

January 13, 2003

Mr. Peter S. Hastings
Licensing Manager
Duke Cogema Stone & Webster
P.O. Box 31847
Mail Code FC12A
Charlotte, NC 28231-1847

SUBJECT: JANUARY 2003 MONTHLY OPEN ITEM STATUS REPORT

Dear Mr. Hastings:

The purpose of this letter is to update Duke Cogema Stone & Webster (DCS) on the status of the U.S. Nuclear Regulatory Commission's (NRC's) review of the Mixed Oxide Fuel Fabrication Facility Construction Authorization Request (CAR).

The attached table provides the status of the staff's review of open items. Most of the open items (56) were identified in the NRC Draft Safety Evaluation Report (DSER), dated April 30, 2002. The enclosed table includes 10 additional open items associated with the staff's ongoing review of the CAR. Endnotes have been added to this table to clarify the staff's expectations of DCS for information and commitments required to close open items.

The enclosed table also reflects the staff's findings relative to a meeting between NRC and DCS December 10-12, 2002. Issues discussed during the December meeting included fire safety, electrical systems, instrumentation and controls, and chemical safety. More information about some of the items in this report is provided in a separate meeting summary.

Sincerely,

/RA/

Andrew Persinko, Sr. Nuclear Engineer
Special Projects and Inspection Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

cc: J. Johnson, DOE
H. Porter, SC Dept. of HEC
J. Conway, DNFSB
L. Zeller, BREDL
G. Carroll, GANE

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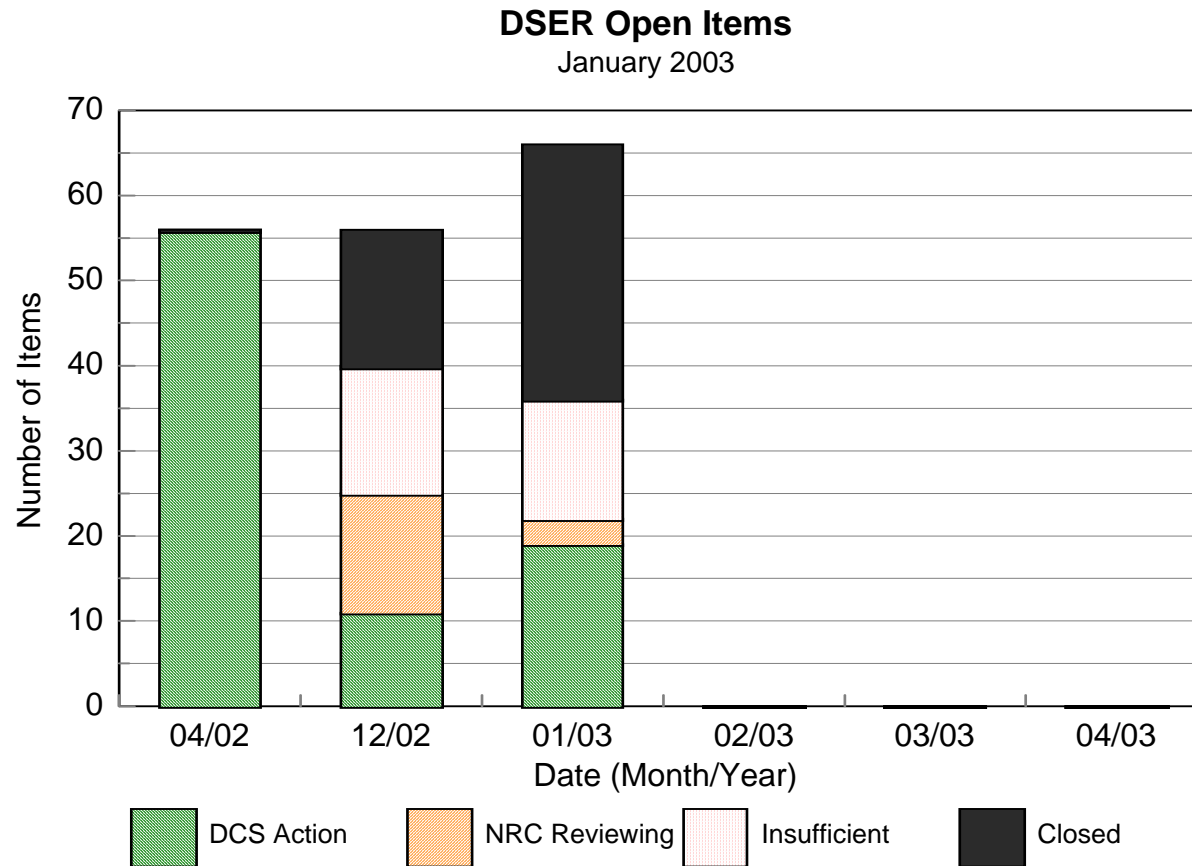
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NRC Monthly Open Item Status Report: MFFF Construction Authorization Request

Status of Open Items since the NRC's Draft Safety Evaluation Report was issued on April 30, 2002.



NRC Monthly Open Item Status Report: MFFF Construction Authorization Request

Category 1) DCS action to address = OPEN

Category 2) DCS addressed, Staff reviewing = OPEN

Category 3) DCS addressed, Insufficient Information = OPEN

CLOSED - DCS addressed, Staff accepts

Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
GI-1	1.1	Provide organizational changes and new foreign ownership, control, or influence determination after the upcoming sale to Framatome	CAR 1.2.1	Acceptable, per SRP §1.2.4	CLOSED
SD-1	1.3	Provide the sensitivity of field and laboratory radiation measurements used to determine the extent of existing soil radioactivity. (DSER Section 1.3.1.4)	CAR 1.3.4.6	Insufficient Information ¹	OPEN
FQ-1	2.0	Provide information on project design costs. (DSER Section 2.1.1)	1/31/03	30 days from receipt	OPEN
FQ-2	2.0	Update financial statements and project costs	New Open Item ²	30 days from receipt	OPEN
SA-1	5.0	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. (DSER Section 5.1.5.3.1)	CAR 5.5 CAR 11.6	Acceptable, per SRP §11.4.3.2	CLOSED
SA-2	5.0	DOE information is needed to verify the applicant's assumptions regarding a potential explosion in F-Area. (DSER Section 5.1.5.2)	CAR 5.5.2.7.6.2 CAR 11.1.7.4.3	Insufficient Information ³	OPEN
SA-3	5.0	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. (DSER Section 5.4.1.2)	CAR Table 5.5-8	Acceptable, per SRP §5.4.3.1	CLOSED
SA-4	5.0	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 Section 5.1.5.1)	CAR 11.8.7 CAR 5.5.2.6.5.2	Acceptable, per SRP §11.4.6.2	CLOSED

NRC Monthly Open Item Status Report: MFFF Construction Authorization Request

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
NCS-1	6.0	The need for specific Pu/MOX experience for NCS staff involved in the design phase (DSER Section 6.1.1) Roles and responsibilities during design phase. Need for familiarity with NCS programs at similar facilities for NCS Function Manager.	1/31/03	30 days from receipt	OPEN
NCS-2	6.0	Definition of NCS design basis controlled parameters for AP and MP process auxiliary systems (specifically including process ventilation, isotopic dilution, and high-alpha waste) (DSER Section 6.1.3.4.1)	CAR Table 6-1	Insufficient Information ⁴	OPEN
NCS-3	6.0	Justification for the bounding density values assumed in Tables 6-1 and 6-2 (DSER Sections 6.1.3.4.1 and 6.1.3.4.2) Justification for bounding nature of Pu and stripped U isotopics. Controlled parameters for dissolution/dechlorination unit.	CAR Table 6-1 CAR Table 6-2	Insufficient Information ⁵	OPEN
NCS-4	6.0	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 (DSER Section 6.1.3.5)	1/31/03	6/30/03	OPEN
NCS-5	6.0	The definition of "highly unlikely" for criticality hazards (DSER Section 6.1.4.2)	CAR 5.4.3	Insufficient Information ⁶	OPEN
NCS-6	6.0	For ANSI/ANS-8.1-1983 (R1988): What is meant by "other justification methods" in the means for extending the code's area(s) of applicability beyond experimental data (DSER 6.1.4.3)	CAR 6.4	Insufficient Information ⁷	OPEN
NCS-7	6.0	For ANSI/ANS-8.15-1981: The applicability of ANSI/ANS-8.1 limits to mixtures involving special actinide elements at the MFFF (DSER Section 6.1.4.3)	CAR 6.4	Acceptable, per SRP §6.4.3.3.1	CLOSED

NRC Monthly Open Item Status Report: MFFF Construction Authorization Request

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
NCS-8	6.0	For ANSI/ANS-8.17-1984: What is meant by "other methods justification" in the means for extending the code's area(s) of applicability beyond experimental data (DSER Section 6.1.4.3)	CAR 6.4	Insufficient Information ⁷	OPEN
NCS-9	6.0	Clarification that areas requiring exemption from CAAS coverage under §70.24 will be submitted to NRC for review and approval.	New Open Item ⁸	CAR did not agree with RAI response dated 8/31/2001 30 days from receipt	OPEN
NCS-10	6.0	Clarification of commitments to ANSI/ANS-8 series standards.	New Open Item ⁹	CAR did not agree with RAI response dated 8/31/2001 & 12/5/2001 30 days from receipt	OPEN
FS-1	7.0	The applicant did not provide sufficient justification that the C3 and C4 final HEPA filter could perform their safety function under fire/soot conditions. (DSER Section 7.1.5.5.)	1/31/03	30 days from receipt	OPEN
FS-2	7.0	The applicant has not demonstrated that an adequate margin of safety has been provided for the fire barriers. (DSER Section 7.1.5.6.)	CAR 7.4	Insufficient Information ¹⁰	OPEN
FS-3	7.0	The applicant is evaluating the pneumatic transfer tubes to determine if PSSCs will be required to prevent propagation of hot gases through the tubes. (DSER Section 7.1.5.6.)	CAR 5.5.2.2.6.6	Acceptable, per SRP §7.4.3.2	CLOSED

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
FS-4	7.0	The design basis criteria and qualification criteria and qualification standards for the gloveboxes 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. (DSER Section 7.1.2.13; 11.7.13)	CAR 11.4.7.1.3	Acceptable, per SRP §7.4.3.2	CLOSED
FS-5	7.0	The applicant is developing design bases for the "glovebox fire protection features" PSSC. (DSER Section 7.1.5.8.)	CAR 5.6.7	Acceptable, per SRP §7.4.3.2	CLOSED
FS-6	7.0	Clarify that design basis for clean agent includes manually connected reserve.	New Open Item	30 days from receipt	OPEN
FS-7	7.0	Clarify the difference between the terms "isolation valves" and "fire dampers."	New Open Item	30 days from receipt	OPEN
FS-8	7.0	Add final C4 HEPA filters as a PSSC for glovebox fires (event GB-1)	New Open Item CAR 5.5.2.2.6.2	Acceptable, per SRP §7.4.3.2	CLOSED
CS-1	8.0	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 Section 8.1.2.5.2.5)	CAR 5.5.2.4.6.7 CAR 8.5	Insufficient Information ¹¹	OPEN

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
CS-2	8.0	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. (DSER Section 8.1.5.2.3)	CAR 5.5.2.4.6.4 CAR 8.5.1.3	Acceptable, pending additional information ¹²	OPEN
CS-3	8.0	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. (DSER Section 8.1.5.2.3)	CAR 5.5.2.4.6.10 CAR 5.5.2.4.6.11 CAR 8.5.1	NRC Reviewing 02/15/03 ¹³	OPEN
CS-4	8.0	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. (DSER Section 8.1.5.2.3)	CAR 5.5.2.4.6.11 CAR 5.5.2.4.6.10 CAR 8.5.1	NRC Reviewing 02/15/03 ¹⁴	OPEN
CS-5a	8.0	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 ₂ O 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. (DSER Section 8.1.2.4.1)	CAR 5.5.2.10.6.3 CAR 8.4	Acceptable, per SRP §8.4.3.4	CLOSED

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
CS-5b	8.0	Rather than reference TEEL levels, numerical values for which are subject to frequent updates and changes, provide commitment to and justification for specific hazardous chemical concentrations (or other exposure values) to meet 70.61 performance requirements.	New Open Item	30 days from receipt	OPEN
CS-6	8.0	The potential controls for a facility worker from a laboratory explosion have not been identified. (DSER Section 8.1.2.1.2.3)	CAR 5.5.2.4.6.14 CAR 5.6.2.7	Acceptable, per SRP §8.4.3.4	CLOSED
CS-7	8.0	The safety functions for delivery of chemicals have not been adequately addressed. (DSER Section 8.1.2.1.3)	CAR 5.5.2.4.6.15 CAR 5.5.2.10.1	Acceptable, per SRP §8.4.3.4	CLOSED
CS-8	8.0	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. (DSER Section 8.1.2.4.1)	CAR 8.4.1	Acceptable, per SRP §8.4.3.4	CLOSED
CS-9	8.0	The applicant has not provided a solvent temperature design basis with sufficient margin. (DSER Section 8.1.2.5.2.2)	1/31/03	30 days from receipt	OPEN
CS-10	8.0	A suitable design basis for habitability in the Emergency Control Room has not been identified. (DSER Section 8.1.2.6.1)	CAR 11.4.11.1.16	Insufficient Information ¹⁵	OPEN
RS-1	9.0	Means by which a worker becomes aware of the sintering furnace loss of confinement. (DSER Section 9.1.2.4)	CAR 11.2.2.16 CAR 5.5.2.1.6.12	Acceptable, per SRP §9.1.4.2.3	CLOSED
ES-1	10.0	The staff is continuing its review of the applicant's environmental consequence analysis. (DSER Section 10.1.3.2)	CAR 5.4	Acceptable, per SRP §10.4.3	CLOSED
ES-2	10.0	The applicant did not identify solvent wastes as a hazard requiring PSSCs to reduce the risk from spills. (DSER Section 10.1.3.4)	CAR 5.5.2.11	Acceptable, per SRP §10.4.3	CLOSED

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
AP-1	11.2	With respect to the electrolyzer, the applicant has not provided sufficient justification for protecting the electrolyzer against the overtemperature event in the hazard analysis. This applies to the dissolution and silver recovery units. (DSER Section 11.2.1.2)	CAR 11.6.7	Acceptable, per SRP §8.4.3.4	CLOSED
AP-2	11.2	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 (DSER Sections 11.2.1.2 and 11.2.1.10)	CAR 5.5.2.4.6.13	Insufficient Information ¹⁶	OPEN
AP-3	11.2	The applicant's hazard and accident analysis 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 (DSER Sections 11.2.1.2 and 11.2.1.10)	CAR 7.2.2	Insufficient Information ¹⁷	OPEN
AP-4	11.2	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 (DSER Sections 11.2.1.2 and 11.2.1.10)	CAR 5.6.2.4 CAR 5.5.2.1.6.2 CAR 5.5.2.1.6.4	Acceptable, per SRP §8.4.3.4, §8.4.3.5	CLOSED
AP-5a	11.2	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)	CAR 10.1.4	Acceptable, per SRP §10.4.3	CLOSED
AP-5b	11.2	Identify any PSSCs and design bases for the waste unit, such as maximum inventories (DSER Section 11.2.1.12)	New Open Item CAR 10.1.4	Insufficient Information ¹⁸	OPEN

NRC Monthly Open Item Status Report: MFFF Construction Authorization Request

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
AP-6	11.2	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 (DSER Section 11.2.1.12)	CAR 11.3.2.14 CAR 5.5	Acceptable, per SRP §10.4.3	CLOSED
AP-7	11.2	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 (DSER Section 11.2.1.1)	CAR 11.3.7	NRC Reviewing 02-15-02	OPEN
AP-8	11.2	A design basis and PSSCs are needed for flammable gases and vapors in the Offgas unit (DSER Section 11.2.1.11)	1/31/03	30 days from receipt	OPEN
AP-9	11.2	A design basis and PSSCs are needed for maintaining temperatures below the solvent flashpoint (DSER Section 11.2.1.11)	1/31/03	30 days from receipt	OPEN
AP-10	11.2	Provide a design basis and PSSCs for removal of potentially toxic or reactive gases in the Offgas unit (DSER Section 11.2.1.11)	1/31/03	30 days from receipt	OPEN
AP-11	11.2	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 (DSER Section 11.2.1.11)	CAR 5.6.2.4	Acceptable, per SRP §8.4.3.4, §8.4.3.5	CLOSED
AP-12	11.2	Provide PSSC and design basis information on the sampling systems (DSER Section 11.2.1.13)	NRC Action	Acceptable, per SRP §8.4.3.4, §8.4.3.5	CLOSED

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
AP-13	11.2	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 (DSER Section 11.2.1.2)	CAR 5.5.2.10 CAR 8.4	Acceptable, per SRP §8.4.3.4, §8.4.3.5	CLOSED
AP-14	11.2	Provide a qualitative approach that will link the residual plutonium (VI) oxalate introduced into the calciner furnace to the design basis pressure margin of the furnace.	New Open Item ¹⁹	30 days from receipt	OPEN
MP-1	11.3	PSSC and design basis information associated with the pyrophoric nature of some UO ₂ powders (DSER Section 11.3.1.2.1)	CAR 8.5.1.6	Acceptable, pending resolution of FS-1 ²⁰	OPEN
MP-2	11.3	PSSC and design basis information associated with the pyrophoric nature of some PuO ₂ powders (DSER Section 11.3.1.2.3)	CAR 8.5.1.6	Insufficient Information ²¹	OPEN
MP-3	11.3	PSSC and design basis information associated with the sintering furnace regarding potential steam explosions (DSER Section 11.3.1.2.4)	CAR 5.5.2.4.6.2 CAR 11.4.11	Acceptable, per SRP §8.4.3.4	CLOSED
MP-4	11.3	PSSC and design basis information associated with the sintering furnace regarding potential explosions in the room due to a hydrogen leak (DSER Section 11.3.1.2.4)	CAR 11.2.2.16 CAR 5.5.2.4.6.1 CAR 8.5	Acceptable, per SRP §8.4.3.4 ²²	CLOSED
VS-1	11.4	Justify the use of a leak path factor of 1E-4 for two banks of HEPA filters under accident conditions (DSER Section 11.4.1.3)	1/31/03	30 days from receipt	OPEN
IC-1	11.5	Clarify commitment to IEEE 603 for seismic sensors and seismic trip actuation	Response pending	30 days from receipt	OPEN

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
FTS-1	11.8	The staff requires additional information on DCS's design basis for corrosion allowances for process equipment that will not be readily inspectable; such as fully welded process equipment located in process cells. (DSER Section 11.8.1.3)	CAR 5.5.2.1.6.2 CAR 5.5.2.1.6.4	Acceptable, per SRP §15.3.4	CLOSED
FLS-1	11.9	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. (DSER section 11.9.1.1)	CAR 5.5.2.4.6.1 CAR 8.5	Acceptable, per SRP §5.4.3.1	CLOSED
FLS-2	11.9	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. (DSER Section 11.9.1.1)	CAR 5.5.2.10.6.3 CAR 8.4 (Related to C5-5)	Acceptable, per SRP §5.4.3.1	CLOSED
FLS-3	11.9	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. (DSER Section 11.9.1.1)	CAR 11.9.2.1	Acceptable, per SRP §5.4.3.1	CLOSED
FLS-4	11.9	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. (DSER section 11.9.1.3)	CAR 11.9.1.10.1	Acceptable, per SRP §5.4.3.1	CLOSED

CAR refers to the Revised Construction Authorization Request submitted on 10/31/02.

Endnotes for Monthly Open Item Status Report, January 2003

1. SD-1. For the Pre-operational Environmental Monitoring Program described at CAR §10.3, explain whether the Preconstruction Environmental Monitoring includes more sensitive measurements of alpha-emitting radioactivity concentrations in soils than those described for the CY 2000 geotechnical investigations at CAR §1.3.4.6.

2. FQ-2. Provide up-to-date financial information, including project costs and a financial statement. In your response, include a commitment to provide annual updates of this information.

On August 31, 2001, in response to an NRC request for additional information dated June 21, 2001, DCS submitted propriety financial information pursuant to the requirements in 10 CFR, §70.23(a)(5) and Standard Review Plan §2.4.3.D (NUREG-1718). The information provided by DCS included project costs and financial statements dated April 6, 2001 for the year ending December 31, 2000 and the period from March 22, 1999 to December 31, 1999. NRC anticipates project costs could be different because DCS has modified the facility design basis to accommodate alternate feedstock. Further, staff anticipates that a current DCS financial statement is available for the year ending December 31, 2001 and that a financial statement for the year ending December 31, 2002 will be available in April 2003.

3. SA-2. In the CAR revision (§ 5.5.2.7.6.2), DCS commits to calculating in the ISA the final peak pressures resulting from explosions to demonstrate that the BEG and MFFF will withstand explosion overpressures. The interim conclusion reached by DCS is that no new PSSCs are required for this event. This item remains open pending staff review of the supporting calculations.

4. NCS-2. It remains unclear where the isotopic dilution occurs, and why isotopic abundance is not listed as a controlled parameter in Table 6-1. Moreover, the response only addressed the examples cited and did not address how backflow to other auxiliary systems will be prevented.

5. NCS-3 Tables 6-1 and 6-2 did not provide any information justifying the assumed density values. Footnotes indicated that density values have been shown to be conservative at MELOX and LaHague, but no supporting data was provided. In addition, other changes raised new questions on additional parameters and bounding values.

6. NCS-5 Revised Section 5.4.3 does not define the acceptable level of likelihood for criticality events or how it will be determined that this level will be reached. It is not clear whether the supplemental likelihood assessment will be performed for criticality events.

7. NCS-6, NCS-8 The commitment to what "other methods" will be used when extending the code's area(s) of applicability needs to be clarified. ANSI/ANS-8.1-1983 (R1988) & ANSI/ANS-8.17-1984 include the words "other calculation methods" while RCAR Section 6.4 has the words "other methods".

8. NCS-9 Revision to CAR Section 6.3.2 (in response to RAI 74) did not meet expectations of staff. Resulting text appears to pre-approve areas to be excluded from CAAS coverage without providing adequate justification, instead of indicating that areas for which exclusion is requested will be submitted along with justification for review and approval with the license application.

9. NCS-10 Revision to CAR Section 6.4 had changes to the words committed to in the response to RAI 90. These words made it unclear what provisions of the standards were being committed to and which standards were part of the design basis. In addition, the commitment to include ANSI/ANS-8.23-1997 as part of the design basis was removed.

10. FS-2. Justify the lack of conservatism in selecting a 600°C criterion for flashover, since some room temperatures exceed 500°C and research indicates flashover can occur at between 450°C and 600°C.

11. CS-1. Identify a margin of safety between an initiation temperature of 137°C and the proposed 135°C design basis temperature. For example, identify the margin of safety, as it is used in the following formula:

$$[\text{operating temperature}] + [\text{enthalpy effects}] < 135^{\circ}\text{C} - [\text{impurity depression}] - [\text{safety margin}],$$

where 135°C is the initiation temperature for a “runaway” reaction not modified for impurities,
[enthalpy effects] is the temperature rise due to impurities, and
[impurity depression] is the runaway initiation temperature reduction due to impurities.

12. CS-2. DCS to provide additional information in January 2003.

13. CS-3. DCS provided a description of the neutralization and sampling controls in the CAR revision. Staff continue to review this description.

14. CS-4. Provide information on administrative controls to prevent “dryout,” design bases for uranium and plutonium azide concentrations and specific pH controls for sodium azide.

15. CS-10. Provide information, not included in the information provided by DCS in CAR 11.4.11.1.6, on the design basis hazardous chemical concentrations at which the Emergency Control Room would be deemed “habitable” by DCS.

16. AP-2. Provide the lower flammability limit methodology and a Hanford report that supports the use of acid normality controls as design bases, as described at CAR 5.5.2.4.6.13.

17. AP-3. Provide additional information to NRC that demonstrates the adequacy of the DCS glovebox fire strategy for fires involving bulk titanium.

18. AP-5b. Clarify if inventory information provided in CAR Table 5.5-3a are maximum inventories and identify any actions that would be taken if maximum inventories are exceeded.

19. AP-14. Describe the method by which plutonium (VI) oxalate will be measured before being introduced to the calciner furnace.

20. MP-1. Address uranium dioxide burnback in the analysis of soot loading (FS-1).

21. MP-2. Address the hazard posed by storing purified, calcined plutonium oxide in buffer storage that does not meet the DOE-STD-3013-2000 standard. The DCS analysis will address moisture content and storage time limits, as necessary.

22. MP-4. Address flammability limits to close open item AP-2