

April 21, 2008

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
ENTERGY NUCLEAR OPERATIONS, INC.) Docket Nos. 50-247/286-LR
)
(Indian Point Nuclear Generating)
Units 2 and 3)

NRC STAFF'S REPLY TO RIVERKEEPER, INC.'S RESPONSE TO THE
THE LICENSING BOARD'S QUESTIONS REGARDING CONTENTION EC-2 (SAMAs)

The Staff of the U.S. Nuclear Regulatory Commission ("Staff") hereby replies to "Riverkeeper, Inc.'s Response to Atomic Safety and Licensing Board Questions Regarding Contention EC-2" ("Riverkeeper's Response"), filed on April 7, 2008.¹ As set forth below, the Staff submits that, even as clarified, the contention is inadmissible because it fails to show any reason to believe that the MAAP code is defective or was used improperly by the Applicant.²

First, Riverkeeper's reliance on NUREG-1465 (Riverkeeper's Response, *passim*) is unavailing. At issue here is the adequacy of Entergy's analysis of the release of radionuclides to the environment in a severe accident. In contrast, NUREG-1465's source term only addresses the release of radionuclides into containment; it assumes a "release resulting from 'substantial meltdown' of the core into the containment . . . and [assumes] that the containment remains intact but leaks at its maximum allowable leak rate." NUREG 1465, at 1 (emphasis

¹ In Contention EC-2, Riverkeeper, Inc. ("Riverkeeper") challenged Entergy Nuclear Operations, Inc.'s ("Entergy") use of the Modular Accident Analysis Program ("MAAP") Code in calculating accident consequences for purposes of severe accident mitigation alternatives ("SAMA") analysis. Riverkeeper claimed that Entergy's use of the MAAP code produced a lower source term than the source term in NUREG-1465. In its April 7, 2008 response, Riverkeeper confirmed (a) that NUREG-1465's source term is a source term for releases from the reactor vessel into containment and (b) that Riverkeeper had then assumed that 100% of the radionuclide inventory would be released from the containment to the environment by way of an early energetic containment failure. Riverkeeper's Response at 2 and 3 n.1.

² *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), LBP-03-17, 58 NRC 221, 240 (2003).

added). Thus, NUREG-1465 does not support Riverkeeper's use of that document to postulate a 100% prompt release resulting from an early energetic containment breach.

Second, even if NUREG-1465's source term could be used as the source term for an energetic early release from containment, Riverkeeper still has not established a basis for its contention. While Riverkeeper points to a single event followed by a 100% early release from containment, Entergy's MAAP-based source term represents all "early high" release accident sequences, including Riverkeeper's early energetic containment failure sequence,³ which Entergy weighted according to their estimated frequency of occurrence consistent with probabilistic practice. Entergy determined that 90% of "early high" releases would be the result of containment by-pass events, specifically steam generator tube rupture and inter-active system loss of coolant accidents, and that the remaining 10% would be the result of early containment failure and other events.⁴ Early containment failure and containment by-pass are different events, with significant differences in sequence progression, release pathways, and fission product deposition and removal mechanisms.⁵ These two different events naturally result in different source terms; the disparity between Entergy's MAAP-based probabilistic source term and the NUREG-1465 source term fails to show any reason to believe that Entergy's source term is deficient, as required to support an admissible contention.

Respectfully submitted,

/RA/

Beth N. Mizuno
Counsel for NRC Staff

Dated at Rockville, Maryland
this 21st day of April, 2008

³ Indian Point License Renewal Application, Environmental Report ("LRA ER"), Sections 1.2.2.7 and 3.2.2.7, Consequence Analysis Source Terms for IP2 and IP3.

⁴ LRA ER, Figures E.1-2 and E.3-2, Contributions to Large Early Release Frequency for IP2 and IP3.

⁵ NUREG-1150, "Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants," December 1990, Vol. 2, Sections C-10.1 and C-13.4.1.

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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing "NRC STAFF'S REPLY TO RIVERKEEPER, INC.'S RESPONSE TO THE LICENSING BOARD QUESTIONS REGARDING CONTENTION EC-2 (SAMAs)", dated April 21, 2008, have been served upon the following through deposit in the NRC's internal mail system, with copies by electronic mail, as indicated by an asterisk, or by deposit in the U.S. Postal Service, with copies by electronic mail, as indicated by double asterisk, this 21st day of April, 2008:

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