

December 9, 2002

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

SUBJECT: STATUS OF U.S. NUCLEAR REGULATORY COMMISSION REVIEW OF  
REVISED CONSTRUCTION AUTHORIZATION REQUEST

Dear Mr. Hastings:

The purpose of this letter is to inform Duke Cogema Stone & Webster (DCS) about the status of the U.S. Nuclear Regulatory Commission's (NRC's) review of the revised Mixed Oxide Fuel Fabrication Facility Construction Authorization Request (CAR), dated October 31, 2002.

The attached table provides the status of the staff's review of the open items identified in the Draft Safety Evaluation Report (DSER) dated April 30, 2002. The staff intends to provide an updated table to DCS monthly.

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

Docket: 70-3098

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

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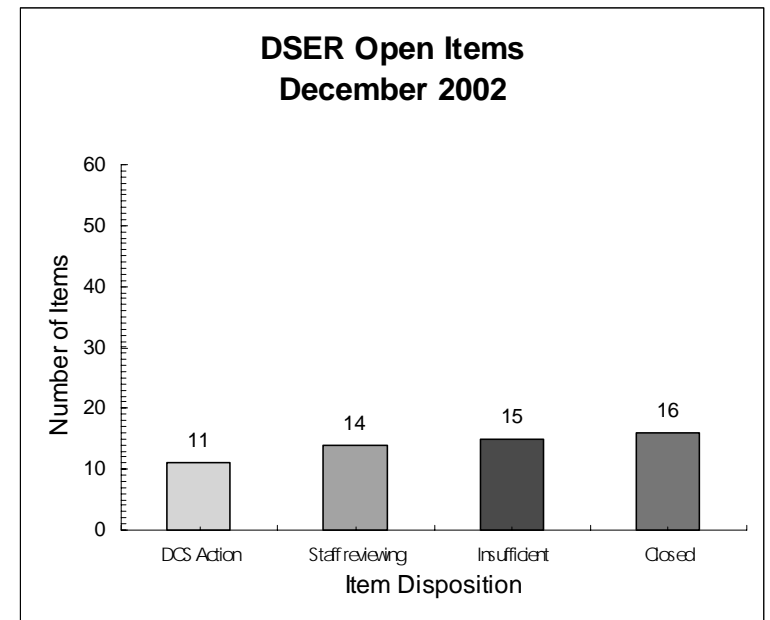
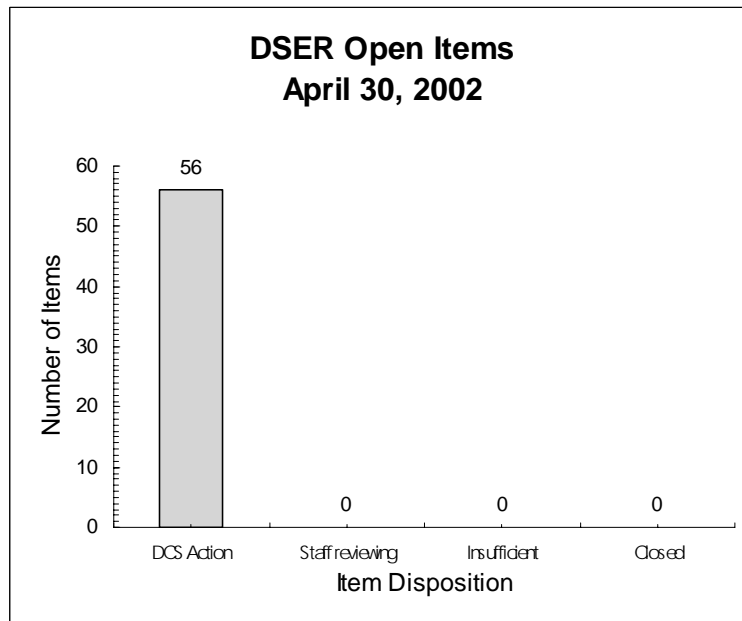
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<b>NAME</b>	DPersinko		LGross		JGiitter			
<b>DATE</b>	12/ 09 /02		12/ 09 /02		12/ 09 /02			

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## NRC Monthly Open Item Status Report: MFFF Construction Authorization Request

Summary Comparison of Open Item Change of Status 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 to address in Jan. 2003 = OPEN    Category 2) DCS addressed in CAR, Staff reviewing = OPEN    Category 3) DCS addressed in CAR, Insufficient Information = OPEN    CLOSED - DCS addressed in CAR, Staff accepts    NRC Action - DCS waiting for NRC feedback

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	Under review / 12/16/02	OPEN
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	Under review / 12/20/02	OPEN
FQ-1	2.0	Provide information on project design costs. (DSER Section 2.1.1)	1/31/03	2/28/03	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	Under review / 12/20/02	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	Under review / 12/20/02	OPEN
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
NCS-1	6.0	The need for specific Pu/MOX experience for NCS staff involved in the design phase (DSER Section 6.1.1)	1/31/03	2/14/03	OPEN

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
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	Under review 12/31/02	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)	CAR Table 6-1 CAR Table 6-2	No justification provided; 1/15/03	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	Under review / 12/31/02	OPEN
NCS-6	6.0	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 6.1.4.3)	CAR 6.4	Under review / 12/31/02	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
NCS-8	6.0	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 (DSER Section 6.1.4.3)	CAR 6.4	Under review / 12/31/02	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	2/28/03	OPEN

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
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	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
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	Under review / 12/31/02	OPEN
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	OPEN
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)	1/31/03	2/14/03	OPEN

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
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)	1/31/03	2/14/03	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 8.5.1 CAR 5.5.2.4.6.10	Insufficient Information	OPEN
CS-5	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 <sub>2</sub> O <sub>4</sub> ) 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	Insufficient Information (TEELs open; operator action open; use of ARCON96 closed)	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	Insufficient Information	OPEN

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
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	Insufficient Information	OPEN
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	2/14/03	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	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	Under review / 12-13-02	OPEN
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
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	OPEN



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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
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	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-5	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); Identify any PSSCs and design bases for the waste unit, such as maximum inventories (DSER Section 11.2.1.12)	CAR 10.1.4	Under review / 12/31/02	OPEN
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	Under review / 12/31/02	OPEN
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	Under review / 12-31-02	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	2/14/03	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	2/14/03	OPEN

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
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	2/14/03	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	12/13/02	OPEN
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	Insufficient Information	OPEN
MP-1	11.3	PSSC and design basis information associated with the pyrophoric nature of some UO <sub>2</sub> powders (DSER Section 11.3.1.2.1)	CAR 8.5.1.6	Insufficient Information	OPEN
MP-2	11.3	PSSC and design basis information associated with the pyrophoric nature of some PuO <sub>2</sub> powders (DSER Section 11.3.1.2.3)	CAR 8.5.1.6	Insufficient Information	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	Insufficient Information	OPEN
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	Insufficient Information	OPEN

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Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
VS-1	11.4	Justify the use of a leak path factor of 10E-4 for two banks of HEPA filters under accident conditions (DSER Section 11.4.1.3)	1/31/03	2/28/03	OPEN
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.