RIVERKEEPER, INC. OPPOSITION TO ENTERGY'S MOTION IN LIMINE TO EXCLUDE PORTIONS OF PRE-FILED TESTIMONY, EXPERT REPORT, EXHIBITS, AND STATEMENT OF POSITION FOR CONTENTION RIVERKEEPER TC-2 (FLOW ACCELERATED CORROSION)

Attachment 1

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

In the Matter of	)	Docket Nos.
	)	50-247-LR
Entergy Nuclear Operations, Inc.	)	and 50-286-LR
(Indian Point Nuclear Generating	)	
Units 2 and 3)	)	February 17, 2012
	)	

Declaration of Joram Hopenfeld in Support of Riverkeeper's Opposition to Entergy's Motion in Limine to Exclude Portions of Pre-Filed Direct Testimony, Expert Report, Exhibits, and Statement of Position for Contention Riverkeeper TC-2 (Flow-Accelerated Corrosion)

Joram Hopenfeld hereby declares under penalty of perjury that the following is true and correct:

1. I have been retained by Riverkeeper, Inc. as an expert witness in proceedings concerning the application by Entergy Nuclear Operations, Inc. ("Entergy") for a renewal of the two separate operating licenses for the nuclear power generating facilities located at Indian Point on the east bank of the Hudson River in the Village of Buchanan, Westchester County, New York, for twenty years beyond their current expiration dates.

2. I prepared testimony and an expert report in support of Riverkeeper Contention TC-2 ("Contention TC-2") pertaining to Entergy's inadequate aging management program for flow accelerated corrosion, which were submitted along with various exhibits on December 22, 2011.

3. I submit this declaration in support of "Riverkeeper's Opposition to Entergy's Motion in Limine to Exclude Portions of Pre-Filed Direct Testimony, Expert Report, Exhibits, and Statement of Position for Contention Riverkeeper TC-2 (Flow-Accelerated Corrosion), dated January 30, 2012.

4. I have reviewed "Entergy's Motion in Limine to Exclude Portions of Pre-Filed Direct Testimony, Expert Report, Exhibits, and Statement of Position for Contention Riverkeeper TC-2 (Flow-Accelerated Corrosion)" ("Entergy's Motion in Limine"), and understand that Entergy questions my qualifications in relation to certain portions of the testimony I submitted in support of Contention TC-2.

5. The characterizations made in Entergy Motion in Limine relating to my qualifications to testify to certain matters in support of Contention TC-2 are patently unfounded and incorrect.

Relevant Qualifications

6. My education, experience, extensive knowledge, and public recognition make me well qualified to provide opinions and testimony related to the safety implications of flow-accelerated corrosion during loss of coolant accidents ("LOCAs"), station blackouts ("SBOs"), and earthquakes loads.

7. It is commonly known that material degradation mechanisms must be considered during the study of probabilistic risk assessment ("PRA"), SBOs, LOCAs, and seismic risks.[1] One need not be an expert in PRAs, SBOs, LOCAs, and seismic hazards to render an opinion about safely implications of component degradation under such circumstances.

8. In any event, my decades worth of educational and professional experience *has* in fact afforded me with requisite knowledge and understanding of PRAs, SBOs, LOCAs, and seismic risks, such that I can offer a competent opinion upon such matters.

9. In particular, I worked for many years, within the NRC and without, on matters related to severe accidents, which are considered in PRAs. For example, I reviewed and commented on major NRC undertakings related to severe accidents, NUREG-1150, *Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants* (Dec. 1990), and NUREG-1560, *Plant Examination Program: Perspectives on Reactor Safety and Plant Performance* (Dec. 1997). Additionally, I have managed, published papers, and have been quoted in literature, in areas related to core melts and steam explosions.[2]

10. Furthermore, in the mid 1990s, I formulated and raised several new concerns relating to tube cracking, crack detection, and *safety consequences* following certain plant transients, such as steam line breaks, tube ruptures ("SGTR"), and station blackouts ("SBOs"). The NRC designated this as a Differing Professional Opinion ("DPO").[3] Progression to severe accidents during SBOs was also a major issue in the DPO. Following lengthy hearings at the end of 2000, the Advisory Committee on Reactor Safeguards agreed with most of the DPO issues I had raised and the NRC initiated a decade long costly program to address such issues.

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[1] *See, e.g.*, NUREG-1740, Voltage-Based Alternative Repair Criteria, A Report to the Advisory Committee on Reactor Safeguards by the Ad Hoc Subcommittee on a Differing Professional Opinion (March/Feb. 2001), http://pbadupws.nrc.gov/docs/ML0107/ML010750315.pdf, at page 5, 12-13.

[2] *See, e.g.*, RIV000004 (Hopenfeld CV, citing "*Comments on Assessment of Steam Explosion Induced Containment Failures*, Letter to The Editor, Nuclear Science and Engineering, Vol. 103, Sept. 1989" and "Onset of Stable Film Boiling and the Foam Limit", International J. of Heat Transfer and Mass Transfer, 6; 987-989 (1963)."

[3] *See* U.S. NRC, Steam Generator Action Plan, http://www.nrc.gov/reactors/operating/ops-experience/steam-generator-tube.html (last visited February 16, 2012); Memorandum from S. Collins (NRR) to W. Travers (EDO), Re: Steam Generator Action Plan Revision to Address Differing Professional Opinion on Steam Generator Tube Integrity (WITS ITEM 200100026), May 11, 2011, http://www.nrc.gov/reactors/operating/ops-experience/sgap/sgap-files/ml011300073.pdf; *see also* NUREG-1740, Voltage-Based Alternative Repair Criteria, A Report to the Advisory Committee on Reactor Safeguards by the Ad Hoc Subcommittee on a Differing Professional Opinion (March/Feb. 2001), http://pbadupws.nrc.gov/docs/ML0107/ML010750315.pdf, at page 5. Following the February 2000 tube rupture at Indian Point Unit 2, the DPO attracted considerable attention by the media and the public because the accident was linked to some issues that were originally raised by the DPO. Poor judgment by Indian Point plant operators and ineffective NRC oversight contributed largely to the costly accident at the plant.

11. Entergy's Motion in Limine claims that I have "conceded" that I lack expertise to testify about metal fatigue in relation to Contention TC-2. This is a gross and blatant distortion of the truth. As explained in detail in response to Entergy's motion to exclude my testimony in support of Riverkeeper and New York State's Consolidated Contention NYS-26B/RK-TC-1B, I have *never* made any such concession.[4] In any event, as my *curriculum vitae* plainly demonstrates (and as I elaborate upon in response to Entergy's motion to exclude my testimony in support of Consolidated Contention NYS-26B/RK-TC-1B),[5] my education, experience, extensive knowledge, and public recognition make me well qualified to provide opinions and testimony related to metal fatigue.

[4] *See* Declaration of Joram Hopenfeld in Support of Riverkeeper's Opposition to Entergy's Motion in Limine to Exclude Portions of Pre-Filed Direct Testimony, Expert Report, Exhibits, and Statement of Position for Contention NYS-26B/RK-TC-1B (Metal Fatigue), at ¶¶ 15-18.
[5] *Id.* at ¶¶ 6-14.

In accordance with 28 U.S.C. §1746, I declare under penalty of perjury that the foregoing is true and correct.

Executed on Feb. 17, 2012 2012

Joram Hopenfeld