RAS 14781

HUDSON RIVER SLOOP
CLEARWATER, INC.

DOCKETED
USNRC

December 11, 2007 (7:55am)

OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

December 10, 2007

Office of the Secretary
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001
Attention: Rulemakings and Adjudications Staff

Subject: Indian Point License Renewal Proceeding, Docket No. 50-247-LR and 246-LR

Dear Sir or Madam:

Enclosed for filing by mail, please find the original and two copies of the following documents:

1. Hudson River Sloop Clearwater, Inc.'s Petition to Intervene and Request for Hearing, with Certificate of Service.

2. Notice of Appearance for Stephen C. Filler. (Notice of Appearance for Manna Jo Greene was previously filed and served with Clearwater's request for an extension).

For electronic filing and service, please note that we have been unable to create reasonably-sized files of all of our Exhibits and Declarations. Rather than burden everyone's servers with huge files or multiple deliveries, we are only filing and serving the following documents electronically: Petition to Intervene and Request for Hearing; Notice of Appearance for Stephen C. Filler; Declaration of Jeffrey N.S Rumpf; Declaration of Manna Jo Green; Declaration of Stephen C. Filler with exhibits; Exhibit 4 to our Petition containing Declaration of Joseph Mangano and Report; and Certificate of Service. If anyone would like electronic delivery of additional documents before receipt of hard copies, we will make our best efforts to do so. We apologize for any inconvenience.

Thank you for your consideration.

Respectfully,

Manna Jo Greene

Manna Jo Greene, Environmental Director
Hudson River Sloop Clearwater

cc: Lawrence G. McDade, Chair
Kaye D. Lathrop
Richard W. Wardell
See Attached Certificate of Service

Template= SECY-037

SECY-02

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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Lawrence G. McDade, Chair
Dr. Richard E. Wardwell
Dr. Kaye D. Lathrop

In the Matter of	)	Docket Nos. 50-247-LR and 50-286 LR
ENTERGY NUCLEAR OPERATIONS, INC.	)	ASLBP No. 07-858-03-LR-BD01
(Indian Point Nuclear Generating Units 2 and 3)	)	December 10, 2007

HUDSON RIVER SLOOP CLEARWATER INC'S PETITION TO INTERVENE AND REQUEST FOR HEARING

1. DESCRIPTION OF PROCEEDING

Pursuant to 10 C.F.R. § 2.309, 10 C.F.R. § 52.21, and a notice published by the Nuclear Regulatory Commission ("NRC" or "Commission") at 72 Fed. Reg. 42,134 (August 1, 2007), as amended at 72 Fed. Reg. 60,394, Hudson River Sloop Clearwater, Inc. ("Clearwater") hereby submits its petition for leave to intervene, request for hearing and contentions regarding Entergy Nuclear Operations, Inc.'s ("Entergy") License Renewal Application ("LRA") for an additional 20-year term of the operating licenses for Indian Point Energy Center ("Indian Point"), Units 2 ("IP2") and 3 ("IP3") in Buchanan, NY. By subsequent notice published at 72 Fed. Reg. 55,834 (October 1, 2007), the NRC

extended the period for filing requests for a hearing and petitions for leave to intervene until November 30, 2007. By order dated November 27, 2007, the Atomic Safety and Licensing Board ("ASLB") extended Clearwater's time to file its request for hearing and petitions for leave to intervene until December 10, 2007.

As demonstrated below, Clearwater's contentions should be admitted, and Clearwater should be granted a hearing Clearwater has standing and the following contentions satisfy the NRC's admissibility requirements in 10 CFR. § 2.309:

CONTENTION EC-1: Failure of Environmental Report to Adequately Address the Impacts of Known and Unknown Leaks

CONTENTION EC- 2: Entergy's Environmental Report Fails to Consider the Higher than Average Cancer Rates and Other Health Impacts in Counties Surrounding Indian Point.

CONTENTION EC-3: Entergy's Environmental Report Contains a Seriously Flawed Environmental Justice Analysis that does not Adequately Assess the Impacts of Indian Point on the Minority, Low-income and Disabled Populations in the Area Surrounding Indian Point.

CONTENTION EC-4: Inadequate Analysis of Severe Accident Mitigation Alternatives

CONTENTION EC-5: Entergy's Environmental Report Fails to Adequately Consider Renewable Energy and Energy Efficiency Alternatives to the License Renewal of Indian Point

CONTENTION EC-6: Entergy's Environmental Report Fails to Consider the Potential Harm to the Surrounding Area of Terrorist Attack on the Facility including its Spent Fuel Pools, Control Rooms, the Water Intake Valves, Cooling Pipes and Electricity System.

2. STANDING

2.1 Clearwater has Representational Standing and Standing on its Own Behalf.

The general requirements for standing are set forth in 10 CFR 2.309(d)(1): (a) the name, address and telephone number of petitioner; (b) the nature of petitioner's right under the Act to be made a party to the proceeding; (c) the nature and extent of petitioner's property, financial or other interest in the proceeding; and (d) the possible effect of any decision or order that may be issued in the proceeding on petitioner's interest. These will be addressed *seriatim*.

a. The name, address and telephone number of the petitioner:

HUDSON RIVER SLOOP CLEARWATER, INCORPORATED
112 Little Market Street
Poughkeepsie, NY 12601
(845) 454-7673

b. The nature of the petitioner's right under the Act to be made a party:

Clearwater has the right to intervene in this proceeding because its interests "may be affected by the proceeding." Section 189(a) of the Atomic Energy Act of 1954, as amended (the "AEA"), 42 U.S.C. § 2239(a)(1)(A). Section 189(a) provides in pertinent part:

> "In any proceeding under this chapter for the granting, suspending, revoking, or amending of any license ... the Commission shall grant a hearing upon the request of any person whose interest may be affected by the proceeding, and shall admit any such person as a party to such proceeding."

42 U.S.C. § 2239(a)(1)(A).

To qualify for standing a petitioner must allege (1) a concrete and particularized injury, (2) that is traceable to the challenged action, and (3) that will be redressed by a

decision favorable to Clearwater. *See, e.g., Steel Co. v. Citizens for a Better Environment*, 523 U.S. 83, 102-04 (1998). The requisite injury may be either actual or threatened, *e.g., Wilderness Society v. Griles*, 824 F.2d 4, 11 (D.C. Cir. 1987), and must arguably lie within the "zone of interests" protected by the statutes governing the proceeding – here, either the AEA or the National Environmental Policy Act ("NEPA"). *See Yankee Atomic Electric Company* (Yankee Nuclear Power Station), CLI-98-21, 48 NRC 185, 195-96 (1998); *Quivira Mining Co.* (Ambrosia Lake Facility, Grants, New Mexico), CLI-98-11, 48 NRC 1, 6 (1998).

An organization such as Clearwater may demonstrate standing in its own right, or claim standing through one or more individual members who have standing. *Georgia Institute of Technology* (Georgia Tech Research Reactor, Atlanta, Georgia), CLI-95-12, 42 NRC 111, 115 (1995). Here, Clearwater's petition shows that the subject relicensing would cause injury both to its organizational interests and to the interests of many of its individual members; therefore, it has both organizational and representational standing. *See e.g., Houston Lighting & Power Co.* (South Texas Project, Units 1 and 2), ALAB-549, 9 NRC 644, 646-47 (1979).

This petition shows that Clearwater and its members, employees and volunteers will suffer actual, concrete, particularized and imminent injuries directly resulting from granting the challenged renewal, and that the injuries are likely to be prevented by a decision favorable to Clearwater. This petition shows, *inter alia*, that relicensing will result in adverse health and safety risks to Clearwater and its employees, volunteers and members from the improper design and management of the equipment; inadequate fire

protection programs, and from emissions of radioactive materials and fission products. The petition therefore shows that Clearwater and many of its members have a real stake in the outcome of the proceeding.

Commission case law provides that, in making a standing determination, a presiding officer is to "construe the petition in favor of the petitioner," *Georgia Tech*, CLI-95-12, 42 NRC at 115; *Atlas Corporation* (Moab, Utah Facility), LBP-97-9, 45 NRC 414, 424 (1997). Further, "even minor radiological exposures resulting from a proposed licensee activity can be enough to create the requisite injury in fact." *General Public Utilities Nuclear Corp.* (Oyster Creek Nuclear Generating Station), LBP-96-23, 44 NRC 143, 158 (1996); *Atlas*, LBP-97-9, 45 NRC at 425.

Clearwater's standing also derives from its and many of its members' proximity to the Indian Point facilities. A 50-mile "proximity presumption" applies to relicensing proceedings, *Florida Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), 53 NRC 138, 146 (2001) because "the proposed action involves a significant source of radioactivity producing an obvious potential for offsite consequences." *Georgia Tech*, CLI-95-12, 42 NRC 111 at 115. Under this presumption, Clearwater and its members, employees and volunteers living and working within 50 miles of the facilities are presumed to have "standing to intervene without the need specifically to plead injury, causation, and redressability," because "the petitioner lives within, or otherwise has frequent contacts with, the zone of possible harm from the nuclear reactor or other source of radioactivity." *Id.*; *Sequoyah Fuels Corp. & Gen. Atomic* (Gore, Oklahoma Site), CLI-94-12, 40 NRC 64, 75 n. 22 (1994).

Because Clearwater's petition shows that even regular facilities operation, let alone negligent operation or intentional attacks, results in releases of radioactive emissions, and leaks, that may be directly harmful to Clearwater, its employees, volunteers and members, and that these injuries would be redressed by a ruling that disallowed the license renewal application, Clearwater has demonstrated its standing to intervene.

Clearwater's standing to participate in this proceeding is demonstrated by the accompanying declarations, incorporated herein by reference, of the following fact and expert witnesses:

Fact Witnesses (attached here collectively as Exhibit 1):

1. Jannette M.Barth, Clearwater Member, Croton-on-Hudson, NY.
2. Andrew Courtney, Clearwater Member, Croton-on-Hudson, NY.
3. Cynthia Cowden, Clearwater Member, Cold Spring, NY.
4. Phillip Ehrensaft, Clearwater Member, Gardiner, NY
5. Stephen Filler, Clearwater Board Member, Tarrytown, NY.
6. June Finer, Clearwater Member and volunteer, New Paltz, NY.
7. Drs. William and Sandra Flank, Clearwater members, Chappaqua, NY
8. Manna Jo Greene, Clearwater Environmental Director, Cottekill, NY.
9. Gilbert Hawkins, Hudson River Fishermen's Association, Leonia, NJ.
10. Connie Hogarth, Clearwater Member, Beacon, NY.
11. Randolph Horner, Clearwater Member, Woodstock, NY.
12. Jennifer Ippolitti, Clearwater Member, Westbrookville, NY.
13. Art Kamel, Clearwater Member, Beacon, NY.
14. Michelle LeBlanc, Clearwater Member, Putnam Valley, NY.

15. Anne Osborn, Clearwater Board Member and Former Board President, Garrison, NY.

16. Natalie Patasaw, Clearwater Board Member, Wesley Hills, NY.

17. George Potanovic, Jr. Photographer, Clearwater Member and founder of Stony Point Action Committee for the Environment, Stony Point, NY.

18. Jeff Rumpf, Clearwater Executive Director, Hopewell Junction, NY.

19. Peter & Toshi Seeger, Clearwater Founders, Fishkill Township, NY.

20. Jonathan Stanton, New York City and Westbrookville, NY.

21. Kim Sumner-Mayer, Clearwater Member, Warwick, NY.

22. Chris White, Clearwater Member, New Paltz, NY.

23. Susan Zimet, Ulster County Legislator, New Paltz, NY.

24. Alan Zollner, member of Clearwater and River Pool, Newburgh, NY.

25. Eric Marshall, Clearwater Board President, Croton-on-Hudson, NY.

Expert Witness

26. Joseph J. Mangano, MPH MBA, Executive Director, Public Health and Radiation Project (attached hereto as Exhibit 4)

c. The nature and extent of the petitioner's interest in the proceeding:

Established in 1966 as a New York not-for-profit corporation, Clearwater has been a leader in defending and restoring the Hudson River for the past 41 years. Its main offices are located within thirty (30) miles of the Indian Point facilities. Clearwater is a membership organization with a total of 4,548 member-households (including both individual and family memberships) as of November 30, 2007. Over the past five years, Clearwater's membership has included approximately 9,990 member households. *See* Exhibit 2 for map showing members within 10 and 50 miles of Indian Point.

Each year, Clearwater accommodates nearly thirteen thousand (13,000) children and adults for educational sails on the Hudson River on its wooden sailing sloop – the *Clearwater* – conducting floating classrooms and laboratories within three (3) miles of the Indian Point facilities, docking at both Verplanck and Peekskill and many other docks within the Emergency Planning Zone. Each year in June, Clearwater holds the Great Hudson River Revival Festival at Croton Point Park seven (7) miles from the Indian Point facilities – featuring arts and environmental education and advocacy events for over fifteen thousand (15,000) people. In addition, Clearwater provides educational programming for thousands more individuals on the history, biology, and environmental science of the Hudson River through on-land classroom visits, field programs and public exhibits in many areas within 10 and 50 miles of Indian Point.

Since 1966, Clearwater has been actively engaged in investigating and researching contamination of the Hudson River; informing, educating and assisting the public in preserving the Hudson River; fostering the historic and cultural heritage of the Hudson River Valley; and protecting the health, safety and well-being of the people living along and near the Hudson River. Clearwater's principal objective is to achieve a Hudson River ecosystem capable of sustaining the reproductive integrity, health and well-being of life at all levels.

Clearwater played a key role in the passage of the federal Clean Water Act in 1972 and has continuously conducted environmental action programs with science-based strategies designed to restore and protect the quality of the Hudson River watershed. Clearwater was actively involved in addressing the environmental problems caused by

Indian Point 1 until the facility's closure in 1970, and has been actively involved in addressing the health, safety, environmental and social issues created by Indian Point 2 and 3 since their inception in 1973 and 1975.

Clearwater has also participated in a wide variety of litigation and administrative proceedings relating to the Hudson River. Reported cases in which Clearwater was a party include:

In Re Brodsky, Hudson River Sloop Clearwater Inc, Peter and Toshi Aline Seeger et al v. NYS Dept. of Environmental Conservation and Entergy Nuclear Inc. et al, 1 Misc.3d 690, (2003)(Article 78 proceeding seeking a hearing and review in connection with Indian Point's application for a State Pollution Discharge Elimination System (SPDES) permit).

Hudson Sloop Clearwater, Inc. v. Cuomo, 222 A.D.2d 386 (1st Dept 1995)(concerning environmental impact statement for creation of the Hudson River Park Conservancy).

In Re Industrial Liaison Committee of the Niagara Falls Area Chamber of Commerce v. Williams, Hudson River Sloop Clearwater, et al., 72 N.Y.2d 137 (1988)(concerning SPDES permits relating to industrial users and dischargers into Niagara Falls Wastewater Treatment Plant and into the surface waters of New York).

Hudson River Sloop Clearwater v. Dept. of Navy, 836 F.2d 760 (2nd Cir. 1988) (seeking preliminary injunction prohibiting dredging and pier construction by the United States Navy with respect to the proposed Staten Island homeport for battleship pending compliance with NEPA).

Hudson River Sloop Clearwater Inc v. Consolidated Rail Corp., 768 F.2d 57 (2nd Cir. 1985)(bringing citizen's suit under Clean Water Act to compel compliance with NPDES/SPDES permit).

Natural Resources Defense Council, Inc., River Sloop Clearwater v. Marsh, (1983), 568 F. Supp. 1387 (E.D. N.Y. 1983)(seeking protection of portions of Gateway National Recreation Area in New York Harbor from U.S. Government and military use).

Environmental Defense Fund, Hudson River Sloop Clearwater, Inc et al v. Johnson, 476 F. Supp. 126 (S.D.NY 1979) (seeking declaratory and injunctive

relief alleging that the defendants, State Army Corps of Engineers prepared plans for the Hudson River Skimming Project in violation of NEPA and other laws).

d. The possible effect of any decision or order that may be issued in the proceeding on the petitioner's interest:

A decision by the Commission allowing the subject relicensing would subject Clearwater, its members, employees and volunteers to the health and safety risks set forth in detail in this petition. This petition shows, *inter alia*, that relicensing will result in adverse health and safety risks to Clearwater and its employees, volunteers and members from improper design and management of the equipment; inadequate fire protection programs, and from emissions of radioactive materials and fission products.

2.2 Clearwater's Standing as a Matter of Discretion.

The following addresses the four factors for allowing discretionary intervention set forth in 10 CFR 2.309(e), while incorporating by reference the elements set forth in Section 2.1 above: (a) the extent to which the petitioner's participation may reasonably be expected to assist in developing a sound record; (b) the availability of other means whereby the petitioner's interest will be protected; (c) the extent to which the requestor's/petitioner's interest will be represented by existing parties; and (d) the extent to which the requestor's/petitioner's participation will inappropriately broaden the issues or delay the proceeding. Clearwater requests discretionary standing in the event it is denied standing as of right or in the event none of its contentions are admitted.

a. The petitioner's participation may reasonably be expected to assist in developing a sound record:

Clearwater's participation in the proceeding will assist the Commission in developing a sound record because Clearwater will be presenting evidence concerning the local health, safety, environmental and social issues created by Indian Point 2 and 3. It will provide local insight, information and evidence that cannot be provided by the Applicant or other parties.

b. Other means are not available whereby the petitioner's interest will be protected.

There are no other means available whereby the interests of Clearwater and its members, employees and volunteers will be protected.

c. The petitioner's interest will not be represented by existing parties.

The interests of Clearwater and its members, employees and volunteers are unique and will not be represented by the existing parties.

d. The petitioner's participation will not inappropriately broaden the issues or delay the proceeding.

Clearwater is not raising inappropriate issues; therefore, its participation in the proceeding will not inappropriately broaden the issues or delay the proceeding.

2.3 Clearwater Meets Prudential Standing Requirements.

In addition, Courts have created a prudential standing requirement that a plaintiff's interests fall within the "zone of interests" protected by the statute on which the claim is based. *Bennett v. Spear*, 520 U.S. 154, 162 (1997). The Atomic Energy Act and NEPA, the statutes at issue here, protect the same interests held by Clearwater's members and further Clearwater's purpose.

3. STATUTORY AND REGULATORY FRAMEWORK

This proceeding is governed by the AEA and NEPA. The AEA sets minimum standards for the safe and secure operation of nuclear facilities. NEPA requires NRC to consider and attempt to avoid or mitigate significant adverse environmental impacts of licensing those facilities. Although the statues have some overlapping concerns, they establish independent requirements. *Limerick Ecology Action v. NRC*, 869 F.2d 719, 729-30 (3rd Cir. 1989). NEPA goes beyond the AEA, requiring the consideration of alternatives to reduce or avoid adverse environmental impacts of NRC licensing actions. *Id.*, citing 10 C.F.R. § 51.71 (d).

3.1 Atomic Energy Act

The AEA prohibits the NRC from issuing a license to operate a nuclear power plant if it would be "inimical to the common defense and security or to the health and safety of the public." 42 U.S.C. § 2133(d). Public safety is "the first, last, and a permanent consideration" in any decision on the issuance of a construction permit or a license to operate a nuclear facility. *Petition for Emergency and Remedial Action*, 7 NRC at 404, *citing Power Reactor Development Corp. v. International Union of Electrical Radio and Machine Workers*, 367 U.S. 396, 402 (1961) ("Power Reactor Development Corp."). Entergy's license renewal application may not be granted unless and until the NRC finds that Entergy has satisfied the safety requirements of 10 C.F.R. 54 concerning renewal of nuclear power plant licenses.

3.2 National Environmental Policy Act

This proceeding is also governed by the National Environmental Policy Act, 42 U.S.C § 4321, et seq. ("NEPA"). NEPA mandates that federal agencies involved in activities that may have a significant impact on the environment must complete a detailed statement of the environmental impacts and project alternatives. NEPA requires, in pertinent part, that all agencies of the Federal Government, including the NRC take a "hard look" at environmental impacts of proposed actions. Specifically, the NRC must:

> "include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on –
>
> (i) the environmental impact of the proposed action,
>
> (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
>
> (iii) alternatives to the proposed action,
>
> (iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and
>
> (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented."

42 U.S.C. § 4332(c).

NEPA "places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action," and "ensures that the agency will inform the public that it has indeed considered environmental concerns in its decision making process." *Baltimore Gas & Elec. Co. v. Natural Res. Def. Counsel, Inc.*, 462 U.S. 87, 97 (1983).

"NEPA was created to ensure that agencies will base decisions on detailed information regarding significant environmental impacts and that information will be

available to a wide variety of concerned public and private actors." *Morongo Band of Mission Indians v. Federal Aviation Administration*, 161 F.3d 569, 575 (9th Cir. 1998) (*quoted* in *Mississippi River Basin Alliance v. Westphal*, 230 F.3d 170, 175 (5th Cir. 2000)). Thus, the fundamental goal of a NEPA evaluation is to require the responsible government agency to undertake a careful and thorough analysis of the need for the project and its impacts before proceeding. Agencies must consider environmentally significant aspects of a proposed action, let the public know that the agency's decision-making process includes environmental concerns, and decide whether the public benefits of the project outweigh the environmental costs. *Baltimore Gas & Elec. Co. v. Natural Resources Defense Council*, 462 U.S. 87, 97, 76 L. Ed. 2d 437, 103 S. Ct. 2246 (1983); *Utahns For Better Transportation v. United States Dept. of Transp.*, 305 F.3d 1152, 1162 (10th Cir. 2002); *Illinois Commerce Com. v. Interstate Commerce Com.*, 848 F.2d 1246, 1259 (D.C. Cir. 1988).

Both Entergy and the NRC must comply with NEPA by evaluating the environmental impacts of license renewal and by weighing the costs and benefits of mitigating or avoiding such impacts. 10 C.F.R. § 51.95(c). The NRC must prepare an environmental impact statement before making its decision on Entergy's renewal application. *See* 10 C.F.R. § 51.95(d). And Entergy is required to provide an Environmental Report (ER) in connection with its application. *See* 10 C.F.R. §51.53(c).

The NRC has created a generic environmental impact statement for license renewal. NUREG -1437, *Generic Environmental Impact Statement for License Renewal of Nuclear Plants* (GEIS). Environmental impacts are categorized as either "Category 1" or

"Category 2." See 10 C.F.R. 50, Appendix B to Subpart A, Table B-1. As a general matter, Category 1 impacts may not be challenged in license renewal proceedings. *See Florida Power & Light.Co*, (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 12 (2001). However, Entergy's ER "must contain any new and significant information of which it is aware," 10 C.F.R. § 51.53(c)(3)(iv), such as the information concerning leaks, terrorism, health risks from off site radiation, and environmental justice impacts discussed herein. Moreover, NRC regulations require that Category 2 issues be evaluated for "further analysis and possible significant new information. . ." 10 C.F.R. 50, Appendix B to Subpart A, Table B-1.

Category 2 issues include offsite land use (significant changes associated with population and tax revenue changes resulting from license renewal), and the consideration of severe accident mitigation alternatives (SAMA) for all plants that have not considered such alternatives. 10 C.F.R. 50, Appendix B to Subpart A, Table B-1. 10 C.F.R. § 51.53(c)(3)(ii)(I) and (L). Entergy must address SAMAs in its environmental report. *Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), LBP-06-23, 64 NRC 257, 279, citing 10 C.F.R. § 51.53(c)(3)(ii)(L). Whether or not a SAMA should be implemented depends upon a cost-benefit analysis: "a weighing of the cost to implement the SAMA with the reduction in risks to public health, occupational health, and offsite and onsite property." *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2; Catawba Nuclear Station, Units 1 and 2), CLI-02-17, 56 NRC 1, 8 (2002).

Additionally, environmental justice (EJ) issues are not considered as part of generic EISs, and an environmental justice assessment must be performed in the licensing action for each particular facility and as part of Entergy's ER. *See NRC Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions*, 69 Fed. Reg. 52040 (Aug. 24, 2004). Entergy must also assess in its ER the environmental effects of transportation of fuel and waste in accordance with 10 C.F.R. § 51.52, as well as the generic and cumulative impacts associated with transportation operation in the vicinity of a high-level waste repository site." 10 C.F.R. § 51.53(c)(3)(ii)(M).

4. CONTENTIONS

Clearwater's six contentions should be admitted because they satisfy the requirements of 10 C.F.R. § 2.309(f)(1). This rule ensures that "full adjudicatory hearings are triggered only by those able to proffer at least some minimal factual and legal foundation in support of their contentions." *Duke Energy Corp.* (Oconee Nuclear Station, Units 1, 2, and 3), 49 N.R.C. 328, 334 (1999). Specifically, Clearwater's contentions satisfy 10 C.F.R. § 2.309(f)(1) that requires:

a) "a specific statement of the issue of law or fact to be raised or controverted." Section 2.309(f)(1)(i).

b) "a brief explanation of the basis for the contention." § 2.309(f)(1)(ii).

c) "that the issue raised . . . is within the scope of the proceeding." § 2.309(f)(1)(iii).

d) "that the issue raised . . . is material to the findings NRC must make to support the action . . . in the proceeding." § 2.309(f)(1)(iv).

e) "a concise statement of the alleged fact or expert opinion which supports" the contention. § 2.309(f)(1)(v).

f) "sufficient information to show that a genuine dispute exists . . . on a material issue of law or fact." §2.309(f)(1)(vi).

Clearwater does not have to prove its contention at the admissibility stage. *28 Private Fuel Storage L.L.C.* (Independent Spent Fuel Storage Installation), CLI-04-22, 60 NRC 125, 139 (2004). Rather, "petitioner must provide some sort of minimal basis indicating the potential validity of the contention." 54 Fed. Reg. 33,168, 33,170 (Aug. 11, 1989), and why the alleged error or omission is of possible significance to the result of the proceeding. *Portland Cement Ass'n. v. Ruckelshaus*, 486 F.2d 375, 394 (D.C. Cir. 1973), *cert. denied sub nom. Portland Cement Corp. v. Adm'r, E.P.A.*, 417 U.S. 921 (1974). The contention admissibility threshold is less than is required at the summary disposition stage. "[A]t the contention filing stage the factual support necessary to show that a genuine dispute exists need not be in affidavit or formal evidentiary form and need not be of the quality necessary to withstand a summary disposition motion." 54 Fed. Reg. at 33,171. Moreover, the "Board may appropriately view Petitioners' support for its contention in a light that is favorable to the Petitioner." *Palo Verde Nuclear Generating Station*, (Units 1, 2, and 3), CLI-91-12, 34 NRC 149, 155-56 (1991). Petitioner is not required to "make its case at this stage of the proceeding, but rather to indicate what facts or expert opinions, be it one fact or opinion or many, of which it is aware at that point in time which provide the basis for its contention." " 54 Fed. Reg. at 33,170.

CONTENTION EC-1: Failure of Environmental Report to Adequately Address the Impacts of Known and Unknown Leaks

A) Brief Explanation of the Basis for the Contention.

Entergy's license renewal application does not comply with the National Environmental Policy Act, 42 U.S.C. § 4321, et seq. ("NEPA") because its Environmental Report (ER) fails to adequately assess "new and significant" information concerning environmental impacts of radioactive substances that are leaking from spent fuels pools and contaminating the ground water, the Hudson River and the local ecosystem. *See* 10 C.F.R. § 51.53(c)(3)(iv). Additionally, Entergy's ER does not "contain sufficient information data to aid the Commission in its development of an independent analysis," and does not "to the fullest extent practicable, quantify the various factors considered." 10 C.F.R. § 51.45. The ER also fails because it does not sufficiently include information concerning the leaks that is adverse to Entergy's application. *See* 10 C.F.R. § 51.45(e). The failure to take adequately account of these risks violates NEPA's requirement that environmental decisions must contain an evaluation of those aspects of a proposed action that will affect the quality of the human environment "in a significant manner or to a significant extent not already considered." *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989) ("Marsh").

Pursuant to 10 CFR § 2.309(f)(3), Clearwater hereby adopts Contention 28 of the Attorney General of New York filed November 30, 2007 ("AG Contention-28"), and agrees that the Attorney General shall act as the representative with respect to this contention. Clearwater also shares the concerns raised in "Contention EC-3: Failure to

Adequately Analyze Impacts of Spent Fuel Leaks" of Riverkeeper, Inc. filed November 30, 2007.

B) This is a Valid Contention Pursuant to 10 CFR 2.309

The specific issue of fact and law to be controverted is whether Entergy's Environmental Report sufficiently assesses the impacts of leaks from spent fuel pools. 10 C.F.R. §2.309(f)(1)(i). Since there are serious factual differences concerning the extent and impact of the leaks, there is a genuine dispute with regard to the sufficiency of the license application. This issue is also within this proceeding's scope. 10 C.F.R. § 2.309(f)(1)(iii), (f)(2)(for issues under NEPA, petitioner shall file contentions based upon the ER). Entergy was required to, and did, prepare an Environmental Report in connection with its application. NEPA mandates that the NRC consider the environmental impacts of the action Entergy requests, and the NRC rules implement this mandate. 10 C.F.R. Pt. 51. Entergy, in fact, acknowledged that there have been leaks. Therefore, this issue is material to findings that must be made in this proceeding. 10 C.F.R. §2.309(f)(1)(iv).

C) Factual Allegations Supporting the Claim as Required by 10 CFR § 2.309(f)(1)(v).

Entergy's ER admits that there are leaks from the spent fuel pools. *See* ER, Section 5.1 New and Significant Information: Groundwater Contamination, p. 5-4. However, many of Entergy's claims in its ER are not accurate including its claim that IP2 is no longer leaking, and its claim that only low concentrations of radionuclides have been detected in groundwater. Moreover, the ER does not include any evaluation of the impacts of the leaks upon groundwater or fish in the Hudson River. The ER stated: "On the basis

of current information, Entergy concludes that although the existence of radionuclides in the groundwater during the license renewal period are potentially a new issue, the impacts of those radionuclides would be SMALL and not significant." *Id.* at 5-4, 5-6. Entergy fails to provide adequate support for this conclusion.

AG Contention-28 and Riverkeeper Contention EC-3 provide ample factual support for this contention, and require that there be a much "harder look" into the existence and the impact of the leaks.[1]

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[1] In addition to the leaks, Clearwater is extremely concerned about the many and wide ranging radioactive releases – some planned, and some unplanned – that have plagued and will continue to plague Indian Point and the surrounding area if the renewal application is granted. The releases into the air, water, and soil, have not been adequately investigated and their impact upon people living near the plant has not been assessed.

For starters, each reactor routinely emits relatively low-dose amounts of airborne and liquid radioactivity. This radioactivity represents over 100 different isotopes only produced in reactors and atomic bombs, including Strontium-89, Strontium-90, Cesium-137, and Iodine-131. Humans ingest them either by inhalation, or through the food chain (after airborne radioactivity returns to earth). Each of these chemicals has a special biochemical action; iodine seeks out the thyroid gland, strontium clumps to the bone and teeth (like calcium), and cesium is distributed throughout the soft tissues. All are carcinogenic. Each decays at varying rates; for example, iodine-131 has a half-life of eight days, and remains in the body only a few weeks. Strontium-90 has a half-life of 28.7 years, and thus remains in bone and teeth for many years. These chemicals are different from "background" radiation found in nature in cosmic rays and the earth's surface. Background radiation, while still harmful, contains no chemicals that specifically attack the thyroid gland, bones, or other organs. But even chemicals with a short half life, while they may remain in the body for only a relatively short time, produce a high rate of ionizing emissions that may cause more damage than comparable emissions at lower rates from isotopes with longer half-lives *See, generally*, http://riverkeeper.org/campaign.php/indianpoint_waste/the_facts/1257; Chapter 11, *Ionizing Radiation and Environmental Radioactivity*, in "Environmental Health Science," Morton Lippmann, Beverly S. Cohen and Richard B. Schlesinger, Oxford University Press, 2003.

Indian Point ranks among the top emitters with respect to radioactive releases over the years it has operated. *Id.* As far back as 1981, Con Ed acknowledged that Indian Point was leaking radioactive material into the Hudson and surrounding groundwater and had been doing so for most of the IPEC's life. (*New York Times*, 8/16/81). Three well-documented major leaks from Indian Point include: 1990: Over 100,000 gallons leaks into IP2's containment building; 2000: IP 2's steam system leak; 2005: Discovery of radioactive leaking from multiple IPEC source. *See* IP Timeline, attached hereto as Exhibit 3.

Specifically, in AG Contention-28, the State points out that the leaks present a range of potential environmental and public health impacts including:

- Plumes of strontium and tritium had been mapped under the facility. AG Contention-28, ¶ 13.
- Other radioactive constituents, including cesium, cobalt, and nickel, are being released from the IP1 spent fuel pool into groundwater. *Id.* ¶ 20.
- Tritium exposure increases the risk of developing cancer. *Id.* ¶ 10.
- Strontium-90 exposure has been linked to bone cancer, cancer in tissue near contaminated bone, and leukemia. *Id.* ¶ 10.
- Concentrations of tritium from the IP2 spent fuel pool leak were detected in the monitoring wells closest to the IP2 spent fuel pool at levels as high as 30 times the drinking water standard. *Id.* ¶ 16.
- Concentrations of strontium-90 from the IP1 spent fuel pool leak have been detected at almost 14 times the drinking water standard at the monitoring well closest to the IP1 spent fuel pool. *Id.* ¶ 19.
- Concentrations of strontium-90 at a monitoring well close to the Hudson River have been detected at approximately 3.4 times the drinking water standard. *Id.* ¶ 19.
- The presence of these radioactive contaminants beneath and around Indian Point site structures will likely increase the cost and extent of the eventual decommissioning of the reactor facilities. *Id.* ¶ 21.

Clearwater has prepared at Timeline of Leaks at Indian Point describing the history of leaks and other releases from the plant (attached as Exhibit 3).

Recently, on March 2, 2007, Clearwater, the Indian Point Safe Energy Coalition (IPSEC) and Pace Academy for the Environment convened a Technical Briefing and Roundtable on the Indian Point Leaks, at Pace University in Pleasantville, NY. With approximately 150 people in the attendance, the event included nationally renowned experts in the fields of hydrogeology, ecology, public health and regulatory issues, as well

as members of the public and media, and over 40 elected officials (see generally http://www.clearwater.org/news/indianpoint2007.html). The evidence presented at the Technical Briefing strongly supports the conclusion that there is great uncertainty about the source, extent and impact of the leaks, and that more investigation is mandated under NEPA.

At the briefing, Barbara Youngberg of the New York State Department of Environmental Conservation ("NYS DEC") acknowledged that Cesium-137 has been found in Hudson River sediments and Strontium-90 had been detected in offsite test wells and fish, but said the source of this contamination has not yet been established. *Id.* At the same time as the Technical Briefing, it was separately reported that Strontium-90 had been reported at from 3.4 to 14 times allowable drinking water standards. Other reports include Cobalt-60 and Nickel-63, as well as Tritium at 30 times the EPA drinking water limit. See Luby, Abby, "New Leaks Taint Hudson," Regional Report, March 2006.

Also at the Technical Briefing, NYS DEC wildlife pathologist Ward Stone said that fish sampling to date has been highly inadequate. He further stated that if more thorough biota sampling had been done, the radionuclides that are leaving or have left Indian Point and are gaining entry into the biota would already be determined. He explained that testing needs to be done on more species and a wider variety of biota. For its part, DEC planned to expand its testing to include studying individual fish over a longer period of time, caging fish, and potentially expanding biota sampling to include shellfish, frogs, turtles and other wildlife. *Id.*

David Lochbaum from the Union of Concerned Scientists and Phillip Musegaas of Riverkeeper presented information that in spite of requirements that nuclear plants keep track of all contaminant releases, the radioactive materials from the leaks were not being tracked. *Id.* They also stated that Cesium-137, Tritium, and Strontium 90 found in nearby wells exceed New York State and EPA drinking water limits, and concluded that the EPA and NRC should require monitoring of all releases of contaminated liquids.

Sergio Smiriglio, a hydrologist with Tim Miller and Associates (http://www.timmillerassociates.com/staff.html), raised some serious questions about the implications of the leaks given Indian Point's location. Because water moves from high to low points, and the facility sits at a higher point than both the Hudson and the surrounding area, contaminants will flow into the major groundwater flow, then into the Hudson River. Moreover, coarser material surrounds the fracture sites, which allows for higher velocity water movement. Fractures could contain contaminated water, thereby acting as a secondary pathway flowing under the Hudson River. (http://www.clearwater.org/news/indianpoint2007.html).

As New York State concludes in AG Contention 28:

> In sum, the leaks into both groundwater and surface water have gone way beyond what the NRC reviewed in the generic EIS in 1996. The extent of the leaks from two spent fuel pools, the variety of radionuclides leaking, the uniqueness of this site and the pathway to the Hudson River, mean that these impacts are significant and render them reviewable under NEPA in this proceeding.

Id. at ¶ 16.[2]

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[2] The State also argues, and we concur, that Entergy's failure to consider the environmental and health impacts of the leaks because of a separate investigation is "impermissible segmentation under NEPA."

For the foregoing reasons, this Contention should be admitted.

CONTENTION 2: Entergy's Environmental Report Fails to Consider the Higher than Average Cancer Rates and Other Health Impacts in Counties Surrounding Indian Point.

A) Brief Explanation of the Basis for the Contention.

Entergy's ER fails to adequately consider the impact that the proposed license renewal for IP 2 and IP3 will have on the health of populations living near the power plants, including localities with relatively high concentrations of minority and low-income groups. Even though radiation exposure to the public during the license renewal term is a Category 1 issue, Clearwater presents "new and significant" evidence that is indicative of higher-than-average cancer incidence rates among people living near Indian Point. This suggests that there are issues related to Indian Point that are raising cancer levels higher than at other plants. Further, Germany's Federal Office of Radiation Protection recently released a research report on increased cancer risks for children living near nuclear power plants. The research, performed at the University of Mainz, reports that the incidence of childhood leukemia for populations located within 3 miles of nuclear plants was double that of the German population in general. For these reasons, Entergy should have considered this evidence in its Environmental Report.

B) This is a Valid Contention Pursuant to 10 CFR 2.309

The specific issue of fact and law to be controverted is whether Entergy's Environmental Report sufficiently assesses the health impacts of radionuclide emissions

from Indian Point. 10 C.F.R. §2.309(f)(1)(i). Since Entergy presents no evidence of new or significant evidence, or of anything unique about Indian Point concerning local health impact, there is a genuine dispute with regard to the sufficiency of the license application. This issue is also within this proceeding's scope. 10 C.F.R. § 2.309(f)(1)(iii), (f)(2)(for issues under NEPA, petitioner shall file contentions based upon the ER). Entergy was required to, and did, prepare an Environmental Report in connection with its application. NEPA mandates that the NRC consider the environmental impacts of the action Entergy requests, and the NRC rules implement this mandate. 10 C.F.R. Pt. 51. Therefore, this issue is material to findings that must be made in this proceeding. 10 C.F.R. §2.309(f)(1)(iv). Indeed, if the new and significant health impacts are genuine, it's hard to imagine a more material impact.

C) Factual Basis for Contention.

Health impacts are a Category 1 issue. 10 CFR Part 51 Subpart A, Appendix B, Table B-1. As a general matter, Category 1 impacts may not be challenged in license renewal proceedings. *See Florida Power & Light Co*, (Turkey Point Nuclear Generating Plant, Units 3 and 4), CLI-01-17, 54 NRC 3, 12 (2001). However, Entergy's ER "must contain any new and significant information of which it is aware," 10 C.F.R. § 51.53(c)(3)(iv), such as the information concerning health risks from off-site radiation emissions.

There is ample "new and significant" information, however, that shows that there are substantial offsite health risks related to radiation. For example, on Saturday, December 8, 2007, Reuters reported that the University of Mainz, on behalf of Germany's

Federal Office for Radiation Protection (BFS), found that young children living near nuclear power plants have a significantly higher risk of developing leukemia and other forms of cancer, Reuters (December 8, 2007) http://news.yahoo.com/s/nm/20071208/hl_nm/cancer_germany_dc. The study confirmed a connection between the distance of domicile to the nearest nuclear plant, and the risk of developing cancer before the fifth birthday, finding that children living within 3 miles of a nuclear plant developed leukemia at double the statistical average. Data also showed there was an increased cancer risk for children living within 50 kilometers of a reactor.

Specifically in connection with Indian Point, work by Joseph Mangano, the Executive Director of the Radiation and Public Health Project, shows a strong possibility that there are serious off-site impacts related to radioactive emissions from Indian Point . Declaration of Joseph Mangano, attached as Exhibit 4 (Mangano Decl.).

Mangano prepared a report, *Public Health Risks of Extending Licenses of the Indian Point 2 and 3 Nuclear Reactors*, (Radiation and Public Health Project, Revised December 7, 2007) (attached as Exhibit 4 as part of Mangano Decl.)(*Public Health Risks*).

As Mangano explains, continued operation of Indian Point raises the risk of radioactivity exposure in two ways. First, the reactor cores will produce high-level waste to be added to the 1,500 tons already at the site, which would worsen the consequences of a large-scale release. Second, because the reactors routinely release radioactivity, keeping Indian Point in service would mean greater releases and risks to local residents. (*Public Health Risks,* p. 2.)

The principal findings of the *Public Health Risks* Report with respect to radioactivity levels associated with Indian Point are:

- A large-scale release of radioactivity in a meltdown at Indian Point, from mechanical failure or act of sabotage, would harm tens of thousands through acute radiation poisoning or cancer. (*Public Health Risks,* p. 5-7.)
-
- Indian Point has released the 5th greatest amount of airborne radioactivity out of 72 U.S. nuclear plants. In some periods, releases are up to 100 times greater than normal levels. (*Public Health Risks,* p. 7-8.)
- Radioactivity levels in the Hudson River near Indian Point are over 10 times greater than those in Albany. Large variations exist in local radioactivity levels; for example, 2006 airborne radioactivity was three times as high in late fall, than in late spring. (*Public Health Risks,* p. 10.)

Mangano evaluates local public health risks from Indian Point based upon cancer data obtained from the New York State Cancer Registry (for cancer incidence, 2000-2004) and from the U.S. Centers for Disease Control (cancer mortality,1979-2004). The local area near Indian Point was defined as the host county, Westchester, plus adjacent counties where the majority of the population lives within 20 miles of Indian Point (Orange, Putnam and Rockland, and Westchester). According to Mangano, the New York State Cancer Registry and Centers for Disease Control data indicate that:

- The four local counties near Indian Point have an elevated cancer incidence rate compared to the state and nation, with an estimated 2,090 to 3,631 more cancer cases locally from 2000-2004 than would have been the case if the four counties had average national or state cancer incidence rates. (*Public Health Risks*, Table 15, p. 17; Table 19, p. 21; Table 21, p. 23)
- Levels of Strontium-90 in baby teeth collected from children living in the local 4-county region are the highest of any area near seven U.S. nuclear plants. Local children born in the late 1990s have an average Strontium-90 level 38%

greater than those born a decade earlier. There is a demonstrable statistical link between average levels of Strontium-90 in local baby teeth and local childhood cancer rates. (*Public Health Risks*, p. 12-13, 24-25)

- Childhood cancer incidence in the four counties is among the highest in New York, and well above the national rate. (*Public Health Risks,* Table 13, p. 14-15; Table 16, p. 18)
- Local incidence rates of childhood cancer and thyroid cancer, both known to be sensitive to radiation exposure, are among the highest in New York State. Local thyroid cancer incidence is among the highest in New York and about 70% above the U.S. rate. The level in Rockland is approximately double the U.S. rate. (*Public Health Risks,* Table 17, p. 19)
- The local breast cancer incidence rate exceeds that of the state and nation, and the excess is growing over time. (*Public Health Risks,* Table 19, p.21)
- Incidence of the four most common types of cancer in the six towns within five miles of Indian Point is 20% greater than the rest of Rockland and Westchester Counties. (*Public Health Risks,* Table 20, p.22)
- The general local mortality rate in areas near Indian Point is well below the U.S. for all causes (for each age group) except for cancer, which is slightly higher. (*Public Health Risks,* Table 22, p. 24)

An earlier study by Mangano indicated that after the closure of eight U.S. nuclear plants in 1987, cancer incidence in children younger than 5 years of age in proximate areas fell significantly. (Mangano, et al. 2002, *"Infant Death and Childhood Cancer Reductions after Nuclear Plant Closings in the United States,"* Archives of Environmental Health, Vol. 57(1), January/February 2002, pp 23-31) (Exhibit 2.7). Mangano stated that if closing Indian Point leads to the same reduction in cancer mortality as it did near the Rancho Seco plant in California, an estimated 5,000 fewer cancer deaths would probably occur over the next 20 years.

Mangano's research provides strong evidence that Indian Point emissions are likely causing increased rates of cancer incidence for adjacent populations. While the evidence is not the final word, his analysis raises critical and troubling empirically-

based questions about potential negative health impacts caused by the Indian Point facility and demands further study.

NEPA and plain prudence requires that further comprehensive study be conducted so the public can understand what threat, if any Indian Point presents to local public health. There is sufficient "new and significant" information such that these issues should be addressed in Entergy's ER.

Finally, there are potentially significant environmental justice issues that Mangano's research has uncovered. (*Public Health Risks*, Section VI, p. 28-31). Mangano first matched each of the 4 counties nearest Indian Point (Westchester, Rockland, Putnam and Orange) to a paired "control" county in New York State that is more distant from Indian Point. For each of the paired comparisons, there is a significantly higher incidence of radiosensitive cancers in the nearer counties. (*Public Health Risks,* Table 28, p. 30) Second, Mangano focused on sub-county regions, defined by zip codes, within the Westchester and Rockland Counties. The zip code regions were then divided into a "nuclear" group of the nine zip code regions closest to the plant, and a "control" group of zip code regions located further from the plant. Each zip code region was also classified into three groups defined as having high, intermediate, and low proportions of minority/poverty populations. (*Public Health Risks,* Table 29, p. 31)

One high minority/poverty zip code in the "nuclear" group was identified: Haverstraw. Actual combined rates of breast, colorectal, lung/bronchus, and prostate cancer for the 1999-2003 period in Haverstraw were 18.2 percent above expected

rates based on New York State averages. The four identified control zip code regions (White Plains, Yonkers, and two in Mt Vernon) had actual rates of 9.1 percent above expected rates.

The three nuclear zip codes with intermediate minority/poverty levels had actual cancer rates that were 21.2 percent above expected levels. The five control zip codes with similar minority/poverty proportions had actual rates of cancer incidence that were 5.3 percent below expected rates. For the four "nuclear" zip code regions with low minority/poverty levels, actual cancer rates were 19.7 percent above expected levels, as opposed to 0.3 percent for the control zip codes.

The bottom line is that for sub-county regions with similar socio-economic characteristics, when you live close to Indian Point, you have a considerably increased risk of getting cancer. Four of the nine zip code regions closest to Indian Point have either high or intermediate concentrations of minorities and low-income populations, and these adjacent residents are exposed to higher risks of cancer than minority and low-income populations residing in sub-regions of Westchester and Rockland Counties that are further from Indian Point.

This contention is also supported by the attached of Declaration of Joseph Mangano, Exhibit 4.

For the foregoing reasons, this Contention should be admitted.

CONTENTION EC-3: Entergy's Environmental Report Contains a Seriously Flawed Environmental Justice Analysis that does not Adequately Assess the impacts of Indian Point on the Minority, Low-income and Disabled Populations in the Area Surrounding Indian Point.

A) Brief Explanation of the Basis for the Contention.

Entergy's Environmental Report does not satisfy the NEPA because its methodology is flawed, and its analysis is incomplete and limited to questionable interpretations and presentation of data. It fails to acknowledge or describe potential impacts upon the high minority and low-income populations that surround the plant.

The ER also fails to provide a sufficient analysis of the many potential and disparate environmental impacts of Indian Point on the minority and low-income communities residing in close proximity to Indian Point. (Environmental Report, Section 2.6.2, p. 2-40 to 2-46.) First, there appears to be a disparate impact upon minority communities for cancer that may be related to radiation releases from Indian Point. Second, there is a group of subsistence fisherman in the Hudson who will suffer disparate impacts from radiation released from Indian Point that may wind up in the Hudson River fish. Third, there is a large minority, low-income and disabled population in special facilities (including hospitals and prisons) within 50 miles who will be severely impacted if there is an evacuation from the area surrounding Indian Point. It does not appear that these issues have been considered in prior environmental impact statements prepared in connection with Indian Point and should be considered in the ER.

B) This is a Valid Contention Pursuant to 10 CFR 2.309.

The specific issue of fact and law to be controverted is whether Entergy's Environmental Report sufficiently assesses the impacts of continued operation of the plant

on the local environmental justice communities. 10 C.F.R. §2.309(f)(1)(i). Since there are serious factual differences between Entergy's Environmental Report and facts described herein, there is a genuine dispute with regard to the sufficiency of the Environmental Report. This issue is also within this proceeding's scope. 10 C.F.R. § 2.309(f)(1)(iii), (f)(2)(for issues under NEPA, petitioner shall file contentions based upon the ER). Entergy was required to, and did, prepare an Environmental Report in connection with its application.

NEPA mandates that the NRC consider the environmental impacts of the action Entergy requests, and the NRC rules implement this mandate. 10 C.F.R. Pt. 51. Entergy, in fact, acknowledged that there is an environmental justice community in the environs of plant, and did a putative analysis.

In implementing NEPA, the NRC must take account of environmental justice, the potential for government actions to have disproportionate impacts on low-income or minority communities. The EPA defines Environmental Justice as:

> [T]he fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.[3]

Entergy's license renewal application does not comply with NEPA because its Environmental Report (ER) fails to adequately assess the environmental justice impacts of

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[3] U.S. Environmental Protection Agency, www.epa.gov/compliance/environmentaljustice (visited November 25, 2007).

Indian Point's continued operation. The NRC has acknowledged that EJ issues should be considered when and to the extent required by NEPA. *See Louisiana Energy Services* (Claiborne Enrichment Center), CLI-98-3, 47 NRC 77 (1998)(LES). NEPA requires that agencies such as the NRC take a look at the socioeconomic impacts that have a nexus to the environment. *See* 40 CFR 1508.8, 1508.14.

In LES, the NRC held that:

> "[d]isparate impact analysis is our principal tool for advancing environmental justice under NEPA. The NRC's goal is to identify and adequately weigh, or mitigate, effects on low-income and minority communities that become apparent only by considering factors peculiar to those communities."

Id. at 100, cited favorably in *Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions*, 69 Fed. Reg. 52040 (Aug. 24, 2004)("*EJ Policy Statement*"). In the *EJ Policy Statement*, the NRC stated that "EJ is a tool, within the normal NEPA context, to identify communities that might otherwise be overlooked and identify impacts due to their uniqueness as part of the NRC's NEPA review process." *EJ Policy Statement*, at 52047. An EJ-related socioeconomic impact analysis is pertinent "when there is a nexus to the human or physical environment or if an evaluation is necessary for an accurate cost-benefit analysis. *Id.* at 52047. The focus of any EJ review "should be on identifying and weighing disproportionately significant and adverse environmental impacts on minority and low-income populations that may be different from the impacts on the general population." *Id.* at 52047.

The NRC recognizes that the impacts of its licensing decisions on some populations "may be different from impacts on the general population due to a community's distinct

cultural characteristics or practices." Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions, 69 Fed. Reg. 52,040 et seq. (August 24, 2004). The NRC has acknowledged that "EJ, as well as other socio-economic issues are normally considered in site-specific EISs," are not usually considered during the preparation of generic EISs, and are performed "in the licensing action for each particular facility." *Id.*

The NRC has indicated that normally a 50-mile radius should be examined for licensing and regulatory actions involving power reactors, however this is only a guideline and the "geographic scale should be commensurate with the potential impact area and should include a sample of the surrounding population because the goal is to evaluate the communities, neighborhoods, and areas that may be disproportionately impacted." Id. at 52047-8.

The NRC instructs that once the impacted area is identified, potentially affected low-income or minority communities should be identified. The NRC compares the percentage of the minority or low-income population in the impacted area to the percentage in the County and State. If the percentage in the impacted area significantly exceeds that of the State or County percentage for either minority or low-income population, then EJ will be considered in greater detail. *Id.* at 52048.[4]

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[4] "Significantly" is defined by staff guidance to be 20 percentage points. Alternatively, if either the minority or low-income population percentage exceeds 50 percent, EJ matters are considered in greater detail. *Id.* However, this is only guidance and these numbers are flexible: The goal is to identify and assure that communities or transient populations that will bear significant adverse effects will not be overlooked. *Id.*

Therefore, this issue is material to findings that must be made in this proceeding. 10 C.F.R. §2.309(f)(1)(iv).

C) Factual Allegations Supporting the Claim as Required by 10 CFR § 2.309(f)(1)(v).

As the ER discloses, minority and low-income populations exist within a 50-mile radius around the Indian Point site. *See*, ER § 2.6.2. Entergy's conclusion that it need not conduct an EJ analysis because there are no offsite impacts is wrong. Entergy's EJ analysis states:

> The consideration of environmental justice is required to assure that federal programs and activities will not have a "disproportionately high and adverse human health and environmental effects . . .on minority populations and low-income populations . . ." Entergy's analysis of the Category 2 issues defined in 10 CFR 51.53(c)(3)(ii) determined that there were no adverse impacts from the renewal of the IP2 and IP3 operating licenses. Thus, no disproportionate impact on minority or low-income populations would occur from the proposed action. Based on the review of these issues, no review for environmental justice is necessary. However, Entergy presents environmental justice demographic information in Section 2.6.2 to assist the NRC in its review.

ER, § 4.22.5, p. 4-79-80. The ER concludes:

> 4.22.6 Conclusion
>
> As part of its environmental assessment of this proposed action, Entergy has determined that no significant off-site environmental impacts will be created by the renewal of the IP2 and IP3 Operating Licenses. This conclusion is supported by the review performed of the Category 2 issues defined in 10 CFR 51.53(c)(3)(ii) presented in this ER.
>
> As the NRR procedure recognizes, if no significant off-site impacts occur in connection with the proposed action, then no member of the public will be substantially affected. Therefore, there can be no disproportionately high and adverse impacts or effects on members of the public, including minority and low-income populations, resulting from the renewal of the IP2 and IP3 Operating Licenses.

Id. at p. 80.

Entergy's analysis is based upon at least three flawed premises: first, an improper methodology, second that it need not look at Category 1 impacts when doing an EJ analysis; and third, that there are no Category 2 impacts.

As discussed above, NRC's policy statement makes clear that impacts on some populations "may be different from impacts on the general population," and that "EJ, as well as other socio-economic issues are normally considered in site-specific EISs," are not in the preparation of generic EIS. EJ Policy Statement. Therefore, Entergy cannot exclude the potential effects of Category 1 impacts on EJ communities.

i. Entergy's EJ and Demographic Methodology is Flawed and Incomplete.

Entergy has performed a partial and questionable descriptive portrait of minority and low-income populations within the NRC-defined impact area.

The data Entergy presents is incomplete. They do not, for example, present their raw data for total minority and low-income populations for each Census Block Group (CBG), which would permit the NRC or the public to independently assess and analyze the information. Moreover Entergy's data are limited to highly aggregated summaries based upon relative percentages of population groups targeted by the NRC review process. We are not presented with relevant numerators or denominators for target populations in each Census Block Group, which would be necessary for serious data analysis. Whether this is intended obfuscation or not, the strategy is very convenient for Entergy: they do not have to deal with the evident fact that millions of non-whites live within the 50-mile zone.[5]

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[5] *See* FN 7, *infra*.

Further, Entergy's over-aggregation compels intervener organizations to spend huge sums of time and money to replicate the relevant data in order to perform independent analysis of this necessary information. Entergy should be compelled to provide all relevant raw data in its ER for analysis by the NRC and participants such as Clearwater.

Entergy's use of Census Block Groups is, also, crude. CBGs are too gross in how they capture data, since they obscure small neighborhood concentrations of minority populations that likely would emerge had Entergy's analysis focused on the smallest geographic unit utilized by the Bureau of the Census, the Census Block, rather than aggregations of Census Blocks Groups. Census Blocks provide the finest level of detail in the Census Bureau figures. Since minority groups are often highly concentrated in specific neighborhoods, a CBG aggregation can obscure the presence of those racial and ethnic communities, especially in the small towns and cities that characterize the mid-Hudson Valley. Census Block-level analysis should result in a more accurate identification of minority and low-income population concentrations within the specified impact region.

Moreover, even with the limited data the ER includes, it is notable that there is no analysis of the data. The obvious implications of its findings, including the potential for disproportionate effects of Indian Point on minority populations, are disregarded by Entergy. Probable real-life impacts on Environmental Justice Communities are neither presented nor analyzed.

Because Entergy has used a flawed methodology, they have left unanswered questions that are essential in a rigorous environmental justice analysis, such as: i) What would a proper analysis of the data show?; ii) How are the large minority populations

living very near the plant (*see, e.g,* ER, Figure 2-22) likely to be impacted?; and iii) How would the huge number of low income and minority people living within 50 miles in the plant – a number in the millions, larger than the total population of many states and most metropolitan regions in the United States – be impacted by a renewal of Entergy's license?

ii. Entergy's ER Does Not Adequately Acknowledge the Significant EJ Communities within 50 Miles of Indian Point, or Assess Indian Point's Impact on this Community.

As discussed above, NRC guidance instructs that in evaluating minority communities within the impacted area, it is appropriate to determine whether the percentage of EJ population in the impacted area significantly exceeds the population in the local county or state as a whole. Id. at 52048. NRC staff guidance defines "Significantly" as a disparity of 20 percentage points, and, alternatively, states that EJ matters should be considered in greater detail, in any event, if either the minority or low-income population percentage exceeds 50 percent. *Id.*

In fact, Table 2-7A in the ER indicates that 45.5 percent of Census Blocks within a 50-mile radius in the four states surrounding Indian Point have "significant" minority populations as defined by NRC guidance (ER, Table 2-7A, p. 2-42).[6] This high number of Census Block groups means that very large numbers of minority community members –

[6] It should be noted that neither the EJ Policy Statement nor the staff guidance is a regulation, and as such, these numbers are not binding. As the EJ Policy Statement makes clear, the numbers are flexible and are written with the goal of identifying communities or transient populations and assuring that significant adverse effects will not be overlooked. *Id.* In any event, a very large number of Census Blocks meet the NRC criteria of having high proportions of minorities: either a ratio of 50 percent or more of its population belonging to a minority as defined by the NRC, or a minority to total population ratio that is 20 percent or greater than the average for the reference region.

millions in fact – are at risk of adverse health, and the consequences of accident or terrorist attack, due to their proximity to Indian Point. Indeed, compared to any other area of the nation, more minority group member are at greater risk from releases or serious incident at Indian Point than at any nuclear plant in the country. Figures 2-20 and 2-21 from the ER clearly indicate: 1) a geographic concentration of racial minority Census Block in the most densely populated sub-regions within the region defined by a 50-mile radius; and 2) a significant presence of racial minority Census Blocks located within closer proximity to Indian Point (Applicant's Environmental Report, p. 2-115, 116). Moreover, when Hispanic ethnicity is added to minority racial status in Figures 2-22 and 2-23 (Map 2-23 is attached hereto as Exhibit 5), the exceptionally strong presence of minority groups in the NRC-defined impact region is even more striking. (Applicant's Environmental Report, p. 2-117,118). It is notable that the New York Metropolitan Region contained 10.6 percent of the total minority population of the United States (www.census.gov).[7]

In fact, a significant fraction of the total minority populations of the United States as a whole is, located within a 50-mile radius of Indian Point. Westchester County, the home of Indian Point, has a proportion of both African-Americans and Hispanics, which exceeds that for the United States as a whole. African-Americans composed 14.9 percent of Westchester's total population in 2005, compared to 12.8 percent of the national

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[7] Given the considerable overlap between the region defined by a 50-mile radius of Indian Point and the New York Metropolitan Region as defined by the Census, we use the relative weight of minorities in the latter as a proxy for racial proportion of minorities in the NRC-defined impact region. The 2000 Census indicates that 9,246,133 out of 21,199,865 people residing in the New York Metropolitan Region, 43.6 percent, are either classified in non-white racial categories or are Hispanics or Latinos reporting their race as white. This compares with 30.9 percent for the United States as whole, which had a total minority population of 86,869,132 in the year 2000 ((U.S. Bureau of the Census at www.census.gov).

population; meaning that the Westchester African American population is 16.4% higher than in the U.S. as whole. The enormity of the African American population in absolute numbers and the high percentage both demand that an impact assessment be made.

Hispanics composed 18.0 percent of Westchester County's population, as opposed to 14.4 percent of the national population.[8] This means that the Hispanic population in Westchester is 25% higher than the national average, a number well above the 20% NRC guidance number. (U.S. Bureau of the Census at www.census.gov.)[9]

Parallel observations apply to Census Blocks with high proportions of low-income residents. Figures 2-24 and 2-25 in Entergy's submission indicate a substantial presence of low-income Census Blocks as defined by NRC criteria. Using an individual state criterion for classifying Census Blocks, Entergy's data indicates that 10.4 percent of these geographical units have relatively high concentrations of low-income residents. Their alternative methodology of aggregating average poverty levels across four states yields a measurement of 11.8 percent of Census Blocks within the 50-mile radius. One obvious conclusion from this measurement is not stated: counties within the 50-mile impact region defined by NRC had a total population of 19.9 million people. (Applicant's Environmental

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[8] Orange County's rapidly growing Hispanic population reached 14.9 percent of the total population in 2005, a proportion that can be expected to rise if present trends continue. *Id.*

[9] Westchester County also is home to an unusually high proportion of people who were born abroad, and who speak a language other than English at home. Since Asia composes the second most-important source of immigration after Latin America, a high proportion of Westchester's non-Hispanic immigrants belong to environmental justice groups as well. Double the proportion of Westchester's 949,355 residents were born abroad compared to the national average: 22.2 percent- compared to 11.1 percent in the year 2000. With respect to the language spoken at home, 28.4 of Westchester residents speak a language other than English, compared to 17.9 percent nationally. (U.S. Bureau of the Census at www.census.gov)

Report, p. 2-37) The fact that one out of ten Census Blocks is classified as low-income, most of them in the most densely populated part of the impact region, means that at least several million low-income people are impacted.[10]

Given the enormity of the EJ population in this region, both in percentage and absolute terms, further investigation by independent experts is mandated. There is a particular need to consider the full range of health, accident risk and terrorist risk impacts on minority populations residing immediately adjacent to Indian Point: in Peekskill, Haverstraw and West Haverstraw. Entergy's ER Figures 2-22 and 2-23 show that these are the closest EJ communities to the plant, and therefore the most likely to be impacted.

Because Entergy concludes that there are no offsite impacts, it makes no effort to analyze the impact that continued operation of the plant may have on these populations and is seriously incomplete.

iii. Minority and Low-Income Populations May be More Susceptible to Cancer from Indian Point Radionuclide Emissions than other populations.

Cancer rates in the four counties surrounding Indian Point are already higher than for the general population, a fact which Entergy fails to address. See discussion under Contention 2, supra: *Public Health Risks,* Table 15, p. 17. Minority groups in the four-county region are more vulnerable to the adverse impacts of radiological and nuclear plant-induced chemical pollution in the environment that is the case for the general minority or

[10] Entergy's submission comments that "most" of the low-income Census Blocks are located within a 29-40 mile radius. (Applicant's Environmental Report, p. 2-45) One possible reading of this comment is an implication that these Census Blocks somehow count less because they are in an intermediate zone of the NRC-defined impact region. That interpretation is far from obvious, and far from NRC application review criteria. It also begs the question of looking into the specific impacts on the low-income Census Blocks that are located in closer proximity to Indian Point.

total population of the United States. As evidenced by Joseph Mangano's preliminary findings of an increase in thyroid cancer and other health impacts in those communities closest to the plant, the current magnitude of the impact on the affected population may be significant and the projected impact on the health of the population during the new license period must be carefully evaluated in ER. *Public Health Risks,* Tables 15-22, p. 17-34.

As discussed in Clearwater's Health Contention 2 above, low-income and minority populations living near the plant are at a considerably increased risk of getting cancer. Four of the nine zip code regions closest to Indian Point have either high or intermediate concentrations of minorities and low-income populations, and these adjacent residents are exposed to higher risks of cancer than minority and low-income populations residing in sub-regions of Westchester and Rockland Counties that are further from Indian Point.

iv. <u>The Environmental Report Fails to Take Into Account Subsistence Fishing in the Hudson River.</u>

In its ER, Entergy entirely fails to take into account the high percentage of minority and low-income populations in the lower Hudson Valley region who engage in subsistence fishing. Because of planned and unplanned emissions from Indian Point, through leaks, air and otherwise, it is likely that this population's intake of radionuclides and other toxic substances generated by the reactors will be both significant, and significantly greater, than the population at large. The cumulative effects have been increasing, and will continue to increase if a license renewal is granted. Because subsistence fishing is an exposure pathway that disproportionately impacts low-income and minority populations, subsistence fishing should be considered in Entergy's ER. Entergy's Environmental Report is also

inadequate because it fails to consider the lack of fish consumption advisories regarding possible radioactive isotopes by government agencies, or awareness of associated risks among the minority and low-income populations.

There is a long history of subsistence fishing in the Hudson in the areas surrounding Indian Point. In 1998, the New York State Department of Health and the Agency for Toxic Substances and Disease Registry (ATSDR) of the United States Department of Health and Human Services released a study concerning subsistence fishing in connection with polychlorinated biphenyls (PCBs). *Survey of Hudson River Anglers and an Estimate of Their Exposure to PCBs*, September 30, 1998, prepared by State of New York Department of Health Under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry ("Anglers Survey")(www.atsdr.cdc.gov/hac/pha/hudsonri/hud_toc.html).[11] The Anglers Survey described the very serious community health concerns for children and women of childbearing age who were non-white or low-income. It stated that:

> Hudson River Sloop Clearwater . . . interview[ed] anglers who were fishing on the Hudson River between Hudson Falls and Staten Island about their fishing habits and awareness of health advisories. The survey found that

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[11] This study relied on the work of Bridget Barclay, former Environmental Director of Clearwater, who was the principal investigator and author of the original *Hudson River Anglers Survey* to assess Hudson River fish consumption by recreational and subsistence anglers and their families. Barclay, Bridget, *Hudson River Anglers Survey*. Hudson River Sloop Clearwater, Inc. Poughkeepsie, NY. March, 1993. The Clearwater survey included 336 shore-based anglers interviewed at 20 different locations along the Hudson, including three sites in the upper Hudson, during 1991 and 1992 (Barclay, 1993). The anglers were asked how often they fished and ate fish from the Hudson in the previous week and month, and the extent to which they shared their catch with other relatives and friends. (See Hudson River Anglers Survey Questionare, attached as Exhibit 6). Clearwater survey results were useful because both licensed and non-licensed anglers were surveyed. It was at that time the only available study specific to the Hudson. This study greatly influenced the US EPA's decision to reconsider its "No Action" position regarding Hudson River polychlorinated biphenyl (PCB) remediation. A second, Hudson River Angler's Survey was performed by Edward Horn of the NYS Department of Health, Robert Schmidt of Hudsonia, et al in 1996 and found similar results. The 1996 survey used essentially the same questionnaire used in the Clearwater study.

> many Hudson River anglers were not aware of the consumption advisories and others who were aware did not heed the advice (Barclay, 1993). The report highlighted concerns for women of childbearing age and children under the age of 15 who appear to be at particular risk, for non-whites and for low-income anglers. The author concluded that the prohibition of fishing in the Upper Hudson River and the health advisories were "having only limited success in preventing unsafe levels of exposure to PCBs through consumption of Hudson River fish.[12]

Angler Survey (http://www.atsdr.cdc.gov/hac/pha/hudsonri/hud_toc.html)

The results of the study were compelling and have important implications for Indian Point because, like PCBs, Strontium-90, Cesium-137 and other radioactive isotopes bioaccumulate in higher trophic levels in the food chain. In both the 1991 and 1996 surveys, more than half the anglers had annual incomes less than $30,000. Moreover both studies found that compared to licensed anglers across the state, the Mid-Hudson River anglers in the studies consisted of:

- a much greater proportion of African-American and Hispanic anglers,
- a much greater proportion of family incomes less than $30,000 and
- a larger proportion of women.

Id. Additionally, low-income respondents were less aware of the health advisories than the others (21-34% compared to 49-68%); two-thirds of anglers fishing between Catskill and the Tappan Zee Bridge (the area closest to Indian Point) reported eating at least some of their fish, and almost half of anglers gave fish away sometimes or frequently; the fish that anglers kept were the most contaminated species in each part of the river; half of the

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[12] The report included thirteen recommendations for improving angler awareness of, and adherence to, the health advisories, including both educational and research efforts. Similar efforts should be required in connection with releases from Indian Point.

anglers who said they ate fish from the Hudson River reported eating two meals in the previous month; and some anglers and others who eat fish from the Hudson River were being exposed to levels of PCBs that are a health concern and are at risk of adverse health effects.

There are many reasons to believe that radionuclides from Indian Point are ending up in the local fish population and being eaten by subsistence anglers, a largely minority and low-income population, in the region. The most likely affected populations are the non-English speaking residents and the residents of Buchanan, Peeksill, Verplanck, Haverstraw, Stony Point and others living within 10 miles of Indian Point. They are unjustly endangered for the following reasons:

- Radioactive isotopes are known to bioaccumulate in the aquatic food web in a manner similar to that of PCBs, except that radionuclides are harbored in bones more than in fatty tissue. Since Indian Point is leaking strontium-90, the impact on the environment and human health is site-specific.
- The exposure caused by the presence of radionuclides in fish is clearly an environmental injustice, because people who rely on the river for a large portion of their protein are disproportionately impacted by pollution from the plant. The LRA does not set forth mitigation measures which locate, contain, and remediate any and all leaks of strontium, cesium and tritium from Indian Point into the ground, air, groundwater and river.
- The ER fails to consider the unique burdens faced by minority and low-income populations who depend on the Hudson River for food. These populations are

already disproportionately affected, via bioaccumulation, by increases in hazardous and radioactive material from the nuclear reactors at Indian Point. Further, the ER is inadequate because it fails to consider impacts to important fish species targeted by subsistence fishermen. Low-income and minority communities will bear the burden if target species are contaminated with radioactive isotopes or are smaller, less abundant, or less healthy because of the proposed relicensing.

In sum, Entergy's Environmental Report is inadequate because it fails to consider the lack of fish consumption advisories, or awareness of associated risks among the minority and low-income populations. Subsidence anglers who fish in the Hudson River are unaware that the food they are catching for their families may contain strontium-90 and other radioactive isotopes. A high proportion of subsistence anglers are members of minority groups or have low-incomes. Unlike the case for Hudson River PCBs, where signage has been posted and bilingual educational materials have been widely distributed, there has been no educational campaign nor warning signs at frequented sites to inform recreational or subsistence anglers not to eat the fish which may contain radioactive isotopes, nor does the LRA acknowledge the need for such a program during the 20 year new superseding license period. These fishermen and women are unaware that radioactive strontium has been detected in the flesh and bones of some area fish. This is especially dangerous for young children, because strontium acts like calcium in bone formation and has a half-life of 33 years. As Barclay and other have observed, even with posted fish advisories, compliance is low for a variety of reasons, including lack of understanding and denial.

During the proposed 20 year new license renewal period, there is a reasonable probability that subsidence anglers may be adversely affected by Entergy's failure to properly prevent the release of radioactive waste into the environment: the air, the water and the ground.

v. Low-Income Populations Will be More Severely and Negatively Impacted by a an Evacuation Resulting from a Radiological Event at Indian Point.

Additionally, the ER is deficient because it fails to discuss or analyze the disparate impact a significant accident would have on minority and low-income populations, nor does it address these communities' ability to respond or evacuate in the event of a nuclear accident or terrorist incident. Low-income and minority families are more likely to use public transportation and may not have a personal vehicle, making evacuation more difficult. The recent Hurricane Katrina disaster revealed that low-income and minority populations are particularly vulnerable in emergency situations. Prior to Hurricane Katrina, the City of New Orleans developed and implemented an emergency plan that was well engineered and publicized.[13] One evaluation of the Katrina emergency response states that "People who had resources were served relatively well because planners are familiar with their abilities and needs. People who were poor, disabled or ill were not well served, apparently because decision-makers were unfamiliar with and insensitive to their needs.[14]

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[13] The Radiological Emergency Preparedness Plan (REPP) for Indian Point relied on automobiles originally for the a 10-mile evacuation planning zone (EPZ), which has now been reduced to a 2- to 6-mile wedge, but it utterly fails to protect the most vulnerable populations.

[14] Litman, *Lessons from Katrina and Rita: What Major Disasters Can Teach Transportation Planners*, Journal of Transportation Engineering, Vol. 132, January 2006, pp. 11-18. (Exhibit 2.9).

Clearwater supports Contention 29 of the New York State Notice of Intention to Participate and Petition to Intervene, dated November 30, 2007, in connection with this and the following subsection.

vi. Residents of Special Facilities will be More Severely and Negatively Impacted by a an Evacuation or Radiological Event at Indian Point, including disabled patients in the dozens of hospitals and long term care facilities, and inmates in the many prisons in the area.

There are many thousands of prisoners housed in prisons and jails within the 50-mile emergency planning zone, including at least twenty-six federal, state, county and New York City facilities -- not including police holding areas, juvenile detention centers, psychiatric facilities, and not including any facilities in Connecticut and New Jersey. Decl of Stephen Filler dated December 6, 2007 (Filler Decl.), ¶¶ 9-10 attached as part of Exhibit 1; *see also* Exhibit A to Filler Decl. New York City alone averaged 13,497 prisoners per day in 2006, most of whom were housed within 50 miles of Indian Point. Filler Decl. ¶ 11; see (http://www.nyc.gov/html/doc/html/stats/doc_stats.shtml; visited November 25, 2007).

Sing Sing Correctional Facility is located within the 10-mile zone, approximately 8 miles from Indian Point, and as of November 3, 2007, housed 1760 prisoners. *Id.* ¶12; Exhibit B to Filler Decl. Although Sing Sing is a maximum-security prison for convicted felons, it bears noting that many prisoners held in New York City and local jail facilities have not been convicted of a crime, but are merely being held pending trial.

The vast majority of prisoners are minority and indigent, and therefore any harm to the prison population would have a hugely disproportionate burden on minority and low-income communities. For example, according to New York's Monthly Minority Inmate

Population Report (see Filler Decl. Exhibit B), on November 3, 2007 at Sing Sing, only 212 of 1760 inmates were white (12%) -- 994 were African American (56.4%) and 520 were Hispanic (29%). The statewide numbers are only slightly less disparate: 20.8% white, 51.2% African American, 26% Hispanic. Filler Decl. ¶ 21. Additionally, according to a recent study by the Sentencing Project, the prison population nationwide has grown more than 500% since the 1970's when Indian Point was first licensed, to a current prison population of more than 2.2 million people. "*Uneven Justice: State Rates of Incarceration By Race and Ethnicity*," p. 1 Marc Mauer and Ryan S. King, The Sentencing Project, July 2007 (http://www.sentencingproject.org/Admin%5CDocuments%5Cpublications%5Crd_staterateesofincbyraceandethnicity.pdf). This growth has been accompanied by an increasingly disproportional racial composition; African Americans, for example, now constitute 900,000 of the total 2.2 million incarcerated population. *Id.* The Hispanic prison population, also, had increased dramatically -- by 43% since 1990. *Id.* at p. 2, *citing* Louis W. Jankowsky, *Correctional Populations in the United States*, 1990, Bureau of Justice Statistics, 1992, p. 86; Paige M. Harrison and Allen J. Beck, Prisoners in 2005, Bureau of Justice Statistics, 2006, p.8. Nationwide, according to the study, the per capita incarceration rate of African Americans is 5.6 times the rate of whites, and the per capital incarceration rate for Hispanics is nearly double (1.8) times the rate of whites. *Id.*, p. 3.

According to this study, New York is well above the national average. The incarceration rates for African Americans in New York is 9.4 times that of whites (9th highest in the country) and for Hispanics 4.5 times that of whites (4th in country). *Id.* p. 11,

14. Other states within Indian Point's peak injury zone are also highly disproportionate: New Jersey and Connecticut have the 3rd and 4th highest rates in the country, respectively, of black-to-white white incarceration (12 or more times higher than whites); and the 6th and 1st highest rates in the country, respectively, of Hispanic-to-white incarceration (6.6 times higher than whites in Connecticut; and 3.3 higher than whites in NJ). *Id. See, also,* The National Center for State Courts (http://www.ncsconline.org/wc/CourTopics/FAQs.asp?topic=IndDef); visited November 25, 2007) (80-90% of people charged with crimes nationwide are entitled to indigent representation); Filler Decl. ¶ 24.

There are also many dozens, perhaps hundreds of other special facilities including hospitals, nursing homes, elder care facilities and psychiatric facilities in the 50 miles zone.[15] These facilities may have higher percentages of minority and low-income populations, and they certainly have a disproportionate number of people with disabilities. *Id.* ¶ 26.

In 2002, New York Governor George Pataki commissioned former FEMA chairman, James Lee Witt, to prepare a report on emergency preparedness in relation to Indian Point. "*Review of Emergency Preparedness of Areas Adjacent to Indian Point and Millstone*," James Lee Witt Associates, 2003 ("Witt Report").

The Witt Report analyzed evacuation plans for two correctional facilities, Sing Sing, and Westchester Department of Corrections. The Witt Report suggests that the initial

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[15] Office of Real Property Services data for 2006 reflect the presence of one hospital (Hudson Valley Hospital in the Town of Cortlandt Manor) and at least nine retirement residences or nursing homes within 10 miles of the IP facility.

evacuation plan at these facilities is to shelter-in-place, and then to evacuate if deemed appropriate.

The Witt Report found that Sing Sing is a maximum and medium security prison located in Westchester County within the 10 mile EPZ. It suggested that, initially at least, the plan for Sing Sing in the event of a radiological event was to shelter-in-place. The report indicates that the first step in a radiological event would be for a lock-down – meaning that prisoners would be retained in their cells. Sing Sing had no radiation monitors. They had no hazard specific training for its staff, nor was there training about family protection plans. The report indicated that any decision to evacuate would be made by the State Emergency Management Office and would be based upon whether it is riskier to move inmates rather than to stay in place. Witt Report, ¶ 4.5.2.1, p. 71.

The Witt Report also reported upon the Westchester Department of Corrections facility, in Valhalla, NY, located 17 miles from Buchanan. The report indicated that the facility would learn of an event from Westchester County, and then decide upon appropriate protective actions. They can shelter-in-place for one week, after which they would need both food and fuel. There was no hazard specific training for the staff, or for family protection plans. In the event of an incident and a resultant lock down, the staff would not be able to leave. The interviews did not elicit confidence that off duty personnel would report for duty in the event of a significant event. Witt Report, ¶ 4.5.2.2, p. 71.

The Witt Report also found that are hundreds, and possibly thousands, of "Special Facilities [that] Need to Plan for Emergencies at Indian Point" within the 10 and 50-mile emergency planning zones. Special facilities are any facilities that house populations that

are either harder to warn, harder to protect, or more vulnerable to the health effects from exposure. They include day care centers, schools, universities, correctional facilities, nursing homes, hospitals, and assisted care living facilities. Witt Report, ¶ 11.2.2.2, p. 234. Given the health and mobility issues at these special facilities, evacuation for the disabled population is extremely problematic.[16]

In addition to the evidence from the Witt Report, there is every reason to believe that prison evacuation would be an extremely problematic in the event of a radiological emergency and low priority. Historically, and today, convicted criminals are treated as poorly as any class of people in our society, and there is little reason to think our society would make prisoners a priority in the event of radiological event, or evacuation.

The experience following the Katrina Hurricane in New Orleans 2005 provides stark evidence of what might happen in the event of a radiological event, an evacuation, or even a perceived scare, from Indian Point. In *Abandoned & Abused: Orleans Parish Prisoners in the Wake of Hurricane Katrina,* the American Civil Liberties Union's National Prison Project, reported on what happened to prisoners during Katrina. According to the report's Executive Summary:

> During the storm, and for several days thereafter, thousands of men, women, and children were abandoned at [Orleans Parish Prison (OPP)]. As floodwaters rose in the OPP buildings, power was lost, and entire buildings were plunged into darkness. Deputies left their posts wholesale, leaving behind prisoners in locked cells, some standing in sewage-tainted water up to their chests. Over the next few days, without food, water, or ventilation, prisoners broke windows in order to get air, and carved holes in the jail's

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[16] Although not traditionally covered by concepts of environmental justice, NEPA (which requires consideration of "socioeconomic" impacts) and other federal law (such as the Americans with Disabilities Act, 42 U.S. C. §12101 et seq.) demand that the impacts upon people with disabilities be considered in Entergy's Environmental Report.

> walls in an effort to get to safety. Some prisoners leapt into the water, while others made signs or set fire to bed sheets and pieces of clothing to signal to rescuers. Once freed from the buildings, prisoners were bused to receiving facilities around the state, where, for some, conditions only got worse. At the Elayn Hunt Correctional Center, thousands of OPP evacuees spent several days on a large outdoor field, where prisoner-on-prisoner violence was rampant and went unchecked by correctional officers. From there, prisoners went to other facilities, where some were subjected to systematic abuse and racially motivated assaults by prison guards.

Id. (http://www.aclu.org/prison/conditions/26414pub20060809.html; visited November 23, 2007).

Unfortunately, there is no reason to expect that consequences would be any better for the tens of thousands of minority and low-income people in the dozens of prisons within 50 miles of Indian Point. Many of the immobile people with disabilities in the many special facilities in the region might not fare much better. At the very least, Entergy's Environmental Report should consider the impacts upon these communities.

v. Environmental Justice Concerns Relating to Production and Long Term Storage of Indian Point's Fuel, especially upon Native American Populations.

Entergy's ER completely ignores the potential impacts upon EJ communities from life-cyle impacts on the production, use and storage of radioactive fuel, especially Native American people, who are disproportionately impacted by mining and manufacture of nuclear fuel and targeted to store massive amounts of radioactivity.

Demand for nuclear fuel from the Indian Point plants contributes towards the heavy impact of mining, manufacture and storage of radioactive materials on Native American communities. Clearwater's concerns about the impact of the nuclear fuel cycle on Native American communities are cogently expressed in a talk by Professor Karl Grossman,

presented to the Institute of American Indian Arts, Santa Fe, New Mexico (November 29, 2006)(Republished as, *Native Nations and the Nuclear Cycle,* http://www.shundahai.org/NativeNationsandtheNuclearCycle.htm, and attached as Exhibit 7)

Professor Grossman pointed out the significant impacts of the nuclear fuel cycle on Native American populations:

> Native Americans and indigenous people from around the world have been especially hard-hit by uranium mining and other aspects of the so-called nuclear fuel cycle. .... I noted that with U.S. Nuclear Regulatory Commission approval, Sequoyah Fuel Corporation deliberately channels out 8 million gallons annually of its radioactive waste as a liquid fertilizer it calls 'raffinate.' The company sells the fertilizer, and also uses it on 10,000 surrounding acres where cattle graze and where hay and corn are grown for feed." ... I wrote about interviewing Lance Hughes, director of Native Americans for a Clean Environment in Talequah, Oklahoma, and in speaking of "unusual cancers" and birth defects from "genetic mutation" in the area, Hughes said: "It's pretty sad babies born without eyes, with brain cancers." Wildlife is also born deformed. Said Hughes, "We found a nine-legged frog, a two-headed fish and a four-legged chicken." ... As for the last stage of the nuclear fuel cycle somehow safeguarding nuclear waste endlessly as Winona LaDuke, an Ojibwe (who ran for vice president of the U.S. in 1996 and 2000 on the Green Party ticket), who lives and works on the White Earth Nation in Minnesota, has said: "The greatest minds in the nuclear establishment have been searching for an answer to the radioactive waste problem for 50 years and they've finally got one: haul it down a dirt road and dump it on an Indian reservation." . . . Some 60 Indian communities have been "directly targeted by the nuclear power establishment" to be waste dumps, notes the Washington-based Nuclear Information and Resource Service. *Id.*

With regard to the Environmental Justice impact of manufacturing nuclear fuel, Dr. Robert Bullard, professor of sociology at Clark Atlanta University and one of the leading authorities in the nation regarding environmental justice, notes:

> Grassroots groups are making sure that government agencies do the right thing. On May 1, 1997, after eight years of litigation, Citizens Against Nuclear Trash or CANT won a favorable court decision from the Nuclear Regulatory Commission Atomic Safety and Licensing Board. The three-

> judge panel concluded that "racial bias played a role in the selection process" and denied a permit from Louisiana Energy Services to build a uranium enrichment plant in the middle of Forest Grove and Center Springs, Louisiana---two black communities that date back to the 1860's and 1910, respectively. The decision was upheld on appeal on April 4, 1998.

(Environmental Justice: Strategies for Creating Healthy and Sustainable Communities http://www.law.mercer.edu/elaw/rbullard.htm)

Environmental Justice concerns require that Entergy explain how they will obtain nuclear fuel and dispose of nuclear waster in a manner that is consistent with the health of Native American communities. Entergy has failed to do so in their Environmental Report.

This contention is also supported by the attached Declaration of Stephen Filler and Joseph Mangano.

For all the foregoing reasons, Entergy's ER fails to adequately address EJ issues and Clearwater's contention should be admitted.[17]

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[17] Ironically, even though Entergy's impact on minorities and low-income groups may be very detrimental, Entergy has mounted and is actively funding a misleading campaign claiming that closure of Indian Point will result in increased coal and other fossil fuel combustion, leading to higher asthma rates in low-income, inner city communities (See, e.g., http://www.tmia.com/industry/entergy-pseudo-ej.html). According to one news account, the New York Affordable Reliable Electricity Alliance (New York AREA), the leaders of this effort, is "funded at least partly by Entergy Indian Point's owner." Michael Risinit, "*Relicensing battle brews at Indian Pt*," The Journal News (Westchester County, NY), March 30, 2005. According to PR Watch, Entergy spokesperson Jim Steets told *PR Watch* that his company "was 'instrumental in the founding of New York AREA' but said he didn't know 'how much of New York AREA's funding comes from Entergy.' He added, 'There's no question that there's a strong association' between Entergy and NY AREA, but as 'membership has grown, we've become just another dues-paying member.' NY AREA is comprised of 'independent-minded people, with interests of their own,' he stressed." http://www.prwatch.org/node/5833. Perhaps unsurprisingly New York AREA has sought to intervene in this proceeding, but has not submitted any contentions.

CONTENTION EC-4: Inadequate Analysis of Severe Accident Mitigation Alternatives

Entergy's analysis of severe accident mitigation alternatives (SAMAs) in its ER fails to satisfy NEPA because it is incomplete, inaccurate and is not adequately based upon scientific and probabilistic analysis.

Pursuant to 10 CFR § 2.309(f)(3), Clearwater hereby adopts Contention 12-15 of the Attorney General of New York filed November 30, 2007. Clearwater also shares the concerns raised in Riverkeeper's Contention EC-2.

Specifically, in its SAMA analysis, the ER fails to adequately consider the possibility of a terrorist attack on Indian Point. The ER also fails to consider the impacts of a radiological event at Indian Point, or an evacuation in the surrounding area, particular in connection with the EJ communities discussed in Clearwater's Contentions EC-3 and EC-6 which it references and incorporates herein by reference its Contentions EC-3 and EC-6

This contention is also supported by the attached Declaration of Stephen Filler.

Contention EC-5: Entergy's Environmental Report Fails to Adequately Consider Renewable Energy and Energy Efficiency Alternatives to the License Renewal of Indian Point

A) Brief Explanation of the Basis for the Contention.

Entergy's license renewal application does not comply with the National Environmental Policy Act, 42 U.S.C. § 4321, et seq. ("NEPA") because its Environmental Report (ER) fails to adequately assess the potential for renewable energy and energy efficiency as an alternative to license renewal of Indian Point. *See* 10 C.F.R. § 51.53(c)(3)(iv).

Pursuant to 10 CFR § 2.309(f)(3), Clearwater hereby adopts Contention 9, 10 and 11 of the Attorney General of New York filed November 30, 2007 (AG Contentions 9. 10 and 11, respectively) and agrees that the Attorney General shall act as the representative with respect to this contention.

B) This is a Valid Contention Pursuant to 10 CFR 2.309

The specific issue of fact and law to be controverted is whether Entergy's Environmental Report sufficiently assesses the potential for renewable energy and energy efficiency as a substitute for Indian Point's electricity. 10 C.F.R. §2.309(f)(1)(i). Since there are serious factual differences concerning the opportunities for renewable energy and energy efficiency, there is a genuine dispute with regard to the sufficiency of the license application. This issue is also within this proceeding's scope. 10 C.F.R. § 2.309(f)(1)(iii), (f)(2)(for issues under NEPA, petitioner shall file contentions based upon the ER). Entergy was required to, and did, prepare an Environmental Report in connection with its application. NEPA mandates that the NRC consider the environmental impacts of the action Entergy requests, and the NRC rules implement this mandate. 10 C.F.R. Pt. 51. Entergy, in fact, acknowledged the possibility of renewable energy, but discounted it. Therefore, this issue is material to findings that must be made in this proceeding. 10 C.F.R. §2.309(f)(1)(iv).

C) Factual Allegations Supporting the Claim as Required by 10 CFR § 2.309(f)(1)(v).

Entergy's ER fails to consider any alternatives to Indian Point except for coal fired generation, nuclear generation, and natural gas generation. ER at §7.5. Entergy relies upon NUREG-1437, Vol 1, Section 8 (NRC 1996) which provides that the "NRC has

determined that a reasonable set of alternatives should be limited to analysis of single, discrete electric generation sources and only electric generation sources that are technically feasible and commercially viable. As a result, Entergy categorically eliminates from consideration the following alternatives: wind, solar, hydropower, geothermal, wood energy, municipal solid waste, other biomass derived fuels, oil, fuel cells, delayed retirement, utility sponsored conservation, purchased/imported power, and combination of alternatives. ER ¶ 7.5. The ER states that "these sources have been eliminated as reasonable alternatives to the proposed action because the generation of approximately 2,158 gross MW of electricity as a base-load supply using these technologies is not technologically feasible" and it dismisses these alternatives with a superficial analysis of their feasibility and costs and benefits. *Id.* at §§ 8.3.1-8.3.11.

As stated in AG Contention-10, p. 121, the ER misstates the findings of the Generic environmental impact statement and/or relies upon the plant specific supplements issued for plants far distant from New York to justify their cursory dismissal of many renewable energy options. The GEIS specifically rejects the approach used in the ER and requires that all alternatives must be fully evaluated for each license renewal proceeding. GEIS at § 8.1. Additionally, the ER also uses allegations about the need for power to justify rejection of alternatives in violation of 10 C.F.R. § 5.53(c)(2) and the GEIS. See, e.g., ER § 8.3.10. As further noted by AG Contention 10, the ER fails to consider alternatives that could displace Indian Point's electricity including: 1) repowering existing power plants to increase their efficiency, increase their power output and reduce their pollution, (2) enhancing existing transmission lines; or 3) other alternatives such as energy efficiency

and conservation, and expansion of renewable energy production. AG Contention 10, p. 122.

There are many ways to replace 2 GW of generation capacity at Indian Point, and building a new energy generating plant is only one option. As an initial matter, the easiest alternative is to eliminate the need for Indian Point's power through demand side options.

a. Demand Side Options

In *Alternatives to the Indian Point Energy Center for Meeting New York Electric Power Needs (NAS Study)*, the National Academy of Science (NAS) cites the benefits of reducing our electricity use as a preferred option for replacing Indian Point. It states that "[t]he impacts of current and planned programs for reducing electricity consumption and peak electrical loads could be among the most cost-effective replacements for the energy provided by the Indian Point Energy Center." NAS Study, p. 20, http://books.nap.edu/openbook.php?record_id=11666&page=18). Demand side options, as are being done across the country, represent the cleanest and cheapest form of electricity replacement, and reducing peak loads is far more economical than installing additional capacity.

The New York State Energy Research and Development Authority (NYSERDA) currently provides three demand side programs:

- Peak Load Reduction Program - expected to conserve 355 to 375MW annually
- Enabling Technology for Price Sensitive Load Management - expected to avoid the need for 308MW
- Keep Cool Program - anticipates a 38 to 45 MW savings

(*See* www.nyserda.org) These programs have saved approximately 700 megawatts and illustrate how demand side options can reduce peak demand.

Reducing peak demand means that generating capacity and reserve margins can both be reduced. Thus, according to the NAS Study, investments in reducing peak demand through energy efficiency can be valued at 118 percent of the actual reduction in megawatts because it avoids the addition of new generating capacity with all its attendant costs. Consolidated Edison has established several demand management programs with the goal of reducing peak load growth by 535 MW; these programs use energy efficiency, smart equipment choices, load reductions programs and distributed generation. The New York Power Authority has committed $100 million a year for energy efficiency projects as detailed in the AG Contention 10.

There are many ways to reduce demand that should be considered and discussed in the ER. For example, the concept of "Negawatt", energy not consumed, was introduced in 1989 by energy expert Amory Lovins, Director of the Rocky Mountain Institute. *See* http://www.rmi.org/. The concept works by utilizing consumption efficiently to increase available market supply rather than by increasing plant generation capacity. For example, energy consumers may reduce energy consumption for a few hours to "generate" negawatts by turning off air conditioners for a few minutes on the hour. Con Ed has already initiated a program for customers in Westchester, which provides a programmable thermostat for air conditioners. The installation is free and the customer receives a stipend. In return they allow Con Ed to turn off their air conditioner for five minutes on the hour a limited number of times daily should electricity supplies run low during peak demand times. In this case the utility is producing and transferring the negawatts, while the basic infrastructure remains unchanged. This is a practical and efficient way to get more work done with less

electricity without building additional base load generating capacity to replace Indian Point.

Better price signals to the consumer, such as off peak discounts for electricity usage, could change the load profile and allow a better pairing of demand to capacity. Discounted off peak pricing encourages people to shift the time for energy intensive household chores such as washing and drying laundry; tax credits for the installation for energy efficient windows and appliances is another example. Locating electric meters indoors allows consumers be more aware of how much electricity is being consumed and motivates action to reduce usage. A bill currently pending in the New York State Legislature (Number A8739) would amend the public service law, in relation to providing real time smart metering technology to residential electricity customers to help consumers reduce the peak demand for electricity.

The California experience validates this point and demonstrates that a 15% reduction in electricity usage can be achieved. See, e.g., www. riverkeeper.org/document.php/39/2002_May__Koman.pdf. Similarly, Vermont has held their energy use constant while expanding their economy.

b. Supply Side Options

Creative procurement of energy, and distributing the generation of energy could replace Indian Point's 2 GW. Purchasing power from sources outside the grid is a common and accepted practice. It is also readily available in the Westchester/New York City region. Pennsylvania, New Jersey, and New England grid operators have reported surpluses for the last three years. This includes the Pennsylvania-NJ-Maryland System and

the New England Power Pool (NEPP), which has supplied replacement energy when IPSEC is fully or partially closed. These sources provide energy both under planned circumstances, such as refueling, but it is also available when the plant closes due to an unexpected malfunction.

New York State's Transitional Energy Plan (NYSTEP) provides incentives for repowering older dirtier facilities with newer and cleaner facilities. It states:

> "In some areas with tight electricity supplies and poor air quality, both can be improved through repowering existing generating facilities. NYSTEP creates an incentive to bring these plants on-line by accelerating the siting process under Article X of the Public Service Law. Specifically, the Siting Board approval time for the repowering of an existing facility, or the phase out of an old facility for a new, cleaner one is cut in half, from one year to six months. The legislation requires that the repowering must result in a reduction of at least 75 percent in the rate of emissions for three key pollutants - nitrogen oxide, sulfur oxide, and particulate matter. This action will encourage and facilitate the replacement of old, dirty, inefficient plants with modern, cleaner, high efficiency plants. Repowering or replacing older plants has been proven to increase generating capacity by up to 90 percent and to result in decreased rate of emissions."

(NYSTEP, IV. Environmental Protections, A. Clean Energy Generation Incentive)

Repowering was recommended in AG-Contention 10:

> Repowering a generation facility means replacing the plant's old, inefficient and polluting equipment with newer, more efficient equipment. Today, virtually all repowering projects replace old equipment with combined-cycle combustion turbines (CCCTs). CCCTs generate electricity in two stages. In the first stage, fuel is burned to operate a gas turbine generator, and in the second stage, excess heat from the gas turbine is used to drive a steam turbine and generate additional electricity. This two-stage process can turn 50 percent or more of the fuel energy into electricity. Repowering has become commonplace in the electric industry since the early 1990s. One repowering project in the Hudson River Valley was PSEG's Bethlehem Energy Center outside Albany. Completed in 2005, this project now consists of 750 MW of combined-cycle generating capacity, which includes a net increase in 350 MW relative to the old Albany Steam Plant that was replaced.

AG Contention 10, ¶ 21.

Distributed generation refers to the production of electricity at or near the place of consumption. Examples of distributed generation include backup generators at hospitals, photovoltaic systems on residential rooftops, and combined heat and power (CHP) systems in industrial plants or on university campuses. The three main characteristics that differentiate most distributed generation from traditional electricity supply are location, capacity and connection to the grid.

Distributed generation systems such as photovoltaic residential roof top installations where the out put is highest during peak summer demand can reduce peak load and thereby mitigate the need for increased generation and/or transmission resources. With appropriate policies and incentives, distributed resources are often the most readily available, cost-effective, and underutilized clean energy resources that can potentially reduce or defer the amount of required new electric supply from generation and transmission systems. While it can take many years to plan, design and build electric generation plants, most distributed resources can be deployed within a year. A dispersed network of distributed generation units is also less vulnerable to terrorism, whether from direct attack or computer hacking, than a single large power station.

Other distributed generation options includes wind turbines, solar, and geothermal systems, all of which are being used right now with more being planned in both NYC and Westchester.

Geothermal heat pump systems, also known as "geo-exchange," are the most energy efficient, environmentally clean, and cost-effective space conditioning systems available, according to the Environmental Protection Agency. For every 100,000 units of typically sized residential geothermal heat pumps installed, more than 37.5 trillion BTU's of energy used for space conditioning and water heating can be saved, corresponding to an emissions reduction of about 2.18 million metric tons of carbon equivalents, and cost savings to consumers of about $750 million over the 20-year-life of the equipment. Geothermal heat pumps strengthen U.S. energy security. Every 100,000 homes with geothermal heat pump systems reduce foreign oil consumption by 2.15 million barrels annually and reduce electricity consumption by 799 million kilowatt hours annually. Geothermal heat pumps are highly efficient and their use can lower electricity demand by approximately 1 kW per ton of capacity ((http://www.renewableworks.com/content/GB-003.pdf, Geoexchange Heating and Cooling Systems: Fascinating Fact, p. 1).

Wind power is growing faster than any other electricity source in the world. (ACE NY, http://www.aceny.org/cleantechnologies/wind_power.cfm) The National Academy of Science found that "technically there is sufficient wind resource in New York State to replace the Indian Point units, but resolving site location and permitting issues is key to successfully placing units into service. The greatest challenge for using wind to replace large base load electric generation units is the intermittent nature of the resource. The availability factor for wind is 30 to 40 percent, compared with about 90 percent for nuclear and coal plants, and the resource is available only when the wind is blowing, not when demand is high. Storage will smooth out the intermittent nature of the resource, but that

technology is not yet readily available" Alternatives *to the Indian Point Energy Center for Meeting New York Electric Power Needs,* 2006, p. 39.

In spite of Entergy's statements in its ER, renewables are coming on line very quickly. According to NYSERDA's August 2007 *New York State Renewable Portfolio Standard Performance Report for the Program Period ending March 2007* (*RPS Performance Report*), new renewable capacity installed since the onset of the RPS program could exceed 1,206 MW by the end of 2008, of which 1,184 MW would be located in New York State. *RPS Performance Report* at 2. The 1,206 MW of new installed capacity is expected to produce approximately 3.6 million MWh of electricity per year."

For all these reasons, the ER's consideration of alternative energy and energy efficiency is insufficient, and this contention should be admitted.

Contention EC-6: Entergy's Environmental Report Fails to Consider the Potential Harm to the Surrounding Area of Terrorist Attack on the Facility including its Spent Fuel Pools, Control Rooms, the Water Intake Valves, Cooling Pipes and Electricity System.

A) Brief Explanation of the Basis for the Contention.

Entergy's license renewal application does not comply with the National Environmental Policy Act, 42 U.S.C. § 4321, et seq. ("NEPA") because the Environmental Report (ER) fails to consider the potential for harm that would result from a terrorist or other attack on Indian Point's control rooms, water intake valves and cooling pipes, and the significant and reasonably foreseeable environmental harm that could result from destruction of control and cooling capacities. Additionally, the NRC must conduct Severe Accident Mitigation Alternative (SAMA) analysis in connection with this possibility. The

ER also fails to consider that the continued storage of spent fuel in the spent fuel pools at Indian Point, as well as other insufficiently protected features relating to cooling, electricity and control, poses a significant and reasonably foreseeable environmental risk of a severe fire and offsite release of a large amount of radioactivity. Because these features are located outside the containment structures, they make attractive targets to terrorists. An attack could result in radiation releases that could cause significant adverse environmental and health effects and property damage in one of the most densely populated areas of the country.

The failure to take account of these risks violates NEPA's requirement that environmental decisions must contain an evaluation of those aspects of a proposed action that will affect the quality of the human environment "in a significant manner or to a significant extent not already considered." *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989) ("Marsh"). Similarly, Entergy's application fails to satisfy the Atomic Energy Act's ("AEA"), 42 U.S.C. § 2233(d), fundamental requirement to ensure safe operation of Indian Point during the license renewal term because it does not include adequate design measures to prevent the occurrence of a pool fire, the destruction of cooling capacity, the destruction of control capacity or to reduce their consequences.

Pursuant to 10 CFR § 2.309(f)(3), Clearwater hereby supports and adopts Contention 27 of the Attorney General of New York filed November 30, 2007 ("AG Contention-27"), and agrees that the Attorney General shall act as the representative with respect to this contention. Clearwater also shares Riverkeeper's concerns in its Contention EC-2.

B. This is a Valid Contention Pursuant to 10 CFR 2.309

The specific issue of fact and law to be controverted is whether Entergy's Environmental Report sufficiently assesses the impacts of a potential terrorist attack. 10 C.F.R. §2.309(f)(1)(i). Entergy's Environmental Report does not consider the potential impact of a terrorist attack on the spent fuel pools, the control rooms, the cooling water intake valves or the cooling pipes -- all of which are vulnerable to terrorist attack -- as part of its SAMA analysis, or otherwise. If such an attack were successful, it could result in a substantial off-site radiological release that could threaten public health and safety, and the environment. Therefore there is a genuine dispute with regard to the sufficiency of the license application.

This issue is also within this proceeding's scope. 10 C.F.R. § 2.309(f)(1)(iii), (f)(2)(for issues under NEPA, petitioner shall file contentions based upon the ER). Entergy was required to, and did, prepare an Environmental Report in connection with its application. NEPA mandates that the NRC consider the environmental impacts of the action Entergy requests, and the NRC rules implement this mandate. 10 C.F.R. Pt. 51. The NRC's regulations specifically require that the applicant include in its Environmental Report a consideration of alternatives to mitigate severe accidents if the NRC staff "has not previously considered severe accident mitigation alternatives for the applicant's plant in an environmental impact statement or related supplement or in an environmental assessment." 10 C.F.R. § 51.53(c)(3)(ii)(L). This issue should have been considered as part of Entergy's ER, and is within its scope, for at least two reasons: 1) the real potential for a terrorist attack is "significant and new" information given the successful attack carried out by

terrorists on September 11, 2001; and 2) the impacts of a terrorist attack should have been considered as part of Entergy's SAMA analysis. A terrorist attack on the spent fuel pools, control room, water intake valves and cooling pipes could result in potentially significant off-site radiological releases that could cause significant adverse environmental public health effects and property damage. This issue is thus material to findings that must be made in this proceeding. 10 C.F.R. §2.309(f)(1)(iv). *See San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006), cert. denied, 127 S. Ct. 1124 (2007)(holding that NEPA requires the NRC to study how its actions affect the risk of terrorism).

C. Factual Allegations Supporting the Claim as Required by 10 CFR § 2.309(f)(1)(v).

The events of September 11, 2001, and after, demonstrate the importance of considering the potential impact of a terrorist attack on Indian Point. The two planes that crashed into the World Trade Center Towers flew directly over Indian Point on their way down the Hudson River. *See Nat'l Comm'n on Terrorist Attacks Upon the U.S.* ("9/11 Commission"), The 9/11 Commission Report (2004), at p. 32. Since September 11, the federal government has repeatedly acknowledged that there is a credible threat of intentional attacks on nuclear power plants, including the specific threat of an aircraft attack. For instance, in his 2002 State of the Union address, President Bush stated that "diagrams of American nuclear power plants" had been found in Afghanistan, suggesting that Al-Qaeda may have been planning attacks on those facilities. The President's State of the Union Address (Jan. 29, 2002), available at http://www.whitehouse.gov/news/releases/2002/01/20020129-11.html.

Additionally, on September 4, 2003, the United States General Accounting Office ("GAO") issued a report noting that the nation's commercial nuclear power plants are possible terrorist targets and criticizing the NRC's oversight and regulation of nuclear power plant security. *GAO, Nuclear Regulatory Commission: Oversight of Security at Commercial Nuclear Power Plants Needs to Be Strengthened*, GAO-03-752 (2003).

AG Contention 27 details many facts, and expert opinion, supporting this contention, all of which are adopted and incorporated herein by reference. For example, AG Contention 27 cites a 2005 report by the National Research Council entitled "Safety and Security of Commercial Spent Nuclear Fuel Storage" (National Research Council of the National Academies, Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report, (copyright 2006) ("NAS Study") that studied various possible terrorist attack scenarios and concluded that spent fuel pools, such as those at Indian Point, are indeed vulnerable to such attacks. The NAS study judged, based upon information provided by the NRC, that "attacks with civilian aircraft remain a credible threat." *Id.* at 30. It noted that terrorists might choose to attack spent fuel pools because they are "less well protected structurally than reactor cores" and "typically contain inventories of medium- and long-lived radionuclides that are several times greater than those contained in individual reactor cores." *Id.* at 36. The report concluded that the storage pools are susceptible to fire and radiological release from a wide range of conditions, including intentional attacks with large civilian aircraft. *Id.* at 49, 57.

Further, as set forth in the Declaration of Richard T. Lahey, Ph.D., as part of AG Contention 27, the potential for a terrorist attack on the spent fuel pools at Indian Point are

real, and the consequences are severe. The following summarizes Dr. Lahey's expert opinion:

1) The three Indian Point spent fuel pools are located outside the containment buildings and contain large quantities of radioactive material. Lahey Declaration, ¶¶ 32, 35.

2) Spent nuclear fuel remains extremely radioactive after it is used in nuclear reactors to generate energy. *Id.* ¶ 32.

3) Far more radioactivity is present in the spent fuel located in the three spent fuel storage pools at Indian Point than there is in the active core of the two nuclear reactors. *Id.* ¶ 34.

4) Spent fuel pools (large "swimming-pool-like structures") were intended to only store fuel temporarily, to allow the fuel to cool sufficiently so that it could then be transferred to a final disposal site in the United States. *Id.* ¶ 32.

5) A terrorist attack could lead to pool drainage and a propagating zirconium fire, which means that a significant amount of radiation could be released to the environment. *Id.* ¶¶ 32, 35.

Unfortunately, the danger to nuclear plants from terrorism including aircraft attack goes well beyond the threat to the spent fuel pools. For example, an NRC report on aircraft crash hazards published in 1982 by researchers at the Argonne National Laboratory, stated:

> "The results of an aircraft crash on a nuclear power plant are not limited to the effects of the impact of heavy parts (such as a jet engine) on civil engineering structures. Numerous systems are required in order to provide reactor shutdown and adequate long-term cooling of the core. Although

> many of these safety-related systems are well protected within hardened structures (containment system, auxiliary building), some are not."

Nuclear Regulatory Commission, NUREG/CR-2859, "Evaluation of Aircraft Crash Hazards for Nuclear Power Plants," June 1982, at p. 50. Moreover, in the event of an impact upon the turbine building and switchyard that damaged the secondary cooling system and resulted in loss of electrical power in a Pressurized Water Reactor (such as Indian Point) – the "core would most probably be headed for serious damage if not total meltdown." *Id.*, at p. 51-52. Significantly, this "sequence of events does not depend in any way upon a breach of hardened structure at some optimum (i.e. most-damaging) angle." *Id.* at 52. According to the Union of Concerned Scientists, "[t]his study clearly, categorically, explicitly and undeniably refutes the fanciful notion that nuclear power plants are robust structures and describes numerous scenarios in which an aircraft crash could lead to significant reactor core damage." "*The NRC's Revised Security Regulations*," Union of Concerned Scientists, Issue Brief, February 1, 2007, p. 2.

Similarly, a 1987 NRC study strongly suggests that the violence of an aircraft crashing into a nuclear plant structure can produce shaking that causes electrical relays to change positions, and this outcome alone -- without even considering the effect of fires, explosions or other consequences -- has a high likelihood of causing reactor core damage. *Id.* at p. 4, *citing* Nuclear Regulatory Commission, NUREG/CR-4910, "*Relay Chatter and Operator Response After a Large Earthquake*," August 1987. Additionally, an NRC Staff paper from 1997 concludes that fires represented a significant risk to the reactor core, and the most commonly identified plant areas with high fire vulnerabilities were the main control room, the electrical switchgear rooms, and the cable spreading rooms – all areas

located outside of the thick reinforced concrete containment walls. *Id.* at p. 5, citing N. Siu, J. T. Chen and E. Chelliah, Nuclear Regulatory Commission, "*Research Needs in Fire Risk Assessment*," Presentation at 25th Water Reactor Safety Information Meeting, Bethesda, Maryland, October 20-22, 1997.

Of particular concern are the potential widespread environmental impacts if a terrorist attack damaged the reactor core, spent fuel pools, the storage casks, or other areas. *San Luis Obispo Mothers for Peace v. NRC*, 449 F.3d 1016 (9th Cir. 2006), cert. denied, 127 S. Ct. 1124 (2007). The NRC has implicitly recognized the gravity of the consequences of a terrorist air attack by requiring applicants for certain new nuclear reactors to consider such attacks. *See, e.g.*, 72 Fed Reg. 56,287 (October 3, 2007). This concern over the damage that could be caused by an aircraft impact is reflected in other NRC documents as well. See NRC, *Evaluation of Aircraft Crash Hazards Analyses for Nuclear Power Plants*, NUREG/CR-2859 (1982); NRC, *Relay Chatter & Operator Response After a Large Earthquake*, NUREG/CR-4910 (1987); NRC, *Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants*, NUREG-1738, at § 3.5.2 (2001); NRC, *Nuclear Power Plants Not Protected Against Air Crashes, Associated Press* (Mar. 28, 2002). Other studies identify the threat as a significant issue. Ian B. Wall, *Probabilistic Assessment of Aircraft Risk for Nuclear Power Plants*, 15 Nuclear Safety 276 (1974); Power Auth. of the State of N.Y. & Consol. Edison Co., *Indian Point Probabilistic Safety Study*, at 7.6-3 to 7.6-6 (1982). In 2005, the National Academy of Sciences released a report from a study it conducted at the request of Congress, with the sponsorship of the NRC and the Department of Homeland Security, of

the security risks posed by the storage of spent fuel at nuclear plant sites. See Nat'l Acad. of Scis., Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report (2006). Based upon information provided by the NRC, the National Academy of Sciences judged that "attacks with civilian aircraft remain a credible threat." *Id.* at 30. *See also* Director of National Intelligence, *The Terrorist Threat to the US Homeland*, July 17, 2007 National Intelligence Estimate (unclassified and publicly-released portion) (We judge the US Homeland will face a persistent and evolving terrorist threat over the next three years).

For the foregoing reasons, this Contention should be admitted.

5. CONCLUSION.

Pursuant to 10 CFR § 2.309(f)(3), Clearwater hereby adopts all of the contentions of the Attorney General of New York filed November 30, 2007, except for Clearwater's Contentions relating to Environmental Justice, and agrees that the Attorney General shall act as the representative with respect to these contentions. Clearwater also shares the

concerns raised in Riverkeeper, Inc.'s Request for Hearing and Petition to Intervene in the License Renewal Proceeding for the Indian Point Nuclear Plant dated November 30, 2007.

For the foregoing reasons, Clearwater's contentions should be admitted in their entirety.

Respectfully submitted,

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December 10, 2007

List of Exhibits

Standing

Exhibit 1: Standing Declarations

Exhibit 2: Map of Clearwater Member Households within 10-mile and 50-mile Radius of Indian Point Energy Center, prepared by Clearwater Board Member, Mitchell Bring.

Contention EC-1: Failure of Environmental Report to Adequately Address the Impacts of Known and Unknown Leaks

Exhibit 3: *Timeline of Leaks at Indian Point Energy Center* that have or could have had environmental impacts, prepared by Jonathan Stanton.

Contention EC- 2: Entergy's Environmental Report Fails to Consider the Higher than Average Cancer Rates and Other Health Impacts in Four Counties Surrounding Indian Point.

Exhibit 4: Expert Witness, Joseph Mangano, Declaration with Attachment A: *Public Health Risk of Extending Licenses of Indian Point 2 and 3 Nuclear Reactors* by Joseph J. Mangano, MPH MBA, Executive Director, Radiation and Public Health Project, revised December 7, 2007

Contention EC-3: Entergy's Environmental Report contains a seriously flawed Environmental Justice analysis that does not adequately assess the impacts of Indian Point on the minority, low-income and disabled populations in the area surrounding Indian Point.

Exhibit 5: Map from *Indian Point Energy Center Applicant's Environmental Report Operating License Renewal Stage* showing Census Block Groups, Combined Minority Plus Hispanic Population, Figure 2-23, p. 2-118.

Exhibit 6: *Hudson River Anglers' Survey* Questionnaire, *Survey of Hudson River Anglers and an Estimate of Their Exposure to PCBs*, September 30, 1998, prepared by State of New York Department of Health Under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry (www.atsdr.cdc.gov/hac/pha/hudsonri/hud_toc.html).

Exhibit 7: *Native Nations and the Nuclear Cycle* by Karl Grossman, State University of New York/College at Old Westbury; Institute of American Indian Arts, Santa Fe, New Mexico; November, 29, 2006.

EXHIBIT 1: STANDING DECLARATIONS

1.1 Declaration of Jannette Barth, Clearwater member, Croton-on-Hudson, NY (November 29, 2007)

1.2 Declaration of Andrew Courtney, Clearwater member, Croton-on-Hudson, NY (November 28, 2007)

1.3 Declaration of Cynthia Cowden, Clearwater member, Cold Spring, NY (November 21, 2007)

1.4 Declaration of Steve Filler, Board Member, Hudson River Sloop Clearwater, Inc., Tarrytown, NY (December 6, 2007)

1.5 Declaration of June Finer, Clearwater member and volunteer, New Paltz, NY (November 26, 2007)

1.6 Declaration of Manna Jo Greene, Environmental Director, Hudson River Sloop Clearwater, Inc., Poughkeepsie (work) and Cottekill, NY (residence) (December 8, 2007)

1.7 Declaration of Gilbert Hawkins, Hudson River Fishermen's Association, Leonia, NJ (December 6, 2007)

1.8 Declaration of Connie Hogarth, Clearwater member, Beacon, NY (November 2, 2007)

1.9 Declaration of Randolph Horner, Clearwater member and founder of Woodstock NY's Zero Carbon Initiative and Town Board Resolution (November 26, 2007)

1.10 Declaration of Jennifer Ippolitti, Clearwater member, Westbrookville, NY (November 24, 2007).

1.11 Declaration of Arthur Kamell, Clearwater member, Beacon, NY (November 26, 2007)

1.12 Declaration of Michelle LeBlanc, Clearwater member, Putnam Valley, NY (November 26, 2007)

1.13 Declaration of Anne Osborn, Board Member, Hudson River Sloop Clearwater, Inc., Garrison, NY (November 20, 2007)

1.14 Declaration of Natalie Patasaw, Board Member, Hudson River Sloop Clearwater, Inc., Wesley Hills, Rockland County, NY (November 30, 2007)

1.15 Declaration of George Potanovic, Jr. Photographer, Clearwater member and founder of Stony Point Action Committee for the Environment, Stony Point, NY (November 23, 2007)

1.16 Declaration of Jeff Rumpf, Executive Director, Hudson River Sloop Clearwater, Inc., Poughkeepsie and Hopewell Junction, NY (

1.17 Declaration of Toshi and Pete Seeger, Founders, Hudson River Sloop Clearwater, Inc., Fishkill Township, NY (November 27, 2007)

1.18 Declaration of Jonathan Stanton, NYC and West Brookville, NY (November 24, 2007)

1.19 Declaration of Kim Sumner-Mayer, Clearwater member, mother, Warwick, NY (November 18, 2007)

1.20 Declaration of Chris White, Clearwater member, District representative for Congressman Maurice Hinchey, New Paltz, NY (November 26, 2007)

1.21 Declaration of Susan Zimet, Ulster County Legislator, New Paltz, NY (November 27, 2007).

1.22 Declaration of Alan Zollner, member of Clearwater and River Pool, Newburgh, NY (November 23, 2007)

1.23 Declaration of Eric Marshall, Clearwater member and President of Board, Croton-on-Hudson, NY

1.24 Declaration of William and Sandra Flank, Clearwater member and past board member, Chappaqua, NY

1.25 Declaration of Tinya Seeger, Clearwater member, Fishkill, NY

1.26 Declaration of Philip Ehrensaft, Clearwater member, Pine Bush, NY

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF Jannette M. Barth

My name is Jannette Barth; I live at 8 Quaker Hill Court East, Croton on Hudson, NY, which is within the 10-mile radius of the Emergency Planning Zone, also known as the peak fatality zone. I am a member of Hudson River Sloop Clearwater ("Clearwater").

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in Croton on Hudson for twenty years, and am very connected to the Hudson River. My children have grown up sailing, kayaking and swimming in the Hudson River. We all continue to enjoy these activities in the River. My husband and I also fish in the River. We have always been very concerned about the presence of Indian Point, and now that it is an aging, leaking and deteriorating nuclear power plant, we are especially concerned. If Indian Point's license is renewed, we feel that we will have to curtail our enjoyment of the Hudson River. In addition, we are now very concerned about the safety of ourselves and our friends and neighbors who live nearby.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 29th day of November, 2007, at Croton-on-Hudson, NY.

Jannette M. Barth

Your name here

State of New York)

)ss.:

County of Westchester

On the 29th day of November, in the year 2007 before me, the undersigned, personally appeared

Jannette M. Barth, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her capacity, and that by her signature on the instrument, the individual or the person upon behalf of which the individual acted, executed the instrument.

Patricia J. Pesce

Notary Public

PATRICIA J. PESCE
Notary Public, State of New York
No. 01PE6107055
My Commission Expires March 15, 2008

Standing Exhibit 1.2

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF ANDREW COURTNEY

My name is ANDREW COURTNEY; I live at 12 MOUNTAIN TRAIL CROTON ON HUDSON NY 10520, 4 miles from Indian Point, which is within the 10-mile radius of the Emergency Planning Zone, also known as the peak fatality zone. I am a member of Hudson River Sloop Clearwater ("Clearwater") and (list any other relevant organizations here).

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 35 years, and am very connected to the Hudson River.

1. THE EMERGENCY SIREN NEAR MY HOME HAS NEVER WORKED DURING TESTS
2. THE HUDSON RIVER FISH ARE DEAD FROM THE HOT WATER RELEASE. WE HAVE THE LARGEST POPULATION OF BALD EAGLES HERE EATING THE DEAD FISH.
3. INDIAN POINT AN EASY TARGET FOR TERRORIST ATTACK
4. CONSTANT LEAKS & SHUTDOWNS TELL THE STORY OF AN AGING, DISFUNCTIONAL AND DANGEROUS PLANT.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 28 day of November, 2007, at Croton, NY.

Andrew Courtney
Your name here

State of New York)
)ss.:
County of Westchester

On the 28 day of November in the year 2007 before me, the undersigned, personally appeared Andrew Courtney, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

GLADYS G. OLIVO
STATE OF NEW YORK
TERM EXPIRES
APRIL 24, 20 10
QUALIFIED IN DUTCHESS COUNTY
NOTARY PUBLIC

Gladys G. Olivo
Notary Public

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C.	)	**License No.**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**DPR-26**
Indian Point Energy Center Unit 2	)	**Docket**
		No. 50-247
License Renewal Application	)	

DECLARATION OF *Cynthia Cowden*

My name is Cynthia Cowden; I live at 178 Main St #1, Beacon, NY 12508, 17 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater") and Beacon Sloop Club and River Pool at Beacon, Inc..

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 4 years, and am very connected to the Hudson River. I built my own kayak 10 years ago and enjoy using it on the river. I also regularly swim in the river near Beacon. I have been a volunteer with the Beacon Sloop Club for 4 years supporting the festivals that bring thousands of people to River Front Park. I also clean up the shores of the river on Earth Day.

I am currently the President of River Pool at Beacon having served as Vice President for 3 years. I am also the Project Director for the prototype floating pool which opened this year at River Front Park. People of all ages enjoy this pool, especially children. Our aim is to help clean up the river and make it accessible to the public for swimming. I also have two grandchildren who are learning to enjoy and appreciate the Hudson River when they come for visits.

The Hudson River is a unique and vital resource to our community and the entire New York region. Today, Indian Point could not be cited where it is currently located, due the enormous surrounding population and lack of a workable evacuation plan.

It is unacceptable for the NRC to allow Indian Point to continue to contaminate the groundwater and Hudson River. The public's health and safety cannot be compromised, for the sole benefit of a privately owned corporation.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 21st day of November, 2007, at Cold Spring, NY.

Cynthia Cowden
Your name here

State of New York)
)ss.:
County of Putnam)

On the 21 day of November, in the year 2007 before me, the undersigned, personally appeared

Cynthia Cowden, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

DANIEL A. GRUNDIG
Notary Public - State of New York
ID No. 01GR6164136
Qualified in Dutchess County
My Commission Expires April 09, 2011

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Lawrence G. McDade, Chair
Dr. Richard E. Wardwell
Dr. Kaye D. Lathrop

In the Matter of	)	Docket Nos. 50-247-LR and 50-286-LR
	)	
ENTERGY NUCLEAR OPERATIONS, INC	)	ASLBP No. 07-858-03-LR-BD01
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	December 6, 2007
	)	

DECLARATION OF STEPHEN FILLER, MEMBER AND DIRECTOR OF HUDSON RIVER SLOOP CLEARWATER, INC.

I, Stephen C. Filler, declare as follows:

1. I have been a member of the Hudson River Sloop Clearwater, Inc, (Clearwater") since 2003, and a member of the Board of Directors of Clearwater since January, 2004. I was Secretary of the Board of Clearwater from September, 2004, through September, 2006. I have been a member of the Board's Executive Committee, and Chair of the Board's Environmental Action Committee from September 2004 through the present. I also serve on the Board of Directors of the New York Solar Energy Industries Association, and am a founding member of the Hudson River Valley Sustainable Business Network. I have authorized Clearwater to represent me in this proceeding.

2. I submit this declaration both to support Clearwater's standing in this proceeding, and in connection with Clearwater's contention concerning environmental justice and specifically the negative and highly disproportionate impact that an offsite radiological incident would have on

minorities located in institutions including correctional facilities within the ten and fifty mile emergency planning zone.

Standing

3. I own real property and reside in Irvington, New York, with my wife and two children, ages 13 and 15, and my children attend the public schools in Irvington New York. Irvington is approximately 17 miles from the Indian Point Nuclear plants, well within the 50 mile emergency planning zone. I also own a law practice in Tarrytown, New York, which is approximately 15 miles from Indian Point. As part of my law practice, I represent many individuals and businesses in the Hudson River Valley who reside or do business near Indian Point.

4. I regularly participate in recreational activities near Indian Point. Several times a week, I run on the Old Croton Aqueduct Trail, which runs from Croton-on-Hudson, NY -- within the 10 mile emergency planning zone -- all the way to the Yonkers-New York City Border twenty six miles away. The Old Croton Aqueduct is a masonry tunnel that brought New York City its first supply of clean water (from 1842-1955). It is considered one of the great engineering feats of the 19th Century, and is now a National Historic Monument. *See Website of Friends of Old Croton Aqueduct* (http://www.aqueduct.org/, visited November 24, 2007). The trail above the aqueduct links communities and historic sites along the Hudson River, and passes woodlands, meadows, backyards, parks, "Main Street" village centers, historic sites, steams and spectacular Hudson River views.

5. On a weekly basis, I run and, sometimes in winter, cross country ski in Rockefeller State Park Preserve in Sleepy Hollow and Pocantico, NY -- at its most northern point about 12 miles from Indian Point. Rockefeller has 1,233 acres and dozens of carriage trails winding through undeveloped meadows, forests, wetlands, steams, rivers and lakes, and is bisected by the

Pocantico River, a Hudson River tributary. In Rockefeller and on the Croton Aqueduct trail, I frequently see others walking, running, skiing, bird watching, taking pictures, reading, painting, sketching and horse back riding

6. I am concerned that the proposed 20-year license renewal of the Indian Point nuclear increases both the risk and the harmful consequences of an offsite radiological release. Indian Point is an aging facility that has been riddled with safety issues as evidenced, for example, by the leaks of tritium and strontium 90 from Indian Point. I am also very concerned about the continual stockpiling and tight packing of spent fuel rods at the site, without any plan for their removal. Especially following September 11, I am very concerned about the potential for, and effects of, a terrorist strike on the plant.

7. Radiological contamination arising from an accident or incident at Indian Point could have a devastating impact upon the health and safety of my family, the value of my property, and could destroy the beauty and recreational opportunities in this region. Such an incident might well interfere with my ability to operate my law practice (as well as the businesses that I represent), and could destroy my ability to earn a living and support my family.

Environmental Justice

8. Professionally, I am an attorney, and for the past 18 years my law practice has included the representation of indigent individuals charged with crimes in the State of New York. From 1988-1993, I was a Senior Staff attorney at the Legal Aid Society, Criminal Defense Division, in New York City where I represented indigent defendants charged with crimes. From 1993 until the present, my work has included being assigned to represent indigent

defendants in New York pursuant to New York County Law 18-b in lower court, appellate and parole revocation proceedings.

9. Many of my clients have been incarcerated in the jails and prisons within the 10 mile and 50 mile emergency planning zones surrounding Indian Point including Sing Sing Correctional Facility (Ossining), Downstate Correctional Facility (Fishkill), Bedford Hills Correctional Facility (Bedford Hills) Westchester Correctional Facility (Valhalla) and Riker's Island (Queens).

10. There are many thousands of prisoners housed in prisons and jails within the 50 mile emergency planning zone. I have reviewed lists of Federal, State, County and New York City prisons and jails in New York State and have approximated their distance from Buchanan, New York, where Indian Point is located. I have used Map Quest (www.mapquest.com) to measure the distance, by road, from Buchanan to the facility, or to the town or city where the facility is located. The results are attached as Exhibit A hereto. I have determined that there are at least twenty-six federal, state, county and New York City facilities within the 50 mile zone, not including police holding areas, juvenile detention centers, psychiatric facilities, and not including any facilities in Connecticut and New Jersey.

11. I estimate that there are tens of thousands of prisoners in these facilities. New York City alone housed an average of 13, 497 prisoner per day in 2006 (http://www.nyc.gov/html/doc/html/stats/doc_stats.shtml; visited November 25, 2007), almost all of whom were in facilities within the 50 mile zone (Rikers Island, Manhattan House of Detention, Bronx House of Detention, Brooklyn House of Detention, Queens House of Detention, and Vernon B. Bain Center).

12. Sing Sing Correctional Facility is located within the 10 mile zone, approximately 8 miles from Indian Point. I have contacted the Public Records Office of the New York State Department of Correctional Services, and received their November 3, 2007, "Monthly Inmate Population Report" (attached hereto as Exhibit B). It indicates that, as of November 3, 2007, Sing Sing housed 1760 prisoners. Although Sing Sing is a maximum security prison for convicted felons, it bears noting that many prisoners held in New York City and local jail facilities have not been convicted of a crime, but are merely being held pending trial.

13. I believe that the continued operation of Indian Point could have a devastating impact on the substantial prison populations in the region if there is an off-site radiological incident, or an evacuation. Jails and prisons are difficult, if not impossible, to evacuate effectively, and this is especially true at maximum security facilities such as Sing Sing, located within the 10 mile emergency planning zone, and large facilities such as Rikers Island.

14. In 2002, New York Governor George Pataki commissioned former FEMA chairman, James Lee Witt, to prepare a report on emergency preparedness in relation to Indian Point. "*Review of Emergency Preparedness of Areas Adjacent to Indian Point and Millstone*," James Lee Witt Associates, 2003 ("Witt Report").

15. The Witt Report analyzed evacuation plans for two correctional facilities, Sing Sing, and Westchester Department of Corrections. The Witt Report suggests that initial plan at these facilities is to shelter-in-place, and then to evacuate if deemed appropriate.

16. The Witt Report found that Sing Sing is a maxium and medium security prison located in Westchester County within the 10 mile EPZ. It suggests that, initially at least, the plan for Sing Sing in the event of a radiological event is to shelter-in-place. Sing Sing would receive warning of an event at Indian Point as part of the state response effort. It has extensive

shelter in place capability, and has provided shelter to the outside population during storms in the past. The report indicates that the first step in a radiological event would be for a lock-down – meaning that prisoners would be retained in their cells. Potassium iodide is on site. They have no radiation monitors. There had been no hazard specific training for the staff, nor has there been training about family protection plans. The report indicated that any decision to evacuate would be made by the State Emergency Management Office and would be based upon whether it is riskier to move inmates rather than to stay in place. The report provides that there is a two-tier process of evacuation using 36 secure coaches, 18 secure vans, and 10 non-secure vans, as well as other state resources, and resources from New Jersey. Witt Report, ¶ 4.5.2.1, p. 71.

17. The Westchester Department of Corrections facility, in Valhalla, NY, is located outside of the EPZ, 17 miles from Buchanan. The report indicates that the facility would learn of an event from Westchester County, and then decide upon appropriate protective actions. They can shelter-in-place for one week, after which they would need both food and fuel. If an evacuation were to be implemented, the State Patrol would be expected to assist, but no destination was determined. There was no hazard specific training for the staff, or for family protection plans. In the event of an incident and a resultant lock down, the staff would not be able to leave. The interviews did not elicit confidence that off duty personnel would report for duty in the event of a significant event. Witt Report, ¶ 4.5.2.2, p. 71.

18. The Witt Report also found that are hundreds, and possibly thousands, of "Special Facilities [that] Need to Plan for Emergencies at Indian Point" within the 10 and 50 mile emergency planning zones. Special facilities are any facilities that house populations that are either harder to warn, harder to protect, or more vulnerable to the health effects from exposure.

They include day care centers, schools, universities, correctional facilities, nursing homes, hospitals, and assisted care living facilities. Witt Report, ¶ 11.2.2.2, p. 234.

19. In addition to the evidence from the Witt Report, there is every reason to believe that prison evacuation would be an extremely problematic and low priority. Historically, and today, convicted criminals are treated as poorly any class of people in our society, and there is little reason to think our society would make prisoners a priority in the event of radiological event, or evacuation.

20. Indeed, the experience following the Katrina Hurricane in New Orleans 2005 provides a good example of what might happen in the event of a radiological event, an evacuation, or even a perceived scare, from Indian Point. The report entitled *Abandoned & Abused: Orleans Parish Prisoners in the Wake of Hurricane Katrina,* the American Civil Liberties Union's National Prison Project, August 9, 2006 (available at http://www.aclu.org/prison/conditions/26414pub20060809.html; visited November 23, 2007) provides a stark view of what happened to prisoners during Katrina. According to the report's Executive Summary:

> During the storm, and for several days thereafter, thousands of men, women, and children were abandoned at [Orleans Parish Prison (OPP)]. As floodwaters rose in the OPP buildings, power was lost, and entire buildings were plunged into darkness. Deputies left their posts wholesale, leaving behind prisoners in locked cells, some standing in sewage-tainted water up to their chests. Over the next few days, without food, water, or ventilation, prisoners broke windows in order to get air, and carved holes in the jail's walls in an effort to get to safety. Some prisoners leapt into the water, while others made signs or set fire to bed sheets and pieces of clothing to signal to rescuers. Once freed from the buildings, prisoners were bused to receiving facilities around the state, where, for some, conditions only got worse. At the Elayn Hunt Correctional Center, thousands of OPP evacuees spent several days on a large outdoor field, where prisoner-on-prisoner violence was rampant and went unchecked by correctional officers. From there, prisoners went to other facilities, where some were subjected to systematic abuse and racially motivated assaults by prison guards.

21. Moreover, any harm to the prison population would undoubtedly have a hugely disproportionate burden on minority and low income communities. The vast majority of prisoners are minority and indigent. According to New York's Monthly Minority Inmate Population Report (see Exhibit B), on November 3, 2007 at Sing Sing, only 212 of 1760 inmates were white (12%) -- 994 were African American (56.4%) and 520 were Hispanic (29%). The statewide numbers are only slightly less disparate: 20.8% white, 51.2% African American, 26% Hispanic. In my personal experience I estimate that roughly 80% of the many hundreds of clients I have represented over the years have been either African American or Hispanic.

22. According to a recent study by the Sentencing Project, the prison population nationwide has grown more than 500% since the 1970's when Indian Point was first licensed, to a current prison population of more than 2.2 million people. "*Uneven Justice: State Rates of Incarceration By Race and Ethnicity*," p. 1 Marc Mauer and Ryan S. King, The Sentencing Project, July 2007 (http://www.sentencingproject.org/Admin%5CDocuments%5Cpublications%5Crd_stateratesofincbyraceandethnicity.pdf). This growth has been accompanied by an increasingly disproportional racial composition; African Americans, for example, now constitute 900,000 of the total 2.2 million incarcerated population. *Id.* The Hispanic prison population, also, had increased dramatically -- by 43% since 1990. *Id.* at p. 2, *citing* Louis W. Jankowsky, *Correctional Populations in the United States*, 1990, Bureau of Justice Statistics, 1992, p. 86; Paige M. Harrison and Allen J. Beck, Prisoners in 2005, Bureau of Justice Statistics, 2006, p.8. Nationwide, according to the study, the per capita incarceration rate of African Americans is 5.6 times the rate of whites, and the per capital incarceration rate for Hispanics is nearly double (1.8) times the rate of whites. *Id.*, p. 3.

23. According to this study, New York is well above the national average. The incarceration rates for African Americans in New York is 9.4 times that of whites (9th highest in the country) and for Hispanics 4.5 times that of whites (4th in country). *Id.* p. 11, 14. Other states within Indian Point's peak injury zone are also highly disproportionate: New Jersey and Connecticut have the 3rd and 4th highest rates in the country, respectively, of black-to-white white incarceration (12 or more times higher than whites); and the 6th and 1st highest rates in the country, respectively, of Hispanic-to-white incarceration (6.6 times higher than whites in Connecticut; and 3.3 higher than whites in NJ). *Id.*

24. I further estimate that the vast majority of criminal defendants in New York are entitled to the assignment of counsel, and are therefore indigent. The National Center for State Courts states that 80-90% of people charged with crimes nationwide are entitled to indigent representation (http://www.ncsconline.org/wc/CourTopics/FAQs.asp?topic=IndDef; visited November 25, 2007).

25. For all the foregoing reasons, in my opinion an offsite radiological incident would likely have a disproportionate impact on the minority and indigent populations in the 10 and 50 mile planning zones around Indian Point.

26. Additionally, although I am not aware of the racial and economic composition of other special facilities, hospitals, nursing homes, elder care facilities and psychiatric facilities, by definition, have a disproportionate number of people with disabilities. Given that the Witt Report suggests that these facilities do not have sufficient emergency planning, it appears that a radiological event or evacuation involving special facilities would have a disproportionate impact upon people with disabilities. See ¶ 18 above.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 6 , 2007.

Tarrytown, N.Y.

Stephen C. Filler

EXHIBIT A

JAILS AND PRISONS WITHIN THE 50 MILE EMERGENCY PLANNING ZONE

Facility[1]	**Distance from Indian Point**[2]
Beacon Correctional Facility, Beacon, NY	20.2
Bedford Hills Correctional Facility, Bedford Hills, NY	21.3
Bronx House of Detention, 653 River Avenue, Bronx, NY	35
Brooklyn House of Detention, 275 Atlantic Avenue, Brooklyn, NY	44.2
Downstate Correctional Facility, Fishkill, NY	20.1
Duchess Correctional Facility, Poughkeepsie, NY	33
Edgecomb Correctional Facility, NY, NY	32.7
Federal Correctional Facility, Otisville, NY	43.7
Federal Correctional Facility, Danbury, CT	32.2
Fishkill Correctional Facility, Fishkill, NY	20.1
Fulton Correctional Facility, 15 11 Fulton Avenue, Bronx, NY	33.7
Lincoln Correctional Facility, 31-33 West 110th St., New York, NY	37.2
Manhattan House of Detention (The Tombs), 125 White Street, NY, NY	42.9
Metropolitan Detention Center, 80 29th Street, Brooklyn, NY	46
Mid-Orange Correctional Facility, Warwick, NY	32

[1] New York State also operates numerous psychiatric facilities within the 50 mile emergency planning zone. These include: Bronx Psychiatric Center, Creedmoor Psychiatric Center (Queens Village), Hudson River Psychiatric Center (Poughkeepsie), Kingsboro Psychiatric Center (Brooklyn), Manhattan Psychiatric Center, Rockland Psychiatric Center (Orangeburg), Bronx Children's Psychiatric Center, Brooklyn Children's Psychiatric Center, Queens Children's Psychiatric Center, and Rockland Children's Psychiatric Center (Orangeburg).

[2] Distances are approximate and were determined by using Mapquest (www.mapquest.com) by calculating the shortest travel distance from Buchanan, NY, the home of Indian Point, to the address indicated in the chart.

Orange County Jail, Goshen, NY	29.3
Otisville Correctional Facility, Otisville, NY	43.7
Putnam County Correctional Facility, Carmel, NY	20.7
Queens House of Detention, 126-02 82nd Avenue, Queens, NY	42.6
Riker's Island, 11-11 Hazen, St. East Elhmurst, NY	42.7
Rockland County Correctional Facility, New City, NY	23.8
Shawungunk Correctional Facility, Wallkill, NY	35
Sing Sing Correctional Facility, Ossining, NY	8.4
Taconic Correctional Facility, Bedford Hills, NY	21.3
Vernon B. Bain Center, 1 Halleck Street, Bronx, NY	35.8
Westchester Correctional Facility, Valhalla, NY	17.4

EXHIBIT B "Monthly Inmate Population Report", N.Y.S. Dept of Correctional Services, Nov. 3, 2007

TABLE 2. SECURITY LEVEL AND FACILITY BY ETHNIC STATUS; UNDERCUSTODY NOVEMBER 3, 2007 NYS-DOCS

SECURITY LEVEL AND FACILITY	WHITE	AFRICN AMERICAN	HISPANIC	NATIVE AMERICAN	ASIAN	OTHER	TOTAL
MAXIMUM SECURITY							
ATTICA	479	1197	465	20	8	18	2187
AUBURN	329	1019	381	12	4	14	1759
CLINTON	552	1144	506	10	11	23	2246
COXSACKIE	203	539	259	5	8	11	1025
DOWNSTATE	197	612	318	2	4	41	1174
EASTERN	134	508	346	2	9	15	1014
ELMIRA	429	976	337	19	11	19	1791
FIVE POINTS	229	755	323	9	2	9	1327
GREAT MEADOW	358	895	361	16	8	13	1651
GREEN HAVEN	255	1197	625	13	27	26	2143
SHAWANGUNK	74	282	175	5	1	5	542
SING SING	212	994	520	6	14	14	1760
SOUTHPORT	101	531	228	2	1	5	868
SULLIVAN	111	255	160	3	4	4	537
UPSTATE	151	765	345	7	6	5	1279
WALSH MEDICAL	41	39	27	0	0	1	108
WENDE	216	490	180	4	2	32	924
ALL SHU 200	169	937	350	9	3	10	1478
SUBTOTAL	4248	13135	5906	144	123	265	23813
MEDIUM SECURITY							
ADIRONDACK	107	276	157	9	0	1	550
ALTONA	107	250	112	0	1	6	476
ARTHURKILL	136	444	299	2	4	7	892
ARTHRKILL ASACTC	13	25	20	0	0	0	58
BARE HILL	383	803	492	9	6	13	1706
BUTLER ASACTC	55	109	48	1	1	3	217
CAPE VINCENT	125	444	281	4	5	2	861
CAYUGA	239	435	166	10	2	14	866
CHATEAUGY RPV	26	102	68	1	0	3	200
CLINTON ANNEX	113	345	179	3	4	4	648
COLLINS	269	441	213	5	2	7	937
EASTERN ANNEX	43	82	45	2	0	1	173
FISHKILL	266	718	441	8	11	14	1458
FRANKLIN	421	788	486	11	4	5	1715
GOUVERNEUR	106	440	303	3	3	4	859
GOWANDA	710	601	345	18	15	19	1708
GREENE	267	896	423	8	17	12	1623
GROVELAND	412	576	230	5	6	6	1235
HALE CK ASACTC	74	266	120	1	0	2	463
HUDSON	115	238	94	2	5	4	458
LIVINGSTON	176	455	221	7	2	4	865
MARCY	231	527	311	10	3	5	1087
MID-ORANGE	81	363	255	1	11	6	717
MID-STATE	488	478	293	10	3	14	1286
MOHAWK	181	674	398	7	8	6	1274
MT MCGREGOR GEN	162	248	111	6	4	1	532
OGDENSBURG	81	284	202	2	4	4	577
ONEIDA	359	546	252	15	3	5	1180
ORLEANS	208	460	182	4	3	7	864
OTISVILLE	53	292	235	1	9	10	600
RIVERVIEW	118	469	266	4	3	3	863

(continued)

TABLE 2. SECURITY LEVEL AND FACILITY BY ETHNIC STATUS; UNDERCUSTODY NOVEMBER 3, 2007 NYS-DOCS

SECURITY LEVEL AND FACILITY	WHITE	AFRICN AMERICAN	HISPANIC	NATIVE AMERICAN	ASIAN	OTHER	TOTAL
ULSTER	74	349	275	5	5	11	719
WALLKILL	68	337	179	2	2	6	594
WASHINGTON	244	541	249	7	7	6	1054
WATERTOWN	96	339	172	3	2	7	619
WOODBOURNE	145	372	265	2	6	5	795
WYOMING	376	828	332	12	4	14	1566
WYOMING ASACTC	22	75	33	0	0	0	130
SUBTOTAL	7150	15916	8753	200	165	241	32425
MINIMUM SECURITY							
BUTLER MINIMUM	54	113	58	4	1	0	230
LAKEVIEW	76	145	68	1	3	2	295
LAKEVIEW SHOCK	129	223	147	2	0	5	506
LYON MOUNTAIN	27	79	47	0	0	0	153
MID-STATE MIN	30	86	51	1	0	0	168
MONTEREY SHOCK	45	84	37	1	1	0	168
MORIAH SHOCK	59	76	54	0	1	1	191
QUEENSBORO GEN	31	230	133	1	2	0	397
SULVN FALLSBURG	34	130	62	0	0	1	227
SUMMIT GEN	12	16	19	0	0	1	48
SUMMIT SHOCK	38	50	25	1	1	0	115
SUBTOTAL	535	1232	701	11	9	10	2498
MINIMUM WORK RELEASE							
BUFFALO WORK REL	72	34	13	4	0	0	123
EDGECOMBE WORK REL	7	72	62	0	0	0	141
FISHKILL WORK REL	22	19	19	0	0	0	60
FULTON WORK REL	2	21	45	0	0	0	68
HUDSON WORK REL	27	21	5	1	0	0	54
LINCOLN WORK REL	46	76	34	1	2	1	160
ROCHESTER WR	26	18	11	0	0	0	55
SUBTOTAL	202	261	189	6	2	1	661
MINIMUM CAMP							
CAMP GABRIELS	29	128	34	0	0	1	192
CAMP GEORGETOWN	25	100	58	2	1	2	188
CAMP MCGREGOR	28	85	38	0	0	1	152
CAMP PHARSALIA	24	83	48	0	1	1	157
SUBTOTAL	106	396	178	2	2	5	689
FEMALE FACILITY							
ALBION (MEDIUM)	338	432	216	2	6	15	1009
ALBION WORK REL	34	7	9	0	0	0	50
BAYVIEW (MEDIUM)	38	84	31	0	0	0	153
BAYVIEW WORK REL	11	14	20	0	0	1	46
BEACON (MIN)	71	130	51	0	1	3	256
BEDFRD HLS (MAX)	217	388	165	2	7	22	801
LAKEVIEW SH & TR	43	34	18	0	2	1	98
TACONIC (MED)	42	105	41	3	2	2	195
TACONIC ASACTC	51	65	36	0	0	0	152
SUBTOTAL	845	1259	587	7	18	44	2760
GRAND TOTAL	13078	32199	16324	370	319	566	62846
	20.8%	51.2%	26.0%	.6%	.5%	.9%	100.0%

Standing Exhibit 1.5

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF JUNE FINER, M.D.

My name is June Finer; I live at 374 Springtown Road, New Paltz, NY 12561, which is within the 50-mile radius of the Indian Point peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater"), Lifetime Learning Institute at SUNY/New Paltz and Mohonk Preserve. I am an active volunteer in the Clearwater office and in this capacity I have closely observed the importance Clearwater places on science-based evidence in all its work, and I strongly believe in their credibility and the reliable way in which it goes about organizing positive change to protect the public health and the environment.

Clearwater, therefore, represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 24 years, and am very connected to the Hudson River, using it for various recreational activities, including swimming and kayaking. As a physician, I am deeply concerned for both my own health and safety and for the health and safety of all who live in this danger zone.

In the event of an internal nuclear accident or an external attack, there is no way to evacuate this huge population, which will lead to both a short-term and a long-term major disaster for the entire region. Because of this, I believe an additional 20-year license, beyond the initial 40-year life expectancy of the Indian Point facilities, should not be granted under any circumstances.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 26 day of November, 2007, at New Paltz, NY.

June Finer MD
June Finer

State of New York)
)ss.:
County of Ulster)

On the 26TH day of November, in the year 2007 before me, the undersigned, personally appeared June Finer MD, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Cathy D. Affronti
Notary Public

CATHY D. AFFRONTI
Notary Public, State Of New York
Reg. 1AF6172419
Qualified in Ulster County
My Commission Expires August 13, 2011

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF MANNA JO GREENE

I, Manna Jo Greene, declare as follows:

1. My name is Manna Jo Greene; I live at 148 Cottekill Road, Cottekill, NY, which is within the 50-mile radius Emergency Planning Zone -- the peak injury zone in the event of a serious emergency at Indian Point. I am a long-standing member of, and now the Environmental Director for, Hudson River Sloop Clearwater, Inc. (Clearwater) -- a position I have held since 2000. I served on the Board of Directors for Clearwater for a year before accepting this position. I have two adult sons, Ivan and Solomon, who live in Manhattan and Brooklyn respectively, also within the 50-mile radius. I authorize Clearwater to represent my interests in the proceedings related to Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc. License Renewal Application.

2. I have lived in the Hudson Valley for most of the last 36 years, and am deeply connected to the Hudson River, which I cross daily on my way to and from work in Poughkeepsie. I choose not to swim in the Hudson or to eat fish that were caught in the Hudson to reduce my personal exposure to PCBs. I also inform others about health advisories regarding fish consumption and encourage them to wash soon after swimming or wading in Hudson to reduce dermal exposure. I do, however, frequently kayak in the Hudson, and have canoed in Constitution Marsh, as well as sailed on the Sloop *Clearwater* from Peekskill and Verplanck.

3. Before coming to Clearwater, I was the Recycling Coordinator/Educator for the Ulster County Resource Recovery Agency for 10.5 years and a Registered Nurse since from 1976 until 2001, and have been a lifelong activist for peace, justice and environmental protection. I earned A.A.S. in Nursing in 1976 from SUNY/Ulster; a B.A. in biology (pre-med) from SUNY/New Paltz, Magna Cum Laude, in 1986; and have completed three years towards a Masters in Environmental Studies at SUNY/New Paltz and two years at Bard College. As a Registered Nurse I held two certifications: one in Childbirth Education; another in Critical Care Nursing. I also helped to organized two union campaigns to improve the working conditions of nurses and other health care workers. As a Recycling Coordinator, I helped to develop Ulster County's household hazardous waste program and received and maintained the OSHA 40-hour Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training.

4. My advocacy career began when I was 17 years old and helped to organize (and was Secretary of) the Bridgeport, CT Chapter of the Congress of Racial Equality (CORE), and went to Washington, DC to work with Dr. Martin Luther King and other civil rights leaders to lobby for the passage of the Civil Rights Bill, an event that has empowered me for life. I was present when the Civil Rights Law was first passed in the US House of Representative and then in the US Senate, then had the honor of joining all the great Civil Rights leaders of this historic time and their grassroots supporters in the campaign's headquarters as we crossed our arms and sang the movement's anthem, "We Shall Overcome." As others were resigning themselves to the limiting belief that "You can't fight City Hall", my experience in the Civil Rights movement led me to conclude at an early age, "If your cause is just and you are persistent, you will eventually triumph."

5. I presently serve on the Rosendale Town Board, am a Contributing Editor the not-for-profit Hudson Valley GREEN Times, and am active in numerous civic organizations, including the Mid-Ulster League of Women Voters. I have also served on the Hudson Valley Regional Packaging Task Force, the NY State Battery Task Force and the NYS Roundtable for Consensus on Tire Management and hosted a weekly call-in radio program for five years on WGHQ in Kingston, "The Recycling Hotline and Environment Show."

6. To demonstrate the potential of sustainable energy practices, with the Hudson Valley Sustainable Communities Network, I built a high performance Sustainability Living Resource Center on my property in Cottekill, NY, which has reduced fossil fuel consumption for heat by 80% and is partially powered by a 1 kW of photovoltaic system, which generated one-third of the electricity used by that facility. I also wrote the New York State Energy Research and Development (NYSERDA) grants, which funded the Town of Rosendale Community Center's 10 kW solar system and 20 geothermal wells.

7. On September 12, 2001, I returned to work one day after witnessing the fall of the World Trade towers from the New Jersey shore to meet with Clearwater's then-Executive Director, Andy Mele. Andy and I took one look at each other and simultaneously said aloud, "Indian Point" -- as we both realized the profound additional danger the reality of terrorism presented for this plant located so near the greater New York metropolitan area.

8. In following Clearwater's tradition of building coalitions and collaborative relationships among stakeholders, Clearwater immediately called others together to form the Indian Point Safe Energy Coalition (IPSEC). Shortly after, we offered a Technical Briefing on Indian Point at the Desmond Fish Library in Garrison, NY, in January 2002, featuring distinguished presenters on nuclear energy, health effects of radiation, and other related issues.

The purpose of this educational event was to provide area elected officials and citizen activists with a strong knowledge base of sound information. My motto as Environmental Director for the past seven years at Clearwater is that "our credibility is our most important commodity."

9. I believe it's important not only to identify and work to correct the problems -- in this case related to the operations and potential future operations of Indian Point and its possible impacts on the ecology of the Hudson River and quality of life of people living in its watershed – but to also promote alternative solutions. In this regard, as Clearwater's Environmental Director, I have coordinated and coauthored:

- Clearwater's Public Comments on EPA's Hudson River PCB Superfund Reassessment and Proposed Remediation Plan, submitted April 17, 2001 (www.clearwater.org/epa/public-comment)
- Clearwater's Public Comments on EPA's Hudson River PCB Superfund Site Remediation, December 2003 Draft Quality of Life Standards – Air Quality; submitted February 17, 2004 (www.clearwater.org/pdf/pcbvolat.pdf).
- Clearwater's Energy Policy, 2001 (www.clearwater.org/news/energy2001.html)
- Clearwater's Comment on Draft NYS Energy Plan and Draft Environmental Impact Statement, submitted March 15, 2002 (www.clearwater.org/energycomment.pdf)

10. In 2002-03, Clearwater also coordinated "New York State Alternative Energy Plan: A Gold Standard for New York" – a collaborative response to the New York State's last published Energy Plan, in which we emphasized taking measures to shift energy use away from nuclear and fossil fuel toward clean, safe renewable, fuel-free recyclables and energy efficiency -- a document that was signed by many of the major energy and environmental groups in the region. In 2003–04, I worked with this same team to create the New York Energy Challenge, which included paper and web-based energy conservation and efficiency information and a pledge to action (www.nyenergychallenge.org/).

11. In 2004, Clearwater convened a six-college Intercollegiate Energy Audit, in which student interns, assisted by area experts in energy efficiency and renewables, looked at the energy consumption practices at Bard, Marist, SUNY/Dutchess, SUNY/New Paltz, SUNY/Ulster and Vassar College for three years and made recommendations for improvements – many of which have been adopted. I also designed Clearwater's Energy Continuum Banner (www.clearwater.org/pdf/energybanner.pdf), which is used widely at Clearwater festivals and other events, and my colleague, Andy Mele, developed Clearwater's Carbon Calculator (www.clearwater.org/carbon.html).

12. In 2002, Clearwater was also an active party with Assemblyman Richard Brodsky and other petitioners in filing an Article 78 action to require the New York Department of Environmental Conservation to act on Indian Point's SPDES permit application [*Brodsky vs. Crotty,* Sup. Ct., Albany County, Keegan, J, Index No. 7136-02]. Subsequently, Clearwater's Executive Director, Andy Mele, spoke on January 29, 2004, at an evening session of the adjudicatory hearing in support of closed cycle cooling at Indian Point as the best available technology (BTA) for reducing cooling water intake by 95-97% with comparable reductions in fish mortality.

13. Believing that an Independent Safety Assessment (ISA) is critical for the NRC to be able to objectively evaluate the LRA and make a determination regarding Entergy's request for a 20-year extension license for Indian Point Units 2 & 3, Clearwater worked with IPSEC to educate thousands of festival-goers at Clearwater's Great Hudson River Revival Festival in 2006 and 2007. We collected over 5,000 signatures in 2006 and over 4,000 signatures in 2007 for a petition calling for an ISA at Indian Point.

14. With the recent reports of increasing in the leaks at Indian Point, Clearwater and IPSEC sponsored a *Technical Briefing on Leaks at Indian Point* as a scientific inquiry into the problem; the event was held at Pace University on March 2, 2007 and a summary of key points is posted on Clearwater's website (www.clearwater.org/news/indianpoint2007.html).

15. Under my direction, Jonathan Stanton prepared a timeline of significant events relating to the leaks at Indian Point (*Timeline of Leaks at Indian Point Energy Center* or "IP Timeline", attached as Exhibit 3). I have reviewed the IP Timeline, and upon information and belief, I believe that the facts stated therein are accurate.

16. Clearwater also worked with a coalition of labor and environmental groups to cosponsor the *Roundtable on Bringing Sustainable Energy Infrastructure into the Hudson Valley*, at the International Brotherhood of Electrical Workers (IBEW) training facility in Harriman on April 12, 2007 (see www.clearwater.org/sustainenergy/index.html).

17. On August 8, 2007, I joined Katy Dunlap, Esq., Environmental Associate for Clearwater, and Michel Lee of IPSEC to meet with representatives from the NRC's Inspector General Office in at the Rye Town Hilton in Rye Brook, NY. At this meeting Clearwater raised a wide range of concerns including concerns about NRC's double standards; gaps in regulatory coverage; NRC showing too much deference to the Nuclear Energy Institute (NEI); recent failures at Indian Point; improper NRC use of security claims to prevent public from obtaining important information; NRC's failure to consider potential for terrorism; Indian Point's steam generator tube failure; potential for PWR sump failure; and fire safety concerns.

18. On September 19, 2007, I offered brief verbal public comment at the Scoping Meeting in Cortland Manor and followed up with brief written comments, which are now a matter of record (www.clearwater.org/pdf/091907publiccomment.pdf). Because the relicensing

process is so complex, Clearwater also posted *An Overview of the Relicensing Process for Indian Point* on our website, which was carefully vetted with NRC staff for accuracy (www.clearwater.org/pdf/091907relicensing.pdf).

19. One important observation I have made during my almost forty-five years of advocacy and more than twenty years of environmental protection is that government agencies, often in good faith, can make serious mistakes. A prime example was the removal of the Niagara Mohawk hydroelectric dam at Ft. Edward, which held back a large aggregation of PCB-laden Hudson River sediment. Because of an unfortunate government decision, the dam was removed, the PCB's were released and redistributed over time by currents into over 40 miles of concentrated "hot spots" in the upper Hudson, and have been found in sediments as far as 200 miles away in New York Harbor. Similarly, US EPA's first decision regarding the need for PCB remediation in the Hudson was a "No Action" decision. Without the continued urging from organizations such as Clearwater, Riverkeeper, Scenic Hudson, the Hudson River Fishermen's Association, NYPIRG, Sierra Club and Audubon, new information that was presented and the Hudson is much cleaner.

20. Given the inopportune location of Indian Point and the severity of potential impacts that could result from any serious failures, it is critical that that NRC assures a zero margin of error in evaluating Entergy's renewal application.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 10th day of December, 2007, at Poughkeepsie, NY.

Manna Jo Greene

Manna Jo Greene

MANNA JO GREENE, R.N., B.A.

148 Cottekill Rd.
Cottekill, NY 12419
Born: May 26, 1945
Resident of Ulster County: 36 years

Home phone: (845) 687-9253
Business: (845) 454-7673 x 113
Cell: (845) 807-1270
email: mannajo@clearwater.org

Employment:

July 2000 to present: Environmental Director, Hudson River Sloop CLEARWATER, Poughkeepsie, NY. Oversee and implement Clearwater's Environmental Action program, including networking, public outreach and education (details in attached declaration); founding member of Hudson Valley Watershed Alliance and Rondout Creek Watershed Council.

Jan. 1990 to June 2000: Recycling Coordinator/Educator, Ulster County Resource Recovery Agency, Kingston, NY. Coordinated the waste reduction and recycling educational efforts of 21 municipal recycling coordinators; developed and administered UCRRA's Waste Reduction and Recycling grants (over $3 million in funding), innovative programs for management of municipal organic waste composting (never implemented), household hazardous waste, sharps, tires, asbestos and computers/electronics, Waste Reduction and Recycling Performing Arts Program for schools and helped develop Ulster County's Solid Waste Management Plan/Comprehensive Recycling Analysis and Mandatory Source Separation and Recycling Legislation. Set up waste reduction and recycling program in all County buildings, published a manual on Commercial and Institutional Recycling and held well-attended trainings to initiate these practices.

Feb. to Dec. 1989: Recycling Coordinator, Town of New Paltz and SUNY/College at New Paltz; developed recycling instructions and promotional materials, public education and outreach, and planned and implemented the most comprehensive curbside and drop-off recycling program in Ulster County. Created a Campus Recycling Task Force to draft and implement the SUNY/New Paltz Waste Reduction and Recycling Plan.

Aug. 1979 to 2001: Registered Nurse, Critical Care Unit, Benedictine Hospital, Kingston, NY; on per diem basis since 1989; certified in Critical Care and Lamaze Childbirth Education.

1978-79: Maternity Nurse at United Hospital in Port Chester.

1976-77: Maternity Nurse at Kingston Hospital, Kingston, NY, 1976-77.

Professional affiliations included the American Assoc. of Critical Care Nurses; American Heart Assoc.; District 11, New York State Nurses Assoc.; Nurses Assoc. of American College of Obstetrics and Gynecology; New York State Federation of Nurses and Health Care Professionals (N.Y.S.U.T.), AFL/CIO. Taught Advanced Cardiac Life Support Instructor for American Heart Association and Neurological Critical Care Instructor, Ulster County Community College.

1972-73: Substitute teacher/volunteer for Headstart Program, Ulster County Community Action.

1968-76: Self-employed graphic artist, 1968-76.

1966-68: Editorial Assistant, United Press International.

1959-61: Rehabilitation volunteer, Gould Farm, Great Barrington, Mass.

Related Environmental and Solid Waste Experience:

Founder of Hudson Valley Sustainable Communities Network in 1994, which is now Sustainable Hudson Valley; initiator of Hudson Valley Environmental Network; board member and contributor to *Hudson Valley GREEN Times*; formerly Chair of Rosendale Environmental Commission; Board member of Hudson Valley Materials Exchange; member of Mid-Ulster League of Women Voters, chairperson of LWV Building Sustainable Communities study group and Urban Sprawl concurrence for two years.

Formerly served as Legislative Chairperson of New York State Association of Reduction, Reuse and Recycling; NYS Roundtable for Consensus on Tire Management; NYS Battery Task Force; founded Hudson Valley Regional Packaging Task Force. As a volunteer, designed and authored Rosendale's recycling brochure, which served as a prototype for several others in the region, and guided the creation of the Town's recycling program. Participant on a "Rural Recycling" panel at the NY State Legislative Commission on Solid Waste Management and Materials Conference; January, 1989. Cofounder Ulster County Y2K Preparedness Task Force; member Hudson River Environmental Society. Actively worked to promote sustainable agriculture including the Hudson Valley Harvest Campaign and the *Finding Common Ground* conference. Formerly member of Ulster Local Exchange Trading System (LETS), Huguenot Street CSA and NOFA/NY, Rose Women's Care Service, Save Our Future Action Coalition (SOFAC); NY State James Bay Network and Hudson Valley James Bay Action Network; Mohonk Preserve; Catskill Alliance for Peace; Ulster County Coalition for Peace and Justice; Rainbow Coalition; Educator for Social Responsibility; N.A.A.C.P.; Beyond War; Strand Community Organization for the Environment; High Falls Food Coop. Founding member of Rosendale Green Party (no longer active); Vice-Chair of Ulster-County Environmental Management Council and EMC Household Hazardous Waste Task Force. Host of weekly radio call-in show: "Recycling Hotline and Environment Show" on WGHQ 920 AM, 1995 to 2000. Educator for The Natural Step Framework, mentored by Terry Gips of the Alliance for Sustainability. Speaker to many municipalities and civic organizations and at many conferences throughout the Hudson Valley and beyond on a variety of topics, with a focus on environmental and resource conservation issues.

Education:

Bard College, Masters of Science in Environmental Studies Program; summers, 1988-89.

State University of New York, College at New Paltz, B.A. in Biology (pre-med), 1985, Magna Cum Laude; 30 credits towards Masters in Biology, with focus on Environmental Issues.

Ulster County Community College, A.A.S. Nursing, 1976; Moss Nursing Scholarship; Dean's List.

City College of the City University of New York, 1965-64; Liberal Arts.

Columbia University, School of General Studies, 1964-61; Liberal Arts.

Awards:

Pride of Ulster County Award, 1991
Ulster County YWCA Tribute to Women, nominated as a "Woman of the Year", 1993
"Spirit of the Universe" Award for commitment to Earth and Community, 1997
Mohonk Consultations' Award for Distinguished Service and Environmental Sensitivity, June 2000.

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF *Gilbert Hawkins*

My name is Gilbert Hawkins; I live at 123 Knapp Terrace, Leonia, NJ 07605, 26 miles from Indian Point, which is within the 50-mile radius of the peak injury zone in the event of a serious emergency at Indian Point. I am a member of Hudson River Sloop Clearwater ("Clearwater") and a Board Member of the Hudson River Fishermen's Association, and the Sierra Club.

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley Watershed in New Jersey for 63 years, and am very connected to the Hudson River. I have fished the river from Saugerties to the Atlantic Ocean. There is no doubt in my mind that people fish for subsistence in the Hudson River. The hunting and gathering instinct along with the basic need for food, transcends literal warnings, scientific jargon, or corporate legalese. The Public Trust Doctrine provides for a clean and sustainable habitat for all who fish the Hudson River

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 06th day of December, 2007, at Leonia, NJ.

Gilbert Hawkins

Gilbert Hawkins

State of New Jersey)
)ss.:
County of Bergen)

On the 6 day of December in the year 2007 before me, the undersigned, personally appeared Gilbert Hawkins, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Frances Lehmann

Notary Public

FRANCES E. LEHMANN
NOTARY PUBLIC OF NEW JERSEY
My Commission Expires 10-18-2008

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF Connie Hogarth

My name is Connie Hogarth; I live at 20 Hartsook Lane, Beacon, NY 12508, 20 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater").

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 50 years, and am very connected to the Hudson River.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 06 day of December 2007, at Beacon, NY.

Connie Hogarth
Your name here

State of New York)
)ss:
County of Dutchess

On the 6 day of December in the year 2007 before me, the undersigned, personally appeared Connie Hogarth, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Margarita Chushko
Notary Public

MARGARITA CHUSHKO
Notary Public, State of New York
No. 01CH5062166
Qualified in Kings County
Commission Expires June 24, 2010

I have lived for nearly 50 years in Westchester and now, Dutchess county and always, within 50 miles of the Indian Pt nuclear power plants on the Hudson,and sometimes closer. I love the river, I treasure the river and all the good things it brings to the people who reside anywhere near its shores.

During these years, I have always been aware of the dangers of nuclear power and the Indian Pt plants, but never as concerned , if not downright worried, as I am now, given the aging of these plants and the consequent abundant problems that surround its existence in our midst.

The leakage of radioactive elements into the river is not acceptable. I, on occasion, do swim in the river at Little Stony Point Park in Cold Spring, just down the road from where I live. Now that I know about these leakages, I will not swim there any longer. This clearly affects my way of life, and that of hundreds of people who have taken such pleasure in being so close to the river edge and enjoyed its waters.

I now live facing the river, here in Dutchess Junction, and I find it heart-breaking to consider the impact the Indian Pt nuclear power plants have had on our quality of life...the fishkills, the radiation both in the form of the current (and who knows how long past?) leaks of radioactivity into the water and the low level radiation which is emitted into the air, despite the denial of the plant owners, Entergy.

I am also aware that there is an earthquake fault, the Ramapo fault, which lies across the river so close to the plant, and with the uncertainty these days of the effects of absolutely proven global warming, and the changes, universally, of patterns of earthquakes , hurricanes, tornadoes and the unpredictability of these events, one rightly can be worried about an earthquake that can affect further the fragility of the plant and a possible resulting tragedy.

The effect on the quality of life for all of us in this region, while these plants are still on line, is profound. That is why I consider it so urgent for the health and safety of many hundreds of thousands of people that the NRC <u>not</u> extend the life of these plants.

And furthermore, I believe it is time, far beyond time, that these monsters in our midst, with their loads of nuclear waste, be shut down permanently.Time may not be on our side.

Connie Hogarth

--Connie Hogarth
20 Hartsook Lane, Beacon,NY 12508

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF RANDOLPH HORNER

My name is Randolph Horner; I live at 6 Hervey White Road, Woodstock NY 12498, approximately 60 miles from Indian Point. While not residing within the 50-mile radius of the peak injury zone, I have a profound connection to the Hudson River Valley and have therefore requested representation in the above-captioned matter, because the issues with which I am involved go far beyond the 50-mile radius, having overwhelming regional and even national significance.

I am a member of Hudson River Sloop Clearwater ("Clearwater") and numerous other organizations concerned with the stewardship of the Hudson River Estuary ecosystem and the Hudson National Heritage River patriotic and cultural resource, including without being limited to Riverkeeper, Scenic Hudson, Hudson River Heritage, Sustainable Hudson Valley, and the Garrison Institute Hudson River Project. I am the founder of the Zero Carbon Initiative, prototyped in Woodstock, New York as an international model for energy sustainability and the solution to the global warming crisis. I led the civic effort culminating in Woodstock's official commitment, by an unprecedented Town Board Resolution, to reach carbon neutrality within a decade – making news across the nation and overseas.

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for more than 12 years, and am very connected to the Hudson River. Based upon sound evidence, I am absolutely convinced that the aging, leaking, and deteriorating nuclear power plant constitutes a threat to every aspect of civic life and to an environmentally and economically sustainable future. I am informed, and therefore believe, that Indian Point 2 and 3 should be closed immediately, and I believe that the reliable facts available dictate that Entergy not be allowed to extend their operation, but should instead decommission and dismantle them.

In addition to the well-founded objections to continued operation that have already been made, based upon issues of public safety, I also believe that the continued operation of the nuclear power plant also imperils the cultural and ecological heritage essential to the economic well-being of a region vitally important to the nation as a whole.

I believe the following to be true:

1. Global warming has now been shown conclusively to be a catastrophe in the making for the planet as a whole, but in particular for New York City – the most important metropolitan area in the United States – and for the Hudson River Estuary. Contrary to the false assertion that nuclear power can aid in combating the climate crisis, however, exactly the opposite is true. Vast releases of carbon into the atmosphere result from the mining, refining, and transportation of nuclear fuel; moreover, the amount of financial resources tied up in the continued subsidy of the dangerous nuclear electricity generation approach, denies the genuine renewable energy economy access to the same financial resources needed to move those truly sustainable energy systems to the point of critical mass.

2. In Solar Revolution: The Economic Transformation of the Global Energy Industry (MIT Press, 2006, which I incorporate herein by reference in its entirety, author Travis Bradford carefully and competently makes the economic case that only Photovoltaic and Solar Thermal Energy, coupled with the ultimate realization of end-use Energy Efficiency, can save humankind from the twin perils of climate crisis and the collapse of the fossil fuel supply. Continuing to support the dangerous, and economically infeasible, nuclear power industry would only serve to impede the massing of civic will and investment capital needed to drive the "step change" to Solar Sustainability.

3. Not a small part of the financial crisis looming over both our fiscal economy and the building of political agreement on the ultimate solution to global warming is the staggering cost of decommissioning and dismantling nuclear power plants. Entergy purchased Indian Point 2 and 3 subject to this financial obligation, and must meet that responsibility immediately – with entirely private funds, derived from its other on-going operations. Instead, the company proposes to defer that expense to a time in the future when it could amount to billions of dollars more than now, whereupon Entergy would – I believe – declare bankruptcy, and leave us taxpayers to clean up the mess, exactly when every available dollar should be going into support of renewable energy generation and Energy Efficiency, for New York State and the Hudson Valley.

4. Finally, the entire Hudson Valley is sacred to America's patriotic history and absolutely essential to the continued economic and cultural leadership of New York City. Any possibility of a nuclear accident or terrorist act likely to blight or harm this region, would have economic consequences – I believe – not in the billions, but the trillions of dollars.

But the potential threat to the heart and soul of America is beyond any financial reckoning. Therefore, I believe that continued operation of these plants must not be permitted.

I declare under penalty of perjury that the foregoing is true and correct, except as to matters stated upon information and belief, and, as to those, I believe them to be true.

Executed this 26th day of November, 2007 at Kingston, NY.

Randolph Horner

Randolph Horner

State of New York)
)ss.:
County of Ulster)

On the 26 day of November, in the year 2007 before me, the undersigned, personally appeared Randolph Horner, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual executed the instrument.

Antoinette Schettino
Notary Public

My Commission Expires: 5/15/10

ANTOINETTE SCHETTINO
No. 01SC6041812
Notary Public, State of New York
Qualified in Ulster County
Commission Expires 5/15/2010

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF *Jennifer Ippoliti*

My name is Jennifer Ippoliti; I live at 131 Upper Pinekill Road, Westbrookville, NY 12785, 37 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater").

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 40 years. I grew up in Manhattan, and remember hearing the occasional joke about how the Hudson was so polluted and full of garbage that you could walk across it. The closest I ever got was rollerblading alongside its banks or the occasional trip on the Circle Line. Around 15 years ago I became aware of the efforts that Clearwater and other organizations had made cleaning up the river. I decided it was finally time to pursue my goal of learning how to kayak. My husband and I took lessons down at the New York City Downtown Boathouse, an all-volunteer organization that is dedicated to providing public access to the Hudson River. This great organization introduced us to the river as a recreational resource. We soon bought a folding tandem kayak and kept it at the 79th Street Boat Basin. We would put in in Manhattan, put up the sail if the wind was cooperating, and sail/kayak up the river until we got tired. Then we'd pull over at a train station, fold up the boat, and take the train back into the city.

Kayaking the Hudson inspired us to buy a sailboat, which we put in Jersey City. Now we could spend more time on the water, and go farther on our excursions. It also meant that I commuted across the river by ferry several mornings a week. I noticed I was part of a trend of people taking advantage of the river not just for recreation but also for transportation. On weekends, as we sailed up the river, I would often notice people fishing up by the West Side Highway. I was impressed at how much the river cleanup had progressed - until I saw signs in my marina cautioning people not to eat more than one fish a month caught in the Hudson – and no fish at all for pregnant women.

Then I learned about Indian Point and the leakage of radioactive water into the Hudson. I grew up in the '70s, when the media was covering the meltdown at Three Mile Island. I never even considered the possibility that another threat was less than 50 miles from my doorstep. It is simply unfathomable that we are even discussing relicensing this facility given the threat it

poses, and considering the population density and strategic importance of Manhattan to the global economy.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 24th day of November, 2007, at Westbrookville, NY.

Jennifer Ipoliti

State of New York)
Orange (AH) ss.:
County of ~~Sullivan~~)

On the 24th day of November, in the year 2007 before me, the undersigned, personally appeared Jennifer Ippoliti, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

ANGELA HAMILTON
Notary Public - State of New York
NO. 01HA6117315
Qualified in Ulster County
My Commission Expires 10/25/08

Standing Exhibit 1.11

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF Arthur Kamell

My name is Arthur Kamell I live at 20 Hartsook Lane, Beacon, NY. 20 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater") and (list any other relevant organizations here).

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions: and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley all of my life, and am very connected to the Hudson River.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 26th day of November, 2007, at Putnam, NY.

Arthur Kamell

Arthur Kamell

Date 12/10/07

My name is Arthur Kamell. I live at 20 Hartsook Lane, Beacon,NY about 20 miles from Indian Pt. I am a member of the Hudson River Sloop Clearwater.

Clearwater represents my interests in a petition for leave to intervene, request for hearing and contentions; and the notice of appearance, in the matter of Entergy Nuclear Operations, Inc, License Renewal Application.

I am 79 years old and have lived in the Hudson Valley virtually all my life. I was born in Yonkers, NY, moved and lived in the rivertowns of Hastings, Dobbs Ferry, Dutchess Junction and Beacon ,NY. For a short period when I did not live in the Hudson Valley, I lived on the shore of the Hudson on 110th St and Riverside Drive in Manhattan.

These were all matters of choice for me because I love the river and have wanted to be near it while it still remains in a relatively healthy state, a state which nourishes me both emotionally and psychically.

But in supporting Clearwater's opposition to Entergy's license renewal application, I am neither asking for or expect the NRC to react just to satisfy my psychic needs but to consider them as representative of thousands of others, now alive, and the many other hundreds of thousands yet unborn who might not otherwise have an opportunity to flock to the river, to swim it, sail it, fish it and find their psychic sustenance in it too.

There is no public need to jeopardize all this, by granting Entergy's economic request. The river, its health, its beauty belong to all of us.

--Arthur Kamell
20 Hartsook Lane, Beacon,NY
Arthur Kamell

Sworn to before me
this 26th day of November, 2007.

ANDREW WEBB
Notary Public - State of New York
ID No. 01WE6163981
Qualified in Dutchess County
My Commission Expires April 09, 2011

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF *Michelle LeBlanc*

My name is Michelle LeBlanc; I live at 63 Seifert Lane, Putnam Valley NY, 15 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater"), the Putnam Valley Democratic Committee, the Putnam Arts Council, and Co-op America.

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 30 years, and am very connected to the Hudson River. My husband and I boat on the river and regularly hike and eat at restaurants overlooking the river. I mention the mighty Hudson in my local jazz concerts. We live in fear of the aging Indian Point and when thinking of the inevitable leak or worse, we cry for our beautiful and beloved Hudson Valley. If the plant stays in operation, we will be moving out of the area. Please close it.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 26 day of November, 2007, at Carmel, NY.

Michelle A LeBlanc
Your name here

State of New York County of Putnam
ss.:
On the 26th day of November, in the year 2007 before me, the undersigned, personally appeared Michelle A Leblanc, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Carol J. Jiminski
Notary Public
CAROL J. JIMINSKI
Notary Public, State of New York
No. 04J6138344
Qualified in Putnam County
Commission Expires December 19, 2009
04J6138344

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C.	)	**License No.**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**DPR-26**
Indian Point Energy Center Unit 2	)	**Docket**
		No. 50-247
License Renewal Application	)	

DECLARATION OF *Anne Todd Osborn*

My name is Anne Todd Osborn; I live at 200 Osborn Drive, Garrison NY, less than 7 miles downwind of Indian Point, which is within the 10-mile radius of the lethal zone. I am a member of Hudson River Sloop Clearwater ("Clearwater"), Saint Philip's Church in the Highlands, NY- NJ Trail Conference, Garrison Volunteer Ambulance Corps, Garrison Yacht Club, Garrison Fish and Game Club, and Hudson Valley Shakespeare Festival, Paramount Center for the Arts, Putnam County Historical Society, Putnam Highlands Audubon Society, Russel Wright Design Center at Manitoga, and Garrison Art Center.

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 20 years. I am intimately connected to the Hudson River. I hike the trails along its shores. I bird watch in its marshes. I canoe from Fishkill to Croton. I watch West Point United States Military Academy Cadet crew and sailing teams on the river across from our house. I can see the containment vessels and stack at Indian Point from my front yard. There used to be a monitored seismic recorder in our garden to see if earthquake activity in the area threatened safe operation of Indian Point. This was removed in the late 1980s. I breathe the air that blows from Indian Point. I boat in the Hudson and launch boats at Peekskill. My children and grandchildren boat and play in and on the river. Unmitigated and continued radioactive leaks from an aged nuclear facility worry me. I sincerely hope that the NRC License to continue operation of these deteriorating plants for another twenty years is NOT renewed. Faulty warning systems and roadways congested under normal conditions make successful vehicular escape in the event of an emergency evacuation unlikely. I declare under penalty of perjury that the foregoing is true and correct.

Executed this 20th day of November, 2007, at Garrison, NY

Anne Todd Osborn
State of New York
( )ss.:
County of Putnam

On the 20th day of November, in the year 2007 before me, the undersigned, personally appeared Anne Todd Osborn, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that she executed the same in her capacity, and that by her signature on this instrument, the individual executed the instrument.

Camilla W. von Bergen
Notary Public, State of New York
Certificate No. 01V04663161
Filed in Putnam County
Expires April 30, 2010

Notary Public

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF Natalie M. Patasaw

My name is Natalie M. Patasaw. I live at 31 Tammy Road, Wesley Hills, N.Y.,10977, 23.5 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater, Inc. ("Clearwater") and a member of the Board of Directors.

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I was born and raised in New York City, 45 miles away from the Indian Point Power Plant. Like many New Yorkers, I was totally unaware of the danger of nuclear power accidents until later in life as an adult and information of plant failures and accidents around the world became headline news. I have lived in the Hudson Valley for 10 years, drawn to the area because of its intrinsic beauty, which includes the Hudson River. I now live much closer to the plant.

I feel quite connected to the Hudson River as I have spent my entire life looking at its majestic scenic views, enjoying riverside parks in NYC, Westchester and Rockland counties. As a member of Clearwater I have sailed on the Hudson River countless times, either for pleasure or as a volunteer on-board crew member, teaching seminars on the aquatic and riparian environment. As an area resident, I cross the river on a weekly basis as I go to worship in NYC and visit my family members and friends who reside in the greater NYC metropolitan area.

The pollution of this river, which includes radioactive materials from the plant, is a contributing factor as to why many of my friends and family who enjoy fishing as a pastime, never fish in this river, to my knowledge. It is a known fact that the fish are unsafe for human consumption. I have come to learn of the thermal pollution to the fish larvae and the negative impact that has on the food chain of the aquatic environment. I have also come to learn about the radioactive leaks into the air and the ground. It is my understanding that this nuclear plant has one of the worst safety records of the 103 operating plants in the country.

As an African American citizen, I am also concerned about the impact of the evacuation plans for residents in the area. There are horrendous and telling stories about how this country's government agencies handle the evacuation of communities of color and poor communities with residents of any color. Most recently, the world witnessed this as Hurricane Katrina landed in the Gulf of Mexico states. We hear most often about New Orleans, but the low-income communities in other areas of Louisiana, Alabama and Georgia were also recipients of disparate treatment in their evacuation and in their ability to return home to pick up the pieces of their lives.

The difference in this case however, is that there may not be communities to return to after a nuclear accident because, as anyone reading this knows, there is no safe level of radiation exposure from a power plant explosion or just leaks without medical problems. This area is a known cancer "hotspot". I believe there is a correlation.

Another category of concern is the environmental justice that would be afforded to the men and women who work in the area jails and prisons, as well as those incarcerated there who are predominately African American and Latino. To my knowledge there are 50 jails and prisons within the impacted zone of the power plant. It is common knowledge that 55 percent of the prisoners in these jails and prisons are African American and another very high percentage being Latino. What are the evacuation plans for these people? What priority would they be given for evacuation in the event of an emergency? This population is often overlooked because they have been found guilty of various charges and locked up for them. Does this then give them an automatic death sentence if they cannot be taken out of the area in a timely manner?

There are many more technical and scientific reasons that experts in this field can give to close this power plant. My reasons are based on living in this area, and I believe from anecdotal conversations there are many other area residents that feel the same way as do I.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 30th day of November, 2007, at Spring Valley NY.

Natalie M Patasaw

Natalie M. Patasaw

State of New York)
)ss.:
County of Orange)

On the 30th day of November in the year 2007 before me, the undersigned, personally appeared Natalie M. Patasaw, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Pedriena W

Notary Public

PEDRIENA WHEELER
Notary Public - State of New York
NO. 01WH6064639
Qualified in Orange County
My Commission Expires 10/11/09

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF GEORGE POTANOVIC, JR.

My name is George Potanovic, Jr., I live at 597 Old Gate Hill Road, Stony Point, NY 10980, 6 miles from Indian Point and within the 10-mile radius of the Emergency Planning Zone, also known as the peak fatality zone. I am a member of Hudson River Sloop Clearwater ("Clearwater") and the Stony Point Action Committee for the Environment (SPACE).

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for more than 46 years, and am very connected to the Hudson River. For me, the Hudson River provides an historical, recreational and aesthetic component in my life as an American Heritage River. I hike along its banks, canoe along its shorelines and tributaries and photograph its majestic nature in my work as a professional photographer for New York State and Rockland County tourism campaigns in the Hudson Valley.

I have lived in Stony Point for 26 years and our home is located within a 6-mile distance of Indian Point. I am very concerned about the continued operation and licensing of Indian Point 2 and 3 – not only for the health and welfare of my family, but for my neighbors and community as well. The Town of Stony Point is located within one mile of the Indian Point reactors. The lack of a workable evacuation plan for the communities surrounding such an aging, leaking and deteriorating plant and the continued onsite storage of radioactive waste in such a densely populated area compound my health and safety concerns. The fact is that current regulations would not permit the construction of a nuclear plant at that location today. The potentially devastating impact to our property values and entire economy in the lower Hudson Valley Region is at risk in the event of any substantial accident.

In addition, United Water – NY has recently proposed to the County of Rockland and the State of New York, that it be permitted to draw and treat Hudson River water, as a new source of public water supply, due to the limited water resources in our county. I am very concerned about United Water's current plans to locate a public water desalination plant in close proximity to Indian Point. Of special concern is the questionable quality of Hudson River water that surrounds Indian Point, due to its operation and suspected leaks of radioactive components into the river.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 23 day of November, 2007, at Stony Point, NY.

George Potanovic, Jr.

State of New York)
)ss.:
County of Rockland)

On the 23 day of November, in the year 2007 before me, the undersigned, personally appeared George Potanovic, Jr. personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

TIMOTHY MCPHILLIPS
NOTARY PUBLIC, STATE OF NEW YORK
QUALIFIED IN ORANGE COUNTY
NO. 01MC6149365
MY COMMISSION EXPIRES JULY 10, 2010

Standing Exhibit 1.16

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Lawrence G. McDade, Chair
Dr. Richard E. Wardwell
Dr. Kaye D. Lathrop

In the Matter of	)	Docket Nos. 50-247-LR and 50-286 LR
ENTERGY NUCLEAR OPERATIONS, INC.	)	ASLBP No. 07-858-03-LR-BD01
(Indian Point Nuclear Generating Units 2 and 3)	)	

DECLARATION OF JEFFREY N.S. RUMPF IN SUPPORT OF HUDSON RIVER SLOOP CLEARWATER INC.'S PETITION FOR LEAVE TO INTERVENE, REQUEST FOR HEARING, AND CONTENTIONS

JEFFREY N.S. RUMPF, pursuant to the penalty of perjury, declares the following:

1. I am a member and the Executive Director of Hudson River Sloop Clearwater, Inc. ("Clearwater"), a New York not-for-profit corporation. I submit this declaration in support of Clearwater's Petition, pursuant to 10 C.F.R. § 2.309, for leave to intervene in the above matter regarding Entergy Nuclear Operations, Inc.'s (Entergy") License Renewal Application for an additional 20-year term of the facility operating licenses for Indian Point Energy Center (Indian Point). I authorize Clearwater to represent me in this proceeding.

2. I am a life-long Hudson River Valley resident, having grown up in Nyack, New York, steeped in the nature, culture, and spirit of the Hudson River. I live at 8 Orbit Lane, Hopewell Junction, NY, approximately 30 miles from Indian Point, which is within the 50-mile radius

Ingestion Exposure Pathway or the Peak Injury Zone of the EPZ. The Clearwater office is located at 112 Little Market Street, Poughkeepsie, New York, thirty miles from Indian Point.

3. I have lived in the Hudson Valley for 30 years, and am very connected to the Hudson River. On a personal level, the river has been a peaceful place where I go to take some time for myself. As a kayaker of thirty years, I have spent many sunny afternoons on the Hudson, resting, relaxing, and enjoying the natural beauty the area offers. The river is not only my place of play, but is my home as well. As a youth I was raised in Nyack and am now a parent raising three children in Hopewell Junction. I find it as crucial as ever to create as safe an environment as we can for families such as my own living in the area. My children and I picnic along the banks of the Hudson, go crabbing in its waters, and swim in the estuary's tributaries. The risk that nuclear energy poses and the possibility it has to damage such a significant cultural and natural center is a concern that troubles endlessly. On a professional level, I have personally researched the health implications and the safety hazards that Indian Point poses. There are a multitude of strong scientific and factual concerns that I have regarding the safety of the aging plant. These issues must be addressed in a proper fashion if the plant's license is to be renewed.

4. Clearwater and its members, including myself, have the right to intervene in this proceeding because our vital interests will be affected by the possible grant of Entergy's application. A grant of the application would directly cause Clearwater and its members, including myself, to suffer concrete and particularized injuries – detailed in its Petition – that would be completely redressed by denial of the application.

5. Clearwater's Petition shows that the subject relicensing would cause injury both to its organizational interests and to the interests of many of its individual members; therefore, it has both organizational and representational standing. The Petition shows, among other things, that

relicensing may result in adverse health and safety risks to Clearwater and its employees, volunteers and members from improper design and management of the equipment; inadequate fire protection programs, and from emissions of radioactive materials and fission products. The Petition therefore shows that Clearwater and many of its members have a real stake in the outcome of the proceeding.

6. Clearwater's standing also derives from its and many of its members' proximity to the Indian Point facilities – because the proposed action involves a significant source of radioactivity producing an obvious potential for offsite consequences and Clearwater and many of its members are located within and have frequent contacts with the zone of possible harm from the nuclear reactors.

7. Because Clearwater's Petition shows that even normal facilities operation – let alone negligent operation – causes releases of radioactive emissions and fission products directly harmful to Clearwater, its employees, volunteers and members, and that these injuries would be redressed by a ruling that disallowed the license renewal application, Clearwater has demonstrated its standing to intervene.

8. As part of my duties as Executive Director of Clearwater, I have responsibility for the records of the organization, and I have reviewed those records in connection with this Declaration. Established in 1966 as a New York not-for-profit corporation, Clearwater has been a leader in defending and restoring the Hudson River for the past 41 years. Clearwater's mission is to protect and restore the Hudson River. Clearwater is a membership organization with a total of four thousand five hundred forty-eight (4,548) current member households (including both individual and family memberships, as of November 30, 2007. Over the past 5 years, Clearwater's membership has included nine thousand, nine hundred and ninety (9,990) member-

households. Of this membership, six hundred fifteen (615) member-households, or 6.2%, are located within ten (10) miles of the Indian Point facilities, and six thousand seven hundred fifty (6,750) member-households, or 65.8%, are within fifty (50) miles of the Indian Point facilities. A map showing the number of member-households within the ten and fifty miles of Indian Point is attached hereto as Exhibit 2.

9. Each year, Clearwater accommodates nearly thirteen thousand (13,000) children and adults for educational sails on the Hudson River on its wooden sailing sloop – the *Clearwater* – conducting floating classrooms and laboratories within several miles of the Indian Point facilities, docking at both Verplanck and Peekskill and many other docks within the Emergency Planning Zone, as well as docks up and down the Hudson and on Long Island Sound

10. Each June, Clearwater holds the Great Hudson River Revival Festival at Croton Point Park seven (7) miles from the Indian Point facilities – featuring arts and environmental education and advocacy events for over fifteen thousand (15,000) people. In addition, each year, Clearwater teaches to thousands more individuals the history, biology, and environmental science of the Hudson River through on-land classroom visits, field programs and public exhibits throughout the Hudson River Valley, including many areas within ten miles of Indian Point.

11. Since 1966, Clearwater has been actively engaged in investigating and researching contamination of the Hudson River; informing, educating and assisting the public in preserving the Hudson River; fostering the historic and cultural heritage of the Hudson River Valley; and protecting the health, safety and well-being of the people living along and near the Hudson River. Clearwater's principal objective is to achieve a Hudson River ecosystem capable of sustaining the reproductive integrity, health and well-being of life at all levels.

12. Clearwater played a key role in the passage of the federal Clean Water Act in 1972 and has continuously conducted environmental action programs with science-based strategies designed to restore and protect the quality of the Hudson River watershed. Clearwater was actively involved in addressing the environmental problems caused by Indian Point 1 until the facility's closure in 1970, and has been actively involved in addressing the health, safety, environmental and social issues created by Indian Point 2 and 3 since their inception in 1973 and 1975.

13. In its long history, Clearwater has been involved, and has had standing, in a variety of environmental litigation in its history. Most of it has related to the Hudson River, and some has concerned Indian Point. Here is a list of some of the reported decisions where Clearwater has been a party:

> *In Re Brodsky, Hudson River Sloop Clearwater Inc, Peter and Toshi Aline Seeger et al v. NYS Dept. of Environmental Conservation and Entergy Nuclear Inc. et al*, 1 Misc.3d 690, (2003)(Article 78 proceeding seeking a hearing and review in connection with Indian Point's application for a State Pollution Discharge Elimination System (SPDES) permit).
>
> *Hudson Sloop Clearwater, Inc. v. Cuomo*, 222 A.D.2d 386 (1st Dept 1995)(concerning environmental impact statement for creation of the Hudson River Park Conservancy).
>
> *In Re Industrial Liaison Committee of the Niagara Falls Area Chamber of Commerce v. Williams, Hudson River Sloop Clearwater, et al.*, 72 N.Y.2d 137 (1988)(concerning SPDES permits relating to industrial users and dischargers into Niagara Falls Wastewater Treatment Plant and into the surface waters of New York).
>
> *Hudson River Sloop Clearwater v. Dept. of Navy*, 836 F.2d 760 (2nd Cir. 1988) (seeking preliminary injunction prohibiting dredging and pier construction by the United States Navy with respect to the proposed Staten Island homeport for battleship pending compliance with NEPA).
>
> *Hudson River Sloop Clearwater Inc v. Consolidated Rail Corp.*, 768 F.2d 57 (2nd Cir. 1985)(bringing citizen's suit under Clean Water Act to compel compliance with NPDES/SPDES permit).

Natural Resources Defense Council, Inc., River Sloop Clearwater v. Marsh, (1983), 568 F. Supp. 1387 (E.D. N.Y. 1983)(seeking protection of portions of Gateway National Recreation Area in New York Harbor from U.S. Government and military use).

Environmental Defense Fund, Hudson River Sloop Clearwater, Inc et al v. Johnson, 476 F. Supp. 126 (S.D.NY 1979) (seeking declaratory and injunctive relief alleging that the defendants, State Army Corps of Engineers prepared plans for the Hudson River Skimming Project in violation of NEPA and other laws).

14. Clearwater's participation in the proceeding will assist the Nuclear Regulatory Commission in developing a sound record because Clearwater will be presenting evidence concerning the local health, safety, environmental and social issues related to Indian Point 2 and 3. It will provide local insight, information and evidence -- based upon its history, and diverse membership -- that cannot be provided by the Applicant or other parties.

15. There are no other means available whereby the interests of Clearwater and its members, employees and volunteers will be protected.

16. The interests of Clearwater and its members, employees and volunteers are unique and will not be represented by the existing parties.

17. Clearwater is not raising inappropriate issues; therefore, its participation in the proceeding will not inappropriately broaden the issues or delay the proceeding.

I DECLARE PURSUANT TO THE PENALTY OF PERJURY THAT THE FOREGOING IS TRUE.

JEFF RUMPF

DATED: DECEMBER 10, 2007

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF *TOSHI AND PETE SEEGER*

We are Toshi Seeger and Pete Seeger. We have lived in Dutchess Junction, Fishkill Township, Dutchess County, NY, for 58 years. Our home is about 16 miles north of Indian Point, which is within the 50-mile radius of the peak injury zone. We are members of Hudson River Sloop Clearwater ("Clearwater"), the Beacon Sloop Club and River Pool at Beacon.

We helped start the Clearwater Organization 41 years ago; Clearwater represents our interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

We are also founders of the River Pool at Beacon, an organization dedicated to encouraging swimming in the Hudson River. For the last four summers we have held a public swim from Newburgh to Beacon, attracting over 100 swimmers. Should these swims be discontinued now, with Entergy releasing radioactive materials into the River?

Murphy's Law says that if an accident can happen, sooner or later it will. It's true that Global Warming means we must find substitutes for coal and oil. We must start now using more solar energy and wind power, not Nuclear power.

Thank you.

I declare under penalty of perjury that the foregoing is true and correct.
Executed this 27th day of November, 2007, at Fishkill, NY.

Pete Seeger and Toshi Seeger

Pete Seeger and Toshi Seeger

State of New York)
)ss.:
County of Dutchess)

On the 27th day of November, in the year 2007 before me, the undersigned, personally appeared Pete Seeger and Toshi Seeger, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

DAVID BERNZ
NOTARY PUBLIC, State of New York
No. 02BE5025441
Qualified in Dutchess County
Commission Expires 3/28/00

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF *Jonathan Stanton*

My name is Jonathan Stanton; I live at 131 Upper Pinekill Road, Westbrookville, NY 12785, 37 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater").

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 30 years, and am very connected to the Hudson River.

I was born and grew up on the upper west side of Manhattan. As a child our apartment overlooked the Hudson River. We lived on Riverside Park, and I played in it every day. I went to school at Riverside Church. My family took me on the Circle Line every fall, and I hiked in the Palisades with my Uncle and cousins in the Spring. My father had a small fishing boat when I was in High School. I remember my time with him on the Hudson fondly.

When I returned from college, my wife and I moved into an apartment on the upper west side of Manhattan. We kept a tandem kayak at the 79th Street Boat basin, and kayaked on the Hudson a couple times a month, rain or shine, warm or cold for five or six years. We took our kayak with us when we moved out of our apartment eleven years ago to move onto a sailboat on the Hudson River and a house on the Bashakill Wetland Wildlife Management Area. The Bashakill was a part of the Delaware and Hudson Canal (D&H Canal), and the sailboat lies in the Morris Canal which, like the D&H Canal, was a part of the historic trading networks connecting the Delaware and Hudson. We feel connected to the Hudson's history.

Spending time year round on a sailboat on the Hudson provides us with a lot of interaction with the Hudson itself. Over the past decade we have watched as the Hudson recovered from the previous centuries' devastation. When it's warm we find ducks and geese waiting for us when we get up in the morning, hoping that we have some old bread or crackers for them. We swear that the same family of ducks have been visiting us, and raising their young by our boat for years, but we can't be sure. In the spring and fall we watch the annual migration of countless birds as they feed in and on the banks of the Hudson. In the summer, we watch crabs scurry around our waterline. In the winter we watch harbor seals sleep on the rocks. Although we sail on the Hudson more than we kayak these days, we still enjoy kayaking several times a year. Until recently, we would swim and scuba dive off of our boat in the Hudson. We hike the banks of the Hudson and the Palisades, bird watching and learning about the local ecosystem. Our connection to the Hudson River is longstanding and important to us.

I am deeply concerned about the history of problems at the Indian Point Energy Center (IP), not just for my family, but for the Hudson Valley ecosystem. IP was one of the first reactors built in America. It was built at a time in American culture when we had greater faith in Science's ability to solve our problems, and before the Environmental movement. When leaks were found in IP2 a hydrological study of the area had to be completed and test wells had to be installed. That these measures had to be taken decades after construction of the site speaks to the carelessness with which the site was built. Not enough thought was given to the impact of problems with the plant's operation before the plant was built. Not enough thought was given to isolating radioactive materials from the Hudson Valley ecosystem. Not enough thought was given to the potential need to evacuate a major metropolis.

To be fair, IP was built a long time ago. There weren't as many people in the area in the 1960's. Three Mile Island, the notion of the China Syndrome, and Chernobyl hadn't happened yet. Nuclear energy was a brand new technology. I can even understand why IP2 and IP3 were built even though there had been such problems with IP1. A lot of money had been spent, and a growing city needed electricity. I don't bear any bad will against the people of the 1960's and 1970's that delivered this problem to us. They didn't know any better. But we do. These plants' licenses should not be renewed anywhere, let alone at the doorsteps of one of America's largest urban centers.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 24th day of November, 2007, at Westbrookville, NY.

Jonathan Stanton

State of New York)
Orange (AH))ss.:
County of ~~Sullivan~~)

On the 24th (AH) day of November, in the year 2007 before me, the undersigned, personally appeared Jonathan Stanton, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Angela Hamilton
Notary Public

ANGELA HAMILTON
Notary Public - State of New York
NO. 01HA6117315
Qualified in Ulster County
My Commission Expires 10/25/08

JONATHAN STANTON

(917) 536-3060
Himself@JonathanStanton.com

FAIRLEIGH DICKINSON UNIVERSITY, Teaneck, NJ **1/03 - Present**
Adjunct Professor of Philosophy

- Area of interest: Environmental Ethics

CITIGROUP, New York, NY **3/03 – 5/06**
Vice President, Operational Efficiency and Vendor Management
Sector role responsible for **Smith Barney**, **Private Bank**, **Asset Management**, and **Equity Research**

Operational Efficiency Team

- Established and led a SWAT team focused on providing:
  - Cost reduction and cost avoidance
  - Decision support tools to help managers make better procurement, and technology decisions.
- One of these decision support tools reduced the Private Bank's intercompany technology spending by over 30%. Citigroup Corporate generously recognized my team's accomplishments and rolled this tool out to all of Citigroup's businesses globally.

Vendor Management

- Negotiated all Operations and Technology contracts.
- Reduced vendor charges while improving service levels.
- Established the Vendor Management Role in the Private Bank, and then grew that role to support the Global Wealth Management Sector, one of Citigroup's three sectors.
- Built the supporting business processes and systems to comply with Audit and Compliance's mandates.

MERRILL LYNCH, New York, NY **9/97 – 4/02**
Vice President, Technology Group

Global Deployment Manager, Global Managed Desktop Services Program

- Led a team of project managers deploying a global cost reduction program to outsource support of 25,000 desktops, saving $50,000,000 over a three-year period while improving service levels.
- Responsible for Merrill Lynch's global desktop and workstation standards. The implementation of these standards saved over $15,000,000 a year. Coordinated finance, procurement, certification, and build teams.
- Managed several vendor relationships.

Global Debt Business Infrastructure Manager

- Promoted to lead a global team, primarily based in NY and London, of over 150 people, who provided infrastructure services to Fixed Income Sales and Trading clients.
- Managed an $11,000,000 budget. Responsible for a $189,000,000 budget.

Global teams reporting to me included:

- Help Desk
- NT and UNIX System Administration
- Market Data
- Network Design
- Service Delivery/Project Management (See below.)

Manager of the Global Debt Service Delivery Management Team

- Lead a team of Service Delivery Managers, each responsible for a team of Project Managers.
- Provided an escalation point for conflict resolution, and a single point of contact for all technology project related issues in Fixed Income Sales and Trading.
- Created the Program Management Office for Global Fixed Income Sales and Trading that increased cost transparency through web-based reporting. This office was expanded to all Institutional Client businesses.

Web Solutions Development Manager

- Led a team of web developers building multi-tier distributed web applications using a variety of tools.
- Worked closely with business clients gathering requirements, suggesting intranet solutions, and educating.
- Lead strategic planning designed to create scaleable, extensible, maintainable sites and applications.

PRUDENTIAL SECURITIES INC., New York, NY **6/96 - 8/97**

Strategic Client Initiatives (Office of the CEO) - Project Manager

Developed creative applications of emerging technologies to support Prudential's campaign to be recognized as a financial technology innovator. Created and pitched business cases and deployment plans to business sponsors for approval. If accepted, led the projects and negotiated contracts with vendors.

Major projects included:

- The first brick and mortar Wall Street firm's presentation of real-time stock quotes on the Internet.
- Prudential Securities Intranet – set content and platform standards, built a content publishing system and supporting business processes.
- Built and staffed a lab to evaluate emerging web functionality, design tools, and infrastructure components. Led the team that set the standards for Web hardware, software, development and data access tools.
- Web Bill Pay

LEHMAN BROTHERS INC., New York, NY **10/93 – 6/96**

Trading Services – Senior Business Analyst

Financial Services Division, Senior Business Analyst

- Project Manager for deployment of new applications and hardware on the Sales floor.
- Worked closely with the developers of the new Financial Analyst desktop, initially providing business analysis, and then conducting intensive QA, integration, and capacity testing. Provided end-user and system support training upon deployment.

Fixed Income Trading, Market Data Analyst

- Project managed entitlement rationalization program resulting in $12,000,000 in annual savings.
- Supported Market Data applications and feeds. Worked with trading desks to optimize Market Data use.
- Designed financial models for traders and analysts on Sun Sparcstation and PC platforms.

Equity Trading UNIX System Administrator

- Supported traders and salespeople on Sun Sparcstations running HPView on SunOS.
- Monitored and maintained daily trading applications/systems.
- Responsible for break/fix support of all trading floor hardware up to the MAUI, MUX, or WAN.

Equity Research, Windows System Administrator

- Led a small support team providing desktop break/fix, network and file/print server support for 230 users.
- Provided training, documentation, and Visual Basic for Applications development for Microsoft products.

JOSEPH GANGI ASSOCIATES, Market Research Firm, New York, NY **1/91 - 9/93**

Computer Programmer/System Support

- Programmed in DTAB/DGEN and COBOL on a workstation, and in MVS/JCL on a mainframe.
- Supported several Windows desktops and a file/print server. Certified as a Novell Network Engineer.

EDUCATION:

- Pursuing a Masters in Environmental Science. Undergraduate and masters degrees did not address the undergraduate Earth Science requirements of a Masters in Environmental Science. Currently completing those requirements.
- New York University, Stern School of Business, M.B.A. in Finance
- Boston University, College of Liberal Arts, B.A. in Philosophy

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C.	)	**License No.**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**DPR-26**
Indian Point Energy Center Unit 2	)	**Docket**
		No. 50-247
License Renewal Application	)	

DECLARATION OF KIMBERLY SUMNER-MAYER

KSM

My name is Kim Sumner-Mayer; I live at 29 Fairview Avenue, Warwick, NY 10990, 34 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater") and the CSA Farm Cooperative of W. Rogowski Farm, Pine Island, NY (where much of the food my family consumes is grown, and which is also within the 50-mile radius of the peak injury zone).

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 11 years, and am very connected to the Hudson River. My family (including a husband, toddler, and another child soon to arrive) uses the river for recreation; we frequently visit friends living near the river; the farm cooperative our family belongs to is fed by the same aquifer system; and work obligations frequently lead me to drive over and/or near the river. Although not residing in the most direct "kill zone", I have been concerned about our proximity to Indian Point since we moved into the area—and in fact, decided not to live in communities closer to Indian Point partially out of that concern. I am disturbed by the repeated reports in the news media of infrastructure problems at the facility, including aging and leaky plumbing, seepages of possibly toxic substances into nearby soil and groundwater; and failure of safety tests. I am also disturbed by the plant's request to be exempted from full inspection, and extremely dismayed at the plant's repeated failed siren tests and lack of an adequate evacuation plan in case of a nuclear emergency or terrorist attack. Living in this area, it is hard not to wonder why a terrorist would NOT target the power plant for an attack, given the well-documented and publicized problems and vulnerabilities at the plant, and the difficulty of safely evacuating those within the 50-mile zone. Also, as a woman of childbearing age, I have been unwilling to consume fish caught in the Hudson River out of concern about high concentrations of toxins in these waters, and I must confess that I wonder if Indian Point has been a contributor. Whether this fear is scientifically established is less important than the point that the river is part of my everyday conscience—it affects my decisions about where to live and play, what to eat, and how to get around by car in the area. I am grateful for Clearwater's service to the river and surrounding communities in acting as my representative on the issue of Indian Point's license renewal application.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 18th day of November , 2007, at Warwick, NY.

Kimberly L Sumner Mayer
Your name here

State of New York)
)ss.:
County of Orange)

On the 1st day of December, in the year 07 before me, the undersigned, personally appeared Kimberly L Sumner-Mayer, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Rebecca A Nestor
Notary Public

REBECCA A. NESTOR
Notary Public - State of New York
No. 01NE6120476
Qualified in Orange County
My Commission Expires 12/20/2008

NUCLEAR REGULATORY COMMISSION
RE: Declaration of Christopher White of New Paltz, NY

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF *Christopher White*

My name is Christopher White; I live at 3 Huguenot Street #4, New Paltz, NY 12561, thirty five miles from Indian Point and within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater").

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for just under 38 years and have been very connected to the Hudson River for my entire life. My father, David White, and my grandfather, Armour White, were two of the last commercial fishermen who fished the Hudson River in the Highlands area. Both fished from Garrison Landing, where they lived and my father spent much of his youth. As a boy, I worked with my father in his part time fishing business and helped him rack and prepare the nets for his fishing of shad and sturgeon. He also fished for Striped Bass, crabs and eels before those respective fisheries were closed to commercial fishing for contamination reasons.

I spent most of my free time as a child on and in the Hudson River, fishing, swimming, boating and exploring. As an adult, I continue to enjoy the Hudson River through kayaking and swimming. I have canoed or kayaked all of the navigatable stretches of the River and became acquainted with my wife 15 years ago on an extended canoe trip down the Hudson River.

In the mid to late 1980's, I attended meetings of the remaining Hudson River fisherman, who had been reduced in number to approximately two dozen. I heard them debate and ultimately decide to advise the NYS Department of Conservation to close their beloved Sturgeon fishery in the interest of protecting the dwindling populations of this once plentiful fish. They decided that it was vital to allow the fishery to begin to recover, which ironically was caused from the overfishing of the coastal "intercept" fisheries rather than the small fishermen on the Hudson.

In my opinion, the power plants on the Hudson River also contributed significantly to this decline by their continued use of "once through" cooling systems, which Indian Point's two power plants utilize. I currently work as District Representative for Congressman Maurice Hinchey, who has also taken a strong stand against the use of this outdated technology which draws in excessive amounts of river water, causing the impingement and entrainment of millions

of fish eggs, larvae and young fish. In researching this issue for the Congressman, it became increasingly evident to me that these very significant water withdrawals, along with the thermal discharges, were almost certainly having negative impacts on the fish populations in the Hudson River, which had meant so much to my family.

As someone who enjoys the Hudson River for recreation and has chosen to remain in the Hudson Valley because in part of this magnificent River, I remain concerned about the impact of Indian Point on the fish populations. Further, I am growing increasingly concerned about the ongoing and unresolved leaks from Indian Point which might be allowing nuclear and other pollution to migrate into this important river.

I have been a member of Hudson River Sloop Clearwater for nearly a decade and sailed on the Clearwater as a young boy and college student. I also worked for this organization as an Environmental Advocate in 2001, which furthered my interest in the ecology of the Hudson River. I, hereby, request that Clearwater represent my interests in the License Renewal Application for the Indian Point facilities.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 26th day of November, 2007, at Middletown, NY.

Your name here

State of New York)
)ss.:
County of ORANGE)

On the 26th day of NOVEMBER, in the year 2007 before me, the undersigned, personally appeared
CHRISTOPHER WHITE, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(~~s~~) whose name(~~s~~) is (~~are~~) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/~~her~~/~~their~~ capacity(~~ies~~), and that by his/her their signatures(~~s~~) on the instrument, the individual(~~s~~) or the person upon behalf of which the individual(~~s~~) acted, executed the instrument.

Notary Public

NEILE NOVESKY
Notary Public, State Of New York
Qualified In Orange County
No. 5007663
Commission Expires February 1, 20 11

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF ***SusanZimet, Ulster County legislator***

My name is **Susan Zimet**; I live at _100 Butterville Road, new Paltz, NY, 12561, 45 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater") and (list any other relevant organizations here).

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 30 years, and am very connected to the Hudson River. I am a three term Legislator in Ulster County and the re licensing of Indian Point has been an important issue to the Ulster County residents. I have sponsored and passed 3 resolutions dealing with the re licensing issue.

On Feb 10, 2006 resolution # 95 Supporting The Westchester County Board of Legislators Resolution No. 269-2003, Calling On the Nuclear Regulatory Commission(NRC) to reject the re-licensing of Entergy Corp's Indian Point 2 and 3 Nuclear Power Plants Located In Buchanan, New York.

On Feb 22, 2007 the Ulster County Legislature voted to support Requesting the New York's 110th Congressional Delegation to Immediately Reintroduce And Pass S2488 and HR 4891 as Introduced in the 109th Congress Requiring the Nuclear Regulatory Commission(NRC) to Conduct an Independent Safety Assessment (ISA) of the Indian Point Nuclear Power Plants.

On Feb 22, 2007 Resolution #71 was passed asking New York's 110th Congressional Delegation to Immediately Create Legislation that Would Direct the Nuclear Regulatory Commission(NRC) to Amend Part 54, Requirements for Renewal of Operating Licenses for Nuclear Power Plants, of the Commissions Regulations (10 CFR Part 54) to Include the Criteria used in Licensing a Power Plant.

I have traveled to NRC headquarters with other elected officials to testify to our concerns in regards about the re licensing of Indian Point.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 27 day of Nov, 2007, at Kingston, NY.

Susan Zimet
Your name here

State of New York)
)ss.:
County of Ulster)

On the 27 day of November, in the year 2007 before me, the undersigned, personally appeared
SUSAN ZIMET, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

ANDREW I. KOSSOVER
Notary Public, State of New York
No. 4818350
Qualified in Ulster County
Commission Expires Dec. 31, 2008

Resolution No. 70 February 22, 2007

Requesting New York's 110th Congressional Delegation To Immediately Reintroduce And Pass S2488 And HR4891 As Introduced In The 109th Congress Requiring The Nuclear Regulatory Commission (NRC) To Conduct An Independent Safety Assessment (ISA) Of The Indian Point Nuclear Power Plants

The Criminal Justice and Safety Committee (Chairman Dart and Legislators Distel, Gregorius, R.A. Parete, Zimet, Aiello and Every) and Legislators Dart, Kraft, Lomita, Shapiro and Terpening offer the following:

WHEREAS, Entergy is the owner and operator of two nuclear power plants, Indian Point 2 and Indian Point 3, located in the Village of Buchanan, Westchester County, New York, and

WHEREAS, the Nuclear Regulatory Commission (NRC) is the federal regulatory agency overseeing, regulating and licensing Indian Point 2 and Indian Point 3, and

WHEREAS, the Nuclear Regulatory Commission (NRC) has the power and authority to order an Independent Safety Assessment (ISA) of Indian Point 2 and Indian Point 3, and

WHEREAS, such an Independent Safety Assessment (ISA) was conducted at the Maine Yankee Nuclear Power Plant, and

WHEREAS, the negative historical safety record of Indian Point, coupled with the current uncontrolled and uncorrected leaks of radioactive materials at the plant, and

WHEREAS, the citizens of Ulster County because of their proximity to Indian Point, deserve to have a clear and accurate assessment of any and all safety problems or issues that are currently known or may be discovered at Indian Point; and these issues should be presented to the public in a timely manner after discovery, and

WHEREAS, the Nuclear Regulatory Commission (NRC), in spite of the problems and safety issues experienced by Indian Point 2 and Indian Point 3, has refused to order an Independent Safety Assessment (ISA) of Indian Point 2 and Indian Point 3, and

WHEREAS, legislation was introduced in both Houses of the 109th US Congress (HR 4891 and S2488) that would have mandated the Nuclear Regulatory Commission (NRC) to order a Maine Yankee-style Independent Safety Assessment (ISA) on the vital systems of Indian Point and require FEMA to justify, with specificity, its approval of the Indian Point evacuation plan despite the findings of the 2003 Witt Report, commissioned by then New York State Governor George Pataki,

Requesting New York's 110th Congressional Delegation To Immediately Reintroduce And Pass S2488 And HR4891 As Introduced In The 109th Congress Requiring The Nuclear Regulatory Commission (NRC) To Conduct An Independent Safety Assessment (ISA) Of The Indian Point Nuclear Power Plants

which detailed the impossibility of evacuation should an incident occur at the Indian Point site, and

WHEREAS, that legislation which would have required:

1. a "vertical slice" review of all operating systems;
2. a "horizontal" review of all plant maintenance;
3. a rigorous re-evaluation of the feasibility of the evacuation plan for Indian Point;
4. a mandate that independent experts conduct the review; and
5. a mandate that the review be monitored by local officials.

RESOLVED, that the Ulster County Legislature requests that the 110th United States Congress enact legislation that would require the Nuclear Regulatory Commission (NRC) to conduct an Independent Safety Assessment (ISA) of the Indian Point Nuclear Power Plants through the reintroduction and passage of HR 4891 and S2488 (109th Congress), and

FURTHER RESOLVED, that the Ulster County Legislature requests that New York State Governor Eliot Spitzer and New York State Attorney General Andrew Cuomo join the Ulster County Legislature, on behalf of the public health and safety of Ulster County residents, and also make a formal request to New York's 110th Congressional Delegation to immediately reintroduce and pass S2488 and HR4891 as introduced in the 109th Congress, and

FURTHER RESOLVED, that the Clerk of the Ulster County Legislature shall forward copies of this resolution to New York State Governor Eliot Spitzer, New York State Attorney General Andrew Cuomo, United States Senators Hillary Rodham Clinton and Charles Schumer, United States Representatives Maurice Hinchey, John Hall, Kirsten Gillibrand, Eliot Engel, Nita Lowey, and Christopher Shays and the National Association of Counties, so that the intent of the Ulster County Legislature be widely known,

Resolution No. 70 February 22, 2007

Requesting New York's 110th Congressional Delegation To Immediately Reintroduce And Pass S2488 And HR4891 As Introduced In The 109th Congress Requiring The Nuclear Regulatory Commission (NRC) To Conduct An Independent Safety Assessment (ISA) Of The Indian Point Nuclear Power Plants

and moves its adoption.

ADOPTED BY THE FOLLOWING VOTE:

AYES: 20 NOES: 3
(NOES: Legislators Gerentine, Liepmann and Noonan)
(Legislator Loughran left at 9:10 PM)
(Absent: Legislators Aiello, Alfonso, Busick, Every, Fabiano, Felicello, Provenzano, Sheeley and Stoeckeler)

FINANCIAL IMPACT:
NONE

0221

Requesting New York's 110th Congressional Delegation To Immediately Create Legislation That Would Direct The Nuclear Regulatory Commission (NRC) To Amend Part 54, Requirements For Renewal Of Operating Licenses For Nuclear Power Plants, Of The Commission's Regulations (10 CFR Part 54) To Include The Criteria Used In Licensing A Power Plant

The Criminal Justice and Safety Committee (Chairman Dart and Legislators Distel, Gregorius, R.A. Parete, Zimet, Aiello and Every) and Legislators Kraft and Shapiro offer the following:

WHEREAS, the operating license for two nuclear power plants at Indian Point: Indian Point 2 and Indian Point 3 are scheduled to expire in 2013 and 2015, respectively, and

WHEREAS, Entergy Corporation, the operators of these power plants can apply for license extensions for up to an additional twenty years, provided certain operating , environmental, and safety conditions are met, and

WHERERAS, the scope of the present 10 CFR Part 54 is too limited and that as a result, the safety of the residents and communities near Indian Point will be in question during any extended operating period, and

WHEREAS, factors such as population growth, the lack of a local and state certified evacuation plan, inability to assure public health and safety after the 9/11 attacks, the change in Local/State/Federal regulations, the problems with on-sight storage of spent fuel would not be considered during a re-licensing review, and

WHEREAS, these issues should be considered in the license renewal process, along with the safety, security and certainly the condition of both passive and active systems, structures, and components.

RESOLVED, that the Ulster County Legislature requests the 110th United States Congress enact legislation that would amend Part 54, requirements for Renewal of Operating Licenses for Nuclear Power Plants to include the criteria used for licensing of new power plants, and

FURTHER RESOLVED, that the Ulster County Legislature requests that New York State Governor Eliot Spitzer and New York State Attorney General Andrew Cuomo join the Ulster County Legislature, on behalf of the public health and safety of Ulster County residents, and also make a formal request to New York's 110th Congressional Delegation to immediately introduce this request, and

Standing Exhibit 1.21

Resolution No. 71 February

Requesting New York's 110th Congressional Delegation To Immediately Create Legislation That Would Direct The Nuclear Regulatory Commission (NRC) To Amend Part 54, Requirements For Renewal Of Operating Licenses For Nuclear Power Plants, Of The Commission's Regulations (10 CFR Part 54) To Include The Criteria Used In Licensing A Power Plant

FURTHER RESOLVED, that the Clerk of the Ulster County Legislature shall forward copies of this resolution to New York State Governor Eliot Spitzer, New York State Attorney General Andrew Cuomo, United States Senators Hillary Rodham Clinton and Charles Schumer, United States Representatives Maurice Hinchey, John Hall, Kirsten Gillibrand, Eliot Engel, Nita Lowey and Christopher Shays and the National Association of Counties, so that the intent of the Ulster County Legislature be widely known,

and moves its adoption.

ADOPTED BY THE FOLLOWING VOTE:

AYES: 17 NOES: 6
(NOES: Legislators Berardi, Cummings, Donaldson, Gerentine, Liepmann and Noonan)
(Legislator Loughran left at 9:15 PM).
(Absent: Legislators Aiello, Alfonso, Busick, Every, Fabiano, Felicello, Provenzano, Sheeley and Stoeckeler)

FINANCIAL IMPACT:
NONE

0224

Supporting The Westchester County Board Of Legislators Resolution No. 269-2003, Calling On The Nuclear Regulatory Commission (NRC) To Reject The Re-licensing Of Entergy Corp's Indian Point 2 And 3 Nuclear Power Plants Located In Buchanan, New York

Legislators Zimet, Bartels, Berardi, Dart, Donaldson, Feldmann, Hyatt, Kraft, Lomita, Loughran, R.A. Parete, R.S. Parete, Provenzano, Rodriguez, Shapiro, Stoeckeler and Stock offer the following:

WHEREAS, the Westchester County Board of Legislators passed Resolution No. 269-2003 calling on the Nuclear Regulatory Commission (NRC) to reject the re-licensing of Entergy Corp's Indian Point 2 and Indian Point 3 Nuclear Power Plants located in Buchanan, New York, and

WHEREAS, the current licenses of Indian Point 2 and 3 expires in 2013 and 2015 respectively, and Entergy Corp has indicated a desire to seek a 20 year license extension, and

WHEREAS, over 400 Democrat and Republican elected officials have called for the closure of Indian Point, and

WHEREAS, the Westchester County Board of Legislators requested the Ulster County Legislature to consider going on record as opposing a long drawn out re-licensing but rather join all appropriate and concerned parties in planning for the plants eventual closing and decommissioning, and work towards a non-nuclear future at the Indian Point site, and

WHEREAS, the Ulster County Legislature voted to refer this issue to the Criminal Justice/Public Safety/DWI Committee and upon review the Committee requested the presentation be made to the entire Legislature, and

WHEREAS, at a joint caucus of the Ulster County Legislature on February 2, 2005 at 6:00 PM, an informational meeting was held per the Committee's request, and

WHEREAS, for a third year in a row, since the release of the Witt report, Westchester County Executive Spano, Rockland County Executive Vanderhoef and Orange County Executive Diana have again chosen to protect the health, welfare and safety of their residents living in the emergency planning zone by refusing to submit their Annual Certification Letters for Indian Point's emergency evacuation plans, and

WHEREAS, new concerns about the evacuation plans has arisen due to numerous Indian Point sirens inability to rotate and alert all the public in case of an emergency, and

Resolution No. 95 February 10, 2005

Supporting The Westchester County Board Of Legislators Resolution No. 269-2003, Calling On The Nuclear Regulatory Commission (NRC) To Reject The Re-licensing Of Entergy Corp's Indian Point 2 And 3 Nuclear Power Plants Located In Buchanan, New York

WHEREAS, there is no emergency back-up power to operate the sirens and therefore, in the event of an emergency situation during a power outage, there would be no way to notify the public, and

WHEREAS, if plant owner first applied for a license to operate a nuclear power plant at the Indian Point site today, it would not likely be granted by the NRC under its current standards and regulations that specifically prohibit the siting of nuclear power plants based on population density surrounding the site, and,

WHEREAS, the Ulster County Legislature unanimously passed Resolution No. 188 for purposes of protecting our first responders from the hazards of Depleted Uranium, and

WHEREAS, the dangers to our first responders as well as the general public would be catastrophic if an accident was to happen at Indian Point.

RESOLVED, the Ulster County Legislature give the requested support to the elected leaders of a neighboring county concerned with the safety and welfare of its citizenry, and

FURTHER RESOLVED, that the Ulster County Legislature vote to support Westchester County Resolution No. 269-2003 on behalf of the safety and welfare of all Ulster County residents,

and moves its adoption.

ADOPTED BY THE FOLLOWING VOTE:

AYES: 26 NOES: 6
(Legislators: Cummings, DePew, Gerentine, Hathaway, Meyer, and Noonan)
(Legislator Tipp left at 7:17 P.M.)

FINANCIAL IMPACT:
NONE

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF ALAN ZOLLNER

My name is **Alan Zollner**; I live at **396 Grand St., Newburgh NY 12550, 24 miles from Indian Point**, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater"), the Beacon Sloop Club and River Pool at Beacon, Inc.

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 44 years, am raising a family here and am very connected to the Hudson River. I've fallen in love with the Hudson, not only through its beautiful vistas, but in sailing, canoeing, and swimming in the river. As a member of the Board of the non-profit organization River Pool at Beacon, Inc. for the past four years, I have helped lead a successful project to develop and install a floating wading pool in the Hudson River for young children (mine and others) to swim in the river. In coordinating events related to this project I've seen an astonishing increase in the interest of people of all ages – babies to seniors - who enjoy sitting, wading, and swimming in the river. This summer alone, over 500 people participated in swimming and wading in the river at our events in the Newburgh-Beacon area. In fact, the NYS DEC Feasibility Report on Swimming in the Hudson published in 2005 identified a number of current and potential future sites for public swimming in the river. In a written response to letters received, the DEC indicated its interest in permitting additional floating swimming areas to be installed in the Hudson as far south as New York City. I believe fostering the natural connection to the river which comes from swimming in it, builds a healthy and important connection for both the estuary itself and humankind, while also allowing people to cool off from the summer heat without the need to build chlorinated swimming pools.

People have been swimming in the Hudson for centuries, if not millennia. During a dark period of the river's history – beginning in the early 20th century until the mid 1970's the Hudson was disrespected and polluted carelessly. After decades of renewal, parts of the river are now becoming fit for swimming again. I have many concerns about an aging nuclear power plant on the shores of the Hudson. While I am less concerned about short term affects of radioactive materials reaching my home city of Newburgh New York via the river, I am concerned about the long term effects of biological distribution of radioactive materials throughout the ecosystem.

For example, it's not hard to envision a localized leak of radioactive isotopes getting into the Hudson, entering the food chain through microorganisms, working their way into larger fish, which migrate along the estuary, eventually dieing and decomposing, only so to have the isotopes become part of the river's vegetation near swimming areas, serving as a food source for insects, eventually consumed by local and migratory birds and so on. Since a number of the radioactive isotopes last for centuries, the cumulative effect of such a leak can be extremely broad and last indefinitely. I do believe it is incumbent on the NRC to consider the very long-term effects that an aging nuclear facility can have. The possibility of such leaks must be avoided under all circumstances which not only include normal operating conditions, but also maintenance conditions including fuel handling, flood conditions, seismic events, and in this day and age potential terrorist events as well.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 23 day of November, 2007, at Newburgh, NY.

Alan Zollner

Alan Zollner

State of New York)
)ss.:
County of ORANGE)

On the 23 day of NOVEMBER, in the year 2007 before me, the undersigned, personally appeared ALAN ZOLLNER, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Marcia Borkowsky

Notary Public

MARCIA BORKOWSKY
Notary Public, State of New York
Qualified in Orange County
Registration No. 01BO6170618
Commission Expires July 9, 2011

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF ERIC MARSHALL

My name is Eric Marshall; I live at 30 Quaker Bridge Road, Croton-on-Hudson, NY 10520, 6 miles from Indian Point, which is within the 10-mile radius of the Emergency Planning Zone, also known as the peak fatality zone. I am a member and President of the Board of Hudson River Sloop Clearwater ("Clearwater").

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 18 years, and am very connected to the Hudson River. The Hudson River and its community, which enjoys and celebrates the Hudson River, were the deciding factors which drew me from La Jolla, California to the Hudson Valley after receiving my doctorate in Applied Physics. I find the beauty and the culture of the Hudson Valley to be the finest in the world and worth protecting. I first came to know of Indian Point when I moved into the condominium of the researcher whose position I was taking – one mile away from the nuclear power plant. I soon moved into a house directly on the Hudson River in Garrison where I swam in the River and came to love it and learn of the dangers. Watching sewage effluent flow into the River on rainy days was alarming enough. But, to learn of the dangers in and along the River which we can't see with our normal senses is something that justifiably concerns all who live near Indian Point – including our children, who wonder how we could allow them to grow up in harm's way. My children have asked me how such a thing could possibly be – a nuclear power plant near so many people which is leaking radioactive materials into the River and which has the potential to cause catastrophic harm. Even after discussions with an evacuation bus driver, I find myself incapable of answering my children's questions about what the evacuation route bus stops are for and how it will really work. Especially now, when more people are rightfully drawn to live, work and play along the River's edge, an aging, leaking and deteriorating nuclear power plant here does not make sense. As I attend Materials Research Society Meetings, in which progress and viability of new energy sources dominate discussion, I am convinced that the time and technology are right to move into the 21st Century without the need to continue to endanger our children with Indian Point nuclear power plants.

I declare under penalty of perjury that the foregoing is true and correct.
Executed this 10th day of December, 2007, at Croton-on-Hudson, NY.

Eric Marshall, Ph.D.

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF William and Sandra Flank

Our names are William and Sandra Flank. We live at 1021 Hardscrabble Road, Chappaqua, NY 10514, and our house is within a few feet of the 10-mile Indian Point evacuation zone line, which runs down the middle of our colonial-era road. It is within the 50-mile radius of the peak injury zone. We are members of Hudson River Sloop Clearwater, Inc. ("Clearwater") and one of us is a former member of the Board of Directors.

We hereby authorize Clearwater to represent our interests in the proceedings related to Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc. License Renewal Application.

We have lived in this house for over 36 years. Like many New Yorkers, we were not fully aware of the danger of nuclear power accidents until later in life as adults and information of plant failures and accidents around the world became headline news. Among other reasons, we were drawn to the area because of its intrinsic beauty, which includes the Hudson River.

We feel quite connected to the Hudson River, having spent many years looking at its majestic scenic views, enjoying riverside parks in NYC, Westchester and Rockland counties, and in other ways. As members of Clearwater we have sailed on the Hudson River countless times, either for pleasure or as a Board member, sharing our backgrounds as scientists and educators on the value of the aquatic and riparian environment.

The ongoing pollution of this river, which includes radioactive materials from the nuclear plant, is a contributing factor in our not enjoying fishing as a pastime in this section of the river. It has been established by governmental agencies that the fish are generally unsafe for human consumption. One of us was involved in the Clearwater Anglers' Survey study that established that many people unknowingly eat fish caught in the river that may be harmful to them and their children. We are also aware of the thermal pollution harm to the fish larvae, and the negative impact that has on the food chain of the aquatic environment. We are also aware of the radioactive leaks into the air and the ground. It is our understanding that this nuclear plant has one of the worst safety records of the 100-plus operating plants in the country. These facts decrease our ability to enjoy our surroundings in the lower Hudson Valley, which might be considered one of the most scenic in the nation.

We are also concerned about the impact of the evacuation plans for residents in the area. There is no realistic way for evacuation to occur, for a multitude of reasons. Even if successful, evacuees might not have a home community to which to return after such a massive evacuation. It is well-established that there is no safe level of radiation exposure from a power plant explosion, or just from on-going leaks, and the effects are cumulative.

While there are many technical and scientific reasons that can be given to close this power plant, many area residents feel afraid of continuing to live in close proximity to this ticking time bomb in their midst, and we should not have to continue to live in fear.

We declare under penalty of perjury that the foregoing is true and correct.

Executed this 8th day of December, 2007, at Chappaqua, NY.

William H. Flank

Sandra G. Flank

State of New York
County of Westchester

STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF *Tinya Seeger*

My name is Tinya Seeger; I live at 15 Sojourner Lane, town of Fishkill, NY, 14 miles from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater.

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I have lived in the Hudson Valley for 52 years, and am very connected to the Hudson River. The Hudson has inspired me as a potter, artist, mother and citizen to live here, work and feel responsible for future of the Hudson River and its surrounding valley. The river is the life- blood of the valley and its residents, whether they are in direct contact with it every day or not. I personally walk, boat, dig clay, x country ski, draw, gather food, depend upon and receive inspiration from the river, as do thousands of others who have chosen to live here. I am appalled that nuclear waste is leaking from this facility, that our groundwater is at risk, that the plant is vulnerable in so many ways and that Indian Point continues to be allowed to operate.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 10th day of December , 2007, at Dutchess Junction, NY.

Tinya Seeger Tinya Seeger

State of New York
County of Dutchess

On the 10 day of Dec, in the year 2007 before me, the undersigned, personally appeared Tinya Seeger, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public

Lynn Lyon
Notary Public, State of New York
No. 5072238
Qualified in Dutchess County
Commission Expires January 27, 2011

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF *Philp Ehrensaft*

My name is **Philip Ehrensaft** , I live at **80 Peaceable Hill Rd., Pine Bush_NY 12566-5550** , **46.8 miles** from Indian Point, which is within the 50-mile radius of the peak injury zone. I am a member of Hudson River Sloop Clearwater ("Clearwater") and (list any other relevant organizations here).

I hereby authorize Clearwater to represent my interests in the proceedings related to Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc. License Renewal Application.

I have lived in the Hudson Valley for 5 years, and am very connected to the Hudson River. I relocated to the Hudson Valley in order to do research on the new economy and demography of the Hudson Valley, and to renovate an inherited house and maintain the 37 acres acres of associated forest land on the Shawangunk Ridge. Another motivation was to live closer to my daughter, son-in-law and two grandsons who have settled permanently in Brooklyn, NY., while still exercising my own preference of living in a rural region.

I am a member of the steering committee of the Hudson River Watershed Alliance, an organization whose goals are to 1) provide a link between scientific knowledge about the dynamics of water resources in the Hudson-Mohawk watershed, and the local officials and citizens' groups who make decisions about water resource use; and 2) build a wide-ranging network of representatives of government agencies, non-profit organizations, elected officials and grassroots organizations that is necessary to communicate this knowledge.

My professional research has focused on economic and social change in rural regions, small towns and small industrial and mining cities in North America and the in Third World. I have taught at the University of California-Santa Cruz, McGill University, and the Université du Québec à Montreal. I took early retirement from a tenured position at the Université du Québec in order to found my own research company, Metro Countryside Research, and move to the Hudson Valley. My training and research has been funded by the National Science Foundation, the Ford Foundation, and federal government agencies in Canada: Statistics Canada, Agriculture Canada, the Department of Employment and Immigration, and Industry Canada.

One strand of my research on the rural economy examined the emergence of Saskatchewan uranium mines as one of the prime international sources of this ore. I remain grateful for the generous help that specialists in both the private and government components of the Canadian nuclear sector afforded me in performing this research.

My participation in Clearwater's submission is motivated by the concerns about the high risks of

operating Indian Point's aging nuclear plants within America's largest metropolitan region, especially when the operators have a relatively poor track record in terms of administering these plants.

Like many others, I am deeply concerned about the havoc that would occur if terrorists successfully attacked the Indian Point plant. That concern is reinforced by personal experiences during the World Trade Tower attacks on September 11, 2001.

I drove a family member from Pine Bush to New York City on September 10, 2001, for heart surgery the next morning. I watched, from the vantage point of a hospital window, the second plane smash into the World Trade Towers. There was a subsequent warning over the hospital P.A. system that patients might have to be evacuated. Had that occurred, it is unlikely that my relative would have survived.

At the same time, my son-in-law would normally have been on the subway line going past the station near the World Trade Towers at the time that the planes collided, on his way to his job as a research physicist at NASA's Goddard Space Institute. And my daughter could well have been with him, on her way to her job at Columbia Medical School.

It was not until the evening of the 11th that I was able to reach my daughter in Park Slope, Brooklyn, and learn that both Miriam and my young grandson were traumatized by not knowing what had happened with her husband, and by the fact that their home in Park Slope was directly in the path of some of the worst smoke and air pollution from the burning Towers. She had also just learned that many of the firemen from the local Park Slope station, 5 minutes walk from her house, had perished at the Towers. Fortunately Drew had missed being trapped in the subway because he stopped on the way for a medical appointment, but we did not know that he was o.k. until later that evening.

The bottom line is that I take the terrorism threat at Indian Point, and anywhere else, VERY seriously and VERY personally.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 10th day of December, 2007, at Pine Bush, NY.

Philip Ehrenreich

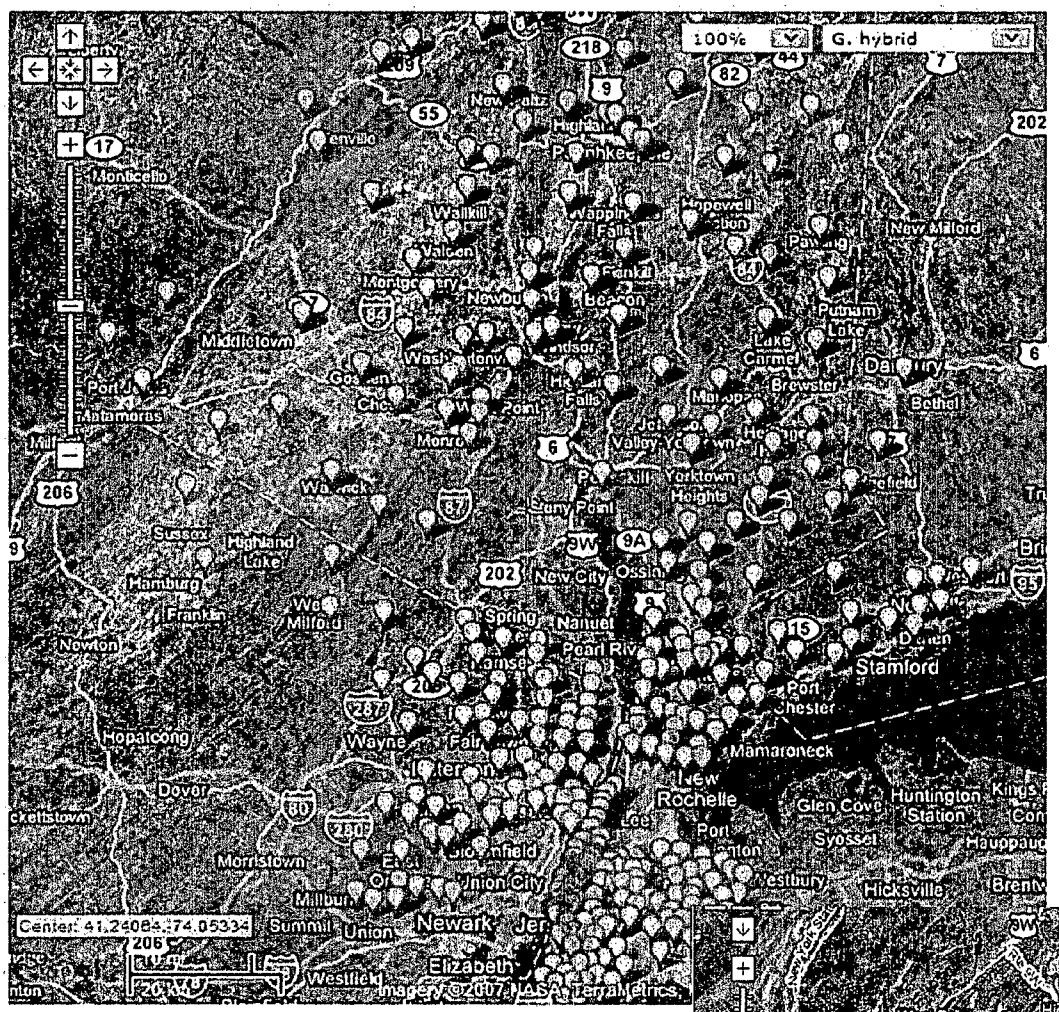
Your name here

State of New York)
)ss.:
County of _____)

On the ___ day of _____, in the year ____ before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

_____

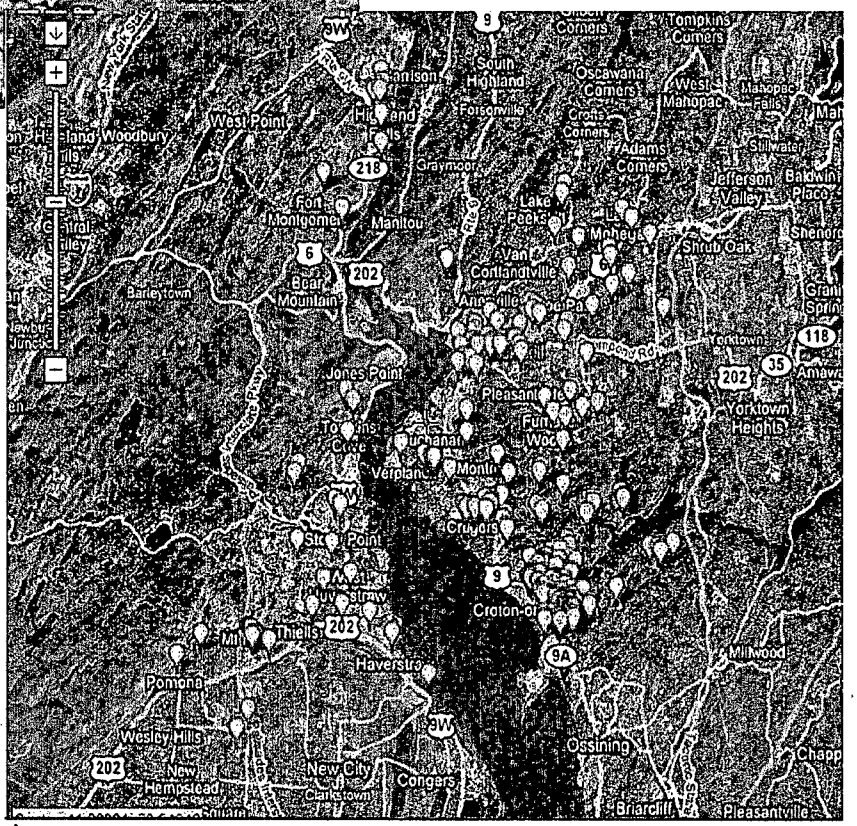
Exhibit 2: Map of Clearwater Member Households within 10-mile and 50-mile radii of Indian Point Energy Center



Clearwater is a membership organization with a current total of 4,548 member households (including both individual and family memberships) as of November 30, 2007. Over the past five years, Clearwater's membership has included approximately 9,990 member households.

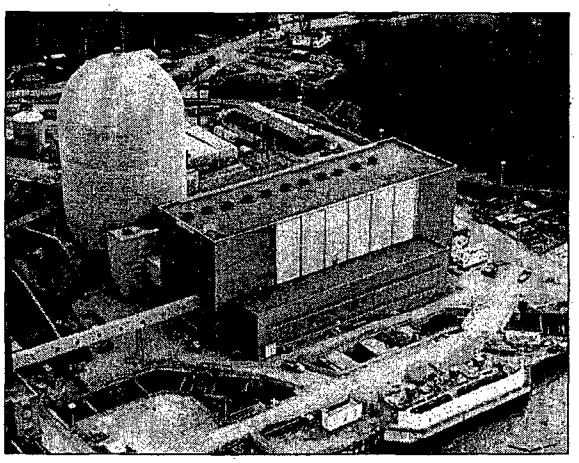
Of the 9,990 member households, 6,570 (or 65.8%) are located in the 50-mile Emergency Planning Zone (EPZ), also called the "Peak Injury Zone" or "Ingestion Pathway Zone," of Indian Point (see map above).

615 member households (or 6.2%) are located in the 10-mile EPZ, which is within the 17.5 mile "Peak Fatality Zone" of Indian Point (see map to right).



This map made by Clearwater Board Member, Mitchell Bring is a representation of Clearwater's membership in the 10-mile and 50-mile radii of Indian Point.

Exhibit 3



Timeline of Indian Point Leaks

by Jonathan Stanton
November 24, 2007

2/72 A half million-gallon tank spills at IP2

11/73 State Attorney General Robert Abrams believes that a cooling system starts leaking in 1973

- Blumenthal, R. (1980, November 15), "Abrams Petition Seeks to Reverse Con Ed Bill Rise; Abrams Dates Leak to 1973", New York Times) http://select.nytimes.com/gst/abstract.html?res=F30915F73D5E12728DDDAC0994D9415B8084F1D3

11/73 Steam leak buckles steel liner of the containment vessel. IP1 shut down.

1976 Pipe Leaks at IP1 are identified as moderate.

- AP, (1979, May 3), "Pipe leaks trouble 15 nuclear plants", New York Times http://select.nytimes.com/mem/archive/pdf?res=F10C13F63C5D12728DDDAA0894DD405B898BF1D3

1977 A leak spills tens of thousands of gallons of radioactive water into the basement of the reactor building.

3/26/79 3 pints of radioactive water spilled while being collected for transport to the Barnwell nuclear waste management facility in South Carolina

- Feron, J. (1979, March 31), "Waste Water is Spilled at Indian Point Plant", New York Times http://select.nytimes.com/gst/abstract.html?res=F10917F7355D12728DDDA80B94DB405B898BF1D3

10/17/80 100,000 - 120,000 gallons of radioactive water spilled in IP2's containment building.

- AP, (1980, October 22), "Leaking Pipe Repaired at Indian Point 2 Plant", New York Times http://select.nytimes.com/gst/abstract.html?res=F3091FFC3D5E12728DDDAA0A94D8415B8084F1D3
- AP, (1980, October 23), "Con Ed Ordered to Shut Reactor at Indian Point", New York Times http://select.nytimes.com/gst/abstract.html?res=F40E1EFD3D5E12728DDDAD0A94D8415B8084F1D3
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11/04/80 8,000 gallons leaked into IP2's containment building.

- Hudson, E. (1980, November 5), "2d Con Ed Leak Was 8,000 Gallons", New York Times http://select.nytimes.com/gst/abstract.html?res=FB0E10F63B5C11728DDDAC0894D9415B8084F1D3

1/11/81 A small amount of radioactive gas leaked from a test line.

- AP, (1981, January 13), "THE REGION; Leak Reported At Indian Point", New York Times http://query.nytimes.com/gst/fullpage.html?res=9A06E6DE143BF930A25752C0A967948260

4/9/81 An unknown quantity of radioactive water leaked into the Hudson. It could have been as much as 8,000 gallons.

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9/23/81 246 gallons of radioactive water leaked from one of IP3's steam generator tubes into the Hudson.

- Hudson, E. (1981, October 3), "New Leak Shuts Con Ed A-Plant at Indian Point", New York Times http://select.nytimes.com/search/restricted/article?res=F3081EF83E5D0C708CDDA90994D9484D81

3/24/82 A tube in one of IP3's steam generators leaked a small amount of radioactive gas. The gas was vented for 128 minutes.

- Hudson, E. (1982, March 26), "A Leak at Indian Point 3 Leaks Radioactive Gases", New York Times http://select.nytimes.com/search/restricted/article?res=FA0D11F73C5D0C758EDDAA0894DA484D81

2/13/84 Radioactive water is found to be leaking into one of IP2's steam generating system. IP2 is shut down.

9/14/93 900 gallons or radioactive water accidently dumped into the Hudson.

5/94 Con Ed acknowledges that up to 150 gallons of radioactive water has been leaking at the site for four years.

6/94 An underground pipe breaks at IP3 and spills 1,600 gallons of toxic waste into the Hudson.

7/18/95 28,000 gallons of clean water washed over soil and through storm drains contaminated by previous leaks carrying radioactive water into the Hudson.

- Wald M. (1995, July 22), "Radioactive Spill on the Hudson", New York Times, 7/22/95 http://query.nytimes.com/gst/fullpage.html?res=990CE4DF113FF931A15754C0A963958260

10/99 There was a leak into IP3's containment building. IP3 had been closed for a month for refueling, so the leak wasn't very radioactive.

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2/00 A rupture in the steam generator allowed contaminated steam to be released from IP2. Hundreds of gallons of radioactive water were also released into the Hudson and Buchanan water system.

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- Hall, W. (2002, May 11), "Critics say Indian Point kept release into river quiet", Times Herald Record
http://archive.recordonline.com/archive/2002/05/11/whleak.htm
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- Hall, W. (2000, February 18), "Protesters want Indian Point shut down. BUCHANAN: Demonstrators were at the gates of the nuclear power plant yesterday, demanding action be taken as a consequence of this week's leak." Times Herald Record
http://archive.recordonline.com/archive/2000/02/18/whrally0.htm

2/02 Small leak in steam generating system.

- Hall, W. (2002, February 15), "Tiny Nuke Plant Leak Prompts Outcry", Times Herald Record
http://archive.recordonline.com/archive/2002/02/15/whleak.htm

9/11/02 IP2 shut down to stop a hydrogen gas leak

2/14/05 Shipment of radioactive waste from IPEC discovered leaking at Barnwell nuclear waste management facility in South Carolina due to poor handling on the IPEC end.

9/20/05 Radioactive water is found to be leaking from IP2's spent fuel pool.

- Entergy News Release, "Engineers Evaluate Spent Fuel Integrity", 9/20/05
http://www-temp.entergy.com/News_Room/newsrelease.aspx?NR_ID=886

- NRC News Release I-05-049, "NRC Performing Special Inspection at Indian Point 2 Nuclear Plant; Small Amount of Leakage from Spent Fuel Pool Area Under Review", 9/20/05 http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=052630185
- NRC Memo, A. Randolph Blough, NRC Director Division of Reactor Safety, "Special Inspection Charter-Indian Point Unit No. 2", 9/20/05 http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=052740001
- NYSEMO Letter, James Tuffey, NY State Emergency Management Office, Letter reprimanding NRC for failure to communicate and requesting information, 9/20/05 http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=052780104
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- NRC Memo, Samuel J. Collins, Regional Administrator Region I, "Request for Renewal of Deviation to the Action Matrix to Provide Heightened NRC Oversight of Specific Issues at the Indian Point Energy Center", 12/11/06 http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=063550187

10/5/05 Monitoring well shows tritium containment ten times the allowed level in drinking water.

- Entergy Memo, Paul W Rubin, General Manager IPEC, "Monitoring Well MW-111 Tritium 30 Day Special Report", 3/11/05 http://adamswebsearch2.nrc.gov/idmws/doccontent.dll?library=PU_ADAMS^PBNTAD01&ID=060590043
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- Bruno, G. (2006, October 6). "Indian Point will remove tainted water from Westchester", Times Herald Record http://www.recordonline.com/apps/pbcs.dll/article?AID=/20061006/NEWS/610060342/-1/BIZ01

12/05 Tests of the IP1 collection pool show too much tritium to have originated from IP1. It is still unknown where this contamination is coming from.

5/07 Strontium 90 is found to be contaminating the groundwater under IPEC.

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Acronyms

AP	Associated Press
IPEC	Indian Point Energy Center
NYSEMO	NY State Emergency Management Office
THR	Times Herald Record
NYT	New York Times
IP1, 2, &3	Indian Point plants 1, 2, &3

UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the matter of		
ENTERGY NUCLEAR INDIAN POINT 2, L.L.C., and	)	**License No. DPR-26**
ENTERGY NUCLEAR INDIAN POINT 3, L.L.C.	)	**License No. DPR-64**
Indian Point Energy Center Unit 2 and	)	**Docket No. 50-247**
Indian Point Energy Center Unit 3	)	**Docket No. 50-286**
License Renewal Application	)	

DECLARATION OF Joseph J. Mangano

My name is Joseph J. Mangano; I live in Ocean City NJ., 100 miles from Indian Point.

Clearwater represents my interests in a Petition for Leave to Intervene, Request for Hearing and Contentions; and the Notice of Appearance, in the matter of Entergy Nuclear Indian Point 2, LLC, Entergy Nuclear Indian Point 3, LLC and Entergy Nuclear Operations, Inc., License Renewal Application.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 26th day of November, 2007, at Ocean City, NJ.

Joseph J. Mangano

State of New Jersey

County of Cape May

On the 26th day of November, in the year 2007 before me, the undersigned, personally appeared JOSEPH J. MANGANO, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her their signatures(s) on the instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

Joseph J Mangano

Notary Public

JOSEPHINE HANIA
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES MARCH 19, 2010

DECLARATION OF JOSEPH MANGANO

1. My name is Joseph Mangano. The Hudson River Sloop Clearwater (Clearwater) has retained me as a consultant with respect to the above-captioned proceeding. I am a health researcher, and have worked with the Radiation and Public Health Project (RPHP) since 1989. I currently serve RPHP as Executive Director.

My work with RPHP has involved conducting research on the risk of cancer and other disease from fission products emitted from nuclear reactors. To that end, I am the author or co-author of 23 medical journal articles that have been peer-reviewed by experts (unknown to me) and deemed appropriate for publication. I also am the author of *Low Level Radiation and Immune Damage: An Atomic Era Legacy* (Lewis 1998), and co-author of *The Enemy Within: The High Cost of Living Near Nuclear Reactors* (Four Walls Eight Windows, 1996).

For over a decade, our group has studied levels of radioactive Strontium-90 in baby teeth, based on prior studies in the 1960s in the U.S. and abroad. We have tested nearly 5,000 teeth in a laboratory, and five of the journal articles I mentioned address results of the tooth study. The effort is the only attempt to examine radioactivity levels in bodies of Americans living near nuclear reactors. My curriculum vitae is attached hereto as Attachment A.

2. I submit the following comments in support of Clearwater's declaration.

3. Like all nuclear power reactors, Indian Point units 2 and 3 produce over 100 radioactive chemicals, or fission products, to generate electricity. Very few of these chemicals are found in nature, but are only produced in atomic bomb explosions and nuclear reactor operations. These chemicals, which are radioactive and known to cause cancer, include Cesium-137, Iodine-131, and Strontium-90.

4. Like all nuclear power reactors, Indian Point 2 and 3 emit radioactivity, in the form of gases and particles, into the air and water on a routine basis. Documentation of historical levels of these emissions is found in annual reports prepared for the Nuclear Regulatory Commission. The amount of airborne releases from Indian Point exceeds that of most other U.S. reactor, and can vary over time by a factor of 100 hundred or more. (1) (2)

5. Indian Point has also experienced unplanned releases of radioactive chemicals into the environment, documented in the official reports of radioactive emissions and environmental levels. (1) (2)

6. State and federal regulatory agencies report environmental radioactivity levels near Indian Point, along with areas far from any nuclear reactor. The reports document that radioactivity levels are higher near Indian Point, and that there are large temporal variations, both indicating that emissions from Indian Point are entering the air, water, and food in measurable quantities. (3) (4)

7. RPHP has measured levels of radioactive Strontium-90 (Sr-90) in a laboratory for nearly 5,000 baby teeth, over 500 of who are from children in the New York metropolitan area. Results,

which are published in five medical journal articles, show that average Sr-90 levels near Indian Point are higher than any of the six nuclear plants with over 100 teeth studied, and that average levels near Indian Point have risen sharply since the late 1980s. (5)

8. Hypotheses that low dose exposures to radioactivity are harmless to humans have been documented to be incorrect by scientific research. Nearly half a century ago, studies showing that pelvic X-rays to pregnant women raise the risk that the child will die of cancer by age ten, in both the United Kingdom and the United States, were the first to demonstrate carcinogenic effects of low dose exposures. (6) (7)

9. Other official reports that counter the prevailing assumption that low dose exposures are harmless include a 1997 report by the National Cancer Institute, which estimated that up to 212,000 Americans developed thyroid cancer from Iodine-131 in Nevada above-ground atomic tests, and a 2000 U.S. Department of Energy report concluding that many studies demonstrate elevated cancer risk for workers in nuclear weapons plants. (8) (9)

9. Several recent reports from a blue ribbon panel of experts on radiation health effects, the most recent in 2005, reviewed many scholarly reports on the topic, and determined that there is no safe threshold of radiation exposure, i.e., there are health risks from even the lowest doses. (10)

10. The youngest humans (fetus, infant, and young child) are more susceptible to the harmful properties of exposure to radioactive chemicals than are adults. (11)

11. Official public health statistics document elevated levels of cancer incidence in the counties closest to Indian Point. (The great majority of the 1.7 million residents of Orange, Putnam, Rockland, and Westchester Counties live within 20 miles of Indian Point). From 2000-2004, the local rate was 10% greater than the U.S. average. Childhood cancer (age 0-19) was 22% higher, and thyroid cancer was 70% higher. Childhood and thyroid cancer are acknowledged to be among the cancers most susceptible to the toxic properties of ionizing radiation.

12. RPHP has documented a statistical link between trends in average Sr-90 in baby teeth and trends in cancer incidence in children age 0-9 in Westchester, Rockland, and Putnam counties. Trends in Sr-90 were followed by similar trends in child cancer incidence four years later. Similar correlations were found in Ocean/Monmouth Counties in New Jersey (near the Oyster Creek nuclear reactor) and Suffolk County in New York (site of the Brookhaven reactors). (12)

13. A forthcoming medical journal article shows that of 14 U.S. nuclear plants started since 1982, the infant and fetal death rates rose most rapidly near the Grand Gulf plant in southwest Mississippi. The area near Grand Gulf has high (relative to the U.S.) proportions of African-American residents, and its poverty level is also high. The results suggest that poor minorities are more susceptible to the toxic properties of pollutants such as ionizing radiation. (13)

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ATTACHMENT A

Joseph Mangano MPH MBA is a health researcher and Executive Director of the Radiation and Public Health Project (RPHP), which conducts research and education on health risks of nuclear reactors. Mr. Mangano has served RPHP since 1989. He has published 23 articles in medical journals that have been reviewed and approved for publication by experts. He is author of the book "Low Level Radiation and Immune System Damage: An Atomic Era Legacy" (Lewis 1998), and co-author of "The Enemy Within: The High Cost of Living Near Nuclear Reactors" (Four Walls Eight Windows 1996). His work has found a consistent pattern of increased cancer rates after nuclear reactors begun operating, and decreased rates after they shut down.

Mr. Mangano played a major role in the RPHP study of Strontium-90 in baby teeth, the only study ever to examine radioactivity levels in bodies of Americans living near nuclear plants. The study found the highest Sr-90 levels closest to plants, rising levels since the late 1980s, and high levels in children with cancer.

Mr. Mangano has participated in 20 press conferences and presented testimony to 17 government panels. He has also written 25 editorials in U.S. newspapers in 2006-2007, most of them discussing the health risks of building new nuclear reactors. Because of his efforts, RPHP work has been extensively covered by media including The New York Times, USA Today, CNN, NPR and BBC. He received master's degrees in public health from the University of North Carolina and in business administration from Fordham University.

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"New Nuclear Reactors are a Threat to our Children's Health" Durham (NC) Herald-Sun, 2/13/06
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"Study Health of Neighbors of Millstone" New Haven (CT) Register, 5/23/06
"New South Texas Reactors: Build Them and Risks Will Come" Houston Chronicle, 7/22/06
"New Nuke Plants Hazardous to Amarillo's Health" Amarillo (TX) Globe-News, 8/18/06
"Grand Gulf Raises Health Questions" Monroe (LA) News-Star, 8/20/06
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"The Danger of Storing Nuclear Waste" Pottstown (PA) Mercury, 12/16/06
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- White Plains NY, 11/00 and 10/02
- Valhalla NY, 8/03
- Pottstown PA, 1/01, 11/03, 4/05, 5/06
- Toms River NJ, 5/00 and 4/01
- Mineola NY, 6/01
- New York City, 7/99, 4/02, and 11/07
- Trenton NJ, 5/03, 3/06, 6/07
- Hackensack NJ, 11/03
- Harrisburg PA, 8/04, 11/05

TESTIMONY TO GOVERNMENT OFFICIALS (17):

- New York State energy advisory group (NYSERDA), 4/02
- New York City Council (Indian Point NY plant), 5/02 and 2/03
- U.S. Nuclear Regulatory Commission (Harris NC plant), 7/07
- U.S. Nuclear Regulatory Commission (Oyster Creek NJ plant), 7/06, 5/07
- U.S. Nuclear Regulatory Commission (Peach Bottom PA plant), 7/02
- U.S. Nuclear Regulatory Commission (Turkey Point FL plant), 7/01
- Connecticut State utility commission, (Millstone CT plant) 11/00
- U.S. Senate Environment Committee (Sen. Hillary R. Clinton), 6/01
- Suffolk County (NY) legislature, Sr-90 in baby teeth, 8/00
- Suffolk County (NY) Rhabdomyosarcoma task force, 2001-3
- Westchester County (NY) legislature, Sr-90 in baby teeth 11/00, 10/02
- New Jersey Commission on Radiation Protection, 2/05, 6/07
- Ocean County (NJ) Board of Freeholders, 9/07

Exhibit 4, Attachment A

PUBLIC HEALTH RISKS OF EXTENDING LICENSES OF THE INDIAN POINT 2 AND 3 NUCLEAR REACTORS

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EXECUTIVE SUMMARY

The Indian Point nuclear plant, 35 miles north of midtown Manhattan, has three reactors, two of which remain in operation. Entergy Nuclear, which operates the plant, has requested that the federal government extend the operating licenses of the two reactors for 20 additional years beyond their 2013 and 2015 expiration dates. To date, federal officials have not acknowledged any public health risks of license extension at Indian Point. This report explores risks from extending the Indian Point licenses.

Continued operation of Indian Point raises the risk of radioactivity exposure in two ways. First, the reactor cores would produce high-level waste to be added to the 1,500 tons already at the site, worsening the consequences of a large-scale release. Second, because reactors routinely release radioactivity, keeping Indian Point in service would mean greater releases and risks to local residents. The principal findings of this report are:

1. A large-scale release of radioactivity in a meltdown, from mechanical failure or act of sabotage, would harm thousands through acute radiation poisoning or cancer.

2. Indian Point has released the 5th greatest amount of airborne radioactivity out of 72 U.S. nuclear plants. In some periods, releases are up to 100 times greater than normal.

3. Radioactivity levels in the Hudson River near Indian Point are over 10 times greater than those in Albany. Large variations exist in local radioactivity levels; for example, 2006 airborne radioactivity was three times as high in late fall, than in late spring.

4. Levels of Strontium-90 in local baby teeth are the highest of any area near seven U.S. nuclear plants. Local children born in the late 1990s have an average Sr-90 level 38% greater than those born a decade earlier.

5. In the four counties closest to Indian Point, the incidence of cancer exceeds the state and national rates. In 2000-2004, excess cancer cases range from 2090 to 3631.

6. Local incidence rates of childhood cancer and thyroid cancer, both known to be sensitive to radiation exposure, are among the highest in New York State. Local thyroid cancer incidence is about 70% above the U.S. rate.

7. Cancer incidence in the towns within five miles of Indian Point is 20% greater than the rest of Rockland and Westchester Counties.

8. There is a statistical link between average levels of Strontium-90 in local baby teeth and local childhood cancer rates.

9. If closing Indian Point is associated with decreases in cancer mortality as it did near the Rancho Seco CA plant, 5000 fewer cancer deaths would occur in the next 20 years.

While many factors contribute to cancer risk, evidence suggests that more detailed study on Indian Point is warranted, and that the public be informed of any health risks.

I. Introduction

A. Brief History of Nuclear Power and Indian Point. The discovery of nuclear fission, or creation of high energy by splitting uranium atoms, was first used for military purposes, i.e. the atomic bombs in Japan during World War II. Soon after, other uses of the fission process were introduced. One of these was the creation of electric power from the heat generated by fission. The "Atoms for Peace" speech given at the United Nations by President Dwight Eisenhower in 1953 opened the door for the development of reactors that would produce electricity.

Hundreds of reactors were proposed by electric utilities, who were interested based on the potential to produce clean and cheap energy. In the New York City area, many reactors were discussed, and federal applications were formally submitted for a total of 16 within 100 miles of midtown Manhattan (Table 1). Of these, only five eventually operated and only three still remain in operation (Indian Point 2, Indian Point 3, and Oyster Creek).

Table 1
Nuclear Power Reactors Within 100 Miles of Midtown Manhattan
With Formal Applications to the U.S. Atomic Energy Commission

Reactor	State	Miles/Dir. From NYC	Ordered	Startup	Closed
1. Indian Point 1	NY	35 mi. N	1955	1962	1974
2. Indian Point 2	NY	35 mi. N	1965	1973	
3. Indian Point 3	NY	35 mi. N	1967	1976	
4. Haddam Neck	CT	90 mi. NE	1962	1967	1995
5. Oyster Creek	NJ	65 mi. SW	1963	1969	
6. Ravenswood	NY	3 mi. E	1962		
7. Shoreham	NY	55 mi. NE	1968		
8. Burlington 1	NJ	80 mi. SW	1966		
9. Burlington 2	NJ	80 mi. SW	1966		
10. Verplanck 1	NY	35 mi. N	1968		
11. Verplanck 2	NY	35 mi. N	1968		
12. Forked River	NJ	65 mi. SW	1973		
13. Atlantic 1	NJ	100 mi. S	1974		
14. Atlantic 2	NJ	100 mi. S	1974		
15. Jamesport 1	NY	75 mi. E	1974		
16. Jamesport 2	NY	75 mi. E	1974		

Source: U.S. Nuclear Regulatory Commission, www.nrc.gov

The Indian Point plant is the former site of an amusement park in the town of Buchanan, in northwestern Westchester County. It is located on the Hudson River, the source of power needed to operate the plant. Five reactors were once proposed for the site;

however, the Verplanck 1 and 2 reactors were cancelled in the 1970s, and the Indian Point unit 1 reactor closed permanently in 1974.

The Indian Point units 2 and 3 reactors have the capacity to generate 951 and 965 megawatts of electricity, respectively, much more than the unit 1 capacity of 257. The reactors went critical (began producing radioactivity) on May 22, 1973 and April 6, 1976, respectively. To date, no U.S. reactor has operated longer than 38 years, making the 34 and 31 year-old Indian Point reactors among the oldest.

B. Radioactivity Produced in Reactors. To produce electricity, nuclear power reactors split uranium-235 atoms, generating high energy that is transformed into electrical power. This splitting process, known as fission, also produces over 100 chemicals not found in nature. These chemicals are the same as those found in the large clouds of fallout after above-ground atomic bomb tests.

Fission products, which take the form of gases and particles, include Cesium-137, Iodine-131, and Strontium-90. They are highly unstable atoms, which emit alpha particles, beta particles, or gamma rays. When they enter the body, they affect various organs. Cesium seeks out the muscles (including the heart and reproductive organs), iodine attacks the thyroid gland, and strontium attaches to bone. Each causes cancer after damaging DNA in cells and creating mutations, and is especially harmful to the fetus, infant, and child. Some decay quickly (Iodine-131 has a half life of 8 days), while others remain for long periods (Strontium-90 has a half life of 29 years).

Most of the radioactivity produced in reactors is contained within the reactor building and stored as high-level waste in deep pools of water that must be constantly cooled. At Indian Point and at other aging plants, the pools are becoming full. Some of the waste has been transferred to above-ground outdoor casks, and this process is expected to begin at Indian Point in late 2007. Indian Point currently maintains over 1,500 tons of waste on site, and additional radioactivity in the reactor cores. The amount of radioactivity at the plant is equivalent to several times as much as present at the Chernobyl site, and hundreds of times as much as was released at Hiroshima in 1945.

The federal government has designated Yucca Mountain in Nevada as a permanent waste site. Yucca has encountered much opposition, and will not open until at least 2018 (according to the U.S. Energy Department). Some experts believe that Yucca Mountain or any permanent repository will never open, leaving existing nuclear plants to maintain the waste indefinitely.

II. Health Hazards Posed by Reactor Meltdowns

A. Description. Much of the health concern posed by nuclear reactors is on the effects of a major meltdown. The radioactivity in a reactor core and waste pools must be constantly cooled by water, or the fuel will heat uncontrollably, causing a huge release of radioactivity. This release can be caused by mechanical failure (such as what happened

at Chernobyl in 1986, when safeguard redundancy was deliberately shut off for testing purposes) or by a deliberate act of sabotage.

The experience at Hiroshima and Nagasaki demonstrated how exposure to high levels of radioactivity can harm humans. Those closest to the bombs were vaporized, literally melting from the intense heat. But many other victims who survived the initial blast developed acute radiation poisoning, marked by symptoms such as nausea, vomiting, diarrhea, skin burns, weakness, dehydration, bleeding, hair loss, ulcerations, bloody stool, and skin sloughing (falling off), according to the Medical Encyclopedia of the National Library of Medicine. In addition, a large number of bomb survivors in the two cities developed cancers over the next several decades; thyroid cancer had the greatest excess, according to a 1994 report. (Source: Thompson DE et al. Cancer Incidence in Atomic Bomb Survivors. Part II: Solid Tumors, 1958-1987. Radiation Effects Research Foundation, Hiroshima Japan, 1994).

B. Estimates of Casualties. If a meltdown that caused large scale releases of radioactivity from the reactor core or the waste pools occurred at Indian Point, there would be no vaporizing of humans. However, many would suffer from acute radiation poisoning (in the short term) and cancer (in the long term). Several estimates have been made to calculate just how many would be harmed. In 1982, the Sandia National Laboratories submitted estimates to Congress for each U.S. nuclear plant in the case of core meltdown. Those estimates for Indian Point are given in Table 2.

Table 2
Estimated Deaths/Cases of Acute Radiation Poisoning and Cancer Deaths
Near Indian Point, Following a Core Meltdown

Type of Effect	Indian Point 2	Indian Point 3
Deaths, Acute Radiation Poisoning	46,000	50,000
Cases, Acute Radiation Poisoning	141,000	167,000
Cancer Deaths	13,000	14,000

Note: Acute radiation poisoning cases and deaths calculated for a radius of 17.5 miles from the plant, cancer deaths calculated for radius 50 miles from the plant.
Source: Sandia National Laboratories, Calculation of Reactor Accident Consequences (CRAC-2) for U.S. Nuclear Power Plants. Prepared for U.S. Congress, Subcommittee on Oversight and Investigations, Committee on Interior and Insular Affairs. November 1, 1982. Published in New York Times and Washington Post the following day.

The Sandia figures are known as CRAC-2 (for Calculation of Reactor Accident Consequences). CRAC-2 estimated casualties for Indian Point are one of the highest of any U.S. nuclear plant. Many believe the figures should be much larger, since the local population has grown since 1982 when the calculations were made, and people beyond a 17.5-mile radius from the plant will also suffer adverse health consequences.

More recently, the Union of Concerned Scientists prepared an estimate of casualties after a core meltdown from a terrorist attack. The 2004 report entitled "Chernobyl on the Hudson" estimated much higher casualties than did the 1982 Sandia effort. The Union's

Dr. Edwin Lyman calculated that as many as 44,000 near term deaths from acute radiation syndrome within 50 miles and 518,000 long term deaths from cancer within 60 miles could occur, depending on weather conditions. (Source: Lyman ES, Chernobyl on the Hudson?: The Health and Economic Impacts of a Terrorist Attack on the Indian Point Nuclear Plant." Washington DC: Union of Concerned Scientists, 2004. www.ucsusa.org).

Indian Point is more vulnerable to a meltdown from mechanical failure than most reactors because of its age, and more vulnerable to a terrorist attack because of its proximity to New York City. Since the terrorist attack on the World Trade Center of September 11, 2001, much attention has been paid to the possibility of Indian Point as a potential target for attack.

The reactors are also more vulnerable to a meltdown due to its parts corroding as the plant ages and as the reactors operate much more of the time in recent years; the operating factor from 2001-2004 was 95%, compared to the national rate of 90% (Table 3). Until 1994, the operating factors for Indian Point 2 and 3 were 64.7% and 50.4%, respectively. Source: U.S. Nuclear Regulatory Commission, in The New York Times, October 2, 1995.

Table 3
Hours Indian Point Reactors Were Critical, 2001-2004

Year	Indian Point 2	Indian Point 3
2001	8513.98	8156.38
2002	8000.87	8731.05
2003	8664.86	7866.83
2004	7994.62	8784.00
Total	33,174.33	33,538.26
% Capacity	94.6%	95.6%

Source: U.S. Nuclear Regulatory Commission, www.nrc.gov.

The potential for a meltdown, while not highly likely, is a reality. A recent report by Greenpeace entitled "An American Chernobyl" identified 200 near-miss accidents at American reactors in the past two decades. Four of these were at Indian Point, all occurring since 2000 (Table 4).

Table 4
Near Miss Accidents At Indian Point Since 1986

Date	Reactor	Description
February 15, 2000	Indian Point 2	Steam generator tube rupture
July 19, 2002	Indian Point 2	Degraded control room fire barrier
August 14, 2003	Indian Point 2	Loss of offsite power due to NE blackout
August 14, 2003	Indian Point 3	Loss of offsite power due to NE blackout

Source: An American Chernobyl: Nuclear "Near Misses" at U.S. Reactors Since 1986. Washington DC: Greenpeace, 2006. www.greenpeace.org.

III. Radioactivity from Indian Point

A. Environmental Releases from Indian Point. All nuclear reactors must routinely emit radioactivity into the environment in order to operate. There are several forms of these emissions. One is accidental releases due to leaking equipment, which can include the cladding and welds of fuel rods in the reactor core, cracks and breaks in fuel that damages cladding, corroding pipes, and cracked steam generator tubes. These scenarios result in radioactivity released into the air and water. Radioactivity is also deliberately released into local water about every 18 months when reactors refuel.

Each utility is required by federal law to measure and report radioactive environmental emissions from nuclear reactors annually. From 1970-1993, the federal government produced a comparative listing of annual emissions for each U.S. reactor (it has since been discontinued). One measure of environmental emissions is known as airborne "Iodine-131 and Effluents" or chemicals with a half-life of at least eight days (and thus, are more likely to enter the body through breathing and the food chain). The list of the U.S. nuclear plants with the highest releases is given in Table 5:

Table 5
U.S. Nuclear Plants with Highest Emissions
Of Airborne Radioactivity, 1970-1993

Plant	Location	Reactors	Emissions*
1. Dresden	Morris IL	3	97.22
2. Oyster Creek	Forked River NJ	1	77.05
3. Millstone	Waterford CT	2	32.80
4. Quad Cities	Cordova IL	2	26.95
5. Indian Point	**Buchanan NY**	**3**	**17.50**
6. Nine Mile Point	Scriba NY	2	14.67
7. Brunswick	Southport NC	2	14.50
8. Three Mile Island	Londonderry PA	2	14.43
9. Monticello	Monticello MN	1	12.48
10. Pilgrim	Plymouth MA	1	6.71

* Emissions expressed as curies of Iodine-131 and effluents
Source: Tichler J et al. Radioactive Materials Released from Nuclear Power Plants, annual reports. Upton NY: Brookhaven National Laboratory, NUREG/CR-2907.

The Indian Point total of 17.50 curies is the 5th highest of 72 U.S. plants. The total is greater than the 14.43 curies from the Three Mile Island plant in Pennsylvania, most of which was reported after the 1979 accident. Most of the Indian Point total occurred in 1985 and 1986, with a total of 14.03 curies from Indian Point 2. Several years later, the totals were changed to 1.90 curies; an inquiry to the U.S. Nuclear Regulatory Commission attributed the change to a "clerical error." While the original figures are used here, using revised figures would still rank Indian Point as the 12th highest in the nation.

More recent data on emissions is now posted on the Internet by the federal government. Data for all U.S. reactors are listed from 2001-2004, by quarter, and by type of emission. Unfortunately, no information for Indian Point 2 is given, and data for Indian Point 3 is missing for various quarters.

But examination of types of airborne and liquid radioactive emissions with data reported for each quarter from 2001-2004 from Indian Point 3 is helpful in understanding the large variations over time (Tables 6 and 7). For example:

- Releases of fission gases from Indian Point 3 rose about six-fold from the fourth quarter 2001 to the first quarter 2002 (about 15-fold for Xenon-133, a type of fission gas), and about 100 times higher than a year earlier.
- Second quarter 2004 releases of airborne fission gases were much higher than typical quarterly 2003 releases
- The quarters with the highest liquid releases of fission and activation products were not necessarily those with the highest liquid releases of tritium

More analysis is needed to understand reason(s) for these releases. But it is clear that there are very large swings in emissions levels over time. Large increases often remain high for extended periods of time.

Table 6
Airborne Radioactivity Released from Indian Point 3, in Millicuries
Selected Measures of Radioactivity, by Quarter, 2001-2004

Quarter	Total Xenon-133	Fission Gases	Tritium
1st Q 01	59	91	360
2nd Q 01	218	251	457
3rd Q 01	321	1040	1120
4th Q 01	378	1400	1430
1st Q 02	5580	8180	1310
2nd Q 02	1820	3790	1670
3rd Q 02	166	202	1540
4th Q 02	33	55	679
1st Q 03	141	181	495
2nd Q 03	190	229	828
3rd Q 03	371	525	951
4th Q 03	523	1590	830
1st Q 04	144	204	1420
2nd Q 04	1290	1450	1340
3rd Q 04	29	58	1140
4th Q 04	36	121	1570

One millicurie is 1/1000th of a curie. The physical half lives of Xenon-133 and Tritium are 5.24 days and 12.3 years, respectively.

Source: U.S. Nuclear Regulatory Commission. www.reirs.com/effluent/EDB

Table 7
Liquid Radioactivity Released from Indian Point 3, in Millicuries
Selected Measures of Radioactivity, by Quarter, 2001-2004

Quarter	Fission and Activation Products	Tritium
1st Q 01	27.0	251,000
2nd Q 01	51.4	170,000
3rd Q 01	36.4	22,900
4th Q 01	12.0	482,000
1st Q 02	4.5	31,900
2nd Q 02	2.5	19,600
3rd Q 02	7.6	51,400
4th Q 02	14.0	692,000
1st Q 03	3.9	667,000
2nd Q 03	27.3	61,800
3rd Q 03	7.5	187,000
4th Q 03	6.3	38,500
1st Q 04	3.1	28,800
2nd Q 04	3.0	71,800
3rd Q 04	4.7	44,900
4th Q 04	4.8	530,000

One millicurie is 1/1000th of a curie. The physical half-life of Tritium is 12.3 years.
Source: U.S. Nuclear Regulatory Commission. www.reirs.com/effluent/EDB

B. Environmental Radioactivity Levels near Indian Point. All utilities are also required by federal law to make periodic measurements of radioactivity levels in the local area near reactors, and report them to the U.S. Nuclear Regulatory Commission annually. In addition, the New York State Department of Health makes measurements in air, water, soil, fish, and vegetation, and makes results available to the public.

Some of the measurements are for levels of specific chemicals, such as Strontium-90 and Iodine-131. But others cover entire categories of radioactive chemicals (which emit alpha particles, beta particles, or gamma rays). These categories are most meaningful when trying to estimate total radiation burden to the environment.

The state Health Department maintains a water-monitoring site on the Hudson River at Verplanck, which is just one mile south of the Indian Point plant. It also measures radioactivity levels in water in Albany, on the roof of the Health Department building, as a "control", meaning the site is far from any nuclear plant. Average weekly levels of all alpha and beta emitters have traditionally been about 10 to 11 times higher in Verplanck than in Albany (Table 8). It is virtually certain that this difference is due to the operations of Indian Point, as many of these alpha- and beta-emitting chemicals can only be produced in nuclear reactors.

Table 8
Average Gross Alpha and Gross Beta Levels in Water
From Weekly Measurements, 1982-2003
Hudson River (Verplanck) vs. Albany (Health Department)

		Annual Avg. (measurements)	
Area	Period	Gross Alpha	Gross Beta
Verplanck	1982-1994	21.74 (573)	24.41 (574)
Albany	1982-1994	1.85 (706)	1.99 (706)
Times Verplanck is above Albany		11.8	10.9
Verplanck	1995-2003	23.41 (416)	25.36 (416)
Albany	1995-2003	2.20 (228)	2.39 (228)
Times Verplanck is above Albany		10.6	10.6

All measurements are in picocuries of gross alpha/gross beta per liter of water.
Source: New York State Department of Health, Bureau of Radiation Protection. Environmental Radiation in New York State, annual volumes.

The Annual Radiological Environmental Operating Report for the Indian Point plant is now available on the NRC web site from 1999 to 2006. While each report lists a variety of radioactivity measurements near the plant, there are problems. There is no simple way to summarize radioactivity patterns near the plant. Measurements of some forms of radioactivity are taken infrequently (e.g. annually or quarterly). Levels of radioactivity may not always be detectable by Entergy, given the reliable detection limits of the methodologies employed. At these levels, measurement uncertainty is characteristically high, making it difficult to obtain reliable assessments.

One type of radioactivity that may be helpful in understanding local radioactivity burden is "gross beta in air", or the total amount of radioactive chemicals that emit beta particles. Measurements are taken weekly; error margins are small; there are nine stations near Indian Point; and all measurements are detectable. Table 9 displays findings for 2006:

Table 9
Average Gross Beta in Air From Weekly Measurements, 2006
Nine Stations Near the Indian Point Plant

Indicator	Result
Average, all stations	13.02
Range of averages, nine stations	12.59 – 13.43
Lowest/highest weekly averages (6/13, 12/12)	3.67 – 25.00
First 23 weeks/Last 29 weeks	10.67 - 14.89 (+40%)
Lowest/highest period (4/25-6/13, 11/7-12/19)	8.07 - 23.76

All measurements are in picocuries of gross beta per cubic meter of air, multiplied by 1000. The error margin for each measurement is +/- .0001. A total of 466 measurements were taken in 2006.
Source: Annual Environmental Radiological Operating Report, available at www.nrc.gov

The average of gross beta for all nine stations in 2006, covering 466 individual measurements is 13.02 picocuries per cubic meter of air (actually .001302 x 1000). Average readings are relatively consistent from station to station; the lowest is 12.59 and the highest is 13.43.

Perhaps the most noteworthy pattern observed in these data is the wide variation over time. The average for the last 29 weeks of the year was 40% greater than the first 23 weeks. The average during the late autumn (23.76 for the seven weeks November 7 to December 19) was nearly triple that of the late spring (8.07 for the eight weeks April 25 to June 13). These patterns are consistent among the nine stations, and cover hundreds of readings, suggesting they are due to changes in man-made radioactivity from Indian Point.

C. Radioactivity Levels in Bodies near Indian Point. The question of how much man-made radioactivity enters human bodies was first considered in the 1950s, when the U.S. government sponsored studies that measured bone and teeth samples for Strontium-90, one of the 100-plus chemicals found in nuclear weapon explosions and nuclear reactor operations. A landmark study of baby teeth in St. Louis found that the average Sr-90 level for children born in 1964 (just as atomic bomb testing was stopped) was about 50 times greater than for children born in 1950. Furthermore, Sr-90 studies found that average concentrations in bodies plunged by about half from 1964 to 1969, after large-scale weapons testing in the atmosphere was banned. Similar studies of Sr-90 in bone and teeth in Europe found similar patterns. (Sources: Rosenthal HR. Accumulation of environmental strontium-90 in teeth of children. In: Proceedings of the Ninth Annual Hanford Biology Symposium, Richland WA, May 5-8, 1969. Washington DC: U.S. Atomic Energy Commission, 1969. Health and Safety Laboratory, U.S. Atomic Energy Commission. Strontium-90 in Human Vertebrae. In: Radiation Data and Reports, monthly volumes, 1964-1969).

Government officials dropped their in-body radiation monitoring programs in 1970, 1971, and 1982. No studies measuring in-body levels near U.S. nuclear plants existed until 1996, when the independent research group Radiation and Public Health Project initiated an effort measuring Sr-90 in baby teeth, as did the earlier project in St. Louis. RPHP used a machine designed to measure low-dose radioactivity levels and selected the REMS radiochemistry lab of Canada to establish protocols and test teeth.

The lab calculated the ratio of Sr-90 to calcium, and RPHP converted it to a ratio at birth, using the Sr-90 half-life of 28.7 years. Most Sr-90 in a baby tooth is taken up during the last six months of pregnancy and the first few months of life. A tooth from a person age 28.7 years with a current ratio of 4.30 would have an at-birth ratio of 8.60. Teeth were classified according to where the mother lived during pregnancy and the first year of life, not the current residence.

RPHP has tested nearly 5,000 baby teeth, and published five medical journal articles on results. A comprehensive analysis of the study found that average Sr-90 in baby teeth was 30-50% higher in counties closest to six U.S. nuclear plants, and that average levels rose about 50% from the late 1980s to the late 1990s (reversing a prior decline), as reactors aged and were in operation more frequently. Results were statistically

significant, suggesting strongly that emissions from nuclear reactors were entering bodies of local humans. (Source: Mangano JJ et al. An unexpected rise in Strontium-90 in US deciduous teeth in the 1990s. The Science of the Total Environment 2003;317:37-51).

Over 500 teeth were collected and tested from the New York metropolitan area partly supported by a $25,000 grant from the Westchester County legislature. Over half were from the four counties closest to Indian Point – Westchester, Rockland, Orange, and Putnam. The average local Sr-90 level was the highest in the area, and the highest of near six U.S. nuclear plants. Average Sr-90 decreased with distance from the plant, i.e., New York City was lower than the local area, and Long Island was lower than New York City (Table 10).

Table 10
Average Concentration of Strontium-90 in Baby Teeth, At Birth
New York City Metropolitan Area

Region	Teeth	Average Sr-90
4 Cos. Near Indian Point	279	3.78
New York City	161	3.10
Long Island	94	2.75

Average = picocuries of Sr-90 per gram of calcium at birth. Only births after 1979 included.
Source: Radiation and Public Health Project

Increases in average Sr-90 in baby teeth over the past decade were also highest near Indian Point. Children born in the late 1990s in the four-county area had a 38% greater average Sr-90 level than those born in the late 1980s, while the changes in New York City and Long Island were +36% and -11%, respectively (Table 11).

Table 11
Change in Average Concentration of Strontium-90 in Baby Teeth, At Birth
New York City Metropolitan Area, 1986-89 to 1994-97

	Average Sr-90 (no. teeth)		
Area	b. 1986-89	b. 1994-97	% Change
4 Cos. Near Indian Point	3.31 (55)	4.55 (77)	+38%
New York City	2.67 (51)	3.62 (32)	+36%
Long Island	3.33 (20)	2.98 (20)	- 11%

Average = picocuries of Sr-90 per gram of calcium at birth.
Source: Radiation and Public Health Project

While the tooth study provided some unique and important data, it is difficult to demonstrate exactly how the Sr-90 entered children's bodies. (Some is taken from the mother's bone stores, some through the mother's diet during pregnancy, and some through the baby's diet during infancy). Sr-90 enters bodies through milk, water,

vegetation, and breathing. The study limits do not, however, negate the importance of consistent and significant findings of high and rising levels of radioactivity closest to Indian Point.

The preceding data documenting high emissions from Indian Point, high levels in the local environment, and high/rising levels in local bodies raise questions about whether the health of local residents have been harmed.

IV. Potential Health Risks from Indian Point

A. Prior Studies. Health risks from Indian Point have been virtually unstudied. The only national study of cancer rates near U.S. nuclear plants was conducted in the late 1980s by the National Cancer Institute. The study examined changes in cancer death rates before and after the startup of 62 plants, including Indian Point.

Because Indian Point 1 began operating in 1962, the NCI study compared death rates in Westchester and Rockland Counties with the U.S. rate for the periods 1950-1962 and 1963-1984. Aggregate results were published in the New England Journal of Medicine in March 1991. Table 12 provides results for the two counties.

Table 12
Change in Cancer Mortality Rates, By Type of Cancer
Westchester/Rockland Counties vs. U.S., 1950-1962 to 1963-1984

Increases (6)	No Change (2)	Decreases (6)
Bone and Joint	Brain	Bladder
Childhood (age 0-19)	Breast	Colon and Rectum
Hodgkin's Disease		Leukemia
Other Lymphoma		Liver
Stomach		Lung, Bronchus, Trachea
Thyroid		Multiple Myeloma

Source: Jablon S. et al. Cancer Mortality in Populations Living Near U.S. Nuclear Facilities. National Cancer Institute, U.S. Department of Health and Human Services, NIH Pub. No. 90-874. Washington DC: U.S. Government Printing Office, 1990.

Results of the NCI study are mixed, as rates of six types of cancer increased and six types decreased in Westchester and Rockland Counties. However, no data are examined after 1984, which makes the study outdated. In addition, the fact that only cancer deaths, not cancer cases, were examined suggests it did not comprehensively address cancer risk.

In 2003, a medical journal articles examined childhood cancer incidence (cases) near 14 nuclear power plants in the eastern U.S., covering the period 1988-1997, during which nearly 4000 cases were diagnosed. The article found that cancer rates in children age 0-9 exceeded the national rate in all 14 areas near nuclear plants. One of the 14 areas was Indian Point (Westchester and Rockland Counties), which exceeded the U.S. by 17.4%. The excess was of borderline statistical significance ($p<.08$, when $p<.05$ is considered

significant). The article also examined mortality for children age 0-9 during this period. The Westchester/Rockland death rate was 1.4% above the U.S., not a significant excess.

Table 13
Childhood Cancer Incidence and Mortality Rates
Westchester/Rockland Counties vs. U.S., 1988-1997

County	Rate/100,000 Cases/Deaths	% +/- U.S.
Incidence		
Westchester	18.39 (190)	+18.6
Rockland	17.63 (63)	+13.7
TOTAL	18.20 (253)	+17.4
Mortality		
Westchester	3.38 (39)	- 3.2
Rockland	4.01 (16)	+14.8
TOTAL	3.55 (55)	+ 1.4

Sources: Mangano JJ et al. Elevated childhood cancer incidence proximate to U.S. nuclear power plants. Archives of Environmental Health 2003;58(2):74-83.

These studies, while providing helpful data, fall far short of addressing any potential connection between Indian Point emissions and local risk of cancer. Much more detailed and updated analyses are needed, especially as federal regulators examine the application to extend the licenses of the Indian Point 2 and 3 reactors for an additional 20 years.

B. Defining Local Population. While there is no uniform definition of what is meant by the "local" area around Indian Point, any study should include some or all of the four counties that flank the plant. Westchester County, the site of the site, lies to the east and southeast, while Rockland County lies to the west and southwest. These two counties were recognized by the National Cancer Institute as the "local" counties near Indian Point. In addition, Putnam County (just to the northeast) and Orange County (just to the northwest) can be considered, although area totals will largely reflect Westchester and Rockland counties, which are much more populated. Most residents of these counties live within 20 miles of Indian Point.

Several demographic characteristics that can affect health risk in counties closest to Indian Point are given in Table 14.

Table 14
Selected Demographic Characteristics
Counties Closest to Indian Point vs. the U.S. and NY State

Characteristic	U.S.	NYS	4 Counties	West.	Rock.	Put.	Orange
2006 population	299.4m	19.3m	1721315	949355	294965	100603	376392
1950 population	150.4m	14.9m	887654	625816	89276	20307	152255
2005 % black	12.8	17.4	12.6	14.9	11.9	2.6	10.2
2005 % Hispanic/Latino	14.4	16.1	15.8	18.0	12.2	9.2	14.9
2000 % Foreign born	11.1	20.4	17.9	22.2	19.1	8.8	8.4
2000 % English not spoken*	17.9	28.0	25.5	28.4	29.9	13.2	18.2
2000 % >25 HS grad	80.4	79.1	83.9	83.6	85.3	90.2	81.8
2000 % >25 College grad	24.4	27.4	35.9	40.9	37.5	33.9	22.5
2004 % below poverty	12.7	14.5	9.0	8.9	9.5	4.5	10.2
2000 % Homeownership	66.2	53.0	64.9	60.1	71.7	82.2	67.0

* Language other than English spoken at home, age 5+
Source: U.S. Bureau of the Census, www.census.gov, your gateway to the 2000 census, state and county quick facts.

The current population of the four-county area is over 1.7 million, which has nearly doubled in the past half century. Compared to the U.S. and New York State, the local educational level is higher, while the percentage of minorities and persons living in poverty are lower. Thus, there are no apparent characteristics in the area suggesting elevated disease risk. The presence of world-class medical care in New York City is another factor suggesting local disease rates should not exceed state and national levels.

C. Cancer Incidence.

1. All Cancers Combined. The New York State Department of Health has made cancer incidence data available on the Internet for small areas, including counties and zip codes. The most recent data covers the period 2000-2004.

Table 15 displays cancer incidence rates for the four counties, compared to the U.S. and New York State rates, diagnosed during 2000-2004, for all cancers combined.

Table 15
Incidence, All Cancers Combined
Four Counties Near Indian Point vs. U.S. and NY State, 2000-2004

County	Rate/100,000	% Local +/- US	% Local +/- NYS	Significance* vs. US	Significance* vs. NYS	Excess Cases vs. US	Excess Cases vs. NYS
Males							
Westchester	577.6 (12608)	+ 3.9	+ 1.1	<.003*	< .37	492	139
Rockland	613.8 (3991)	+10.4	+ 7.5	<.001*	<.002*	415	299
Putnam	619.0 (1244)	+11.4	+ 8.4	<.01*	< .05*	142	105
Orange	590.1 (4067)	+ 6.2	+ 3.3	<.01*	< .15	252	134
4 COS.	21910					1301	677
Females							
Westchester	442.4 (12822)	+ 7.6	+ 3.5	<.001*	<.006*	975	449
Rockland	459.7 (3750)	+11.8	+ 7.6	<.001*	<.002*	443	285
Putnam	501.5 (1255)	+21.9	+17.3	<.001*	<.001*	275	217
Orange	474.4 (4166)	+15.3	+11.1	<.001*	<.001*	637	462
4 COS.	21993					2330	1413
TOTAL ALL	43903					**3631**	**2090**

Excess cases derived by multiplying percent over US/NYS by number of cases.
* Excess significant if p <.05. Rates Adjusted to 2000 U.S. standard population.
NYS rates for males/females = 571.1, 427.4. U.S. rates (17 states and cities) = 555.8, 411.3.
Sources: New York State Department of Health. www.nyhealth.gov/statistics/cancer/registry. Surveillance Epidemiology and End Results, www.seer.cancer.gov.

The cancer incidence rate in each county exceeds the U.S. and state rates, for both genders (greater for females). In nearly all cases, the excess was statistically significant. If the rate for each county had been equal to the national and state rates, 3631 and 2090 fewer cancer cases, respectively, would have been diagnosed during 2000-2004.

2. Childhood Cancers. Children are especially vulnerable to the toxic properties of radiation exposure. Thus, childhood cancer is likely the most-studied disease near nuclear plants.

The New York State Cancer Registry also makes available county-specific cancer incidence data for children, defined as those diagnosed before age 20. Table 16 lists childhood cancer incidence for each of the 22 most populated counties in New York State, which accounts for 86% of the state's population, for 2000-2004. Each county has at least 140,000 residents.

Table 16
Cancer Incidence, Children Age 0-19
Largest Counties in New York State, 2000-2004

County	Rate/100,000 Pop (No. cases)	
1. Rockland	**21.6 (94)**	
2. Niagara	21.1 (60)	
3. Westchester	**20.3 (254)**	
3. Nassau	20.3 (357)	
5. Suffolk	20.0 (401)	4 Local Counties 20.0 (471)
6. Manhattan	19.8 (300)	
7. Schenectady	18.5 (36)	**Putnam 19.4 (25)**
8. Orange	**18.0 (98)**	
9. Rensselaer	17.9 (36)	
10. Oneida	17.8 (53)	NY State 17.8
11. Staten Island	17.7 (88)	
12. Brooklyn	17.2 (620)	
13. Erie	17.0 (209)	
14. Ulster	16.9 (38)	
15. Queens	16.5 (456)	
16. Dutchess	16.5 (63)	
17. Monroe	16.4 (168)	U.S. 16.4
18. Broome	15.0 (40)	
19. Saratoga	14.8 (40)	
20. Bronx	14.7 (322)	
21. Albany	14.2 (54)	
22. Onandaga	13.0 (83)	

(Each of the 22 counties has over 140,000 residents = 86% of 2000 NY State population)
Source: NY State Department of Health, www.nyhealth.gov/statistics/cancer/registry

The table reveals that childhood cancer incidence in each of the four counties near Indian Point exceeds state and national rates. Rockland, Westchester, and Orange Counties have the 1st, 3rd, and 8th highest rates, respectively, of the 22 largest counties in the state (the number of cases in each of the other counties are likely to be too small to be significant). If Putnam County were large enough, it would have the 7th highest rate.

A total of 471 children in the four counties were diagnosed with cancer from 2000-2004. The rate of 20.0 cases per 100,000 children exceeds the state and nation by 12% and 22%, respectively. The excesses are of borderline significance ($p<.08$) compared to the state, and significantly above the U.S. ($p<.003$).

3. Thyroid Cancer. The specific type of cancer most strongly linked with radiation exposure is cancer of the thyroid gland. Radioactive iodine found only in atomic bomb fallout and nuclear reactor emissions seeks out the thyroid when it enters the body, and destroys and injures healthy cells.

Aside from exposure to ionizing radiation, experts have yet to conclusively identify risk factors for thyroid cancer. Thyroid cancer is the fastest-rising type of malignancy in the U.S.; the incidence rate has more than doubled since 1980, for young, middle age, and elderly adults (the disease is very rare in children). This trend, plus the sensitivity of the thyroid gland to radiation, makes it logical to examine thyroid cancer incidence near the Indian Point plant. Tables 17 and 18 show 2000-2004 thyroid cancer incidence rates for the most populated counties in New York State, for males and females.

Table 17
Thyroid Cancer Incidence, Males, All Ages
Largest Counties in New York State, 2000-2004

County	Rate/100,000 Pop (no. cases)	
1. Rockland	**10.0 (70)**	
2. Suffolk	7.1 (254)	**Putnam 8.6 (20)**
3. Orange	**6.7 (56)**	4 Local Counties 7.4
4. Staten Island	6.4 (71)	
5. Westchester	**6.1 (141)**	
6. Nassau	6.0 (204)	
7. Dutchess	5.9 (44)	
8. Manhattan	5.8 (224)	
9. Onandaga	5.5 (60)	
10. Oneida	5.4 (33)	
11. Saratoga	5.4 (28)	
12. Niagara	5.0 (28)	NYS 5.0
13. Monroe	4.6 (81)	
14. Erie	4.3 (102)	U.S. 4.3
15. Broome	4.1 (21)	
16. Queens	4.1 (215)	
17. Brooklyn	4.1 (217)	
18. Schenectady	4.1 (15)	
19. Albany	3.9 (28)	
20. Bronx	3.7 (94)	
21. Ulster	3.6 (17)	
22. Rensselaer	2.6 (10)	

(Each of 22 counties has over 140,000 residents = 86% of 2000 NY State population)
Rates adjusted to 2000 U.S. standard population
Source: NY State Department of Health, www.nyhealth.gov/statistics/cancer/registry

Table 18
Thyroid Cancer Incidence, Females, All Ages
Largest Counties in New York State, 2000-2004

County	Rate/100,000 Pop (No. cases)	
1. Orange	**25.9 (229)**	
2. Rockland	**25.3 (192)**	4 Local Counties 21.3
3. Oneida	19.4 (116)	**Putnam 20.6 (54)**
4. Saratoga	18.4 (102)	
5. Westchester	**17.2 (440)**	
6. Schenectady	17.1 (66)	
7. Suffolk	16.9 (657)	
8. Nassau	16.8 (516)	
9. Niagara	16.7 (96)	
10. Dutchess	15.8 (116)	
11. Broome	15.6 (81)	
12. Onandaga	15.1 (181)	
13. Staten Island	15.0 (186)	
14. Erie	14.5 (368)	
15. Albany	13.9 (109)	NYS 13.8
16. Manhattan	12.8 (590)	
17. Queens	12.7 (778)	
18. Rensselaer	12.0 (49)	U.S. 12.5
19. Monroe	11.8 (228)	
20. Ulster	11.3 (54)	
21. Brooklyn	11.1 (737)	
22. Bronx	9.7 (338)	

(Each of 22 counties has over 140,000 residents = 86% of 2000 NY State population)
Rates adjusted to 2000 U.S. standard population
Source: NY State Department of Health, www.nyhealth.gov/statistics/cancer/registry

The data show dramatically elevated rates of thyroid cancer incidence in the counties closest to Indian Point. The 4 county rate is 72% and 70% higher than the U.S. for males and females (7.4 vs. 4.3 and 21.3 vs. 12.5). While the Health Department web site does not combine rates for both genders, it appears that Rockland and Orange Counties have the highest rates of any large county in the state, followed closely by Westchester and Putnam Counties. The rate in Rockland County is approximately double that of the U.S. While thyroid cancer is not among the most common types of cancer, the total of 1202 cases diagnosed in the region from 2000-2004 makes the excess statistically significant, and worthy of further analysis.

4. Breast Cancer. Another type of cancer known to sensitive to radiation exposure is breast cancer. In 1994, a report on over 200,000 survivors of the atomic bombs used on Hiroshima and Nagasaki documented elevated rates of many types of cancer in those who received highest doses. Breast cancer in females had the highest excess (20%) of any

type of cancer, except for thyroid cancer (34%). (Source: Thompson DE et al. Cancer Incidence in Atomic Bomb Survivors. Part II: Solid Tumors, 1958-1987. Radiation Effects Research Foundation, Hiroshima Japan, 1994).

The incidence of breast cancer in the Indian Point area during the most recent five years, as posted on the state Health Department web site, is given in Table 19:

Table 19
Cancer Incidence, Female Breast
Four Counties Nearest Indian Point vs. U.S. and NY State

County	Rate/100,000 (Cases)	% Local is +/- U.S.	% Local is +/- NYS	Excess Cases vs US	Excess Cases vs NYS
2000-2004					
Westchester	136.3 (3870)	+ 6.7	+ 7.8	259	302
Rockland	133.7 (1094)	+ 4.6	+ 5.8	50	63
Putnam	141.5 (373)	+10.7	+11.9	38	44
Orange	132.5 (1165)	+ 3.7	+ 4.8	43	56
TOTAL	135.3 (6502)	+ 5.9	+ 7.0	**390**	**465**

Period	Rate/100,000 (Cases)	% Local is +/- NY State	Excess Cases vs NY State
1976-1979	102.9 (3144)	**+1.9**	59
1980-1984	108.3 (4264)	**+2.6**	109
1985-1989	120.0 (4955)	**+2.5**	123
1990-1994	128.2 (5490)	**+2.7**	150
1995-1999	139.4 (6238)	**+3.9**	242
2000-2004	135.3 (6502)	**+7.0**	465

Excess cases derived by multiplying percent over US/NYS by number of cases.
Rates Adjusted to 2000 U.S. standard population.
NYS rate = 126.4. U.S. rate (17 states and cities) = 127.8
Sources: New York State Department of Health. www.nyhealth.gov/statistics/cancer/registry.
Surveillance Epidemiology and End Results, www.seer.cancer.gov.

Breast cancer incidence was greater than the state and nation for each county. The four-county excess was 7.0% and 5.9%, respectively. Of the total of 6502 breast cancer cases diagnosed during the period, 390 to 465 are in excess of the national and state rates, respectively. The only excesses that are statistically significant are those for Westchester and the four-county total.

In addition, the gap between the four-county and state rates of breast cancer incidence has grown in the past three decades. The excess of 1.9% in the late 1970s has increased to 7.0% in the early 2000s. The number of breast cancer cases diagnosed annually has risen from about 800 to 1300 during this time.

5. Most Common Cancers, by Zip Code. The state Health Department has also made available cancer incidence data by each zip code in New York State, for the five-year

period 1999-2003. The data only cover the four most common types of cancer: (female) breast, colorectal, lung and bronchus, and (male) prostate. These account for about 55% of all newly-diagnosed cancer cases in the U.S. Actual cases are compared with the number expected if the rate in the zip code equaled the state rate for each age group.

Table 20 displays the number of cancer cases for the six zip code areas closest to Indian Point, all within about five miles of the plant, three in Rockland County and three in Westchester County (data for all zip codes in the two counties are given as Appendix 1).

Table 20
Cancer Incidence, Breast/Colorectal/Lung/Prostate Cancers
Six Zip Code Areas Closest to Indian Point vs. Other Westchester/Rockland
1999-2003

Town/Zip Code	Cancer Cases Actual	Cancer Cases Expected	% Actual +/-Expected	
Westchester				
Buchanan (10511)	34	31.3	+ 8.6%	
Peekskill (10566, 10517)	333	283.5	+17.5%	
Montrose (10548,10596)	73	67.4	+ 8.3%	
3 Westchester Towns	440	382.2	**+15.1%**	p<.06
Rockland				
Stony Point (10980, 10986)	254	202.8	+25.2%	
Haverstraw (10927)	133	112.5	+18.2%	
W. Haverstraw (10993)	92	67.1	+37.1%	
3 Rockland Towns	479	382.4	**+25.3%**	p<.002
Total 6 Towns	919	764.6	**+20.2%**	p<.0002
Oth Westchester/Rockland	17520	17297.2	**+ 1.3%**	
Colorectal	199	164.7	+20.8%	p<.06
Female Breast	214	205.0	+ 4.4%	
Lung/Bronchus	245	187.4	+30.7%	p<.004
Male Prostate	261	207.5	+25.8%	p<.01

Source: New York State Department of Health. www.nyhealth.gov/statistics/cancer/registry.

There were 919 cases of the four cancer types diagnosed in the towns closest to Indian Point from 1999-2003. Cancer incidence in the six towns exceeded the state rate by 20.2%, while the excess for the rest of the two counties was just 1.3%. The excess in the six towns is highly significant at p<.0002. Local rates were significantly higher than expected for each of the four types of cancer except for breast cancer.

D. Cancer Mortality.

1. All Cancers Combined. Data for all U.S. deaths is available for the years 1979 to 2004 on the web site of the U.S. Centers for Disease Control and Prevention. The site permits

analysis by age, race, sex, and cause of death, and identifies state and county of residence. It also allows death rates for clusters of counties or states to be analyzed.

Table 21 displays the death rate for all cancers combined for the four-county area near Indian Point, compared to the state and nation, for the 26-year period in the database.

Table 21
Mortality, All Cancers Combined
Four Counties Nearest Indian Point vs. U.S. and NY State, 1979-2004

County	Rate/100,000 (Deaths)	% Local is +/- U.S.	% Local is +/- NYS	Excess Deaths vs US	Excess Deaths vs NYS
Westchester	205.5 (51696)	- 1.9	- 2.4	- 982	- 1241
Rockland	209.1 (12970)	- 0.2	- 0.7	- 26	- 91
Putnam	227.6 (4101)	+ 8.6	+ 8.1	353	332
Orange	231.3 (15640)	+10.4	+ 9.9	1626	1548
TOTAL	211.3 (84407)	+ 0.9	+ 0.4	971	548

Excess cases derived by multiplying percent over US/NYS by number of cases.
Rates Adjusted to 2000 U.S. standard population. NYS rate = 210.5. U.S. rate = 209.5
Source: U.S. Centers for Disease Control and Prevention, http://wonder.cdc.gov, underlying cause of death.
Uses ICD-9 codes 140.0-239.9 (1979-1998) and ICD-10 codes C00-D48.9 (1999-2004).

The four-county area has virtually the same cancer death rate as the state and nation (+0.4% and +0.9%, respectively). The total excess deaths (548 and 971) are a small proportion of the total number of 84,407 cancer deaths in this period. Putnam and Orange Counties have higher rates, while Westchester and Rockland Counties have lower rates. The differences are all statistically significant, except for Rockland County.

2. Cancer vs. Non-Cancer Mortality. While the local cancer mortality rate near Indian Point is only slightly higher than the state and national rates, this pattern takes on different meaning after analyzing local death rates for other causes. Table 22 shows the local mortality rates for cancers and all other causes combined, for each age group.

For all but the elderly, the local rate of all non-cancer deaths was 21% to 26% below the U.S. standard, a large variation from the slight elevation in cancer deaths. If the local cancer mortality rate had been below the U.S. like it was for other causes, a total of 8,799 fewer cancer deaths would have occurred from 1979-2004 in the four counties.

Table 22
Mortality, Cancer vs. All Other Causes
Four Counties Nearest Indian Point vs. U.S. by Age, 1979-2004

	Deaths		% +/- U.S.		Excess
Age	Cancer	Other	Cancer	Other	Ca. Deaths
0-24	614	9157	**+ 2.6**	**-26.2**	177
25-44	3343	13708	**+ 2.4**	**-21.3**	826
45-64	22804	34714	**- 4.8**	**-22.3**	3991
65+	57644	192922	**+ 3.6**	**- 3.0**	3805
TOTAL					**8799**

Excess cancer deaths derived by multiplying percent over US by number of deaths.
Rates Adjusted to 2000 U.S. standard population.
Source: U.S. Centers for Disease Control and Prevention, http://wonder.cdc.gov, underlying cause of death. Uses ICD-9 codes 140.0-239.9 (1979-1998) and ICD-10 codes C00-D48.9 (1999-2004).

3. Thyroid Cancer. Thyroid cancer is one of the most successfully treated types of cancer, and thus the mortality rate for this disease is very low. In the period 1979-2004, a total of 241 residents of the four local counties died of thyroid cancer. The death rate of 0.607 per 100,000 was 32.6% and 13.9% greater than the U.S. and New York State, respectively. The difference with the U.S. is statistically significant at $p<.01$, while the difference with New York State is not significant.

4. Correlation of Radioactivity from Indian Point with Cancer. To start examining a correlation between radioactive emissions from Indian Point and cancer risk, RPHP compared trends in Strontium-90 in local baby teeth with trends in childhood cancer incidence age 0-9. Figure 1 includes two line graphs over a 14-year period, one each for the local trend in Putnam, Rockland, and Westchester Counties. The childhood cancer line represents periods four years after the Sr-90 line, to test the principle that childhood cancer occurs several years after exposure to the fetus. Dr. Alice Stewart first observed this phenomenon in the late 1950s when she demonstrated pelvic X-rays to the fetus resulted in nearly a doubling in the cancer death rate before the child reached age ten.

When the Sr-90 level rises, cancer incidence in children under age ten also rises. Conversely, declines in Sr-90 are followed by declines in cancer incidence. The correlation falls short of statistical significance; but similar and significant findings near the Oyster Creek and Brookhaven nuclear plants give the results credibility, and suggest that more detailed examination is merited. Source: Mangano JJ. A Short Latency between Radiation Exposure from Nuclear Plants and Cancer in Young Children. International Journal of Health Services 2006;36(1):113-35.

V. Studies of improved local health after reactor shutdown

A. Precedent – Atomic Bomb Test Halt. If Indian Point closes by the end of its current license in 2015, no additional radioactivity will be produced or released from the reactor

core (the slow-decaying forms of radioactive waste will remain). Closing the reactor will reduce levels of these products in the environment and body.

There is a precedent for such reductions. When above ground atomic bomb tests ceased after the Partial Test Ban Treaty of 1963, chemicals that decay quickly (such as Iodine-131, with a half life of eight days) virtually disappeared. Chemicals with a slower decay rate also dropped; Strontium-90 fell 75% in milk and 50% in bones from 1964-1970, according to studies conducted by the U.S. Public Health Service. (Source: Health and Safety Laboratory, U.S. Atomic Energy Commission. Strontium-90 in Human Vertebrae. In: Radiation Data and Reports, monthly volumes, 1964-1969).

Reduced environmental radioactivity raises the question of whether disease rates would also decline, especially among the more susceptible infant and children. Again, there may be precedent for such a change. The incidence of cancer age 0-4 in Connecticut, the only state that maintained a cancer registry in the 1960s, rose as large-scale bomb testing continued; from 1959 to 1962, new cases increased steadily from 41 to 60. But after testing ended, the number of cases plunged, from 60 to 30 between 1962 and 1968 (Table 23). Cancer incidence to young children can be seen as one of the most sensitive indicators of harm from radiation exposure, as these cancers often represent insults to the highly radiosensitive fetus.

Table 23
Cancer Cases Diagnosed in Children Age 0-4
Connecticut, Each Year from 1959-1968

Year	Cases	Year	Cases
During Bomb Testing		After Bomb Testing	
1959	41	1964	53
1960	47	1965	38
1961	46	1966	43
1962	60	1967	43
1963	58	1968	30

Source: National Cancer Institute, Forty-five Years of Cancer Incidence in Connecticut: 1935-79. NIH Publication No. 86-2652. Bethesda MD: U.S. Department of Health and Human Services, 1986.

B. Precedent – Nuclear Reactor Closing. Much of the radioactivity in the core of a nuclear reactor consists of chemicals that decay relatively quickly. Thus, reactor shutdown would mean a substantial decrease in routine emissions and in emissions from a core meltdown, just days after closing. A recent report calculated that a core meltdown just 20 days after shutdown of a fully operational reactor would reduce cancer deaths within 50 miles by 50% and reduce acute fatalities by 81%. Using the methodology from the Sandia National Laboratories 1982 study, the report estimated that a meltdown at Indian Point 20 days after the reactor closed would reduce cancer deaths within 50 miles from 53,960 to 26,870 and acute fatalities within 10 miles from 867 to 166. Source: Lyman ES. The Impact of Nuclear Plant Shutdown on Severe Accident Consequences. Washington DC: Nuclear Control Institute, February 12, 2002.

Like atomic bomb test cessation, there may be a precedent for cancer reductions after nuclear reactors close and radioactive releases end. A 2002 journal article by the Radiation and Public Health Project examines reactors that closed from 1987-1998 that were at least 70 miles from any other nuclear plant. The article compared cancer incidence in children under age five in the periods prior to and after closing. For downwind areas near six closed reactors, the rate fell each time (total of -24.8%), even though there was a slight increase in the U.S. childhood cancer during this period (Table 24).

Table 24
Change in Cancer Incidence Rates, Age 0-4
Counties Downwind and <40 Miles of Closed Reactors
Before and After Reactor Closing

Reactor	Year Closed	Counties Downwind and <40 Miles
LaCrosse	1987	LaCrosse, Vernon WI
Rancho Seco	1989	Amador, El Dorado, Placer, Sacramento CA
Fort St. Vrain	1989	Larimer, Weld CO
Big Rock Point	1997	Antrim, Charlevoix, Cheboygan, Emmet, Otsego MI
Maine Yankee	1997	Kennebec, Knox, Lincoln ME
Zion	1998	Lake IL; Kenosha, Racine WI

Reactor	Before Close	After Close	Cases/100,000 (No.) Before	After	% Change
LaCrosse	'86-87	'88-94	40.0 (7)	24.6 (15)	-38.5%
Rancho Seco	'88-89	'90-96	24.0 (50)	17.6 (153)	-26.9%
Fort St. Vrain	'88-89	'90-96	20.3 (10)	18.0 (32)	-11.7%
Big Rock Pt.	'96-97	'98-00	45.0 (7)	21.1 (5)	-53.1%
Me. Yankee	'96-97	'98-01	38.1 (8)	27.2 (11)	-28.5%
Zion	'97-98	'99-00	21.2 (32)	19.7 (30)	- 7.0%
TOTAL			24.7 (114)	18.5 (246)	-24.8%
U.S. ANNUAL AVERAGE CHANGE, 1986-1998					+ 0.3%

Sources: State cancer registries, in Mangano JJ et al. Infant Death and Childhood Cancer Reductions after Nuclear Plant Closings in the United States. Archives of Environmental Health 2002;57(10):23-32.

Cancer reductions for people of all ages have also occurred near closed nuclear reactors. One of the largest U.S. reactors that has closed permanently is Rancho Seco, in Sacramento County CA, which closed on June 6, 1989. The four California counties within 40 miles downwind (east) of Rancho Seco have a population of 1.9 million, roughly equal to the four counties surrounding Indian Point. This part of California also has approximately the same percentage of minorities, foreign-born residents, educational levels, and poverty levels, as does the U.S.

In the 1980s, while Rancho Seco was operating, the local cancer death rate was higher than the U.S. But in the 1990s and 2000s, after shutdown, levels abruptly moved below the U.S. The difference between the actual (lower) cancer death rates and an expected continuation of previous rates equals 3225 fewer local cancer deaths from 1990-2003 (Table 25).

Table 25
Reduction in Cancer Deaths, All Ages
Counties East and Under 40 Miles of Rancho Seco (Amador, El Dorado, Placer, Sacramento)
Before and After Reactor Closing, June 1989

Period	Cancer Deaths	Local Rate	U.S. Rate	% Local +/- US Actual	% Local +/- US Expected	Expected Deaths	Reduced Deaths
Before Shutdown							
1979-83	9212	215.6	210.3	**+2.52%**	----	----	----
1984-89	13609	222.7	215.0	**+3.56%**	----	----	----
After Shutdown							
1990-98	24138	204.9	213.1	**- 3.86%**	+4.60%	26180	2042
1999-03	15968	197.1	200.6	**- 1.77%**	+5.64%	17151	1183
POST-SHUTDOWN TOTAL	40106					43331	3225

Note: If the increase of local cancer death rate excess from 2.52% (1979-83) to 3.56% (1984-89) had continued, it would have reached 4.60% in 1990-98, 5.64% in 1999-03.

Expected deaths for 1990-98 = 24138 * (1 +(.046 + .0386)) = 26180
Expected deaths for 1999-03 = 15968 * (1 +(.0564 + .0177)) = 17151
Reduced deaths for 1990-98 = 26180 – 24138 = 2042
Reduced deaths for 1999-03 = 17151 – 15968 = 1183

Source: U.S. Centers for Disease Control and Prevention, http://wonder.cdc.gov, underlying cause of death. Uses ICD-9 cancer codes 140.0-239.9 (1979-1998) and ICD-10 cancer codes C00-D48.9 (1999-2003). All rates adjusted to 2000 U.S. standard population. California counties include Amador, El Dorado, Placer, and Sacramento.

Reductions in cancer after reactor closing may reflect various contributing factors other than reduced radioactivity. However, no other factors in the Rancho Seco area accounting for this significant trend are apparent.

C. Potential Cancer Reduction After Indian Point Closing. To the extent, if any, that elevated local rates of cancer are caused by Indian Point's radioactive releases, closing the reactors could result in a decrease in cancer incidence and mortality. If cancer death rates in the four counties within 20 miles of Indian Point declined at a similar rate as in the four counties near the closed Rancho Seco reactor, the reduction in cancer deaths from 2016 to 2035 would be 5,203 (Table 26).

Table 26
Reduction in Cancer Deaths, All Ages
Orange, Putnam, Rockland, and Westchester Counties
If Similar Patterns Near Rancho Seco Were Duplicated
Estimate for 20 Year Period 2016-2035

Assumptions:
1. Change in local and U.S. cancer death rates is -1%/year
2. Change in local population is +1%/year
3. Decline in local rate vs. U.S. is -8.02%, based on
- Rancho Seco went from an expected +4.60% to an actual -3.86% in 1990-98 (-8.46%)
- Rancho Seco went from an expected +5.64% to an actual -1.77% in 1999-03 (-7.41%)
- Weighted average difference in actual vs. expected cancer death rates = 8.02%

Calculations:

Actual cancer deaths in 10 year period 1995-04	32,438
Expected cancer deaths in 20 year period 2016-35 (32,110 x 2)	64,876
Reduction in deaths (expected deaths x reduction (64,220 x .0802)	**5,203**

Source: U.S. Centers for Disease Control and Prevention, http://wonder.cdc.gov, underlying cause of death. Uses ICD-9 cancer codes 140.0-239.9 (1995-1998) and ICD-10 cancer codes C00-D48.9 (1999-2004).

VI. Environmental Justice Issues

A. Introduction. Another way to examine potential health hazards of Indian Point is through an analysis of environmental justice. Links between minority/poverty status and cancer risk are analyzed here.

Most residents of Orange, Putnam, Rockland, and Westchester (NY) Counties live within 20 miles of Indian Point, and will be the focus of the analysis. Sources of cancer data are the NY State Cancer Registry (incidence) and the U.S. Centers for Disease Control and Prevention (mortality). Data on race and poverty are taken from the U.S. Census Bureau.

Areas close to/distant from Indian Point (or other nuclear plants) similar in racial and socioeconomic mix are compared. The hypothesis to be tested is that, cancer will be higher in areas closer to Indian Point ("nuclear" areas) than distant areas with similar race distribution and poverty rates ("control" areas).

This method was used by the U.S. National Cancer Institute in a 1990 study, the only comprehensive review of cancer near U.S. nuclear plants. The NCI compared cancer mortality rates in counties closest to 62 plants with rates in matched counties further from the plants, from 1950-1984, using data from the National Center for Health Statistics. (Source: Jablon S et al. Cancer in Populations Living Near Nuclear Facilities. Department of Health and Human Services, National Cancer Institute, NIH Pub. No. 90-874. Washington DC: U.S. Government Printing Office, 1990).

Prior studies show that areas with the highest proportion of minorities or poor do not always have the highest cancer rates. For example, blacks have lower rates of childhood cancer and thyroid cancer than whites. In addition, incidence data may be skewed according to screening rates and access to care, e.g. whites have higher breast cancer

incidence but lower mortality rates than blacks. (Source: U.S. National Cancer Institute. SEER Cancer Statistics Review, 1975-2004. http://seer.cancer.gov, 2007).

B. Selection of Nuclear and Control Counties. The following is an analysis comparing cancer rates in each of the four counties closest to Indian Point with cancer rates in more distant control counties in New York State with similar proportions of white non-Hispanic residents and poverty rates. Table 27 displays socioeconomic data from the nuclear counties with their matched controls. There are slight differences, as exact matches are not possible (for example, Putnam County easily has the lowest poverty rate of any New York county at 4.5%, followed by Nassau at 6.2% and Saratoga at 6.4%).

Table 27
Demographic Comparison
Counties Closest to the Indian Point Nuclear Plant
And Matched Control County in New York State

County	Miles from Indian Point	2006 Est. Population	2005 % Wh. Non-Hispanic	2005% Non-Wh. Hispanic	2004 % < Poverty
Westchester	0-20	949,355	61.6	38.4	8.9
Nassau	35-45	1,325,662	70.1	29.9	6.2
Rockland	0-20	294,965	69.2	30.8	9.5
Richmond	45-50	477,377	67.9	32.1	10.2
Putnam	0- 20	100,603	86.0	14.0	4.5
Saratoga	90-115	215,473	94.1	5.9	6.4
Orange	0-20	376,392	72.4	27.6	10.2
Albany	70-90	297,556	79.8	21.2	10.8

Saratoga and Albany Counties are 60 miles from the Vermont Yankee nuclear plant at their closest points.
Source: U.S. Bureau of the Census, www.census.gov, 2000 Census, State and County quick facts.

C. Rates of Radio-Sensitive Cancers, Nuclear vs. Control Counties. A comparison between nuclear and control counties is possible for many types of cancer. This report will be restricted to childhood and thyroid cancer, believed to be among the types of cancer most sensitive to radiation exposure. The fetus, infant, and child are more susceptible due to the rapid rate of cell division and undeveloped immune system, while radioactive iodine in atomic weapons and nuclear reactors seeks out the thyroid gland.

Table 28 includes childhood cancer incidence (age 0-19) and mortality (age 0-24) data, plus thyroid cancer for all ages, adjusted to the 2000 U.S. population. The most recent period of 2000-2004 is given. Incidence data are more helpful, as improvements in treatment have sharply increased survival rates for both childhood and thyroid cancer.

Table 28
Incidence and Mortality of Thyroid and Childhood Cancer
Counties Closest to and Distant from Indian Point, 2000-2004

	Incidence (Cases/100000/N)			Mortality (Deaths/100000/N)	
County	M Thy.	F Thy.	Age 0-19	Thy.	Cancer 0-24
Westchester	6.1 (141)	17.2 (440)	20.3 (254)	0.472 (25)	3.53 (52)
Nassau	6.0 (204)	16.8 (616)	20.3 (357)	0.437 (35)	2.69 (56)
% Nuc. +/- Cont.	**+ 1.7**	**+2.4**	**+ 0.0**	**+ 8.0**	**+31.2**
Rockland	10.0 (70)	25.3 (192)	21.6 (94)	0.665 (10)	3.71 (19)
Richmond	6.4 (71)	15.0 (186)	17.7 (108)	0.503 (11)	2.63 (20)
% Nuc. +/- Cont.	**+56.3**	**+68.7**	**+22.0**	**+32.2**	**+41.1**
	p<.02	p<.00001	p<.10		
Putnam	8.6 (20)	20.6 (54)	19.4 (25)	0.000 (0)	4.63 (7)
Saratoga	5.4 (28)	18.4 (102)	14.8 (40)	0.401 (4)	2.37 (8)
% Nuc. +/- Cont.	**+59.3**	**+12.0**	**+31.1**	--------	**+95.4**
	p<.15				
Orange	6.7 (56)	25.9 (229)	18.0 (98)	0.461 (7)	3.30 (22)
Albany	3.9 (28)	13.9 (109)	14.2 (54)	0.442 (8)	3.19 (16)
% Nuc. +/- Cont.	**+71.8**	**+86.3**	**+26.8**	**+ 4.3**	**+ 3.4**
	p<.02	p<.00001	p<.15		

Sources: New York State Cancer Registry, www.state.health.ny.gov (incidence data) and U.S. Centers for Disease Control and Prevention, http://wonder.cdc.gov, underlying cause of death (mortality data). The ICD-10 codes for thyroid cancer are C73-C73.9. All rates adjusted to 2000 U.S. population.

In virtually all comparisons, the rate for the nuclear county exceeds that of the control county. (The exceptions are the equal childhood cancer incidence for Westchester and Nassau, and the lower thyroid cancer mortality for Putnam). Statistical significance is achieved or approached for about half of the incidence comparisons.

D. Selection of Nuclear and Control Zip Codes. The New York State Cancer Registry provides data on cancer incidence for each zip code (by residence) in the state for the period 1999-2003. The types of cancer made public by the state are the ones accounting for about 55% of all newly diagnosed cancer cases, i.e., breast, colorectal, lung and bronchus, and prostate. Zip code data show the actual number of cases and the expected number (the state rate adjusted for the zip codes area's age, race, and gender mix).

This report defines "nuclear" zip codes as the closest nine Westchester and Rockland zip code areas that are completely or mostly within five miles of the Indian Point plant. Selection of matching "control" zip codes used the 2000 proportion of blacks and Hispanics (combined) and percentage living below poverty. Table 29 shows the nuclear and control zip codes, divided into high, moderate, and low minority/poverty areas.

Table 29
Demographic Comparison
Zip Code Areas Closest to the Indian Point Nuclear Plant
And Matched Control Zip Codes in Westchester/Rockland Counties

Zip Code(s)		Population in 2000	2000 % of Black/Hisp.	2000 % Below Poverty Level
Group 1 – High Minority/Poverty				
10927	Haverstraw	10,117	71.4	16.9
TOTAL NUCLEAR		**10,117**	**71.4**	**16.9**
10550, 51	Mt. Vernon	38,284	80.9	18.1
10553	Mt. Vernon	10,102	92.0	14.8
10601	White Plains	8,991	54.2	17.8
10705	Yonkers	38,115	62.0	21.5
TOTAL CONTROL		**95,492**	**72.0**	**19.1**
Group 2 – Moderate Minority/Poverty				
10993	West Haverstraw	4,263	42.4	11.4
10566, 17	Peekskill	22,411	47.4	13.7
TOTAL NUCLEAR		**26,704**	**46.6**	**13.3**
10573	Port Chester	36,300	42.4	10.6
10606, 02	White Plains	15,733	54.5	9.9
10703	Yonkers	20,410	36.3	13.7
10801, 02	White Plains	36,322	55.5	14.3
10977	Spring Valley	49,211	44.8	18.3
TOTAL CONTROL		**157,976**	**46.6**	**14.2**
Group 3 – Low Minority/Poverty				
10511	Buchanan	2,189	4.2	3.9
10548, 96	Montrose	4,076	9.7	8.3
10980	Stony Point	12,670	8.1	3.8
10986	Tompkins Point	1,739	7.9	3.3
TOTAL NUCLEAR		**20,674**	**8.0**	**4.7**
10520	Croton on Hudson	12,590	8.4	4.0
10528	Harrison	12,312	6.3	5.5
10577	Purchase	3,454	12.4	7.4
10708	Bronxville	22,411	10.2	3.8
TOTAL CONTROL		**50,767**	**9.0**	**4.5**

Source: U.S. Bureau of the Census, www.brainyzip.com.

E. Rates of Selected Cancers, Nuclear vs. Control Zip Codes. Table 30 compares the actual and expected number of cancer cases from 1999-2003 for breast, colorectal, lung/bronchus, and prostate cancers, for the nuclear and control zip codes.

Table 30
Actual/Expected Cases of Breast, Colorectal, Lung/Bronchus, and Prostate Cancer
Zip Codes Closest to and Distant from Indian Point, 1999-2003

Zip Code(s)		Actual	Expected	% Actual +/- Expected
Group 1 – High Minority/Poverty				
10927	Haverstraw	133	112.5	+18.2
TOTAL NUCLEAR		**133**	**112.5**	**+18.2**
10550, 51	Mt. Vernon	581	479.6	
10553	Mt. Vernon	158	160.5	
10601	White Plains	140	136.2	
10705	Yonkers	418	412.1	
TOTAL CONTROL		**1297**	**1188.4**	**+ 9.1**
Group 2 – Moderate Minority/Poverty				
10993	West Haverstraw	92	67.1	
10566, 17	Peekskill	333	283.5	
TOTAL NUCLEAR		**425**	**350.6**	**+21.2** $p<.0001$
10573	Port Chester	445	503.3	
10606, 02	White Plains	196	207.2	
10703	Yonkers	309	374.6	
10801, 02	White Plains	527	494.6	
10977	Spring Valley	528	537.9	
TOTAL CONTROL		**2005**	**2117.6**	**- 5.3**
Group 3 – Low Minority/Poverty				
10511	Buchanan	34	31.3	
10548, 96	Montrose	73	67.4	
10980	Stony Point	254	202.8	
10986	Tompkins Point	included with Stony Point		
TOTAL NUCLEAR		**361**	**301.5**	**+19.7** $p<.01$
10520	Croton on Hudson	206	221.3	
10528	Harrison	192	193.4	
10577	Purchase	40	42.2	
10708	Bronxville	432	410.2	
TOTAL CONTROL		**870**	**867.1**	**+ 0.3**

Source: U.S. Bureau of the Census, available in www.brainyzip.com.

In each of the three "nuclear" groups of zip codes, actual vs. expected cases was about 20% greater (total cases = 919). The control zip code areas had much lower excesses (+9.1%, -5.3%, +0.3%), and differences were significant for the latter two groups.

F. Conclusions. The preceding analysis produced information showing cancer rates in counties closest to Indian Point were unexpectedly high compared to counties with similar racial and poverty distribution. Within these closest counties, cancer rates in the zip code areas closest to the plant were also unexpectedly high. The large number of cases involved in the analyses makes results statistically significant in many instances.

The above examines the thesis that if a population is exposed to radioactivity, and a similar population is unexposed/underexposed, than the exposed population will have higher cancer rates. Data showing that levels of environmental radioactivity and in-body radioactivity are much greater near Indian Point than elsewhere in New York State are supported by the findings on cancer. (Sources: New York State Department of Health, Bureau of Radiation Protection. Environmental Radiation in New York State, annual volumes. Mangano JJ et al. An unexpected rise in strontium-90 in US deciduous teeth in the 1990s. The Science of the Total Environment 2003;317:37-51).

More environmental justice analyses of this type are merited, including:

- Incidence of radiosensitive cancers (childhood, thyroid) by zip code
- Incidence of all cancers combined (not just most common ones) by zip code
- Incidence of all types of cancers, by county
- Mortality of all types of cancer, by county and zip code

VII. Summary and Policy Implications

The preceding report covers two subjects: (potential and actual) radioactive contamination from the Indian Point reactors in the local environment, and potential health risks to local residents. Several analyses estimate that a large-scale release of radioactivity, either from mechanical failure or act of sabotage, would harm thousands, either through acute radiation poisoning or cancer.

In addition, environmental contamination from Indian Point may have already caused harm. Evidence of contamination includes reported environmental emissions from the reactors; reported levels of radioactivity in the environment; and Strontium-90 detected in local baby teeth. Official data from state and federal regulators of nuclear plants were used for emissions and environmental levels, while a novel study by the Radiation and Public Health Project was used for data on baby teeth. RPHP published five medical journal articles on the study.

The Indian Point reactors historically have emitted greater amounts of radioactivity into the environment than most U.S. plants. These emissions appear to be unpredictable, as wide variations in environmental radioactivity levels near Indian Point over time suggest. The baby tooth study, while it cannot exactly track all pathways of Sr-90 into local

bodies, does document relatively high (compared to other areas) and rising levels of the isotope in counties closest to Indian Point.

Cancer data were obtained from the New York State Cancer Registry (for cancer incidence from 2000-2004) and from the U.S. Centers for Disease Control (for cancer mortality from 1979-2004). The local area near Indian Point was defined as the counties within 20 miles (Orange, Putnam, Rockland, and Westchester). The results show that:

- The elevated local incidence rate, compared to the state and nation, suggests between 2090 and 3631 "excess" cancer cases occurred locally from 2000-2004

- Childhood cancer incidence in the four local counties is among the highest in New York State, and well above the national rate

- Thyroid cancer incidence in the four local counties is among the highest in New York State. The level in Rockland County is approximately double the U.S. rate

- The local breast cancer incidence rate exceeds the state and nation, and the excess is growing over time

- Incidence of the four most common types of cancer in the six towns within five miles of Indian Point is 20% greater than the rest of Rockland and Westchester Counties.

- The local mortality rate is well below the U.S. for all causes (for each age group) except for cancer, which is slightly higher.

- There is a statistical link between average levels of Strontium-90 in local baby teeth and local childhood cancer rates.

It is important to understand that this report presents data that suggest – but not yet prove – that Indian Point emissions are causing cancer. Many factors contribute to cancer risk, and radiation exposure is just one. However, the data raise questions about a potential link, on a topic has been virtually ignored in the 45 years that Indian Point has operated. The costs to society of high cancer rates are enormous, including direct medical costs and lost productivity from otherwise healthy members of society.

Given that federal regulators are about to review an application by Entergy Nuclear for permission to extend the operating licenses of the two Indian Point reactors for another 20 years, a prudent policy would be to conduct further study and not to grant any extension until the public better understands to what extent, if any, the threat that Indian Point presents to local public health.

APPENDIX 1

Cancer Incidence by Zip Code, 1999-2003
Breast, Colorectal, Lung, Prostate Cancer
Rockland County

Zip Code	Post Office	Actual	Expected	% +/- Expected
10901, 82	Suffern	336	336.9	- 0.3
19013	Blauvelt	91	84.5	+ 7.7
10920	Congers	123	119.3	+ 3.1
10923	Garnerville	112	103.6	+ 8.1
10927	Haverstraw	133	112.5	+18.2
10928, 11, 22	Highland Falls	87	80.4	+ 8.2
10931	Hillburn	16	11.7	+36.8
10952	Monsey	292	317.8	- 8.1
10954	Nanuet	393	337.2	+16.5
10956	New City	495	481.2	+ 2.9
10960	Nyack	245	218.7	+12.0
10962	Orangeburg	88	103.2	- 14.7
10965	Pearl River	258	237.0	+ 8.9
10968	Piermont	40	37.0	+ 8.1
10970	Pomona	156	140.9	+10.7
10974	Sloatsburg	48	47.2	+ 1.7
10976, 64	Sparkill	78	49.8	+56.6
10977	Spring Valley	528	537.9	- 1.8
10980, 86	Stony Point	254	202.8	+25.2
10983	Tappen	103	99.6	+ 3.4
10984	Thiells	34	35.4	- 4.0
10989	Valley Cottage	152	150.0	+ 1.3
10993	West Haverstraw	92	67.1	+37.1
10994	Haverstraw	119	103.1	+15.4
TOTAL ROCKLAND		4273	4014.8	+ 6.4

Note: Expected cases based on NY State rates

Cancer Incidence by Zip Code, 1999-2003
Breast, Colorectal, Lung, Prostate Cancer
Westchester County

Zip Code	Post Office	Actual	Expected	% +/- Expected
10501	Amawalk	24	9.0	+166.7
10502	Ardsley	88	89.5	- 1.7
10504	Armonk	119	104.2	+ 14.2
10506	Bedford	94	77.2	+ 21.8
10507	Bedford Hills	69	76.8	- 10.2
10510	Briarcliff Manor	180	147.1	+ 22.4
10511	Buchanan	34	31.3	+ 8.6
10514	Chappaqua	139	160.2	- 13.2
10520, 21	Croton on Hudson	206	221.3	- 6.9
10522	Dobbs Ferry	138	162.6	- 15.1
10523	Elmsford	98	111.3	- 11.9
10526, 78	Goldens Bridge	44	35.0	+ 25.7
10527	Granite Springs	8	17.0	- 52.9
10528	Harrison	192	193.4	- 0.7
10530	Hartsdale	287	220.9	+ 29.9
10532	Hawthorne	103	80.0	+ 28.8
10533, 03	Irvington	111	118.3	- 6.2
10535	Jefferson Valley	5	4.6	+ 8.7
10536	Katonah	130	167.2	- 22.2
10537	Lake Peekskill	20	19.9	+ 0.5
10538	Larchmont	286	253.5	+ 12.8
10541, 05, 42	Mahopac	334	334.4	- 0.1
10543	Mamaroneck	272	318.9	- 14.7
10546	Millwood	18	13.1	+ 37.4
10547, 88	Mohegan Lake	110	110.4	- 0.4
10548, 96	Montrose	73	67.4	+ 8.3
10549	Mount Kisco	197	202.2	- 2.6
10550, 51	Mount Vernon	581	479.6	+ 21.1
10552	Mount Vernon	361	340.9	+ 5.9
10553	Mount Vernon	158	160.5	- 1.6
10560	North Salem	57	80.4	- 29.1
10562, 45	Ossining	420	428.4	- 2.0
10566, 17	Peekskill	333	283.5	+ 17.5
10567	Cortlandt Manor	226	233.2	- 3.1
10570	Pleasantville	171	167.4	+ 2.2
10573	Port Chester	445	503.3	- 11.6
10576	Pound Ridge	75	74.4	+ 0.8
10577	Purchase	40	42.2	- 5.2
10580	Rye	291	247.2	+ 17.7
10583	Scarsdale	614	615.1	- 0.2

Cancer Incidence by Zip Code, 1999-2003
Breast, Colorectal, Lung, Prostate Cancer
Westchester County (continued)

10589, 19, 40	Somers	255	216.2	+ 17.9
10590	South Salem	101	84.4	+ 19.7
10591	Tarrytown	268	278.3	- 3.7
10594	Thornwood	61	77.9	- 21.7
10595	Valhalla	120	119.5	+ 0.4
10597, 18	Waccabuc	27	16.5	+ 63.6
10598, 87	Yorktown Heights	419	445.8	- 6.0
10601	White Plains	140	136.2	+ 2.8
10603	White Plains	277	247.6	+ 11.9
10604	West Harrison	112	148.6	- 24.6
10605	White Plains	333	331.6	+ 0.6
10606, 02	White Plains	196	207.2	- 5.4
10607	White Plains	114	119.7	- 4.8
10701, 02	Yonkers	771	707.6	+ 9.0
10703	Yonkers	309	374.6	- 17.5
10704	Yonkers	539	514.9	+ 4.7
10705	Yonkers	418	412.1	+ 1.4
10706	Hastings on Hudson	156	143.8	+ 8.5
10708	Bronxville	432	410.2	+ 5.3
10709, 07	Eastchester	332	313.9	+ 5.8
10710	Yonkers	524	510.9	+ 2.6
10801, 02	New Rochelle	527	494.6	+ 6.6
10803	Pelham	163	171.7	- 5.1
10804	Wykagyl	272	250.9	+ 8.4
10805	New Rochelle	261	310.0	- 15.8
TOTAL WESTCHESTER		14278	14047.0	+ 1.6

Note: Expected cases based on NY State rates

Cancer Incidence by Zip Code, 1999-2003
Breast, Colorectal, Lung, Prostate Cancer
Regions of Rockland and Westchester County

Region (Zip Codes)	Actual	Expected	% +/- Expected
Within Five Miles of Indian Point (10511, 10517, 10548, 10566, 10596, 10927, 10980, 10986, 10993)	**919**	**764.6**	**+20.2**
Central Rockland (10920, 10923, 10952, 10956, 10977, 10984, 10989)	1444	1427.4	+ 1.2
West Rockland (10901, 10931, 10952, 10970, 10974, 10982)	848	854.5	- 0.8
South Rockland (10913, 10954, 10960, 10962, 10964, 10965, 10968, 10976, 10983, 10994)	1415	1270.1	+11.4
Northwest Westchester (10520, 10521, 10537, 10546, 10547, 10562, 10567, 10587, 10588, 10595, 10598)	1419	1472.1	- 3.6
Northeast Westchester (10501, 10505, 10507, 10518, 10519, 10526, 10527 (10535, 10536, 10540, 10541, 10542, 10549, 10560, 10576, 10578, 10589, 10590, 10597)	1420	1395.3	+ 1.8
Central Westchester (10504, 10510, 10514, 10532, 10570, 10591, 10594, 10595)	1161	1134.6	+ 2.3
Yonkers, Mount Vernon, New Rochelle (10550, 10551, 10552, 10553, 10701, 10702, 10703, 10704, 10705, 10706, 10707, 10708, 10709, 10710, 10801, 10802, 10803, 10804, 10805)	5804	5596.2	+ 3.7
Other South Westchester (10502, 10522, 10523, 10528, 10530, 10533, 10538, 10543, 10573, 10577, 10580, 10583, 10601, 10602, 10603, 108604, 10605, 10606, 10607)	4034	4066.6	- 0.8

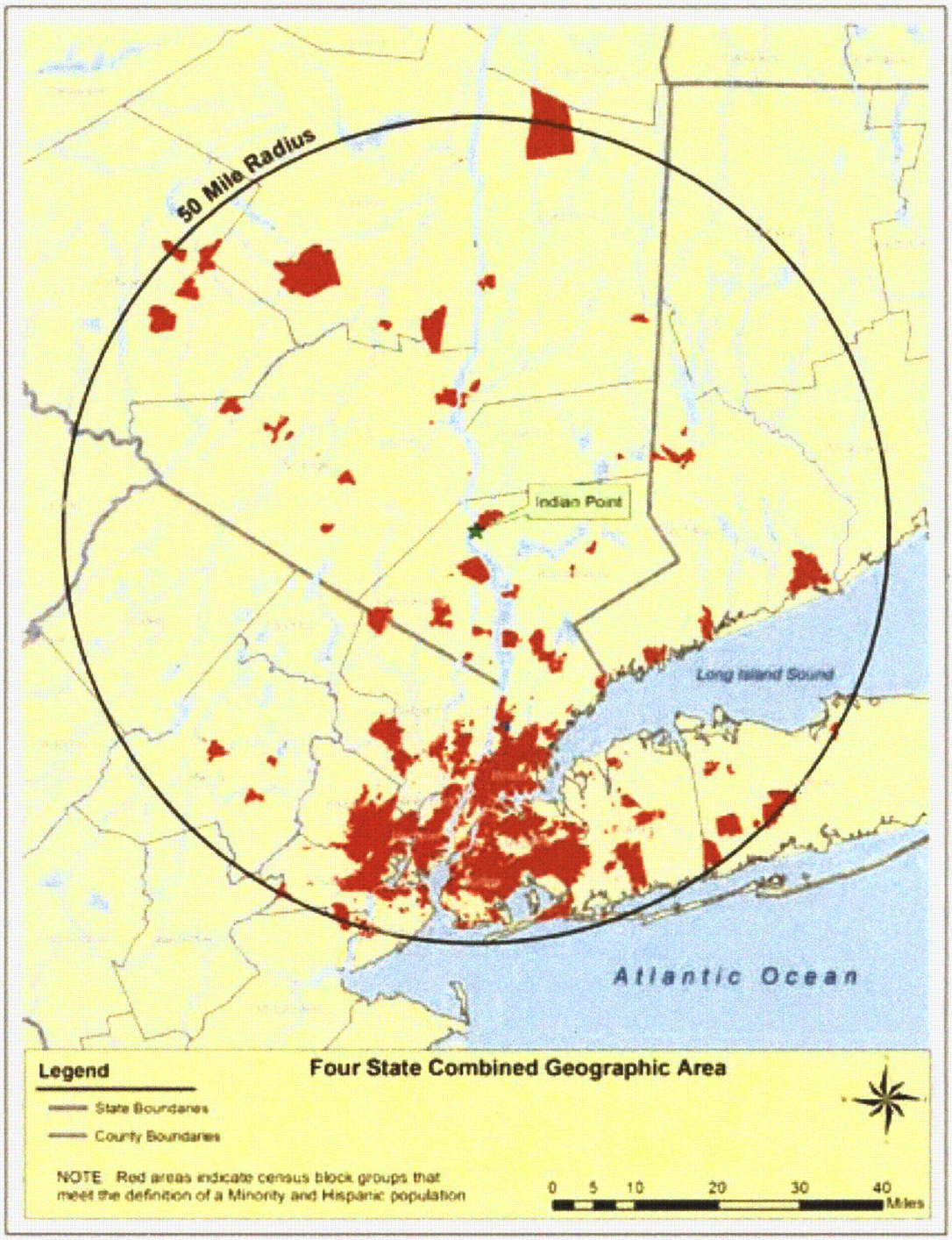

Figure 2-23
Census Block Groups, Combined Minority Plus Hispanic Population
(Combined States as a Geographic Area)

Exhibit 6: APPENDIX **B- SURVEY INSTRUMENT**

QUESTIONNAIRE - HUDSON RIVER ANGLER SURVEY, 1996

Interviewer: _____

Date: _____/_____/_____ Day of Week: _____
month day year

Time Started: _____ Time Finished: _____

Site: _____

Gender of Person Being Interviewed: M F

1) I am taking a survey of fishing activity along the Hudson River. May I ask you some questions?

____Yes
____No - **(THANK PERSON AND TERMINATE INTERVIEW)**

2) Have you already been interviewed this year about recreational fishing?

____Yes - **(END INTERVIEW)**
____No

3) What types of fish are you trying to catch? **(LIST)**

4) What fishing or crabbing equipment are you using today?

____ Hook and line
____ Trap
____ Net
____ Other: _____

5) Have you caught anything here today, and if so, what?

Species	Number caught	Size **(MEASURE!)**

6) How many times have you fished or crabbed on the Hudson River in the last seven days (that is from _____ until today)?

7) How many times have you fished or crabbed on the Hudson River in the last month (that is from _____ until today)?

8) What is the main reason that you fish or crab?

9) For what other reasons do you fish or crab?
(LIST IN ORDER GIVEN)

10) We would like to know what you do with the fish or crabs that you catch. Do you do any of the following with your catch- often, sometimes, rarely, or never?
(READ FROM THE LIST BELOW, CHECK EACH APPLICABLE ANSWER)

	OFTEN	SOMETIMES	RARELY	NEVER
Eat:				
Toss back:				
Fertilizer:				
Bait:				
Throw in trash:				
Give away:				
Sell:				

If you give them away, what do the people you give them to do with them?

Eat: _____
Fertilizer: _____
Bait: _____
Other: _____ **(WHAT)**
Don't know: _____

If you sell them, what do the people you sell them to do with them?

Eat: _____
Fertilizer: _____
Bait: _____
Other: _____ **(WHAT)**
Don't know: _____

11) What do you think most people here do with their catch?
(RECORD IN ORDER GIVEN)

(IF RESPONDENT DOES NOT EAT CATCH, CONTINUE. IF THEY DO EAT CATCH, SKIP TO QUESTION 17)

12) Have you ever eaten fish or crabs from here in the past?

Yes ____ **(SKIP TO QUESTION 14)**
No ____

13) Why don't you eat your catch?
(SKIP TO QUESTION 20)

14) What kind of fish or crab did you eat?
(RECORD ALL ANSWERS GIVEN)

15) How often during the fishing season did you eat these fish or crabs? **(READ ALL CHOICES)**

4 or more times a week ____
2 or 3 times a week ____
once a week ____
2 to 3 times a month ____
once a month ____
less than once a month ____

16) Why did you stop eating these fish?

(SKIP TO QUESTION 20)

(RESUME QUESTIONS HERE IF RESPONDENT DOES EAT THEIR CATCH)

17) How many times in the last week (that is from _____ until today) did you eat fish or crabs from the Hudson River?

# of meals _____ **(EMPHASIZE NUMBER OF MEALS, NOT FISH)**

18) How many times in the last month (that is from _____ until today) did you eat fish or crabs from the Hudson River?

# of meals _____ **(EMPHASIZE NUMBER OF MEALS, NOT FISH)**

19) Who, besides yourself, eats the fish or crabs you catch from this area? **(FOR EACH PERSON LISTED, RECORD THE FOLLOWING)**

-Relation to respondent
-Age
-What kind of fish or crab they eat
-Whether they eat more, the same, or less than respondent

Relation	Age	Type of fish/crab	Amount (more, same, less)

(RESUME QUESTIONING HERE WITH ALL RESPONDENTS)

20) Are there any fish or crabs that people catch here, that are not safe to eat?

Yes ____
No ____ **(SKIP TO QUESTION 26)**
No opinion/Don't know ____ **(SKIP TO QUESTION 26)**

21) What fish or crabs that people catch here are not safe to eat?

22) Is it the whole fish or crab that is not safe to eat, or just parts of them?

23) Why are they not safe to eat?

24) What would happen if you ate them?

25) If you ate these fish or crabs and had no reaction within a day or two, would that mean the fish or crabs are safe to eat?

Yes ____
No ____
Don't know ____

26) How can you tell if the fish or crabs caught here, or their parts, are safe to eat?

27) Is there any way to make the fish or crabs that are caught here safer to eat after they have been caught?

No ____
If yes, what are they?

28) For the fish or crabs that you catch here, would you say that eating them: **(READ ALL CHOICES)**

Poses no risk at all _____
Poses a slight risk _____
Poses a serious risk _____

29) Would you say the water here is: **(READ ALL CHOICES)**

Not at all polluted _____
Slightly polluted _____
Quite polluted _____

30) **(IF RESPONDENT BELIEVES THAT THE WATER IS MORE POLLUTED THAN THE FISH- COMPARE ANSWERS TO 28 & 29):** If the water is slightly/quite polluted, why does eating the fish pose no risk/a slight risk?

31) Please answer yes, no, or don't know for each of the following questions:

	Yes	No	Don't Know
-Do you think the fish you catch here are contaminated?			
-Do you believe that eating fish caught at this site would pose a risk to your health?			
-Would you like more information about the potential risks from eating fish that are contaminated			
-Would you like more information about how you can control the risks from eating contaminated fish?			

32) Do you happen to know if there are any official health warnings about eating the fish that are caught here?

Yes ____
No ____ **(SKIP TO QUESTION 39)**
Don't know ____ **(SKIP TO QUESTION 39)**

33) What warnings are you aware of?

34) How did you originally learn about them?

35) Do you happen to know who makes these health advisories?
(READ ALL CHOICES)

Federal gov't ____
State gov't ____
County ____
Town ____
Other ____
Don't know ____

36) Do you agree, disagree, or have no opinion about the following statements?

	Agree	Disagree	No Opinion
The health advisories provide me with enough information to decide whether or not to eat certain fish.			
Many of the health advisories are not needed or are exaggerated.			

37) Since you learned about the health advisories, have you made any changes in either your fishing habits or in eating the fish you catch?

Yes _____
No _____ **(SKIP TO QUESTION 39)**

38) What changes have you made since you learned of the health advisories? Do you: **(READ, CHECK EACH THAT APPLIES)**

No longer eat the fish you catch _____
Eat less of the fish you catch _____
Eat more of the fish you catch _____
Clean or cook the fish differently _____
Fish in different locations _____
Fish less often _____
Fish more often _____
Change the type of fish you try to catch _____
Other:

39) What age group are you in? **(READ)**

under 10	____	35-39	____
10-14	____	40-44	____
15-19	____	45-49	____
20-24	____	50-54	____
25-29	____	55-59	____
30-34	____	60+	____

40) What is your race or ethnic background?

41) In what range is your yearly household income before taxes? **(READ CHOICES)**

<$10,000	____
$10,000-$29,999	____
$30,000-$49,999	____
$50,000-$69,999	____
$70,000-$89,999	____
$90,000+	____

42) How many people are there in your household?

43) Do you have a New York fishing license?

Yes ____
No ____

THANK YOU VERY MUCH FOR YOUR TIME!

Exhibit 7

Native Nations and the Nuclear Cycle

A talk by Professor Karl Grossman, State University of New York/College at Old Westbury

Given at the Institute of American Indian Arts, Santa Fe, New Mexico
November 29, 2006

This is an auspicious day to be with you here at the Institute of American Indian Arts because tomorrow, just a few miles away, at the capital of the Navajo Nation in Window Rock, Arizona, the Indigenous World Uranium Summit will begin.

The summit is very much an extension of the World Uranium Hearing held in 1992 in Salzburg, Austria where people from all over the world came to tell of how deadly nuclear technology is including when it comes to mining the fuel for the enterprise: uranium.

Anna Rondon of the Navajo Nation spoke at the World Uranium Hearing of how "the Creator told us that we have a choice, a choice to use the corn pollen, which is a yellow substance that we use. It contains the positiveness of life. We were also given a choice to use the yellow cake dirt which we were told by the Creator contained the negative particles of life. So we had a choice and we chose the corn pollen, which is the beauty way."

But those who came from Europe had another idea: to make use of that yellow cake dirt which they named uranium.

She said: "I extend my hand to all the indigenous peoples here today that we all work together to rise above from this hearing, that we show the Europeans the way. The Navajo people join the indigenous populations of the countries all over the world and sound the alarm. Not only are we and our precious Mother Earth in danger, but all life faces the threat of extinction by radiation" because of "the folly of man that has unleashed the dark power of uranium."

Anna Rondon went on: "The harmony of all mankind is disturbed by uranium mining. This substance lies within the Earth, away from the living beings, and there it is meant to stay. To dig up and distribute this substance into the air and across the land is fundamentally wrong. The number of human beings who have died from the effects of uranium testifies to the truth of this statement."

Native Americans and indigenous people from around the world have been especially hard-hit by uranium mining and other aspects of the so-called nuclear fuel cycle.

As the U.S. Nuclear Regulatory Commission defines the nuclear fuel cycle, it "consists of uranium recovery mining and milling; fuel production conversion of uranium concentrates to uranium hexafluoride, uranium enrichment and nuclear fuel fabrication; use in nuclear reactors and disposal of radioactive wastes."

Radioactive waste. Radioactive uranium after it is put through fission, the splitting of the atom, fission, turns into 200 "fission products," hotly radioactive isotopes like Strontium-90 and Cesium-137 and Iodine-131, deadly poisons, cancer-causing, needing to be isolated from living beings, as Anna Rondon said, from life (or it will destroy it). Some of the poisons remain hotly radioactive for millions of years and longer. That's radioactive waste.

I've long written about Kerr McGee's Sequoyah Nuclear Fuel Corporation' s facility in Gore, Oklahoma that for decades affected Native Americans.

My story in E, The Environmental Magazine, shortly before the facility was, at long last, closed, reported Native Americans "concentrated in northeast Oklahoma are heavily impacted by [the] Sequoyah Fuel Corporation facility that produces nuclear plant fuel" and its releases of radioactivity. I noted that with U.S. Nuclear Regulatory Commission approval, Sequoyah Fuel Corporation deliberately channels out 8 million gallons annually of its radioactive waste as a liquid fertilizer it calls 'raffinate.' The company sells the fertilizer, and also uses it on 10,000 surrounding acres where cattle graze and where hay and corn are grown for feed."

I wrote about interviewing Lance Hughes, director of Native Americans for a Clean Environment in Talequah, Oklahoma, and he speaking of "unusual cancers" and birth defects from "genetic mutation" in the area.

Hughes said: "It's pretty sad babies born without eyes, with brain cancers." Wildlife is also born deformed. Said Hughes: "We found a nine-legged frog, a two-headed fish and a four-legged chicken."

I also reported Hughes declaring: "The name of the game has been changed, but I would call it the same genocide. " And the article spoke of his group "fighting back with litigation, education and political action."

My piece was on environmental racism now also termed environmental justice: how African-Americans, Native-Americans, Latinos and Asian-Americans all are the biggest victims of environmental contamination.

As for the last stage of the nuclear fuel cycle somehow safeguarding nuclear waste endlessly as Winona LaDuke, an Ojibwe (who ran for vice president of the U.S. in 1996 and 2000 on the Green Party ticket), who lives and works on the White Earth Nation in Minnesota, has said: "The greatest minds in the nuclear establishment have been searching for an answer to the radioactive waste problem for 50 years and they've finally got one: haul it down a dirt road and dump it on an Indian reservation. "

Most recently, the U.S. government and nuclear industry have targeted the tiny Skull Valley Band at the Goshute Indian Reservation in Utah for a huge nuclear waste dump 40,000 tons of high level radioactive waste.

Just two months ago, in September, the Interior Department blocked the effort. But the Nuclear Regulatory Commission is considering an appeal.

Some 60 Indian communities have been "directly targeted by the nuclear power establishment" to be waste dumps, notes the Washington-based Nuclear Information and Resource Service. NIRS has joined with allies including the Indigenous Environmental Network and Honor the Earth to assist tribal members in opposing these dumps and, says NIRS, 59 have "fended off the threat." But the U.S. government and nuclear industry will keep trying counting on influencing (guess how?) a few so sovereign Indian nations can be designated nuclear waste dumps and thus U.S. environmental laws need not apply.

Incidentally, I've long been a member of the board of NIRS along with, for many years, that great

Native American anti-nuclear and safe, clean energy activist Grace Thorpe, Jim Thorpe's mother. Although Native Americans have been and are major victims of the nuclear fuel cycle, the assault on indigenous people by nuclear technology is far-reaching, global.

This was made clear at the World Uranium Hearing and will be in coming days at the Indigenous World Uranium Summit. Among those who testified at the World Uranium Summit were:

* Strongman Mpanagana, health and safety officer of the National Union of Mineworkers of South Africa, who told of the suffering his people in the uranium mines of that country. "More and more workers are being killed by different kinds of diseases including leukemia," he testified. His fellow blacks "are compelled to work in a very dangerous situation."

* Cleophas Mutjavikua, secretary general of the Mineworkers' Union of Nambia, where the world's largest open pit uranium mine is located, who told of lung disease being widespread among workers.

* Allio Fiorella, ethnologist and activist for the Yami, the aboriginal people of Taiwan, who told "a beautiful place" called Botel Tobago, a volcanic island where thousands of Yami live, turned by Taiwan into "a place for storing highly radioactive atomic waste" for the nuclear power plants of Taiwan. "The complex is only 50 meters away from the traditional fishing place," he said. This "also is a holy place," he noted.

* Larissa Abrjutina of the Chukchi Nation of Siberia spoke of widespread cancer among her people and linked it to a uranium mine and a nuclear power plant nearby.

And the horror stories go on.

In fact, people of color are the biggest victims but it's everybody's soup.

A person can be as white as a sheet as were the people of the Ukraine but when the Chernobyl nuclear plant exploded in the Ukraine in 1986, spreading atomic poisons through the Ukraine, many thousands of very white Ukrainians were irradiated. Many have been left with cancer and there have been numerous deaths.

The Indigenous World Uranium Summit is being held at the Navajo Nation because last year the Navajo Nation Council took a courageous step: it passed a law banning mining and processing of uranium in the vast Navajo Nation.

The U.S. government and the nuclear industry are most upset about this because, with the Bush administration and nuclear industry seeking a so-called "revival" of nuclear power in the United States no new nuclear plant has been ordered and built in the U.S. since well before the Three Mile Island nuclear plant accident in 1979they want to reopen uranium mines within Navajo borders, mines that have killed many already with lung cancer.

The Navajo Nation action has been called "probably one of the most important laws in Indian law."

Also this week in Window Rock, on Friday evening, a Special Recognition Nuclear-Free Future Award will be given to Phillip Harrison, Jr. of the Navajo Nation.

Last year, at the Nobel Institute in Oslo, Norway, Navajo Nation President Joe Shirley, Jr., who signed

the Dine Resources Protection Act of 2005the prohibition on uranium mining in the Navajo Nation, received a Nuclear-Free Future Award along with the Navajo Nation Council and Council Delegate George Arthur.

I am honored to be a judge for the Nuclear-Free Future Award.

The life and work of Phillip Harrison, founder and president of the Uranium Radiation Victims Committee and co-founder of the Four Corners Navajo Millers Association, encapsulates the struggle of the Navajos and uranium.

As he told the World Uranium Hearing: "I'll share with you as much as I can, of our suffering and humiliation that was put upon us. We live, work and play in the Four Corners Area. The region contains one of the largest reserves of uranium. Uranium was mined and milled for weapons and nuclear development. The Red Valley Area was the center of the mining activity. This is where hundreds of Navajo men have been enslaved."

"My father was one of these men who have worked in this area. This was also the introduction to America's industrialized system. The unemployment was high back then and there were no jobs available."

"There was no ventilation of these mines, no safety equipment, no respirators, no gloves were provided. They were constantly exposed to radiation and other gases and smoke from the blasting. The mine water was used for public consumption and often taken home and used for baby-formulas. I have heard all kinds of stories the men have faced. Like, for example, a miner would pass out in the mine, they would be dragged out of the mine and given smelling salts and they were driven back to go back to work, for 24 hour shifts, seven days a week. Most of them were not told of the dangers of mining, nor of the exposure of radiation. The households were also contaminated when the miners would go home with their clothes dirty."

Phil Harrison's father died at just 43. "It was very, very hard for me to see him die a painful death," he testified. "He weighed only 90 pounds when he left us. I have never witnessed anything like the way he died. My young brother and two sisters were too young and hardly knew their father. Today, they ask why and how he died, and why the uranium company and the U.S. government treated them like guinea pigs. Many other questions remain unanswered."

Hundreds of Navajo miners have "died now of similar patterns mostly from lung cancer and respiratory problems." The average age of death: 43.

"Based on the physical evidence and devastation left behind by the uranium companies, lawsuits were drawn up and they went nowhere. The uranium companies said they were never responsible for the dying of miners nor the radioactive wastes they left behind."

"This left us no alternatives but to resort to Congress. Finally, after so many years, the U.S. Congress. Passed the Radiation Exposure Compensation Act in October of 1990. We did not realize that the eligibility criteria were very strict. To make the long story short, you had to be on the deathbed to qualify for the compensation. I personally had asked the Department of Justice why that law was so strict.

"Not only were the miners victims," Harrison went on, "but the Navajo mill workers were all showing

symptoms of this very exposure to uranium and the other elements when they were processing uranium. The miners and millers were not the only victims of exposure. There are land, water, air and livestock, and our young generations were severely impacted. Birth defects are very high by this poisoning."

Left behind on the Navajo land have been 1,200 mines abandoned mines, he said. With the price of uranium having shot up seven-fold in the last two years, these are the mines the U.S. government and the nuclear industry want to reopen.

Harrison told the World Uranium Hearing that "the radioactive wastes are still very hot and range 50 to 100 times over the natural background. One of these mines that leak water, the livestock feed on it. We are left with the waste, the sickness and sometimes no alternatives to restore what was the original. The genocide will never be forgotten."

The program for the Nuclear-Free Future Award ceremony says: "Phil Harrison, born on June 11, 1950, on his mother's side from the Red-House Clan, and on his father's side from the Red-Sand-Run- Into-The- Water Clan, cannot talk about what uranium mining has meant to the Dine without becoming emotional. The man has witnessed too much."

Also to be honored Friday evening with a Nuclear-Free Future Award is Sun Xioadi. He is from the Tibetan Autonomous Prefecture in China. He probably will not be present because earlier this year, he was "disappeared" grabbed by the authorities after speaking out against the large uranium mining and milling installations in the Tibetan Autonomous Prefecture. A whistleblower, he used to work in the uranium operations there. As the Nuclear-Free Future Award program says of him:

"One man who has constantly spoken out despite state repression is Sun Xiadoi. The Chinese have taken no preventative measures to protect local human and animal life from uranium contamination. Tibetan medical workers report that an assortment of radioactivity- related cancers and immune system diseases account for nearly half of the deaths in the region." It quotes Tensin Tsultrium, spokesman for the Central Tibetan Administration, which is in exile in India, as saying: "Tibetans have no say on such projects since natural resources are the property of the state and protests relating to environmental issues by Tibetans have led to persecutions. "

The horror is, indeed, now all over the world.

And it is very close to where we are now: Los Alamos National Laboratory where, in fact, the nuclear monster began.

Another honest person to be honored with a Nuclear-Free Future Friday evening will be Ed Grothus who quit his job at Los Alamos back in 1969 to be become an anti-nuclear activist. Ed, says the program for the Nuclear Free-Future Award, currently has plans to install two stone obelisks at the entrance to the town of Los Alamos.

They will read: "Welcome to Los Alamos, New Mexico, United States of America, the city of fire. Our fires are brighter than a thousand suns. It was once believed that only God could destroy the world, but scientists working in Los Alamos first harnessed the power of the atom. The power released through fission and fusion gives men the ability to commence the destruction of all life on earth."

It is ironic and outrageous that Los Alamos National Laboratory, just a few miles away, sits amid some

of the most spiritual people and places in the world.

It is ironic and outrageous that native people are especially victimized, people who, as an American Indian Movement activist said years ago, "share, in essence, the worldview that all of nature is sacred and alive and that our role as human beings is to help preserve the balance by living in tune with the spirit that infuses all things."

"This is the wisdom," says the program for this week's Nuclear-Free Future Award, "that must be transfused to today's centers of decision-making before it's too late."

Let me close with some words from a member of my tribe, a Jew like me, the late Admiral Hyman Rickover, who was for years on the wrong path he was the "father" of the U.S. nuclear navy, the person in charge of construction of the first nuclear power plant built in the United States, in Shippingport in Pennsylvania but in the end he regretted very much what he did. In a farewell address upon his retirement, Rickover told a committee of Congress in 1982: "I'll be philosophical. Until about two billion years ago, it was impossible to have any life on earth: that is, there was so much radiation on earth you couldn't have any life fish or anything. Gradually, about two billion years ago, the amount of radiation on this planet and probably in the entire system reduced and made it possible for some for some form of life to begin."

"Now," Rickover went on, "when we go back to using nuclear power, we are creating something which nature tried to destroy to make life possible. Every time you produce radiation, you produce something that has life" he was speaking of the "negative particles of life" that as Anna Rondon related, the Creator warned about" in some cases for billions of years, and I think there the human race is going to wreck itself, and it's far more important that we get control of this horrible force and try to eliminate it." As for nuclear weaponry, the "lesson of history," said the retiring admiral, is that in war nations "will use" whatever weaponry they have."

Thank you. Let's talk.

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Karl Grossman is professor of journalism at the State University of New York who has pioneered the combining of investigative reporting and environmental journalism in a variety of media. He coordinates the Media & Communications Program at the State University of New York's College at Old Westbury. Among the six books he has authored are: Power Crazy; The Wrong Stuff: The Space Program's Nuclear Threat To Our Planet; and Cover Up: What You Are Not Supposed To Know About Nuclear Power. He has given speeches on energy and environmental issues around the world.

He has long been active in television and is program director and vice president of EnviroVideo, a New York-based TV company that produces environmental documentaries and interview and news programs. He narrated and wrote EnviroVideo' s award-winning documentaries The Push To Revive Nuclear Power; Nukes In Space: The Nuclearization and Weaponization of the Heavens and Three Mile Island Revisited. He is host of EnviroVideo' s Enviro Close-Up aired nationally on Free Speech TV, the Dish Satellite Network and on cable TV systems across the country. His magazine and newspaper articles have appeared in publications including The New York Times, The Boston Globe, USA Today, The Miami Herald, The Village Voice, Extra!, E, The Environmental Magazine, The Globe and Mail, The Nation, The Progressive, The Philadelphia Inquirer, Newsday, The Christian Science Monitor, The Crisis, Mother Jones and The Ecologist. He is an associate and a member of the board of the media watch group Fairness and Accuracy In Reporting. He is also a member of the board of the Nuclear Information and Resource Service. Honors he has received for his journalism include the George Polk, James Aronson and John Peter Zenger Awards.

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Dr. Richard E. Wardwell
Dr. Kaye D. Lathrop

In the Matter of	)	Docket Nos. 50-247-LR and 50-286-LR
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	ASLBP No. 07-858-03-LR-BD01
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	December 10, 2007
	)	

NOTICE OF APPEARANCE OF STEPHEN C. FILLER

The undersigned, being a board member of Hudson River Sloop Clearwater, Inc. and duly authorized by its Board to act as its representative in this proceeding, hereby enters ~~her~~ his appearance in the above-captioned matters as a representative of Hudson River Sloop Clearwater, Inc.

Executed in Accord with 10 CFR 2.304(d)

Stephen C. Filler, Board Member
Hudson River Sloop Clearwater, Inc.
303 South Broadway, Suite 222
Tarrytown, NY 10591
914-332-4114
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UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges:
Lawrence G. McDade, Chair
Dr. Richard E. Wardwell
Dr. Kaye D. Lathrop

In the Matter of	)	Docket Nos. 50-247-LR and 50-286-LR
	)	
ENTERGY NUCLEAR OPERATIONS, INC.	)	ASLBP No. 07-858-03-LR-BD01
	)	
(Indian Point Nuclear Generating Units 2 and 3)	)	December 10, 2007
	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the following documents were served on the following by first class mail on December 10, 2007, as indicated below:

Hudson River Sloop Clearwater, Inc.'s Petition to Intervene and Request for Hearing with all Declarations and Exhibits

Notice of Appearance of Stephen C. Filler.

I hereby certify that copies of the following documents were served on the following by electronic mail, as indicated below:

Hudson River Sloop Clearwater, Inc.'s Petition to Intervene and Request for Hearing with Declaration of Jeffrey N.S Rumpf; Declaration of Manna Jo Green; Declaration of Stephen C. Filler with exhibits; and Exhibit 4 to our Petition containing Declaration of Joseph Mangano and Report.

Notice of Appearance of Stephen C. Filler.

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Executed in accord with 10 CFR 2.304(d)

Manna Jo Greene

Manna Jo Greene,
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Dated: Poughkeepsie, New York
December 10, 2007