

RAS 7539

RELATED CORRESPONDENCE

March 31, 2004
DOCKETED 04/01/04

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	
)	
DUKE ENERGY CORPORATION)	Docket Nos. 50-413-OLA
)	50-414-OLA
)	
(Catawba Nuclear Station)	
Units 1 and 2))	

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

Pursuant to 10 C.F.R. §§ 2.740b and 2.741, the NRC staff ("Staff") hereby requests that Blue Ridge Environmental Defense League (BREDL) respond to the following interrogatories, and produce for inspection and copying the documents requested below.

DEFINITIONS

1. The word "document" as used herein shall mean any written or recorded matter, whether produced, reproduced or stored on paper, cards, tapes, disks, film, computer storage devices, microfiche, compact disk or any other medium and shall include, without limitation, matter in the form of books, reports, studies, statements, speeches, notebooks, agreements, appointment calendars, working papers, manuals, memoranda, notes, procedures, orders, instructions, directions, training materials, records, correspondence, diaries, plans, charts, diagrams, drawings, periodicals, lists, telephone logs, recordings, minutes, photographs, negatives, computer printouts, legal pleadings (other than those filed in this proceeding), and any published materials, and shall also include, without limitation, originals, copies (with or without notes or changes thereon) and drafts.

2. The word "communication" shall mean correspondence, contact, discussion, or any other kind of written or oral exchange between two or more persons or entities including, but not limited to, all telephone conversations, face-to-face meetings or conversations, visits, conferences, internal and external discussions, e-mail and exchange of a document or documents.

3. "Licensee" means in the context of this discovery request, Duke Energy Corporation and any agent, servant, employee, consultant, contractor, technical advisor, representative, officer or other person(s) acting for or on behalf of all or any of them, or at their direction and control, or in concert with or assisting them.

4. "Intervenor" means in the context of this discovery request, the Blue Ridge Environmental Defense League (BREDL) and any agent, servant, employee, consultant, contractor, technical advisor, representative, officer or other person(s) acting for or on behalf of all or any of them, or at their direction and control, or in concert with or assisting them.

5. "Concerns," "concerning," or any other derivative thereof, includes referring to, responding to, relating to, pertaining to, in connection with, comprising, memorializing, commenting on, regarding, discussing, showing, describing, reflecting, analyzing, supporting, contradicting, and constituting.

6. "Relate" or "relating to" means pertaining to, recording, evidencing, setting forth, reflecting, referring to, discussing, showing, disclosing, describing, explaining, summarizing, concerning, or regarding.

7. "Identify" when used in reference to a natural person means to set forth the following information relating to that person: name; present or last known residential address and telephone number; present or last known business address and telephone number; employer; title or position; area of responsibility; and business, professional, or other relationship with BREDL. If any of the above information has changed subsequent to the time period referenced in a particular

interrogatory, set forth in the answer, and label appropriately, current information as well as the information applicable to the time period referenced in the interrogatory.

8. "Identify" when used in reference to a corporation or other entity that is not a natural person shall mean to set forth the following:

- a. the full name of such entity, including its legal name and any assumed or trade names under which it transacts or has transacted business;
- b. the nature or form of such entity, if known;
- c. the address and telephone number of the entity's principal place of business or the principal place where such entity is to be found;
- d. whether the Licensees have or have had a relationship or affiliation with such entity, its affiliates or subsidiaries, and, if so, a description of such relationship;
- e. the persons presently or formerly employed by or associated with that entity who have the principal knowledge concerning the subject matter in question;
and
- f. if any of the above information has changed subsequent to the time period referenced in a particular interrogatory, set forth in the answer, and label appropriately, current information as well as the information applicable to the time referenced in the interrogatory.

9. "Identify" when used in reference to a document shall mean to set forth the following: its title; its subject matter; its date; its author; its addressee (including the designated recipient, "cc" and "bcc" recipients, and the like); its file designation or other identifying designation; and its present location and present custodian.

10. "Identify" with respect to a contact or communication shall mean to set forth the following:
 - a. the date of the communication;
 - b. the type and means of communication;
 - c. the substance of the communication;
 - d. each person making the communication, and his location at the time the communication was made;
 - e. each person to whom the communication was made, and his location at the time the communication was made;
 - f. all other persons present during, participating in, or receiving the communication and the location of each such person at the time;
 - g. each document concerning or relating to such communication; and
 - h. each document upon which the communication is based or which is referred to in the communication.

11. "Possession, custody or control" includes actual and constructive possession, custody and control. Any document which is not in a person's immediate physical possession, but in regard to which the person has a right to compel production from a third person, or which is otherwise subject to the control of the person in question, is within the person's "possession, custody or control."

12. The words "you" or "your" as used in herein shall mean BREDL and any agent, servant, employee, consultant, contractor, technical advisor, representative, officer or other person(s) acting for or on behalf of all or any of them, or at their direction and control, or in concert with or assisting them.

13. "MOX" means: mixed oxide fuel.

14. "LTA" means: lead test assembly.

INSTRUCTIONS

1. Each interrogatory shall be answered separately and fully, in writing and under oath or affirmation, and shall include all pertinent information available to you, your officers, employees, directors, advisors, representatives, consultants, technical advisors, or counsel, based upon the personal knowledge of the person answering. The production of the documents requested herein shall take place at the offices of the U.S. Nuclear Regulatory Commission in Rockville, Maryland, unless other arrangements for inspection and copying are mutually agreed to by the parties.

2. To the extent that you do not have specific, complete and accurate information with which to answer any interrogatory, you should so state, and the interrogatory should be answered to the extent information is available, identifying each person who is believed to have accurate information with respect thereto.

3. Each interrogatory and document request shall be deemed to be continuing, and you are requested timely to supplement your answers with additional facts, documents, information, and names of witnesses which become known, in accordance with 10 C.F.R. § 2.740(e)(1) and (2) of the NRC's Rules of Practice.

4. The word "and" and "or" shall be construed either in the conjunctive or in the disjunctive so as to bring within the scope of these discovery requests any information that might otherwise be construed to be outside their scope.

5. Wherever appropriate, the singular form of a word shall be interpreted in the plural, and vice versa, so as to bring within the scope of these discovery requests any information that might otherwise be construed to be outside their scope.

6. Wherever appropriate, the word "his" shall include "her" or "their," and vice versa, so as to bring within the scope of these discovery requests any information that might otherwise be construed to be outside their scope.

7. Please produce each document requested herein in the form and condition in which it exists on the date of service of this request, including all comments, notes, remarks, and other material that may have been added to the document after its initial preparation.

8. Documents produced in compliance with this request should be accompanied with an indication as to the particular paragraph(s) or questions under which the documents are being produced.

9. If you object to or claim a privilege (attorney-client, work product, or other) with respect to any interrogatory or document request, in whole or in part, or seek to withhold documents or information because of the alleged proprietary nature of the data, please identify the information or document, set forth the nature of the privilege or objection asserted and the underlying factual basis for the objection or claim of privilege, and respond to the remainder of the interrogatory or document request.

10. For any document or part of a document that was at one time, but is no longer, in your possession, custody, or control, or which is no longer in existence, or which cannot be located or produced, identify the document, state where and how it passed out of existence or why it can no longer be located and the reasons therefor, and identify each person having knowledge concerning such disposition or loss and the contents of the document.

INTERROGATORIES

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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

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.

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.

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.

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.

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.

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.

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

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.

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.

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.

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

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.”

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.

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.”

REQUEST FOR PRODUCTION OF DOCUMENTS

1. For each expert witness named in the answer to Interrogatory 1, a complete copy of his/her *curriculum vitae*, resume or professional qualifications.
2. All expert reports, including all data, authorities and treatises relied upon in preparing the report.
3. Any and all statements referenced in the answers to the Interrogatories.
5. Any and all transcriptions, notes or recordings of interviews referenced in the answers to the Interrogatories.

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

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.

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.

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.

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.

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.

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.

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

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.

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.

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.

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.

Respectfully submitted,

/RA/

Susan L. Uttal
Counsel for NRC staff

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
DUKE ENERGY CORPORATION) Docket Nos. 50-413-OLA
) 50-414-OLA
)
(Catawba Nuclear Station)
Units 1 and 2))

CERTIFICATE OF SERVICE

I hereby certify that copies of "NRC STAFF'S FIRST SET OF INTERROGATORIES AND REQUEST FOR PRODUCTION OF DOCUMENTS TO THE BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE" in the above-captioned proceeding have been served on the following by deposit in the United States mail, first class; or as indicated by an asterisk (*), by deposit in the Nuclear Regulatory Commission's internal mail system; and by e-mail as indicated by a double asterisk (**), this 31ST day of March, 2004.

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