

RAS4621

RELATED CORRESPONDENCE

June 28, 2002

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

DOCKETED
USNRC

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

July 5, 2002 (4:04PM)

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 AND BLUE RIDGE
ENVIRONMENTAL DEFENSE LEAGUE OBJECTIONS AND RESPONSES TO
APPLICANT'S FIRST SET OF INTERROGATORIES,
AND REQUEST FOR PROTECTIVE ORDER**

Introduction

Georgians Against Nuclear Energy ("GANE") and Blue Ridge Environmental Defense League ("BREDL") (hereinafter "Intervenors") hereby respond to Duke Cogema Stone and Webster's First Set of Interrogatories to Georgians Against Nuclear Energy and Blue Ridge Environmental Defense League (May 31, 2002).

Intervenors have objected to several of Duke Cogema Stone and Webster's ("DCS's") interrogatories, and therefore request a protective order from the ASLB that they not be required to answer. In addition, Intervenors wish to note that they are in the process of developing their evidentiary case in this proceeding, and anticipate that they will obtain more relevant information through discovery against DCS and the NRC Staff.

Template = SECY-035

SECY-02

Therefore, Intervenors anticipate that they will need to supplement their responses to these interrogatories. Intervenors hereby reserve their right to rely upon any and all additional documents and information that they may discover or otherwise obtain, and reserve the right to supplement or modify their responses to DCS's interrogatories to incorporate such additional information or documents, as provided by 10 C.F.R. R. § 2.740(e).

In its April 30, 2002, Order, the ASLB instructed the parties to identify and make available for copying any documents not in the hearing file that their experts plan to rely on. Intervenors' experts have not yet determined exactly what documents they will rely on at the hearing. However, it is likely that they will rely on the documents that are identified in the admitted contentions and in the interrogatory responses. Intervenors will provide copies of documents that are not easily obtainable from ADAMS or other public sources at the request of DCS or the NRC Staff.

I. RESPONSES TO GENERAL INTERROGATORIES

GENERAL INTERROGATORY NO. 1 State the name, business address, and job title of each person who was consulted and/or who supplied information for: (a) drafting each of the Admitted Contentions; and (b) responding to these interrogatories. Identify for which specific contentions and interrogatories each such person was consulted and/or supplied information.

If the information or opinions of anyone who was consulted in connection with your response to an interrogatory differs from your written answer to that interrogatory, please describe in detail the differing information or opinions.

RESPONSE: GANE's interrogatory answers were written by the following:

CONTENTION 1: Dr. Edwin S. Lyman, expert answers indicated by asterisks, all answers Dr. Lyman's except: 1.1, 1.9, 1.14, 1.20, 1.22. His information has been

previously submitted. Interrogatories not answered by Dr. Lyman were answered by intervenors and legal adviser.

CONTENTION 2: Dr. Lyman answered all interrogatories for this contention.

CONTENTION 3: Peter Burkholder answered the interrogatories for Contention 3. His answers are indicated by asterisks. He answered all interrogatories except: 3.14, 3.15, 3.17, 3.18, 3.21, 3.23, 3.28, 3.29, 3.31, 3.37, 3.38, 3.39, 3.40. Mr. Burkholder is a non-witness expert for GANE. His biographical information was submitted with the original GANE contentions on August 13, 2001. Interrogatories not answered by Mr. Burkholder were answered by intervenors and legal adviser.

CONTENTION 5: Dr. Lyman answered interrogatories as indicated by asterisks.

Interrogatories answered by Dr. Lyman are as follows: 5.6, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15. Interrogatories not answered by Dr. Lyman were answered by intervenors and legal adviser.

CONTENTION 6: Dr. Lyman answered the interrogatories as indicated by asterisks. He answered each interrogatory except: 6.2, 6.8, 6.24. Interrogatories not answered by Dr. Lyman were answered by intervenors and legal adviser.

CONTENTION 9: These interrogatories were answered by intervenors and legal adviser.

CONTENTION 11: These interrogatories were answered by intervenors and legal adviser.

GENERAL INTERROGATORY NO. 2 For each Admitted Contention, give the name, business address, profession, employer, area of professional expertise, education, relevant experience, and qualifications of each person whom you expect to call as a witness at the Hearing to the extent such information has not been provided in response to the Atomic Safety and Licensing Board's April 30, 2002 Memorandum and Order. For purposes of answering this interrogatory, the education and experience of the expected witnesses may be provided by attaching

to the response a resume of each person. In addition, provide a list of all publications authored by the expected witness within the preceding ten years, and a list of any other cases in which the person has given testimony, at any time, as an expert at a trial, hearing, or deposition.

RESPONSE: GANE and BREDL have nothing further to add to the information provided in their previous correspondence with the ASLB.

GENERAL INTERROGATORY NO. 3 For each Admitted Contention: (a) describe the subject matter on which each witness is expected to testify at the Hearing; (b) describe the facts and opinions to which each witness is expected to testify, including a summary of the grounds for each opinion; and (c) identify the documents (including all 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.

RESPONSE: Intervenors have not yet developed information responsive to this request because they have not prepared testimony on any of their contentions. Intervenors will supplement their response to this interrogatory at a later date.

II. SPECIFIC INTERROGATORIES

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

INTERROGATORY NO. 1.1 Does GANE agree that the only NRC regulations containing material control and accounting ("MC&A") requirements applicable to the MOX Facility are found in 10 CFR Part 74, Subparts A, B, E and F? If not, explain the basis for your disagreement and provide citations to all other NRC regulations that contain requirements applicable to MC&A for the MOX Facility. If any regulations other than 10 CFR Part 74, Subparts A, B, E and F are identified, explain how each such regulation relates to, or establishes requirements for, MC&A at the MOX Facility.

RESPONSE: GANE objects to this interrogatory on the ground that it calls for a legal conclusion. Without waiving its objection, GANE responds that in addition to 10 C.F.R. Part 74, MC&A requirements can be found in 10 C.F.R. Part 70, subpart G. The identification of MC&A design measures is also implicitly required by 10 C.F.R. §

70.23(b). The MOX Facility should also be designed so that it is conducive to IAEA inspection pursuant to 10 C.F.R. Part 75.

INTERROGATORY NO. 1.2 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, and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

***RESPONSE: Yes. In a vulnerability analysis, the design and operation of a proposed facility are examined to identify potential diversion paths for special nuclear material. The vulnerability analysis therefore is an essential step in designing a facility so that it provides for adequate safeguards. As discussed in Contention 1, the use of a vulnerability analysis is a standard DOE design practice. We would also refer you to a paper by Dan Miller, Dr. Neil Zack, and Steve Vassel of Canberra Aquila, Inc., a manufacturer of safeguards equipment, entitled “the Safeguards Equation – Integration of Physical Protection, Material Control and Accountability, and Protective Forces.” The paper was delivered at 43rd Annual Meeting of the Institute of Nuclear Materials Management in Orlando, Florida. At page 5, the authors state:

. . . A baseline vulnerability analysis will identify deficiencies in the current system or establish, if it is entirely new construction, the baseline requirements for the new system. These represent planning factors that determine subsystem requirements that eventually impact the overall system design. Facility characterization is perhaps the single most important factor in the system integration design process.

INTERROGATORY NO. 1.3 Does GANE agree that an appropriate definition of “design bases,” as used in 10 CFR §§ 70.22(f) and 70.23(b), is: “the specific functions to be performed by a structure, system, or component of a facility, and the specific values or ranges of values chosen for controlling parameters as a reference bounds for design”? See 10 CFR § 50.2. If not, indicate what you believe would be an appropriate definition of “design basis” as used in 10 CFR §§ 70.22(f) and 70.23(b),

and explain the basis for your disagreement and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

***RESPONSE: The definition of “design bases” provided above is reasonable. We would highlight the requirement for specific values or ranges of values. Compliance with this quantitative requirement is lacking in the CAR with respect to MC&A.

INTERROGATORY NO. 1.4 Identify and fully explain why GANE claims that “the MC&A design basis must include a detailed description of how holdup accumulation can be effectively managed through choices for design elements,” and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

***RESPONSE: The basis for GANE’s assertion that “the MC&A design basis must include a detailed description of how holdup accumulation can be effectively managed through choices for design alternatives” is described in Contention 1 at page 7. It is Intervenor’s position that this fundamental design-related information is necessary to satisfy 10 C.F.R. § 70.23(b) and the performance objectives in 10 C.F.R. § 74.51.

The NRC Staff recently issued a paper describing new regulatory guides that are under development, for measurement and minimization of holdup. The paper is entitled “Revisions of NRC Regulatory Guides in Material Control and Accounting Program.” It was presented on June 26, 2002, at the 43rd Annual Meeting of the INMM. Referring to a regulatory guide that is being developed, the paper states:

This guide describes a number of design features and characteristics that contribute to minimizing residual holdup of nuclear materials. It discusses various design considerations that can lead to minimizing the in-process inventory during routine operations to reduce the time and effort required for inventory clean out, to minimize production losses, and to facilitate cleanup at inventory taking.

Id. at 3.

INTERROGATORY NO. 1.5 Identify and fully explain why GANE claims that “the MC&A design basis must include a detailed description of how holdup accumulation can be measured with NDA systems to the degree of accuracy necessary to meet 10 CFR Part 74 requirements.” Define “NDA.” Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response, including but not limited to the NRC regulations that require measurement of holdup accumulation.

***RESPONSE: GANE objects to this interrogatory on the basis that it is a compound question. Without waiving its objection, GANE responds as follows: It is essential to provide a detailed description of how holdup accumulation can be measured with NDA systems to the degree of accuracy necessary to meet 10 CFR Part 74 requirements for the reasons stated in Contention 1 and because it is reasonably necessary to do so in order to provide a reasonable level of safeguards protection. NDA stands for Non-Destructive Assay.

In the same NRC paper cited in response to Interrogatory 1.4 above, the NRC states:

Holdup measurements are not specifically required by NRC regulations, but many licensed facilities find that such measurements are the preferred means of minimizing the magnitude of observed inventory differences and the uncertainty of its material balance, both of which are a regulatory requirement.

The NRC also mentions a regulatory guide for NDA on plutonium and plutonium isotopes, stating: “The . . . guide considers NDA measurements which become preferable measurement methods for material in process . . . “

INTERROGATORY NO. 1.6 Identify and fully explain what “degree of accuracy” is needed for NDA systems to meet applicable NRC requirements, in GANE’s opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response, including but not limited to the NRC regulations that establish requirements for accuracy of NDA systems.

****RESPONSE: It is not possible to provide the information requested without a more detailed description of the NDA system than is provided in the CAR. There is no single appropriate degree of accuracy for all NDA systems. Each system will have to be designed to meet the demands of processing the type of feed material to be used. At this point, the exact characteristics of the feed material to be processed at the proposed MOX Facility remains unknown.

At an ACRS meeting on November 16, 2001, Tom Pham of the NRC Staff summarized why the Staff was unable to determine the degree of accuracy of the NDA systems for the MOX Facility:

Right now, they do not provide to us those specific numbers. Like, for example, we don't know exactly right now [sic] the applicant wants to put in one batch – for example, a batch of material, ten kilograms or five kilograms or 20 kilograms.

Tr. at page 167.

INTERROGATORY NO. 1.7 Identify and fully explain what design features are necessary to effectively manage holdup accumulation, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response, including but not limited to the NRC regulations that require management of holdup accumulation.

****RESPONSE: GANE objects to this interrogatory on the ground that it poses a compound question, that it is unduly burdensome and oppressive, and that it seeks to have GANE perform additional research or analytical work beyond that which is needed to support its position on Contention 1. See 10 C.F.R. § 2.740(b)(3). Contention 1 makes the point that DCS's CAR does not identify any design features for measuring or limiting holdup accumulation, a standard function in MC&A. DCS should be required to provide a design proposal in the first instance, not GANE.

Without waiving its objection, GANE would refer DCS to the draft regulatory guide discussed in response to Interrogatory 1.4 above, which is apparently under preparation by the NRC Staff. Examples of measures for managing holdup accumulation are identified in the NRC's paper that describes the regulatory guide. See also examples provided in Contention 1.

INTERROGATORY NO. 1.8 Identify and fully explain what process equipment materials and geometries should be used to effectively manage holdup accumulation, in GANE's opinion.

***RESPONSE: GANE objects to this interrogatory on the ground that it is unduly burdensome and oppressive and calls on GANE to undertake research that should be done by DCS in the first instance. Without waiving its objection, GANE refers DCS to the response to Interrogatory No. 1.7.

INTERROGATORY NO. 1.9 Identify and fully explain what features, in GANE's opinion, the glovebox ventilation systems and dust collection systems should have in order to effectively manage holdup accumulation.

RESPONSE: Intervenors object to this interrogatory on the ground that it is unduly burdensome and oppressive and calls on Intervenors to undertake research that should be done by DCS in the first instance. DCS has not submitted any design for the management of holdup accumulation, including glove boxes or any other feature. It is not appropriate to demand that Intervenors provide DCS with design specifications. DCS should be required to come up with the design of holdup accumulation features in the first instance. Without waiving this objection, Intervenors refer DCS to the response to Interrogatory No. 1.7.

INTERROGATORY NO. 1.10 Identify and fully explain why GANE claims that "there is no indication that MC&A considerations were taken into account in the MFFF design."

***RESPONSE: This information can be found in Contention 1 at page 5.

INTERROGATORY NO. 1.11 Does GANE agree that DCS is not required to submit a Fundamental Nuclear Material Control Plan (“FNMCP”) as part of the CAR? If not, explain the basis for your disagreement and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: The design basis for the FNMCP should be included in the CAR. This is discussed in Contention 1.

INTERROGATORY NO. 1.12 Identify each national and international standard or recommendation, other than B.H. Erkkila et. al., “Design Impacts of Safeguards and Security Requirements for a U.S. MOX Fuel Fabrication Facility” (1997), and L. Sheinman, “Assuring the Nuclear Non-Proliferation Safeguards System” (1992), upon which GANE relies for this contention, and explain specifically how such standards or recommendations address the incorporation of MC&A considerations into design activities. Provide citations to any relevant portion or portions of such standards or recommendations.

***RESPONSE: GANE relies for its contention on the Erkkila paper. To the extent that the Erkkila paper references national or international standards or recommendations, GANE relies on them implicitly.

INTERROGATORY NO. 1.13 Identify and fully explain why GANE claims that the experience of the Plutonium Fuel Production Facility (“PFPF”) in Tokaimura, Japan, is relevant to the design basis for MC&A at the MOX Facility.

***RESPONSE: The experience of the PFPF is relevant because it demonstrates GANE’s point that an inadequate design can adversely affect the operation of MC&A systems and prevent material balance goals from being met.

INTERROGATORY NO. 1.14 Identify and fully explain why GANE claims that the MOX Facility may have the same or similar MC&A design “flaws” as the PFPF.

RESPONSE: GANE has not made the claim that the MOX Facility may have the same or similar MC&A design “flaws” as the PFPF.

INTERROGATORY NO. 1.15 Identify and fully explain why GANE claims that the experience of the MELOX plant in France is relevant to the design basis for MC&A at the MOX Facility.

***RESPONSE: DCS itself has asserted that the MELOX plant is a model for the MOX Facility. As discussed in Contention 1 at page 8, operational data from the MELOX plant was submitted by DCS in Chapter 9 of the CAR to justify the expected values of occupational radiation exposures presented therein.

INTERROGATORY NO. 1.16 Identify and fully explain why GANE claims that the MC&A systems for the MELOX plant in France may be deficient.

***RESPONSE: GANE has not stated that the MC&A systems for the MELOX plant in France may be deficient. GANE has stated that management of MOX scrap is an essential element of a credible MC&A program, and that it appears that the rate of scrap production at the MELOX has been much higher than anticipated and has overwhelmed its scrap processing system.

INTERROGATORY NO. 1.17 Identify and fully explain why GANE claims that the MOX Facility may have the same or similar MC&A design deficiencies as the MELOX plant in France.

***RESPONSE: If, as DCS has stated, the design of the MOX Facility is based on the design of the MELOX plant, then it stands to reason that the MOX Facility may experience the same problems as the MELOX plant.

INTERROGATORY NO. 1.18 Identify and fully explain why GANE claims that the Unité de Chamottage at the MELOX plant in France is “substantially similar” to the MOX Facility Scrap Processing Unit.

***RESPONSE: See response to Interrogatory No. 1.17.

INTERROGATORY NO. 1.19 Identify and fully explain, in GANE’s opinion, what functions the MOX Facility MC&A systems must provide, and what specific values or ranges of values are necessary for the controlling parameters for those functions.

***RESPONSE: Intervenors object to this interrogatory, for the same reasons stated in response to Interrogatory No. 1.7 above. Without waiving their objection, Intervenors respond that a fully functional MC&A system must have the ability to account for special nuclear material in every location in the plant. As discussed in response to Interrogatory 1.6 above, the values or ranges of values necessary for controlling parameters must be determined on a case by case basis.

INTERROGATORY NO. 1.20 Identify and fully explain which aspects of the MOX Facility MC&A system, in GANE's opinion, must be addressed in the CAR.

RESPONSE: GANE objects to this interrogatory for the same reasons stated in response to Interrogatory 1.7. The Interrogatory seeks to have GANE do work that DCS should do in the first instance.

INTERROGATORY NO. 1.21 Identify and fully explain which aspects of the MOX Facility MC&A system, in GANE's opinion, are needed to provide protection against natural phenomena and the consequences of accidents.

****RESPONSE: For the reasons given in response to Interrogatory 1.7, GANE objects to this Interrogatory, which seeks to have GANE do DCS's own work. Without waiving its objection, GANE states that the consequences of accidents could include loss of special nuclear material, and therefore design features of the MC&A system are necessary to protect against such losses.

INTERROGATORY NO. 1.22 Does GANE disagree, in any respect, with CAR RAI Response No. 188? If yes, identify and fully explain each respect in which GANE claims that CAR RAI Response No. 188 is inadequate or incorrect.

RESPONSE: We agree with the general principles described in CAR RAI Response No. 188. However, because it is extremely general, it falls far short of providing a design basis for minimizing holdup in glove boxes at the proposed MOX Facility. For instance,

it provides no quantitative specification of the performance criteria that DCS's proposed measures must meet.

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

INTERROGATORY NO. 2.1 Does GANE agree that the only NRC regulations containing physical protection requirements applicable to the MOX Facility are found in 10 CFR § 70.22(h)(1) and 10 CFR Part 73. If not, explain the basis for your disagreement and provide citations to all other NRC regulations that contain requirements applicable to physical security for the MOX Facility. If any regulations other than 10 CFR § 70.22(h)(1) and 10 CFR Part 73 are identified, explain how each such regulation relates to, or establishes requirements for, physical security at the MOX Facility.

RESPONSE: GANE agrees that the regulations listed by DCS apply. GANE would also add 10 C.F.R. 70.23(b), which implicitly requires the inclusion in the CAR of security related design elements.

INTERROGATORY NO. 2.2 Identify and fully explain why GANE claims that "there is no indication that physical protection considerations were taken into account in the MFFF design."

RESPONSE: The assertion is based on the contents of the CAR. See Contention 2.

INTERROGATORY NO. 2.3 Does GANE agree that DCS is not required to submit a Physical Protection Plan, Safeguards Contingency Response Plan, and Training and Qualifications Plan for Security Personnel as part of the CAR? If not, explain the basis for your disagreement and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: The design basis for those plans should be provided in the CAR. The regulatory basis for this assertion is stated in the contention.

INTERROGATORY NO. 2.4 Identify each national and international standard or recommendation, other than INFCIRC/225/Rev. 4 (corrected), upon which GANE relies for this contention, and explain how such standards or recommendations address incorporation of physical security considerations into design activities. Provide citations to any relevant portion or portions of such standards or recommendations.

RESPONSE: The standards and recommendations relied on by GANE are identified in Contention 2, with the exception that GANE also relies on a recent report by the National Academy of Sciences, entitled “Making the Nation Safer: The Role of Science and Technology in Countering Terrorism.” The study, which was released during the week of June 24, is available on the NAS website. In particular, GANE relies on the chapter regarding nuclear and radiological threats, and on the statement in the Executive Summary that as a general principle, security should be built into “basic system designs.” *Id.* at ES-3.

INTERROGATORY NO. 2.5 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: GANE’s position is that DCS has not satisfied any national or international standards that require or recommend inclusion of MC&A and security design elements in the design of the proposed MOX Facility because the CAR doesn’t include these things.

INTERROGATORY NO. 2.6 Identify and fully explain each respect in which GANE claims that there might be “a direct conflict...between physical protection requirements...and safety requirements.”

RESPONSE: The basic conflict lies in the fact that the goal of security is to prevent or delay access and egress, while the goal of safety is to facilitate access and egress. Because DCS has provided virtually no information about its security design, it is impossible to identify conflicts between safety and security goals in the design of the MOX Facility.

INTERROGATORY NO. 2.7 Identify and fully explain, in GANE’s opinion, what functions the MOX Facility physical security systems must provide,

and what specific values or ranges of values are necessary for the controlling parameters for those functions.

RESPONSE: GANE objects to this interrogatory, because it is unduly burdensome and oppressive. It seeks to have GANE perform additional research or analytical work beyond that which is needed to support their position on Contention 2. See response to Contention 1.7. Without waiving its objection, GANE would refer DCS to the NRC's security regulations in 10 C.F.R. Part 73.

INTERROGATORY NO. 2.8 Identify and fully explain which aspects of the MOX Facility physical security system must be addressed in the CAR, in GANE's opinion.

RESPONSE: The CAR should describe those elements of the physical security system that meet the definition of design basis as stated in Interrogatory No. 1.3.

INTERROGATORY NO. 2.9 Identify and fully explain which aspects of the MOX Facility physical security system are needed to provide protection against natural phenomena and the consequences of accidents, in GANE's opinion.

RESPONSE: As discussed in response to Interrogatory 1.6 above, there is an inherent conflict between safety and security goals. It is reasonable to anticipate that efforts to respond to an accident promptly could compromise security due to this conflict. In addition, an accident could compromise security systems, by disabling them or by driving security personnel from the site.

INTERROGATORY NO. 2.10 Identify and fully explain which aspects of the "facility lay out, structural design and location of physical barriers" (as that phrase is used in Contention 2) are needed to provide protection against natural phenomena and the consequences of accidents, in GANE's opinion.

RESPONSE: GANE objects that this is another interrogatory that seeks to have it do DCS's job.

INTERROGATORY NO. 2.11 Identify and fully explain what, in GANE's opinion, should be the design basis of the "facility lay out, structural design and location of physical barriers."

RESPONSE: See response to Interrogatory 2.10.

INTERROGATORY NO. 2.12 Does GANE agree with DCS' response to the June 21, 2001 CAR RAI referenced in GANE's Basis Statement for this contention? If not, identify the specific CAR RAI Response referenced by GANE and fully explain each respect in which GANE claims that DCS' CAR RAI Response is inadequate or incorrect.

RESPONSE: GANE objects to this interrogatory on the ground that it has no apparent relevance to Contention 2. Notwithstanding this objection, GANE states that there is no indication in the RAI response that security considerations were included in the design of the MOX Facility.

C. GANE Contention 3 (Seismic Design)

INTERROGATORY NO. 3.1 Does GANE agree that it is appropriate to use a Regulatory Guide ("RG") 1.60 5% damping spectrum scaled up to 0.2g (acceleration of gravity) peak ground acceleration as the design earthquake for the MOX Facility? If not, identify and fully explain what design earthquake GANE believes would be appropriate for the MOX Facility, and identify the regulatory, scientific, technical, legal, and any other bases for GANE's position.

**RESPONSE: No. It is still not evident that 0.2 g is a conservative estimate of ground acceleration in an appropriate design basis earthquake. 0.2 g seems low for acceleration, given the possibility of earthquakes along the Carolina coastal plain, for example near Bluffton. 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. In this situation, that would be a Charleston-1886 style event at the point in Carolina Coastal Plain nearest the MFFF site.

INTERROGATORY NO. 3.2 Does GANE agree that a design earthquake with a return interval of 10,000 years for the frequencies of practical

structural interest is acceptable for the MOX Facility? If not, identify and fully explain what return interval GANE believes would be appropriate for the design earthquake for the MOX Facility, and identify the regulatory, scientific, technical, legal, and any other bases for GANE's position.

***RESPONSE: Yes.

INTERROGATORY NO. 3.3 Does GANE agree with the information and analysis in Sections 1.3.1.5 and 1.3.1.6 of the DSER? If not, identify the specific sentences in the DSER which GANE believes are incorrect, and identify the regulatory, scientific, technical, legal and any other bases for GANE's position.

***RESPONSE: Page 1.3-7 of the DSER refers to "earthquakes that could impact safe operation," as being limited to a repeat of the 1886 Charleston event in the Place-Summerville Seismic Zone or small events of the South Carolina Piedmont. We assert that that geologic record should lead one to look at 1886 Charleston events elsewhere in the Carolina Coastal Plain, as evidenced by Talwani and Schaeffer.

Page 1.3-11 – DSER states calculation of site amplification factors considered variability in velocity profile, soil columns ETC. It is not clear that the analysis presented in the CAR included the variation in the local soil types as evidenced in the extended geologic sections in the geotechnical reports (referenced in contention – referenced as August 8).

INTERROGATORY NO. 3.4 Does GANE agree that DCS did not use a 0.375g event at 5 hertz ("hz") for its design earthquake (*i.e.*, a PC-3 spectrum for SRS), but instead used a RG 1.60 5% damping spectrum scaled up to 0.2g peak ground acceleration? If not, explain the regulatory, scientific, technical, legal, and any other bases for your disagreement.

***RESPONSE: We have no reason to doubt that DCS used the Regulatory Guide earthquake.

INTERROGATORY NO. 3.5 Does GANE agree that the RG 1.60 5% damping spectrum scaled up to 0.2g peak ground acceleration is more

conservative than the PC-3 spectrum for SRS? If not, explain the regulatory, scientific, technical, legal, and any other bases for your disagreement.

***RESPONSE: Yes.

INTERROGATORY NO. 3.6 Does GANE agree that the RG 1.60 5% damping spectrum scaled up to 0.2g peak ground acceleration has a return interval of 10,000 years at frequencies of practical structural interest for the MOX Facility (*i.e.*, at frequencies that could affect the structural integrity of the structures of the MOX Facility)? If not, explain the regulatory, scientific, technical, legal, and any other bases for your disagreement.

***RESPONSE: In order to respond to this interrogatory, we would need to see the technical criteria that were used to develop the site response models. These criteria are not available in the geotechnical report.

INTERROGATORY NO. 3.7 Identify and fully explain why GANE claims that “conservative design criteria” for the design earthquake have not been established in the DCS CAR.

***RESPONSE: Two of the bases for that claim are:

- DCS did not consider the scientific likelihood of earthquakes closer to MOX site than Charleston, *e.g.*, on Carolina coastal plain.
- DCS did not show that it used soil data from an area representative enough of the MFFF site to ensure conservatism, *e.g.*, Figure 6-11 of the geotechnical report (DCS 2001) shows surface response spectra for 15 SCPT profiles, but one of these profiles was actually conducted on the MFFF site; the rest were several hundred feet away. It is not clear that the bounds of the model included the variations that would be reasonable, given the soil variations in the area.

INTERROGATORY NO. 3.8 Identify and fully explain why GANE claims that “DCS has not performed a seismic analysis that is...adequate in scope.”

***RESPONSE: The reasons are stated in the contention.

INTERROGATORY NO. 3.9 Identify and fully explain why GANE claims that “DCS has not performed a seismic analysis that is...adequately documented.”

***RESPONSE: DCS’s application lacks sufficient information regarding how it generated models and figures. The geotechnical report does not include the soil models used for response spectra, for example, or the input data files used with SHAKE or other analysis tools.

INTERROGATORY NO. 3.10 Identify and fully explain why GANE claims that DCS’ seismic analysis is not “complete, accurate and up-to-date.”

***RESPONSE: We question the accuracy of the data that were reported. To the extent we were able to double-check facts, we found inaccuracies, inconsistencies, information that wasn’t current. Further, the analysis does not include sufficient seismic source regions, and the analysis methods are somewhat dated. Based on these problems, we question whether there may be others.

INTERROGATORY NO. 3.11 Identify and fully explain each respect in which GANE claims that DCS has not considered “recent paleoseismic work on the South Carolina Coastal Plain showing more activity in the last 6000 years, and over a wider area, than previously known.” Assuming this is true, what impact, if any, should this have on the design earthquake for the MOX Facility?

***RESPONSE: It is self-evident that DCS did not use most recent paleoseismic work on Carolina coastal plain. They need to address the significance of this information.

INTERROGATORY NO. 3.12 Identify and fully explain each respect in which GANE claims that “major events may have occurred much closer to the SRS than the Charleston Seismic Zone.” This identification shall include the date, location, and magnitude of each event.

RESPONSE: This conclusion is based on the Talwani and Schaeffer paper. The basis for this assertion is explained in the contention. GANE has nothing to add at this point.

INTERROGATORY NO. 3.13 With respect to each “major event” identified in GANE’s response to INTERROGATORY NO. 3.12, state whether the CAR accounts for the event.

***RESPONSE: There is no indication that DCS has taken Talwani paper into account.

INTERROGATORY NO. 3.14 With respect to each “major event” identified in GANE’s response to INTERROGATORY NO. 3.12, state whether consideration of the events (either individually or collectively) should result in a different design earthquake or a different return interval than identified in the CAR.

RESPONSE: Based the information set forth in the Talwani and Schaeffer paper, it is reasonable to be concerned that the MOX Facility design basis is not conservative. There is no indication that this question has been addressed by DCS.

INTERROGATORY NO. 3.15 Assuming a magnitude 6 event at Bluffton, SC, what if any effect does GANE believe such an event should have on the design earthquake or its return interval for the MOX Facility site?

RESPONSE: We think the design earthquake should be a 7.3 event on the Carolina Coastal Plain. The seismic and paleoseismic evidence points to distributed activity on the Carolina Coastal Plain, and makes a magnitude 7 events appear probable outside the Program. However, we think it would be reasonable to believe that such an earthquake would call for a more conservative design earthquake and a shorter return interval.

INTERROGATORY NO. 3.16 In your opinion, would a magnitude 6 event at Bluffton, SC, result in greater ground motion acceleration at the MOX Facility site than a magnitude 7 event at Charleston, SC? If yes, identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: Strictly speaking, a magnitude 6 event at Bluffton would not result in greater ground motion at MOX plant than a magnitude 7 event at Charleston. However, we think it reasonable to consider a magnitude 7 event at Bluffton, because a repeat earthquake at the same location could well have a substantially larger magnitude.

INTERROGATORY NO. 3.17 Identify the date, location, and magnitude of all seismic events that GANE claims were not, but should have been, addressed in the CAR.

RESPONSE: At page 16, Table 1, GANE lists other events that are listed by the U.S.G.S. that were greater than magnitude 3 and within 200 miles of the SRS. These events were not, but should be been addressed in the CAR. We note that there is one error in the table: the event of 1/23/88 was in fact included in the CAR. It is conceivable that there have been additional events meeting these criteria since last August when Table 1 was prepared, but we have not examined the U.S.G.S. data (PDE – Preliminary Determination of Earthquakes) to update Table 1.

INTERROGATORY NO. 3.18 Identify and fully explain why GANE claims that statements regarding the date, location, magnitude, and frequency of seismic events discussed in the CAR may be incorrect.

RESPONSE: At this point, GANE does not have any new information to add to the information that is provided in the contention.

INTERROGATORY NO. 3.19 Is GANE claiming that the seismic events identified in its responses to INTERROGATORY NOS. 3.17 and 3.18 should impact the design earthquake and its return interval for the MOX Facility? If yes, explain how those events should impact the design earthquake and its return interval. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: No. At this point, we have several general concerns. First, we are concerned that DCS's errors are a sign of general incompleteness and carelessness in other parts of the analysis. Second, we believe that DCS should have examined a

stronger earthquake than it did. Third, we question the adequacy of the site analysis.

These issues are discussed in the contention and in response to other interrogatories.

INTERROGATORY NO. 3.20 Identify and fully explain why GANE claims that “the CAR does not adequately account for the risk of a major [seismic] event.”

***RESPONSE: We think DCS should consider an event of the magnitude of the 1883 Charleston event for Bluffton. Because the Carolina coastal plain is largely aseismic except for major events, it is hard to immediately localize where strong magnitude events would take place. Thus, conservatism is necessary.

INTERROGATORY NO. 3.21 Identify each statement and value in CAR Sections 1.3.5, 1.3.6, and 1.3.7 that GANE claims is incorrect, and fully explain why GANE believes it is incorrect.

RESPONSE: GANE objects to this interrogatory on the ground that it is unduly burdensome. These sections are extremely long, and it would be very time-consuming and largely irrelevant to identify every error. GANE relies on the examples put forth in the contention.

INTERROGATORY NO. 3.22 Identify and fully explain each respect in which GANE claims that a “quantitative site response study for the MFFF has [not] been done.”

***RESPONSE: DCS does not show in the CAR what the modeled site response for the MOX Facility site would be. DCS only shows the spectral envelopes for the design basis. The geotechnical report submitted by DCS on August 10, 2001 (Hearing record document # 50), shows that site response studies were done for boreholes to the east of the currently proposed site for the facility. Although one borehole is on the current site, the rest of the boreholes lie about 100 to 700 feet from the current site. The geological cross-sections shown in the geotechnical report show that the area to the east has a

different geological structure than the area where the plant is proposed to be built. Thus, DCS cannot reasonably claim to have performed a quantitative site response study for the MFFF.

INTERROGATORY NO. 3.23 Identify and fully explain why GANE claims that the design earthquake and the potential for liquefaction at the SRS differ from those at the MOX Facility site.

RESPONSE: We don't make the claim asserted in Interrogatory No. 3.23. Our claim is that DCS has not developed a site-specific design spectrum. This is what the contention says:

In the Standard Review Plan for Review of Final Safety Analysis Reports for Nuclear Power Plants the NRC states that license applicants should develop a site-specific design spectrum. NUREG-0800, Section 2.5.6 (1997). This means that the probability for seismic hazard, that is, the risk of a major event combined with the expected site response, should be expressed as a spectrum of the intensity of shaking at frequencies of structural interest. In the CAR, the applicant asserts that the "MFFF design earthquake is the existing SRS PC-3 spectrum." *Id.*, p. 1.3.6-23. This spectrum is not site-specific, but was computed for the whole of the Savannah River Site in 1997. A site-specific spectrum would include the soil properties determined in the geotechnical studies, such as those presented in Figures 1.3.5-23 through 1.3.5-25. The applicant has not provided detailed methodologies or references for spectral shape changes applied to the starting spectrum.

INTERROGATORY NO. 3.24 Identify and fully explain why GANE claims that the seismicity of the MOX Facility site is different from that of the SRS.

***RESPONSE: We did not make this claim.

INTERROGATORY NO. 3.25 Identify and fully explain why GANE disagrees with the results of the site-specific studies conducted to date, as reported in CAR Section 1.3.5.2.

***RESPONSE: DCS only performed one SCPT (Seismic Cone Penetration Test) on the proposed MFFF site for the purposes of modeling surface response spectra. In CAR Section 1.3.5.2 at page 1.3.5-27, there is a reference to 13 exploration borings and 63 CPT holes. There are several problems with this representation. First, the geotechnical

report shows that there were 13 SCPT holes and 63 CPT holes. CPT holes measure general geological characteristics. SCPT holes actually measure seismic velocity through the borehole and are the basis for the surface response spectra. Of the 13 SCPT holes, only one was on the proposed site of the MOX Facility. The other twelve were off to the east by 100 to 700 feet. See Response to Interrogatory No. 3.22 above.

With respect to 63 CPT holes, it is troubling that Figure 1.3.5-22 of the CAR does not distinguish between the type of CPT work done at each location. The CAR gives the mistaken impression that the surface response studies used data characteristic of the proposed MFFF site.

INTERROGATORY NO. 3.26 Identify and fully explain why GANE claims that “the potential for intense shaking or soil liquefaction at the MFFF site has not been established.”

***RESPONSE: The design basis earthquake is not sufficiently conservative. In addition, the site characterization was performed on an adjacent area. These deficiencies are discussed in Contention 3 and in interrogatory responses above.

INTERROGATORY NO. 3.27 Identify and fully explain why GANE claims that “the Probabilistic Seismic Hazard Assessment (PSHA) is incomplete.”

***RESPONSE: The accuracy of a PSHA depends on the adequate characterization of the probabilities for event magnitude and location. For the reasons are stated in the contention, we do not see that the DCS has adequately considered the complete range of probable events.

INTERROGATORY NO. 3.28 Identify and fully explain why GANE claims that “the applicant has not provided detailed methodologies or references for spectral shape changes applied to the starting spectrum.”

RESPONSE: The reasons are addressed in the contention.

INTERROGATORY NO. 3.29 Does GANE agree with DCS' response to the February 28, 2001 CAR RAI referenced in GANE's Basis Statement for this contention? If not, identify the specific CAR RAI Response referenced by GANE and fully explain each respect in which GANE claims that DCS' CAR RAI Response is inadequate or incorrect.

RESPONSE: GANE has not yet developed information responsive to this request.

GANE will supplement its response to this interrogatory at a later date.

INTERROGATORY NO. 3.30 Identify and fully explain why GANE claims that "the approach to the PSHA has been insufficiently conservative."

***RESPONSE: This statement was made in relation to the CAR's estimate of the return period for an earthquake. In table 1.3.6-7 (p 1.3.6-39), the applicant estimates the return period for $S_a(g)=0.375g$ at 5hz is 2700 years. GANE noted that these estimates are derived from Westinghouse Savannah River Company reports (WSRC-TR-97-0085 and WSRC-TR-98-00263) that were not publicly available. In contrast, the National Seismic Hazard Mapping Project (URL: <http://geohazards.cr.usgs.gov/eq/>) estimates a return period of 1200 years for the same event at the SRS.

GANE continues to rely on the discrepancy between the CAR and the National Seismic Hazard Mapping Project. GANE has not yet had an opportunity to review the Westinghouse reports, which we understand are now available. GANE will supplement its response to its interrogatory at a later date.

INTERROGATORY NO. 3.31 Contention 3 does not contain any references to NRC regulations. Is GANE contending that DCS' design earthquake or its return interval for the MOX Facility do not comply with any NRC regulation applicable to the MOX Facility? If yes, identify each such regulation and the bases for GANE's contention that DCS' design earthquake or its return interval for the MOX Facility do not comply with that regulation.

RESPONSE: Applicable regulations include 10 C.F.R. §§ 70.23(a)(3) and (b). The bases for GANE's contention are stated in the contention.

INTERROGATORY NO. 3.32

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.” Is GANE contending that DCS’ design earthquake for the MOX Facility does not comply with this regulation? If yes, provide the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response, including identification of the most severe documented historical seismic events for the site that GANE claims DCS did not consider (or did not consider adequately).

***RESPONSE: Yes. In our opinion, DCS’s seismic design must take into account all currently available knowledge regarding the potential for earthquakes at the MOX Facility Site, including but not limited to the occurrence in 1886 of a major earthquake at Charleston. The Charleston earthquake is the most severe documented historical seismic event that is relevant to the seismic design for the MOX Facility. However, historical events do not make up the entire universe of relevant considerations. The historical record is a necessary but not a sufficient basis for probabilistic seismic hazard determination, since the prehistoric paleoseismic evidence points to major seismic events on the Carolina Coastal Plain beyond the Charleston seismic zone.

INTERROGATORY NO. 3.33

With respect to Table 1 in Contention 3, does GANE agree that the cited events on 1974/10/28, 1974/11/05, and 1988/01/23 are in fact included in CAR Table 1.3.6-1? If no, provide the bases for your answer. If yes, does this fact change any of the conclusions in Contention 3? If not, explain why not.

***RESPONSE: GANE now sees that they are included, but not in chronological order. This is why we did not see them earlier. This illustrates one of GANE’s concerns, which is that the CAR seems to have been put together in a careless and incomplete way.

INTERROGATORY NO. 3.34

What is the basis for GANE’s statement that the Talwani and Schaeffer paper “indicates . . . that the frequency of major events is higher in the South Carolina Coastal Plain than previously thought?”

(a) Does GANE agree that the Talwani and Schaeffer paper itself does not contain such a statement? If not, identify the passage within the paper that contains the alleged statement.

(b) Identify the person or persons who, according to GANE, “previously thought” that the frequency of major events is lower in the South Carolina Coastal Plain than the values provided in the Talwani and Schaeffer paper.

(c) Is GANE claiming that the frequency of major events in the South Carolina Coastal Plain as provided in the Talwani and Schaeffer paper is higher than the frequency of major events identified in the CAR? If yes, provide the basis for your answer.

***RESPONSE: (a) The Talwani and Schaeffer paper indeed does not contain such a statement. (b) In the CAR at 1.3.5-42 DCS writes that “utilizing the above methods, at least four pre-1886 liquefaction episodes were described.” Then there is a list of events going back 6,000 years. In the same time period, Talwani and Schaeffer identify seven events. It seems to logically follow that DCS is the person or persons who “thought ETC.” (c) Yes. Talwani and Schaeffer identify 7 events between 5,800 years ago and the 1883 earthquake. DCS in the CAR identifies four of them in the period from 5,124 years ago until 1883. Two of the events identified by Talwani and Schaeffer took place less than 5,124 years ago, and the other event took place more than 5,124 years ago.

CAR discusses events at 580 years ago, 1311, 3250, and 5124. Talwani and Schaeffer identify the same ones the CAR has, plus three more: one or two events between 1311 and 3250, and another older event at 5800.

INTERROGATORY NO. 3.35 . Contention 3 states that the Talwani and Schaeffer paper identifies a scenario with “seven magnitude seven (or stronger) Charleston events in the last 6000 years.” DCS has been able to identify only six such Scenario 2 events in the referenced paper (designated as Episodes A, B, C¹, E, F, and G). Please identify the seven events.

***RESPONSE: DCS is correct. The Talwani and Schaeffer paper shows that based on available data, there were either six events with magnitude 7, or seven events which are a

mixture of events that are magnitude six or seven. The scenario that has seven events has a magnitude 6 event at Bluffton. The scenario with six events has no Bluffton events.

INTERROGATORY NO. 3.36 Contention 3 states that the U.S. Geological Survey's Preliminary Determination of Epicenters (URL: http://neic.usgs.gov/neis/epic/epic_global.html) shows a magnitude of 4.9 for the August 2, 1974 event, while the CAR reports a maximum magnitude of 4.3.

(a) Do you agree that the magnitude of 4.9 that you quote from the USGS is based upon the Mn (local magnitude) scale, whereas the magnitude of 4.3 in the CAR is based upon the mb (body-wave) scale? If you do not agree, provide the basis for your answer.

***RESPONSE: Yes.

(b) Do you agree that the Mn scale and the mb scale are different, and that the same earthquake may have different magnitudes on the Mn and mb scales? If you do not agree, provide the basis for your answer.

***RESPONSE: Yes.

(c) Do you agree that the same USGS web page that is cited above (when using the data base for Eastern, Central and Mountain States of U.S., 1534 – 1986) shows that the August 2, 1974 event has a magnitude of 4.3 on the mb scale? If you do not agree, provide the basis for your answer.

***RESPONSE: Yes.

(d) Do you agree that the magnitude of the August 2, 1974 event as provided by the USGS and the CAR is the same, when using the mb scale? If you do not agree, provide the basis for your answer.

***RESPONSE: Yes.

INTERROGATORY NO. 3.37 Do you agree that DOE Standard 1023 is appropriate guidance for developing the design earthquake for a nuclear materials facility? If not, identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

RESPONSE: We have not reviewed DOE Standard 1023. Please furnish us with a copy.

INTERROGATORY NO. 3.38 Has GANE, its consultants, or its experts performed either a deterministic or probabilistic evaluation of the appropriate design earthquake for the MOX Facility? If yes, please identify the methodology used in performing the evaluation, the source of seismic input data for the evaluation (*e.g.*, U.S. Geological Survey, Lawrence Livermore National Laboratory, Electric Power Research Institute, etc.), and the results of the evaluation. Also, does GANE recommend a probabilistic or deterministic

approach to be used for seismic design of the MOX Facility? Identify the regulatory, scientific, legal, and any other basis for GANE's recommendation.

RESPONSE: No.

INTERROGATORY NO. 3.39 Has GANE, its consultants, or its experts performed an evaluation of the potential for liquefaction at the MOX Facility site? If yes, please identify the methodology used in performing the evaluation, the source of seismic input data for the evaluation, the magnitude and response spectra of the earthquake used in the evaluation, the soil properties used in the evaluation, and the results of the evaluation.

RESPONSE: No.

INTERROGATORY NO. 3.40 Contention 3 states that the CAR cites a number of Westinghouse Savannah River Company ("WSRC") technical reports that are not available, and therefore "it is not possible to verify the assertions made in the CAR regarding the MFFF site geology." Subsequent to the filing of Contention 3, DCS docketed with the NRC references to WSRC technical reports. Has GANE reviewed these WSRC reports that have been docketed with the NRC? If yes, does GANE agree that these reports verify the assertions made in the CAR regarding the MFFF site geology and seismicity? If not, identify each assertion in the CAR that GANE contends is not verified by the WSRC reports, and provide the basis for your answer.

RESPONSE: GANE has not yet had the opportunity to review the reports recently added to the Hearing File. GANE will supplement its response when it has had the opportunity to do so. At any rate, it does not appear that the WSRC reports noted by GANE in Contention 3 and those that have been included in the Hearing File are the same WSRC reports.

**D. GANE Contention 5 (Controlled Area Boundary – Safety);
GANE Contention 8 (Controlled Area Boundary – Environmental);
BREDL Contention 9A (Radiological Protection)**

All of the above proposed contentions have been consolidated into Contention 5. By letter to the ASLB and the parties dated January 18, 2002, GANE and BREDL designated GANE as the lead party on consolidated Contention 5. As a result, separate responses by both GANE and BREDL to the following interrogatories are not necessary,

unless BREDL does not concur with and adopt GANE's response. In such cases, if any, BREDL should provide its own separate responses to the following interrogatories.

INTERROGATORY NO. 5.1 BREDL states that "people who travel on Highway 125, attend meetings in the A/M area, visit the SREL Library, go on public tours, . . . will not be exposed to 'educational programs' that the Applicant offers as insufficient mitigation measure."

- (a) Identify the "education programs" (including a reference to the specific pages in the CAR and ER that allegedly pertain to such programs) that are referenced in this statement.
- (b) What is your basis for claiming that DCS is using such education programs as a basis for mitigation?

Do you agree that individuals (including persons whose assigned duties do not involve exposure to radiation or radioactive materials) who perform ongoing activities within the controlled area may be subject to the 10 CFR § 70.61(f) performance requirements applicable to workers, if the individuals receive training that satisfies 10 CFR § 19.12(a)(1)-(5) and if appropriate notices are posted in accordance with 10 CFR § 70.61(f)(2)? If not, provide the bases for your position, including citations to any statutes, regulations, guidance, standard, or caselaw upon which you rely.

RESPONSE: These questions relate to members of the public who are not workers.

Intervenors wish to clarify that this is no longer a subject of the contention.

INTERROGATORY NO. 5.2 Do you agree that 10 CFR § 70.61 does not specify any performance requirements for members of the public who make infrequent visits to the controlled area (as distinct from members of the public who perform "ongoing activities" within the controlled area)? If not, provide the bases for your position, including citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: Yes. We also wish to point out that the contention is primarily concerned with accidental radiation exposures to SRS workers who are not DCS employees, not visitors. Intervenors hereby amend the contention to delete the reference to normal operations in the basis of the contention.

INTERROGATORY NO. 5.3: Identify and fully explain why GANE contends that the controlled area designated by DCS for the MOX Facility "does not satisfy the NRC's requirement that a controlled area 'means an area, outside of a restricted area but inside the site boundary, access to which can be limited by the licensee for any reason.'"

RESPONSE: The reasons for GANE's view are fully expressed in Contention 5.

INTERROGATORY NO. 5.4: Does GANE believe that DCS is prohibited from utilizing an agreement or protocol with the DOE (under which DOE personnel or contractors will exercise access control over the MOX Facility Controlled Area at the direction of DCS) to satisfy 10 CFR § 70.61(f)? If yes, provide the regulatory, scientific, technical, legal, and any other bases for GANE's position, including citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: Such an agreement is not strictly precluded by the regulations. However, in order to be valid it must state that DCS has unlimited authority to limit access to whatever area is designated as the Controlled Area. The authority we rely on for this position is 10 C.F.R. §§ 20.1003 70.61(f) and 20.1003.

INTERROGATORY NO. 5.5: Does GANE believe that, in order for DCS to demonstrate the requisite control of the MOX Facility Controlled Area under 10 CFR § 70.61(f), it must have the ability to exclude individuals for reasons unrelated to protection of those individuals from radiological hazards of the MOX Facility? If yes, provide the regulatory, scientific, technical, legal, and any other bases for GANE's position, including citations to any statute, regulation, guidance, standard, or caselaw upon which you rely. In particular, identify the specific purposes or reasons, other than radiological protection, for which the applicant must be able to control access to the Controlled Area, and explain why such control is needed to provide reasonable assurance that the health or safety of the public is adequately protected.

RESPONSE: Yes. The reason is that this is what the regulation says.

INTERROGATORY NO. 5.6: Does GANE agree that, during normal operation of the MOX Facility, doses at the boundary of the Restricted Area for the MOX Facility will be less than 100 mrem/yr? If not, provide the bases for your answer. If it is assumed that doses at the boundary of the Restricted Area for the MOX Facility will be less than 100 mrem/yr during normal operation, does GANE agree that DCS need not limit access to the area between the Controlled Area boundary and the Restricted Area boundary in order to comply with the limits in 10 CFR Part 20 for doses to members of the public? If not, provide the bases for your position, including citations to any statutes, regulations, guidance, standard, or caselaw upon which you rely.

***RESPONSE: We have no basis to agree or disagree with the first question. Our answer to the second question is no, because the common interpretation of radiation dose to the public is that any one source has to be a fraction of the total allowable dose. The dose from the proposed MOX Facility would have to be a small fraction of 100 mrem/year. In any event, the contention does not address normal conditions. See response to Interrogatory 5.2.

INTERROGATORY NO. 5.7: Identify and fully explain any bases GANE has for believing that DCS will not have sufficient control over the MOX Facility Controlled Area to comply with 10 CFR § 70.61(f). Provide the regulatory, scientific, technical, legal, and any other bases for GANE's position, including citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: Under the regulation, the level of control that DCS has would not be "sufficient" unless it amounted to having the ability to exclude any person for any reason. Given that the Savannah River site is (a) a government reservation and (b) very large, it seems dubious that DCS would be able to acquire this degree of control over the entire SRS.

INTERROGATORY NO. 5.8: GANE's contention states that "DOE improperly characterizes members of the public as MOX Facility workers." Did GANE intend to refer to "DCS," rather than "DOE?" If not, identify and fully explain each respect in which DOE improperly characterizes members of the public as MOX Facility workers.

RESPONSE: GANE meant DCS.

INTERROGATORY NO. 5.9: If GANE intended to state that "DCS," rather than "DOE," improperly characterizes members of the public as MOX Facility workers for purposes of calculating radiological doses to the public during normal operations and accidents:

- (a) Define "members of the public" as GANE has used that phrase in this contention. In particular, indicate whether this phrase is intended to include:

- (i) SRS site workers not employed directly with operations at the MOX Facility (so-called “co-located” workers);
 - (ii) Personnel who may visit the SRS from time to time in the course of their professional or personal activities (such as package delivery personnel, site visitors, persons traveling through public highways on the SRS); or
 - (iii) Personnel whose activities do not cause them to enter the SRS and who reside outside the SRS.
- (b) Identify and explain each respect in which DCS improperly characterizes members of the public as MOX Facility workers, in GANE’s opinion. Provide the regulatory, scientific, technical, legal, and any other bases for GANE’s position, including citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

DCS has committed to the NRC that during normal operation of the MOX Facility, doses at the Restricted Area boundary will be maintained below the dose limits set forth for members of the public in 10 CFR § 20.1301. (See CAR RAI Response No. 1.) Does GANE contend that if DCS complies with that commitment, it will not have satisfied NRC dose limits applicable to SRS co-located workers during normal operations? If yes, provide the regulatory, scientific, technical, legal, and any other bases for GANE’s position, including citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

***RESPONSE: The answer to (a)(i) through (iii) is yes. The answer to (b) is that DCS improperly categorizes SRS workers as DCS workers for purposes of compliance with occupational radiation dose limits. The basis for our position is 10 C.F.R. § 70.61, and is discussed in Contention 5.

INTERROGATORY NO. 5.10: Identify and fully explain why GANE claims that “DCS’s incorrect assumption about the appropriate controlled area boundary also adversely affects the adequacy of its physical security measures.”

***RESPONSE: The location of the controlled area boundary determines the design requirements necessary to meet the performance standards in 10 C.F.R. 70.61(f). Both safety and security are essential elements of the design. The closer the controlled area is to the facility itself, the more stringent the design requirements must be.

INTERROGATORY NO. 5.11: Identify and fully explain why GANE claims that “the design basis of the MOX Facility is not adequate to support approval of construction.” Identify all bases, including reference to the specific design basis of principal systems, structures, and components, that GANE claims are inadequate or missing.

***RESPONSE: By incorrectly designating its controlled area boundary, DCS projects doses to individuals that are lower than they would be if the correct designation were used. Therefore, the assignment of accidents as unlikely or highly unlikely is also incorrect. If accidents will have worse consequences than estimated by DCS, then the principal SSC’s will be inadequate to meet the performance requirements.

INTERROGATORY NO. 5.12: Identify and fully explain why GANE claims that the ER “incorrectly minimizes the environmental impacts of the MOX Facility on the public, by defining the public in an overly narrow way.”

***RESPONSE: See answer to Interrogatory No. 5.11 above.

(a) ER Tables 5-11 and 5-13 identify the radiological consequences from normal operation and accidents at the MOX Facility. Identify each value in these tables that GANE believes is “incorrectly minimized,” identify the value that GANE believes should be provided, and provide the bases for your response.

***RESPONSE: The values in Table 5-11 are not relevant because they concern normal operating conditions. All of the values in Table 5-13 would be several hundred times greater if they were calculated at 200 meters from the MOX Facility site (the restricted area boundary), as opposed to ten miles (the proposed controlled area boundary).

INTERROGATORY NO. 5.13: Identify and fully explain why GANE claims that the location of the Controlled Area boundary could affect either the frequency or severity of environmental impacts from the MOX Facility.

***RESPONSE: See answer to Interrogatories No. 5.11 and 5.12 above.

INTERROGATORY NO. 5.14: Identify and fully explain why BREDL claims that “DOE has difficulty securing [the SRS] from trespass.”

RESPONSE: Intervenors do not contend, at this point, that DOE has difficulty securing the SRS from trespass.

INTERROGATORY NO. 5.15: Does GANE agree with CAR RAI Response Nos. 1 and 2 and ER RAI Response No. 9? If not, identify and fully explain each respect in which GANE claims that CAR RAI Response Nos. 1 and 2 and ER RAI Response No. 9 are inadequate or incorrect.

***RESPONSE: We do not agree. The basis for our disagreement is stated in Contention 5.

INTERROGATORY NO. 5.16: Identify each area within the SRS that you believe is open to access by members of the public. Provide the bases for your response.

RESPONSE: Intervenors object to this interrogatory on the ground that it is unduly burdensome. The SRS is a very large site. It is traversed by a variety of roads and railroad tracks. There are also non-governmental facilities located in the SRS, which are open to the public. These public access routes are easily identified by observation and on publicly available maps.

INTERROGATORY NO. 5.17: Describe any bases GANE has for believing that, in the event of an emergency at the MOX Facility, DOE would not be able to limit access by the public to:

- (a) Any of the public roads that run through the SRS, including Route 125, Road 1, and Road 278;
- (b) The Crackerneck Wildlife Management Area and Ecological Reserve;
- (c) The CSX right-of-ways for the two rail routes that run through the SRS;
- (d) The Three Rivers Landfill; or
- (e) Any other areas within the SRS.

RESPONSE: GANE objects to this question on the ground that it seeks information that is irrelevant. It simply does not matter what GANE believes about the DOE's capability of limiting access to the areas of the SRS listed above. The contention is concerned with the question of whether DCS can limit access to the site, not DOE.

INTERROGATORY NO. 5.18: Does GANE agree with the information and analyses in Sections 1.1.1.1 and 9.1.2.10 of the DSER? If not, identify the specific sentences in the DSER which GANE believes are incorrect, and identify the regulatory, scientific, technical, legal and any other bases for GANE's position.

RESPONSE: We disagree with the information and the analysis in the DSER because we do not believe that DCS can deny access to anyone for any reason.

E. GANE Contention 6 (Safety Analysis)

INTERROGATORY NO. 6.1 Identify and fully explain why GANE claims that the CAR fails to "provide[] a comprehensive assessment of all potential accident consequences." Identify all bases for this claim, including identification of inadequacies in DCS' methodology and associated parameters for identifying potential accident consequences.

***RESPONSE: As long as DCS does not evaluate an accident in which the HEPA filters are completely compromised, it has not provided a comprehensive assessment of all potential accident consequences.

INTERROGATORY NO. 6.2 GANE Contention 6 states the following: "Second it points out that the applicant has not provided sufficient information to determine the quantitative likelihoods of the accidents that it analyzes. See June 21, 2001 RAI regarding CAR at 39." In light of the response to RAI 39, the fact that this item does not exist on the NRC open item list, and the fact that no specific likelihood issues are raised in the contention, what disagreement related to DCS' likelihood assessment does GANE still have? Explain the basis for your disagreement and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: GANE is dissatisfied with DCS's accident analysis because it does not evaluate accidents where there is a HEPA failure, aircraft crash, aircraft attack, hydrogen explosion in the room containing the sintering furnace, and the risk of a red oil explosion. It also does not address the variability in the airborne release fraction or respirable fraction. There is no uncertainty analysis and there are no sensitivity studies as a function of varying release fractions. The leak path factor may be as great as one if the HEPA filters fail altogether.

INTERROGATORY NO. 6.3 Does GANE agree with DCS' assumption of a leak path factor of 10^{-4} based upon two banks of HEPA filters in the analysis of an internal fire bounding accident? If no, identify and fully explain what leak path factor GANE believes DCS should use in the analysis of an internal fire bounding accident. 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: No, because 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.

INTERROGATORY NO. 6.4 Does GANE agree that DCS' calculations using a HEPA efficiency of 99%, rather than the efficiency of 99.9% for the first stage HEPA filter and 99.8% for the second stage HEPA filter under accident conditions (Los Alamos report LA-10294-MS, Elder et al., "A Guide to Radiological Accident Considerations for Siting and Design of DOE Nonreactor Nuclear Facilities," (Jan. 1986); also in NUREG/CR-6410, Appendix F, p. F7), are conservative? If no, identify and fully explain what HEPA efficiency values should be used, in GANE's opinion. 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: DCS has not justified the use of a 99% efficiency factor, which is nonconservative according to NUREG/CR-6410. Accordingly, GANE does not agree that DCS's calculation is conservative.

INTERROGATORY NO. 6.5 Does GANE agree that structural damage to HEPA filters during an accident can be determined from the parameters listed in Table F-5 of NUREG/CR-6410? If not, identify and fully explain what parameters and what values of the parameters cause structural damage to the HEPA filter, and what is the HEPA filter efficiency, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: GANE does not have sufficient information with which to respond to this interrogatory. GANE will supplement its response if and when it develops the

information. GANE notes that many aspects of DCS's HEPA filter accident analysis remain unresolved in the DSER.

INTERROGATORY NO. 6.6 Does GANE agree that HEPA filters exposed to temperatures less than 200°C as shown in Table F-3 of NUREG-CR-6410 will not degrade in filter efficiency? If not, identify and fully explain what will be the efficiency of the HEPA filter when exposed to 200°C, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: GANE does not have sufficient information with which to respond to this interrogatory. GANE will supplement its response if and when it develops the information. GANE notes that many aspects of DCS's HEPA filter accident analysis remain unresolved in the DSER.

INTERROGATORY NO. 6.7 Does GANE agree that limiting the pressure drop across the HEPA filter to less than 10 inches of water as indicated in Table F-5 of NUREG-CR-6410 will prevent structural damage to the HEPA filter under accident fire conditions? If not, identify and fully explain what limiting pressure drop will prevent structural damage to the HEPA filter, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: GANE does not have sufficient information with which to respond to this interrogatory. GANE will supplement its response if and when it develops the information. GANE notes that many aspects of DCS's HEPA filter accident analysis remain unresolved in the DSER.

INTERROGATORY NO. 6.8 Does GANE agree that undamaged HEPA filters will have minimum efficiencies of 99.9% for the first stage and 99.8% for the second stage under accident conditions? If not, identify and fully explain what is the minimum efficiency for undamaged HEPA filters under accident conditions, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

RESPONSE: GANE does not have sufficient information with which to respond to this interrogatory. GANE will supplement its response if and when it develops the

information. GANE notes that many aspects of DCS's HEPA filter accident analysis remain unresolved in the DSER.

INTERROGATORY NO. 6.9 Does GANE agree that spark arrestors will prevent fire brands, other burning debris and sparks suspended in the exhaust flow from reaching the HEPA filters? If not, identify and fully explain what fire brands, other burning debris and sparks suspended in the exhaust flow will reach the HEPA filter, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: GANE does not have sufficient information with which to respond to this interrogatory. GANE will supplement its response if and when it develops the information. GANE notes that many aspects of DCS's HEPA filter accident analysis remain unresolved in the DSER.

INTERROGATORY NO. 6.10 Does GANE agree 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? If not, identify and fully explain what structural damage will occur to HEPA filters limited to 10 inches of water, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: GANE does not have sufficient information with which to respond to this interrogatory. GANE will supplement its response if and when it develops the information. GANE notes that many aspects of DCS's HEPA filter accident analysis remain unresolved in the DSER.

INTERROGATORY NO. 6.11 Does GANE agree that computational methods can be used to estimate the temperature of the exhaust and the mass of smoke entering the HEPA filters from bounding fires? If not, identify and fully explain what methods can be used to determine the challenge to HEPA filters from potential fires, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: Yes, but without a full uncertainty analysis, there is no way to know how accurate the estimates are.

INTERROGATORY NO. 6.12 Does GANE claim 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°C? If yes, identify and fully explain what benefit the water spray/demister has in protecting the HEPA filters from potential fires, in GANE's opinion. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: GANE does not have sufficient information with which to respond to this interrogatory. GANE will supplement its response if and when it develops the information. GANE notes that many aspects of DCS's HEPA filter accident analysis remain unresolved in the DSER.

INTERROGATORY NO. 6.13 Identify and fully explain why GANE claim that the DCS safety analysis fails to "provide[] a credible assessment of all potential accident likelihoods," including any alleged inadequacies in DCS' methodology for determining the likelihood of potential accidents. Identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: See response to Interrogatory 6.2.

INTERROGATORY NO. 6.14 Identify and fully explain why GANE claims that the safety analysis "does not provide information of sufficient detail and quality to enable the NRC to make a determination pursuant to 10 CFR § 70.23(b)." Identify and fully explain each deficiency of "detail and quality" alleged, and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

***RESPONSE: See Response to Interrogatory 6.2, as well as Contention 6.

INTERROGATORY NO. 6.15 Identify and fully explain why GANE contends that the DCS safety analysis "fails to correctly identify and carry out consequence assessments for accident scenarios with 'bounding' consequences." Identify and fully explain which accident scenarios, and what bounding consequences, GANE is referring to in this contention. Identify and fully explain each perceived deficiency in identification and implementation, and identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: See response to Interrogatory 6.1.

INTERROGATORY NO. 6.16 Identify and fully explain why GANE claims that DCS has “underestimated the consequences of” bounding accident scenarios.

***RESPONSE: See answer to Interrogatory 6.1.

INTERROGATORY NO. 6.17 Identify and fully explain why GANE claims that DCS “may not have applied engineered and/or administrative controls to the extent necessary to meet the performance requirements established in 10 CFR § 70.61 and the defense-in-depth requirements of 10 CFR § 70.64(b).” Identify and fully explain which specific performance requirements GANE is referring to in this contention. Identify each perceived deficiency in engineered and/or administrative controls, and identify the regulatory, scientific, technical, legal, and any other bases on which GANE bases its response.

***RESPONSE: The reason for GANE’s claim is that DCS’s safety analysis is not adequate. DCS has not looked at all credible high-consequence accidents, and therefore it may not have applied principal SSC’s so as to make high-consequence accidents unlikely. See also answers to interrogatories 6.1 and 6.2.

INTERROGATORY NO. 6.18 Does GANE contend that DCS is required to demonstrate that it meets the requirements of 10 CFR §§ 70.61, 70.62, and 70.64 in order to receive construction authorization? If yes, identify the basis for your opinion, including citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

***RESPONSE: The answer to the first question is no. What DCS has to demonstrate is that the design basis will result in a facility that will meet the performance requirements of 10 CFR § 70.61 and the defense-in-depth requirement of 10 CFR § 70.64(b). This is discussed in Contention 6 at page 22.

INTERROGATORY NO. 6.19 Identify and fully explain why GANE claims that DCS is not meeting the defense-in-depth requirements of 10 CFR § 70.64(b).

***RESPONSE: Only one principal SSC is applied in the CAR to prevent hydrogen explosions: the process safety I&C system. See CAR at 5.5-101. This raises the question of whether the current design meets the NRC’s defense-in-depth requirements.

INTERROGATORY NO. 6.20 Identify and fully explain each respect in which GANE contends that the DCS safety analysis “incorrectly considers the controlled area boundary of the MFFF to be coincident with the SRS site boundary when evaluating accident impacts to the public,” to the extent GANE has not fully responded to this interrogatory under Section D above.

***RESPONSE: See Contention 5 and response to interrogatories regarding contention 5.

INTERROGATORY NO. 6.21 Identify and fully explain why GANE claims that DCS’ “projected doses to the public [may be] considerably below the correct values.”

***RESPONSE: See response to Interrogatory 6.1. See also contention 5 and responses to interrogatories regarding Contention 5.

INTERROGATORY NO. 6.22 Identify and fully explain why GANE claims that DCS “has not provided adequate justification for its choice of ‘bounding’ accidents.”

***RESPONSE: See Response to Interrogatories 6.1 and 6.2. In addition, because it has failed to perform an uncertainty analysis, DCS has not demonstrated that the values it is using are appropriately conservative.

INTERROGATORY NO. 6.23 Does GANE agree with DCS’ response to the June 8, 2001 ER RAI referenced in GANE’s Basis Statement for this contention? If not, identify the specific ER RAI Response referenced by GANE and fully explain each respect in which GANE claims that DCS’ ER RAI Response is inadequate or incorrect.

***RESPONSE: No, we disagree for the same reasons stated in response to Interrogatory 6.1.

INTERROGATORY NO. 6.24 Identify and fully explain each bounding accident which GANE claims that DCS improperly failed to evaluate in the CAR.

RESPONSE: See response to Interrogatory 6.1.

INTERROGATORY NO. 6.25 Identify and fully explain why GANE claims that DCS “has not provided sufficient information to determine the quantitative likelihoods of the accidents that it analyzes.”

***RESPONSE: See response to Interrogatory 6.2.

INTERROGATORY NO. 6.26 Does GANE agree with DCS’ response to the June 21, 2001 CAR RAI referenced in GANE’s Basis Statement for this contention? If not, identify the specific CAR RAI Response referenced by GANE and fully explain each respect in which GANE claims that DCS’ CAR RAI Response is inadequate or incorrect.

RESPONSE: No, because DCS did not answer the question by providing numerical data for the process safety I&C system. It is not clear how the deterministic commitments will be related to the performance criteria in 10 C.F.R. 70.61(f).

INTERROGATORY NO. 6.27 Identify the specific page and section from NUREG/CR-6410 that provides a respirable airborne release fraction (“RARF”) different from that cited in the CAR, and provide the numerical value cited therein.

***RESPONSE: Page 3-71. The numerical value is 6×10^{-5} .

INTERROGATORY NO. 6.28 Identify and fully explain why GANE claims that the RARF given in NUREG/CR-6410 is not applicable to the conditions expected in the buffer storage unit of the MOX Facility during a fire.

***RESPONSE: GANE does not make this claim. GANE claims that DCS has not shown that the conditions causing the release are identical. See Contention 6 at 24.

INTERROGATORY NO. 6.29 Identify and fully explain what RARF, in GANE’s opinion, is appropriate for a release from a fire in the plutonium oxide buffer storage unit of the MOX Facility.

***RESPONSE: GANE does not have sufficient information with which to respond to this interrogatory. GANE will supplement its response if and when it develops the information. GANE notes that many aspects of DCS’s HEPA filter accident analysis remain unresolved in the DSER.

INTERROGATORY NO. 6.30 Identify and fully explain why GANE claims that “an accident which is clearly bounding but is not analyzed in detail in the CAR is a hydrogen explosion in the sintering furnace.”

***RESPONSE: The reason is that DCS did not provide justification for its assumption that HEPA filters would survive.

INTERROGATORY NO. 6.31 Identify and fully explain why GANE claims that the defense-in-depth provisions provided by the Process Safety Instrumentation and Control (“I&C”) System may be inadequate.

***RESPONSE: DCS purports to prevent hydrogen explosions by keeping hydrogen at a certain level. DCS claims that this is guaranteed. But if there is a computer error, there is no other way to check hydrogen levels. DCS should require manual sampling of hydrogen.

INTERROGATORY NO. 6.32 Identify and fully explain, in GANE’s opinion, what gaps and limitations are in the data on HEPA filter efficiencies under conditions involving a hydrogen explosion in a sintering furnace.

***RESPONSE: GANE has no information to add to what is stated in Contention 6 at page 25.

INTERROGATORY NO. 6.33 With respect to the MACCS2 calculation referenced by GANE, identify and fully explain who performed the calculation, what the assumptions were in the calculation, and what the results were of the calculation.

***RESPONSE: The calculation was performed by Dr. Edwin Lyman, who can make the input files available. The results are as described in the contention.

INTERROGATORY NO. 6.34 In GANE’s opinion, are there any systems, structures, or components that should have been, but were not, designated by DCS as principal structures, systems, or components (“SSCs”) needed to provide reasonable assurance of protection against the consequences of potential accidents, as required by 10 CFR § 70.23(b)? If yes, identify the SSCs in question and provide the bases for your response.

***RESPONSE: Until DCS has done an adequate bounding analysis, it is not possible to determine what structures, systems or components should be designated as principal SSCs.

INTERROGATORY NO. 6.35 Does GANE agree that the CAR does not designate the HEPA filters as a principal SSC with respect to a hydrogen explosion in the sintering furnace?

***RESPONSE: GANE has no reason to disagree with DCS.

(a) Does GANE believe that the HEPA filters should be designated as a principal SSC with respect to a hydrogen explosion in the sintering furnace? If yes, provide the bases for your answer.

***RESPONSE: At this point, DCS has not demonstrated that HEPA filters will survive an explosion. Therefore, it is not appropriate to designate them as principal SSCs.

(b) Does GANE agree that the HEPA filters are a defense-in-depth feature with respect to a hydrogen explosion in the sintering furnace?

***RESPONSE: If DCS cannot show that HEPA filters would survive an explosion, they cannot be considered to be a defense-in-depth feature. They would not survive a common mode failure.

(c) Does GANE agree that the CAR designates the Process Safety Instrumentation and Control System as the principal SSC with respect to a hydrogen explosion in the sintering furnace?

***RESPONSE: Yes, but it should not be the only principal SSC.

(d) Does GANE agree that the Process Safety Instrumentation and Control System is designed with redundancies such that its function may be performed in the event of a single failure in the system? If yes, does GANE agree that the redundancies provided in this system constitute defense-in-depth under 10 CFR § 70.64(b)? If not, provide the bases for your answer.

***RESPONSE: Defense-in-depth requires prevention and mitigation. This is why sintering furnaces should be in additional blast-protected chambers.

F. GANE Contention 9 (Cost Comparison)

INTERROGATORY NO. 9.1 Identify and fully explain why GANE contends that the ER “does not provide any discussion of the costs of the proposed MOX Facility, or make a comparison to the costs of other alternatives.” In particular, identify all costs of the MOX Facility that GANE believes have been omitted from the ER, and identify which costs of the MOX Facility should be compared to the costs of other alternatives. Also, identify the specific alternatives which GANE believes should be used in the cost comparison.

RESPONSE: The information responsive to this request, of which GANE is currently aware, is provided in Contention 9. The ER should compare these costs with the costs of plutonium immobilization.

INTERROGATORY NO. 9.2 Does GANE contend that the ER is required to contain a discussion of the economic impacts of accidents: (a) at the MOX Facility; or (b) in the course of transportation of feed material and finished fuel? If GANE’s answer is yes to either of these questions, explain the basis for your answer and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: The answer to both questions is yes. The basis for this answer is that the National Environmental Policy Act requires the evaluation of all reasonably foreseeable environmental impacts. The ER should consider the impacts of a range of accidents, including low probability accidents that nevertheless are foreseeable. 40 C.F.R. § 1502.22(b)(1).

INTERROGATORY NO. 9.3 Describe what GANE means when it refers to the “economic costs of impacts to human health” in its Basis Statement for this contention. Does this phrase refer to any impacts not identified in response to INTERROGATORY NO. 9.1? If so, identify such impacts and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: GANE is concerned about the impacts to human health of normal and accidental radiological releases during operation and transportation.

INTERROGATORY NO. 9.4 Describe what GANE means when it refers to the “economic costs of loss of habitable land through contamination” in its Basis Statement for this contention. Does this phrase refer to any impacts not

identified in response to INTERROGATORY NO. 9.1? If so, identify such impacts and provide citations to any statute, regulation, guidance, standard, or caselaw upon which you rely.

RESPONSE: GANE is concerned about the economic impacts of accidental land contamination.

INTERROGATORY NO. 9.5 Identify and fully explain why GANE claims that “the information provided in [the DOE’s Surplus Plutonium Disposition EIS] has been superseded by recent information from DOE.”

RESPONSE: The basis for this assertion is provided in the contention.

INTERROGATORY NO. 9.6 Provide a specific dollar amount for each cost that GANE claims should be provided in the ER for the MOX Facility. Provide the basis for each cost.

RESPONSE: GANE objects to this interrogatory on the ground that it is unduly burdensome and seeks to have GANE perform DCS’s job. See response to Interrogatory 1.7.

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

These contentions have been consolidated into Contention 11. By letter to the ASLB and the parties dated January 18, 2002, GANE and BREDL designated GANE as the lead party on consolidated Contention 11. As a result, separate responses by both GANE and BREDL to the following interrogatories are not necessary, unless BREDL does not concur with and adopt GANE’s response. In such cases, if any, BREDL should provide its own separate responses to the following interrogatories.

INTERROGATORY NO. 11.1 Identify and fully explain why GANE contends that the ER “understates the impacts of the waste stream from aqueous polishing to remove gallium.”

RESPONSE: This statement is based on several things: 1) 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 (see p. 42 of original contention); 2) 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); 3) the use of different units of measurement to describe the waste stream (see p. 44 of original contention); 4) 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.

INTERROGATORY NO. 11.2 Identify and fully explain why GANE contends that the ER “doesn’t acknowledge problems with the [aqueous polishing] process in Europe.” Identify specifically what “problems with the [aqueous polishing] process in Europe” GANE is referring to in this contention, and the applicability of these problems to the MOX Facility. What information on the MOX Facility aqueous polishing process is not provided in the ER that GANE believes is necessary to adequately evaluate the environmental impacts of that process?

RESPONSE: GANE objects to this question because it is a compound question and because it is premature in light of the fact that DOE and DCS are working on a plan to coordinate nuclear waste management simultaneously with analyzing the processing steps for 6.4 tons of junk plutonium which has been added to the MOX program. Without waiving its objection, GANE responds as follows: While DCS states that the U.S. MOX facility is based on COGEMA experience with La Hague and MELOX in Europe, no data from the European plants is presented for public review. Therefore, 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. Additionally, as shown in Exhibit #9 (GANÉ Contentions,

August 13, 2000) more scrap has been generated and required re-processing than the MELOX plant has been able to accommodate. This burden can therefore be reasonably expected to present at the U.S. MFFF as well. In order to adequately evaluate the environmental impacts from the proposed MOX Facility, GANE believes it is necessary to evaluate known environmental impacts of the European process on which the MOX Facility is modeled.

INTERROGATORY NO. 11.3 Identify and fully explain why GANE contends that the ER “adds to burden of radioactive waste at SRS without designing a plan for managing the waste as required under NEPA.”

RESPONSE: GANE objects to this question as premature, given that DCS’s waste management program is completely in flux. DCS is planning to add 6.4 tons of junk plutonium to the inventory of the proposed MOX plant. This will require the addition of processing steps that have yet to be identified, and will create a waste stream that has yet to be characterized. DCS has said it will address these issues in a supplemental CAR. see letter from Stephen Frantz, Morgan Lewis, to ASLB, dated January 24, 2002. GANE sees no point in spending time debating the adequacy of DCS’s outdated plan, or lack thereof.

Without waiving its objection, GANE responds further: GANE did not say that the “ER adds to the burden of radioactive waste.” GANE’s concern related to DCS’ vague plan to dump some 81,000 gallons per year of high-alpha waste into 50-year-old tanks which DOE has already planned to empty.

INTERROGATORY NO. 11.4 Identify and fully explain why GANE claims that “no plan has been proposed by DCS or NRC to accommodate this large amount of waste.

RESPONSE: See answer to Interrogatory No. 11.3. DOE and DCS are purportedly developing a coordinated waste management plan which will be included in the Supplemental CAR to be submitted in July 2002.

INTERROGATORY NO. 11.5 Identify and fully explain why GANE or BREDL claims that “the applicant’s analysis and [environmental] report is dominated by deficiencies.”

RESPONSE: This is not a subject of the contention.

INTERROGATORY NO. 11.6 In GANE’s opinion, what will be the volume and contents of the waste stream from the aqueous polishing process at the MOX Facility? Provide the bases for your response.

RESPONSE: GANE cannot answer this question until DCS submits its supplemental CAR, which should contain a description of the processes to purify the 6.4 tons of junk plutonium recently added to the MOX program and characterize the waste stream from said processes.

INTERROGATORY NO. 11.7 In GANE’s opinion, what will be the environmental impacts associated with the waste stream from the aqueous polishing process at the MOX Facility? Provide the bases for your response.

RESPONSE: Given the lamentable situation of 35,000,000 gallons of high-level liquid waste in 50-year-old tanks above the largest freshwater aquifer recharge area in North America and which problem has eluded resolution for 50 years, GANE must conclude that the environmental impacts from any program which adds to the burden of liquid waste will have a negative environmental impact. Further response not possible until such time as DCS reveals the waste stream character and management plan.

Respectfully submitted,

A handwritten signature in black ink that reads "Glenn Carroll". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Glenn Carroll¹
for Georgians Against Nuclear Energy
139 Kings Highway
Decatur, GA 30030
404-378-9542

Dated June 28, 2002
in Decatur, Georgia

¹ This pleading was prepared with substantial assistance from GANE's legal adviser,
Diane Curran.

June 27, 2002

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

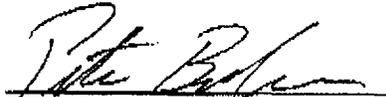
ATOMIC SAFETY AND LICENSING BOARD

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

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

DECLARATION OF PETER BURKHOLDER

Under penalty of perjury, I, Peter Burkholder declare that I assisted GANE and BREDL in the preparation of responses to interrogatories on Contention 3. A listing of the interrogatories for which I provided assistance is provided in the interrogatory answers.


Peter Burkholder

CERTIFICATE OF SERVICE
by Georgians Against Nuclear Energy
(Docket # 70-3098, ASLBP # 01-790-01-ML)

I hereby certify that GANE's and BREDL's Responses to DCS's First Round of Interrogatories and Request for Protective Order was e-mailed to the following with hard copies including attachments served by First Class U.S. Mail.

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