May 26, 2004

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

SUBJECT: MAY 2004 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 report covers the status through May 28, 2004.

The attached table provides the status of the staff's review of open items. The table contains the 19 open items identified in Appendix A of the April 30, 2003, Draft Safety Evaluation Report (DSER). The figure showing the closure of open items since April 2002, has been retained and shows the disposition of the original 66 open items.

Staff has developed positions on nine of the ten remaining chemical safety open items that the NRC is reviewing. A dissenting view for each item exists within the technical review staff. Both positions on each issue have been provided to management for their review and determination. This letter report reflects management decisions on three of the chemical safety open items.

More information about some of the items in this report are provided in separate meeting summaries.

Sincerely,

/RA/

David D. Brown, Health Physicist
Special Projects 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
G. Carroll, GANE
D. Curran, Esq.,GANE
D. Silverman, Esq., DCS
L. Zeller, BREDL

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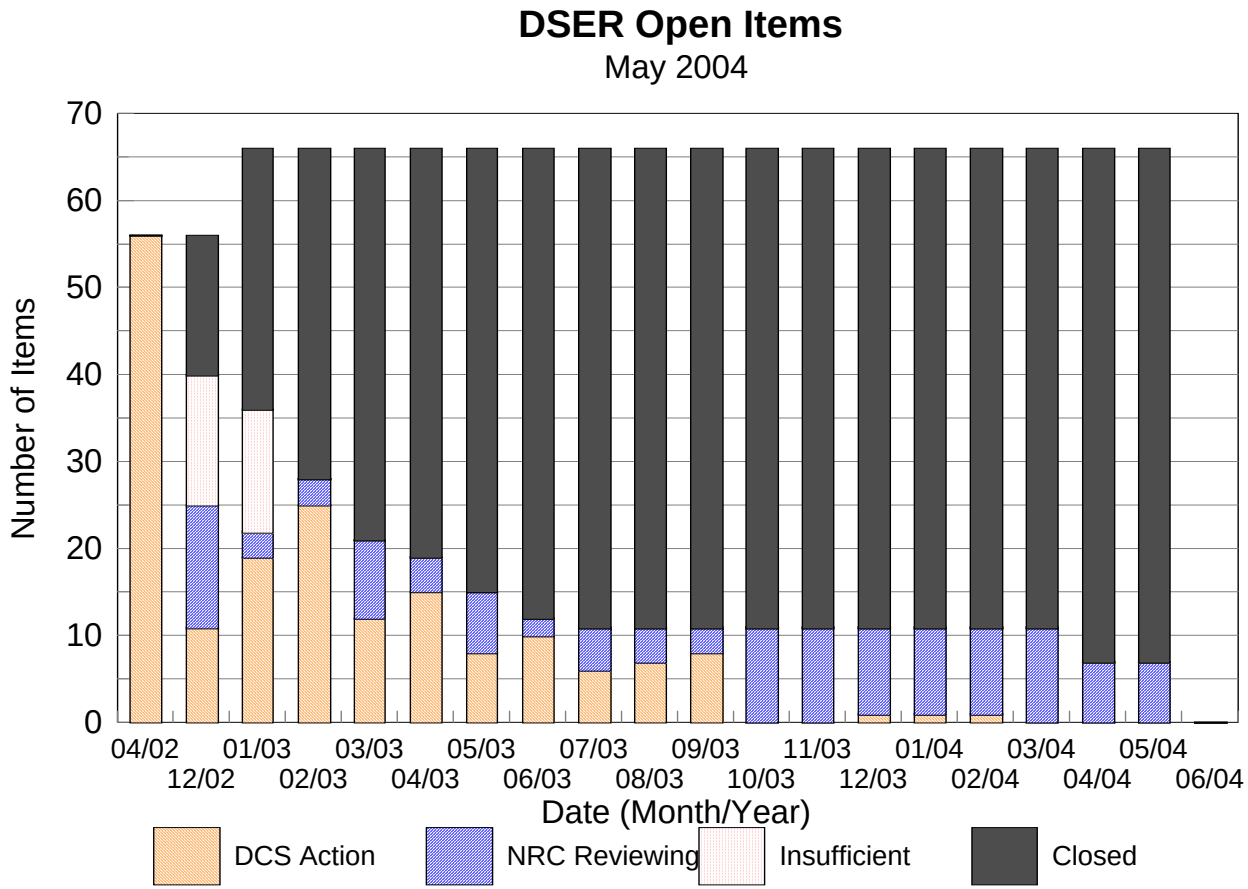
NRC Monthly Open Item Status Report: Mixed Oxide Fuel Fabrication Facility Construction Authorization Request

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) CLOSED - DCS addressed, Staff accepts

Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
FQ-1	2.0	Provide information on project design costs. (Revised DSER Section 2.1.1)	2/18/03 letter	Acceptable per SRP § 2.4.3	CLOSED
FQ-2	2.0	Update financial statements (Revised DSER Section 2.1.2)	2/18/03 letter	Acceptable per SRP § 2.4.3	CLOSED
NCS-4	6.0	Determination of Design Basis USLs for each process type, and determination of normal condition subcritical margin. Clarification of DCS' commitment to the preferred use of dual parameter control. (DSER Section 6.1.3.4.2 and 6.1.3.5.1)	Revised CAR 6.0 01/16/03 meeting 03/20/03 meeting 06/13/03 letter 06/25/03 RAI 7/29/03 letter 8/1/03 letters 7/29-8/1/03 meeting 9/11/03 meeting 10/10/03 letter 11/7/03 phone call 11/13/03 meeting 12/17-19/03 in-office review 01/13/04 phone call 02/12/04 letter	Acceptable per SRP § 6.4.3	CLOSED
FS-1	7.0	The ability of the final C4 and C3 HEPA filters to perform their safety function when considering soot loading, has not been adequately demonstrated (DSER Section 7.1.5.5)	2/18/03 letter 4/10/03 letter	Acceptable per SRP § 7.4.3	CLOSED

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) CLOSED - DCS addressed, Staff accepts

Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
FS-2	7.0	The margin of safety of the fire barriers has not been adequately resolved. (DSER Section 7.1.5.6)	CAR 7.4 2/6-7/03 meeting 2/18/03 letter 5/14/03 letter 8/1/03 meeting	Acceptable per SRP § 7.4.3	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 2/7/03 Meeting 4/8/03 CAR page changes 6/2-4/03 meeting 7/29-8/1 meeting 10/6/03 letter	Acceptable per SRP § 8.4.3	CLOSED
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 8.1.2.5.3.2)	CAR 5.5.2.4.6.4 CAR 8.5.1.3 05/30/03 letter 06/2-4/03 meeting 7/28/03 letter 7/29-8/1/03 meeting 10/6/03 letter	NRC Reviewing June 2004	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 8.1.2.5.3.3)	CAR 5.5.2.4.6.10 CAR 5.5.2.4.6.11 CAR 8.5.1 05/23/03 letter	Acceptable per SRP § 8.4.3	CLOSED

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) CLOSED - DCS addressed, Staff accepts

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.	2/18/03 letter	Acceptable per SRP § 8.4.3	CLOSED
		Additional information on indoor windspeed values needed.	02/18/03 letter 6/2-4/03 meeting	Acceptable per SRP § 8.4.3	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)	See AP-2	NRC Reviewing June 2004	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 2/18/03 letter 06/2/4/03 meeting 7/29-8/1 meeting 7/28/03 letter	NRC reviewing June 2004	OPEN
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 11.2.1.3.3)	CAR 5.5.2.4.6.13 1/15/03 meeting 2/18/03 letter 7/29-8/1/03 meeting 9/29/03 letter	NRC Reviewing June 2004	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 11.2.1.3.4)	CAR 7.2.2 2/6-7/03 meeting 5/23/03 letter 6/2-4/03 meeting 7/28/03 letter 7/29-8/1/03 meeting 10/10/03 letter 2/6/04 phone summary 3/12 letter	NRC Reviewing June 2004	OPEN

NRC Monthly Open Item Status Report: MFFF Construction Authorization Request

Category 1) DCS action to address = OPEN
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Category 3) CLOSED - DCS addressed, Staff accepts

Item No.	DSER Section	DSER Open Item Description	DCS Response	NRC Finding / Estimated Review Completion Date	Current Status
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 11.2.3.1)	CAR 11.3.7	Acceptable per SRP § 8.4.3	CLOSED
AP-8	11.2	A design basis and PSSCs are needed for flammable gases and vapors in the Offgas unit (DSER Section 11.2.1.3.10)	See AP-2	NRC Reviewing June 2004	OPEN
AP-9	11.2	A design basis and PSSCs are needed for maintaining temperatures below the solvent flashpoint (DSER Section 11.2.1.3.10)	See AP-2	NRC Reviewing June 2004	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 11.2.1.3.10)	5/30/03 letter	Acceptable, per SRP §8.4.3	CLOSED
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 2/18/03 letter 7/29-8/1//03 meeting 10/10/03 letter	Acceptable, per SRP §8.4.3	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)	02/18/03 letter	Acceptable, per SRP §11.4.5.2	CLOSED

Narrative of Open Items, May 2004

NCS-4. By letter dated October 10, 2003, DCS submitted a revised Part II of the validation report, in which traditional methods are used to select benchmarks for AOA(3) and AOA(4). A meeting was held with DCS on November 13, 2003, and NRC conducted in-office review on December 17-19, 2003. DCS responded to remaining questions on February 12, 2004.

By letter dated April 16, 2004, NRC staff informed DCS of the results of its review of the October 10, 2003, Criticality Safety Validation Report, Rev. 3. Staff concluded that the validation of AOA(3) is sufficient to support NRC approval of the requested upper subcritical limit (USL) of 0.9345. For AOA(4), staff concluded that an additional 1% margin in keff is needed to provide reasonable assurance that calculations involving mixed oxide powders are adequately subcritical. Therefore, the allowable USL for AOA(4) is 0.9249.

CS-1. By letter dated October 6, 2003, DCS submitted an explanation of evaporative cooling PSSCs and design bases for evaporators. In response to a memorandum from the staff dated December 30, 2003, NRC management, on April 12, 2004, directed staff to close CS-1 without conditions.

CS-2. By letter dated October 6, 2003, DCS submitted a revised safety strategy for preventing HAN explosions. Staff is reviewing the letter.

CS-5b. In response to a memorandum from the staff dated November 25, 2003, NRC management, on April 16, 2004, directed staff to close CS-5b without conditions.

CS-9, AP-2, AP-8, and AP-9. By letter dated September 29, 2003, DCS submitted a description of the PSSCs and design bases for prevention of flammable gas explosions, including a description of the interlocks that it proposes to use to justify using 60% of the LFL per NFPA 69. Staff is reviewing the letter.

CS-10. CAR Table provided by DCS found acceptable. Per the discussion at the July 29-August 1, 2003, meeting, and clarification provided during October 16 & 21, 2003, phone calls, staff continue to review PSSCs identified by DCS with respect to self-contained breathing apparatus (SCBA).

AP-3. By letter dated October 10, 2003, DCS submitted a revised safety strategy for the prevention of titanium fires in the electrolyzers. During a phone call February 4, 2004, DCS stated that it will revise the October 10, 2003, design basis description and submit it to NRC for review. By letter dated March 12, 2004, DCS submitted the revised design basis description. Staff is reviewing the letter.

MP-1. In response to a memorandum from the staff dated December 17, 2003, NRC management, on April 15, 2004, directed staff to close MP-1 without conditions.