
 - 4.1.1 Surface Facilities
 - 4.1.2 Shafts and Ramps
 - 4.1.3 Underground Facility
 - 4.1.4 Radiation Protection
 - 4.1.5 Interface of Structures, Systems, and Components
 - 4.2 Assessment of Compliance for Surface Facilities
 - 4.3 Shafts and Ramps

Enclosure 1

4.4 Underground Facility

4.5 Integrated GROA Compliance with Performance | Objectives

Recommend that Chapter 4 be reorganized to place descriptions and compliance on the same level as follows:

4 Geologic Operations Area: Physical Facilities

4.1 Description of the GROA Structures, Systems, and Components

4.1.1 Surface Facilities

4.1.2 Shafts and Ramps

4.1.3 Underground Facility

4.1.4 Radiation Protection

4.1.5 Integrated GROA

4.2 Assessment of Compliance with Performance Objectives

4.2.1 Surface Facilities

4.2.2 Shafts and Ramps

4.2.3 Underground Facility

4.2.4 Radiation Protection

4.2.5 Integrated GROA

The direct correlation between the third level subsections would facilitate cross references and add clarity to the presentation of material in Chapter 4.

4.1

Section 4.1 "discusses how GROA meets any other Federal, State and Local design requirements".

Except as related to radiological safety, it is difficult to justify the inclusion of this information in the LA. Numerous legal requirements will apply that are not within the scope of the licensing process or NRC responsibility. The applicable requirements of EPA and MSHA, as defined in 10 CFR 60 and 40 CFR 191, will be addressed in the LA. Additionally, the EIS to be developed by DOE will provide much of the requested information from an environmental perspective. Recommend deleting the statement or making it specific to areas of concern to the NRC.

Enclosure 1

4.5

Section 4.5 discusses the GROA's compliance with performance objectives but does not state which performance objectives. Most likely, only the pre-closure objectives (10 CFR 60.111) would apply. For example, predictive models and natural analog studies have little to do with meeting the performance objective for waste retrieval.

4.5.1.3

Section 4.5.1.3 would "demonstrate that the GROA complies with section 191.03 in subpart A of 40 CFR 191". There are no GROA requirements in 40 CFR 191. Recommend either replacing GROA with "management and storage of HLW" or replace 40 CFR 191 with 10 CFR 60.

5.1.5

This section only partly satisfies the title. It only discusses requirements for controlling monitoring, etc., the radiation hazard associated with airborne release. It is deficient in that it does not discuss the radiation hazard from direct exposure. This hazard could be considerably more dangerous than airborne release.

Suggested resolution: The design of the handling facilities, both surface and underground must be such that personnel and radiation sensitive equipment are protected from the very high radiation sources in the waste packages. This will require remote handling, extensive shielding, procedures which would preclude direct exposure to the packages to unprotected zones, accident scenarios, etc. In actual fact, there is certainly a greater risk of harm from inadvertent exposure than from effluent releases. If the scope of FCRG Section 5.1.5 is not limited to the subject of Heating, Ventilation and Air Conditioning (HVAC), then it should be revised to address its title.

Chapter 7

Add Section 7.2.3.5, Air Monitoring Program, to the FCRG.

Add Section 7.2.4.4, Plans for Maintaining Continuing Analysis Integrity, to the FCRG.

Enclosure 1

10.0

Chapter 10 of the FCRG requests the description of several QA programs (QA programs for site characterization; design and construction; performance confirmation; and operations, closure, and D&D), all of which are required to comply with the applicable portions of 10 CFR 50, Appendix B. Since 10 CFR 50, Appendix B has only one set of criteria, information which describes the QA program will be duplicated for those sections which will implement the same applicable criteria.

Suggested Resolution: Revise the FCRG to require a description of the entire QA program which includes all 18 criteria of 10 CFR 50 Appendix B. This would allow the license application to address the QA program only once, because the criteria in 10 CFR 50, Appendix B do not vary with regard to the stage of completion of a facility.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
1	60.24(a)	Introduction	60.24(a)	
2	60.21(a)	1	60.21(a)	
3	60.21(b)(1)	1.1	60.21(b)(1)	
4		1.2	60.1	<p>Section 1.2 requests a reference to applicable sections of the Nuclear Waste Policy Act of 1982 as amended. Citation 60.1 identifies the "rules governing the licensing of the U.S. Department of Energy to receive and possess source special ... in accordance with the Nuclear Waste Policy Act of 1982." Therefore, this citation should be added to appendix A.</p>
5	60.21(b)(2)	1.3	60.21(b)(2)	
6	60.21(b)(3)	1.4	60.21(b)(3)	
7	60.21(b)(4)	1.5	60.21(b)(4)	
8	60.21(b)(5)	1.6		<p>This section consists entirely of a title, therefore, a 10 CFR 60 citation is inappropriate. The referenced citation should be moved to subsection 1.6.1 as identified below. Recommend addition of a brief introduction for consistency.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
9		1.6.1	60.21(b)(5)	This section requests a summarization of the site characterization work actually conducted at the repository site. Citation 60.21(b)(5) requires a summary of site characterization activities be provided in the License Application, therefore, this citation should be added to Appendix A for this section.
10		1.6.2		This section requests a "Status of DOE Resolution of NRC Objections to License Application Submittal". There does not appear to be a 10 CFR 60 requirement for providing the requested information , however, the information appears useful in assisting the License Review Process.
11		1.7		This section requests a brief discussion based on the information in Chapters 3 through 6 of the License Application, describing how the repository systems meet the performance objectives contained in 10 CFR 60.112, 113, and 114. Summarization of compliance with the performance objectives of 10 CFR 60 and summary of performance assessment results adds value to the License Application.
12		2		This section consists entirely of a title, therefore, a 10 CFR 60 citation is inappropriate.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
13		2.1	60.21(c)(15)(i) 60.21(c)(15)(ii)	This section requests the identification of agents and contractors for the design, construction, and operation of the repository. This identification is required by 10 CFR 60.21(c)(15)(i) and 60.21(c)(15)(ii), therefore these citations are applicable for inclusion in Appendix A.
14		2.2	60.23	This section requests a list of all topical and issue-resolution reports that are incorporated by reference. Citation 10 CFR 60.23 addresses material incorporated by reference, therefore this citation is appropriate for inclusion in Appendix A.
15		2.3		This section discusses the use of NRC Technical Positions which are not referenced in 10 CFR 60. However, this section enhances the licensing process and should remain in the FCRG.
16		2.4	60.24(a)	This section states that the SAR must be as complete as possible in the light of information that is reasonably available at the time of submission. Citation 10 CFR 60.24(a) provides the requirement for SAR completeness, therefore this citation is applicable to Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
17	60.21(c)(10)	2.5		This section is currently referenced to 10 CFR 60.21(c)(10), which requires a description of the nuclear materials control and accounting program. Because this section does not address the nuclear materials control and accountability program, the reference to 10 CFR 60.21(c)(10) should not be included in Appendix A.
18		2.5	60.21(c)(5)	See note below.
19	60.21(c)(5)	2.6		This section is referenced to 10 CFR 60.21(c)(5) which applies to radioactive material inventory. Citation 10 CFR 60.21(c)(5) is more applicable to Section 2.5 which deals with radioactive material.
20	60.21(c)(6)	2.6	60.21(c)(6)	
21		3	60.21	The subject matter detailed in Chapter 3 of the FCRG focuses on the natural systems of the geologic setting, and their functions for waste isolation capability; 10 CFR 60.21 addresses FCRG Chapter 3, but then goes on to expand what is later to be found detailed in follow-on sections and sub-sections of Chapter 3.
22		3.1	60.21(c)(1)	60.21(c)(1) has specifically identified the focus as being the description and assessment of the site.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
32	60.21(c)(1)(i)	3.1.3		
33	60.21(c)(1)(i)(A)	3.1.3		
34	60.21(c)(1)(i)(B)	3.1.3	60.21(c)(1)(i)(B)	
35	60.21(c)(1)(i)(E)	3.1.3	60.21(c)(1)(i)(E)	
36	60.21(c)(1)(i)	3.1.4		
37	60.21(c)(1)(i)(D)	3.1.4	60.21(c)(1)(i)(D)	
38	60.21(c)(1)(i)	3.1.5	60.21(c)(1)(i)	
39	60.21(c)(1)(i)(F)	3.1.5	60.21(c)(1)(i)(F)	
40		3.2		No 10 CFR 60 Citation appears applicable to this section.
41		3.3		Section 3.3 could be clarified by simply listing the favorable and potentially adverse conditions in 2 Sections, 3.3.1 and 3.3.2 to clarify the cross referencing problems noted below under specific favorable and potentially adverse conditions.
42	60.122(c)(24)	3.3.1		60.122(c)(24) does not appear in Section 3.3.1.2 which lists the potentially adverse conditions to be considered in this section.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
23	60.21(c)(1)(i)	3.1.1	60.21(c)(1)(i)	
24	60.21(c)(1)(i)(A)	3.1.1	60.21(c)(1)(i)(A)	
25	60.21(c)(1)(i)(B)	3.1.1	60.21(c)(1)(i)(B)	
26	60.21(c)(1)(i)(C)	3.1.1	60.21(c)(1)(i)(C)	
27		3.1.1.1.6		The results from geophysical investigations support descriptions of the site that are covered in Sections 3.1.1.1 through 3.1.1.5; this section should be deleted from Appdx A.
28	60.21(c)(1)(i)	3.1.2	60.21(c)(1)(i)	
29	60.21(c)(1)(i)(A)	3.1.2		Appendix A identifies 10 CFR 60.21(c)(1)(i)(A) as an applicable citation, however, this appears to be a mismatch in that 3.1.2 specifically addresses the hydrologic conditions while (A) focuses on the more physical aspects of aperture in-filling plus origin of fractures and discontinuities. Therefore, citation 10 CFR 60.21(c)(1)(i)(A) should not be related to 3.1.2 in Appendix A.
30	60.21(c)(1)(i)(B)	3.1.2	60.21(c)(1)(i)(B)	
31	60.21(c)(1)(i)(D)	3.1.2	60.21(c)(1)(i)(D)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
43	60.122(c)(8)	3.3.1		60.122(c)(8) does not appear in Section 3.3.1.2 which lists the potentially adverse conditions to be considered in this section.
44	60.122(a)(2)	3.3.1	60.122(a)(2)	
45	60.21(c)(1)(ii)(A)	3.3.1	60.21(c)(1)(ii)(A)	
46	60.21(c)(1)(ii)(B)	3.3.1	60.21(c)(1)(ii)(B)	
47	60.21(c)(1)(ii)(F)	3.3.1	60.21(c)(1)(ii)(F)	
48	60.21(c)(13)	3.3.1		
49		3.3.1.2	60.21(c)(13)	
50	60.122(b)(1)	3.3.1		
51		3.3.1.1	60.122(b)(1)	
52	60.122(b)(5)	3.3.1		
53		3.3.1.1	60.122(b)(5)	
54	60.122(b)(6)	3.3.1		
55		3.3.1.1	60.122(b)(6)	
56	60.122(c)(10)	3.3.1		

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
57		3.3.1.2	60.122(c)(10)	
58	60.122(c)(11)	3.3.1		
59		3.3.1.2	60.122(c)(11)	
60	60.122(c)(12)	3.3.1		
61		3.3.1.2	60.122(c)(12)	
62	60.122(c)(13)	3.3.1		
63		3.3.1.2	60.122(c)(13)	
64	60.122(c)(14)	3.3.1		
65		3.3.1.2	60.122(c)(14)	
66	60.122(c)(15)	3.3.1		
67		3.3.1.2	60.122(c)(15)	
68	60.122(c)(16)	3.3.1		
69		3.3.1.2	60.122(c)(16)	
70	60.122(c)(17)	3.3.1		
71		3.3.1.2	60.122(c)(17)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
72	60.122(c)(18)	3.3.1		
73		3.3.1.2	60.122(c)(18)	
74	60.122(c)(19)	3.3.1		
75		3.3.1.2	60.122(c)(19)	
76		3.3.1.2	60.122(c)(20)	60.122(c)(20) rock and groundwater conditions that would require complex engineering measures and should be indexed here and in Section 3.3.2.2.
77		3.3.1.2	60.122(c)(21)	This section in subsection 3.3.1.2(K) request information on geomechanical properties that do not permit design of underground opening that will remain stable through permanent closures, 10 CFR 60.122(c)(21) identifies the requirement, therefore, 60.122(c)(21) should referenced here in Appendix A.
78	60.122(c)(9)	3.3.2		Section 3.3.3 of the FCRG explicitly addresses 60.122(c)(9)-not Section 3.3.2
79	60.122(c)(6)	3.3.2		Section 3.3.4 of the FCRG explicitly addresses 60.122(c)(6)-not Section 3.3.2
80	60.122(c)(7)	3.3.2		Section 3.3.3. of the FCRG explicitly addresses 60.122 (c) (7))-not Section 3.3.2.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
81	60.122(a)(2)	3.3.2	60.122(a)(2)	
82	60.21(c)(1)(ii)(A)	3.3.2	60.21(c)(1)(ii)(A)	
83	60.21(c)(1)(ii)(B)	3.3.2	60.21(c)(1)(ii)(B)	
84	60.21(c)(1)(ii)(F)	3.3.2	60.21(c)(1)(ii)(F)	
85	60.122(b)(1)	3.3.2		
86		3.3.2.1	60.122(b)(1)	
87	60.122(b)(2)	3.3.2		
88		3.3.2.1	60.122(b)(2)	
89	60.122(b)(7)	3.3.2		
90		3.3.2.1	60.122(b)(7)	
91	60.122(b)(8)	3.3.2		
92		3.3.2.1	60.122(b)(8)(i), (ii), (iii) & (iv)	This section in subsections 3.3.2.1(d/d1/d2/d3 &d4) requests identification ,for disposal in the unsaturated zone, of various favorable hydrogeologic conditions; citations 10 CFR 60.122(b)(8)(i)(ii)(iii) & (iv) include those elements; therefore, the entire citation is applicable for inclusion in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
93	60.122(c)(1)	3.3.2		
94		3.3.2.2	60.122(c)(1)	
95	60.122(c)(22)	3.3.2		
96		3.3.2.2	60.122(c)(20)	Section 3.3.2.2 of the FCRG addresses 60.122(c)(20)
97		3.3.2.2	60.122(c)(22)	
98	60.122(c)(23)	3.3.2		
99		3.3.2.2	60.122(c)(23)	
100	60.122(c)(2)	3.3.2		
101		3.3.2.2	60.122(c)(2)	
102	60.122(c)(3)	3.3.2		
103		3.3.2.2	60.122(c)(3)	
104	60.122(c)(4)	3.3.2		
105		3.3.2.2	60.122(c)(4)	
106	60.122(c)(5)	3.3.2		
107		3.3.2.2	60.122(c)(5)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
108		3.3.2.2		
109	60.122(a)(2)	3.3.3	60.122(a)(2)	
110	60.21(c)(1)(ii)(A)	3.3.3	60.21(c)(1)(ii)(A)	
111	60.21(c)(1)(ii)(B)	3.3.3	60.21(c)(1)(ii)(B)	
112	60.21(c)(1)(ii)(F)	3.3.3	60.21(c)(1)(ii)(F)	
113	60.122(b)(1)	3.3.3		
114		3.3.3.1	60.122(b)(1)	
115	60.122(b)(3)	3.3.3		
116		3.3.3.1	60.122(b)(3)	
117	60.122(b)(4)	3.3.3		
118		3.3.3.1	60.122(b)(4)	
119	60.122(c)(24)	3.3.3		
120		3.3.3.2	60.122(c)(24)	
121	60.122(c)(8)	3.3.3		
122		3.3.3.2	60.122(c)(8)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
123	60.122(c)(9)	3.3.3		
124		3.3.3.2	60.122(c)(9)	
125		3.3.3.2	60.122(c)(7)	<p>This section in subsection 3.3.3.2.1 requests information on groundwater conditions in the host rock and citation 60.122(c)(7) identifies the requirement, therefore, this citation is applicable for inclusion in Appendix A.</p>
126	60.122(c)(21)	3.3.4		<p>Appdx A identifies 10 CFR 60.122(c)(20) & (21) as applicable citations, however, their applicability cannot be readily identified in FCRG section 3.3.4. Therefore, it is recommended that citations 10 CFR 60.122(c)(20), & (21) not be referenced here in Appendix A.</p>
127	60.122(c)(20)	3.3.4		<p>Appdx A identifies 10 CFR 60.122(c)(20) & (21) as applicable citations, however, their (20) & (21) applicability cannot be readily identified in FCRG section 3.3.4. Therefore, it is recommended that citations 10 CFR 60.122(c)(20) & (21) not be referenced here in Appendix A.</p>
128	60.122(a)(2)	3.3.4	60.122(a)(2)	
129	60.21(c)(1)(ii)(A)	3.3.4	60.21(c)(1)(ii)(A)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
130	60.21(c)(1)(ii)(B)	3.3.4	60.21(c)(1)(ii)(B)	
131	60.21(c)(1)(ii)(F)	3.3.4	60.21(c)(1)(ii)(F)	
132	60.122(b)(8)(v)	3.3.4		
133		3.3.4.1	60.122(b)(8)(v)	
134	60.122(c)(1)	3.3.4		60.122(c)(1) addresses potential for flooding. This potentially adverse condition is covered in Section 3.3.2.2 of the FCRG and should not be referenced to Section 3.3.4.
135	60.122(c)(22)	3.3.4		
136		3.3.4.2	60.122(c)(22)	
137	60.122(c)(6)	3.3.4		
138		3.3.4.2	60.122(c)(6)	
139	60.113(a)(2)	3.3.5	60.113(a)(2)	
140	60.113(b)	3.3.5	60.113(b)	
141	60.122(a)(1)	3.3.5	60.122(a)(1)	
142	60.122(a)(2)	3.3.5	60.122(a)(2)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
143		3.3.5	60.122(b)(7)	This section requires an assessment of compliance with performance objectives, however, only subsection 3.3.5(b) contains the groundwater travel time requirement noted only in citation 60.122(b)(7), therefore only 60.122(b)(7) should be added to Appendix A.
144		3.3.5	60.122(c)(5) & (8)	This section requires an assessment of compliance with performance objectives, however, only subsection 3.3.5(b) contains the migration and sorption of radionuclides in the ground water noted only in citation 60.122(b)(5) & (8), therefore, only 60.122(b)(5) & (8) should be added to Appendix A.
145	60.21(c)(1)(ii)(F)	3.3.5	60.21(c)(1)(ii)(F)	
146	60.21(c)(1)(ii)(D)	3.3.6	60.21(c)(1)(ii)(D)	
147	60.21(c)(1)(ii)(F)	3.3.6	60.21(c)(1)(ii)(F)	
148		4		This is an introductory section, therefore no 10 CFR 60 citation is necessary.
149	60.132(e)	4.1		Appendix A identifies 10 CFR 60.132(e) as an applicable citation, however, decommissioning is not discussed until section 4.1.1.11. Therefore, it would be appropriate to tie 10 CFR 60. 132(e) to this lower tiered subsection.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
150		4.1	60.21(b)(1) 60.21(b)(2)	This section request information on the overall description of the GROA including a description of the site features and schedule for construction, receipt of waste, and emplacement of waste. These items are required to be included by 10 CFR 60.21(b)(1) and (b)(2), therefore, these CFR citations are applicable for inclusion in Appendix A.
150		4.1	60.21(c)(14)	This section requests the identity of those structures, systems, and components requiring research and development to confirm the adequacy of design. This identification is required by 10 CFR 60.21(c)(14), therefore, this CFR citation is applicable for inclusion in Appendix A.
151	60.21(c)(1)(ii)(D)	4.1	60.21(c)(1)(ii)(D)	
152	60.21(c)(1)(ii)(E)	4.1	60.21(c)(1)(ii)(E)	
153		4.1	60.21(c)(2)	This section requests a presentation of the principal design criteria which is also required by 10 CFR 60.21(c)(2). Therefore, this CFR citation is applicable for inclusion in Appendix A.
154	60.21(c)(3)	4.1.1	60.21(c)(3)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
155		4.1.1.1	60.111(b)(1)	<p>This section addresses the need to provide designs, design bases, pertinent design features, safety and operating components for receiving, transporting, handling, storing, treating, or preparing waste for transfer and final disposal. The design description should include specific provisions for waste retrieval operations. 10 CFR citations 60.111(b)(1) [retrievability], 132(a) [facilities for receipt and retrieval] provides the requirements, therefore, these sections are applicable for inclusion in Appendix A.</p>
156		4.1.1.1	60.131(b)(1)	<p>This section addresses the need to provide designs, design bases, pertinent design features, safety and operating components for receiving, transporting, handling storing, treating, or preparing waste for transfer and final disposal. Citation 10 CFR 60.131(b)(1) is the requirement for protection against natural phenomena and environmental conditions, therefore, this CFR citation is applicable for inclusion in Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
157		4.1.1.1	60.131(b)(2)	<p>This section addresses the need to provide designs, design bases, pertinent design features, safety and operating components for receiving, transporting, handling storing, treating, or preparing waste for transfer and final disposal. Citation 10 CFR 60.131(b)(2) is the requirement for protection against dynamic effects of equipment failures and similar events, therefore, this CFR citation is applicable for inclusion in Appendix A.</p>
158		4.1.1.1	60.131(b)(7)	<p>This section addresses the need to provide designs, design bases, pertinent design features, safety and operating components for receiving, transporting, handling, storing, treating, or preparing waste for transfer and final disposal. Citation 10 CFR 60.131(b)(7) is the requirement for criticality control, therefore, this CFR citation is applicable for inclusion in Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
159		4.1.1.1	60.132(a)	This section addresses the need to provide designs, design bases, pertinent design features, safety and operating components for receiving, transporting, handling, storing, treating, or preparing waste for transfer and final disposal. The design description should include specific provisions for waste retrieval operations. 10 CFR citations 60.111(b)(1) [retrievability], 132(a) [facilities for receipt and retrieval] provides the requirement, therefore, these citations are applicable for inclusion in Appendix A.
160		4.1.1.10		This section requests a description of the operations support systems. There does not appear to be a 10 CFR 60 citation applicable to this section.
161		4.1.1.11	60.132(e)	This section requests the identification and description of all the equipment, systems or facilities required for decontamination and decommissioning, 10 CFR 60 citation 60.132(e) is the requirement to provide for decommissioning of the surface facilities, therefore, this section is applicable for inclusion in Appendix A.
162		4.1.1.12		This section requests a description of the design and design bases for surface systems such as muck piles and surface lagoons. There does not appear to be a 10 CFR 60 citation applicable to this section.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
163		4.1.1.2	60.132(c)	<p>This section requests descriptions of the on-site radioactive waste management system, specifically effluent control and monitoring, waste form, collection, treatment, packaging, and disposal design bases and designs of subsystems. Citations 10 CFR 60.21(c)(7), 60.132(c) and 60.132(d) address the requirements for radiation control and monitoring and waste treatment, therefore, these CFR citations are applicable for inclusion in Appendix A.</p>
164		4.1.1.2	60.132(d)	<p>This section requests descriptions of the on-site radioactive waste management system, specifically effluent control and monitoring, waste form, collection, treatment, packaging, and disposal design bases and designs of subsystems. Citations 10 CFR 60.21(c)(7), 60.132(c) and 60.132(d) address the need for radiation control and monitoring and waste treatment, therefore, these CFR citations are applicable for inclusion in Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
165		4.1.1.2	60.21(c)(7)	<p>This section requests descriptions of the on-site radioactive waste management system, specifically effluent control and monitoring, waste form, collection, treatment, packaging, and disposal design bases and designs of subsystems. Citations 10 CFR 60.21(c)(7), 60.132(c) and 60.132(d) address the requirements for radiation control and monitoring and waste treatment, therefore, these CFR citations are applicable for inclusion in Appendix A.</p>
166		4.1.1.3	60.131(b)(3)	<p>This section requests design bases and descriptions of the fire and explosion protection system for the surface facilities. 10 CFR 60 citation 60.131(b)(3) is the requirement for fire and explosion protection, therefore, this CFR citation is applicable for inclusion in Appendix A.</p>
167		4.1.1.4	60.131(b)(4)	<p>This section requests design bases and descriptions of the emergency systems to maintain control of radioactive waste and radioactive effluents. 10 CFR 60 citation 60.131(b)(4) is the requirement to provide emergency capability, therefore, this section is applicable for inclusion in Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
168		4.1.1.5		This section requests design bases and system description of the communication systems within the GROA as well as to offsite locations. There does not appear to be a 10 CFR 60 citation applicable to this section.
169		4.1.1.6	60.131(b)(5)	This section requests design bases and descriptions of each utility service system. 10 CFR citation 60.131(b)(5) is the requirement to provide utility services, therefore, this CFR citation is applicable for inclusion in Appendix A.
170		4.1.1.7	60.131(b)(8)	This section requests descriptions of the instrumentation and controls systems, 10 CFR citation 60.131(b)(8) is the requirement to provide an instrumentation and control system, therefore, this CFR citation is applicable for inclusion in Appendix A.
171		4.1.1.8		This section requests the design bases as well as overall and detailed engineering drawings for the onsite surface transportation systems. There does not appear to be a 10 CFR 60 citation applicable to this section.
172		4.1.1.9	60.132(b)	This section requests descriptions of the ventilation systems for surface facilities, 10 CFR citation 60.132(b) is the requirement to provide a ventilation system, therefore, this CFR citation is applicable for inclusion in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
173	60.21(c)(3)	4.1.2	60.21(c)(3)	
174		4.1.2	60.131(b)(6)	10 CFR citation 60.131(b)(6) is the requirement to provide structures, systems, and components to permit periodic inspection, testing and maintenance. This citation is applicable to all of the fourth tier subsections(4.1.2.1, 4.1.2.2, 4.1.2.3,), therefore, this citation should be included in Appendix A.
175		4.1.2	60.131(b)(9)	10 CFR citation 60.131(b)(9) is the requirement to comply with certain mining regulations. This citation is applicable to all of the fourth tier subsections(4.1.2.1, 4.1.2.2, 4.1.2.3,), therefore, this citation should be included in Appendix A..
176		4.1.2	60.133(e)	10 CFR citation 60.133(e) is the requirement to ensure that underground openings are designed for safe operations and for retrievability. This citation is applicable to all of the fourth tier subsections(4.1.2.1, 4.1.2.2, 4.1.2.3,), therefore, this citation should be included in Appendix A..
177		4.1.2	60.134(a)	10 CFR citation 60.134(a) is the requirement for seals for shafts and boreholes following permanent closure. This citation is applicable to all of the fourth tier subsections(4.1.2.1, 4.1.2.2, 4.1.2.3,), therefore, this citation should be included in Appendix A..

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
178		4.1.2	60.134(b)	10 CFR citation 60.131(b)(6) is the requirement for the selection of seals material and replacement methods following permanent closure. This citation is applicable to all of the fourth tier subsections(4.1.2.1, 4.1.2.2, 4.1.2.3,), therefore, this citation should be included in Appendix A..
179		4.1.2.1		See applicable citations identified for section 4.1.2
180		4.1.2.2		See applicable citations identified for section 4.1.2
181		4.1.2.3		See applicable citations identified for section 4.1.2
182		4.1.2.4		See applicable citations identified for section 4.1.2
183		4.1.2.5		See applicable citations identified for section 4.1.2
184		4.1.2.6		See applicable citations identified for section 4.1.2
185		4.1.2.7		See applicable citations identified for section 4.1.2
186	60.21(c)(12)	4.1.3		Appendix A identifies 60.21(c)(12) as an applicable citation, however, retrieval and alternate storage plans are not discussed until subsection 4.1.3.5, therefore, it would be more appropriate to tie 10 CFR 60. 21(c)(12) to this lower tiered subsection.
187	60.21(c)(3)	4.1.3	60.21(c)(3)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
188		4.1.3.1		This section requests the design bases, designs and operating features of each excavation and support system to be used. There does not appear to be a 10 CFR 60 citation applicable to this section.
189		4.1.3.10		This is presently an informational section and no 10 CFR citations are applicable at this time.
190		4.1.3.2		This section requests the design bases, general layouts, and designs of the systems for handling the excavated tuff. There does not appear to be a 10 CFR 60 citation applicable to this section.
191		4.1.3.3		This section requests the design bases, general facility layouts and panel layouts for fresh and return air flows for both the development and emplacement areas. There does not appear to be a 10 CFR 60 citation applicable to this section.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
192		4.1.3.4		This section requests the design bases, types and thermal decay characteristics of wastes, dimensions and weights of the waste packages, general arrangement of emplacement panels and drifts, modes of waste emplacement and the thermal load of each emplacement configuration. There does not appear to be a 10 CFR 60 citation applicable to this section, however this information is pertinent to the licensing process.
193		4.1.3.5	60.133(c)	This section requests the design bases and details of retrieval plans to locate, access, retrieve, and transport waste packages through the underground facility and up the shaft or ramp to the appropriate surface facilities. 10 CFR 60 citation 60.133(c) is the citation requiring the underground facility to be designed to permit retrieval of waste, therefore, this citation is applicable for inclusion in Appendix A.
194		4.1.3.5	60.21(c)(12)	Appendix A identifies 60.21(c)(12) as an applicable citation to section 4.1.3, however, retrieval and alternate storage plans are not discussed until subsection 4.1.3.5, therefore, it would be more appropriate to tie 10 CFR 60.21(c)(12) to this lower tiered subsection.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
195		4.1.3.6	60.131(b)(4)	This section requests a description of the emergency systems within the underground facility. 10 CFR 60 citation 60.131(b)(4) identifies the requirement for providing emergency capability, therefore, this citation is applicable for inclusion in Appendix A.
196		4.1.3.7		This section requests design bases and system description of the communication systems within the underground facility and with the surface. There does not appear to be a 10 CFR 60 citation applicable to this section.
119 7		4.1.3.8		This section requests a description of the operations support systems. There does not appear to be a 10 CFR 60 citation applicable to this section.
198		4.1.3.9	60.134(b)	This section requests information about the decommissioning system to be utilized, and the materials proposed for the systems in the underground facility. Citations 60.21(c)(11) and 60.134(b) identifies the requirements to include a description of the design consideration intended to facilitate permanent closure and decontamination or dismantlement and the selection of materials and placement methods to be used, therefore, this citation is applicable for inclusion in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
199		4.1.3.9	60.21(c)(11)	This section requests information about the decommissioning system to be utilized, and the materials proposed for the systems in the underground facility. Citations 60.21(c)(11) and 60.134(b) identifies the requirements to include a description of the design consideration intended to facilitate permanent closure and decontamination or dismantlement and the selection of materials and placement methods to be used, therefore, this citation is applicable for inclusion in Appendix A.
200	60.21(c)(3)	4.1.4	60.21(c)(3)	
201	60.21(c)(5)	4.1.4	60.21(c)(5)	
202		4.1.4	60.21(c)(7)	This section requests information regarding the location of radiological monitoring instruments and the radiological design features for the systems described in section 4.1 of DG-3003. 10 CFR citation 60.21(c)(7) requires a description of the program for control and monitoring of radioactive effluents be included in the license application, therefore, this citation is applicable for inclusion in Appendix A.
203		4.1.4.1		This section requests layout drawings of radiological areas and facilities. The requirement for this information is 10 CFR 20.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
204		4.1.4.2	60.111(a) 60.131(a) 60.132(c) 60.21(c)(7)	This section requests information regarding ALARA, radiological safety features in the designs for processing, transporting, handling, storage, retrieval, emplacement, and isolation of radioactive waste. 10 CFR 60 citations 60.21(c)(7), 60.111(a), 60.131(a) and 60.132(c) identify the requirements for radiological protection, therefore, these citations are applicable for inclusion in Appendix A.
205		4.1.4.3	60.21(c)(5)	This section requests information on the sources of radiation that were used as the bases for the radiological designs. Citation 10 CFR 60.21(c)(5) identifies the requirement to include a description of the kind, amount, and specifications of the radioactive material proposed to be received and possessed at the GROA, therefore, this citation is applicable for inclusion in Appendix A.
206		4.1.4.4	60.131(a)(4) 60.132(c)(2) 60.21(c)(7)	This section requests information on Radiological Monitoring Instrumentation, citations 10 CFR 60.21(c)(7), 60.131(a)(4) and 60.132(c)(2) identifies requirements for providing an effluent monitoring system, therefore, these citation are applicable for inclusion in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
207		4.1.5		This section requests identification and descriptions of the structures, systems, and components that provide interface between the surface facilities, shafts or ramps, and the underground facility. There does not appear to be a 10 CFR 60 citation applicable to this section, however, this information is necessary for licensing activities.
208	60.130	4.2		Appendix A identifies 10 CFR 60.130 as an applicable citation. However, 60.130 is the scope of design criteria for the GROA. Section 60.130 applies in such a broad sense that it provides limited or no value in tying it to this section. Therefore, it is suggested that citation 60.130 be removed from Appendix A of the FCRG.
209	60.111(a)	4.2	60.111(a)	
210	60.111(b)	4.2	60.111(b)	
211	60.131(a)	4.2	60.131(a)	
212	60.131(b)(10)	4.2	60.131(b)(10)	
213	60.131(b)(1)	4.2	60.131(b)(1)	
214	60.131(b)(2)	4.2	60.131(b)(2)	
215	60.131(b)(3)	4.2	60.131(b)(3)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
216	60.131(b)(4)	4.2	60.131(b)(4)	
217	60.131(b)(5)	4.2	60.131(b)(5)	
218	60.131(b)(6)	4.2	60.131(b)(6)	
219	60.131(b)(7)	4.2	60.131(b)(7)	
220	60.131(b)(8)	4.2	60.131(b)(8)	
221	60.131(b)(9)	4.2	60.131(b)(9)	
222	60.132(a)	4.2	60.132(a)	
223	60.132(b)	4.2	60.132(b)	
224	60.132(c)	4.2	60.132(c)	
225	60.132(d)	4.2	60.132(d)	
226	60.132(e)	4.2	60.132(e)	
227	60.137	4.2	60.137	
228	60.21(c)(11)	4.2	60.21(c)(11)	
229	60.21(c)(1)(ii)(B)	4.2	60.21(c)(1)(ii)(B)	
230	60.21(c)(1)(ii)(F)	4.2	60.21(c)(1)(ii)(F)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
231	60.21(c)(2)	4.2	60.21(c)(2)	
232	60.21(c)(3)	4.2	60.21(c)(3)	
233	60.131(b)(10)	4.3		<p>Appendix A identifies 10 CFR 60. 131(b)(10) as an applicable citation, however, 60.131(b)(10) discusses the "Shaft conveyances used in radioactive waste handling". This citation is discussed in subsection 4.2.1.24 " Surface Facilities", however, there is no mention of shaft conveyances in Section 4.3 of the FCRG. Therefore, add appropriate text to FCRG section 4.3 to identify the need to demonstrate that hoists important to safety are adequately addressed in the Shafts or Ramps.</p>
234	60.111(b)	4.3		<p>Appendix A identifies 10 CFR 60. 111(a) and 60.111(b) as applicable citations. These citations can also be identified as 60.111, which is titled "Performance of the geologic repository operations area through permanent closure". This citation (60.111) was identified as being applicable to preceding sections in the FCRG, therefore, it can be implied to be applicable to this section, however, there are no specific text references to citation 60.111. If this citation is to be applied to section 4.3 then appropriate text should be added to the FCRG.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
235	60.111(a)	4.3		<p>Appendix A identifies 10 CFR 60. 111(a) and 60.111(b) as applicable citations. These citations can also be identified as 60.111, which is titled "Performance of the geologic repository operations area through permanent closure". This citation (60.111) was identified as being applicable to preceding sections in the FCRG, therefore, it can be implied to be applicable to this section, however, there are no specific text references to citation 60.111. If this citation is to be applied to section 4.3 then appropriate text should be added to the FCRG.</p>
236	60.132(b)	4.3		<p>Appendix A identifies 10 CFR 60.132(a), (b), (c) and (d) as applicable citations, however, 60.132 provides "Additional design criteria for surface facilities in the geologic repository operations area." The tie to section 4.3 "Shafts or Ramps" is not obvious, therefore, remove reference to citations 60.132(a), (b), (c) and (d) from Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
237	60.132(a)	4.3		Appendix A identifies 10 CFR 60.132(a), (b), (c) and (d) as applicable citations, however, 60.132 provides "Additional design criteria for surface facilities in the geologic repository operations area." The tie to section 4.3 "Shafts or Ramps" is not obvious, therefore, remove reference to citations 60.132(a), (b), (c) and (d) from Appendix A.
238	60.134 60.134(a) 60.134(b)	4.3	60.134	Appendix A identifies a reference to 10 CFR 60.134(a), 60.134(b) and the parent citation 60.134. This appears redundant since 60.134 is wholly comprised of parts a and b, therefore, remove the specific reference of 60.134(a), (b) and leave in citation 60.134.
239	60.132(c)	4.3		Appendix A identifies 10 CFR 60.132(a), (b), (c) and (d) as applicable citations, however, 60.132 provides "Additional design criteria for surface facilities in the geologic repository operations area." The tie to section 4.3 "Shafts or Ramps" is not obvious, therefore, remove reference to citations 60.132(a), (b), (c) and (d) from Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
240	60.130	4.3		Appendix A identifies 10 CFR 60.130 as an applicable citation, however, 60.130 is the scope of design criteria for the GROA. Section 60.130 applies in such a broad sense that it provides limited or no value in tying it to this section. Therefore, it is suggested that citation 60.130 be removed from Appendix A of the FCRG.
241	60.132(d)	4.3		Appendix A identifies 10 CFR 60.132(a), (b), (c) and (d) as applicable citations, however, 60.132 provides "Additional design criteria for surface facilities in the geologic repository operations area." The tie to section 4.3 "Shafts or Ramps" is not obvious, therefore, remove reference to citations 60.132(a), (b), (c) and (d) from Appendix A.
242		4.3	60.111	Appendix A identifies 10 CFR 60.111(a) and 60.111(b) as applicable citations. These citations can also be identified as 60.111, which is titled "Performance of the geologic repository operations area through permanent closure". This citation (60.111) was identified as being applicable to preceding sections in the FCRG, therefore, it can be implied to be applicable to this section, however, there are no specific text references to citation 60.111. If this citation is to be applied to section 4.3 then appropriate text should be added to the FCRG.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
243	60.131(a)	4.3	60.131(a)	
244	60.131(b)(1)	4.3	60.131(b)(1)	
245	60.131(b)(2)	4.3	60.131(b)(2)	
246	60.131(b)(3)	4.3	60.131(b)(3)	
247	60.131(b)(4)	4.3	60.131(b)(4)	
248	60.131(b)(5)	4.3	60.131(b)(5)	
249	60.131(b)(6)	4.3	60.131(b)(6)	
250	60.131(b)(7)	4.3	60.131(b)(7)	
251	60.131(b)(8)	4.3	60.131(b)(8)	
252	60.131(b)(9)	4.3	60.131(b)(9)	
253	60.137	4.3	60.137	
254	60.21(c)(1)(ii)(D)	4.3	60.21(c)(1)(ii)(D)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
255		4.3	60.21(c)(1)(ii)(F)	Section 4.3 identifies the need to support analyses and models used to predict future conditions and changes by the use of field tests, in situ tests, etc... Citation 10 CFR 60.21(c)(1)(ii)(F) provides a requirement requesting this information be provided in the License Application via the SAR, therefore, this citation is applicable for inclusion in Appendix A.
256	60.21(c)(2)	4.3	60.21(c)(2)	
257	60.21(c)(3)	4.3	60.21(c)(3)	
258	60.111(a) 60.111(b)	4.4	60.111	Appendix A identifies 10 CFR 60.111(a) and 60.111(b) as applicable citations. These citations can also be identified as 60.111, which is titled "Performance of the geologic repository operations area through permanent closure". This appears redundant since 60.111 is wholly comprised of parts a and b, therefore, remove the specific reference of 60.111(a), (b) and leave in citation 60.111.
259	60.130	4.4		Appendix A identifies 10 CFR 60.130 as an applicable citation, however, 60.130 is the scope of design criteria for the GROA. Section 60.130 applies in such a broad sense that it provides limited or no value in tying it to this section. Therefore, it is suggested that citation 60.130 be removed from Appendix A of the FCRG.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
260	60.21(c)(11)	4.4		Appendix A identifies 10 CFR 60.21(c)(11) as an applicable citation, however, 60.21(c)(11) discusses decontamination or dismantlement of surface facilities. Section 4.4 is "Underground Facilities", therefore, it is suggested that citation 60.21(c)(11) be removed from Appendix A of the FCRG.
261	60.131(a)	4.4	60.131(a)	
262	60.131(b)(10)	4.4	60.131(b)(10)	Appendix A identifies 10 CFR 60.131(b)(10) as an applicable citations, however, 60.131(b)(10) discusses the "Shaft conveyances used in radioactive waste handling". This citation is discussed in subsection 4.2.1.24 "Surface Facilities", however, there is no mention of shaft conveyances in the text of Section 4.4 of the FCRG. Therefore, add appropriate text to FCRG section 4.4 to identify the need to demonstrate that hoists important to safety are adequately addressed in the Underground Facilities.
263	60.131(b)(1)	4.4	60.131(b)(1)	
264	60.131(b)(2)	4.4	60.131(b)(2)	
265	60.131(b)(3)	4.4	60.131(b)(3)	

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#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
266	60.131(b)(4)	4.4	60.131(b)(4)	
267	60.131(b)(5)	4.4	60.131(b)(5)	
268	60.131(b)(6)	4.4	60.131(b)(6)	
269	60.131(b)(7)	4.4	60.131(b)(7)	
270	60.131(b)(8)	4.4	60.131(b)(8)	
271	60.131(b)(9)	4.4	60.131(b)(9)	
272	60.133(a)	4.4	60.133(a)	
273	60.133(b)	4.4	60.133(b)	
274	60.133(c)	4.4	60.133(c)	
275	60.133(d)	4.4	60.133(d)	
276	60.133(e)	4.4	60.133(e)	
277	60.133(f)	4.4	60.133(f)	
278	60.133(g)	4.4	60.133(g)	
279	60.133(h)	4.4	60.133(h)	
280	60.133(i)	4.4	60.133(i)	

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#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
281	60.137	4.4	60.137	
282		4.4	60.21(c)(1)(ii)(F)	Section 4.4 identifies the need to support analyses and models used to predict future conditions and changes by the use of field tests, in situ tests, etc... . Citation 10 CFR 60.21(c)(1)(ii)(F) provides a requirement requesting this information be provided in the License Application via the SAR, therefore, this citation is applicable for inclusion in Appendix A.
283	60.21(c)(2)	4.4	60.21(c)(2)	
284	60.21(c)(3)	4.4	60.21(c)(3)	
285	60.133(c)	4.5		Appendix A identifies 10 CFR 60 citations broken down to the second level of indenture, however on further review it appears that certain citations should be tied to sections one level of indenture lower (the third level -- 4.5.1 and 4.5.2). These citations are: 60.21 (c)(3) to section 4.5.1 60.111 (a) to section 4.5.1 60.111 (b) to section 4.5.2 60.133 (c) to section 4.5.2

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
286	60.111(a)	4.5		<p>Appendix A identifies 10 CFR 60 citations broken down to the second level of indenture, however on further review it appears that certain citations should be tied to sections one level of indenture lower (the third level -- 4.5.1 and 4.5.2). These citations are:</p> <ul style="list-style-type: none"> 60.21 (c)(3) to section 4.5.1 60.111 (a) to section 4.5.1 60.111 (b) to section 4.5.2 60.133 (c) to section 4.5.2
287	60.21(c)(3)	4.5		<p>Appendix A identifies 10 CFR 60 citations broken down to the second level of indenture, however on further review it appears that certain citations should be tied to sections one level of indenture lower (the third level -- 4.5.1 and 4.5.2). These citations are:</p> <ul style="list-style-type: none"> 60.21 (c)(3) to section 4.5.1 60.111 (a) to section 4.5.1 60.111 (b) to section 4.5.2 60.133 (c) to section 4.5.2

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
288	60.111(b)	4.5		<p>Appendix A identifies 10 CFR 60 citations broken down to the second level of indenture, however on further review it appears that certain citations should be tied to sections one level of indenture lower (the third level -- 4.5.1 and 4.5.2). These citations are:</p> <ul style="list-style-type: none"> 60.21 (c)(3) to section 4.5.1 60.111 (a) to section 4.5.1 60.111 (b) to section 4.5.2 60.133 (c) to section 4.5.2
289	60.132(e)	4.5	60.132(e)	
290	60.133(g)	4.5	60.133(g)	
291		4.5	60.21(c)(1)(ii)(F)	<p>Section 4.5 identifies the need to support analyses and models used to predict future conditions and changes by the use of field tests, in situ tests, etc... Citation 10 CFR 60.21(c)(1)(ii)(F) provides a requirement requesting this information be provided in the License Application via the SAR, therefore, this citation is applicable for inclusion in Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
294		4.5.2	60.111(b)(1)	<p>Appendix A identifies 10 CFR 60 citations broken down to the second level of indenture, however on further review it appears that certain citations should be tied to sections one level of indenture lower (the third level -- 4.5.1 and 4.5.2). These citations are:</p> <ul style="list-style-type: none"> 60.21 (c)(3) to section 4.5.1 60.111 (a) to section 4.5.1 60.111 (b) to section 4.5.2 60.133 (c) to section 4.5.2
295		4.5.2	60.111(b)(3)	<p>Appendix A identifies 10 CFR 60 citations broken down to the second level of indenture, however on further review it appears that certain citations should be tied to sections one level of indenture lower (the third level -- 4.5.1 and 4.5.2). These citations are:</p> <ul style="list-style-type: none"> 60.21 (c)(3) to section 4.5.1 60.111 (a) to section 4.5.1 60.111 (b) to section 4.5.2 60.133 (c) to section 4.5.2

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#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
292		4.5.1	60.111(a)	<p>Appendix A identifies 10 CFR 60 citations broken down to the second level of indenture, however on further review it appears that certain citations should be tied to sections one level of indenture lower (the third level -- 4.5.1 and 4.5.2). These citations are:</p> <ul style="list-style-type: none"> 60.21 (c)(3) to section 4.5.1 60.111 (a) to section 4.5.1 60.111 (b) to section 4.5.2 60.133 (c) to section 4.5.2
293		4.5.1	60.131(a) 60.21(c)7)	<p>This subsection addresses the need for protection against radiation exposures and releases of radioactive material. Citations 10 CFR 60.21(c)(7) and 60.131(a) identify the requirement for providing an effluent control and monitoring program and the general design criteria for radiological protection, therefore, these citations are applicable for inclusion in Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
296		4.5.2	60.133(c)	<p>Appendix A identifies 10 CFR 60 citations broken down to the second level of indenture, however on further review it appears that certain citations should be tied to sections one level of indenture lower (the third level -- 4.5.1 and 4.5.2). These citations are:</p> <ul style="list-style-type: none"> 60.21 (c)(3) to section 4.5.1 60.111 (a) to section 4.5.1 60.111 (b) to section 4.5.2 60.133 (c) to section 4.5.2
297		4.5.2	60.133(e)	<p>Section 4.5.2 request information to demonstrate that the GROA has been designed to preserve the option of waste retrieval throughout the emplacement period. 10 CFR citation 60.133(e) is the requirement for openings in the underground facility to be designed so that the retrievability option can be maintained, therefore, this citation is applicable for inclusion in Appendix A.</p>
298		5		<p>This is an introductory section and no 10 CFR citations are necessary.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
299		5.1	60.21(c)(1)(ii)(E)	Performance analyses are essential to determine whether a structure, system, or component of the EBS is important to safety, retrievability, or isolation. Citation 10 CFR 60.21(c)(1)(ii)(E) addresses performance analyses which apply, in part, to the EBS. Consequently, this citation is applicable to section 5.1 and should be included in Appendix A.
300		5.1.1	60.21(c)(1)(ii)(D)	Comparative evaluations of alternates for major design features important to waste isolation are required per 10 CFR 60.21(c)(1)(ii)(D). This citation also applies to the waste package design described in this section, therefore this citation is applicable for inclusion in Appendix A.
301	60.21(c)(5)	5.1.2	60.21(c)(5)	
302		5.1.2	60.43(b)	Constraints are placed upon the waste form in 10 CFR 60.43(b) with respect to the chemical and physical characteristics of the form as well as the radioisotopic content. Consequently, this citation is applicable to section 5.1.2 and hence Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
303		5.1.3	60.133(b)	<p>Criteria specified in 10 CFR 60.133 address general requirements which must be satisfied in the underground facility design. Flexibility of design, as required by 10 CFR 60.133(b), is one of these requirements which apply directly to the design of the underground facility. Therefore, this citation is applicable for inclusion in Appendix A.</p>
304		5.1.3	60.133(c)	<p>Criteria specified in 10 CFR 60.133 address general requirements which must be satisfied in the underground facility design. Retrieval of waste, as required by 10 CFR 60.133(c), is one of these requirements which apply directly to the design of the underground facility. Therefore, this citation is applicable for inclusion in Appendix A.</p>
305		5.1.3	60.133(e)(1)	<p>Criteria specified in 10 CFR 60.133 address general requirements which must be satisfied in the underground facility design. The underground opening design, as addressed by 10 CFR 60.133(e)(1), is one of these requirements which apply directly to the design of the underground facility. Therefore, this citation is applicable for inclusion in Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
306		5.1.3	60.133(h)	Criteria specified in 10 CFR 60.133 address general requirements which must be satisfied in the underground facility design. Engineered barriers, as addressed by 10 CFR 60.133(h), is one of these requirements which apply directly to the design of the underground facility. Therefore, this citation is applicable for inclusion in Appendix A.
307		5.1.3	60.133(i)	Criteria specified in 10 CFR 60.133 address general requirements which must be satisfied in the underground facility design. Thermal loads, as addressed by 10 CFR 60.133(i), is one of these requirements which apply directly to the design of the underground facility. Therefore, this citation is applicable for inclusion in Appendix A.
308		5.1.4	60.21(c)(1)(ii)(A)	The pre- and post-closure emplacement environment is characterized by the geology, geophysics, hydrology, geochemistry, climatology, and meteorology of the site. Because an analysis of these features is required per 10 CFR 60.21(c)(1)(ii)(A), this citation is applicable for inclusion in Appendix A.
309	60.21(c)(1)(ii)(D)	5.1.4	60.21(c)(1)(ii)(D)	
310		5.1.5		

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
311		5.2		This is an introductory section, therefore, no 10 CFR 60 citation is necessary.
312	60.21(c)(1)(ii)(F)	5.2.1	60.21(c)(1)(ii)(F)	
313		5.2.1.1	60.135(a)	Criteria related to the waste package design and its components are specified in 10 CFR 60.135(a). This citation is therefore applicable for inclusion in Appendix A.
314		5.2.1.1	60.135(b)	Criteria related to the waste package design and its components are specified in 10 CFR 60.135(b). This citation is therefore applicable for inclusion in Appendix A.
315		5.2.1.2	60.135(c)	Criteria related to the waste form design are specified in 10 CFR 60.135(c). This citation is therefore applicable for inclusion in Appendix A.
316		5.2.1.3	60.133(h)	10 CFR 60.133(h) specifies design criteria for the engineered barriers located in the underground facility, therefore, it is applicable for inclusion in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
317		5.2.1.3	60.140(c)	An explanation of "measures supporting the models used to perform analyses" of the underground facility are requested in this section. The Performance Confirmation Program, and citation 10 CFR 60.140(c) in particular, require testing and monitoring of the engineered systems. The results of these efforts will most likely feed back to the analytical models used to model the EBS. Consequently, 10 CFR 60.140(c) is applicable for inclusion in Appendix A.
318	60.113(a)(1)(ii)(B))	5.2.2	60.113(a)(1)(ii)(B)	
319	60.113(b)	5.2.2	60.113(b)	
320		5.2.2	60.113(c)	Citation 10 CFR 60.113(b) has been recognized to apply to this section. Because 10 CFR 60.113(c) is directly related to 10 CFR 60.113(b), it too is applicable for inclusion in Appendix A.
321	60.21(c)(1)(ii)(D)	5.2.2	60.21(c)(1)(ii)(D)	
322		5.2.2.1	60.113(a)(1)(ii)(A))	Citation 10 CFR 60.113(a)(1)(ii)(A) introduces the concept of substantially complete containment and is therefore applicable for inclusion in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
323		5.2.2.1	60.113(b)	Because 10 CFR 60.113(b) provides the Commission with a provision to revise the minimum time frame for substantially complete containment, it is applicable for inclusion in Appendix A.
324	60.122(a)(1)	5.2.2.1	60.122(a)(1)	
325	60.122(a)(2)	5.2.2.1	60.122(a)(2)	
326		5.2.2.2	60.113(a)(1)(ii)(B)	As referenced directly in the text, 10 CFR 60.113(a)(1)(ii)(B) applies to this section and is therefore applicable for inclusion in Appendix A.
327	60.122(a)(1)	5.2.2.2	60.122(a)(1)	
328	60.122(a)(2)	5.2.2.2	60.122(a)(2)	
329	60.130	5.2.3		The connection between this section and 10 CFR 60.130 is unclear and appears to be erroneous.
330	60.111(a)	5.2.3	60.111(a)	
331	60.131(a)	5.2.3	60.131(a)	
332	60.135(c)	5.3.1		A Cross-Index reference is made between Part 60 and Section 5.3.1. However, there is no Section 5.3.1 in the draft text.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
333	60.135(b)(1)	5.3.2		A Cross-Index reference is made between Part 60 and Section 5.3.2. However, there is no Section 5.3.2 in the draft text.
334	60.135(b)(2)	5.3.2		A Cross-Index reference is made between Part 60 and Section 5.3.2. However, there is no Section 5.3.2 in the draft text.
335	60.135(a)	5.3.2		A Cross-Index reference is made between Part 60 and Section 5.3.2. However, there is no Section 5.3.2 in the draft text.
336	60.135(b)(3)	5.3.2		A Cross-Index reference is made between Part 60 and Section 5.3.2. However, there is no Section 5.3.2 in the draft text.
337	60.135(d)	5.3.2		A Cross-Index reference is made between Part 60 and Section 5.3.2. However, there is no Section 5.3.2 in the draft text.
338	60.135(b)(4)	5.3.2		A Cross-Index reference is made between Part 60 and Section 5.3.2. However, there is no Section 5.3.2 in the draft text.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
339	60.133(i)	5.3.4		A Cross-Index reference is made between Part 60 and Section 5.3.4. However, there is no Section 5.3.4 in the draft text.
340	60.133(h)	5.3.4		A Cross-Index reference is made between Part 60 and Section 5.3.4. However, there is no Section 5.3.4 in the draft text.
341	60.135	5.3.4		A Cross-Index reference is made between Part 60 and Section 5.3.4. However, there is no Section 5.3.4 in the draft text.
342	60.21(c)(1)(ii)(F)	6		Appendix A identifies 10 CFR 60.21 (c)(1)(ii)(C) and (F) as applicable, however, 10 CFR 60.21 (c)(1)(ii)(F) incorporates (A) through (D), which could be written as 60.21(c)(1)(ii) all except (E). Therefore, the referenced citation should be changed from 10 CFR 60.21 (c)(1)(ii)(C) and (F) to 60.21(c)(1)(ii) all except (E).
343	60.21(c)(1)(ii)(C)	6		Appendix A identifies 10 CFR 60.21 (c)(1)(ii)(C) and (F) as applicable, however, 10 CFR 60.21 (c)(1)(ii)(F) incorporates (A) through (D), which could be written as 60.21(c)(1)(ii) all except (E). Therefore, the referenced citation should be changed from 10 CFR 60.21 (c)(1)(ii)(C) and (F) to 60.21(c)(1)(ii) all except (E).

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
344		6	60.101	The findings of no unreasonable risk must include the overall system Performance Assessment, therefore, citation 10 CFR 60.101 should be included in Appendix A.
345		6	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.
346		6	60.113	Citation 60.113 should be included in Appendix A because the EBS is incorporated into the overall system Performance Assessment.
347		6	60.122(a)	The requirement of reasonable assurance of waste isolation is citation 10 CFR 60. 122(a) and should therefore, be included in Appendix A.
348		6	60.21(c)(1)(ii)(A) (B)(C)(D) & (F)	Appendix A identifies 10 CFR 60.21 (c)(1)(ii)(C) and (F) as applicable, however, 10 CFR 60.21 (c)(1)(ii)(F) incorporates (A) through (D), which could be written as 60.21(c)(1)(ii) all except (E). Therefore, the referenced citation should be changed from 10 CFR 60.21 (c)(1)(ii)(C) and (F) to 60.21(c)(1)(ii) all except (E).

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
349		6	60.21(c)(1)(i)(F)	Citation 10 CFR 60.21(c)(1)(i)(F) serves as the basis of the overall system Performance Assessment and should be included in Appendix A.
350		6.1	60.101	The findings of no unreasonable risk must include the overall system Performance Assessment, therefore, citation 10 CFR 60.101 should be included in Appendix A.
351		6.1	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore, citation 60.112 should be included in Appendix A.
352		6.1	60.113	Citation 60.113 should be included in Appendix A because the EBS is incorporated into the overall system Performance Assessment.
353		6.1	60.122(a)	The requirement of reasonable assurance of waste isolation is citation 10 CFR 60. 122(a) and should therefore, be included in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
354		6.1	60.21(c)(1)(ii)(A)(B)(C)(D) & (F)	Appendix A identifies 10 CFR 60.21 (c)(1)(ii)(C) and (F) as applicable, however, 10 CFR 60.21 (c)(1)(ii)(F) incorporates (A) through (D), which could be written as 60.21(c)(1)(ii) all except (E). Therefore, the referenced citation should be changed from 10 CFR 60.21 (c)(1)(ii)(C) and (F) to 60.21(c)(1)(ii) all except (E).
355		6.1	60.21(c)(1)(i)(F)	Citation 10 CFR 60.21(c)(1)(i)(F) serves as the basis of the overall system Performance Assessment and should be included in Appendix A.
356		6.2	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.
357		6.2.1	60.101	The findings of no unreasonable risk must include the overall system Performance Assessment, therefore, citation 10 CFR 60.101 should be included in Appendix A.
358		6.2.1	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
359		6.2.1	60.113	Citation 60.113 should be included in Appendix A because the EBS is incorporated into the overall system Performance Assessment.
360		6.2.1	60.122(a)	The requirement of reasonable assurance of waste isolation is citation 10 CFR 60.122(a) and should therefore, be included in Appendix A.
361		6.2.1	60.21(c)(1)(ii)(A) (B)(C)(D) & (F)	Appendix A identifies 10 CFR 60.21 (c)(1)(ii)(C) and (F) as applicable, however, 10 CFR 60.21 (c)(1)(ii)(F) incorporates (A) through (D), which could be written as 60.21(c)(1)(ii) all except (E). Therefore, the referenced citation should be changed from 10 CFR 60.21 (c)(1)(ii)(C) and (F) to 60.21(c)(1)(ii) all except (E).
362		6.2.2	60.21(c)(1)(ii)(C)	This section request an analysis of anticipated and unanticipated processes and events, citation 10 CFR 60.21(c)(1)(ii)(C) identifies the requirement and should therefore be added to Appendix A.
363		6.2.3	60.21(c)(1)(ii)(C)	This section requests information on the analysis of undisturbed performance, citation 10 CFR 60.21(c)(1)(ii)(C) identifies the requirement and should therefore be added to Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
364		6.3	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.
365		6.3.1	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.
366		6.3.1	60.21(c)(1)(ii)(C)	This section requests an analysis of processes and events which should include screening, therefore, citation 10 CFR 60.21(c)(1)(ii)(C) identifies the requirement and should therefore be added to Appendix A.
367		6.3.2	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.
368		6.3.3	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
369		6.3.4	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.
370	60.112	6.3.5	60.112	
371	60.113(c)	6.3.5	60.113(c)	
372	60.122(a)(1)	6.3.5	60.122(a)(1)	
373		6.3.6	60.151	10 CFR 60.152 requires implementation of a quality assurance program based on the criteria of Appendix B of 10 CFR 50 as applicable, and appropriately supplemented by additional criteria as required by 10 CFR 60.151. The DOE QARD supplements the 10 CFR 50 criteria with criteria covering model and code verification and validation. Therefore, citation 60.151 should be added to Appendix A.
374		6.4	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
375		6.4.1	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.
376		6.4.2	60.112	This section requests a demonstration of compliance with EPA standards, citation 10 CFR 60.112 provides the requirement, therefore citation 60.112 should be included in Appendix A.
377		6.4.3	60.151	10 CFR 60.152 requires implementation of a quality assurance program based on the criteria of Appendix B of 10 CFR 50 as applicable, and appropriately supplemented by additional criteria as required by 10 CFR 60.151. The DOE QARD supplements the 10 CFR 50 criteria with criteria covering model and code verification and validation. Therefore, citation 60.151 should be added to Appendix A.
378		6.5	60.122(a)(1)	General section 6.5 contains requirements for section 6.5.1 and 6.5.2, therefore citations 10 CFR 60.122(a)(1) and (a)(2) should be moved up to section 6.5.
379		6.5	60.122(a)(2)	General section 6.5 contains requirements for section 6.5.1 and 6.5.2, therefore citations 10 CFR 60.122(a)(1) and (a)(2) should be moved up to section 6.5.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
380		6.5	60.21(c)(1)(ii)(B)	This section requests information on the analysis of favorable and potentially adverse conditions, citation 10 CFR 60.21(c)(1)(ii)(B) identifies the requirement for the analyses, therefore, 60.21(c)(1)(ii)(B) should be added to Appendix A.
381	60.112	6.5.1	60.112	
382	60.122(a)(1)	6.5.1	60.122(a)(1)	
383	60.122(a)(2)	6.5.1	60.122(a)(2)	
384		6.5.1	60.122(b)	This section requests analyses of favorable conditions, citations 10 CFR 60.21(c)(1)(ii)(B) and 60.122(b) identify the requirements for performing the analysis, therefore, these citations should be included in Appendix A.
385		6.5.1	60.21(c)(1)(ii)(B)	This section requests analyses of favorable conditions, citations 10 CFR 60.21(c)(1)(ii)(B) and 60.122(b) identify the requirements for performing the analysis, therefore, these citations should be included in Appendix A.
386	60.112	6.5.2	60.112	
387	60.122(a)(1)	6.5.2	60.122(a)(1)	
388	60.122(a)(2)	6.5.2	60.122(a)(2)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
389		6.5.2	60.122(c)	This section requests analyses of potentially adverse conditions. Citations 10 CFR 60.21(c)(1)(ii)(B) and 60.122(c) identify the requirements for performing the analyses, therefore, these citations should be included in Appendix A.
390		6.5.2	60.21(c)(1)(ii)(B)	This section requests analyses of potentially adverse conditions. Citations 10 CFR 60.21(c)(1)(ii)(B) and 60.122(c) identify the requirements for performing the analyses, therefore, these citations should be included in Appendix A.
391		7		Section 7 provides introductory information and no 10 CFR 60 Citation is necessary.
392		7.1	60.131(b)(6)	Section 7.1 requests an identification and description of operational procedures for maintenance of SSC's Important to Safety or Retrievability. Citation 60.131(b)(6) identifies the need for maintenance plans for SSC's in the GROA, therefore, this citation is applicable to this section.
393		7.1	60.21(c)(15)(v)	Section 7.1 requests an identification and description of operational procedures for maintenance of SSC's Important to Safety or Retrievability. Citation 60.21 (c)(15)(v) identifies the need for maintenance plans for SSC's in the GROA, therefore, this citation is applicable to this section.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
394	60.132(e)	7.2		Section 7.2 requests a description of the Health Physics program to monitor and control interior and exterior radiation exposures plus decommissioning and permanent closure. However, citation 60.132(e) provides the requirement for surface facility design consideration of decontamination, therefore this citation does not appear to be applicable to Appendix A.
395	60.21(c)(15)(vi)	7.2	60.21(c)(15)(vi)	
396	60.132(d)	7.2		Section 7.2 requests a description of the Health Physics program to monitor and control interior and exterior radiation exposures plus decommissioning and permanent closure. However, citation 60.132(d) provides the requirement for waste treatment, therefore, this citation does not appear to be applicable and should be removed from Appendix A.
397	60.132(c)	7.2	60.132(c)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
398	60.132(a)	7.2		Section 7.2 requests a description of the Health Physics program to monitor and control interior and exterior radiation exposures plus decommissioning and permanent closure. However, citation 60.132(ac) provides the requirement for receipt and retrieval of waste, therefore, this citation does not appear to be applicable and should be removed from Appendix A.
399		7.2	60.111(a)	Section 7.2 requests a description of the radiological protection program, including the facilities, equipment, and instrumentation used to monitor and control internal and external exposures as required by 10 CFR 20 (normal operation) and 10 CFR 60 (anticipated operational occurrences and radiological emergencies). Citation 60.111(a) identifies the need for a description of the program for control and monitoring of radioactive effluents, and requires protection against radiation exposures, therefore this citation is applicable to this section. In addition, this citation is applicable to the sub-sections of 7.2.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
400		7.2	60.131(a)	Section 7.2 requests a description of the radiological protection program, including the facilities, equipment, and instrumentation used to monitor and control internal and external exposures as required by 10 CFR 20 (normal operation) and 10 CFR 60 (anticipated operational occurrences and radiological emergencies). Citation 60.131(a) identifies the need for a description of the program for control and monitoring of radioactive effluents, and requires protection against radiation exposures, therefore this citation is applicable to this section. In addition, this citation is applicable to the sub-sections of 7.2.
401	60.132(b)	7.2	60.132(b)	
402	60.21(c)(15)(v)	7.2	60.21(c)(15)(v)	
403	60.21(c)(7)	7.2	60.21(c)(7)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
404		7.2.1	60.21(c)(15)(i)	Section 7.2.1 request a description of the administrative organization of the health physics program including the authority and responsibility of each position identified. Citation 10 CFR 60.21(c)(15)(i) identifies the requirement for providing the organizational structure as it pertains to the operation of the GROA, including a description of any delegations of authority and assignments of responsibilities. Therefore, this citation should be included in Appendix A.
405		7.2.2	60.131(a)(4)	Section 7.2.2 requests a description of the portable and laboratory equipment and instrumentation necessary to perform the radiological protection tasks identified in the Radiation Protection program. Citation 60.131(a)(4) is the requirement to monitor and control the dispersal of radioactive contamination, therefore, this citation is applicable to this section.
406		7.2.3		Section 7.2.3 provides introductory information and no 10 CFR 60 Citation is necessary.
407		7.2.3.1		Section 7.2.3.1 requests a description of the methods, frequencies and plans for conducting radiation surveys. This section can be loosely tied to citation 10 CFR 60.111(a) which in turn invokes 10 CFR 20. However, no 10 CFR 60 citation appears necessary.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
408		7.2.3.2		Section 7.2.3.2 requests a description of the methods and plans for personnel dosimetry, including methods for recording and reporting results. This section can be loosely tied to citation 10 CFR 60.111(a) which in turn invokes 10 CFR 20. However, no 10 CFR 60 citation appears necessary.
409		7.2.3.3	60.132(e)	Section 7.2.3.3 describes the decontamination program for personnel and facilities of the GROA and the repository site. Citations 60.21(c)(15)(vi) and 132(e) identify the need for consideration of decommissioning and the reporting thereof in a license application, therefore, these citations should be included in appendix A.
410		7.2.3.3	60.21(c)(15)(vi)	Section 7.2.3.3 describes the decontamination program for personnel and facilities of the GROA and the repository site. Citations 60.21(c)(15)(vi) and 132(e) identify the need for consideration of decommissioning and the reporting thereof in a license application therefore, these citations should be included in appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
411		7.2.3.4		Section 7.2.3.4 requests an identification and description of the procedures and methods of operation that are used to ensure that ALARA is being practiced in all aspects of facility operations. This section can be loosely tied to citation 10 CFR 60.111(a) which in turn invokes 10 CFR 20. However, no 10 CFR 60 citation appears necessary.
412		7.2.4	60.131(a)(4)	Section 7.2.4 requests information describing the program and analytical approaches to be taken to monitor the radioactive material content of the effluent streams of the GROA facilities. Citations 60.131(a)(4) and 60.132(c)(2) specifically require that a means to monitor/measure and control the dispersal of radioactive contamination be provided, therefore, these citations apply to this section. In addition, these citations are applicable to the sub-sections of 7.2.4.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
413		7.2.4	60.132(c)(2)	Section 7.2.4 requests information describing the program and analytical approaches to be taken to monitor the radioactive material content of the effluent streams of the GROA facilities. Citations 60.131(a)(4) and 60.132(c)(2) specifically require that a means to monitor/measure and control the dispersal of radioactive contamination be provided, therefore, these citations apply to this section. In addition, these citations are applicable to the sub-sections of 7.2.4.
414		7.2.4.1	60.133(g)(1)	Section 7.2.4.1 request a description of the features of the monitoring systems to be used, their locations, and the release paths to be monitored. In addition to the citations identified as applicable to section 7.2.4, citation 60.133(g)(1) dealing with the control of the transport of radioactive particulates and gases in the underground facility identifies an additional requirement, and is therefore applicable to this section.
415		7.2.4.2	60.131(a)(4)	Section 7.2.4.2 requests information describing the features of the liquid monitoring systems. Citations 60.131(a)(4) and 60.132(c)(2) specifically require that a means to monitor/measure and control the dispersal of radioactive contamination be provided, therefore, these citations apply to this section.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
416		7.2.4.2	60.132(c)(2)	Section 7.2.4.2 requests information describing the features of the liquid monitoring systems. Citations 60.131(a)(4) and 60.132(c)(2) specifically require that a means to monitor/measure and control the dispersal of radioactive contamination be provided, therefore, these citations apply to this section.
417		7.2.4.3	60.131(a)(4)	Section 7.2.4.3 requests information describing the procedures, equipment, and instrumentation used to monitor all solid radioactive waste. Citations 60.131(a)(4) and 60.132(c)(2) specifically require that a means to monitor/measure and control the dispersal of radioactive contamination be provided, therefore, these citations apply to this section.
418		7.2.4.3	60.132(c)(2)	Section 7.2.4.3 requests information describing the procedures, equipment, and instrumentation used to monitor all solid radioactive waste. Citations 60.131(a)(4) and 60.132(c)(2) specifically require that a means to monitor/measure and control the dispersal of radioactive contamination be provided, therefore, these citations apply to this section.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
419		7.2.5	60.131(a)(4)	Section 7.2.5 requests a description of the program for monitoring and estimating the contribution of radioactive materials to the environment. Citations 60.131(a)(4) and 60.132(c) & (d) provide the requirements associated with radiation control and monitoring of effluents and treatment of radioactive waste prior to disposal. Therefore, these citations are applicable to this section.
420		7.2.5	60.132(c) & (d)	Section 7.2.5 requests a description of the program for monitoring and estimating the contribution of radioactive materials to the environment. Citations 60.131(a)(4) and 60.132(c) & (d) provide the requirements associated with radiation control and monitoring of effluents and treatment of radioactive waste prior to disposal. Therefore, these citations are applicable to this section.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
421	60.21(c)(15)(ii)	7.3		<p>Section 7.3 identifies structure functions and responsibilities of the operating organization. Citation 60.21(c)(15)(ii) requires identification of key positions assigned responsibility for safety at and operation of the GROA, and is more applicable to the subsections as identified below and not to the overall section 7.3. For example, citation 60.21 (c)(15)(ii) is clearly applicable to subsections 7.3.1 and 7.3.2 but there is no mention of personnel qualifications (subsection 7.3.3). Therefore, this citation should be tied to subsections 7.3.1 and 7.3.2 and removed from the overall section 7.3.</p>
422	60.21(c)(15)(vi)	7.3		<p>Section 7.3 identifies structure functions and responsibilities of the operating organization. Citation 60.21(c)(15)(vi) is more applicable to the plans for permanent closure and plans for decontamination or dismantlement of surface facilities. Therefore, this citation should be removed from Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
423	60.162	7.3		<p>Section 7.3 identifies structure functions and responsibilities of the operating organization. Citations 60.160, 60.161, and 60.162 identify the requirements associated with Important to Safety tasks being performed by trained/certified personnel, the establishment of programs for training, proficiency testing, certification and requalification of personnel, and the physical condition and general health of personnel performing Important to Safety tasks, plus the requirement of reporting these programs in the SAR. Therefore, these citations are applicable to the subsection 7.3.3.</p>
424	60.160	7.3		<p>Section 7.3 identifies structure functions and responsibilities of the operating organization. Citations 60.160, 60.161, and 60.162 identify the requirements associated with Important to Safety tasks being performed by trained/certified personnel, the establishment of programs for training, proficiency testing, certification and requalification of personnel, and the physical condition and general health of personnel performing Important to Safety tasks, plus the requirement of reporting these programs in the SAR. Therefore, these citations are applicable to the subsection 7.3.3.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
425	60.161	7.3		<p>Section 7.3 identifies structure functions and responsibilities of the operating organization. Citations 60.160, 60.161, and 60.162 identify the requirements associated with Important to Safety tasks being performed by trained/certified personnel, the establishment of programs for training, proficiency testing, certification and requalification of personnel, and the physical condition and general health of personnel performing Important to Safety tasks, plus the requirement of reporting these programs in the SAR. Therefore, these citations are applicable to the subsection 7.3.3.</p>
426	60.21(c)(15)(iii)	7.3		<p>Section 7.3 identifies structure functions and responsibilities of the operating organization. Citation 60.21(c)(15)(iii) is more applicable to the subsection 7.3.3 and not to the overall section 7.3. For example, citations 60.21 (c)(15)(iii), personnel qualification and training requirements is clearly applicable to subsections 7.3.3, Personnel Qualification Requirements. Therefore, this citation should be relocated to subsection 7.3.3.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
427	60.21(c)(15)(i)	7.3		Section 7.3 identifies structure functions and responsibilities of the operating organization. Citation 60.21(c)(15)(i) is more applicable to the subsection 7.3.2 and not to the overall section 7.3. Citation 60.21(c)(15)(i) is "delegation of authority" which is clearly applicable to subsection 7.3.2 "Personnel, Functions, Responsibilities and Authorities."
428		7.3	60.43(b)(6)	Section 7.3 identifies structure functions and responsibilities of the operating organization. Citation 60.43(b)(6) requires inclusion of Administrative controls, which are the provisions relating to organization and management, therefore, this citation appears applicable to this section.
429		7.3.1	60.21(c)(15)(i)	This section request a comprehensive description of the organization arrangement of the facility. Citation 60.21(c)(15)(i) identifies a requirement for reporting in the SAR the organization structure of DOE as it pertains to construction and operation of the GROA, therefore, this citation is applicable to this section.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
430		7.3.2	60.21(c)(15)(i) & (ii)	This section requests a description of delegations of authority and assignments of responsibility. Citations 60.21 (c)(15)(i) & (ii) identify the requirements to provide in the SAR a description of any delegations of authority, and an identification of key positions assigned responsibility, therefore, these citations are applicable to this section.
431		7.3.3	60.21(c)(15)(iii) 60.160 60.161 60.162	This section request a description of the proposed minimum qualifications requirements for personnel. Citations 60.21(c)(15)(iii), 60.160, 60.161, and 60.162 identify the requirements associated with Important to Safety tasks being performed by trained/certified personnel, the establishment of programs for training, proficiency testing, certification and requalification of personnel, and the physical condition and general health of personnel performing Important to Safety tasks, plus the requirement of reporting these programs in the SAR. Therefore, these citations are applicable to this subsection.
432	60.21(c)(15)(iv)	7.4	60.21(c)(15)(iv)	
433	60.21(c)(15)(vii)	7.4	60.21(c)(15)(vii)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
434		7.4	60.21(c)(15)(vi) 60.21(c)(9) & (12) 60.31(a)(5) & (6) 60.46(a)(5)	<p>This section requests the identification and description of the procedures needed for the GROA operations, as well as the program for generating procedures needed at later times in GROA operations. The following citations identify the requirements for plans and procedures necessary for inclusion in the Safety Analysis Report. These citations are 60.21(c)(9) & (12), 60.21(c)(15)(vi), 60.31 (a)(5) & (6) and 60.46(a)(5). Therefore these citations are applicable to this section.</p>
435		7.5	60.4, 60.8, 60.18(g), 60.21(c)(10), 60.32(b), 60.43(b)(6), 60.44(b), 60.46(a)(4), 60.51(a)(2), 60.71(a) & (b), 60.72, 60.73, 60.74, and 60.75(b)	<p>This section requests an identification and description of the program for keeping records of activities at the GROA.</p> <p>The following citations identify the requirements with respect to records and reports necessary for inclusion in the Safety Analysis Report. These citations are 60.4, 60.8, 60.18(g), 60.21(c)(10), 60.32(b), 60.43(b)(6), 60.44(b), 60.46(a)(4), 60.51(a)(2), 60.71(a) & (b), 60.72, 60.73, 60.74, and 60.75(b). Therefore, these citations are applicable to this section.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
436	60.21(c)(15)(v)	7.6		Section 7.6 requests a description of proposed training programs, however, citation 60.21(c)(15)(v) discusses plans for conduct of normal activities including maintenance, surveillance, and periodic testing of SSC's of the GROA. Therefore, this citation does not appear to be applicable to this section.
437	60.161	7.6	60.161	
438		7.6	60.21(c)(15)(iii) 60.31(a)(4)	<p>This section requests a description of proposed training programs including initial and refresher training, plus a means for evaluating the effectiveness of the training programs.</p> <p>Citations 60.21(c)(15)(iii) and 60.31(a)(4), identify the need for the inclusion of information related to training programs in the Safety Analysis Report. Therefore, these citations are applicable to this section.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
439		7.7	60.21(b)(2)	<p>This section request that a schedule for inspections, testing, and maintenance to ensure continued operation, as well as proposed schedules for the GROA construction, receipt of waste, and emplacement of wastes should be provided.</p> <p>Citation 60.21(b)(2) identifies the requirement of inclusion for proposed schedules for construction, receipt of waste, and emplacement of wastes at the proposed GROA. Therefore, this citation is applicable to this section.</p>
440		7.8	60.111(a)	<p>Section 7.8 request analyses supporting the conclusion that the Health and Safety of the public and operating personnel will be protected during operation if all operations are performed within certain prescribed limits. Citation 60.111(a) identifies the need to protect against radiation exposure and releases of radioactive material within the limits of 10 CFR 20. Therefore, this citation appears to be applicable and should be added to Appendix A.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
441		7.8	60.21(c)(15)(v)	Section 7.8 request analyses supporting the conclusion that the Health and Safety of the public and operating personnel will be protected during operation if all operations are performed within certain prescribed limits. Citation 60.21(c)(15)(v) identifies the requirement to provided plans for conduct of normal activities, including maintenance, surveillance, and periodic testing of SSC's of the GROA, therefore, this citation appears to be applicable and should be added to Appendix A.
442		7.9	60.51(a)(2)(ii)	This section requests a discussion on the system or procedure to be used for the permanent preservation of site records, including site data prior to the SCP, data from the SCP experiments and in situ tests, construction records, and performance confirmation records. This section should include discussions on compliance with 10 CFR 60.51(a)(2)(ii). Citation 60.51(a)(2)(ii) is included as a reference in the FCRG and provides the requirement for archiving the records. Therefore, this citation should be added to Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
443	60.21(c)(8)	7.10.	60.21(c)(8) 60.43(b)(5) 60.51(a)(2)(i)	<p>This section request discussions on the design and construction of site markers or monuments for the period following permanent closure. Discussions should also include identification of the controlled area and the GROA and the locations for placing the monuments. Compliance with 10 CFR 60.21 (c)(8) and 60.51(a)(2)(i) requirements should also be discussed in this section.</p> <p>By reference citations 60.21 (c)(8) and 60.51(a)(2)(i) are applicable. In addition, citation 60.43(b)(5) providing licensing conditions with respect to the controls to be applied to restricted access and to avoid disturbance to the controlled area and to areas outside the controlled area where conditions may affect isolation within the controlled area is applicable.</p>
444		8	60.137	<p>Citation 10 CFR 60.137 requires that surface design must permit implementation of Performance Confirmation program, therefore, this citation should be added to Appendix A.</p>
445	60.140(b)	8	60.140	<p>Appendix A identifies citation 60.140(b) as an applicable citation, however, this should be 10 CFR 60.140 in its entirety because all parts (a) (b) (c) and (d) refer to the performance confirmation program.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
446		8	60.141	Citation 10 CFR 60.141 includes general requirements for consideration in the Performance Confirmation program, therefore, this citation should be added to Appendix A.
447		8	60.142	Citation 10 CFR 60.142 includes in situ testing required for the Performance Confirmation program, therefore, this citation should be added to Appendix A.
448		8	60.143	Citation 10 CFR 60. 143 includes monitoring necessary for the Performance Confirmation program, therefore, this citation should be added to Appendix A.
449		8	60.24(b)(1)	Citation 10 CFR 60.24(b)(1) applies to timely updates of information from construction, therefore this citation should be included in Appendix A.
450		8	60.24(b)(3)	Citation 10 CFR 60.24(b)(3) applies to updates of information during Performance Confirmation which must be part of the PC plan, therefore, this citation should be included in Appendix A.
451		8	60.51(a)(3)	Citation 10 CFR 60.51(a)(3) identifies the need to plan for data to amend license for closure, which must be part of the Performance Confirmation plan, therefore, this citation should be included in Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
452		8	60.74(b)	Citation 60.74(b) identifies portions of the Performance Confirmation program and should be added to Appendix A.
453		8.1	60.140	Citation 10 CFR 60.140 refers to the Performance Confirmation program, therefore, this citation should be added to Appendix A.
454		8.1	60.141	Citation 10 CFR 60.141 includes general requirements for consideration in the Performance Confirmation program, therefore, this citation should be added to Appendix A.
455	60.140(a)(1) 60.140(a)(2) 60.140(c) 60.140(d)	8.1.1	60.140	Appendix A identifies citations 60.140(a), (c) and (d) as applicable citations, however, this should be 10 CFR 60.140 in its entirety because all parts (a) (b) (c) and (d) refer to the Performance Confirmation program.
456	60.141	8.1.1	60.141	
457	60.140(a)(2) 60.140(c) 60.140(d)	8.1.2	60.140	Appendix A identifies citations 10 CFR 60.140(a)(2), (c) and (d) apply to this section. DOE believes that 10 CFR 60.140(a)(1) and 60.140(b) apply also, therefore, the totally inclusive citation 10 CFR 60.140 should be added to Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
458	60.141(a) 60.141(b) 60.141(e)	8.1.2	60.141	DOE also believes that all aspects of 60.141 apply to the hydrologic system and changes brought about by the repository. Therefore the totally inclusive citation 10 CFR 60.141 should be added to the Appendix A.
459	60.140(a)(2) 60.140(c) 60.140(d)	8.1.3	60.140	Appendix A identifies citations 10 CFR 60.140(a)(2), (c) and (d) apply to this section. DOE believes that 10 CFR 60.140(a)(1) and 60.140(b) apply also, therefore, the totally inclusive citation 10 CFR 60.140 should be added to Appendix A.
460	60.141	8.1.3	60.141	
461	60.140(a)(2) 60.140(c) 60.140(d)	8.1.4	60.140	Appendix A identifies citations 10 CFR 60.140(a)(2), (c) and (d) apply to this section. DOE believes 60.140(b) applies also, therefore, citation 10 CFR 60.140 should be added to Appendix A.
462	60.141(a)	8.1.4	60.141(a)	
463	60.141(b)	8.1.4	60.141(b)	
464	60.141(e)	8.1.4	60.141(e)	
465		8.2	60.140	Citation 10 CFR 60.140 refers to the Performance Confirmation program, therefore, this citation should be added to Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
466		8.2	60.141	Citation 10 CFR 60.141 includes general requirements for consideration in the Performance Confirmation program, therefore, this citation should be added to Appendix A.
467		8.2	60.142	Citation 10 CFR 60.142 includes in situ testing required for the Performance Confirmation program, therefore, this citation should be added to Appendix A.
468	60.140(a)(2) 60.140(a)(1) 60.140(c) 60.140(d)	8.2.1	60.140	Appendix A identifies citations 10 CFR 60.140(a), (c) and (d) apply to this section. DOE believes that 60.140(b) applies also, therefore, the totally inclusive citation 10 CFR 60.140 should be added to Appendix A.
469	60.141	8.2.1	60.141	
470	60.140(a)(1) 60.140(a)(2) 60.140(c) 60.140(d)	8.2.2	60.140	Appendix A identifies citations 10 CFR 60.140(a), (c) and (d) apply to this section. DOE believes that 60.140(b) applies also, therefore, the totally inclusive citation 10 CFR 60.140 should be added to Appendix A.
471	60.142 60.142(b) 60.142(c) 60.142(d)	8.2.2	60.142	Appendix A identifies citation 10 CFR 60.142 and each of the subelements of 10 CFR 60.142 as applicable to this section. This appears to be redundant, the subelements can be eliminated from Appendix A.
472	60.141	8.2.2	60.141	

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#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
473	60.140(a)(1) 60.140(a)(2) 60.140(c) 60.140(d)	8.2.3	60.140	Appendix A identifies citations 10 CFR 60.140(a), (c) and (d) applicable to this section. DOE believes that 60.140(b) applies also, therefore, the totally inclusive citation 10 CFR 60.140 should be added to Appendix A.
474	60.142 60.142(b) 60.142(c) 60.142(d)	8.2.3	60.142	Appendix A identifies citation 10 CFR 60.142 and each of the subelements of 10 CFR 60.142, except 60.142(a) as applicable to this section, however, DOE believes that all are applicable. Therefore, the totally inclusive 60.142 should be added to Appendix A.
475	60.141	8.2.3	60.141	
476		8.3	60.141	Citation 10 CFR 60.141 includes general requirements for consideration in the Performance Confirmation program, therefore, this citation should be added to Appendix A.
477		8.3	60.142	Citation 10 CFR 60.142 includes in situ testing required for the Performance Confirmation program, therefore, this citation should be added to Appendix A.
478		8.3	60.143	Citation 10 CFR 60. 143 includes monitoring necessary for the Performance Confirmation program, therefore, this citation should be added to Appendix A.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
479	60.141 60.141(a)(2)	8.3.1		Appendix A identifies citations 10 CFR 60.141 and 10 CFR 60.141(a)(2) as applicable to this section. This appears to be redundant since 60.141 includes 60.141(a)(2), therefore, citation 60.141(a) can be removed from Appendix A.
480	60.140(a)(2) 60.140(c) 60.140(d)	8.3.1	60.140	Appendix A identifies citations 10 CFR 60.140(a)(2), (c) and (d) apply to this section. DOE believes that 10 CFR 60.140(a)(1) and 60.140(b) apply also, therefore, the totally inclusive citation 10 CFR 60.140 should be added to Appendix A.
481	60.142(a)	8.3.1	60.142	Appendix A identifies 10 CFR 60.142(a) as applicable to this section, however, all parts of 60.142 apply to the EBS, therefore, 60.142 in its entirety should be added to Appendix A.
482	60.143	8.3.1	60.143	
483	60.111(a)	8.4	60.111(a)	
484	60.130	8.4	60.130	
485	60.131(a)	8.4	60.131(a)	
486	60.141	8.4	60.141	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
487	60.142	8.4	60.142	
488	60.143	8.4	60.143	
489		8.4	60.74(a)(1)	Citation 10 CFR 60.74(a)(1) should be added to Appendix A because it requires the DOE to allow the NRC access to conduct testing during the Performance Confirmation program.
490		8.4	60.74(a)(2)	Citation 10 CFR 60.74(a)(2) should be added to Appendix A because it requires the DOE to allow the NRC access to conduct testing during the Performance Confirmation program.
491		8.4	60.74(a)(3)	Citation 10 CFR 60.74(a)(3) should be added to Appendix A because it requires the DOE to allow the NRC access to conduct testing during the Performance Confirmation program.
492	60.21(c)(14)	8.5	60.21(c)(14)	
493	60.21(c)(14)	8.6	60.21(c)(14)	
494	60.121	9	60.121	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
495		9	60.51(a)(2)	Chapter 9 discusses regulating land use both inside and outside the controlled area and includes regulating land use after permanent closure. 10 CFR 60.51(a)(2) refers to the license amendment for permanent closure. This regulation states that the application to amend the license [for permanent closure] should include "A detailed description of the measures to be employed - such as land use controls," This is consistent with 10 CFR 60.21(c)(8) which requires that the License Application contain "a description of the controls ... including a conceptual design of monuments which would be used to identify the controlled area after permanent closure." Compliance with this regulation would be discussed partly in Chapter 9, Land Ownership and Control, and partly in Sections 7.9 and 7.10, Preservation of Records and Site Markers.
496	60.21(c)(8)	9.1	60.21(c)(8)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
497		9.1	60.43(b)(5)	<p>The plans for restricting controlled area access discussed in Section 9.1 will be translated by the NRC into part of the license specification conditions as specified in 10 CFR 60.43(b)(5): "License conditions shall include ... Controls to be applied to restricted access and to avoid disturbances to the controlled area and to areas outside the controlled area where conditions may affect isolation within the controlled area." Therefore, this section of the license application must be written with sufficient precision to allow the NRC to write the license specification in accordance with 10 CFR 60.43(b)(5).</p>
498		9.1	60.46(a)(3)	<p>Section 9.1 should discuss the regulatory requirement contained in 10 CFR 60.46(a)(3) that a license amendment would be required if removal or reduction of controls applied to restrict access to or avoid disturbance of the controlled area and to areas outside the controlled area where conditions may affect isolation within the controlled area is contemplated at the time of license application.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
499		9.1	60.51(a)(2)(i)	Section 9.1 is to discuss plans for restricting controlled area access including the post closure period. The plans for site markers to be discussed in Section 7.10 are also part of the overall plan to restrict controlled area access. 10 CFR 60.51(a)(2)(i) will require an update of information concerning the identification of the controlled area ... by monuments ... as part of the license amendment for permanent closure. This requirement should be acknowledged or discussed in Section 9.1
500		9.1.1	60.21(c)(1)	Section 9.1.1, Identification of Controlled Area, requests a legal description of the controlled area and a description supplemented by maps that display relevant features within the controlled area and outside the controlled area. One of the most important relevant features is the location of the accessible environment. 10 CFR 60.21(c)(1) states that the Safety Analysis Report shall contain a description of the site which "shall identify the location of the geologic repository operations area with respect to the boundary of the accessible environment."
501		9.1.2	60.121(a)	The subject of Section 9.1.2 is the legal interests already obtained by DOE. 10 CFR 60.121(a) specifies the requirements for the legal interests necessary for the controlled area.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
502		9.1.3	60.121(a)	The subject of this section is the legal interests to be obtained for the controlled area. 10 CFR 60.121(a) specifies the requirements for the legal interests necessary for the controlled area.
503		9.1.3	60.121(c)	Section 9.1.3 requests the identification of legal interests to be obtained for the controlled area. 10 CFR 60.121(c) discusses the requirements for water rights and, therefore, affects the legal interests to be obtained. Water rights are in themselves one of the legal interests to be obtained and should be mentioned in this section. However, the primary discussion of water rights will occur in Section 9.1.4.
504		9.1.4	60.121(c)	Section 9.1.4 discusses water rights. 10 CFR 60.121(c) provides the requirements for water rights.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
505	60.134 60.134(a) 60.134(b)	9.2		<p>The subject of Section 9.2 is plans for regulating land use outside the controlled area. 10 CFR 60.134 discusses design requirements for seals for shafts and boreholes. Shafts would be located within the controlled area and do not have a first order affect on land use outside of the controlled area. Boreholes could be located outside the controlled area and therefore could affect plans for regulating land use outside the controlled area. The relationship to borehole sealing with land use controls is a second-order relationship at best. Since there are many other design aspects that affect the size of areas to be controlled more than borehole seals, and sealing is not mentioned in Section 9.2, it is suggested that all cross references be deleted.</p>
506	60.21(c)(8)	9.2	60.21(c)(8)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
507		9.2	60.43(b)(5)	<p>The plans for regulating land use outside the controlled area discussed in Section 9.2 will be translated by the NRC into part of the license specification conditions as specified in 10 CFR 60.43(b)(5): "License conditions shall include ... Controls to be applied to restricted access and to avoid disturbances to the controlled area and to areas outside the controlled area where conditions may affect isolation within the controlled area. Section 9.2 should be written and formatted by DOE such that the NRC can readily use the material for the license specification.</p>
508		9.2	60.46(a)(3)	<p>Section 9.2 should discuss the regulatory requirement contained in 10 CFR 60.46(a)(3) that a license amendment would be required if removal or reduction of controls applied to restrict access to or avoid disturbance of the controlled area and to areas outside the controlled area where conditions may affect isolation within the controlled area is contemplated at the time of license application.</p>
509		9.2.1	60.121(b)	<p>The subject of Section 9.2.1 is identification of adjacent areas of concern. 10 CFR 60.121(b) establishes requirements for areas to be controlled outside the controlled area. Identification of adjacent areas of concern must include these regulatory requirements.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
510		9.2.1	60.121(c)(2)	The subject of Section 9.2.1 is identification of adjacent areas of concern. 10 CFR 60.121(c)(2) states that water rights are included in the additional controls to be established under 10 CFR 60.121(b). Therefore, water rights are to be included in the process to identify adjacent areas of concern.
511		9.2.1	60.122(a)(2)(iii)(C)	The process of identifying adjacent areas of concern should include any potentially adverse conditions under 10 CFR 60.122(c). If potentially adverse conditions are identified under 10 CFR 60.122(c), 10 CFR 60.122(a)(2)(iii)(C) allows the DOE to demonstrate that the potentially adverse human activity or natural condition can be remedied. Access control is one method of demonstrating remediation.
512		9.2.1	60.122(c)	The process of identifying adjacent areas of concern should involve consideration of the potentially adverse conditions listed under 10 CFR 60.122(c).

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
513		9.2.2	60.121(b)	Section 9.2.2 requests identification of existing legal interests for adjacent areas of concern. 10 CFR 60.121(b) establishes the requirements including legal interests for areas to be controlled outside the controlled area. Therefore, this regulation would apply to identification of existing legal interests.
514		9.2.2	60.121(c)	Section 9.2.2 requests identification of existing legal interests for adjacent areas of concern. 10 CFR 60.121(c) discusses the requirements for water rights. 10 CFR 60.121(c)(2) states that water rights are included in the additional controls to be established under 10 CFR 60.121(b). Therefore, water rights are to be included in the identification of existing legal interests.
515		9.2.3	60.121(b)	Section 9.2.3 requests identification of legal interests to be obtained. 10 CFR 60.121(b) establishes the requirements including legal interests for areas to be controlled outside the controlled area. Therefore, this regulation would apply to identification of legal interests to be obtained.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
516		9.2.3	60.121(c)	Water rights are specifically mentioned in Section 9.2.3 as among the interests to be obtained by DOE. 10 CFR 60.121(c) requires that DOE obtain water rights as may be needed and that water rights are included in the additional controls to be established outside the controlled area.
517		9.3	60.121(a)	Section 9.3, Plans for Regulating Land Use at the GROA, requests a description of interests in land regarding restricted areas and access controls to protect individuals from radiation exposure. The legal requirements contained in 10 CFR 60.121(a) must be met regarding regulating land use in the context of establishing restricted areas.
518		9.3	60.131(a)(5)	Section 9.3, Plans for Regulating Land Use at the GROA, requests a description of interests in land regarding restricted areas and access controls to protect individuals from radiation exposure. 10 CFR 60.131(a)(5) states the requirement that the GROA design shall include "Means to control access to high radiation areas or airborne radioactivity areas." Section 9.3 addresses part of this regulatory requirement.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
519		9.3	60.21(c)(15)(vii)	Section 9.3, Plans for Regulating Land Use at the GROA, requests a description of interests in land regarding restricted areas and access controls to protect individuals from radiation exposure. 10 CFR 60.21(c)(15)(vii) discusses plans for uses of the GROA for purposes other than disposal of radioactive wastes. These other purposes (if any) must be considered in Section 9.3, "plans for regulating land use at the GROA."
520	60.21(c)(15)(vi)	9.3	60.21(c)(15)(vi)	
521	60.21(c)(8)	9.3	60.21(c)(8)	
522		9.3	60.32(a)	Section 9.3, Plans for Regulating Land Use at the GROA, requests a description of interests in land regarding restricted areas and access controls to protect individuals from radiation exposure. 10 CFR 60.32(a) prescribes that the construction authorization shall include such conditions as the Commission finds to be necessary to protect the health and safety of the public.... Regulating land use may be part of these conditions.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
523		9.3	60.43(b)(5)	Section 9.3 requests information on plans for regulating land use at the GROA. 10 CFR 60.43(b)(5) addresses conditions of the license specification that include controls to be applied to restricted access. The NRC will use the information provided in Section 9.3 for part of the license specifications regarding restricted access.
524		9.3	60.46(a)(3)	Section 9.3 requests information on plans for regulating land use at the GROA. 10 CFR 60.46(a)(3) addresses changes to access restrictions and such changes will require license amendment.
525		9.3	60.51(a)(2)	Section 9.3 requests information on plans for regulating land use at the GROA. 10 CFR 60.51(a)(2) states that the license amendment for permanent closure shall include a detailed description of measures to be employed - such as land use controls - to regulate or prevent activities that could impair the long-term isolation of emplaced waste.... Plans for land use controls after closure would be covered in Section 9.3.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
526		9.3	60.75	<p>Section 9.3 requests that DOE define the lands and areas available to the Commission to carry out inspection activities.</p> <p>10 CFR 60.75 defines the requirements for inspections by the NRC. These inspection requirements are necessary to define areas to be made available to the Commission for inspections.</p>
527		10.0	60.131(a)	<p>Radiological protection [10 CFR 60.131(a)] is specifically referenced in the introduction to Chapter 10. The draft regulatory guide states that Chapter 10 "should describe the QA program to assure compliance with those aspects of 10 CFR 60.131(a) that apply to items (e.g., protection of worker health and safety) other than those important to safety or waste isolation...."</p>
528		10.0	60.150	<p>The scope of the QA program as defined in Part 60 [10 CFR 60.150] would be discussed in the introduction to Chapter 10 in accordance with guidance provided in the draft regulatory guide.</p>
529		10.0	60.151	<p>The applicability of the QA program, 10 CFR 60.151, would be discussed in the introduction to Chapter 10 as outlined in the draft regulatory guide.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
530		10.0	60.152	The requirement that DOE implement a QA program based on Appendix B of 10 CFR 50 is fundamental to the discussion of the QA program and would be discussed in the introduction to Chapter 10.
531		10.1		
532	60.150	10.1.1	60.150	
533	60.151	10.1.1	60.151	
534	60.152	10.1.1	60.152	
535		10.1.1	60.17(a)(2)(v)	Section 10.1.1 requests a description of the QA program applied during site characterization. 10 CFR 60.17(a)(2)(v) requires that the SCP contain "Plans to apply quality assurance to data collection, recording and retention." It is important that the description of the QA program in the license application clearly identifies differences from the original QA plans presented in the SCP, specifically addressing the QA concerns by the NRC in the SCA.

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
536		10.1.1	60.21(c)(4)	Section 10.1.1 requests a description of the QA program applied to activities affecting quality during site characterization. 10 CFR 60.21(c)(4) requires that the Safety Analysis Report contains "A description of the quality assurance program to be applied to ... the engineered and natural barriers important to waste isolation." Section 10.1.1 satisfies part of this requirement pertaining to the natural system during characterization.
536 7	60.150	10.1.2	60.150	
538	60.151	10.1.2	60.151	
539	60.152	10.1.2	60.152	
540	60.21(c)(4)	10.1.2	60.21(c)(4)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
541		10.1.2	60.31(a)(3)	Section 10.1.2, QA Program for Design and Construction, requests a description of the QA program that will be applied to the items important to safety and isolation. 10 CFR 60.31(a)(3) states that the Commission may authorize construction if it determines that "The DOE's quality assurance program complies with the requirements of Subpart G of this part." It is important that this section be structured to clearly demonstrate how compliance with Subpart G will be achieved during the construction phase and, as stated in the draft regulatory guide, "to enable the NRC staff to determine whether and how all the applicable requirements of Appendix B to 10 CFR Part 50 will be satisfied." NRC decisions and actions pertinent to the subject of this Section should be included as a regulatory reference in the cross-index. It is important to know how this information will be used by the NRC to properly write and structure this section.
542	60.150	10.1.3	60.150	
543	60.151	10.1.3	60.151	
544	60.152	10.1.3	60.152	
545	60.21(c)(4)	10.1.3	60.21(c)(4)	

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
546	60.150	10.1.4	60.150	
547	60.151	10.1.4	60.151	
548	60.152	10.1.4	60.152	
549	60.21(c)(4)	10.1.4	60.21(c)(4)	
550		10.2	60.150	<p>The purpose of this section is to demonstrate to the NRC that compliance with QA requirements was achieved for site characterization activities. 10 CFR 60.150 states that quality assurance "comprises all those planned and systematic actions necessary to provide adequate confidence" Discussion of audits and surveillance requested by the draft regulatory guide in this Section are part of that overall "confidence" stated in the regulation and therefore 10 CFR 60.150 should be referenced in the cross-index for this section.</p>
551		10.2	60.151	<p>Typographical error in Appendix A of the draft regulatory guide. 10 CFR 60.151 applies to Section 10.2, not to 10.2.1. Section 10.2.1 does not exist in the draft regulatory guide.</p>

Enclosure 2

#	Present FCRG Appendix A	FCRG Section	Proposed FCRG Appendix A	Comments
552		10.2	60.152	Typographical error in Appendix A of the draft regulatory guide. 10 CFR 60.152 applies to Section 10.2, not to 10.2.1. Section 10.2.1 does not exist in the draft regulatory guide.
553	60.152	10.2.1		Typographical error; see Section 10.2 above.
554	60.151	10.2.1		Typographical error; see Section 10.2 above.
555	60.21(c)(9)	11	60.21(c)(9)	
556	Subpart I	11	Subpart I	