

**RELATED CORRESPONDENCE**

April 14, 2004

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

DOCKETED  
USNRC

April 20, 2004 (2:35PM)

In the Matter of )  
 )  
DUKE ENERGY CORPORATION )  
 )  
(Catawba Nuclear Station )  
Units 1 and 2 )

Docket Nos. 50-413-OLA  
50-414-OLA

OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF

**BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE'S  
RESPONSE TO NRC STAFF'S FIRST SET OF INTERROGATORIES  
AND REQUEST FOR PRODUCTION OF DOCUMENTS**

In accordance with the schedule established by the Atomic Safety and Licensing Board ("ASLB") in its March 31, 2004, Order (Confirming Matters Addressed at March 25 Telephone Conference), Blue Ridge Environmental Defense League (BREDL) responds to the following interrogatories, and produce for inspection and copying the documents requested below. BREDL also refers the Staff to its responses to discovery requests by Duke Energy Corporation ("Duke"), also filed today.

INTERROGATORIES

*Interrogatory 1.* Identify each and every expert witness whom you expect to call at the hearing, including each expert's name, business address and telephone number.

RESPONSE: BREDL expects to provide testimony on Contentions I and II by Dr. Edwin S. Lyman. Dr. Lyman will testify to the safety issues raised in Contentions I and II. BREDL has not yet determined whether it will submit any expert testimony with respect to Contention III. A statement of Dr. Lyman's qualifications was provided in support of BREDL's Supplemental Petition to Intervene (October 21, 2003). His address is Union of Concerned Scientists, 1707 H Street N.W., Suite 600, Washington, D.C. 20006. His telephone number is 202/223-6133.

*Interrogatory 2.* For each expert witness named in the answer to Interrogatory 1, state a) the subject matter and substance of his/her testimony, (b) the facts and opinions upon which that testimony will be based, (c) the grounds for each opinion, and (d) any authorities and/or treatises upon which the expert relies.

RESPONSE: BREDL has not yet prepared testimony in this proceeding. The substance of Dr. Lyman's expected testimony is described in BREDL's contentions, and in BREDL's statements at the oral arguments on December 3-4, 2003, and January 15, 2004. BREDL has also provided some additional information in response to these interrogatories and Duke's interrogatories. BREDL intends to supplement its responses if and when it gathers or develops additional information or analyses.

*Interrogatory 3.* Identify all persons from whom you, or any of your agents, servants or employees, have taken statements. Specify (a) when the statement was taken; (b) where the statement was taken; (c) who took the statement; (d) whether the statement was reduced to writing; (e) who has possession of the statement; and (f) the substance of the statement.

RESPONSE: BREDL has not taken any statements from any persons other than Dr. Lyman, whose information is presented in his interrogatory responses.

*Interrogatory 4* Identify all persons, you, or any of your agents, servants or employees, have interviewed. Specify (a) the date of the interview; (b) where the interview occurred; (c) who was present during the interview; (d) whether the interview was recorded or reduced to writing, including notes; (e) who is in possession of the recording or writing; and (f) the substance of the interview.

RESPONSE: BREDL has not interviewed any persons in relation to its contentions.

*Interrogatory 5.* Identify all persons who (a) have knowledge of or (b) whose testimony, writing or report you will use to support your contention that Duke's risk impact analysis is inadequate.

RESPONSE: BREDL does not know who has knowledge of our contention that Duke's risk impact analysis is inadequate. In the hearing, BREDL will rely on the knowledge and testimony of Dr. Lyman.

*Interrogatory 6* Identify all persons who (a) have knowledge of or (b) whose testimony, writing or report you will use to support your contention that Duke has failed to support its claim that the increase in severe accident consequences associated with the MOX LTA loading will not be significant.

RESPONSE: BREDL does not know who has knowledge of our contention that Duke has failed to support its claim that the increase in severe accident consequences associated with the MOX LTA loading will not be significant. In the hearing, BREDL will rely on the knowledge and testimony of Dr. Lyman.

*Interrogatory 7.* Identify all persons who (a) have knowledge of or (b) whose testimony, writing or report you will use to support your contention that Duke has failed to support its claim that the increase in severe accident consequences associated with the MOX LTA loading will not be significant.

RESPONSE: See response to Interrogatory 6.

*Interrogatory 8.* Identify all persons who (a) have knowledge of or (b) whose testimony, writing or report you will use to support your contention that Duke's safety analysis for design-basis loss-of-coolant accidents (LOCAs) in Section 3.7 of the LTA license amendment application is inadequate, because it fails to account for uncertainties in the technical understanding of the behavior of MOX fuel during LOCAs that may lead to significant deviations from low-enriched uranium (LEU) fuel behavior.

RESPONSE: BREDL does not know who has knowledge of BREDL's contention that Duke's safety analysis for design-basis loss-of-coolant accidents (LOCAs) in Section 3.7 of the LTA license amendment application is inadequate, because it fails to account for uncertainties in the technical understanding of the behavior of MOX fuel during LOCAs that may lead to significant deviations from low-enriched uranium (LEU) fuel behavior. In the hearing, BREDL will rely on the knowledge and testimony of Dr. Lyman.

*Interrogatory 9.* Identify all persons who (a) have knowledge of or (b) whose testimony, writing or report you will use to support your contention that Duke's analysis of the impact of the plutonium MOX LTAs on the probabilities and consequences of severe accidents is inadequate, because it fails to account for uncertainties in the technical understanding of the

behavior of MOX fuel during severe accidents that may lead to significant deviations from low-enriched uranium (LEU) fuel behavior.

RESPONSE: BREDL does not know who has knowledge of BREDL's contention that Duke's analysis of the impact of the plutonium MOX LTAs on the probabilities and consequences of severe accidents is inadequate, because it fails to account for uncertainties in the technical understanding of the behavior of MOX fuel during severe accidents that may lead to significant deviations from low-enriched uranium (LEU) fuel behavior. In the hearing, BREDL will rely on the knowledge and testimony of Dr. Lyman.

*Interrogatory 10.* Identify all persons who (a) have knowledge of or (b) whose testimony, writing or report you will use to support your contention that failure to consider effects of plutonium MOX fuel characteristics on severe accident potential.

RESPONSE: BREDL does not know who has knowledge of BREDL's contention that failure to consider effects of plutonium MOX fuel characteristics on severe accident potential. In the hearing, BREDL will rely on the knowledge and testimony of Dr. Lyman.

*Interrogatory 11.* Describe, in detail, a core disruptive accident.

RESPONSE: See BREDL's response to Duke Interrogatory 17.

*Interrogatory 12.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the analyses described by Duke Energy in its submittal, and supplements thereto, do not adequately account for the differences between an all-LEU core and a core comprised of 189 LEU fuel assemblies and 4 MOX lead test assemblies in assessing the fuel behavior during each design basis accident.

RESPONSE: BREDL's contentions do not address design basis accidents other than a LOCA.

*Interrogatory 13.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the analyses described by Duke Energy in its submittal, and supplements thereto, do not adequately account for the differences between an all-LEU core and a core comprised of 189 LEU fuel assemblies and 4 MOX lead test assemblies in assessing the fuel behavior under LOCA conditions.

RESPONSE: BREDL has not conducted any analyses other than what is described in its contentions and in the oral arguments of December 3-4 , 2003, and January 15, 2004. We will supplement our answer to the interrogatory at such time as we have additional information.

*Interrogatory 14.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the analyses described by Duke Energy in its submittal, and supplements thereto, do not adequately account for the differences between an all-LEU core and a core comprised of 189 LEU fuel assemblies and 4 MOX lead test assemblies in assessing the fuel behavior of a core disruptive accident.

RESPONSE: BREDL has not conducted any analyses other than what is described in its contentions and in the oral arguments of December 3-4 , 2003, and January 15, 2004. We will supplement our answer to the interrogatory at such time as we have additional information.

*Interrogatory 15.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the computer codes described by Duke Energy in its submittal, and supplements thereto, do not adequately account for the differences in fuel behavior between LEU fuel assemblies and MOX lead test assemblies.

RESPONSE: With regard to the ability of the computer codes relied on by Duke to accurately assess the impact of MOX fuel behavior differences, given the sparsity of the experimental database for code validation, BREDL shares the skepticism of the Expert Panel on Source Terms for High-Burnup and MOX Fuels, which states that "computer calculations have not been

performed as part of the present effort because the ability of the current accident analysis codes to properly predict the degradation of high burnup and MOX fuels is in doubt." ERI/NRC 02-202, "Accident Source Terms for Light-Water Nuclear Power Plants: High-Burnup and Mixed Oxide Fuels" at 8, note 20 (November 2002) (hereinafter "Expert Panel Report on Source Terms").

*See also* BREDL's response to Duke's Interrogatory 13.

*Interrogatory 16.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the analyses described by Duke Energy in its submittal, and supplements thereto, do not adequately account for the differences between an all-LEU core and a core comprised of 189 LEU fuel assemblies and 4 MOX lead test assemblies in assessing the fuel behavior of a hypothetical accident sequence that leads to energetic mechanical dispersal of the fuel.

RESPONSE: BREDL does not assert that Duke's analysis is inadequate with respect to any accident other than a LOCA.

*Interrogatory 17.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the increases in core damage frequency (CDF) or risk associated with the 4 MOX LTAs would not be small and consistent with the intent of the Commission's Safety Goal Policy Statement.

RESPONSE: We intend to perform a MACCS2 consequence analysis, and will provide the results when it is complete.

a. Provide, in detail, your analysis of CDF or risk associated with use of the 4 MOX LTAs.

RESPONSE: We do not have any additional analysis other than what we provided in our contentions and in the oral arguments of December 3-4, 2003, and January 15, 004. We will supplement our answer to the interrogatory at such time as we have additional information.

*Interrogatory 18.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the qualitative judgements by Duke that the 4 MOX LTAs will not impact Probable Risk Assessment (PRA) success criteria and core damage frequency and will only marginally impact calculated offsite consequences are flawed.

RESPONSE: We do not have any additional analysis other than what we provided in our contentions and in the oral arguments of December 3-4, 2003, and January 15, 004. We will supplement our answer to the interrogatory at such time as we have additional information. *See also* response to Interrogatory 17. In the meantime, BREDL seeks clarification from the Staff of what is meant by PRA "success criteria."

*Interrogatory 19.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the quantitative assessment of accident impacts documented in Appendix K of Volume 2 of the SPD EIS do not provide an adequate basis for comparing the risks associated with MOX and LEU fuel at Catawba.

RESPONSE: BREDL plans to prepare a written critique of the Appendix K calculations, and will provide the analysis when it is complete.

*Interrogatory 20.* Identify and describe in detail any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that specific aspects of the SPD EIS are no longer applicable.

RESPONSE: *See* response to Interrogatory 19. In addition, *see* BREDL Contention 2 and references contained therein.

a. Explain, in detail, your basis for this position.

RESPONSE: The basis for our position is described in Contention 2.

*Interrogatory 21.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to

demonstrate that the consequences for 4 MOX LTAs, if based on the most recent version of the Catawba PRA, would be substantially greater than represented in the SPD EIS.

RESPONSE: We do not know whether the consequences would be substantially greater. As stated in BREDL Contention 2, we believe that Duke should use the most up-to-date information available, *i.e.*, its PRA.

*Interrogatory 22.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the actinide release fractions assumed in Duke's assessment are inappropriate. Specify, in detail, any alternative actinide release fractions BREDL asserts are more appropriate and provide justification for same.

RESPONSE: At this time, we do not have any information to add to what is presented in BREDL Contention 2. We will supplement our response if and when we gather more information.

*Interrogatory 23.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the consequences for 4 MOX LTAs, if based on actinide release fractions considered more appropriate by BREDL, would be substantially greater than represented in the SPD EIS.

RESPONSE: *See* Contention 2. In addition, as discussed in response to Interrogatory 17, BREDL expects to perform a MACCS2 consequence analysis, which will contain information responsive to this interrogatory.

*Interrogatory 24.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the introduction of 4 MOX LTAs would create "special circumstances" that raise questions about whether there is adequate protection, and would meet the criteria for "special circumstances" provided in Appendix D to SRP Chapter 19.



RESPONSE: BREDL has not conducted any analyses other than what is described in its contentions and in the oral arguments of December 3-4 , 2003, and January 15, 2004. We will supplement our answer to the interrogatory at such time as we have additional information.

*Interrogatory 25.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the set of sequences evaluated in Appendix K of Volume 2 of the SPD EIS (e.g., Table K-39) do not provide a reasonable representation of the most risk-significant beyond-design-basis accidents and release categories for Catawba.

RESPONSE: At this time, BREDL is not challenging the reasonableness of the SPDEIS's representation of the most risk-significant beyond-design-basis accidents and release categories for Catawba. However, to the extent the release categories are based on significant retention of radionuclides within a failed containment, we intend to submit evidence that this is not a sufficiently conservative assumption. For instance, the assumption is not consistent with the most severe scenarios analyzed in NUREG-1150, Severe Accident Risks for Five Nuclear Power Plants (1990).

*Interrogatory 26.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the behavior of M5 cladding that will be used in the MOX LTAs is sufficiently different from its use with LEU fuel such that coolant blockage during a LOCA (or any other postulated sequence) could lead to a loss of coolable geometry and an uncontrolled core melt, whereas with LEU fuel it would not.

RESPONSE: BREDL does not assert that MOX fuel use could lead to a loss of coolable geometry and uncontrolled core melt, whereas with LEU fuel it would not. BREDL's position is that in view of significant uncertainties related to MOX fuel behavior, Duke has failed to demonstrate that the differences between MOX and LEU fuel are insignificant with respect to accident potential and

consequences. As stated in BREDL Contention 10, there is insufficient information to provide confidence that the MOX LTAs will not cause coolant blockage during a LOCA that could lead to an unacceptable loss of core coolable geometry and uncontrolled core melt.

*Interrogatory 27.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the behavior of MOX fuel (e.g., fuel relocation temperature) is sufficiently different than LEU fuel, that during a LOCA (or any other postulated sequence) the MOX fuel pellet column will collapse into the lower part of the fuel rod sooner than LEU.

RESPONSE: BREDL has not conducted any analyses other than what is described in its contentions and in the oral arguments of December 3-4, 2003, and January 15, 2004. We will supplement our answer to the interrogatory at such time as we have additional information.

*Interrogatory 28.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses to demonstrate that the differences between the use of M5 cladding with MOX fuel and the use of M5 cladding with LEU fuel are sufficient to increase the probabilities that an accident cannot be mitigated, or to demonstrate that the differences between MOX fuel behavior (e.g., fuel microstructure and oxidation potential) and LEU behavior for the four MOX LTAs are sufficient to increase the release rates and release fractions of fission products and actinides.

RESPONSE: BREDL has not conducted any analyses other than what is described in its contentions and in the oral arguments of December 3-4, 2003, and January 15, 2004. We will supplement our answer to the interrogatory at such time as we have additional information.

*Interrogatory 29.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and/or in its examination of applicant or staff witnesses, to demonstrate that Duke Energy has not adequately established that operation of the Catawba plant with four MOX lead test assemblies will not result in offsite radiation doses in excess of 10 C.F.R. 100.11 or 10 C.F.R. 50.67, as applicable, as a result of design basis accidents.

RESPONSE: As discussed in BREDL's contentions, design basis release fractions may be greater for MOX fuel than for LEU fuel. BREDL has not performed calculations to determine the extent of this difference.

*Interrogatory 30.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and in examination of applicant or staff witnesses, to demonstrate that Duke Energy's assessment of the difference in the radionuclide inventory an all-LEU core and a core comprised of 189 LEU fuel assemblies and four MOX lead test assemblies is inadequate.

RESPONSE: Duke has not done a comprehensive analysis of the difference in radionuclide inventories for all important radionuclides.

*Interrogatory 31.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and in examination of applicant or staff witnesses, to demonstrate that Duke's assessment of the difference in the radionuclide inventory in the gap region of an LEU fuel assembly and a MOX lead test assembly is inadequate.

RESPONSE: BREDL has not made this assertion.

*Interrogatory 32.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and in examination of applicant or staff witnesses, to demonstrate that "the experimental database for MOX fuel performance during LOCAs is woefully inadequate."

RESPONSE: BREDL has not conducted any analyses other than what is described in its contentions and in the oral arguments of December 3-4, 2003, and January 15, 2004. We will supplement our answer to the interrogatory at such time as we have additional information.

*Interrogatory 33.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and in examination of applicant or staff witnesses, to demonstrate that due to unknowns regarding the behavior of MOX fuel during a LOCA, Duke does not have a factual basis for "assuring that the existing emergency core cooling systems at Catawba will meet the acceptance criteria in 10 C.F.R. § 50.46.

RESPONSE: See BREDL response to Duke Interrogatory 13. Other than this information, BREDL has not conducted any analyses other than what is described in its contentions and in the oral arguments of December 3-4, 2003, and January 15, 2004. We will supplement our answer to the interrogatory at such time as we have additional information.

*Interrogatory 34.* Identify and describe in detail, providing bases and justification for, any analyses or evaluations that BREDL or its experts, have performed and/or expect to rely upon in its testimony and in examination of applicant or staff witnesses, to demonstrate that the use of MOX fuel at Catawba "appears to pose a risk that plant safety systems will not be adequate to stop a LOCA from progressing to a core melt."

RESPONSE: See response to Interrogatory 33.

#### REQUEST FOR PRODUCTION OF DOCUMENTS

*Document Production Request 1.* For each expert witness named in the answer to Interrogatory 1, a complete copy of his/her *curriculum vitae*, resume or professional qualifications.

RESPONSE: Dr. Lyman's curriculum vita was provided as an attachment to BREDL's Supplemental Petition to Intervene of October 21, 2003.

*Document Production Request 2.* All expert reports, including all data, authorities and treatises relied upon in preparing the report.

RESPONSE: BREDL has not prepared any expert reports.

*Document Production Request 3.* Any and all statements referenced in the answers to the Interrogatories.

RESPONSE: None of BREDL's interrogatory answers reference statements.

*Document Production Request 5.* Any and all transcriptions, notes or recordings of interviews referenced in the answers to the Interrogatories.

RESPONSE: None of BREDL's interrogatory answers reference interviews.

*Document Production Request 6.* Any and all documents referred to or relied upon in answering the above interrogatories.

RESPONSE: Documents relied on to answer the Staff's interrogatories are referenced in the interrogatory responses. With the exception of the MACCS2 code, all documents are either publicly available or have been provided to the parties. The MACCS2 code is being provided under separate cover.

*Document Production Request 7.* All documents that you intend or expect to rely upon or to introduce as exhibits in any hearings to be held in this proceeding.

RESPONSE: At this time, BREDL intends to rely on the documents that it submitted in support of its contentions. BREDL will amend this response at such time as it identifies additional documents that it will rely on.

*Document Production Request 8.* All documents that evaluate or otherwise discuss the impact of differences in the fuel behavior between the 4 MOX lead test assemblies and LEU assemblies during design basis accidents.

RESPONSE: See response to Document Production Request 6.

*Document Production Request 9.* All documents that evaluate or otherwise discuss the impact of differences in the fuel behavior between the 4 MOX lead test assemblies and LEU assemblies under LOCA conditions.

RESPONSE: See responses to document production requests 6 and 7.

*Document Production Request 10.* All documents that evaluate or otherwise discuss the impact of differences in the fuel behavior between the 4 MOX lead test assemblies and LEU assemblies of a core disruptive accident or describe how these differences cause a change in the releases.

RESPONSE: See responses to document production requests 6 and 7.

*Document Production Request 11.* All documents that evaluate or otherwise discuss the impact of differences in the fuel behavior between the MOX lead test assemblies and LEU assemblies on computer codes and computer code benchmarking.

RESPONSE: See responses to Document Production Request 6 and 7.

*Document Production Request 12.* All documents that evaluate or otherwise discuss the impact of differences in the fuel behavior between the MOX lead test assemblies and LEU assemblies of a hypothetical accident sequence that leads to energetic mechanical dispersal of the fuel.

RESPONSE: See responses to Document Production Request 6 and 7. BREDL also notes that its contentions are limited to the inadequacy of Duke's LOCA analysis with respect to the MOX LTAs.

*Document Production Request 13.* All documents that evaluate or otherwise discuss the impact of 4 MOX lead test assemblies on the radiological consequences of design basis accidents.

RESPONSE: See responses to Document Production Request 6 and 7.

*Document Production Request 14.* All documents that evaluate or otherwise discuss the impact of the 4 MOX lead test assemblies on the radionuclide inventory of the Catawba reactor core.

RESPONSE: See responses to Document Production Request 6 and 7.

*Document Production Request 15.* All documents that evaluate or otherwise discuss the release of fission gas from MOX fuel pellets during normal operation and the impact on the inventory of radionuclides in the fuel rod gap and plenum.

RESPONSE: BREDL is aware of innumerable studies on this subject that have been generated by the NRC or are otherwise publicly available. If and when BREDL relies on any such document, it will identify it. In any event, BREDL's contentions are not centrally concerned with release of fission gas from MOX fuel pellets during normal operation or the impact on the inventory of radionuclides in the fuel rod and plenum.

*Document Production Request 16.* All documents that evaluate or otherwise discuss the release of radionuclides from fuel assemblies containing MOX fuel pellets during the gap activity and early in-vessel release phases of design basis loss-of-coolant accidents.


RESPONSE: Other than the Expert Panel Report on Source Terms, we are unaware of any such documents.

*Document Production Request 17.* All answers to interrogatories, responses to requests for production or inspection, and documents, provided in response to discovery requests served on BREDL by Duke.

RESPONSE: BREDL has provided the Staff with its responses to Duke's discovery requests, as well as a copy of the MACCS2 code used by BREDL in support of its contentions.

**Declaration of Dr. Edwin S. Lyman**

I certify that the facts in the foregoing discovery responses are true and correct to the best of my knowledge, and that the opinions expressed therein are based on my best professional judgment.



Dr. Edwin S. Lyman

Respectfully submitted,



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April 14, 2004

## CERTIFICATE OF SERVICE

I hereby certify that on April 14, 2004, copies of Blue Ridge Environmental Defense League's responses to March 31, 2004, discovery requests by Duke Energy Corporation and the NRC Staff were served on the following by e-mail and/or first-class mail, as indicated below:

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