

RAS 8370

RELATED CORRESPONDENCE

August 20, 2004
DOCKETED 08/23/04

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 SUPPLEMENTAL RESPONSE
TO BREDL'S "FIRST SET OF DISCOVERY
REQUESTS TO NRC STAFF ON SECURITY PLAN SUBMITTAL"

INTRODUCTION

On June 21, 2004, the Blue Ridge Environmental Defense League (BREDL) filed its First Set of Discovery Requests to NRC Staff on Security Plan Submittal (Request) in the above-captioned matter. The Request consists of three General Interrogatories, three General Document Production Requests, twenty-six Specific Interrogatories, and three Specific Document Production Requests. The NRC Staff (Staff) filed its objections to BREDL's Request on June 23, 2004, and filed its Response on July 2, 2004. On July 8, 2004, BREDL filed its Motion to Compel Security-Related Discovery Responses by NRC Staff (Motion to Compel). BREDL's Motion to Compel sought additional information regarding the Staff's Responses to Specific Interrogatories 4, 5, 10, 14, 17, 18, 19, 23, and 24. At a closed session held August 10, 2004, the Staff volunteered to supplement its responses to Specific Interrogatories 5 and 10. Tr. at 3000. The Staff also provided clarification of its response to BREDL Specific Interrogatory 23, which satisfied counsel for BREDL, and, additionally, counsel for BREDL indicated that it would withdraw its request for additional responses to Specific Interrogatory 24. Tr. at 3012-14. Following the closed session, the Board ordered that the Staff provide additional information with regard to

Specific Interrogatories 4, 14, and 17-19. *Duke Energy Corp.* (Catawba Nuclear Station, Units 1 and 2), ASLBP No. 03-815-03-OLA, Docket Nos. 50-413-OLA and 50-414-OLA (Aug. 13, 2004). The Staff hereby provides additional responses to Specific Interrogatories 4, 5, 10, 14, and 17-19.

RESPONSES

SPECIFIC INTERROGATORY NO. 4: Explain what the Staff means by the phrase “attractive to potential adversaries from a proliferation standpoint,” as used in the Staff’s Supplement 1 to the MOX LTA Safety Evaluation (May 5, 2004) (hereinafter “Supplement 1 to the MOX LTA SE”). In particular (a) define what the Staff means by “potential adversaries,” in terms of numbers, training, equipment, transportation, armaments, motivations, and all other relevant characteristics including insider capabilities. (b) define what the Staff means by “attractive.”

ORIGINAL STAFF RESPONSE:

(a) The Staff used the term “potential adversaries” in its generic, commonly understood meaning to describe anyone who may want to acquire nuclear material for unauthorized purposes.

(b) The Staff’s use of the term “attractive” in this context relates to the form of the material and the relative ease of converting the material into a nuclear device.

AMENDED STAFF RESPONSE:

(a) The term “potential adversaries” describes anyone who may want to acquire nuclear material for unauthorized purposes with attributes up to and including the design basis threat described in 10 C.F.R. § 73.1(a).

(b) The term “attractive” means the ease by which a particular material can be converted for use in an improvised nuclear device (IND) or a nuclear weapon. See *also* Technical Analysis Section, “Review Plan for Evaluating the Physical Security Protection Measures Needed for Mixed Oxide Fuel and Its Use in Commercial Nuclear Power Reactors,” Jan. 29, 2004.

SPECIFIC INTERROGATORY NO. 5: Identify all applicable NRC statutes, regulations and regulatory guidance that contain or refer to the concept of attractiveness of special nuclear material to potential adversaries from a proliferation standpoint.

ORIGINAL STAFF RESPONSE:

The concept of attractiveness of special nuclear material is evidenced in several NRC regulations, particularly, but not limited to 10 C.F.R. Parts 50, 70, 73, 74, and 76; along with numerous Regulatory Guides, including, but not limited to NRC Regulatory Guide 5.52.

AMENDED STAFF RESPONSE:

The concept of attractiveness is built into the regulations. There are different regulations for different types of special nuclear materials (SNM), different quantities of SNM, different material forms (such as alloyed materials, unalloyed materials, and fuel assemblies), different classes of licensees (such as reactors, fuel fabricators, gaseous diffusion plants, and research and test reactors); and the regulations set out different protection requirements for each of the differing aspects. Part 73 of the Commission's regulations reflects throughout that, depending on the type, nature or quantity of nuclear material handled by a facility, different security requirements apply. See 10 C.F.R. §§ 73.1, 73.2, 73.6, 73.20, 73.21, 73.24, 73.25, 78.27, 73.37, 73.45, 73.46, 73.50, 73.51, 73.55, 73.56, 73.57, 73.60, 73.67, 73.72, 73.73, and 73.74.

SPECIFIC INTERROGATORY NO. 10: Identify all applicable NRC statutes, regulations, and regulatory guidance supporting the NRC staff's allegation, as stated in the Staff's Supplement 1 to the MOX LTA SE at page 2, that 10 C.F.R. § 73.45 and 73.46 were primarily intended to address the materials at Category I fuel cycle facilities and not Category I quantities of strategic special nuclear material not at Category I fuel cycle facilities:

ORIGINAL STAFF RESPONSE:

See response to Specific Interrogatory No. 5. Also see NRC letter from K.L. Heitner, NRC, to R.O. Williams, Jr., subject: "Fort St. Vrain Nuclear Generating Station - Exemption from Recently Enacted Safeguards Requirements," dated January 19, 1989.

AMENDED STAFF RESPONSE:

The statements of consideration implementing part 73 and its subsequent amendments indicate that 10 C.F.R. §§ 73.45 and 73.46 were intended to address the materials at Category 1 fuel cycle facilities and not Category I quantities of strategic special nuclear materials not at

Category I fuel cycle facilities. 64 Fed. Reg. 14,814 (Mar. 29, 1999); 53 Fed. Reg. 45,447 (Nov. 10, 1988); 43 Fed. Reg. 35,321 (Aug. 9, 1978); 43 Fed. Reg. 11962 (Mar. 23, 1978); 42 Fed. Reg. 34,310 (Jul. 5, 1977); 44 Fed. Reg. 25,744 (May 19, 1977); 42 Fed. Reg. 10,836 (Feb. 24, 1977); and 39 Fed. Reg. 40,038 (Nov. 13, 1974). When read together, 10C.F.R. §§ 73.20, 73.45, 73.46, 73.55, and Part 73, Appendix C also support the above proposition. See *also* response to Interrogatory 5.

SPECIFIC INTERROGATORY NO. 14: Define “improvised nuclear device,” as used in Supplement 1 to the MOX LTA SE. In particular, for the Staff’s concept of an “improvised nuclear device,” specify: (a) the assumed minimum critical mass; (b) the assumed minimum explosive yield; (c) the minimum number of casualties that would result from detonation; (d) the materials and equipment assumed to be available to an adversary for assembly of an improvised nuclear device, including neutron reflectors, neutron initiators and explosives.

ORIGINAL STAFF RESPONSE:

According to the “2003 Nuclear Terms Handbook” issued by the US Department of Homeland Security, Office of Science and Technology, an improvised nuclear device (IND) is used to refer to any type of explosive device designed to cause a nuclear yield.

The staff assumed that the material in the MOX LTAs could not be used directly in an IND; therefore, the specific information requested in parts (a) through (d) of the interrogatory was not considered and is irrelevant.

AMENDED STAFF RESPONSE:

The specific information requested in parts (a) through (d) was not considered because the Staff assumed that the material in the MOX LTAs could not be used directly in an IND. This information is also not included in the Department of Homeland Security handbook from which the Staff derived its definition of IND. Therefore, the Staff made no assumptions related to parts (a) through (d) and has no information responsive to parts (a) through (d) of this request.

SPECIFIC INTERROGATORY NO 17: Specify the minimum quantity of MOX fuel that would be required to yield enough material for use in an improvised nuclear device.

ORIGINAL STAFF RESPONSE:

See response to Specific Interrogatory No. 14.

AMENDED STAFF RESPONSE:

The Staff assumed that the material in the MOX LTAs could not be used directly in an IND. Therefore, the Staff did not calculate the minimum quantity of MOX fuel that would be required to yield enough material for use in an IND and has no information responsive to Interrogatory No. 17. See also amended response to Specific Interrogatory No. 14.

SPECIFIC INTERROGATORY NO. 18: Specify the minimum quantity of MOX fuel that would be required to yield enough material for use in a nuclear weapon.

STAFF RESPONSE:

See response to Specific Interrogatory Nos. 14 and 15.

AMENDED STAFF RESPONSE:

The Staff assumed that the material in the MOX LTAs could not be used directly in a nuclear weapon. Therefore, the Staff did not calculate the minimum quantity of MOX fuel that would be required to yield enough material for use in a nuclear weapon and has no information responsive to Interrogatory No. 18. See also amended response to Specific Interrogatory No. 14.

SPECIFIC INTERROGATORY NO. 19: Define and discuss in detail the "elaborate extraction process" that the NRC staff concludes would be required to "yield enough material for use in an improvised nuclear device or weapon." Discuss the assumptions made by the staff as to the size, cost and detectability of the facility needed to carry out this process. Discuss the availability of technical information in the open literature regarding this process.

ORIGINAL STAFF RESPONSE:

The staff conclusion is based upon the processes conducted at U.S. government plutonium recovery (extraction) facilities (i.e., Rocky Flats, Hanford or Savannah River). The open literature contains many references regarding plutonium chemistry. One example is J.M. Cleaveland, "The Chemistry of Plutonium," American Nuclear Society, 1979. See also the response to Specific Interrogatory 24.

AMENDED STAFF RESPONSE:

The Staff did not assume a specific extraction process in its use of the term “elaborate extraction process” in its evaluation. The Staff, however, is generally aware that such processes are conducted at facilities such as Rocky Flats, Savannah River, and Hanford. Given that the extraction process requires multiple steps to yield weapons usable SNM, and processing facilities are large, detectable, and expensive to build and run, the Staff concluded that the extraction process would be “elaborate.” Because it is not possible to ascertain the specific parameters of a particular process that could be used, the Staff, in its response, referenced the US government facilities at Rocky Flats, Savannah River, and Hanford—where the plutonium recovery processes were different.

Respectfully submitted,

/RA/

Margaret J. Bupp
Counsel for NRC Staff

Dated at Rockville, Maryland
this 20th day of August, 2004

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 SUPPLEMENTAL RESPONSE TO BREDL'S 'FIRST SET OF DISCOVERY REQUESTS TO NRC STAFF ON SECURITY PLAN SUBMITTAL'" 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 20th day of August, 2004.

Ann Marshall Young, Chair * **
Administrative Judge
Atomic Safety and Licensing Board
Mail Stop: T-3F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
(E-mail: AMY@nrc.gov)

Anthony J. Baratta * **
Administrative Judge
Atomic Safety and Licensing Board
Mail Stop: T-3F23
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
(E-mail: AJB5@nrc.gov)

Thomas S. Elleman **
Administrative Judge
Atomic Safety and Licensing Board
5207 Creedmoor Rd #101
Raleigh, NC 27612
(E-mail: elleman@eos.ncsu.edu)

Office of the Secretary * **
ATTN: Docketing and Service
U.S. Nuclear Regulatory Commission
Mail Stop: O-16C1
Washington, DC 20555
(E-mail: HEARINGDOCKET@nrc.gov)

Office of Commission Appellate
Adjudication*
Mail Stop: O-16C1
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Atomic Safety and Licensing Board
Adjudicatory File*
U.S. Nuclear Regulatory Commission
Mail Stop: T-3F23
Washington, DC 20555

Diane Curran, Esq. **
Harmon, Curran, Spielberg
& Eisenberg, L.L.P.
1726 M Street, NW, Suite 600
Washington, DC 20036
(E-mail: dcurran@harmoncurran.com)

Timika Shafeek-Horton, Esq. **
Lisa F. Vaughn, Esq. **
Legal Department
Mail Code - PB05E
Duke Energy Corporation
426 S. Church Street (EC11X)
Charlotte, NC 28201-1006
(E-mail: lfVaughn@duke-energy.com
tshafeek@duke-energy.com)

David A. Repka, Esq. **
Anne W. Cottingham, Esq. **
Mark Wetterhahn, Esq. **
Winston & Strawn, L.L.P.
1400 L Street, NW
Washington, DC 20005-3502
(E-mail: drepka@winston.com
acotting@winston.com
mwetterhahn@winston.com)

/RA/

Margaret J. Bupp
Counsel for NRC Staff