

RELATED CORRESPONDENCE

December 20, 2002

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

December 27, 2002 (10:39AM)

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

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

In the Matter of)

DUKE COGEMA STONE & WEBSTER)

(Savannah River Mixed Oxide Fuel
Fabrication Facility))

Docket No. 0-70-03098-ML

ASLBP No. 01-790-01-ML

**GEORGIANS AGAINST NUCLEAR ENERGY'S RESPONSE TO
APPLICANT'S SECOND SET OF INTERROGATORIES**

Introduction

Pursuant to 10 C.F.R. 2.740(e), Georgians Against Nuclear Energy ("GANE") hereby responds to Duke Cogema Stone and Webster's Second Set of Interrogatories to Georgians Against Nuclear Energy and Blue Ridge Environmental Defense League (December 6, 2002). Interrogatory answers for which proprietary responses have been provided separately are marked by bold typeface. Objections are provided with respect to individual answers.

I. GANE Contention 1 (Consideration of Safeguards in Facility Design)

A. General Interrogatories

GENERAL INTERROGATORY NO. 4. For each Admitted Contention, in the event that GANE or BREDL has obtained or discovered any information responsive to DCS's First Set of Interrogatories in addition to those responses identified in Georgians Against Nuclear Energy and Blue Ridge Environmental Defense League Objection and Responses to Applicant's First Set of Interrogatories, and Request for Protective Order (June 28, 2002), please update

and supplement those responses. Identify each response as "Amended Response [number]" and state whether the response is in addition to, or supercedes (sic), the original response.

RESPONSE TO GENERAL INTERROGATORY NO. 4: At this time, GANE has no additional information that is responsive to DCS's first set of interrogatories.

GENERAL INTERROGATORY NO. 5. For each Admitted Contention, describe the subject matter, facts, and opinions to which each of your witnesses is expected to testify at the Hearing, including a summary of the grounds for each opinion. Regardless of whether GANE or BREDL has prepared testimony on any of the Admitted Contentions, a summary of the subject matter, facts, and opinions in such testimony should be provided at this time.

RESPONSE TO GENERAL INTERROGATORY NO. 5: The text of GANE's Contention 1 provides a summary of the subject matter, facts, and opinions to which Dr. Lyman will testify regarding Contention 1. Even in the Revised CAR, DCS fails to provide any significant amount of information regarding design bases and design features for MC&A. More details regarding GANE's view are provided in the interrogatory responses below.

GENERAL INTERROGATORY NO. 6. For each Admitted Contention, identify the documents (including cites to pertinent pages or parts thereof), data or other information which each witness has reviewed and considered, or is expected to consider or to rely on for his or her testimony. Please identify the location where, and time when, such documents will be made available to DCS for copying.

RESPONSE TO GENERAL INTERROGATORY NO. 6: All documents that have been reviewed or considered by Dr. Lyman are listed in Contention 1 and in GANE's discovery responses. These are publicly available documents. GANE will also review any additional relevant documents that are identified by Dr. Lyman in the course of developing his testimony, or that are identified by NRC or by DCS in discovery or in their correspondence. GANE will update this discovery response as appropriate.

B. Specific Interrogatories

INTERROGATORY NO. 1.23 In GANE's response to INTERROGATORY NO. 1.2, it never identified whether it believes that a vulnerability assessment is required to satisfy any NRC material control and accounting ("MC&A") regulation applicable to the MOX Facility. Does GANE believe that a vulnerability assessment is required to satisfy any NRC MC&A regulation applicable to the MOX Facility? If so, identify the particular regulation and explain why GANE believes that the regulation requires a vulnerability assessment. Provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE TO INTERROGATORY NO. 1.23: Yes. A vulnerability assessment is reasonably required to satisfy NRC regulations at 10 C.F.R. § 70.23(b) and the performance specifications of 10 C.F.R. § 74.51. The use of vulnerability assessments is also standard practice in safeguards designs. We consider vulnerability assessments to be an essential step to ensuring that the facility design will be able to support the implementation an MC&A program that meets 10 C.F.R. § 74.51.

INTERROGATORY NO. 1.24 Does GANE agree that design bases for the MC&A requirements for the MOX Facility are now contained in the revised CAR? If not, explain the bases for your disagreement and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE TO INTERROGATORY NO. 1.24: No. **The full text of this interrogatory response can be found in GANE's Proprietary Responses to Applicant's Second Set of Interrogatories.**

INTERROGATORY NO. 1.25 Please identify the specific NRC regulation or regulations that require(s) a licensee to control or limit holdup accumulation of process materials. If any such regulation(s) exist, please identify whether they require: (a) design features to control or minimize holdup accumulation; or (b) any particular degree, percentage or quantity of holdup accumulation to be prevented, controlled or limited. Explain the bases for your position.

RESPONSE TO INTERROGATORY NO. 1.25: GANE is not aware of any NRC regulation that specifically requires a licensee to control or limit holdup accumulation of

process materials. GANE believes that measures to control or limit holdup accumulation of process materials are reasonably necessary for compliance with 10 C.F.R. § 70.23(b) and 10 C.F.R. § 74.51. We maintain that strict control of holdup is essential for the implementation of an adequate MC&A program, and is also integrally linked to the facility design.

II. GANE Contention 2 (Consideration of Physical Protection in Facility Design)

A. General Interrogatories

GENERAL INTERROGATORY NO. 4. For each Admitted Contention, in the event that GANE or BREDL has obtained or discovered any information responsive to DCS's First Set of Interrogatories in addition to those responses identified in Georgians Against Nuclear Energy and Blue Ridge Environmental Defense League Objection and Responses to Applicant's First Set of Interrogatories, and Request for Protective Order (June 28, 2002), please update and supplement those responses. Identify each response as "Amended Response [number]" and state whether the response is in addition to, or supercedes, the original response.

RESPONSE TO GENERAL INTERROGATORY NO. 4: At this time, GANE has no additional information that is responsive to DCS's first set of interrogatories.

GENERAL INTERROGATORY NO. 5. For each Admitted Contention, describe the subject matter, facts, and opinions to which each of your witnesses is expected to testify at the Hearing, including a summary of the grounds for each opinion. Regardless of whether GANE or BREDL has prepared testimony on any of the Admitted Contentions, a summary of the subject matter, facts, and opinions in such testimony should be provided at this time.

RESPONSE TO GENERAL INTERROGATORY NO. 5: The text of GANE's Contention 2 provides a summary of the subject matter, facts, and opinions to which Dr. Lyman will testify regarding Contention 2. Even in the Revised CAR, DCS fails to provide any significant amount of information regarding design bases and design features for security. More details regarding GANE's view are provided in the interrogatory responses below.

GENERAL INTERROGATORY NO. 6. For each Admitted Contention, identify the documents (including cites to pertinent pages or parts thereof), data or other information which each witness has reviewed and considered, or is expected to consider or to rely on for his or her testimony. Please identify the location where, and time when, such documents will be made available to DCS for copying.

RESPONSE TO GENERAL INTERROGATORY NO. 6: All documents that have been reviewed or considered by Dr. Lyman are listed in Contention 2 and in GANE's discovery responses. These documents are publicly available. GANE will also review any additional relevant documents that are identified by Dr. Lyman in the course of developing his testimony, or that are identified by NRC or by DCS in discovery or in their correspondence. GANE will update this discovery response as appropriate.

B. Specific Interrogatories

INTERROGATORY NO. 2.13 Does GANE agree that design bases for the physical security system at the MOX Facility are now contained in the revised CAR? If not, explain the bases for your disagreement and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE TO INTERROGATORY NO. 2.13:

No. The full text of this interrogatory response can be found in GANE's

Proprietary Responses to Applicant's Second Set of Interrogatories.

INTERROGATORY NO. 2.14 In light of the information provided by DCS in the revised CAR, identify and fully explain GANE's position regarding whether DCS has complied with each aspect of the national and international standards and recommendations listed in GANE's response to INTERROGATORY NO. 2.4.

RESPONSE TO INTERROGATORY NO. 2.14: IAEA recommendations for physical security measures, as cited in Contention 2, including the following:

"The concept of physical protection is one which requires a designed mixture of hardware (security devices), procedures . . . and facility design (including layout)."

The IAEA also recommends that: "Achievement of the objectives of the physical protection system should be assisted by: (a) Taking into account physical protection of nuclear material in the design of the facility as early as possible."

The IAEA also recommends that: "Potential conflicting requirements, resulting from safety and physical protection considerations, should be carefully analyzed to ensure that they do not jeopardize nuclear safety, including during emergency conditions."

DCS has not met the first recommendation cited above, because it has not shown that facility hardware and design are integrated. Examples of this deficiency can be found in response to Interrogatory 2.13 (proprietary). DCS has not met the second recommendation, because it didn't take into account physical security as early as possible. DCS has not met the third recommendation, because the revised CAR contains no analysis of potential conflicts between safety and security.

INTERROGATORY NO. 2.15 In light of the information provided by DCS in the revised CAR, identify and fully explain each respect in which GANE claims, in the basis statement for Contention 2, that there might be "a direct conflict...between physical protection requirements...and safety requirements."

RESPONSE TO INTERROGATORY NO. 2.15: See proprietary response to this interrogatory.

III. GANE Contention 3 (Seismic Design)

A. General Interrogatories

GENERAL INTERROGATORY NO. 4. For each Admitted Contention, in the event that GANE or BREDL has obtained or discovered any information responsive to DCS's First Set of Interrogatories in addition to those responses identified in Georgians Against Nuclear Energy and Blue Ridge Environmental Defense League Objection and Responses to Applicant's First Set of Interrogatories, and Request for Protective Order (June 28, 2002), please update

and supplement those responses. Identify each response as "Amended Response [number]" and state whether the response is in addition to, or supercedes, the original response.

RESPONSE TO GENERAL INTERROGATORY NO. 4: See Georgians Against Nuclear Energy's Second Supplemental Response to Applicant's First Set of Interrogatories (December 20, 2002).

GENERAL INTERROGATORY NO. 5. For each Admitted Contention, describe the subject matter, facts, and opinions to which each of your witnesses is expected to testify at the Hearing, including a summary of the grounds for each opinion. Regardless of whether GANE or BREDL has prepared testimony on any of the Admitted Contentions, a summary of the subject matter, facts, and opinions in such testimony should be provided at this time.

RESPONSE TO GENERAL INTERROGATORY NO. 5: See GANE's Second Supplemental Response to Applicant's First Set of Interrogatories.

GENERAL INTERROGATORY NO. 6. For each Admitted Contention, identify the documents (including cites to pertinent pages or parts thereof), data or other information which each witness has reviewed and considered, or is expected to consider or to rely on for his or her testimony. Please identify the location where, and time when, such documents will be made available to DCS for copying.

RESPONSE TO GENERAL INTERROGATORY NO. 6: See GANE's Second Supplemental Response to Applicant's First Set of Interrogatories.

B. Specific Interrogatories

INTERROGATORY NO. 3.41 GANE's response to INTERROGATORY NO. 3.1 references "Christian (1988)." Please provide a complete citation and identify how this reference could be obtained by DCS.

RESPONSE TO INTERROGATORY NO. 3.41: Christian, J.T. (1988). "Developing design ground motions in practice," Earthquake Engineering and Soil Dynamics II: Recent Advances in Ground Motion Evaluation, Geotechnical Special Publication 20, ASCE, New York, pp. 405-429. At this time, we have been unable to obtain a copy of this paper.

INTERROGATORY NO. 3.42 GANE's response to INTERROGATORY NO. 3.1 says that "Following Christian (1988), one should consider an epicenter for the largest event of an adjacent seismotectonic province at the point closest to the design site."

(a) Has Christian (1988) ever been accepted by the NRC or DOE for use in determining the seismic response spectra of a site? If yes, please identify the NRC or DOE document that so accepts Christian (1988).

(b) Has the NRC or DOE ever accepted the proposition that the design response spectra should consider an epicenter for the largest event of an adjacent seismotectonic province at the point closest to the design site. If yes, please identify the NRC or DOE document that so accepts that proposition.
Would have to ask the NRC or DOE

(c) 10 CFR § 70.64(a)(2) states that "the design must provide for adequate protection against natural phenomena with consideration of the most severe documented historical events for the site." Do you contend that the proposition discussed above is consistent with this provision in § 70.64(a)(2)? If yes, provide the regulatory, scientific, technical, legal, and any other bases for your answer.

RESPONSE TO INTERROGATORY NO. 3.42:

(a) We do not know.

(b) We do not know.

(c) GANE objects to this interrogatory to the extent that it calls for a legal conclusion.

Without waiving its objection, GANE states that the deterministic approach advocated by Christian is consistent with the quoted language from 10 C.F.R. 72.64(a)(2).

INTERROGATORY NO. 3.43 As indicated on pages 1.3.5-27 and 28 of the revised CAR, during the summer of 2002, DCS conducted supplemental geotechnical investigations of the MOX Facility site to acquire additional subsurface information regarding the MOX Facility site, and the results of these investigations are consistent with the results of the initial site investigations. In light of these additional investigations at the MOX Facility site, is GANE still contending that a quantitative site response study for the MOX Facility site has not been done? If yes, provide the regulatory, scientific, technical, legal, and any other bases for your answer.

RESPONSE TO INTERROGATORY NO. 3.43: No.

INTERROGATORY NO. 3.44 In response to INTERROGATORY NO. 3.7, GANE identified only two bases for its claim that "conservative design criteria" have not been established in the CAR. Please provide an exhaustive list of all the bases upon which GANE relies.

RESPONSE TO INTERROGATORY NO. 3.44: GANE refers DCS to its updated response to Interrogatory No. 3.7, in GANE's Second Supplemental Response to Applicant's First Set of Interrogatories.

INTERROGATORY NO. 3.45 As a follow-up to GANE's response to
INTERROGATORY NO. 3.10:

(a) Identify the "seismic source regions" that DCS should have, but did not, consider. Provide the regulatory, scientific, technical, legal, and any other bases for your contention that DCS should consider such seismic source regions.

(b) Identify the "analysis methods" that DCS should have, but did not, use. Provide the regulatory, scientific, technical, legal, and any other bases for your contention that DCS should have used such methods.

(c) If DCS were to use the "seismic source regions" and "analysis methods" identified in your answers above, would there be any change in the seismic response spectra for the MOX Facility site? If yes, provide the regulatory, scientific, technical, legal, and any other bases for your answer, and describe the change.

RESPONSE TO INTERROGATORY NO. 3.45:

(a) Seismic source regions that should have been considered include Southeast Tennessee and Bluffton. In particular, a New Madrid type Event (Magnitude 7.5) should be considered for southeastern Tennessee for evaluation of potential effects on the Savannah River Site. In addition, DCS did not have sufficient basis to ignore Bluffton on the ground that it was magnitude 6. Given the significant level of uncertainty that attends the estimation of earthquake magnitude for such old events, Bluffton should have been assumed to be a Magnitude 7 event. In addition, DCS did not make an effort to define the limits for the area of the Coastal Plain that would be subject to a Charleston-type earthquake. The technical basis for this assertion is the professional opinion of Dr. Long. The legal basis for this assertion is 10 C.F.R. § 70.64(a)(2).

(b) DCS used the Herrmann crustal model, which is an average for a path from Charleston to Atlanta. Much of that path is significantly different from the part of the

path to SRP. DCS should have used information is now available about the local crustal structure. DCS seems to be aware of the existence of this information, as indicated in Sections 1.3.5.3.3.1 and 1.3.6.1.3. Using information about the local crustal structure would likely show a different velocity structure, and could affect the way the earthquake waves were focused at various distances, in particular the way in which reflections from the Moho and velocity gradients in the lower crust affect the observed acceleration versus distance relations. Also, DCS used an earthquake path that is only about a third relevant to the Coastal Plain. See above. DCS should have used data that relate only to the path from Charleston to SRP or from the Coastal Plain to the SRS.

(c) A proper analysis would likely increase the hard-rock acceleration at the site for the same probability of occurrence. The attenuation would also increase.

INTERROGATORY NO. 3.46 In response to INTERROGATORY NO. 3.11, GANE responded that the answer was "self-evident." DCS does not believe the answer is self-evident. Please fully elaborate on this answer and explain why it is self-evident.

RESPONSE TO INTERROGATORY NO. 3.46: DCS did not consider several earthquakes because they did not appear to be as strong as a magnitude 7 earthquake. In failing to consider these earthquakes, DCS did not take into account the uncertainty that is involved in predicting the magnitude of older events. Factors that could contribute to uncertainty include water table at the time of the earthquake; or, a weather factor that for a dry period could subdue the apparent size of an earthquake or cause others to go undetected. Any one of them could have been a magnitude 7 event, and therefore should have been considered when evaluating rates of occurrence.

INTERROGATORY NO. 3.47 In response to INTERROGATORY NO. 3.16, GANE stated that "repeat earthquakes at the same location could well have a substantially larger magnitude."

(a) Provide citations to the authority for this proposition; and

- (b) Identify what range of values GANE intended to refer to when it used the word "substantially" in this context.

RESPONSE TO INTERROGATORY NO. 3.47:

- (a) It may be considered commonsensical that the occurrence of a small earthquake indicates the potential presence of a seismic zone in which a subsequent earthquake could be larger. The size of the largest event would depend on the mechanism responsible for events in that seismic province. That is magnitude about 5.5 for the piedmont and 7.0 for the Coastal Plain. The existence of one earthquake suggests the presence of conditions (for example stress, weak rock, faults) that are conducive to earthquakes occurring.
- (b) Each value on the Richter scale represents a factor of ten in the size of an earthquake. A factor of 2, for a magnitude increase of 0.3, is significant. We consider this to be substantial.

INTERROGATORY NO. 3.48 In response to INTERROGATORY NO. 3.22, GANE stated that the "geologic structure" is "different" over a 700 foot distance from the MOX Facility. Please specify:

- (a) how the geologic structure is "different"; and
 (b) how this different geologic structure would result in significantly different ground motion on the MOX Facility site.

RESPONSE TO INTERROGATORY NO. 3.48. GANE has decided not to pursue the aspect of Contention 3 which relates to the potential for intense shaking or soil liquefaction at the MOX Facility site. Therefore, we have not developed a response to this interrogatory.

INTERROGATORY NO. 3.49 GANE's responses to INTERROGATORY NOS. 3.22 and 3.25 reference the geotechnical report (Hearing Record Document # 50) and state that of the 13 Seismic Cone Penetration Tests ("SCPT"), only one was on the proposed MOX Facility site and the remainder were to the east. Do you agree that the geotechnical report, Figure 5-1, actually shows that there were 15 SCPTs on the MOX

Facility site, including one directly beneath the proposed location of the MOX Fuel Fabrication Building? If not, please explain the bases for your disagreement.

RESPONSE TO INTERROGATORY NO. 3.49: GANE has decided not to pursue the aspect of Contention 3 which relates to the potential for intense shaking or soil liquefaction at the MOX Facility site. Therefore, we have not developed a response to this interrogatory.

INTERROGATORY NO. 3.50 Is GANE contending that a magnitude 7 event at Bluffton would have a greater impact on the seismic response spectra of the MOX Facility than a magnitude 7 event at Charleston, S.C.? If yes, provide the regulatory, scientific, technical, legal, and any other bases for your answer.

RESPONSE TO INTERROGATORY NO. 3.50: The amplitude at the SRP of the ground vibration from a magnitude 7 event at Bluffton would be greater than the amplitude of a magnitude 7 event from Charleston because it would be closer to the Savannah River Site. The only possible exception would be a case where the propagation of the site-specific crustal path results in a distance zone where the acceleration increases instead of decreases.

INTERROGATORY NO. 3.51 GANE states that it relies on the National Seismic Hazard Mapping Project. Has the National Seismic Hazard Mapping Project ever been accepted by the NRC or DOE for use in determining the seismic response spectra of a site? If yes, please identify the NRC or DOE document that so accepts the National Seismic Hazard Mapping Project.

RESPONSE TO INTERROGATORY NO. 3.51: We do not know.

INTERROGATORY NO. 3.52 GANE's response to INTERROGATORY NO. 3.34(c) says that the frequency of major events in the South Carolina Plain is greater than identified in the CAR, based upon the Talwani and Schaeffer paper that identifies seven events between 5,800 years ago and 1886, versus the four events identified in the CAR.

(a) Do you agree that, of the seven events identified in Scenario 1 of Table 3 of the Talwani and Schaeffer paper, only four of those events are magnitude 7 or greater, whereas the other three are magnitude 6? If not, provide the basis for your answer.

(b) Do you agree that the CAR accounts for each of the four events identified as magnitude 7 or greater in Scenario 1 of Table 3 of the Talwani and Schaeffer paper? If not, provide the basis for your answer.

(c) Do you agree that, even if the CAR had accounted for the three events identified as magnitude 6 in Scenario 1 of Table 3 of the Talwani and Schaeffer paper, there would be no change in the seismic response spectra for the MOX Facility or its frequency?

RESPONSE TO INTERROGATORY NO. 3.52:

(a) Yes. But the recent publication by Hu, Gassman and Talwani suggests a number of possibilities, most of which indicate higher magnitudes, i.e., the 7+ range. A citation to the paper by Hu, et al is provided in GANE's supplemental response to General Interrogatory No. 3, in GANE's Second Supplemental Response to Applicant's First Set of Interrogatories (December 20, 2002)

(b) Yes.

(c) As suggested in the Hu paper cited above, the frequency of occurrence, and hence the amplitude, would be increased. The shape of the spectra would remain largely unchanged, although there are some variations in frequency content that occur with a change in magnitude.

IV. GANE Contention 6 (Safety Analysis)

A. General Interrogatories

GENERAL INTERROGATORY NO. 4. For each Admitted Contention, in the event that GANE or BREDL has obtained or discovered any information responsive to DCS's First Set of Interrogatories in addition to those responses identified in Georgians Against Nuclear Energy and Blue Ridge Environmental Defense League Objection and Responses to Applicant's First Set of Interrogatories, and Request for Protective Order (June 28, 2002), please update and supplement those responses. Identify each response as "Amended Response [number]" and state whether the response is in addition to, or supercedes, the original response.

RESPONSE TO GENERAL INTERROGATORY NO. 4: At this time, GANE has no additional information that is responsive to DCS's first set of interrogatories.

GENERAL INTERROGATORY NO. 5. For each Admitted Contention, describe the subject matter, facts, and opinions to which each of your witnesses is expected to testify at the Hearing, including a summary of the grounds for each opinion. Regardless of whether GANE or BREDL has prepared testimony on any of the Admitted Contentions, a summary of the subject matter, facts, and opinions in such testimony should be provided at this time.

RESPONSE TO GENERAL INTERROGATORY NO. 5: The text of GANE's

Contention 6 provides a summary of the subject matter, facts, and opinions to which Dr.

Lyman will testify regarding Contention 6.

GENERAL INTERROGATORY NO. 6. For each Admitted Contention, identify the documents (including cites to pertinent pages or parts thereof), data or other information which each witness has reviewed and considered, or is expected to consider or to rely on for his or her testimony. Please identify the location where, and time when, such documents will be made available to DCS for copying.

RESPONSE TO GENERAL INTERROGATORY NO. 6: All documents that have been

reviewed or considered by Dr. Lyman are listed in Contention 6 and in GANE's

discovery responses. These documents are publicly available. GANE will also review

any additional relevant documents that are identified by Dr. Lyman in the course of

developing his testimony, or that are identified by NRC or by DCS in discovery or in

their correspondence. GANE will update this discovery response as appropriate.

B. Specific Interrogatories

INTERROGATORY NO. 6.36 In GANE's response to
INTERROGATORY NO. 6.4:

(a) It never identified what HEPA filter efficiency value(s) should be used under accident conditions at the MOX Facility. Identify and fully explain what HEPA efficiency values should be used under accident conditions, in GANE's opinion.

(b) In addition, GANE stated "DCS has not justified the use of a 99% efficiency factor, which is nonconservative according to NUREG/CR-6410." What specific statement or item in NUREG/CR-6410 does GANE refer to?

(c) Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response, and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE TO INTERROGATORY NO. 6.36:

- (a) For all accidents that currently credit the two banks of HEPA filters to provide a LPF of $10E-4$, if DCS cannot demonstrate that the filters will survive, then it must evaluate the consequences assuming they do not survive. Two cases should be evaluated: one where the combined efficiency is 95%, and the other where the combined efficiency is 0. GANE is referring to the following statement in Section F.2.1.3 at page F-11: "If conditions are severe or the filters are unprotected, efficiencies as low as 99 to 95% are recommended." 99% is not conservative because it is the upper end of the specified range.
- (b) The applicable regulatory requirements are 10 C.F.R. §§ 70.23(b), 70.61, and 70.64(b). GANE also relies on NUREG/CR-6410. In addition, conservatism requires that the first of the two filters in the bank must be assumed to fail completely. See Bergman, et al, "Criteria for Calculating the Efficiency of Deep-Pleated HEPA Filters with Aluminum Separators etc. at page 15. This document is cited in footnote 19 of Contention 6.

INTERROGATORY NO. 6.37 As a follow-up to INTERROGATORY NO. 6.17, identify and fully explain any bases GANE has for believing that DCS "has not looked at all credible high-consequence accidents." Identify all "credible high-consequence accidents" which GANE believes DCS has not considered. Identify the regulatory, scientific, technical, legal, any other bases on which GANE bases its response.

RESPONSE TO INTERROGATORY NO. 6.37: GANE objects to this interrogatory on the ground that it is unduly burdensome. The identification of all credible high-consequence accidents is DCS's responsibility. DCS has admitted that it has not performed a complete analysis of conditions that can affect the efficiency of HEPA filters. GANE's basis for this assertion is Revised CAR Section 5.4.4.4: "Table 5.4.-4

identifies conditions that can affect the efficiency of the HEPA filters. The MFFF is designed and operated to protect the HEPA filters from these conditions. Analyses based on final design are in progress to demonstrate that the HEPA filters are protected from these conditions and to demonstrate that the ventilation systems' LPF is $10E-4$ or better." This language demonstrates that DCS continues to lack an analysis that would support its assumption that two banks of HEPA filters will function during all accidents where the ventilation system is credited for filtration.

INTERROGATORY NO. 6.38 GANE stated in response to INTERROGATORY NO. 6.23 that it did not agree with DCS's response to the June 8, 2001 ER RAI referenced in GANE's Basis Statement for this contention. However, GANE did not identify, and is hereby requested to identify, the specific ER RAI Response referenced by GANE.

RESPONSE TO INTERROGATORY NO. 6.38: The RAI response with which GANE disagrees is No. 40, dated July 12, 2001, at page 39.

INTERROGATORY NO. 6.39 GANE stated in response to INTERROGATORY NO. 6.26 that it did not agree with DCS's response to the June 21, 2001 CAR RAI referenced in GANE's Basis Statement for this contention. However, GANE did not identify, and is hereby requested to identify, the specific CAR RAI Response referenced by GANE.

RESPONSE TO INTERROGATORY NO. 6.39: The CAR RAI Response is No. 39, dated August 31, 2001.

INTERROGATORY NO. 6.40 In response to INTERROGATORY NO. 6.33, GANE states that Dr. Lyman can make the MACCS2 calculation input files available. That response does not identify, and GANE is hereby again requested to identify, the assumptions used in the calculations, and the results of the calculation.

RESPONSE TO INTERROGATORY NO. 6.40: GANE will provide DCS with a copy of the output file for the MACCS calculation, which provides the requested information.

INTERROGATORY NO. 6.41 In response to INTERROGATORY NO 6.3, GANE stated "DCS has not done what GANE called for in its contention, which is to provide a definition of the conditions for each accident sequence that the

HEPA filters may experience, and a demonstration that they will retain their function.”

(a) Are the “conditions...that the HEPA filters may experience” referred to tabulated in Tables F-5 and F-6 in NUREG-6410? If not, define what “conditions” GANE is referring to.

(b) Is the “demonstration that they will retain their function” equivalent to showing (1) the HEPA filter is not structurally damaged for the parameter values in “each accident sequence” by showing the parameter values in the accident are less than the damage threshold values in table F-5 of NUREG-6410 and by showing (2) the penetration of each filter is less than 1% (99% efficiency) from a comparison of the parameters in Table F-6 of NUREG-6410? If not, describe what constitutes a “demonstration.”

RESPONSE TO INTERROGATORY NO. 6.41:

(a) GANE objects to this interrogatory on the ground that it is unduly burdensome, because it would require GANE to do DCS’s work, i.e., to determine the sufficiency of NUREG-6410 to provide guidance for this critical safety issue. Nevertheless, without waiving its objection, GANE states that these lists appear to be reasonable. GANE reserves the right to amend its answer if it should discover information showing the list is incomplete.

(b) Yes.

INTERROGATORY NO. 6.42 In response to INTERROGATORY NO 6.5, GANE stated “GANE does not have sufficient information with which to respond to this interrogatory.”

(a) Are the specific values of the parameters listed in Table F-5 of NUREG-6410 “sufficient” to response to that Interrogatory? If not, describe what “information” GANE needs to respond to that Interrogatory.

(b) Does GANE agree that Table F-5 of NUREG-6410 lists the threshold values of differential pressure required to structurally damage the standard HEPA filter for the parameters listed? If not, explain why GANE disagrees.

RESPONSE TO INTERROGATORY NO. 6.5:

(a) GANE objects to this interrogatory on the ground that it is unduly burdensome, because it would require GANE to do DCS’s work, i.e., to determine the sufficiency of the NUREG to provide guidance for this critical safety issue.

Nevertheless, without waiving its objection, GANE states that these values appear to be reasonably sufficient, but GANE reserves the right to amend this answer if new information should show otherwise.

- (b) We agree that Table F-5 lists the values as tabulated in the literature reviewed by Bergman, as referenced in Bergman, et al. 1995a. At this time, we are not aware of experimental data that would be inconsistent with Table F-5. GANE reserves the right to amend this answer if new information becomes available that is inconsistent with Table F-5.

INTERROGATORY NO. 6.43 In response to INTERROGATORY NO 6.6, GANE stated "GANE does not have sufficient information with which to respond to this interrogatory."

(a) What is the "sufficient information" that GANE needs to answer that Interrogatory?

(b) Does GANE agree that Table F-3 of NUREG-6410 shows that standard HEPA filters exposed to temperatures less than 200°C (392°F) will not affect the HEPA filter efficiency? If not, what does GANE believe the "0.0 percent" that corresponds to 200°C (392°F) in Table F-3 means?

RESPONSE TO INTERROGATORY NO. 6.43:

(a) GANE objects to this interrogatory on the ground that it is unduly burdensome, because it would require GANE to do DCS's work, i.e., to determine the sufficiency of the NUREG to provide guidance for this critical safety issue.

(b) Yes.

INTERROGATORY NO. 6.44 In response to INTERROGATORY NO 6.7, GANE stated "GANE does not have sufficient information with which to respond to this interrogatory."

(a) What is the "sufficient information" that GANE needs to answer that Interrogatory?

(b) Does GANE agree that Table F-5 of NUREG-6410 shows that 10 inches of water is the lowest threshold value of differential pressure for a standard HEPA filter that will cause structural damage to the standard HEPA filter for the parameters (except chemical) listed in Table F-5? If not, explain why GANE disagrees.

RESPONSE TO INTERROGATORY NO. 6.44:

(a) GANE objects to this interrogatory on the ground that it is unduly burdensome, because it would require GANE to do DCS's work, i.e., to determine the sufficiency of the NUREG to provide guidance for this critical safety issue.

(b) We agree.

INTERROGATORY NO. 6.45 In response to INTERROGATORY NO 6.8, GANE stated "GANE does not have sufficient information with which to respond to this interrogatory."

(a) What is the "sufficient information" that GANE needs to answer that Interrogatory?

(b) Does GANE agree with the following statement from NUREG-6410, Section F.2.1.3: "If a series of HEPA filters is protected by pre-filters, sprinklers, and demisters, efficiencies of 99.9 percent for the first filter and 99.8% for all subsequent filters is recommended for accident analysis." If not, explain why.

RESPONSE TO INTERROGATORY NO. 6.45:

(a) GANE objects to this interrogatory on the ground that it is unduly burdensome, because it would require GANE to do DCS's work, i.e., to determine the sufficiency of the NUREG to provide guidance for this critical safety issue.

(b) No. As discussed in response to Interrogatory 6.36, NUREG-6410, Section F.2.1.3 also states that: "If conditions are severe or the filters are unprotected, efficiencies as low as 99 to 95% are recommended." This statement implies that if conditions are severe, efficiencies of 99.9 percent for the first filter and 99.8% for all subsequent filters would not be recommended.

INTERROGATORY NO. 6.46 In response to INTERROGATORY NO 6.9, GANE stated "GANE does not have sufficient information with which to respond to this interrogatory." What is the "sufficient information" that GANE needs to answer that Interrogatory?

RESPONSE TO INTERROGATORY NO. 6.46: GANE would need to know specifics about the type, deployment, reliability data, and features of spark arrestors in order to determine whether they would be sufficiently reliable to provide adequate protection.

INTERROGATORY NO. 6.47 In response to INTERROGATORY NO 6.10, GANE stated "GANE does not have sufficient information with which to respond to this interrogatory." What is the "sufficient information" that GANE needs to answer that Interrogatory?

RESPONSE TO INTERROGATORY NO. 6.47: GANE does not have any information to contradict DCS's assertion that plugging of HEPA filters by smoke and/or water will not cause structural damage to HEPA filters if the pressure drop across the HEPA filter is limited to 10 inches of water or less. Nevertheless, we would point out that NUREG-6410 is only one source of information about the performance of HEPA filters. GANE reserves the right to amend this answer if it discovers information that shows that this assertion is incorrect.

INTERROGATORY NO. 6.48 In response to INTERROGATORY NO 6.12, GANE stated "GANE does not have sufficient information with which to respond to this interrogatory." What is the "sufficient information" that GANE needs to answer that Interrogatory?

RESPONSE TO INTERROGATORY NO. 6.48: GANE does not have any information to contradict DCS's assertion that a water spray/demister system as specified in DOE Standard DOE-STD-1066-1999 is necessary to protect HEPA filters from high exhaust temperatures due to fires even if the exhaust temperature is less than 200 degrees C. Nevertheless, we would point out that NUREG-6410 is only one source of information about the performance of HEPA filters. GANE reserves the right to amend this answer if it discovers information that shows that this assertion is incorrect.

V. GANE Contention 9 (Cost Comparison)

A. General Interrogatories

GENERAL INTERROGATORY NO. 4. For each Admitted Contention, in the event that GANE or BREDL has obtained or discovered any information responsive to DCS's First Set of Interrogatories in addition to those responses identified in Georgians Against Nuclear Energy and Blue Ridge Environmental Defense League Objection and Responses to Applicant's First Set of Interrogatories, and Request for Protective Order (June 28, 2002), please update and supplement those responses. Identify each response as "Amended Response [number]" and state whether the response is in addition to, or supercedes, the original response.

RESPONSE TO GENERAL INTERROGATORY NO. 4: See response to Interrogatory

9.7 below.

GENERAL INTERROGATORY NO. 5. For each Admitted Contention, describe the subject matter, facts, and opinions to which each of your witnesses is expected to testify at the Hearing, including a summary of the grounds for each opinion. Regardless of whether GANE or BREDL has prepared testimony on any of the Admitted Contentions, a summary of the subject matter, facts, and opinions in such testimony should be provided at this time.

RESPONSE TO GENERAL INTERROGATORY NO. 5: See response to Interrogatory

9.7 below.

GENERAL INTERROGATORY NO. 6. For each Admitted Contention, identify the documents (including cites to pertinent pages or parts thereof), data or other information which each witness has reviewed and considered, or is expected to consider or to rely on for his or her testimony. Please identify the location where, and time when, such documents will be made available to DCS for copying.

RESPONSE TO GENERAL INTERROGATORY NO. 6: See response to Interrogatory

9.7 below.

B. Specific Interrogatories

INTERROGATORY NO. 9.7 In light of the information provided by DCS in the revised ER and the information provided by the NRC Staff in the updated Hearing File, identify and fully explain all economic (monetary) costs GANE believes are still missing from the ER.

RESPONSE TO INTERROGATORY NO. 9.7: While GANE is not satisfied with the discussion of costs in DCS's revised ER, GANE has nevertheless decided to drop Contention 9. Therefore, GANE has no answer to this interrogatory or DCS's other interrogatories with respect to Contention 9.

INTERROGATORY NO. 9.8 With respect to each item listed in GANE's response to INTERROGATORY NO. 9.7, identify and fully explain why GANE believes the "rule of reason" under the National Environmental Policy Act requires inclusion of these costs.

RESPONSE TO INTERROGATORY NO. 9.8: See Response to Interrogatory 9.7.

INTERROGATORY NO. 9.9 For purposes of compliance with 10 CFR § 51.45(c), does GANE agree that discussions of economic (monetary) costs can be qualitative rather than quantitative? If not, identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

RESPONSE TO INTERROGATORY NO. 9.9: See Response to Interrogatory 9.7.

INTERROGATORY NO. 9.10 GANE's response to INTERROGATORY NO. 9.2 states, "the National Environmental Policy Act requires the evaluation of all reasonably foreseeable environmental impacts." Does GANE believe that the economic cost associated with an impact must be evaluated regardless of the probability or likelihood of occurrence of the impact? If not, quantify the probability, or if not possible, qualitatively describe the likelihood below which GANE believes each of the impacts identified in response to INTERROGATORY NO. 9.7 need not be considered under NEPA.

RESPONSE TO INTERROGATORY NO. 9.10: See Response to Interrogatory 9.7.

VI. GANE Contention 11 & BREDL Contention 1E (Aqueous Polishing Waste Stream)

A. General Interrogatories

GENERAL INTERROGATORY NO. 4. For each Admitted Contention, in the event that GANE or BREDL has obtained or discovered any information responsive to DCS's First Set of Interrogatories in addition to those responses identified in Georgians Against Nuclear Energy and Blue Ridge Environmental Defense League Objection and Responses to Applicant's First Set of Interrogatories, and Request for Protective Order (June 28, 2002), please update and supplement those responses. Identify each response as "Amended Response

[number]" and state whether the response is in addition to, or supercedes, the original response.

RESPONSE TO GENERAL INTERROGATORY NO. 4: Other than information that is provided in the interrogatory responses below, GANE does not have any new information to add to its previous interrogatory responses.

GENERAL INTERROGATORY NO. 5. For each Admitted Contention, describe the subject matter, facts, and opinions to which each of your witnesses is expected to testify at the Hearing, including a summary of the grounds for each opinion. Regardless of whether GANE or BREDL has prepared testimony on any of the Admitted Contentions, a summary of the subject matter, facts, and opinions in such testimony should be provided at this time.

RESPONSE TO GENERAL INTERROGATORY NO. 5: At this time, GANE does not have an expert witness for Contention 11. If GANE is not able to retain an expert, GANE plans to rely on publicly available information for its evidentiary presentation. GANE will supplement its answer if and when it retains an expert.

GENERAL INTERROGATORY NO. 6. For each Admitted Contention, identify the documents (including cites to pertinent pages or parts thereof), data or other information which each witness has reviewed and considered, or is expected to consider or to rely on for his or her testimony. Please identify the location where, and time when, such documents will be made available to DCS for copying.

RESPONSE TO GENERAL INTERROGATORY NO. 6: The substance of GANE's evidentiary presentation, and the documents on which GANE expects to rely, are described in the answers to specific interrogatories that are provided below.

B. Specific Interrogatories

INTERROGATORY NO. 11.8 In INTERROGATORY NO. 11.1, DCS asked GANE to identify and fully explain why GANE contends that the ER "understates the impacts of the waste stream from aqueous polishing to remove gallium." GANE's response was comprised of four components, the first of which was "that in the space of less than two years the liquid waste stream figures changed from 0 gallons of waste from a dry ARIES process to 80,000 gallons from aqueous polishing..." This first component does not explain how the ER "understates the impacts of the waste stream from aqueous polishing to remove gallium." Please identify and fully explain how

GANE's first component of its response supports the statement that the ER "understates the impacts of the waste stream from aqueous polishing to remove gallium."

RESPONSE TO INTERROGATORY NO. 11.8: DCS's figures for the waste stream have changed several times over two years and it is not clear why — the basis for the published figures is not included. Given DOE's history of unresolved nuclear waste problems, GANE assumes that as a DOE contractor DCS would tend to underestimate the problem rather than overestimate it.

INTERROGATORY NO. 11.9 The second component of GANE's response to INTERROGATORY NO. 11.1 was the "lack of verifiable data from the MELOX factory which is experiencing problems with a greater-than-anticipated amount of scrap to be re-processed (see attachment #9);..." This second component does not explain how the ER "understates the impacts of the waste stream from aqueous polishing to remove gallium." especially since the MELOX plant does not employ aqueous polishing. Please identify and fully explain how GANE's second component of its response supports the statement that the ER "understates the impacts of the waste stream from aqueous polishing to remove gallium."

RESPONSE TO INTERROGATORY NO. 11.9: The dry scrap recycle system at MELOX seems to be overwhelmed, as indicated in the Wise paper attached to Contention 11. the fact that this excess material has been sent to La Hague suggests that COGEMA plans to redissolve it. We are concerned that this problem may also arise at the proposed MOX Facility. Therefore, some scrap pellets may need to be redissolved, generating additional aqueous waste.

INTERROGATORY NO. 11.10 The third component of GANE's response to INTERROGATORY NO. 11.1 was "the use of different units of measurement to describe the waste stream..." This third component does not explain how the ER "understates the impacts of the waste stream from aqueous polishing to remove gallium" because, although it is true that waste may be measured in units of radioactivity (Curies), mass (kilograms), or volume (gallons), the choice of reporting units does not demonstrate an understating of impacts. Please identify and fully explain how GANE's third component of its response supports the statement that the ER "understates the impacts of the waste stream from aqueous polishing to remove gallium."

RESPONSE TO INTERROGATORY NO. The use of “apples and oranges”

measurement further obscures and confuses the figures that DCS is publishing.

INTERROGATORY NO. 11.11 The fourth component of GANE’s response to INTERROGATORY NO. 11.1 was “the waste figures are likely to change dramatically, again, when DCS and DOE characterize the waste stream from the junk plutonium that has been added to the MOX program.” Please identify and fully explain how GANE’s fourth component of its response supports the statement that the ER “understates the impacts of the waste stream from aqueous polishing to remove gallium.”

RESPONSE TO INTERROGATORY NO. 11.11: Although DCS has published new figures for the waste stream from the increased amounts of less pure plutonium to be processed into MOX, no basis for the figures is shown. DCS has not provided a detailed initial inventory of the non-pit plutonium that it expects to receive. Given the lack of basis for the figures, GANE is practicing conservatism to anticipate that actual experience may produce more nuclear waste than hypothetical.

INTERROGATORY NO. 11.12 GANE’s response to INTERROGATORY NO 11.1 included a statement that referred to “scrap” at the MELOX facility and referenced a paper authored by WISE-Paris, included as Attachment #9 to GANE’s original contentions. Please clarify GANE’s understanding of the definition(s) of “scrap” as the term is used in Contention 11, Attachment #9 to GANE’s Contentions, and GANE’s response to INTERROGATORY NO. 11.1. Cite to any authority.

RESPONSE TO INTERROGATORY NO. 11.12: GANE understands “scrap” to be rejected MOX pellets and discarded MOX powders as the pellets are milled to specification.

INTERROGATORY NO. 11.13 Does GANE agree that the revised ER moots that portion of Contention 11 regarding the environmental impacts of high alpha waste storage at the SRS F-Area tank farm, since the ER outlines a plan to solidify the high alpha waste rather than place it in the SRS high-level radioactive waste tanks. If not, fully explain your answer.

RESPONSE TO INTERROGATORY NO. 11.13: GANE is not satisfied of DOE's commitment to the Waste Solidification Building, nor of DOE's, nor its contractor Westinghouse Savannah River Corporation's, ability to effectively implement the new waste plan published in DCS Environmental Report (July 11, 2002). In the eventuality of technical or logistical failure of the new plan incorporating waste solidification and WIPP disposal, the tanks could conceivably be looked to once again to store the high-alpha waste which DCS has characterized as "isotopically similar to the plutonium raffinate solutions from the F-canyon" which is stored in the tanks (Letter from P. Hastings (DCS) to NRC Document Control Desk, *Responses to Request for Additional Information on the Environmental Report*, DCS-NRC-000053, at 5 (July 12, 2001) (Hearing File Doc. #45). Until the current waste management proposal is more concrete as would be evidenced by its inclusion in DOE budgets and environmental impact statements, it would be premature to drop the matter of the high-level waste tanks.

INTERROGATORY NO. 11.14 In response to INTERROGATORY NO 11.2, GANE stated, "...GANE must rely on persistent allegations of egregious environmental pollution from COGEMA's European facilities, specifically La Hague which has a practice of dumping liquid waste into the North Atlantic Ocean."

(a) Assuming that such liquid discharge is occurring, does GANE believe that the alleged environmental pollution is inherent in the design of the aqueous polishing process? If so, please provide the source of GANE's scientific or engineering evaluation that the alleged pollution is inherent in the design of the aqueous polishing process.

(b) Assuming that such liquid discharge is occurring, does GANE believe that the alleged environmental pollution from La Hague is allowed by regulation, permit, rule, or order? Please explain your answer.

Provide GANE's regulatory basis for believing that NRC-imposed discharge limitations would likewise result in similar "egregious environmental pollution."

RESPONSE TO INTERROGATORY NO. 11.14:

(a) GANE does not believe that environmental pollution is inherent in the design of the aqueous polishing process.

(b) Ocean dumping apparently is permitted by the French government. As the owner of COGEMA, the French government has a vested interest in avoiding or minimizing economic costs of waste disposal problems through this method. GANE is concerned that COGEMA may perpetuate this unacceptable attitude and approach to waste disposal problems at the MOX Facility.

For the objections:



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December 20, 2002

December 20, 2002

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

In the Matter of

DUKE COGEMA STONE & WEBSTER

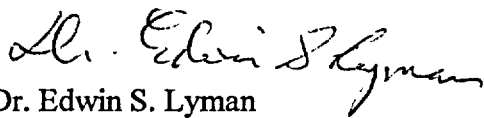
(Savannah River Mixed Oxide Fuel
Fabrication Facility)

Docket No. 0-70-03098-ML

ASLBP No. 01-790-01-ML

DECLARATION OF DR. EDWIN S. LYMAN

Under penalty of perjury, I, Dr. Edwin S. Lyman, declare that I am responsible for interrogatory responses related to Contentions 1, 2, and 6 in Georgians Against Nuclear Energy's Objections and Responses to Applicant's Second Set of Interrogatories (December 20, 2002). The factual statements therein are true and correct to the best of my knowledge, and the opinions expressed therein are based on my best professional judgment.


Dr. Edwin S. Lyman

December 20, 2002

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Thomas S. Moore, Chairman
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In the Matter of

DUKE COGEMA STONE & WEBSTER

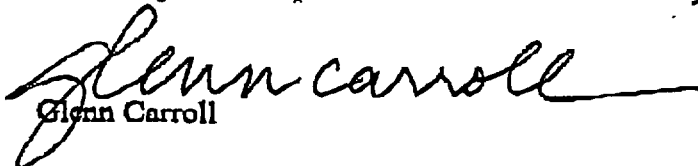
(Savannah River Mixed Oxide Fuel
Fabrication Facility)

Docket No. 0-70-03098-ML

ASLBP No. 01-790-01-ML

DECLARATION OF GLENN CARROLL

Under penalty of perjury, I, Glenn Carroll, declare that I am responsible for interrogatory responses related to Contention 11 in Georgians Against Nuclear Energy's Objections and Responses to Applicant's Second Set of Interrogatories (December 20, 2002). The factual statements therein are true and correct to the best of my knowledge, and the opinions expressed therein are based on my best judgment as a layperson.


Glenn Carroll

December 20, 2002

CERTIFICATE OF SERVICE

I hereby certify that on December 16, 2002, copies of the foregoing Georgians Against Nuclear Energy's Second Supplemental Response to Applicant's First Set of Interrogatories, and Georgians Against Nuclear Energy's Objections and Responses to Applicant's Second Set of Interrogatories were served on the following by e-mail and/or first-class mail:

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