RAS 6697

July 29, 2003

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Thomas S. Moore, Chairman
Charles N. Kelber
Peter S. Lam

DOCKETED
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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

In the Matter of	)	
DUKE COGEMA STONE & WEBSTER	)	Docket No. 0-70-03098-ML
(Savannah River Mixed Oxide Fuel Fabrication Facility)	)	ASLBP No. 01-790-01-ML

GEORGIANS AGAINST NUCLEAR ENERGY'S OPPOSITION TO DUKE COGEMA STONE & WEBSTER'S MOTION FOR SUMMARY DISPOSITION OF CONSOLIDATED CONTENTION 11

I. INTRODUCTION

Pursuant to 10 C.F.R. § 2.749, Georgians Against Nuclear Energy ("GANE") hereby responds to Duke Cogema Stone & Webster's Motion for Summary Disposition on Consolidated Contention 11 (July 9, 2003) (hereinafter "DCS Motion"). The motion is not permitted by the procedural rules of this case, and therefore should be denied. In any event, the motion is without merit.[1]

[1] As the lead intervenor with respect to Consolidated Contention 11, GANE is responding to DCS's motion on behalf of itself and Blue Ridge Environmental Defense League.

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GANE notes that, while this opposition has an attachment consisting of a statement of material facts in genuine dispute, it is not supported by affidavits or declarations of expert witnesses. GANE's position is based on a commonsensical reading of the Environmental Report ("ER") and draft Environmental Impact Statement (EIS") for the proposed MOX Facility, for which expert testimony is not necessary. GANE believes that the ER and draft EIS for the proposed MOX Facility are missing basic and generally comprehensible information that is necessary for the public to be able to understand and evaluate the environmental impacts of the proposed MOX Facility.

II. FACTUAL BACKGROUND

As admitted by the Atomic Safety and Licensing Board ("ASLB"), Contention 11 asserts that DCS's Environmental Report ("ER") "understates the impacts of the waste stream from the aqueous polishing process." LBP-01-35, 54 NRC 403, 444 (2001). As summarized by the ASLB, the "thrust" of the contention is that:

> neither DOE's SPD EIS nor the ER analyzes and addresses the annual 80,000-gallon, non-high-level, high-alpha liquid waste stream containing nearly 80,000 curies of americium-241 as required by NEPA. The fact that the waste ultimately will be turned over to DOE, and therefore is not within the jurisdiction of either DCS or NRC once the waste leaves the MFFF, does not relieve DCS of its obligation, in the absence of any DOE analysis of the high-alpha waste, to analyze and address in the ER the environmental impacts of the wastes it generates.

Id., 54 NRC at 443.

At the time GANE and BREDL submitted Contention 11, DCS planned to pipe the high-alpha liquid waste to the tank farm at the Savannah River Site. Table 3-3 of the ER set forth estimated annual volumes for the "Liquid americium stream" (8,900 gallons) and the "Excess acid" stream (1,400 gallons). *See* Exhibit 1.

In its June 2002 revised ER (referred to as "Revision 2" by DCS), DCS stated that it planned to solidify the high-alpha liquid waste stream, and send it to the Waste Isolation Pilot Project ("WIPP") as transuranic waste ("TRU"). ER, Rev. 2, section 3.3.2.9 at 3-19. Revision 2 also reflected DCS's plan to process alternate feed stock ("AFS"), also known as "junk plutonium." A revised Table 3-3 was included in Revision 2. *See* Exhibit 2.

Table 3-3 of Revision 2 provides annual volume estimates in gallons for the "Liquid americium stream" (10,000, 16,520 (max)), and the "Excess acid stream" (1,321, 2,378 (max)). A new category is also added: the "Alkaline stream" (2,980, 4,000 (max)). The table represents the total volume of "High Alpha Waste to WSB" as 14,301 gallons, 21,841 (max). According to a footnote, "max" represents "maximum expected annual volume due to unplanned rinses and change-overs."

Table 3-3 of Revision 2 also has a column entitled "Main Chemical Isotope Concentration or Annual Quantity" for each subcategory of high-alpha liquid waste. The table provides mass quantities of radionuclides, but provides radioactivity levels only for the quantity of Americium-241 in the liquid americium stream. No radioactivity levels are provided for Americium-241 in the other waste streams, or for plutonium or uranium.

In February of 2003, the NRC Staff issued a draft Environmental Impact Statement ("EIS") for the proposed MOX Facility. Section 4.3.4.2 of the draft EIS generally describes the waste streams to be generated by the proposed MOX Facility, including the high-alpha liquid waste stream. According to the draft EIS, the "estimated waste generation rates from the operation of the facilities are presented in Table 4.11."

Table 4.11 is attached as Exhibit 3. Table 4.11 provides estimates of "TRU" [i.e. transuranic] waste in cubic meters. The estimates are broken down for MOX facility operational waste (190 m^3/yr), PDCF [Pit Disassembly and Conversion Facility] waste (18 m^3/yr), and WSB [Waste Solidification Building] waste (310 m^3/yr), totaling 518 m^3/yr. If each of the estimates in m^3/yr is converted to gallons (1 cubic meter = 264 gallons), the TRU waste estimates are MOX facility operational waste 50,160 gallons, PDCF operational waste 4,752 gallons, and WSB operational waste 81,840 gallons, totaling 136,752. This total volume figure is about six times higher than the estimates for volume of high-alpha liquid waste represented in Table 3-3, Revision 2 of the ER. The Draft EIS, however, does not provide any calculations or other explanation that would illuminate the reasons for the apparent discrepancy between Table 3-3 of the ER and Table 4.11 of the draft EIS. In addition, Table 4.11 does not provide radioactivity levels for any category of TRU waste.

On July 11, 2003, two days after DCS filed its summary disposition motion, DCS submitted Revision 3 of the ER. Revision 3 included a revised Table 3-3, which is attached as Exhibit 4. While Revision 3 of Table 3-3 does not change any of the information provided in Revision 2 regarding main chemical or isotope concentration or annual quantity, Revision 3 of Table 3-3 makes several changes to the estimated annual volumes of the various components of the high-alpha liquid waste stream.

First, Revision 3 changes the labeling of the annual volume estimates for each subcategory of high-alpha liquid waste to "PDCF" and "AFS." Second, a new footnote "c" states that: "Reported volumes represent maximum anticipated for rinses and

changeovers. PDCF indicates feed from PDCF; AFS indicated (sic) Alternative Feedstock."

Third, Revision 3 changes the total estimated volume of high-alpha waste: Revision 2's estimate of "14,301 gallons, 21,841 (max)", is changed to "15,358 (PDCF), 21,841 (AFS)." DCS explains this change in a pleading filed on July 22, 2003. Duke Cogema Stone & Webster's Corrections Regarding Motion for Summary Disposition on Consolidated Contention 1 (hereinafter "DCS Correction"). The DCS Correction states that the "PDCF" figure is an estimate for waste generated by the PDCF only, while the "AFS" figure represents total high-alpha liquid waste volumes. Thus, it appears that the "AFS" category includes PDCF waste and AFS waste. *Id.* at 2.[2]

III. ARGUMENT

A. Summary Disposition Is Not Permitted in This Subpart L Proceeding.

The ASLB should deny DCS's motion for summary disposition, because the Commission has made no provision for summary disposition in this Subpart L proceeding. In CLI-01-13, the Commission's Order (Referring Petitions for Intervention and Requests for Hearing to Atomic Safety and Licensing Board Panel), the Commission established the procedures that would govern this proceeding. 53 NRC 478 (2001). In order to "enhance the effectiveness of the ordinary Subpart L adjudicatory process," the Commission added a number of procedures not found in the current version of Subpart L. 53 NRC at 480. These procedures included limited discovery and an opportunity for oral

[2] The DCS Correction also corrects estimates provided in DCS's Motion by DCS's affiant, Mary Birch, regarding the level of curies present in the high-alpha liquid waste stream. *Id.* at 2-3.

questioning of witnesses by the presiding officer. *Id.* at 481. The additional procedures "essentially track" the proposed changes to Subpart L that were published in the Federal Register in 2001. *Id., citing* Changes to Adjudicatory Process – Proposed Rule, 66 Fed. Reg. 19,610-71 (April 16, 2001).[3]

While the proposed version of Subpart L does contain a provision for summary disposition, *see* proposed 10 C.F.R. § 2.1205, the Commission did not include it among the additional procedures added to the Subpart L procedures for the MOX proceeding. Thus, it must be presumed that the exclusion was intentional, and that the Commission did not intend to permit the use of summary disposition in this proceeding.

Accordingly, the Commission has given no authorization for DCS's summary disposition motion. Moreover, the work of responding to DCS's summary disposition motion saps resources that GANE otherwise would devote to preparation of its brief and testimony in this proceeding. Therefore, GANE requests that the ASLB reject DCS's motion as unauthorized and unduly burdensome.[4]

B. DCS Has Not Met the Standard for Summary Disposition.

Even if the ASLB decides to consider DCS's motion for summary disposition, the motion should be rejected because DCS has not met the standard for summary disposition of Contention 11.

1. Standard for summary disposition

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[3] To GANE's knowledge, this regulation has not been promulgated in final form.

[4] GANE notes that it did not object to DCS's motion for summary disposition of Contentions 1 and 2 on this ground. In declining to make the objection to DCS's first motion for summary disposition, GANE did not intend, in any respect, to waive its right to object to subsequent motions.

Pursuant to NRC regulations at 10 C.F.R. § 2.740, a party is entitled to summary disposition if "there is no genuine issue as to any material fact" and the party "is entitled to a decision as a matter of law." The burden of proving entitlement to summary disposition is on the movant. *Advanced Medical Systems, Inc.* (One Factory Row, Geneva, Ohio 44041), CLI-93-22, 38 NRC 98, 102 (1993). Because the burden of proof is on the proponent, "the evidence submitted must be construed in favor of the party in opposition thereto, who receives the benefit of any favorable inference that can be drawn." *Sequoyah Fuels Corp. and General Atomics Corp.* (Gore, Oklahoma Site Decontamination and Decommissioning Funding), LBP-94-17, 39 NRC 359, 361, *aff'd,* CLI-94-11, 40 NRC 55 (1994). If there is any possibility that a litigable issue of fact exists or any doubt as to whether the parties should be permitted or required to proceed further, the motion must be denied. *General Electric Co.* (GE Morris Operation Spent Fuel Storage Facility), LBP-82-14, 15 NRC 530, 532 (1982).

Moreover, where significant health and safety environmental issues are involved, a licensing board should only grant a motion for summary disposition "if it is convinced from the material filed that the public health and safety or the environment (as applicable) will be satisfactorily protected." *Cincinnati Gas & Electric Co.* (William H. Zimmer Nuclear Station), LBP-81-2, 13 NRC 36, 40-41 (1981) citing *Cleveland Electric Co.* (Perry Nuclear Power Plant, Units 1 and 2), ALAB-443, 6 NRC 741, 753-54 (1977); 10 C.F.R. § 2.760a.[5]

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[5] Although the CAR approval proceeding is not an "operating license proceeding" like the *Zimmer* proceeding, the principle set forth in *Zimmer* is equally applicable here.

Finally, summary disposition may be denied or continued if the opposing party demonstrates in its affidavits that it cannot present facts essential to justify its opposition. 10 C.F.R. § 2.749(c). Summary disposition may be denied if a party can show that discovery is necessary and likely to produce evidence supporting the existence of a genuine issue of material fact. *Long Island Lighting Co.* (Shoreham Nuclear Power Station, Unit 1), CLI-86-11, 23 NRC 577, 582 (1986) (hereinafter "*Shoreham*").

2. DCS has failed to show the lack of a genuine and material dispute of fact as to whether the ER addresses the environmental impacts of the liquid high-alpha waste stream.

DCS asserts that:

> The original ER, filed in December, 2000, stated that the MOX Facility aqueous polishing process would create 13,300 gallons of high-alpha liquid waste. Subsequently, DOE informed DCS that it would be required to process 6.5 tons of alternate feed stock ("AFS"), originally slated for immobilization, at the MOX Facility. Accordingly, the estimated amount of high-alpha liquid waste increased to 21,841 gallons, as indicated in the revised ER. *The revised ER fully accounts for the anticipated impacts from the high-alpha liquid waste stream, both during normal operations and due to processing of the AFS.*

DCS Motion at 7 [emphasis added and footnotes omitted]. DCS's assertion is incorrect. DCS has *not* fully accounted for the anticipated impacts from the high-alpha liquid waste stream, because Table 3-3 is internally inconsistent, incomplete, and unsupported by any explanation or calculations of how the numbers were derived. The draft EIS only confuses matters further, because it presents the same information in a manner that makes it difficult to discern how the values in Table 4.11 of the draft EIS were derived from Table 3-3 of the ER, or to verify their accuracy. By failing to provide complete or consistent information about the volume and radioactivity of the high-alpha liquid waste

stream, the ER and the draft EIS understate and fail to address the impacts of the waste stream.

a. The changes in Revision 3 of Table 3-3 of the ER are not credible or adequately explained.

DCS relies for its summary disposition motion on the version of Table 3-3 found in Revision 2 of the ER. For each subcategory of the high-alpha liquid waste stream, Table 3-3 of Rev. 2 contains a general volume estimate, plus a "max" estimate that represents "maximum expected annual volume due to unplanned rinses and change-overs." In Revision 3, DCS keeps the same numbers for each subcategory, but changes the labels for what the numbers mean. The general volume estimate is changed to "PDCF," and the "max" estimate is changed to "AFS," which appears to include PDCF and AFS combined.

This change raises significant questions about the accuracy of the table. While Revision 2 of Table 3-3 stated that "max" estimate represented "maximum expected annual volume due to unplanned rinses and change-overs," footnote "a" to Revision 3 of Table 3-3 now indicates that maximum anticipated volumes for rinses and changeovers are already included in the PDCF and AFS estimates. In other words, what formerly was represented as a margin of error has now been changed to the difference between the outputs of the PDCF and the AFS processes; and DCS claims that the margin of error was already included in the initial estimate. The claim simply does not make sense: if that was the case, what was the meaning of the "max" category in Revision 2 of Table 3-3? Moreover, there is nothing to back up DCS's change to the labels for its numerical

estimates, because the ER does not give any indication of how the values represented in Table 3-3 were arrived at.

In addition, the changes do not make sense. If, as the DCS Correction implies, the "AFS" category represents PDCF and AFS combined, then the values for the "AFS" estimates should always be larger than "PDCF" estimates. But this is not the case. For the excess acid stream, the value for PDCF is 2,378 and the value for AFS is 1,321.

These discrepancies between Revisions 2 and 3 of Table 3-3 raise serious questions about the accuracy of the ER's representations regarding volumes of liquid waste to be generated by the proposed MOX Facility. The DCS Corrections filed on July 11 raise more questions than they answer. Thus, DCS's motion should be denied. At the very least, before ruling on DCS's motion, the ASLB should reopen discovery against DCS and allow GANE to question DCS regarding the reasons for the changes to Table 3-3. These questions would include a request to provide the basis for the figures and the labels used in Revision 2 of Table 3-3; how the "max" value was derived in Revision 2 of Table 3-3; how and when DCS discovered that the "max" value was actually a value for the ADF plus PDCF processes; and how DCS determined that the "max" value was already included in estimates for PDCF and ADF. In the absence of a reasonable response to such questions, DCS's changes to Table 3-3 of the ER simply are not credible.

b. It is not clear how the NRC derived Table 4.11 of the draft EIS from Table 3-3.

In the final analysis, the EIS for the proposed MOX Facility will be the dispositive document regarding the facility's environmental impacts. *Louisiana Energy*

Services, L.P. (Claiborne Enrichment Center), LBP-96-15, 44 NRC 331, 338 (1996), quoting *Duke Power Co.* (Catawba Nuclear Station, Units 1 and 2), CLI-83-19, 17 NRC 1041, 1049 (1983) ("all environmental contentions may, in a general sense, ultimately be challenges to the NRC's compliance with NEPA"). It is standard practice, however, for Environmental Impact Statements to be based on the Environmental Reports prepared by applicants. *Id.* Thus, presumably, Table 4.11 of the draft EIS is derived from Table 3-3 of the ER.[6]

The relationship between Table 3-3 of the ER and Table 4.11 of the draft EIS is unclear, however. Table 4.11 is expressed in different units of measure (metric mass). Converting the metric mass estimates to volume in gallons does not yield values that correspond to the values in Table 3-3. As discussed in Section II above, when converted to gallons, the total volume of TRU waste estimated in Table 4.11 are about six times higher than the volume of high-alpha liquid waste estimated in Table 3-3 of the ER.

GANE has not yet had an opportunity to conduct discovery against the NRC Staff regarding the basis for the estimates in Table 4.11 of the draft EIS, or their relationship to the estimates in Table 3-3 of the ER. The ASLB should not grant summary disposition to DCS until GANE has had an opportunity to ask the NRC what is the basis for the estimates in Table 4.11 and how those estimates relate to the estimates provided in Table 3-3 of the ER.

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[6] Certainly, the NRC has given no indication that it considers Table 3-3 to be in error.

c. Table 3-3 and the draft EIS are incomplete.

As noted by DCS in its Motion, GANE has criticized DCS for its failure to comprehensively represent radioactivity levels of the high-alpha liquid waste stream in Table 3-3. DCS Motion at 8-9. It is beyond dispute that the most significant aspect of the volume of waste generated by the proposed MOX Facility is its radioactivity. If DCS were disposing of sawdust or dairy waste, the large volume of waste would not have anywhere near the significance of the same volume of high-alpha or TRU radioactive waste.

Both Table 3-3 and the draft EIS are extremely deficient in this respect. While Table 3-3 provides a value for Americium-241 for the liquid americium stream (84,000 Ci), no other estimates of radioactivity are provided. According to DCS, this is because "the other two components of the high-alpha waste stream – the excess acid stream and the alkaline stream -- were not converted to curies in the revised ER, because they account for only nominal quantities of radioactivity." DCS Motion at 9.

This response does not establish the lack of a genuine issue of disputed material fact. First, the estimate of 84,000 Ci for the liquid americium stream does not appear to account for plutonium, which is also included in that waste stream. *See* Table 3-3. Second, the DCS's radioactivity estimates for the excess acid stream that is given in DCS's Motion (430 curies) is wrong, and had to be corrected in DCS's July 11 filing to .04 curies. *See* DCS Correction at 3. DCS should be able to make correct and verifiable representations in the ER regarding the level of radioactivity in the high-alpha liquid waste stream. Moreover, accurate radioactivity figures should also be provided in Table

4.11, which is the document that will be provided to state and local governments and the general public for purposes of evaluating the environmental impacts of the proposed MOX Facility. The radiological impacts of a proposed nuclear facility should not be omitted from an EIS, or presented in a partial manner that leaves the public wondering whether those impacts are understood and accounted for.[7]

c. Table 3-3 and the draft EIS are unsupported.

As discussed above, neither the ER nor the draft EIS provides any information regarding the assumptions or calculations used to derive the volume estimates in Table 3-3 of the ER or Table 4.11. Thus, it is impossible for an interested member of the public to discern, or indeed have any idea of, the assumptions are that underlie the estimates provided in those tables. Given that the MOX Facility will use methods that have never been used in the U.S. or regulated by the NRC before, to process plutonium-bearing materials with varying and somewhat unknown degrees of contamination, it is reasonable to expect some degree of explanation regarding the basis for DCS's assumptions regarding the volume of high-alpha liquid waste that will be generated. Now that DCS has substantially revised Table 3-3, the lack of information regarding the basis for the estimates in Table 3-3 is even more troubling. The ER and the draft EIS should contain enough information to permit interested state and local government officials and members of the public to determine the degree to which DCS's and the NRC Staff's

[7] DCS's argument that the radioactivity of the high-alpha liquid waste stream is "readily calculable from the known mass of the materials" is undermined by the fact that DCS's own alleged expert erred in calculating the radioactivity of one of the waste streams. The public should not be forced to calculate basic information that is needed to understand the environmental impacts of a proposed nuclear facility.

estimates of the volume of high-alpha liquid waste to be generated by the MOX Facility are based on actual experience or detailed understanding of the process, and the degree to which DCS and the Staff are speculating about a process that has yet to be developed.

IV. CONCLUSION

For the foregoing reasons, DCS's motion for summary disposition of Contention 11 should be denied.

Respectfully submitted,

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July 29, 2003

GANE'S STATEMENT OF GENUINELY DISPUTED MATERIAL FACTS

1. Table 3-3 is internally inconsistent, incomplete, and unsupported by any explanation or calculations of how the numbers were derived.

2. The draft EIS only confuses matters further, because it presents the same information in a manner that makes it difficult to discern how the values in Table 4.11 of the draft EIS were derived from Table 3-3 of the ER, or to verify their accuracy.

3. By failing to provide complete or consistent information about the volume and radioactivity of the high-alpha liquid waste stream, the ER and the draft EIS understate and fail to address the impacts of the waste stream.

4. DCS relies for its summary disposition motion on the version of Table 3-3 found in Revision 2 of the ER. For each subcategory of the high-alpha liquid waste stream, Table 3-3 of Rev. 2 contains a general volume estimate, plus a "max" estimate that represents "maximum expected annual volume due to unplanned rinses and change-overs." In Revision 3, DCS keeps the same numbers for each subcategory, but changes the labels for what the numbers mean. The general volume estimate is changed to "PDCF," and the "max" estimate is changed to "AFS," which appears to include PDCF and AFS combined. This change raises significant questions about the accuracy of the table. While Revision 2 of Table 3-3 stated that "max" estimate represented "maximum expected annual volume due to unplanned rinses and change-overs," footnote "a" to Revision 3 of Table 3-3 now indicates that maximum anticipated volumes for rinses and changeovers

are already included in the PDCF and AFS estimates. In other words, what formerly was represented as a margin of error has now been changed to the difference between the outputs of the PDCF and the AFS processes; and DCS claims that the margin of error was already included in the initial estimate. The claim simply does not make sense: if that was the case, what was the meaning of the "max" category in Revision 2 of Table 3-3?

5. Moreover, there is nothing to back up DCS's change to the labels for its numerical estimates, because the ER does not give any indication of how the values represented in Table 3-3 were arrived at.

6. If, as the DCS Correction implies, the "AFS" category represents PDCF and AFS combined, then the values for the "AFS" estimates should always be larger than "PDCF" estimates. But this is not the case. For the excess acid stream, the value for PDCF is 2,378 and the value for AFS is 1,321.

7. The relationship between Table 3-3 of the ER and Table 4.11 of the draft EIS is unclear. Table 4.11 is expressed in different units of measure (metric mass). Converting the metric mass estimates to volume in gallons does not yield values that correspond to the values in Table 3-3. when converted to gallons, the total volume of TRU waste estimated in Table 4.11 are about six times higher than the volume of high-alpha liquid waste estimated in Table 3-3 of the ER.

8. It is beyond dispute that the most significant aspect of the volume of waste generated by the proposed MOX Facility is its radioactivity. If DCS were disposing of sawdust or dairy waste, the large volume of waste would not have

anywhere near the significance of the same volume of high-alpha or TRU radioactive waste. Both Table 3-3 and the draft EIS are extremely deficient in this respect. While Table 3-3 provides a value for Americium-241 for the liquid americium stream (84,000 Ci), no other estimates of radioactivity are provided.

9. DCS's estimate of 84,000 Ci for the liquid americium stream does not appear to account for plutonium, which is also included in that waste stream.

10. DCS's radioactivity estimates for the excess acid stream that is given in DCS's Motion (430 curies) is wrong, and had to be corrected in DCS's July 11 filing to .04 curies. *See* DCS Correction at 3. DCS should be able to make correct and verifiable representations in the ER regarding the level of radioactivity in the high-alpha liquid waste stream. Moreover, accurate radioactivity figures should also be provided in Table 4.11, which is the document that will be provided to state and local governments and the general public for purposes of evaluating the environmental impacts of the proposed MOX Facility.

11. Neither the ER nor the draft EIS provides any information regarding the assumptions or calculations used to derive the volume estimates in Table 3-3 of the ER or Table 4.11. Thus, it is impossible for an interested member of the public to discern, or indeed have any idea of, the assumptions are that underlie the estimates provided in those tables.

12. Given that the MOX Facility will use methods that have never been used in the U.S. or regulated by the NRC before, to process plutonium-bearing materials with varying and somewhat unknown degrees of contamination, it is reasonable to

expect some degree of explanation regarding the basis for DCS's assumptions regarding the volume of high-alpha liquid waste that will be generated. Now that DCS has substantially revised Table 3-3, the lack of information regarding the basis for the estimates in Table 3-3 is even more troubling. The ER and the draft EIS should contain enough information to permit interested state and local government officials and members of the public to determine the degree to which DCS's and the NRC Staff's estimates of the volume of high-alpha liquid waste to be generated by the MOX Facility are based on actual experience or detailed understanding of the process, and the degree to which DCS and the Staff are speculating about a process that has yet to be developed.

Table 3-3. Aqueous Polishing Waste Streams

Waste Stream	Annual Volume (gal)	Main Chemical or Isotope Concentration or Annual Quantity
Liquid americium stream Concentrated stream from acid recovery after silver recovery	8,900	Am-241: < 24.5 kg (0.7% maximum Pu content) Pu: < 150 g/yr Hydrogen ions: 3 N Nitrate salts: 200 kg Silver: < 8 kg/yr
Excess acid	1,400	Am: < 14 mg/y (rectification step after two evaporation steps) Hydrogen ions: 13.6 N
Stripped uranium	68,000	Plutonium: < 16 g/yr Stripped U quantity: < 2150 kg [~1% U-235] Hydrogen ions: 0.11 N
Solvent regeneration alkaline wash	3,000	Pu: < 13 g/yr U: < 13 g/yr Na: < 115 kg
Excess solvent residues	2,800	Solvent: 30% tributyl phosphate in branched-dodecane Hydrogen ions: 0.007 N Pu: < 17 mg
Acid recovery condensate	82,000	Pu: < 4E-03 mg/yr Am-241: < 0.8 mg/yr Activity 10^8 Bq/yr (after two rectification and evaporation steps)
Rinsing water	132,000	Alpha activity: < 5 Bq α/L

Table 3-3. Aqueous Polishing Waste Streams

Waste Stream	Annual Volume (gal)	Main Chemical or Isotope Concentration or Annual Quantity	Disposition (gal)	
Liquid americium stream Concentrated stream from acid recovery after silver recovery[a]	10,000 16,520 (max)	Am-241: < 24.5 kg/yr (84,000 Ci) Pu: < 205 g/yr Hydrogen ions: 180,000 moles [H^+]/yr Nitrate salts: 1,500 kg/yr+ nitrates from silver Silver: < 300 kg/yr Trace quantities of thallium, lead and mercury	High Alpha Waste to WSB 14,301 21,841 (max)	R1
Excess acid stream	1,321 2,378 (max)	Am: < 14 mg/y (rectification step after two evaporation steps) Hydrogen ions: 13.6 N		
Alkaline stream	2,980 4,000 (max)	Pu: < 16 g/yr U: < 13 g/yr Na: < 147 kg/yr		
Stripped uranium stream	42,530 46,000 (max)	Plutonium: < 0.1 mg/L Stripped U quantity: < 5,000 kg/yr [~1% U-235] Hydrogen ions: 26,000 moles [H^+]/yr	Stripped Uranium to WSB 42,530 46,000 (max)	R2
Excess low-level radioactive solvent wastes	2,700 3,075 (max)	Solvent: 30% tributyl phosphate in dodecane Pu: < 17.2 mg/yr	SRS Solvent Recovery 2,700 3,075 (max)	R1
Distillate waste[b]	109,000 111,000 (max)	Am-241: < 0.85 mg/yr Activity 1. 12 x 10^8 Bq/yr [H+] = <6,240 moles [H^+]/yr	Liquid LLW to ETF 338,230 385,800 (max)	R2
Chloride removal waste	46,230 76,000 (max)	This waste is produced only when alternate feedstock with chlorides is used. < 0.75 g/L (will be diluted with distillate and rinse water to <0.15 g/L to meet ETF WAC)		
Rinsing water[b]	158,000 173,800 (max)	Alpha activity: < 4 Bq α/L		
Internal HVAC condensate	25,000 (max)	Trace contamination		

(max) Represents maximum expected annual volume due to unplanned rinses and change-overs.

[a] DOE may eliminate silver recovery, silver quantity represents that expected if silver recovery is eliminated, volumes include silver recovery for bounding purposes.

[b] DCS may use distillate and rinse water to dilute the chloride waste to lower chloride concentrations more acceptable to ETF.

Table 4.11. Waste volumes from operation of the facilities compared with waste management capacities at the SRS

Waste type	Estimated MOX facility operational waste[a] (m^3/yr)	Estimated PDCF operational waste[b] (m^3/yr)	Estimated WSB operational waste[a] (m^3/yr)	SRS capacity[c] Characterization or treatment (m^3/yr)	SRS capacity[c] Storage (m^3)	SRS capacity[c] Disposal (m^3)
TRU[c]	190	18	310	1,720	34,400	168,500[d]
LLW[e]	1,562	60	1,065	17,830	NA[f]	30,500
Hazardous/mixed[g]	12	1	90[h]	17,830	5,170	NA[i]
Nonhazardous						
Liquid	16,600	25,000	55,000	276,000	NA[i]	NA[i]
Solid	1,340	1,800	850	NA[i]	NA[i]	NA[i]

[a]The facilities are assumed to be in operation for a 10-year period. Therefore, the total waste volume that would need to be managed would be 10 times the estimates shown. Sources for estimates: DCS (2002a) and DOE (1999a).

[b]Storage and disposal capacity estimates presented represent total capacity at the SRS. Sources of estimates: DOE (1999a).

[c]The combined values of TRU waste that would be generated from the three facilities is estimated to be approximately 30% and 16% of the treatment and storage capacity, respectively, at the SRS. The generated TRU waste is approximately 3% of the disposal capacity at WIPP.

[d]Value represents limit for TRU waste at the WIPP.

[e]Includes estimates for liquid and solid LLW. Solid LLW generated from the MOX facility and WSB is estimated to be about 272 m^3/yr (362 yd^3/yr). Liquid LLW generated is estimated to be about 2,350 m^3/yr (620,800 gal/yr). The volume presented for the PDCF represents solid LLW.

[f]Not applicable since LLW is planned for on-site disposal, not storage.

[g]Hazardous waste that would be generated is less than 1% of the treatment and storage capacity at the SRS. Source of hazardous waste estimates: DCS (2000a).

[h]Volumes for hazardous, liquid and solid nonhazardous waste for WSB obtained by subtracting PDCF volumes from values in Table 5-15C of DCS (2002a).

[i]Not applicable because off-site disposal of waste is planned.

Table 3-3. Aqueous Polishing Waste Streams

Waste Stream	Maximum Annual Volume (gal)[c]	Main Chemical or Isotope Concentration or Annual Quantity	Disposition (gal)	
Liquid americium stream Concentrated stream from acid recovery after silver recovery[a]	10,000 (PDCF) 16,520 (AFS)	Am-241: <24.5 kg/yr (84,000 Ci) Pu: <205 g/yr Hydrogen ions: 180,000 moles [H^+]/yr Nitrate salts: 1,500 kg/yr+ nitrates from silver Silver: <300 kg/yr Trace quantities of thallium, lead and mercury	High Alpha Waste to WSB 15,358(PDCF) 21,841 (AFS)	R1, R3
Excess acid stream	1,321 (AFS) 2,378 (PDCF)	Am: < 14 mg/y (rectification step after two evaporation steps) Hydrogen ions: 13.6 N		
Alkaline stream	2,980 (PDCF) 4,000 (AFS)	Pu: < 16 g/yr U: < 13 g/yr Na: < 147 kg/yr		
Stripped uranium stream	42,530 (PDCF) 46,000 (AFS))	Plutonium: < 0.1 mg/L Stripped U quantity: < 5,000 kg/yr [~1% U-235] Hydrogen ions: 26,000 moles [H^+]/yr	Stripped Uranium to WSB 42,530 (PDCF) 46,000 (AFS)	R2
Excess low-level radioactive solvent wastes	2,700 (PDCF) 3,075 (AFS)	Solvent: 30% tributyl phosphate in dodecane Pu: < 17.2 mg/yr	SRS Solvent Recovery 2,700 (PDCF) 3,075 (AFS)	R1
Distillate waste[b]	109,000 (PDCF) 111,000 (AFS)	Am-241: < 0.85 mg/yr Activity 1. 12 x 10^8 Bq/yr [H+] = <6,240 moles [H^+]/yr	Liquid LLW to ETF 292,000 (PDCF) 385,800 (AFS)	R2, R3
Chloride removal waste	76,000 (AFS)	This waste is produced only when alternate feedstock with chlorides is used. < 0.75 g/L (will be diluted with distillate and rinse water to <0.15 g/L to meet ETF WAC)		
Rinsing water[b]	158,000 (PDCF) 173,800 (AFS)	Alpha activity: < 4 Bq α/L		
Internal HVAC condensate	25,000	Trace contamination		

[a] DOE may eliminate silver recovery. silver quantity represents that expected if silver recovery is eliminated. volumes include silver recovery for bounding purposes.

[b] DCS may use distillate and rinse water to dilute the chloride waste to lower chloride concentrations more acceptable to ETF.

[c] Reported volumes represent maximum anticipated for rinses and changeovers. PDCF indicates feed from PDCF; AFS indicated Alternative Feedstock.

CERTIFICATE OF SERVICE

I hereby certify that on July 29, 2003, copies of the foregoing GEORGIANS AGAINST NUCLEAR ENERGY'S OPPOSITION TO DUKE COGEMA STONE & WEBSTER'S MOTION FOR SUMMARY DISPOSITION OF CONSOLIDATEDED CONTENTION 11 were served on the following by e-mail and/or first-class mail, with copies of exhibit sent by fax:

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