DUKE COGEMA
STONE & WEBSTER

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

22 November 2002
DCS-NRC-000120

Subject: Docket Number 070-03098
Duke Cogema Stone & Webster
Requests for Additional Information, Clarifications, and Open Item Mapping into the Construction Authorization Request Revision

Reference: 1) R. H. Ihde (DCS) to Document Control Desk (NRC), *Duke Cogema Stone & Webster Mixed Oxide (MOX) Fuel Fabrication Facility Construction Authorization Request Revision*, DCS-NRC-000114, 31 October 2002

In an effort to facilitate the review of the revised Construction Authorization Request Revision (CAR) identified in Reference 1, Duke Cogema Stone & Webster (DCS) has developed a series of tables that map the responses to Requests for Additional Information (RAIs), subsequent clarifications, and Open Items to the CAR Revision. These tables are enclosed for your use.

Enclosure 1 contains three tables that "map" DCS responses to the NRC's RAIs to the revised CAR. These tables identify the status of each RAI response as: (a) RAI response incorporated in the CAR; (b) RAI response still valid but information not incorporated into the CAR; and (c) RAI response no longer valid. Enclosure 2 similarly "maps" DCS' responses to NRC's subsequent clarification requests, using the same identification method. Enclosures 1 and 2 also identify (for those responses incorporated into the CAR revision) where the CAR has been modified to incorporate the response, as appropriate.

Enclosure 3 similarly identifies where Open Items identified by the NRC Staff in the Draft Safety Evaluation Report have been addressed in the CAR. This enclosure is also divided into three tables: (a) information incorporated into the CAR; (b) items either requiring clarification from the NRC or requiring no action; and (c) items that are still open.

DCS has made progress in providing information we believe will address more DSER open items than anticipated in previous correspondence. While in some instances they represent more than one DSER open item each, the items that remain open have been reduced to five topics for which additional information will be provided no later than January 2003: Financial, Criticality, HAN/Hydrazine, Solvents and HEPA Filters. DCS continues to work toward providing responses to these open items in time for incorporation in the revision of the Draft Safety Evaluation Report, and will continue to work with the Staff to provide this information in as timely a manner as practical.

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NMSS01

If I can provide any additional information, please feel free to contact me at (704) 373-7820.

Sincerely,

Peter S. Hastings, P.E.
Manager, Licensing and Safety Analysis

Enclosures:
1) Request for Additional Information Response Map to the CAR Revision
2) Request for Clarification Response Map to the CAR Revision
3) Draft SER Open Item Map to the CAR Revision

xc (with enclosures):
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Sterling M. Franks, III, NNSA/SR
Joseph G. Giitter, USNRC/HQ
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Enclosure 1

Request for Additional Information Response Map to the CAR Revision

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
003	1.1.2.1	Complete the description of the 10 CFR 70.61(f) protocol described in Section 1.1.2.1 to include members of the public who are in the controlled area and outside the Savannah River Site F Area.
007	1.2.4.2	Address the requirements in 10 CFR 70.17 in an exemption request applicable to using DOE authority under the Price Anderson Act for liability coverage.
012	1.3.6.6	Provide the following items for the (PSHA): a. PSHA inputs b. Integrated PSHA hazard curves at several important frequencies c. Magnitude-distance desegregation results. d. Uniform hazard spectra for both rock and soil surfaces.
013	1.3.6.3.6.1	Clarify whether updated PSHA has been or will be conducted for the MFFF site that accounts for soil properties derived from geological, geophysical, geotechnical, and seismic investigations that are specific to the MFFF site.
014	1.3.6.6, 1.3.6.3.6.1	Demonstrate that the current site-wide hazard results and Performance Category PC-3 and PC-4 spectra are appropriate for the MFFF site.
015	1.3.6.4.4	Provide soil property data specific to the MFFF site and compare with those used to derive site-wide design spectra for Performance Categories PC-3 and PC-4 documented in Lee, et al. (1997) and for PC-1 and PC-2 documented in Lee (1998).
017	1.3.6.6.4, 1.3.6.7, Figure 1.3.6-23	Demonstrate that the selected MFFF design spectrum envelopes the uniform hazard spectra at the soil surface that is specific to the MFFF site.
018	1.3.6.7, Figure 1.3.6-22	Provide the bases for selecting vertical spectrum as two thirds of the horizontal spectrum at corresponding frequencies.
020	1.3.6.7, Figure 1.3.6-24	Clarify how and why the return periods were evaluated on page 1.3.6-13 of the application.
021	Figure 1.3.6-24	Document how the spectral ground accelerations were converted to velocities as shown in Figure 1.3.6-16.
022	1.3.6.3.6.1	Clarify the description given on page 1.3.6-19 (first paragraph) for Figure 1.3.6-16. It appears that the description given on page 1.3.6-19 is inconsistent with the figure itself.
023	1.3.7.3, Figure 1.3.7-1	Provide technical basis for excluding slope instability hazard, with a detailed topographic contour map (1-ft interval) of the site including the locations of the principal structures, systems, and components (SSCs).

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
024	1.3.7.4, Figure 1.3.7-1	Provide the following items which are related to the effect of the Actinide Packaging and Storage Facility spoil at the site on the principal SSCs.
025	1.3.7.1	Provide analysis on the liquefaction susceptibility of loose subsurface materials at the site.
026	1.3.7.2	Define the lateral extent/boundary of each soft zone identified at the site.
027	1.3.7.2	Clarify the following two statements: a. "Once the location and extent of the soft zones on the MFFF site were identified principal SSCs were relocated to areas of the site found to be free of soft zones" (Section 1.3.5.2, MFFF Site Geology) b. "MFFF principal SSCs were located .to avoid placement directly over significant soft zones." (Section 1.3.7.2, Evaluation of Soft Zones)
033	4.1, 4.2	Provide a full description of the applicant's organization for construction.
034	4.1.9.6, 4.2	Specifically explain the organizational responsibilities, authorities, interfaces, and means of communications for configuration management, in particular change control, during construction, both within DCS and for subcontractors, including those for fabrication, assembly and construction.
035	4.4	Please explain the organizational responsibilities, authorities, interfaces, and means of communications with DOE and Savannah River Site contractor organizations that may affect principal SSCs.
037	Figure 4-1, Figure 4-2	Provide greater specificity in the management organization plan.
038	5.2	Clarify makeup and functions of team.
039	5.4.3	Quantify likelihoods and reliabilities
040	5.4.3, 5.4.5	Unlikely same as double contingency definition of unlikely?
041	5.4.3	Demonstrate how application of the double contingency principle ensures that criticality is "highly unlikely".
042	5.4.4	Members of the public and the environment are considered to be outside the controlled area boundary approximately 5 miles
043	5.4.4.1.1	Explain how the duration of entrainment events is limited in deriving the source term for entrainment events.
044	5.4.4.3	Calculate the effluent concentration ratio without taking credit for the respirable fraction.

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RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
045	5.4.4.1.2	Clarify how dose conversion factors from Federal Guidance Report No. 11 were chosen with due consideration for the chemical forms of radionuclides involved in accident scenarios
046	5.4.4.1.3	Provide the hourly meteorological data for the period from January 1, 1987 through December 31, 1996 that was collected from the H-area meteorological tower.
047	Table 5.5-3a	Explain why high enriched uranium (HEU) is not included in Table 5.5-2 of the application as a hazardous material ("Haz Mat").
048	Table 1.2-1	Resolve the discrepancy between the possession limit for uranium of any enrichment of 3 kg in Table 1.2-1 and that which would be expected to be in the facility based on the "Non-Polished Plutonium Sources" fraction
049	5.5.2.1.6.9	Provide calculations and design bases to demonstrate that passive heat removal is adequate.
050	5.5.2.1, 11.3.2.5	Clarify the events and design bases for the electrolyzer.
051	5.5.2.3.6.3	Clarify whether the 3013 canister is either a principal SSC or a defense-in-depth SSC for protection of the site worker from a load handling event.
052	5.5.2.3.6.3	Clarify whether principal SSCs are applied to protect the site worker from a load handling event involving a MOX Fuel Transport Cask.
053	5.5.2.3.6.3 Table 5.5-19	Resolve the discrepancy between Table 5.5-19, which shows that waste containers are principal SSCs for the protection of site workers only
054	5.5.2.4 6.15	Verify that the delivery of chemicals does not present additional hazards to the facility.
055	5.4.1.2.4	Provide your philosophy/approach for combining independent (and dependent) natural phenomena events as well as natural events that are not "highly unlikely" with process events which are also not "highly unlikely."
056	5.5.2.6.5.5	Provide the rationale for choosing the widely varying annual exceedance probabilities for natural phenomena, for example, tornado (2x10-6) and snow and ice events (1 x10-2)
058	5.5.3.2	Clarify the choice of 6x10-4 as the respirable release fraction (ARFxRF) for the bounding accident consequence assessment in Section 5.5.3.2.
060	5.5.3.5	Describe the "Explosion Event" in more detail.

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RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
061	Table 5.5-1, Table 5.5-2 Table 5.5-3a, Table 5.5-3b,	Provide information to correlate specific events or compartments containing events as identified in Appendix 5A with the radioactive inventory as listed in Table 5.5-2.
062	5.5.1.2 Table 5.5-9, Table 5.5-12, Table 5.5-15, Table 5.5-18	Explain the difference between the events provided in the tables in Appendix 5A and those listed in Tables 5.5-9, 5.5-12, 5.5-15, and 5.5-18.
063	5.5.2 Table 5.5-9, Table 5.5-12, Table 5.5-15, Table 5.5-18	Provide the calculated consequences for all hazard assessment events as listed in Tables 5.5-9, 5.5-12, 5.5-15, and 5.5-18.
064	5.5.2, Table 5.5-10, Table 5.5-13, Table 5.5-16	Provide a description of the training and procedures to be relied on as SSCs and provide estimates of the likelihood of these procedures to be incorrectly followed or to fail to provide the intended mitigation.
065	5.4.3	In addition to information provided in response to the comment above, provide failure or reliability estimates (ranges would be sufficient) for the principal SSCs as listed in Tables 5.5-10, 5.5-11, 5.5-13, 5.5-14, 5.5-16, 5.5-17, and 5.5-19.
066	5.4.5	Describe the safety functions that are allocated directly or indirectly to software components.
067	6.4	Explain the words "as practical" or "as needed" as used throughout this chapter. Provide explicit criteria explaining who makes the determination whether following a design principle is practical or necessary, and how the determination is made.

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RAI #	**CAR Section #**	**Summary of Request for Additional Information**
068	6.1.1	Describe the qualifications and duties of the Nuclear Criticality Safety (NCS) staff during the design phase.
069	6	Revise the application (including pages 6-2 and 6-4) to provide the correct reference to the American National Standards Institute/American Nuclear Society (ANSI/ANS)-8.1 standard. Page 6-2 refers to ANSI/ANS-8.1-1983, when the correct reference should be ANSI/ANS-8.1-1983 (R1988).
070	6.1	Justify the absence of a commitment to ANSI/ANS-8.19-1986, "Administrative Practices for Nuclear Criticality Safety", when describing the commitment to administrative practices in ANSI/ANS-8.1-1983 (R1988). Clarify what is being committed to with regard to administrative practices.
072	6.3.1, 6.3.4.2	On page 6-5, third bullet, define exactly what is meant by the statement, "Where practicable [...]," when referring to the preferred hierarchy of controls. State whether there is a specified procedure for making the determination of practicability
073	6.3.1	On page 6-5, fourth bullet, specify any additional facility management measures that may be used to flow down controlled parameters.
074	6.3.2	Provide a list of those specific areas and/or operations for which an exemption is sought, with justification.
076	6.3.3.1	Clarify under what set of conditions in Section 6.3.3.1 neutron interaction is to be considered.
079	6.3.3.2.4 6.3.3.2.5	Provide a demonstration for the following assumptions: (1) the assumption that the presence of 241Pu can be neglected, in Section 6.3.3.2.4; and (2) the assumption that 1-inch of water can be used to conservatively represent reflection, in Section 6.3.3.2.5.
080	6.3.4.2	Provide a commitment to the effect that two-parameter control is preferred over single-parameter control and show how this principle is applied in Tables 6-1 and 6-2.
081	Table 6-1, Table 6-2	For the Aqueous Polishing Process, for those Criticality Control Units (CCUs) where there is only one control defined, state the design approach to establishing double contingency protection, including whether there will be dual independent controls on the one parameter.
083	Table 6-1, Table 6-2	Several CCUs do not have any parameters identified. Describe the criticality safety design basis for all of these units in more detail.
087	6.3.4.3.1.3	Provide the background calculations demonstrating the conclusion that, "the impact of a variation of these parameters on the calculated effective neutron multiplication factor (keff) is within the uncertainty of the criticality calculation," in Section 6.3.4.3.1.3.
090	6.4	Clarify exactly what ANSI standards and provisions of those standards are included in the commitments in the Application.

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RAI #	CAR Section #	Summary of Request for Additional Information
091	6.4	Define the term "administrative margin" as used in this section, and provide the basis for this margin.
092	6.4	Explain the statement, "To the extent practical, process designs will incorporate sufficient features such that they can be demonstrated to be subcritical under both normal and credible accident conditions."
093	6.4	On page 6-37 of the application, specify how any modifications to the design bases requirements applicable to the design and operation of criticality safety SSCs will be accomplished.
094	6.4	Page 6-38, first paragraph, identify the approved margin of subcriticality that will be used to design nuclear processes.
095	6.4, and throughout, wherever ANS standards appear	Revise the included list of ANSI/ANS standards, and the several references on page 6-39, to provide the correct references.
096	6.4	Update the references in this section to clarify the fact that ANSI/ANS-8.9-1987, "Nuclear Criticality Criteria for Steel-Pipe Intersections Containing Aqueous Solutions of Fissile Materials", has been withdrawn.
097	Table 6-1, Table 6-2	Provide information on the principal criticality parameters in Table 6-1 for the Offgas Treatment Unit, the Liquid Waste Reception Unit, and the Sampling System.
098	Table 6-1, Table 6-2	Revise Tables 6-1 and 6-2 to identify each parameter that is controlled for a given CCU, regardless of whether the control was implemented in an upstream process.
104	Table 6-3, Table 6-4	Clarify the conditions under which the mass limits in Tables 6-3 and 6-4 were determined (e.g., fully or partially reflected).
107	7.2.3.3.1	Discuss the reliability of the selection of pre-action over wet-pipe sprinkler systems where criticality is not a concern.
109	7.4	Analyze the potential for fire spread between two fire areas.
112	11.3.2, 8.5, 5.5.2.10	Clarify the description of chemical process and chemical safety items.
113	8 General	Verify that the chemical listing is complete.
115	5.6.2	Describe chemical storage and handling design bases and associated values, and principal SSCs/IROFSs.

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RAI #	CAR Section #	Summary of Request for Additional Information
116	11.3.2.4	Revise the last sentence of Section 8.1.1.2.1.2.
117	11.3	Describe the nitrous fume oxidation process in Section 8.1.1.2.1.3.
118	5.4.3	Explain the chemical safety controls and provide a target reliability(ies).
119	5.5.2.4.6.5, 8.5.1.4	Describe and explain the administrative controls on hydrogen peroxide.
120	5.5.2.4.6.10, 5.5.2.4.6.11	Describe and explain the administrative controls for hydrazine and the safety limits.
121	11.8, Table 11.8.1 Table 11.8.2	Explain the design approach and design bases to avoid overpressurization of tanks, vessels, and piping.
122	11.9.5.1	Describe and explain the design basis functions and values for avoiding explosions using scavenging air flow.
123	8.5.1.5	Describe and explain the process safety controls for evaporators containing tributyl phosphate (TBP).
124	8.5.1.1, 11.9.2.2.4	Describe and explain the process safety controls for hydrogen and hydrogen/argon gas mixtures.
128	11.4.11.16, 5.5.2.10.6.1	Explain the design bases and controls for asphyxiating gases, such as nitrogen and argon.
129	8.2 Table 8-2a, Table 8-2b, Table 8-2c, Table 8-2d	Provide complete chemical inventory information and verify that these are reasonably conservative values.
130	9.1.2.4.1	Compare the quantitative values of the internal component of predicted occupational doses to values already provided for the external (direct) radiation component.

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RAI #	**CAR Section #**	**Summary of Request for Additional Information**
131	Table 9-3	In Table 9-3, add the concentration of plutonium-241 in the column for 0 year "Radiological Isotopic Composition."
132	Table 9-3	Explain why the concentration of plutonium-242 shown in Table 9-3 increases from 0.001 grams Pu/Pu+Am at 0 years to 0.01 grams Pu/Pu+Am at 40 years, then decreases to 0.001 grams Pu/Pu+Am at 70 years.
133	9.1.5	Clarify the description of design goals provided in section 9.1.5, "Shielding Evaluations" (second full paragraph on p. 9-21
134	Table 9-2	Update the MELOX Event INES Ratings described in Table 9-2 to include the most recent INES Level 1 event in March 2001.
135	10.1.4.1.1, 11.3.2.14	Explain and describe the high alpha waste buffer storage.
136	11.1.3.1	Indicate the significance (in terms of fire) of the "membrane top" or "engineered fill material" atop the roof slab in the MFFF.
137	5.4.3	Provide the design basis information, including reliabilities, for SSCs in the aqueous polishing area.
138	11.3 General	Check and revise as necessary the use of the word "analyte"
140	11.3 General Figure 10-1	Explain the flow path and disposition of the impurities (primarily americium, gallium, and uranium) in the plutonium.
141	5.5.2.1.6, 5.5.2.1.6.4	Explain the corrosion allowance and control in the electrolyzer and the dissolution unit.
142	11.3.2.11, 11.3.2.13	Provide a description of the aqueous processing system offgas filtration system referred to as the "filtering line."
143	11.3.2.14	Explain and describe the liquid and LLW process units.
144	11.2.2.16	Provide a discussion of how the confinement system concepts in this section are applied to the sintering furnace. Requested justification for not enclosing the furnaces in gloveboxes.
145	11.4.2.6.3	In the list of components for the Supply Air System, clarify the type of filters used in the "filter bank."
146	11.4.9	Explain the philosophy of the fire protection of the final filtration units.
147	11.4.2.2.2	Describe the in-place testing provisions applicable to HEPA filters located at the glovebox interfaces and at C3 boundaries.
149	Figure 11.4-11	Clarify the design capacities for the High Depressurization Exhaust System.

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RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
150	11.5.2.3.1	Provide justification for using only one 7-day fuel tank for the emergency diesel generators (EDGs) and why a larger tank size is not needed for the limiting design basis event.
151	11.5.2.4	Provide a discussion for the MOX communication systems.
152	11.5.2.5, 11.6.7, 11.5.7.1, 11.5.7.2	Discuss commitments to maintenance and periodic testing standards for electrical and Instrumentation and Control (I&C) SSCs.
153	11.5.7.1	Discuss DCS's lack of commitment to IEEE Standard 944-1986, "IEEE Recommended Practice for the Application and Testing of Uninterruptible Power Supplies for Power Generating Stations."
154	11.5.7.2	Discuss DCS's lack of commitment to IEEE Standard 946-1985, "IEEE Recommended Practice for the Design of Safety-Related DC Auxiliary Power Systems for Nuclear Power Generating Stations."
155	11.5.6.1, 11.6.6, 11.6.7	Discuss compliance with IEEE Standard 665-1987, "Guide for Generating Station Grounding." Discuss how the DCS commitment to IEEE Standard 1050-1996, "Guide for Instrumentation and Control Equipment Grounding in Generating Stations," meets the guidance provided in Regulatory Guide 1.180, "Guidelines for Evaluating Electromagnetic and Radio-Frequency Interference in Safety-Related Instrumentation and Control Systems."
162	11.5.7.2, 11.5.6.3	Discuss DCS's lack of commitment to IEEE Standard 484-1975.
163	11.5.7.2, 11.5.6.3	Discuss DCS's choice of IEEE Standard 485-1992, "IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications," and discuss any significant difference (applicable to MOX) between this version and the 1997 version.
164	11.6.3.3.3	Discuss specific design considerations used in the MOX facility to minimize the effects of smoke on digital instrumentation and control components.
165	11.6.7	Describe the method of data communications independence as related to isolation of the safety control circuits and other circuits.
166	11.6.7	Describe the planned degree of conformance with the specific criteria of IEEE Standard 4-7.4.3.2-1993, "IEEE Standard Criteria for Digital Computers in Safety Systems of Nuclear Power Generating Stations," for the software programmable systems used in safety control subsystems.

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RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
167	11.6.7	Describe how the system hazards that the software components are expected to handle will be included in the requirements for the software components.
168	11.6.7	Describe what methods, practices, or standard(s) that will be used for the software design documentation.
169	11.6.7	Describe the methods, practices or standard(s) under which previously developed software or purchased software involved in safety functions will be controlled, reviewed, verified and validated.
170	11.6.7	Describe the methods, practices or standard(s) that will be used for the software programming language(s) involved in safety applications.
171	11.6.7	Describe the planned application of IEEE 1074-1997 to the life cycle processes of the application software for the digital computers used in safety systems.
172	11.6.7	Clarify the degree of DCS's commitment to standards and codes.
173	11.6.7	Discuss any significant difference (applicable to MOX) between IEEE Standard 603-1998, "IEEE Standard Criteria for Safety Systems for Nuclear Power Generating Stations," and the 1991 version of this standard. Discuss how the DCS commitment to IEEE Standard 603-1998 meets the guidance provided in Regulatory Guide 1.153, "Criteria for Safety Systems."
174	11.6.7	Discuss any significant difference (applicable to MOX) between IEEE Standard 828-1998, "IEEE Standard for Software Configuration Management Plans," and the 1990 version of this standard. Discuss how the DCS commitment to IEEE Standard 828-1998 meets the guidance provided in Regulatory Guide 1.169, "Configuration Management Plans for Digital Computer Software Used in Safety Systems of Nuclear Power Plants."
175	11.6.7	Discuss any significant difference (applicable to MOX) between IEEE Standard 830-1998, "IEEE Standard Recommended Practice for Software Requirements Specifications," and the 1993 version of this standard. Discuss how the DCS commitment to IEEE Standard 830-1998 meets the guidance provided in Regulatory Guide 1.172, "Software Requirements Specifications for Digital Computer Software Used in Safety systems of Nuclear Power Plants."
176	11.6.7	Discuss any significant difference (applicable to MOX) between IEEE Standard 1012-1998, "IEEE Standard for the Software Verification and Validation," and the 1986 version of this standard. Discuss how the DCS commitment to IEEE Standard 1012-1998 meets the guidance provided in Regulatory Guide 1.168, "Verification, Validation, Reviews, and Audits for Digital Computer Software Used in Safety Systems of Nuclear Power Plants."
177	11.6.7	Discuss any significant difference (applicable to MOX) between IEEE Standard 1028-1997, "IEEE Standard for Software Reviews," and the 1988 version of this standard. Discuss how the DCS commitment to IEEE Standard 1028-1997 meets the guidance provided in Regulatory Guide 1.168.

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RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
178	11.6.7	Discuss any significant difference (applicable to MOX) between IEEE Standard 1074-1997, "IEEE Guide for Developing Software Life Cycle Processes," and the 1995 version of this standard. Discuss how the DCS commitment to IEEE Standard 1074-1997 meets the guidance provided in Regulatory Guide 1.173, "Developing Software Life Cycle Processes for Digital Computer Software Used in Safety Systems of Nuclear Power Plants."
179	11.6.7	Discuss the use and qualification of isolation devices for the MOX facility in light of the guidance contained in BTP HICB-11 in NUREG-0800.
180	11.6.7	Discuss how the DCS commitment to Instrument Society of America (ISA) 67.04.01-2000, "Setpoints for Nuclear Safety-Related Instrumentation," meets the guidance contained in BTP HICB-12 of NUREG-0800 and Regulatory Guide 1.105, "Instrument Setpoints for Safety-Related Systems."
181	11.6.7	Discuss the self-test and surveillance test provisions for MOX instrumentation and control systems in light of BTP HICB-17 contained in NUREG-0800.
182	11 6.6, 11.6.7	Discuss the use of programmable logic controllers (PLCs) for MOX instrumentation and control systems in light of BTP HICB-18 contained in NUREG-0800.
183	11.10.7, 11.7.3, 11.7.2.1-11.7.2.5,	Provide a list of specific material handling equipment identified as principle structures, systems, or components (SSCs) and its location in the facility.
184	11.7.1, 11.7.4, 11.7.7	Describe the capacity of the material handling equipment during normal operating and accident conditions.
185	11.7.3	Other than the structural design of the system that would prevent failure of the material handling equipment during an event, clarify if other redundancy or diversity in material handling system components is provided to prevent a failure of the system that could lead to a confinement breach.
186	11.7.7	Describe the material handling equipment design bases intended to prevent breaches in the glovebox boundary as a result of the normal or off-normal operation of the system. Clarify the statement in Table 5.5-16 regarding the use of "engineered equipment" to prevent material handling equipment from impacting gloveboxes.
187	11.7.4	Identify and describe any material handling equipment that is provided with emergency power, if any.

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RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
188	11.7.6	Describe how the material handling equipment is designed to minimize buildup of plutonium, uranium, or MOX dust and debris in the transport systems.
189	11.7.6	Provide design basis decontamination characteristics for the material handling equipment.
190	Table 11.8-2	Describe the design basis for the fluid transport systems. Provide the design pressures and capacities of the fluid transport systems.
191	11.8.5, 11.8.7, Table 11.8-2	For all fluid transport systems, if a safety function is preventing back-flow into auxiliary systems, describe the applicable design criteria such as type and configuration of check valves.
192	11.8.3.4	Discuss the use of traps in the fluid transport system where buildup of solids could occur. If they exist, describe where they are located and what measures will be taken to minimize the buildup of solids in the system.
193	11.8.2	List parts of fluid transport systems for wet processing operations that do not meet the recommendation that wet processing operations involving gram quantities of plutonium or 50 micrograms or more of respirable plutonium be conducted in a glovebox.
194	11.9.3.12	Clarify where in the application decontamination characteristics are addressed.
195	11.8.6	Clarify the design bases for non-principal SSCs and any impact these might have upon principal SSCs/IROFSs
196	11.9 (Basically all thru 11.9)	Provide information on the chemical double isolation valves and backflow prevention.
197	11.9.1.2.2	Regarding the process chilled water system, describe how in-leakage of contaminated coolant from intermediate heat exchangers would be detected. If no means of detection is provided, provide the basis for this design configuration.
198	11.9.1.1.3, 11.9.1.2.2, 11.9.1.2.3, 11.9.1.4.2, 11.9.1.5.2	Regarding the process condensate system and the plant water system and other similar systems, describe the potential for chemical/radiological contamination of piping and components.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
199	11.9.1.7.2	Regarding the Emergency Diesel Generator (EDG) Fuel Oil System, explain if the exhaust system silencer/piping is an industry "standard design" rated for indoor use. Describe the industry standards. Describe the design basis criteria that the exhaust system meet to ensure the impact on operations or maintenance is minimal during EDG operation. Describe filtration of the diesel fuel oil. Describe how that is accomplished. Describe the criteria for the filters that will be used.
200	11.9.1.10, 11.9.5.1	Regarding the Instrument Air System, explain the basis for the 7-day emergency scavenging air supply. Describe the basis for the sizes of the 10-minute and 1-hour receivers/buffer tanks.
201	11.9.1.10	Regarding the Instrument Air System, identify any parts or functions of the system that are part of or support the "glovebox pressure controls."
205	11.9.5.1, 11.8.7	Provide design basis information and commitments for the "Fluid Systems" presented in Section 11.9.
206	5.6.2.1	Describe the integration of the different Fluid Systems presented in Section 11.9.
207	11.9.2.1	Provide additional design basis information on the nitrogen system.
208	11.9.2.2	Provide additional design basis and IROFS information on the argon/hydrogen system.
209	11.9.2	Provide additional design basis and IROFS information on the helium system.
210	11.9.2	Provide additional design basis information on the oxygen system.
211	11.9.3, 11.8.7	Provide additional design basis and IROFS information on the nitric acid systems.
212	11.9.3.1.2	Assess the potential safety concerns and any safety requirements that might be associated with the pressurized 6N nitric acid tank.
213	11.9.3.10.2	Describe the mixing of concentrated hydrazine hydrate and nitric acid.
214	11.9.4	Clarify the design bases for non-principal SSCs and any impact these might have upon principal SSCs/IROFSs
215	5.6.2.1	Explain the separation of incompatible chemicals.
216	11.10	Verify that there are no unidentified heavy lift applications, other than in the fresh fuel cask shipping area, including any cranes or hoists used for maintenance activities in the facility or on the MFFF grounds.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
217	5.6.2.3, 11.10.7	Discuss how heavy lift crane(s) are prevented by design, interlocks, or administrative controls, from moving over safety, confinement, and other principle SSCs.
223	11.11.2, 5.6.2.7, Table 11.11-1, Table 11.11-2	Clarify the design basis for safety in the Laboratory.
224	12.2	Discuss the human factors/human performance activities associated with maintenance of automated systems used in the MFFF, and identify any safety significant human-system maintenance interfaces.
225	12.1	Describe the criteria and basis used for determining that the protective control subsystem does not constitute a significant human-system interface. Define what "significant" means.
227	12.1	The applicant states that "in general, omission of an operator action does not result in adverse conditions, and that errors in operator actions are generally expected to be bounded by other deterministic design basis accident assumptions." Clarify what is meant by "in general," and describe by example what the other deterministic design basis assumptions are.
229	12.2.1	Identify and describe what "facility baseline design" means, or cross-reference to other appropriate Chapter(s) of the application.
230	12.1	Identify and describe the aspects of the design that reduce the risk of errors or challenges to principal SSCs, and how these aspects are evaluated.
231	12.3	Describe, by example, how operating experience of the La Hague and MELOX facilities is incorporated in the MFFF design process. Provide lessons-learned evaluations that show how the MFFF as a next generation facility effectively incorporates this operating experience.
232	12.2.3.2	The applicant indicated in the April 25, 2001, meeting with the NRC staff, that it would use both NUREG-0700, Rev. 2, and the referenced NUREG/CR reports in both preliminary and final design. The applicant should verify this commitment.
233	12.3	Clarify what is meant by "no additional formal operating experience review is anticipated," for the MFFF based on the operational experience at the La Hague and MELOX facilities previously incorporated in the MFFF design. Lessons-learned from operating experience should be a continuing activity throughout construction, detailed design, and operation.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

RAIs Incorporated in the CAR Revision		
RAI #	**CAR Section #**	**Summary of Request for Additional Information**
238	15.1.8	Discuss the application and implementation of 10 CFR 21 requirements and procedures on the MOX project activities before operation, including MOX facility construction and design and MOX fuel design and qualification activities. Also explain why only IROFS SSCs and not QL-2 SSCs would be subject to 10 CFR 21 requirements.
239	15.2	Discuss how the commitment to configuration management application during design and construction for establishing and controlling the design bases includes all SSCs, not just principal SSCs and IROFS.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

Valid RAIs Not Incorporated in the CAR*	
RAI #	**Summary of Request for Additional Information**
001	Revise the description of workers who are outside the mixed oxide fuel fabrication facility (MFFF) restricted area but within the controlled area boundary of Section 1.1.2.1 to state that these workers are deemed to be "members of the public."
002	Revise the description of the controlled area boundary to include only those areas to which Duke Cogema Stone & Webster (DCS) can limit access for any reason.
004	Provide information on the presence and operations of any other companies on the site. If no such companies or operations are applicable, the application should so state.
005	Specify the location where radioactive solid waste is sorted, packaged or stored until transferred to DOE facilities.
006	Address the requirements in 10 CFR 70.17 in an exemption request applicable to the submittal of a decommissioning funding plan.
008	Revise Section 1.3.2.1.2 which states "There are no facilities or populations within 5 mi (8 km) of the MFFF site that are not part of the Savannah River Site complex," to include the 1,400 acre Three Rivers Solid Waste Authority landfill.
009	Provide the maximum rotational speed (Vrot), the maximum translational speed (Vtr), the radius (Rm) of maximum rotational speed in the Table 1.3.3-7, and the equations for atmospheric pressure change (APC) and the rate of APC in the Table 1.3.3-8.
010	Provide the justification for the missile criteria in Table 1.3.3-8.
011	Justify the straight-line wind speeds in Table 1.3.3-7.
016	Provide references that document the modification of the Savannah River Site site-wide Performance Category PC-3 spectrum developed in Lee, et al. (1997) to that used in WSRC Engineering Standard 01060 (WSRC 1999a).
019	Provide the following items with regard to ground motion modeling: a. Details of input and output. b. Description of approaches used to account for uncertainties. c. Results that show sensitivities to important input parameters. d. Documentation on how the ground motion prediction models were used .
028	Provide an analysis on soft zones regarding: a. Mechanical and strength properties. b. Potential load increase due to static and seismic design loads. c. Deformations that may result from static and dynamic foundation loading. d. Structure settlement that may result from the deformations of the soft zones to critical structures.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

Valid RAIs Not Incorporated in the CAR*	
RAI #	**Summary of Request for Additional Information**
029	Provide the following references to facilitate review of the application
030	Provide information on project costs.
031	Provide financial statements and Securities and Exchange Commission Report 10-K applicable to fiscal year 2000. If no Report 10-K is required, provide such a statement.
032	Explain experience requirements.
036	Indicate responsibility for fire protection.
059	Justify the use of a leak path factor of 10-4 for two banks of HEPA filters under accident conditions.
071	State whether the Nuclear Criticality Safety Evaluations (NCSEs) will be completed and submitted to the NRC prior to construction. Justify your response.
075	Describe whether CAAS detectors will be gamma or neutron detectors or whether they will provide dual alarm coverage of all non-exempt areas. Dual alarm coverage is required under 10 CFR 70.24. This information does not appear to be provided in the application. The CAAS is one of the principal SSCs of the facility mitigating the consequences of a criticality accident.
077	Explain the special status afforded to fixed neutron absorbers in Section 6.3.3.1 and state whether the use of other types of neutron absorbers are considered
078	In Section 6.3.3.2, "Available Method of Control", for all controlled parameters (especially mass, volume, and geometry), commit to consider the most reactive combinations of tolerances on the dimensions and material specifications
082	Explain whether the physicochemical forms discussed are controlled programmatically in the same manner as other criticality control modes. Describe why they have been separated out and how they are treated differently than other parameter limits, if any.
084	Describe the design philosophy for excluding concentrated plutonium solution from these units. Three CCUs–the Solvent Recovery Unit, Acid Recovery Unit, and Silver Recovery Unit–are expected to have low concentrations of plutonium under normal conditions. However, the process description refers to concentration mechanisms (i.e., evaporators) that could result in a higher plutonium concentration.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

Valid RAIs Not Incorporated in the CAR*	
RAI #	**Summary of Request for Additional Information**
085	Describe at what point in the aqueous polishing process low concentrated waste will be transferred from favorable to unfavorable geometry, and describe the design philosophy for preventing its occurrence. (Section 11.3.2.13 describes a sampling system, but it is not clear whether this is credited for preventing this type of hazard or how it is used.)
086	For the Aqueous Polishing Process, where concentration control is credited for criticality safety, describe the design philosophy for ensuring that concentration measurements are representative
088	Describe what statistical techniques will be used to benchmark the criticality codes for regions where there is little available experimental data.
089	Describe the specific sets of benchmark experiments that will be used to validate criticality codes in the different neutron energy ranges, and especially, in the intermediate energy range
099	Revise Tables 6-1 and 6-2 to correspond to the Process Description or otherwise provide a method for cross-referencing these data.
100	Add information regarding the criticality control modes for the following areas
101	Explain the following footnotes in Table 6-2: a. Parameter value ranges indicated are selected for use in criticality design calculations to encompass credible optimum conditions without reliance on process variable controls. b. Reflection and interaction addressed by geometry control. c. ...Clad characteristics guaranteed by supplied (Describe how this is confirmed.)
102	In Tables 6-1 and 6-2, describe what criticality control mode corresponds to reliance on the relative proportion of PuO2 and UO2 powder.
103	Provide the technical basis and/or references for the single-parameter limits in Tables 6-3 and 6 4.
106	Include discussion of fire prevention features for the Secured Warehouse Building.
108	Provide the analysis portion of the preliminary Fire Hazard Analysis
110	Provide additional data in terms of the type, form and quantity of hazard.
156	Discuss any significant difference (applicable to MOX) between IEEE Standard 387-1995, "IEEE Standard Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations," and the 1984 version of this standard.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

Valid RAIs Not Incorporated in the CAR*	
RAI #	Summary of Request for Additional Information
157	Discuss any significant difference (applicable to MOX) between IEEE Standard 308-1991, "IEEE Standard Criteria for Class 1E Power Systems for Nuclear Generating Stations," and the 1974 version of this standard. Discuss how the DCS commitment to IEEE Standard 308-1991 meets the guidance provided in Regulatory Guide 1.32, "Criteria for Safety-Related Electric Power Systems for Nuclear Power Plants."
158	Discuss any significant difference (applicable to MOX) between IEEE Standard 323-1983, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations," and the 1974 version of this standard.
160	Discuss any significant difference (applicable to MOX) between IEEE Standard 379-1994, "IEEE Standard Application of the Single Failure Criterion to Nuclear Power Generating Station Safety Systems," and the 1988 version of this standard.
161	Provide discussion/justification for deviations (applicable to MOX) from the minimum separation distances specified in Regulatory Guide 1.75, "Physical Independence of Electric Systems."
202	Regarding the Radiation Monitoring Vacuum System (RMVS), describe how a failure in the RMVS be detected. Describe any alarms and where they would display if provided.
203	Regarding the Nitric Acid System and all other applicable reagent systems in the MFFF, the descriptions of the tanks generally contain actions/contingencies for low tank level. Describe the design basis to protect against high tank level or overfill.
218	Assess the number of lifts of a fresh fuel cask container in any year and estimate the total percent of time during a lift a container could be above a principle SSC.
219	Discuss similar crane design and operating experience, including significant accidents, at LA Hague and Melox facilities.
220	Clarify the location of the fresh fuel cask shipping area crane and discuss whether it should comply with ANSI/National Fire Protection Association (NFPA)-780-1986 standard for lightning protection for cranes.
221	Evaluate the differences between the application-referenced design standards and those discussed in NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," for the following standards
222	Clarify the statements regarding the drop of a heavy load in Table 5A-6 and Table 5A-7 for events RD-6 and AS-8, respectively.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

Valid RAIs Not Incorporated in the CAR*	
RAI #	**Summary of Request for Additional Information**
226	Describe how staff are alerted to undesirable conditions at control stations that are not normally staffed, and what criteria are used to decide when appropriate operations staff need to be at these remote locations for appropriate and timely response.
228	Verify the commitment to use NUREG-0711 to guide their human factors design basis development work during construction and evaluate the revision to IEEE 1023.
231	Summarize significant events involving human performance as part of the review of operating experience at the MELOX and La Hague that were discussed at the meeting
234	Amplify the application and definitions of Quality Levels (QL) presented in the Section 15.1 of the application. Also, provide a full description of the methods for grading the application of quality assurance (QA) controls for various QLs.
235	Clarify what is meant in MPQAP Table 2-1 by "a condition compromising criticality safety", and explain the differences or discrepancies between this statement and the CAR Section 15.1.6.2 statement regarding SSCs whose single failure can directly result either in a criticality.
236	Discuss the meaning and use of the QL-3/QL-1 boundary flags on drawings. Identify which components are QL-1 and which are QL-3 on drawings such as that in Figure 11.4-11 of the application.
237	Provide justification for classification of the criticality monitoring and criticality alarms as QL-2 and not QL-1.

* The response could remain valid but not be incorporated into the CAR for several reasons (level of detail was deemed to be inappropriate for inclusion in the CAR, it provided a justification or information for a general understanding of the SSC, etc...

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

RAIs No Longer Valid		
RAI #	**Summary of Request for Additional Information**	**Comment on Response Status**
057	Provide the basis of the statement that the impacts of explosions in F area are bounded by the impacts accounted for in the MFFF structures for safeguards and security reasons	This analysis is being updated/finalized based on new data from WSRC, detail changes are expected, however, no changes to the design basis is foreseen.
105	Clearly identify the types of equipment and/or processes in each fire area.	As a result of Alternate Feedstock modifications some of the fire areas have moved or equipment has been relocated, therefore, the detailed information provided has been superceded. The methodology and basic understanding provided by the response is accurate, however, some of the details have changed.
111	Provide additional information on chemical safety.	The information provided in the response was a snapshot of design detail at the time of the request. As design has developed some of the information has been modified, however, the design basis of the systems remain as reflected in the CAR.
114	Include mass and energy balances, and an estimate of daily usage of the chemicals and reagents, at least down to the individual unit level.	The information provided in the response was a snapshot of design detail at the time of the request. As design has developed some of the information has been modified, however, the design basis of the systems remain as reflected in the CAR.
125	Describe and explain the process safety controls for hydroxylamine nitrate (HAN)/hydrazine temperature and flow limits.	This is tied to DSER Open Item # CS-2 and CS-3, therefore, DCS will provide new information as part of the response to the Open Item.
126	Describe and explain the process safety controls for solvent temperature limits.	This is tied to DSER Open Item #CS-9, therefore, DCS will provide new information as part of the response to the Open Item.
127	Provide the chemical process safety design basis for the offgas treatment unit.	This is tied to DSER Open Item #AP-8, therefore, DCS will provide new information as part of the response to the Open Item
139	Provide more information on principal SSCs/IROFSs for chemical safety and the corresponding operating ranges and limits.	The information provided in the response was a snapshot of design detail at the time of the request. As design has developed some of the information has been modified, however, the design basis of the systems remain as reflected in the CAR.

REQUEST FOR ADDITIONAL INFORMATION RESPONSE MAP TO CAR REVISION

RAIs No Longer Valid		
RAI #	**Summary of Request for Additional Information**	**Comment on Response Status**
148	Provide the design soot loading analysis to support the functioning of the HEPA filter units during fire scenarios.	This is tied to DSER Open Item #FS-1, therefore, DCS will provide new information as part of the response to the Open Item
204	Discuss the potential hazards associated with gas cylinders and any needed safety controls.	The information provided in the response was a snapshot of design at the time of the request. As design has developed some of the information has been modified, however, the design basis of the systems remain as reflected in the CAR.

Enclosure 2

Request for Clarification Map to the CAR Revision

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #1 #01	11.10	The response to the NRC's RAI indicates that operating experience at MELOX and La Hague has been incorporated into the design and operation of cranes at those facilities, but does not state whether this operating experience will be incorporated at the MFFF.
Ltr #1 #02	11.8.2	With respect to equipment that may contain greater than or equal to 50 micrograms of respirable plutonium that is not in a glovebox, clarify the relationship between plutonium and respirable plutonium
Ltr #1 #03	5.6.2.3, 11.10.7	Clarification for RAI 217 - Clarify whether heavy lift crane travel over principal SSC, etc.
Ltr #1 #04	6.3.2, 6.4	DCS agreed that there would be two criticality alarms over each area required to be covered, per 10 CFR 70.24
Ltr #1 #05	6.4	DCS understands NRC's position on ANSI standards ANSI/ANS-8.1, 8.3, 8.7, 8.15, 8.17, and 8.22, and will clarify its commitment to these ANSI standards.
Ltr #1 #06	6.3.4.5, Table 6.3, Table 6.4	DCS agreed to revise the wording in Tables 6.3 and 6.4 (permissible values of parameters), to further clarify that they are order-of-magnitude estimates that will not be used for criticality safety limits without further justification {November 3, 2001 letter, item 3D}.
Ltr #1 #10	11.5.2.5, 11.6.7	DCS response indicates they will follow the guidance of IEEE Standard 338-1987. Regulatory Guide 1.118, Revision 3, endorses that IEEE standard with four clarifications. DCS will consider following the additional guidance of the Regulatory Guide
Ltr #1 #11	11.5.7.1	Regarding whether DCS will meet all the test/analysis conditions and assumptions related to the IEEE Standard 384-1992, DCS stated that power cables associated with IROFS would be in conduits and not cable trays
Ltr #1 #13	11.5.7.1	With respect to breaker testing, DCS stated that it will test per IEEE Standard 741 but test frequency has not been determined yet
Ltr #1 #14	11.5.7.1	On page 11.5-14 of the CAR, the statement "except that a single circuit breaker or fuse tripped by over current are not used as an isolation device" in the second paragraph will be clarified to state that DCS will use two devices in series
Ltr #1 #15	11.5.7.1	IEEE Standard 387-1995 does not require a loss of offsite power (LOOP) test on a periodic basis. DCS stated that it would perform LOOP tests but did not specify the frequency at this time
Ltr #1 #16	11.5.7.2, 11.5.6.2, 11.6	Discuss DCS's lack of commitment to IEEE Standard 484-1975.

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #1 #17	7.5.3	Provide a statement that the fire doors to the material transfer system are normally shut and only manually opened when material is transferred
Ltr #1 #18	7.2.3.1	Confirm that process room cable trays are solid on top and on the bottom
Ltr #1 #19	7.2.3.3.5	Provide basis for not allowing portable extinguishers in Rod Assembly Storage/handling areas due to ALARA concerns
Ltr #1 #20	7.2	Provide clarification that areas with vertical openings or grated floors will be treated as one fire area
Ltr #1 #21	7.2	Provide clarification that cementitious grouting used for vertical penetrations will be appropriately rated
Ltr #1 #23	7.2.3.3.1	Provide revised paragraph clarifying the use of sprinklers in plutonium handling areas. See RAI 107.
Ltr #1 #25	7.4.1.3	Acknowledge that the polycarbonate is/will be used in FHA.
Ltr #2 #01	11.10.7, 11.7.4, 11.7.2.1-11.7.2.5, 5.6.2.3	DCS committed to provide clarifications related to material transport systems on the principal structures, systems and components (SSCs) for material handling equipment (i.e., provide examples)
Ltr #2 #03	5.5.2, Table 5.5-10, Table 5.5-13, Table 5.5-16	Clarify "Training and Procedures" and show that training and procedures are management measures, not principal SSCs; that the principal SSCs are the worker actions; and add information to radiological protection section regarding respirator procedures and codes
Ltr #2 #04	11.7.7	Additional information on the protection of the facility worker for the load handling event involving the final C4 filter within the C2 area. This will likely involve a revision to the response to Request for Information (RAI) 186
Ltr #2 #05	10.1.4.1.1, 10.5.2, 11.3.2.14	DCS will provide additional information to the response to RAI 135 to show that the waste transfer line is buried and therefore unlikely to be damaged by normal load handling activities.
Ltr #2 #06	10.1.4	Written comparison/analysis demonstrating the proposed MFFF facility's waste streams will meet SRS/DOE WACs, and assurance (at the functional level) from DCS, SRS, and DOE that the site can accept them in the expected quantities generated by MFFF operations.

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #2 #08	11.6.7	Information is requested on what the MPQAP says about software control, i.e., is procured software treated differently from developed software. DCS agreed to clarify that all software is subjected to life-cycle controls as if it were developed software
Ltr #2 #09	11.6.7, 11.6.6	Discuss need to qualify IROFS under electromagnetic spectra (including networks). Discuss how EMI was addressed and applicability of RG-1.180
Ltr #2 #10	11.6.7	DCS response indicates that they will follow the guidance in ISA-S67.04. DCS will clarify its commitment to the guidance in Regulatory Guide 1.105
Ltr #2 #11	11.6.7	Provide revision level of EPRI TR-106439 used in the response
Ltr #2 #12	11.6.3.3.3, 11.6.7	Clarify language in the response that "software...will not be the single element of a protection scheme" did not imply that such software is not IROFS
Ltr #2 #13	11.6.7	Subsequent to the visit to the DCS office, NRC staff also questioned the design basis for the seismic monitoring system. DCS agreed to review this matter and ensure that the design basis for the seismic monitoring system is addressed
Ltr #2 #17	12.2.3.2	Clarify response that NUREG 0700 and all of the NUREG/CR references in Chapter 12 of the standard review plan as guidance documents would be used as appropriate during the detailed design process for human performance activities associated with maintenance of MOXFFF automated systems.
Ltr #2 #18	11.6.7, 11.5.7.2, 11.5.7.1	Regulatory Guide 1.100 addresses seismic qualification of electric and mechanical equipment. DCS has committed to IEEE Standard 344-1987 for seismic qualification of electrical equipment. DCS will clarify its commitment to Regulatory Guide 1.100, including providing design basis information with respect to seismic qualification of mechanical equipment/Discuss any significant difference (applicable to MOX) between IEEE Standard 344-1987, "IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Generating Stations," and the 1975 version of this standard.
Ltr #2 #19	11.5.7.2, 11.5.6.2, 11.4.2.7.2, 11.4.3.2, 11.4.4.2	DCS has committed to follow the guidance of IEEE Standard 484. DCS will clarify its commitment to the guidance contained in Regulatory Guide 1.128
Ltr #2 #20	5.5.2.2.6.6	Discuss how fires are prevented from propagating between fire areas through the pneumatic tubes, sampling systems, and other interconnected systems

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #2 #21	7.5.2	Discuss assumptions regarding typical transient combustibles, transient loads in fire modeling, and assumptions regarding transient loading assumed for a possible fire on the MFFF loading dock
Ltr #2 #22	5.6.2.2	Related to the review of fire protection documents such as the Fire Hazards Analysis (FHA), NRC questioned the adequacy of combustible loading controls alone to protect various forms of plutonium that are not in fire-qualified containers.
Ltr #2 #23	7.4	Given that the use of fire severity analysis is controversial in that it may not be representative of an actual fire duration, other methods should be used to demonstrate that flashover is not reached, especially where severity times are close to the barrier rating. In other words, the analysis should demonstrate a larger factor of safety. As a result, DCS will consider performing additional fire analysis of bounding fires
Ltr #3 #02	11.6.7, 11.5.7.2, 11.5.7.1	Regulatory Guide 1.100 addresses seismic qualification of electric and mechanical equipment. DCS has committed to IEEE Standard 344-1987 for seismic qualification of electrical equipment. DCS will clarify its commitment to Regulatory Guide 1.100, including providing design basis information with respect to seismic qualification of mechanical equipment.
Ltr #3 #03	6.3.1, 6.3.4.2, 6.4	DCS stated that its response relating to the use of either reliance on geometry control or dual parameter control would be clarified. In the case where geometry is the sole controlled parameter, DCS will still meet double contingency by ensuring that no single credible change in process conditions can produce a criticality. DCS further asserted that if there is no credible means for geometry to change, there is no need for further controls. NRC agreed that this meets the wording and intent of the DCP.
Ltr #3 #04	11.2.2.16	Requested justification for not enclosing the furnaces in gloveboxes. The response provided by DCS was proprietary and not included in the redacted version of the DCS response to the RAI. During the meeting, DCS stated that the glovebox is not used because of maintenance reasons and because the environment in the glovebox does not make enclosing the furnace necessary. DCS agreed to evaluate this issue further and to provide justification in a letter to NRC.
Ltr #3 #05	12.1	Clarify its response by more explicitly defining what is meant by "significant human-system interface" for the protective control system. (2) DCS agreed to consider and evaluate the potential for personnel errors of commission that might result in overriding or defeating safety systems. (3) DCS also agreed to provide a cross-reference(s) to appropriate parts of Chapter 11 of the CAR.
Ltr #3 #06	12.1	Clarify its response by more explicitly defining what is meant by "other deterministic design basis accident assumptions and scenarios," and also to consider and evaluate the potential for personnel errors of commission that might result in overriding or defeating safety systems. Clarify its response by including both human errors of omission and commission in their evaluation of the probability of human error.

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #3 #08	11.6.3.3.3, 11.6.7	DCS will provide clarification that criticality prevention related to material inventory control is the only safety function that has been allocated to software. A list will be provided if there is more than one safety function allocated to software
Ltr #3 #11	11.5.2.4	DCS staff will further describe the basis for not classifying the communications system as an IROFS
Ltr #3 #13	8.5.1.6	Review of the pyrophoric nature of plutonium and uranium oxides; clarification or justification of adequate control of potential hazards from UO2 and PuO2
Ltr #3 #15	5.5.2.4.6.2, 11.2.2.16	Provide an analysis of the potential for steam explosion in the MFFF
Ltr #3 #16	11.2.2.16, 5.5.2.4, 8.5.1.1	Clarification/explanation of sintering furnace sensors, controls, and PSSCs related to hydrogen explosions
Ltr #3 #17	11.3.2.14, 5.5.2.11	Update the response to the RAI to include analytical results showing low consequences from low-level radioactive waste and spent solvent streams, and identification of upstream PSSCs
Ltr #3 #20	7.2.2	Provide additional info about process cell fire prevention features.
Ltr #3p #01	11.2.2.16	Requested justification for not enclosing the furnaces in gloveboxes. The response provided by DCS was proprietary and not included in the redacted version of the DCS response to the RAI. During the meeting, DCS stated that the glovebox is not used because of maintenance reasons and because the environment in the glovebox does not make enclosing the furnace necessary. DCS agreed to evaluate this issue further and to provide justification in a letter to NRC
Ltr #3p #02	11.2.2.16, 5.5.2.4, 8.5.1.1	Clarification/explanation of sintering furnace sensors, controls, and PSSCs related to hydrogen explosions
Ltr #4 #01	11.5.7.2	On Page 23 of the DCS's January 7, 2002, response, DCS quotes Section 5.2 of the Institute of Electrical and Electronics Engineers (IEEE) Std-484, "IEEE Recommended Practice for Installation Design and Installation of Vented Lead- Acid Batteries for Stationary Applications," as requiring "acid resistant insulation between battery cells and steel racks. Regulatory Guide (RG) 1.128, "Installation Design and Installation of Large Lead Storage Batteries for Nuclear Power Plants," requires not just "acid resistant" but also "moisture resistant" insulation. Will the insulation also be moisture resistant

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #4 #03	11.4.2.7.2, 11.4.4.2, 11.4.2.3.2, 11.4.3.2	On Page 22 of DCS's January 7, 2002, response, Item 1 states that subsection 4.1.4 of RG 1.128 requires that the hydrogen concentration be limited to less than 2% at any location in the battery area.
Ltr #4 #04	11.4.2.7.2, 11.4.4.2, 11.4.2.3.2, 11.4.3.2	Section 5.4 of IEEE Std 484-1996 states that for batteries the ventilation system shall limit hydrogen accumulation to less than a specific value.
Ltr #4 #06	6.1.1	Provide justification for the experience levels (i.e., required years of nuclear industry experience) for Nuclear Criticality Safety (NCS) staff during the design phase. In addition, add the requirement that individuals in the NCS Function Manager, Senior NCS Engineer, and NCS Engineer positions must have a specified amount of technical experience in uranium/plutonium (or MOX) processing. Provide a criterion on how much experience directing an NCS Function is required for the NCS Function Manager. Guidance on accepted experience levels at other fuel facilities was provided to you by letter dated November 9, 2001
Ltr #4 #07	Table 6-1, Table 6-2	For each Criticality Control Unit (CCU) in Tables 6-1 and 6-2 for which numerical parameter limits are given but the associated parameter is not identified as a controlled parameter, provide justification for the limiting values stated. In particular, justify not controlling the physiochemical form of the process material where Pu (NO3)3 is assumed, and justify the use of densities when less than theoretical densities are used (RAI 83).
Ltr #4 #09	6.4	ANSI/American Nuclear Society (ANS) –8.1-1983 (R1998): In your December 5, 2001, clarification letter you add the words "…or other justifications…" to your discussion of how extensions for the area(s) of applicability for validated calculational methods will be treated. Clarify what specific methods will be used to provide this additional justification (also, ANSI/ANS-8-17-1984).
Ltr #4 #12	Table 5.6-1, 11.4.11.1	Is the discharge stack a PSSC? If so, what is its design basis for seismic and other natural phenomena events and accidents
Ltr #4 #13	5.4, 5.5.2.2.6, 7.4	Discuss how the FHA interfaces with the Safety Analysis
Ltr #4 #15	11.4.9, 7.5.3, Table 5.4.4.4	Is there a soot loading analysis for the C4 final filter
Ltr #4 #17	7.2.4.2	Explain DCS criteria for the fire protection of redundant IROFS

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #4 #18	7.4	The FHA states nuclear materials within the gloveboxes pose "an insignificant combustible hazard and are not considered in the fire loading calculation." What amount of nuclear material is considered "insignificant"
Ltr #4 #22	7.3	Who comprises the "facility fire brigade"? How is that different from "facility-trained personnel"
Ltr #4 #24	7.2	Provide specific reasons for the lack of suppression in specific areas such as some airlocks, PuO2 buffer storage, and rod handling areas
Ltr #4 #27	11.6.2.5.6	The CAR states that the associated AP or MP control rooms are not required when the functional unit is not operating. The CAR also states that the AP systems control room provides control of the normal and safety utilities systems, the fire detection systems, and the health physics systems.
Ltr #4 #28	11.6.7	DCS will clarify design basis information related to seismic qualification of mechanical equipment that was in its January 7, 2002, response, including identifying the design basis seismic event that will activate the seismic isolation system
Ltr #4 #29	13.1.1.1	NRC provided the design basis threat to DCS by letter dated March 13, 2000 (letter attachment is classified). Does DCS intend to meet that design basis for the MFFF?
Ltr #4 #32	11.2.2.16	Verify that pressure sensors will detect a hydrogen leak in the sintering furnace and will terminate hydrogen flow
Ltr #4 #33	11.1, Figure 11.1-16	Provide most recent design basis for truck shipping bay. Specifically, clarify whether fresh fuel casks will be stored in racks or frames, one above the other. If so, what is the design basis for the frames
Ltr #4 #34	11.9.3.12.5	The discussion of the decontamination systems doesn't mention its interface with the demineralized water and nitric acid systems. Clarify the list of interfaces for the decontamination system.
Ltr #4 #35	11.9.1.10, 11.9.5.1	Clarify the point of delineation between PSSC and non-PSSC in the instrument air system .
Ltr #4 #36	11.9.1.10.1, 11.9.4	CAR 11.9.1.9: Clarify the compatibility of references to two standards for instrument air. Both American National Standards Institute (ANSI)/Instrument Society of America (ISA) ISA S7.0.01-1996, "Quality Standard for Instrument Air and ISA S7.3, "Quality Standard for Instrument Air," are referenced in the CAR Section 11.9 text and non-PSSC design basis, respectively.

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #4 #39	8.1.2.1, Table 8-2	In the chemical process discussion, DCS mentions in the CAR, pages 8-8, 8-27, 8-28 a "P10" gas further described as "methane + argon 7%). Research indicates that P10 is a 10% methane 90% argon. Provide a description of the "P10" equipment and provide any design basis information.
Ltr #4 #40	11.9.3.13	Clarify the operating temperature for N2O4 system.
Ltr #4 #42	11.9.3.13.2, 11.1.5.13.5	Identify service air interface with N2O4 system.
Ltr #4 #43	11.10.2	Clarify whether the maximum qualified lift height for a fresh fuel cask could be exceeded in the shipping truck bay (from maximum withdrawn position of the crane to the lowest point of the truck bay floor)
Ltr #4 #44	11.4.11.1	The CAR indicates that DCS will be using the 1977 version of American Society of Mechanical Engineers AG-1, Code on Nuclear Air and Gas Treatment, however, the latest version of the code is 1991. Please clarify which version of the code DCS using.
Ltr #4 #45	11.4.7.1.5	Regarding the manual isolation valve mentioned in CAR Section 11.4.7.1.5, clarify if they are the only type of isolation valves on gloveboxes.
Ltr #4 #46	11.8.3.2	If the Material maintenance and surveillance program will not be used in the process cells, what is the design basis for the corrosion allowances in the system design.
Ltr #4 #48	11.8.7	Clarify the design basis for the seismic isolation valves. RAI Response 191 only discusses the response time and selection criteria for check valves
Ltr #4 #49	1.3.4.6	Regarding site hydrology, CAR section 1.3.4.6 indicates no radiological contamination in Upper Three Runs or Gordon aquifers. Is this no detectable contamination or no contamination above EPA drinking water limits?
Ltr #4 #52	1.2.3.2	Provide a discussion of hospitals located in the vicinity of the Savannah River Site (SRS). Such a discussion was omitted from Section 1.3 in the Construction Authorization Request.
Ltr #4 #54	1.2, 4.0	Provide updated organization charts and descriptions (Chapter 4 and the Quality Assurance Plan). Provide updated financial qualifications (Chapter 2).
Ltr #4 #56	1.3.5, Table 1.3.3-12	Correct the temperature extreme values reported in Section 1.3.3 of the Construction Authorization Request.

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #4 #59	11.1.7.2.2.3	Submit the soil bearing capacity value for Structural Category I structures, and explain how it was obtained, and discuss why the foundation design will be adequate when considering this value.
Ltr #4 #60	1.3.3.3, 11.1.7.4.1.1, 5.5.2.6.5.5	In response to RAI 56, DCS stated that it selected a 100 year recurrence interval for snow loading. Chapter 1 in the CAR states that a 100 year recurrence interval snow load corresponds to 5 pounds per square foot (psf). NRC staff requested that DCS consider a snow load recurrence interval for more than 100 years (i.e., on the order of 10,000 years).
Ltr #4 #62	11.1.7.2.1.2, Table 11.1-2	The draft Tornado Missile Barrier Analysis and Design Report was reviewed and was acceptable
Ltr #4 #64	5.5.2.11	Solvent wastes contain greater than 5000 times the Part 20, Appendix B, Table 2, limits of plutomium-239. Was a spill of solvent waste considered in the hazard analysis? If so, why were no PSSCs identified to prevent or mitigate this intermediate consequence event?
Ltr #4 #65	10.1.1, 5.4.4	The applicant's estimate for radionuclide release rates during normal operations (Table D-7 of the ER) fails to meet the applicant's own ALARA design goal for effluent control stated in Ch. 10 of the CAR. The ALARA design goal is 20% of the Part 20, Appendix B, Table 2, concentration limits. The applicant's estimate of effluent release rates exceeds this goal by a factor of approximately 15. In light of the footnote accompanying Table D-7 that states the applicant's estimates are probably 10 times too high, has DCS derived a more realistic source term for normal operations? Where onsite would air effluents be measured to see if the ALARA goals are met (CAR Ch 10)
Ltr #4 #66	5.4.4.3, Equation 5.4-3, Table 5.5-10b, Table 5.5-13b, and Table 5.5-16b	As part of the Environmental Consequences calculation, ensure that information is provided at the restricted area boundary, identify the HEPA filter efficiency used, and that a respirable fraction is not included.
Ltr #5 #01	11.6.7	The staff pointed out that IEEE 603-1998 conformance may be difficult for the following reasons: A. The MMIS computer system and the data communications network would have to meet IEEE 603-1998 criteria; and B. The subset of the MMIS software that would be used for IEEE 603 credit would have to be qualified.
Ltr #5 #02	8.5.1.5	Explanation of the applicant's interpretation of the red oil phenomena and justification for a temperature design basis of 135° C (RAI 123). RAI 123: Provide information to support and justify the 135° C limit as the only design basis for the evaporators

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #5 #03	5.5.2.1, 11.3.2.5, 5.5.2.1.6	RAI's 50 and 141: For the dissolution electrolyzer, based on the hazard analysis, 1) are there PSSCs to detect high temperature and 2) are additional design bases (e.g., plutonium oxide morphology information and requirements flow and recirculation rates and electrical parameters) necessary for the electrolyzer? Spatial and geometric effects and bulk versus localized measurements might be considered (e.g., multiple sensors, in stream, on walls)
Ltr #5 #04	7.2.2	For the dissolution electrolyzer, based on the hazards analysis, are design bases for avoiding localized over temperature of the titanium materials necessary?
Ltr #5 #09	11.9.2.1	It appears that the applicant has not identified any explicit design bases and PSSCs for the Oxalic precipitation area.
Ltr #5 #12	8.5.1.5	Oxalic Mother Liquor area. Prior U.S. Department of Energy (DOE) experience with evaporators indicates the potential for accumulation of solvents and plutonium, and explosion and criticality concerns. The applicant has not identified any such limits for this evaporator.
Ltr #5 #13	8.5.1.5	Oxalic Mother Liquor area. The staff's review indicates the single design basis and PSSC proposed may not be capable of preventing or mitigating a Red Oil explosion.
Ltr #5 #15	8.5.1.5	For the acid recovery area, solvent degradation products can lead to red oil explosion. (1) Provide information to demonstrate the efficacy of evaporator controls? (2) Provide information to demonstrate that the evaporator and related tanks are limited to a maximum temperature and conditions, with direct measurements and controls (e.g., SIS-like, steam shutoff) that ensure that the red oil event is highly unlikely.
Ltr #5 #21	11.3.2.14, 10.5.2	The applicant identified the Liquid Waste Reception unit as IROFS/PSSC. Based on the hazards analysis, what are the design basis (e.g., desired values and any inventory restrictions, and the proposed controls needed to attain a highly unlikely probability of criticality in this unit) and PSSCs for U-235 dilution in the waste unit?
Ltr #5 #22	8.5.1.6	UO2 and PuO2 pyroforicity in MP. Based on the hazards analysis, are design bases and PSSCs necessary to prevent potential oxidation reactions of some UO2 powders that might release radioactive materials?
Ltr #5 #23	11.3.7	Electrolyzer - Based on the hazards analysis, are design bases related to the feed material (e.g., specification) necessary?
Ltr #5 #24	5.5.2.4.6.3, 8.5.1.1.2	Based on the hazards analysis, what are the design bases associated with hydrogen generation by radiolysis?

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Letters Incorporated in the CAR Revision		
Clar. Ltr # / Item #	**CAR Section #**	**Summary of Request for Clarification**
Ltr #5 #28	11.2.2.16, 5.5.2.1.6.12	Based on the hazards analysis, including the recent worker safety calculations, provide a clearer explanation of PSSCs and design bases associated with the sintering furnace.
Ltr #5 #29	11.2.2.16, 5.5.2.1.6.12, 5.5.2.4.6.1, 5.5.2.4.6.2, 8.5	Describe how 10 CFR 70.64(b) defense-in-depth provisions is applied to reduce the risk to the facility worker of a sintering furnace loss-of-confinement event. What is/are the protective action(s) being relied on by DCS in order to ensure that worker performance requirements are met?
Ltr #5 #30	11.4.11.8, 11.2.2.16, 5.5.2.1.6.12	What information is available to the worker on the floor and in the control room to assure that the worker is aware of a leak and can take the appropriate protective action?
Ltr #5 #31	11.2.2.16, 11.6.7	The sintering furnace uses a hydrogen-argon gas mixture. Half of the stated control range is flammable in air. Do the design bases for the sintering furnace include a standard for sensor placements and PSSC designations for detectors and door interlocks?
Ltr #5 #32	11.2.2.16	Are PSSCs needed for the airlock sweep gases?
Ltr #5 #33	11.2.2.16, 11.4.11.8	Describe the sintering furnace sensors, controls, and PSSCs related to hydrogen controls and for controlling air entry into the furnace.

Ltr #1 #01 – Response to clarification #1 identified in the 04 December 2001 Letter from DCS to NRC, letter number DCS-NRC-000074
Ltr #2 #01 – Response to clarification #1 identified in the 07 January 2002 Letter from DCS to NRC, letter number DCS-NRC-000081
Ltr #3 #01 – Response to clarification #1 identified in the 11 February 2002 Letter from DCS to NRC, letter number DCS-NRC-000083
Ltr #3P #01 – Response to clarification #01 identified in the 11 February 2002, Proprietary Letter from DCS to NRC, letter number DCS-NRC-000082
Ltr #4 #01 – Response to clarification #01 identified in the 08 March 2002 Letter from DCS to NRC, letter number DCS-NRC-000085
Ltr #5 #01 – Response to clarification #01 identified in the 23 April 2002 Letter from DCS to NRC, letter number DCS-NRC-000091

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Valid Clarification Letters Not Incorporated	
Clar Ltr # / Item #	**Summary of Request for Additional Information**
Ltr #1 #07	DCS agreed to provide further clarification of the terminology for and categorization of criticality control SSCs as QL-1a and 1b.
Ltr #1 #08	If the CAAS is designated as QL2, what management measures will be associated with it (i.e., how to know it can be relied on when needed)?
Ltr #1 #09	Clarify the relationship of the discussion of management measures in Chapter 6 (6.2.1 to 6.2.4) of the CAR with the discussion in Chapter 15 of the CAR. The items in Chapter 6 should also show the tie to the QA program.
Ltr #1 #12	Table on page 161-1 has an incorrect entry for open trays in non-hazard area under IEEE Standard 384-1992. DCS will correct. Also, DCS stated that it committed to 1ft/3ft spacing and will confirm
Ltr #1 #22	Provide the basis for using one sheet of polymethyl methacrylate (PMMA) as representative transient loading
Ltr #1 #24	Provide an explanation of the relationship of the polycarbonate report to the FHA including the use of DOE-STD-1066 as input to the polycarbonate decision. Clarify use and interpretation of DOE-STD-1066-97 and how it is applicable to the CAR
Ltr #1 #26	Provide reference for basis/citation for: 1) 45% compartment efficiency, and 2) Soot yield values. 3) Verify that DCS is going to 60% combustion efficiency
Ltr #2 #02	DCS agreed to provide additional justification for parameters in Tables 6-1 and 6-2 (containing dominant controlled parameters by process step), which are assumed to be less than optimal values
Ltr #2 #07	DCS stated that smoke is not a design basis condition for the facility electronics systems. DCS response covered fire prevention, movement of smoke, dispersal of electronics, and housing of electronics in cabinets and panels as sufficient to minimize exposure to fire and smoke. Redundant digital control equipment will be located in separate fire areas. DCS stated that if such equipment becomes subjected to smoke, it will be renovated as necessary and tested before being placed back into service. DCS will confirm the above in a letter
Ltr #2 #14	The staff surveyed some preliminary functional specifications and an architectural diagram of the control systems. DCS stated that the drawings were proprietary. The staff requested that the drawings be submitted for additional design basis understanding; DCS said they would determine if this is feasible
Ltr #2 #15	The referenced drawings in Table 1 [of the 18 Dec 2001 NRC letter] will be designated quality level QL1, not QL3 as presently shown; software controlled devices will be QL1b

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Valid Clarification Letters Not Incorporated	
Clar Ltr # / Item #	**Summary of Request for Additional Information**
Ltr #2 #16	DCS agreed to reconsider its rationale for not using NUREG-0711 as guidance in their design review process. With respect to the status of the revision to IEEE Standard 1023, NRC stated that due to issues arising from the last balloting of the IEEE Standard 1023 revision, NRC would provide DCS a draft in approximately a month, and the revision is scheduled to be issued some time in CY 2002.
Ltr #3 #01	DCS committed to provide clarification related to material transport systems on the release fraction for respirable plutonium
Ltr #3 #07	Summarize significant events involving human performance as part of the review of operating experience at the MELOX and La Hague that were discussed at the meeting.
Ltr #3 #10	Identify the requirements for the fire detection system interface with the PSSC safety controller VDT
Ltr #3 #12	Calculations for three load drop type events were requested by NRC because it was not clear that the development of the accident left sufficient time for worker protective action
Ltr #3 #18	Respond to NRC concerns about the approach for inerting hydrazine and solvent
Ltr #4 #02	Regarding page 23 of DCS's January 7, 2002, response, Item 6: RG 1.128 states that the "shoulds" in the listed sections of IEEE Std 484 must be treated as "shalls." DCS needs to clarify its commitment to RG 1.128 and its application of "shoulds" and "shalls"
Ltr #4 #05	Section 5.1 of IEEE Std 484-1996 states that in battery areas, nearby equipment with arcing contacts shall be located in such a manner as to avoid those areas where hydrogen pockets could form.
Ltr #4 #08	The February 11, 2002, clarification for RAI Question 80/81 states that systems that rely on passive geometry control automatically meet the double contingency principle, because there are no credible changes in process conditions that can occur causing a criticality. This is not necessarily correct, because in some cases the geometry can be altered by bulging, corrosion, or other mechanisms, and in other cases, geometry can fail and result in material accumulating in unfavorable geometry areas. Commit to evaluate on a case-by-case basis the potential for the system geometry to be altered. Clarify that passive geometry control is sufficient to ensure compliance with double contingency only if there are no credible means of changing the system geometry, and that if credible means of changing the system geometry exist, sufficient controls will be established to ensure that at least two independent, unlikely, and concurrent, changes in process geometry are needed before criticality is possible (RAI 80/81).
Ltr #4 #10	ANSI/ANS-8.1-1983 (R1998): In your August 31, 2001, RAI Response, you defined "unlikely" for meeting the double contingency principle as "not expected to occur during the facility lifetime." Clarify what is meant by this phrase-e.g., whether the facility lifetime is assumed to be on the order of 10 or 100 years and how you assured that "not expected to occur during the facility lifetime" was determined for the lifetime assumed.

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Valid Clarification Letters Not Incorporated	
Clar Ltr # / Item #	**Summary of Request for Additional Information**
Ltr #4 #11	ANSI/ANS-8.15-1981: In your December 5, 2001, clarification letter, you state that criticality control involving special actinide elements may be demonstrated by reference to the limits specified in ANSI/ANS-8.1. In your August 31, 2001, RAI response, it is mentioned that special actinide elements will be present "in relatively low concentrations in mixtures with 235U and 239Pu." Quantify when the concentration of special actinide elements is sufficiently low that the limits of ANSI/ANS-8.1 may be used conservatively (RAI 90).
Ltr #4 #14	The FHA states that "Fires involving material within the gloveboxes are required to be effectively mitigated to meet the performance requirements of 10 CFR 70.61." Wording in the FHA implies that the nitrogen system is being relied on to perform this mitigation.
Ltr #4 #16	Exhaust dampers in rooms with gloveboxes are manually operated. How is the operation of dampers guaranteed to ensure C4 confinement
Ltr #4 #19	Explain how the glovebox boundary high efficiency particulate air (HEPA) filter can be relied on to prevent the soot from reaching the C4 final filter.
Ltr #4 #21	What is the basis for classifying the Reagents building as Ordinary Hazard Group 1 per National Fire Protection Agency (NFPA) codes
Ltr #4 #23	The Preliminary Hazard Analysis concluded that an earthquake does not induce any risk of fire. What is the basis for this statement?
Ltr #4 #25	Some gloveboxes do not use a nitrogen blanket (i.e., they have an air atmosphere). For these gloveboxes, are process temperature conditions used only for process reasons or do they perform a safety function and therefore, should they be IROFSs/PSSCs?
Ltr #4 #26	Describe the effects of potential accidents on personnel in safe havens
Ltr #4 #31	N/A. Misnumbered response to Ltr #4, #30 as Ltr #4, #31.
Ltr #4 #37	Clarify why the design bases of the instrument air and station air systems include HEPA on their penetrations of the MFFF confinement (CAR 11.9.1.10.2), while the bulk gas systems do not. Discuss the provision for HEPAs on penetrations
Ltr #4 #38	Clarify the basis for not including the seismic isolation system and isolation valves and seismic detectors in the hydrazine system design basis
Ltr #4 #41	N/A. Misnumbered response to Ltr #4, #40 as Ltr #4, #41.
Ltr #4 #47	DCS agreed to provide additional clarification with regard to quality levels and fluid transport system categories as they relate to welding and welding procedures

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Valid Clarification Letters Not Incorporated	
Clar Ltr # / Item #	**Summary of Request for Additional Information**
Ltr #4 #50	NRC and DCS staff to decide how to release information from seismic calculation justifying unlikely events.
Ltr #4 #51	Will there be further studies of seepage basin plume on proposed MFFF site versus statement plumes are well defined as to extent and flow direction?
Ltr #4 #53	Do design costs include licensing costs (RAI 30)? Are escalation and contingency costs included in design costs (RAI 30)
Ltr #4 #55	Will project design costs under review by DOE be submitted (RAI 30)?
Ltr #4 #57	N/A. Misnumbered response to Ltr #4, #56 as Ltr #4, #57.
Ltr #4 #58	Submit the Aircraft Hazard safety assessment, including the hazard analysis for a helicopter. DCS will provide either the analysis or a summary of the analysis in sufficient detail for the staff to reach a safety conclusion. DCS will also check for more recent test data on aircraft penetration into reinforced concrete walls (reference currently cited is dated 1972) and will discuss or include this more recent data into its response.
Ltr #4 #61	NRC staff questioned why site proximity missiles did not include those that may be potentially generated by external explosions. DCS will review site proximity missiles with regard to information the presented in Regulatory Guide 1.91, "Evaluations of Explosives Postulated to Occur On Transportation Routes Near Nuclear Power Plants." Related to this issue, NRC understands that the analysis for effects of potential explosions at the Reagents Process Building and the Gas Storage Area is ongoing and will be submitted to NRC in the future.
Ltr #4 #63	Load combinations considered by DCS for design were clarified. DCS showed that one load combination in SRP Section 3.8.4 contained a typographical error for earthquake load.
Ltr #4 #68	Were the effects of high temperature hydraulic oil leak or sprays on the windows considered?
Ltr #4 #69	Indicate the location of motors or electrical panels (in corners or near walls) to ensure that the effect of fires are not worse than accounted for in the analysis
Ltr #4 #70	Provide basis for estimating heat release rate of motor fires

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Valid Clarification Letters Not Incorporated	
Clar Ltr # / Item #	**Summary of Request for Additional Information**
Ltr #5 #06	For the dissolution electrolyzer, was corrosion from silver contacting stainless steel analyzed in the hazards analysis? Based on the hazards analysis, are specific design bases (e.g., to limit the concentration of silver (II) ions for solutions that contact lower alloys such as stainless steel) necessary to assure that corrosion from silver contacting stainless steel will not occur? See 50
Ltr #5 #07	For the purification area, it appears that the applicant has not identified any explicit design bases and PSSCs for this area.
Ltr #5 #08	For the solvent recovery cycle, it appears that the applicant has not identified any explicit design bases and PSSCs for this area.
Ltr #5 #10	It appears that the applicant has not identified any explicit design bases and PSSCs for the Oxalic precipitation area.
Ltr #5 #11	For the oxalic mother liquor area, regarding Pu accumulation, (1) Based on the hazards analysis, is a plutonium specification (concentration limit) on the distillate product stream a design basis? (2) Based on the hazards analysis, is the oxalate concentration on the stream that is returned to purification a design basis?
Ltr #5 #14	Acid recovery area. Regarding contamination control and confinement. (1) Based on the hazards analysis, is a distillate specification and/or decontamination factor for each evaporator necessary as a design basis? (2) Based on the hazards analysis, is a product specification or limit for Pu, Am, and U in the concentrate necessary as a design basis? (3) Are the evaporators and related vessels PSSCs for confinement of the radioactive materials?
Ltr #5 #18	The CAR presents two design bases for the Offgas system -venting and exhaust- to avoid explosive vapors, broadly as goals without the identification of PSSCs, values, codes and standards, etc. Based on the hazard analysis, are design bases that take into account the potential effects of chemical reactions necessary for venting systems? See RAI 127, 126.
Ltr #5 #19	The CAR presents two design bases for the Offgas system -venting and exhaust- to avoid explosive vapors, broadly as goals without the identification of PSSCs, values, codes and standards, etc. Based on the hazards analysis is the Offgas treatment unit a PSSC? See RAI 127, 126.
Ltr #5 #20	The CAR presents two design bases for the Offgas system -venting and exhaust- to avoid explosive vapors, broadly as goals without the identification of PSSCs, values, codes and standards, etc. Based on the hazard analysis, is a design basis necessary to maintain the temp below the design basis temp? Are PSSCs necessary for this unit? See RAI 127, 126.

Valid Clarification Letters Not Incorporated	
Clar Ltr # / Item #	**Summary of Request for Additional Information**
Ltr #5 #25	Based on the hazards analysis, what are the design bases associated with preventing solvent fires?
Ltr #5 #26	Based on the hazards analysis, what PSSCs and associated design bases are necessary for HAN and hydrazine in nitric acid media?
Ltr #5 #27	Explain the design bases and controls for asphyxiating gases, such as nitrogen and argon. / Asphyxiating gases: Design bases were not identified. The applicant plans to use a case-by-case analysis during detailed design.

Ltr #1 #01 – Response to clarification #1 identified in the 04 December 2001 Letter from DCS to NRC, letter number DCS-NRC-000074
Ltr #2 #01 – Response to clarification #1 identified in the 07 January 2002 Letter from DCS to NRC, letter number DCS-NRC-000081
Ltr #3 #01 – Response to clarification #1 identified in the 11 February 2002 Letter from DCS to NRC, letter number DCS-NRC-000083
Ltr #3P #01 – Response to clarification #01 identified in the 11 February 2002, Proprietary Letter from DCS to NRC, letter number DCS-NRC-000082
Ltr #4 #01 – Response to clarification #01 identified in the 08 March 2002 Letter from DCS to NRC, letter number DCS-NRC-000085
Ltr #5 #01 – Response to clarification #01 identified in the 23 April 2002 Letter from DCS to NRC, letter number DCS-NRC-000091

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Responses No Longer Valid		
Clar Ltr # / Item #	**Summary of Request for Additional Information**	**Comment on Response Status**
Ltr #3 #09	A list of functional units showing non-PSSCs PLCs and PSSCs PLCs will be submitted	The information provided in the response was a snap shot of design at the time of the request. As design has developed some of the information has been modified, however, the design basis of the systems remain as reflected in the CAR.
Ltr #3 #14	Basis (i.e., correspondence from DOE) for explosion potential in F area	The analysis is being updated, no changes to the design basis is expected.
Ltr #3 #19	Estimate the number of high pressure cylinders in the facility and the annual usage	The information provided in the response was a snap shot of design at the time of the request. As design has developed some of the information has been modified, however, the design basis of the systems remain as reflected in the CAR.
Ltr #3 #21	NRC staff requested that DCS provide a summary table/spreadsheet from the FHA; DCS will consider providing this table/spreadsheet with fire area information such as principal SSCs/IROFS, additional protective features, and fire barrier rating	The FHA is iterative and will change with the design, the information provided is representative of the type of information presented, however, it may not be exactly the same.
Ltr #4 #20	Discuss reliability and redundancy of the clean agent supply for suppression to a level that is comparable to what was done for water-based suppression	The information provided in the response was a snap shot of design at the time of the request. As design has developed some of the information has been modified, however, the design basis of the systems remain as reflected in the CAR.
Ltr #4 #30	Verify the accident scenario labeled "fire" in AP/MP C3 glovebox area is the same used for bounding mitigated fire/loss of confinement consequence assessment - appears to be some minor differences	The information provided in the response was a snap shot of design at the time of the request. As design has developed some of the information has been modified, however, the design basis of the systems remain as reflected in the CAR.

REQUEST FOR CLARIFICATION MAP TO THE CAR REVISION

Clarification Responses No Longer Valid		
Clar Ltr # / Item #	**Summary of Request for Additional Information**	**Comment on Response Status**
Ltr #4 #67	Will isolation valves for the hydraulic system be located in a separate fire area	Valves are not automatic.
Ltr #5 #05	The applicant has not identified any design bases or PSSCs with the Silver Recovery unit. Based on the hazards analysis, are design bases for avoiding localized over temperature of the titanium materials necessary (destructive titanium fire)?	The Silver Recovery Unit has been deleted.
Ltr #5 #16	The applicant has not identified any design bases or PSSCs with the Silver Recovery unit. See RAI 50, 143, 135, and 140.	The Silver Recovery Unit has been deleted.
Ltr #5 #17	The applicant has not identified any design bases or PSSCs with the Silver Recovery unit (corrosion). See RAI 50, 143, 135, and 140.	The Silver Recovery Unit has been deleted.

Ltr #1 #01 – Response to clarification #1 identified in the 04 December 2001 Letter from DCS to NRC, letter number DCS-NRC-000074
Ltr #2 #01 – Response to clarification #1 identified in the 07 January 2002 Letter from DCS to NRC, letter number DCS-NRC-000081
Ltr #3 #01 – Response to clarification #1 identified in the 11 February 2002 Letter from DCS to NRC, letter number DCS-NRC-000083
Ltr #3P #01 – Response to clarification #01 identified in the 11 February 2002, Proprietary Letter from DCS to NRC, letter number DCS-NRC-000082
Ltr #4 #01 – Response to clarification #01 identified in the 08 March 2002 Letter from DCS to NRC, letter number DCS-NRC-000085
Ltr #5 #01 – Response to clarification #01 identified in the 23 April 2002 Letter from DCS to NRC, letter number DCS-NRC-000091

Enclosure 3

DSER Open Item Map to the CAR Revision

DSER OPEN ITEM MAP TO CAR REVISION

OPEN ITEMS ADDRESSED IN THE CAR			
Item #	**CAR Section #**	**DSER OPEN ITEM**	**Comment**
AP-01	11.6.7	With respect to the electrolyzer, the applicant has not provided sufficient justification for protecting the electrolyzer against the over temperature event in the hazards analysis. This applies to the dissolution and silver recovery units.	This open item was clarified by the NRC during an in office meeting. The NRC requested DCS provide clarification of the relationship between the design basis value and the operating setpoint. In CAR section 11.6.7, a commitment is made to specific codes and standards for the setpoint methodology.
AP-02	5.5.2.4.6.13	With respect to the electrolyzer, the applicant's hazard and accident analysis did not consider fires and/or explosions caused by ignition of flammable gases generated by chemical reactions and or electrolysis, such as from an overvoltage condition. This applies to the dissolution and silver recovery units	
AP-03	7.2.2	The applicant's hazard and accident analysis did not did not include events involving titanium, such as titanium fires. Accident events should be evaluated and PSSCs identified as necessary. This applies to the dissolution and silver recovery units.	
AP-04	5.6.2.4, 5.5.2.1.6.2, 5.5.2.1.6.4.	The design basis value of the corrosion function of the fluid transport system PSSC should address instrumentation and/or monitoring of lower alloy components (stainless steel) that could be exposed to aggressive species (silver II) in the dissolution and silver recovery units	This open item was clarified by the NRC during an in office meeting. The NRC requested verification that leaks from process cells result in low consequences. If so, then corrosion prevention in the process cells is not required to satisfy the requirements of 10CFR70.61. This has been verified as discussed in sections 5.5.2.1.6.2 and 5.5.2.1.6.4. The NRC also requested clarification of Material Maintenance and Surveillance Program (provided in 5.6.2.4).

DSER OPEN ITEM MAP TO CAR REVISION

OPEN ITEMS ADDRESSED IN THE CAR			
Item #	**CAR Section #**	**DSER OPEN ITEM**	**Comment**
AP-05	10.1.4	Confirm that the wastes generated will conform to the SRS WACs and that SRS will accept these wastes, based on the program redirection (DSER Section 11.2.1.12); Identify any PSSCs and design bases for the waste unit, such as maximum inventories	
AP-06	11.3.2.14, 5.5	The applicant identified the high alpha waste system as an IROF. The staff finds that the applicant should identify design basis safety functions and values for this unit.	The description of this process has been updated in section 11.3. Specific principal SSCs associated with this system are identified in Chapter 5. The original information that identified this system as IROFS is superceded by the information provided in this CAR revision.
AP-07	11.3.7	Parameters have not been identified for the plutonium feed to the facility. PSSCs and design bases should be identified for this feed material or a justification provided that it is not necessary	
AP-13	5.5.2.10, 8.4	The applicant has not proposed a safety strategy, and any needed PSSCs and design bases, for hazardous chemical releases resulting from the potential loss of confinement of radioactive materials in process cells. This affects the dissolver, oxalic precipitation and oxidation, acid recovery, oxalic mother liquor, silver recovery, and liquid waste reception units	This open item was clarified by the NRC during an in office meeting. The NRC requested additional chemical evaluations for nitric acid and N204 for the site worker. This information is provided in section 5.5.2.10 and 8.4. The NRC also requested information on how releases in process cells would be detected. This information is provided in 5.5.2.10.
CS-01	5.5.2.4.6.7, 8.5	The staff concludes that the red oil phenomena analysis in Chapter 5.5 of the CAR is not complete and that PSSCs and their design bases for preventing red oil explosions are not adequate for all potentially affected components. At a minimum, this applies to the following areas: purification, solvent recovery, calciner, oxalic mother liquor, acid recovery, and offgas.	

DSER OPEN ITEM MAP TO CAR REVISION

OPEN ITEMS ADDRESSED IN THE CAR			
Item #	**CAR Section #**	**DSER OPEN ITEM**	**Comment**
CS-04	5.5.2.4.6.11, 8.5.1, 5.5.2.4.6.10	Chapter 8 of the CAR and supplemental information provided by the applicant identified pH control as serving a safety function (avoiding precipitation, such as azides) in the liquid waste unit. However, PSSCs and design bases for controlling pH have not been identified by the applicant.	
CS-05	5.5.2.10.6.3, 8.4	Modeling of hazardous chemical releases. The applicant should identify any operator actions outside of the control room that are required for chemical safety. If such actions are identified, then information is needed on the modeling of potential chemical releases and any PSSCs and design bases. Also, staff review indicates that at least one chemical (N_2O_4) could meet the definition of hazardous chemicals produced from licensed materials in 10 CFR 70.4 and potentially impact the offsite public which also would require identification of PSSCs and their design bases.	
CS-06	5.5.2.4.6.14, 5.6.2.7	The potential controls for a facility worker from a laboratory explosion have not been identified.	
CS-07	5.5.2.4.6.15, 5.5.2.10.1	The safety functions for delivery of chemicals have not been adequately addressed.	
CS-08	8.4.1	The applicant has not analyzed the potential chemical toxicity impacts from events involving depleted uranium stored in the secured warehouse building. Potential PSSCs and design bases have not been identified.	
CS-10	11.4.11.1.6	A suitable design basis for habitability in the Emergency Control Room has not been identified.	
ES-2	5.5.2.11	The applicant did not identify solvent wastes as a hazard requiring PSSCs to reduce the risk from spills.	

DSER OPEN ITEM MAP TO CAR REVISION

OPEN ITEMS ADDRESSED IN THE CAR			
Item #	**CAR Section #**	**DSER OPEN ITEM**	**Comment**
FLS-1	5.5.2.4.6.1, 8.5	The accident scenario of a hydrogen explosion in the glovebox outside of the sintering furnace airlock due to insufficient purging in the airlock needs to be developed.	
FLS-3	11.9.2.1	DCS has stated that the nitrogen system functions to cool the calciner bearing for containment of material. However, the N2 system has not been identified as a PSSC in Chapter 5.	
FLS-4	11.9.1.10.1	Due to the possible impact of the non-safety related instrument air-system on the PSSC seismic isolation system and due to its similarity in function to similar systems in nuclear power plants, the staff requests DCS to address how the current instrument air system design may address Information Notices 95-53, 92-67, 88-214, and 87-28.	
FS-2	7.4	The applicant has not demonstrated that an adequate margin of safety has been provided for the fire barriers.	
FS-3	5.5.2.2.6.6	The applicant is evaluating the pneumatic transfer tubes to determine if PSSCs will be required to prevent propagation of hot gases through the tubes.	
FS-4	11.4.7.1.3	The design basis criteria and qualification criteria and qualification standards for the glove boxes are not sufficient to ensure that gloveboxes will be used in their expected performance range. Additional information is needed to assure that the mechanical (including high temperature non-fire-related failure of glovebox windows) fire, and seismic properties, as provided by the applicant, are valid or bounding.	
FS-5	5.6.2	The applicant is developing design bases for the "glovebox fire protection features PSSC.	PSSC merged with Combustible Loading Controls

DSER OPEN ITEM MAP TO CAR REVISION

OPEN ITEMS ADDRESSED IN THE CAR			
Item #	**CAR Section #**	**DSER OPEN ITEM**	**Comment**
FTS-1	5.5.2.1.6.2, 5.5.2.1.6.4	The staff requires additional information on DCS's design basis for corrosion allowances for process equipment that will not be readily inspected; such as fully welded process equipment located in process cells.	See Response to Ap-04
GI-1	1.2.1	Provide organizational changes and new foreign ownership, control, or influence determination after the upcoming sale to Framatome.	
MP-1	8.5.1.6	PSSC and design basis information associated with the pyrophoric nature of some UO_2 powders.	
MP-2	8.5.1.6	PSSC and design basis information associated with the pyrophoric nature of some PuO_2 powders.	
MP-3	5.5.2.4.6.2, 11.4.11	PSSC and design basis information associated with the sintering furnace regarding potential steam explosions.	
MP-4	11.2.2.16, 5.5.2.4.6.1, 8.5	PSSC and design basis information associated with the sintering furnace regarding potential explosions in the room due to a hydrogen leak.	
NCS-2	Table 6-1	Definition of NCS design basis controlled parameters for AP and MP process auxiliary systems (specifically including process ventilation, isotopic dilution, and high-alpha waste).	
NCS-3	Table 6-1, Table 6-2	Justification for the bounding density values assumed in Tables 6-1 and 6-2.	
NCS-5	5.4.3	The definition of "highly unlikely" for criticality hazards.	
NCS-6	6.4	For ANSI/ANS-8.1-1983 (R1988): What is meant by "other justification" in the means for extending the code's area(s) of applicability beyond experimental data.	

DSER OPEN ITEM MAP TO CAR REVISION

OPEN ITEMS ADDRESSED IN THE CAR			
Item #	**CAR Section #**	**DSER OPEN ITEM**	**Comment**
NCS-7	6.4	For ANSI/ANS-8.15-1981: The applicability of ANSI/ANS-8.1 limits to mixtures involving special actinide elements at the MFFF.	
NCS-8	6.4	For ANSI/ANS-8.17-1984: What is meant by "other justification" in the means for extending the code's area(s) of applicability beyond experimental data.	
RS-1	11.2.2.16, 5.5.2.1.6.12	Means by which a worker becomes aware of the sintering furnace loss of confinement.	
SA-1	5.5, 11.6	All functions presently listed under the Process I&C System are to be listed as either functions of the Safety Control Subsystem or Emergency Control System.	
SA-2	5.5.2.7.6.2, 11.1.7.4.3	DOE information is needed to verify the applicant's assumptions regarding a potential explosion in F-Area.	
SA-3	Table 5.5.8	The aircraft hazard analysis provided is insufficient to exclude the consideration of aircraft impact load for Seismic Cat. I structures because the analysis provided did not consider projected flight information that could affect the site.	DCS provided the summary of the specific screening analysis in correspondence 08 March 2002. The CAR identifies the screening criteria for external man-made hazards and identifies these events as below the screening threshold. The CAR Table 5.5-8 was revised to include a footnote which indicates the aircraft flight data includes projected flight information to address DSER open item SA-3.
SA-4	11.8.7, 5.5.2.6.5.2	The applicant needs to justify the mitigation strategy of the seismic event in regard to isolation of flammable gas lines. Seismic isolation valves were identified as PSSCs in CAR Chapter 11.9 but not in CAR Table 5.5-21 with respect to earthquakes. The applicant should explain why the seismic isolation valves were not included as PSSCs.	

DSER OPEN ITEM MAP TO CAR REVISION

OPEN ITEMS ADDRESSED IN THE CAR			
Item #	**CAR Section #**	**DSER OPEN ITEM**	**Comment**
SD-1	1.3.4.6	Provide the sensitivity of field and laboratory radiation measurements used to determine the extent of existing soil radioactivity.	CAR Section 1.3.4.6 was revised to clarify the results of the sampling.

DSER OPEN ITEM MAP TO CAR REVISION

OPEN ITEMS REQUIRING CLARIFICATION OR NO ACTION			
Open Item #	**CAR Section #**	**DSER OPEN ITEM**	**Comment**
ES-1	No Action Required by DCS	The staff is continuing its review of the applicant's environmental consequence analysis. (DSER Section 10.1.3.2)	No DCS action required
FLS-2	OPEN	DCS has stated that the purpose of the nitrogen blanket on the hydroxylamine and hydrazine tanks is to displace and prevent air from entering these tanks, thereby eliminating flammability concerns. The staff has continuing concerns that this is an apparent safety function and that no PSSCs have been identified for this system.	During in office meetings with the NRC, DCS has clarified that the nitrogen system does not have any safety functions and is not a principal SSC. The NRC indicated that they will provide DCS clarification of what additional information is needed to close this open item.
AP-11	OPEN	The design basis values of the corrosion function of the fluid transport system PSSC should address instrumentation and/or monitoring of components that could be exposed to aggressive species in the Offgas unit.	During in office discussions, the NRC indicated that they will provide DCS additional clarification of what is required to close this open item.
AP-12	OPEN	Provide PSSC and design basis information on the sampling systems.	During in office discussions, the NRC indicated that they will provide DCS additional clarification of what is required to close this open item.

DSER OPEN ITEM MAP TO CAR REVISION

REMAINING OPEN ITEMS		
Item #	**DSER OPEN ITEM**	**Comment**
AP-08	A design basis and PSSCs are needed for flammable gases and vapors in the Offgas unit.	
AP-09	A design basis and PSSCs are needed for maintaining temperatures below the solvent flashpoint.	
AP-10	Provide a design basis and PSSCs for removal of potentially toxic or reactive gases in the Offgas unit.	
CS-02	The staff concludes that the HAN/hydrazine analysis in Chapter 5.5 of the CAR is not complete and that PSSCs and their design bases for preventing HAN/hydrazine explosions are not adequate for all potentially affected units and components. At a minimum this applies to the following areas: purification event, recovery, offgas.	Updated information has been incorporated into Sections 5.5.2.4.6.4 and 8.5.1.3. However, this information is still being developed and is considered OPEN.
CS-03	The staff concludes that the HAN/hydrazine analysis in Chapter 5.5 of the CAR is not complete and that PSSCs and their design bases for preventing azide formation and potential explosions are not adequate for all potentially affected units and components.	Updated information has been incorporated into Sections 5.5.2.4.6.10, 5.5.2.4.6.11 and 8.5.1. However, this information is still being developed and is considered OPEN.
CS-09	The applicant has not provided a solvent temperature design basis with sufficient margin.	
FQ-1	Provide information on project design costs.	
FS-1	The applicant did not provide sufficient justification that the C3 and C4 final HEPA filter could perform their safety function under fire/soot conditions.	
NCS-1	The need for specific Pu/MOX experience for NCS staff involved in the design phase.	
NCS-4	Determination of Design Basis USLs for each process type, and justification for the administrative margin (DSER Section 6.1.3.5.2); description of sensitivity methods to be provided in Part III of the Validation Report.	
VS-1	Justify the use of a leak path factor of 10E-4 for two banks of HEPA filters under accident conditions.	