MILTON B. SHAPIRO, ESQ.
SUSAN H, SHAPIRO, ESQ.
ATTORNEYS AT LAW

21 PERLMAN DRIVE
SPRING VALLEY, NY 10977
(845) 371-2100 TEL
(845) 371-3721 FAX
MBS@OURROCKLANDOFFICE.COM

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Dr. Pao-Tsin Kuo, Program Director
License Renewal and Environmental Impacts Division
Chief, Rules and Directives Branch,
Division of Administrative Services
Office of Administration, MailstopT-6D59,
U.S. Nuclear Regulatory Commission
Washington, DC, 20555-0001

Re: Federal Register 45076, Vol. 72, No. 154, August 10, 2007/Notices

Subject: Comments on Scope of Environmental Impact Statement and Scoping Process Indian Point Energy Center Unit 2 and Unit 3

Dr. Pao-Tsin Kuo,

In accordance with the above notice as well as the federal rules promulgated under 10 C.F.R. §51.26 , and §51.28, Friends United for Sustainable Energy (FUSE) sets forth comments regarding the scope of the environmental impact statement submitted under Appendix E by Entergy.

The review by FUSE examines federal regulations including NRC regulations contained in CFR 51, 10 CFR 54, the National Environmental Protection Act contained in 36 CFR 800.8, as well as the President's Council on Environmental Quality, and applicable case law.

FUSE examined guidance documents promulgated by the Commission including NUREG 1850, "Frequently asked questions on License Renewal of Nuclear Power Reactors," NUREG 1437, "Generic Environmental Impact Statement," NUREG 1550, "Standard Review Plan for sealed sources and applications", and Supplement 1 to Regulatory Guide 4.2, "Preparation of Supplementary Environmental Reports.

The comments provided in this report establish six fundamental and distinct areas for consideration in establishing scope for the EIS associated with the new superseding license for Indian Point 2 LLC and Indian Point 3 LLC.

First, FUSE examined each of the 92 issues contained in CFR 51 Appendix A subpart B, regardless of how the issue was originally classified. This in part was predicated on generic issues contained in the GEIS report having not substantially changed since 1996. The approach taken was to use then invoked criteria provided in 10 CFR 51 to confirm exclusion from scope, or, based upon our findings, request that the Commission address certain generic issues by including, as a minimum, that the issue be included in the site specific environmental statement, and by sufficient coordination and substantial clarity to the stake holders indicate precisely how the issue was being addressed if Commission excluded the issue in favor of it being handled by another agency. Where possible, due to the limited time the format under NUREG 1850, including issue numbers or FAQ numbers are used to assist in more clearly communicating the specific content of the requested scope addition.

Second, FUSE examined the scope of site specific issues for completeness, given the dated list published in Appendix A subpart B, and as appropriate, provided additional emergent issues that, after review of all federal regulatory agency requirements, appear to be incomplete or absent in the present guidance documents. There appears to be a potential coordination failure between agencies, such as the one found under the recent 9th circuit appellate review of *Mothers of Peace v. PG&E* 449F. 3d 1016 (9th cir. 2006).

Third, the scope of these comments include emergent issues relevant to previously approved EIS[1] based upon assumptions that will no longer be valid if based upon Entergy's Renewal Application to operate the facility under a new license for an additional 20 years. An example of this is the dry cask storage pad design, and proposed configuration of the spent fuel casks considered as a Category 1 issue in 10 CFR51. However, given the multiple emergent issues, including (1) long term permanent storage issues remaining unresolved, (2) known multiple spent fuel pool leakage issues,(3) requiring design load changes to the pad and cask storage changes, (4) closing of the Barnwell storage facility, (5) fissures in the pad that were unanticipated,(6) potential mixing of fuels from different units including

[1] In accordance with §51.12 post June 7, 1984.

Unit 1, and finally the extent of contaminated soil requiring remediation and removal, as well as new seismology studies are each relevant to the EIS for the renewal license itself and probable environmental consequences. associated with these issues are germane to the SEIS process.

Fourth, an examination of Entergy's License Renewal Application Appendix E first for in scope issues and the second in specific criteria derived from federal regulations in particular 10 CFR 51.20. CFR 51.20 was completed. Criteria provided in regulatory guidance and federal rules were verified for those items that are required to be addressed were confirmed as actually included in the appendix, and the commitments made by Entergy were confirmed and reviewed against the reasonable assurance standard provided by NEPA.

Fifth, examination of cumulative changes to the facility including plant modifications, operational procedural changes, and fuel cycle management, and compliance to maintenance rules including 10 CFR 50.65 were examined for conformance with aggregation of environmental impact, and compliance with federal regulations. In particular, changes to the facility under 10 CFR 50.59 apparently did not aggregate environmental impact analysis and provide necessary comprehensive EIS review as required under section 102(C) of NEPA, which warrants detailed site specific assessment environmental impact analysis and additional scope.

Finally it is observed that Entergy's site specific environmental analysis is actually word for word identical in content to other Entergy plants *regardless of the distinct site specific characteristics***.** For example, the final SEIS report for Vermont Yankee and Pilgrim and preliminary SEIS for Indian Point are confirmed identical. In fact a brief examination of seven plants contained word for word precisely the same language. An equally troubling concern, is that in each case, no changes were made from preliminary SEIS to final SEIS. The regulatory authorities apparently were satisfied with the *generic versions of what was supposed to be a site specific* SEIS for each site as was originally submitted.

One is compelled to ask why? Close examination as provided in Section VI reveals that in each SEIS, Entergy's assertions of no environmental impact turns on their claim that there are no refurbishment issues anticipated for, or during the period of license extension. The argument collapses on a fact analysis alone. Refurbishment issues are predicted, and in fact required for many active components, and the consequences of rationalizing not performing them are immediately obvious.

One only has to look at Entergy's Vermont Yankee cooling tower collapse after a lengthy environmental intervention by the stakeholders to include the cooling towers within scope where the ALSB ultimately ruled against the petitioner.

Closer examination reveals more disturbing activities that appear to deliberately circumvent disclosure of refurbishment of equipment during the relevant license renewal period, by upgrading or refurbishing the equipment prior to the renewal period. This apparently deceptive approach to refurbishment directly controverts regulations targeted specifically to include as in scope, all refurbishment done in anticipation of license renewal. Examples are provided in section VI including the refurbishment plans for both Indian Point Plant reactor vessel heads scheduled for 2011 and 2012, and the refurbishment of equipment during power up rate initiatives. In addition, one only needs to examine substantial historical design basis events such as the Unit 2 Steam Generator Tube rupture that show no signs of simply disappearing over the extended operation.

A recently published report by the Office of the Inspector General confirms related weaknesses in the Commissions role in license renewal. In particular, three of the five findings are relevant including: (1) license renewal reporting efforts need improvements; (2) consistent evaluation of operating experience would improve NRC reviews; (3) license renewal issues need evaluation for back fit application. See Exhibit 5.

Each of these six scoping elements is addressed in the following attachment.

Further, FUSE formally requests a timely response by the Nuclear Regulatory Commission during the initial EIS Scoping process specific to each scope issue in writing, reasons for denying inclusion in the EIS any of the issues set forth by FUSE or others within 30 days of the closing of Scoping Comment acceptance. The NRC simply stating something is out of scope, or fails to bring up new information are inadequate answers in explaining their reasoning for denial.

It is noted herein and on record that the New York State Attorney General's office made a similar request at the public EIS Scoping meeting held on September 19th, 2007. FUSE supports and endorses the comments on scope of Environmental Impact Statement and Scoping Process Indian Point Entergy Center Unit 2 and Unit 3 by Riverkeeper and Gary Shaw, a member of FUSE.

FUSE reserves the right to amended the attached comments as permitted in 10CFR 51.45.

The entire document and attachments are being sent electronically by email to the address cited in the above reference Federal Registry notice.

Regards,

Susan Shapiro
President of FUSE USA, and lead counsel

Attachment

Attachment

Comments on Scope of Environmental Impact Statement and Scoping Process Indian Point Energy Center Unit 2 and Unit 3

Index of Environmental Issues sequenced against 10CFR51 Appendix B Subpart A

I. FUSE requests that certain GEIS scoping issues classified as Category 1 be included in the Site Specific EIS.

A. Issue 1: <u>Impacts of refurbishment on surface-water quality</u>

1. Entergy claims there are no refurbishment issues, and the NRC has ruled that any effects of refurbishment are category one, as it is assumed that licensee would exercise best industry standards in mitigating any potential degradation to surface water quality through the use of best industry standards. Best industry standards allowed the David Besse accident to happen, best industry standards allowed the TEPCO reactors in Japan, and Indian Point to be built on top of Earthquake fault lines. NEPA does not instruct the Federal Agency to give the benefit of the doubt to the entity applying for a particular action (License Renewal), nor does it say to assume best practices are to be assumed in the analysis of the issue. NRC's entire approach to this issue shows a bias in favor of their licensees, wrongfully making assumptions that cannot be proved. In fact, a careful review of Inspection Reports for Indian Point show dozens, if not hundreds of examples where the licensee has not used best industry standards, with the 2000 Tube Rupture a perfect example of their failure.

2. NRC assumed, or gave credit to their licensee in the case of refurbishment, that best industry practice would be employed during refurbishment to mitigate potential surface water quality issues, such as steps taken to avoid run off or erosion during construction.

3. Changing global weather patterns that are affecting and changing flood plane maps, a new water plant being built down river from Indian Point, and resent construction, such as the boat dock for the National Guard to use, and the spent fuel dry cask storage pad that has changed water run off patterns for the site are all reasons to include this issue within the site specific EIS

4. Analysis—this includes alternative analysis

5. Denial of Entergy's application for License Renewal is the most obvious and best mitigation plan. Cold shut down during all construction or refurbishment times is another. As example, when Entergy builds the Closed Cooling system as was and original commitment to operate the plant, the best mitigation method is for full plant shutdown during the project. Require that an independent inspector be on site during all plant refurbishment to assure the best and most recent technology is being employed in mitigation of this issue, with said inspector having the ability to stop construction work, and if necessary to order cold shut down of the facilities. Mitigation

6. Review of agency authority versus State authority for scoping issue.

7. Reasonable assurance standard for NEPA and the reasonable assurance test provided by the NRC

8. Conclusion—based upon the facts as provided, and the determination that the scope item is significant (not "small") but in fact meets criteria for "medium" or "large" environmental affect, this category 1 issue should be included within the scope of the Site Specific EIS.

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B. Issue 2: Impacts of refurbishment on surface-water use

1. Radiological Contaminants have already been found in the fish down river of Indian Point. Such findings have already had some impact on surface-water use. Parents leery of allowing their children to swim in the river, subsistence fisherman afraid of what might be in the fish. With the known leak issues at Indian Point, and subsequent contamination of the soils and ground waters there, any refurbishment at the site could increase these surface water

impacts. A rain storm for instance coming down upon contaminated freshly disturbed soil could further contaminate the river through soil erosion and or run off during heavy spring rains.

2. A self serving greed, bias in favor of NRC licensees, a corrupted process wherein NEI money and lobbying influence saw public safety take a second seat to licensee convenience and needs. Reliance on false, or incorrect assumptions, such as assuming the licensee will use best industry standards in carrying out refurbishment on the site.

3. Known infrastructure degration related issues at Indian Point, coupled with known, yet unidentified radiological leaks through out the site, coupled with known yet unidentified buried Mixed Wastes make any construction or refurbishment at Indian Point a significant action worthy of careful review and analysis under the constructs of NEPA.

4. Analysis—this includes alternative analysis

5. Denial of Entergy's application for License Renewal is the most obvious and best mitigation plan. Cold shut down during all construction or refurbishment times is another. As example, when Entergy builds the Closed Cooling system as was and original commitment to operate the plant, the best mitigation method is for full plant shutdown during the project. Require that and independent inspector be on site during all plant refurbishment to assure the best and most recent technology is being employed in mitigation of this issue, with said inspector having the ability to stop construction work, and if necessary to order cold shut down of the facilities. Mitigation

6. Review of agency authority versus State authority for scoping issue.

7. Reasonable assurance standard for NEPA and the reasonable assurance test provided by the NRC

8. Conclusion—based upon the facts as provided, and the determination that the scope item is significant (not "small") but meets criteria for "medium" or "large" environmental affect, coupled with serious contamination issues both chemical and radiological at the Indian Point site, this issue should be included in the site specific EIS review.

II. Federal regulatory agency requirements appear to be incomplete or absent in the present guidance documents – scoping of specific issues were therefore missed—potentially due to coordination failures between agencies.

A. DEC discharge canal permit based on construction of required best technology available closed cycle cooling.

State Permits and Licenses from State agencies, specifically DEC SPDES permits, see exhibit 11, to discharge thermal pollution into the state owned discharge channel, and required fish return pipe lines. Easements from New York State are required for the issuance of a new superceding license for a 20 year period. These required permits must be included in the EIS scoping, as they directly relate to the Environmental Costs of thermal pollution, and potable water quality as required by State law.

Further, the cumulative effects of ALL discharges from IP2 LLC and IP3 LLC must be weighed, and their Environmental Costs considered in the EIS Scoping process. It is impossible to know the Environmental Costs associated

with Indian Point Discharges without looking at the whole, as well as its singular year effluents totals.

Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow) [10 CFR 51.53(c)(3) (ii)(A)]

IP2 and IP3 are equipped with once-through cooling systems that utilize make-up water from an estuary on the Hudson River. IP2 and IP3 do not have or use cooling ponds or cooling towers. Consideration of mitigation is not required.

The way Entergy presents Surface Water Quality, Hydrology and Use (for all plants) would seem upon its face to be true, and to close this environmental issue. Here's the problem, the licensee is basically lying by omission, is deliberately obfuscating the facts of this issue. In the original Environmental Impact Study for IP2 LLC and IP3 LLC, both plants made a COMMITMENT to go to a closed cooling system. There are current and significant (unresolved) issues as relates to this very issue. Until a decision is made on Indian Point's original commitments to go to a closed cooling system, Entergy's comments here are at best misleading.

As a part of the EIS Supplement, all environmental costs associated with a Closed verse Once through cooling system should be completely investigated and resolved to the satisfaction of all parties.

Additionally, regardless of which cooling system is employed at Indian Point, the thermal discharge effects on the environment, plant and aquatic life, and on Global Warming must be evaluated.

B. <u>Does Energy even own this discharge canal, and if not do they have all the necessary Easements and permits in place for its continued use during the period of license renewal, specifically the fish return</u>*?*

C. <u>Key Federal Regulations appear to not be coordinated or integrated—and current federal regulations appear to be in non-compliance</u>.

1. **Environmental Protection Agency (EPA) regulations governing radioactivity levels in drinking water (Title 40 of the Code of Federal Regulations)**
2. **Nuclear Regulatory Commission (NRC) regulations governing releases of radioactive liquids from nuclear power plants into water (Title 10 of the Code of Federal Regulations)**
3. **EPA Regulations and other agency rules:**

NRC Staff should address these concerns in the Draft ER. Federal case law underscores the duty of the NRC Staff to fully discuss, at the earliest point

in the process, information brought to its attention regarding the potential environmental impacts of its proposed actions.

The Fifth Circuit underscored the important role that the NEPA process plays in allowing a meaningful exchange of information between the agency and the public:

> This case arises under the network of NEPA, a statute drafted to ensure that federal agencies "carefully consider detailed information concerning significant environmental impacts," and at the same time "guarantee that the relevant information will be made available to the larger audience that may also play a role in both the decision making process and the implementation of that decision." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 109 S.Ct. 1835, 1845, 104 L.Ed.2d 351 (1989); accord North Buckhead Civic Ass'n v. Skinner 903 F.2d 1533, 1540 (1 lth Cir.19.90). It is a procedural statute that demands that the decision to go forward with a federal project which significantly affects the environment be an environmentally conscious one.

See Also, the President's Council on Environmental Quality (CEQ) governing implementation of NEPA, which are binding on all federal agencies (40 CFR Section 1500.3) and entitled to substantial deference (Robertson v. Methow Valley Citizens Council, 490 U.S. at 355-56, 109 S.Ct. at 1849), underscore the importance of an agency addressing new information. “c) Agencies…1. Shall prepare supplements to either draft or final environmental impact statements if: (ii) There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts…”

4. **NRC's Regulations, including Title 10, Part 50, Appendix A[2] include the following that presently appear to be in non-compliance**:

Criterion 60--Control of releases of radioactive materials to the environment. The nuclear power unit design shall include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Sufficient holdup capacity shall be provided for retention of gaseous and liquid effluents containing radioactive materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment.

Criterion 64--Monitoring radioactivity releases. Means shall be provided for monitoring the reactor containment atmosphere, spaces containing components for recirculation of loss-of-coolant accident fluids, effluent discharge paths, and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences, and from postulated accidents.

§ 50.36a Technical specifications on effluents from nuclear power reactors.

(a) In order to keep releases of radioactive materials to unrestricted areas during normal conditions, including expected occurrences, as low as is reasonably achievable, each licensee of a nuclear power reactor will include technical specifications that, in addition to requiring compliance with applicable provisions of § 20.1301 of this chapter, require that:

(1) Operating procedures developed pursuant to § 50.34a(c) for the control of effluents be established and followed and that the radioactive waste system, pursuant to § 50.34a, be maintained and used. The licensee shall retain the operating procedures in effect as a record until the Commission terminates the license and shall retain each superseded revision of the procedures for 3 years from the date it was superseded.

[2] Note that under petition for leave to intervene, hearing and contentions, the actual design criteria the plant is legally required to comply with was found to be in of itself in apparent non-compliance. See Contentions 1-5 of this petition.

(2) Each licensee shall submit a report to the Commission annually that specifies the quantity of each of the principal radionuclides released to unrestricted areas in liquid and in gaseous effluents during the previous 12 months, including any other information as may be required by the Commission to estimate maximum potential annual radiation doses to the public resulting from effluent releases.

§ 20.1301 Dose limits for individual members of the public.

(a) Each licensee shall conduct operations so that —

(1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003 NRC's Regulations.

§ 20.1302 Compliance with dose limits for individual members of the public.

(a) The licensee shall make or cause to be made, as appropriate, surveys of radiation levels in unrestricted and controlled areas and radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in § 20.1301. NRC's Regulations.

Appendix B to Part 20--Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage

The columns in Table 2 of this appendix captioned "Effluents," "Air," and "Water," are applicable to the assessment and control of dose to the public, particularly in the implementation of the provisions of § 20.1302. The concentration values given in Columns 1 and 2 of Table 2 are equivalent to the radionuclide concentrations which, if inhaled or ingested continuously over the course of a year, would produce a total effective dose equivalent of 0.05 rem (50 millirem or 0.5 millisieverts).

To comply with NRC's regulations on doses to the public, one must monitor <u>all</u> releases of radioactive material to the air and water.

Any unmonitored release, no matter its size, violates the regulations. FUSE therefore concludes that the applicant must first address the present non-compliant issues and the environmental issues associated with each before a meaningful SEIS can be made for a new supersceding licence.

III. Emergent issues-- Previously approved EIS[3] are based upon assumptions that will no longer be valid if Entergy's Renewal Application to operate the facility for an additional 20 years is granted.

A. Issue 75: Design Basis Accidents.

Crack propagation leading to design basis accidents include a loss of coolant accident insufficiently monitored as evidenced by Indian Point 2 and 3 histories, a steam generator tube rupture accident on Unit 2, as well extreme near misses, raise environmental impact issues as well as safety concerns.

On October 9, 2007, an NRC metallurgical engineer, James A. Davis, who was part of the agency's augmented inspection team that was sent to the Davis Besse plant within hours after the near-rupture of the reactor vessel head was discovered, testified that cracks in the old reactor head's most problematic nozzle likely started about 1990 - six years before any sizable leakage was documented and 12 years before the lid nearly blew to Kingdom Come. Mr. Davis made a point of saying he was testifying as an independent witness and not as an NRC employee. He said the nuclear industry and his agency have long settled on the average crack growth rate for reactor-head nozzles at 4 millimeters a year. See Exhibit 9

Material facts unpredicted at the time of preparation of the GEIS report as well as subsequent additions do not address the actual events since publication of NUREG 1437 and are emergent in particular regarding design basis accidents.

[3] In accordance with §51.12 only those post June 7, 1984.

The notorious history of the Indian Point Plant is fraught with near misses of DBAs along with actual events that have never had EIS ex post facto and therefore require these studies prior to license renewal. FUSE stake holders are entitled to environmental impact analysis include this as well as the actual history of the Indian point plants. See Exhibit 8

Deception of the Nuclear Regulatory Commission about the dangerous state of the plant's old reactor head in the fall of 2001, when it was leaking boric acid from its reactor is only part of the issue. When the plant was shut down in early 2002, the NRC learned so much acid had leaked and burned through the plant's reactor lid that it nearly burst - an event that would have allowed radioactive steam to form in containment for the first time since half of Three Mile Island Unit 2's reactor melted in 1979.

Cracks of four millimeters per year compel SEIS for all high energy lines of less than wall thickness of 6 inches and in particular all reactor head nozzles, and inspections frequencies of less than, or at least once per four years are required yet not addressed in Entergy's LRA.

In 2001, the stakes were raised when the NRC learned that several U.S. reactor heads, especially Davis-Besse's, were susceptible to a more dangerous form of nozzle cracks, one that could form a circular pattern and pop off like champagne corks under an operating reactor's extreme pressure of 2,200 pounds per square inch. Under that scenario, a flash of radioactive steam could form. Mr. Davis testified that the cavity in Davis-Besse's reactor head - 5 inches wide, 7 inches long, and 6 1/2 inches deep - could not have been missed during FirstEnergy Corp.'s previous inspection in 2000 if the utility had done a credible job of inspecting the device.

Greg Gibbs, a onetime Davis-Besse quality-assurance director and engineering director who left the plant in 1994, said he was disappointed after coming back as a consultant in 2001 to learn the utility never acted upon his insistence for larger holes in the reactor head's service structure to be used for inspections and cleaning.

In 2002 it was shown that First Energy vetoed a work order during the early 1990s for larger inspection ports, known as "mouse holes," to save $250,000, even after being encouraged to do the modification by officials at a plant in Crystal River, Fla., with a similar design. The modification, which officials have said could have headed off Davis-Besse's problems, was done after the old reactor head nearly experienced a catastrophic burst in 2002.

B. Issue no 83: the dry cask storage pad design, and proposed configuration of the spent fuel casks is considered category 1 in 10 CFR51 Appendix A subpart B, however, given the multiple emergent issues should be included in the SEIS.

Facts supporting this include: (1) long term permanent storage remains unresolved, (2) multiple spent fuel pool leakage issues requiring design load changes to the pad and cask storage changes, (3) closing of Barnwell storage facility, (4) fissures in the pad that were unanticipated, (5) potential mixing of fuels from different units including Unit 1, (6) NRC and industry own research into leaving waste sitting where it now resides for periods in excess of 100 years, and finally the extent of contaminated soil requiring remediation, as well as new seismology studies are each relevant to the EIS for the renewal license itself and probable consequences

C. Issue no 92: Environmental justice - Fair Trade

The nuclear industry enjoys financial incentives far beyond what is available to other more environmentally friendly renewable energy sources.

Between 1947 and 1999, the nuclear industry was given more than $115 billion in direct taxpayer subsidies, compared to a mere $5.7 billion for wind and solar over the same period. The Energy Policy Act of 2005, was filled with nuclear industry largesse with an additional $3 billion dollar subsidy to the mature nuclear industry that already has received the lion's share of federal energy funds over the past 50 years. These on going subsidies to the nuclear industry have resulted in a violation of Fair Trade doctrine.

Ratepayers and taxpayers are the victims of this violation of fair trade. Specifically New York State taxpayers and the residents surrounding Indian Point are footing the majority of the costs for Emergency Preparedness, and due to the short fall in decommissioning trust funds will be burdened by the cost of site clean up. At Indian Point, Entergy is making a profit of nearly $2 million dollars a day but does not adequately cover the costs of its plant's security.

Yet, as an example of the gross inequity and the violation of Fair Trade standards, last year Entergy's Chairman received a salary of $27 million dollars, even though Entergy New Orleans filed for bankruptcy, and received a government bailout of almost $300 million while at the same time ratepayers in New Orleans were smacked with greatly increased electrical bills.

Due to the deregulated electricity market, where free trade is a core tenet, there needs to be a fair analysis of increased costs, and exposures to the community, as it relates to Indian Point. Economic subsidies from tax dollars are going to support nuclear energy facilities, such as Indian Point. The claim that nuclear power is cheap energy should be fully explored, including but not limited to, operational costs, the costs of research and development, costs borne by taxpayers, by way of subsidies and research paid for through DOE hand outs to EPRI, and universities such as MIT.

Entergy's large stake in unregulated wholesale markets for nuclear energy give it a big edge over traditional utilities With profits for its nuclear operations growing much more quickly than for its regulated utilities, Entergy plans to spin off its six unregulated nuclear plants, including Indian Point, into a different company. In fact, Entergy has filed a license transfer application, after filing the license renewal applications, for both IP2 and IP3 to Entergy Nuclear Operations.

This amounts to an environmental justice issue of MEDIUM TO HIGH concern, since the Stakeholders and Ratepayers are at a distinct disadvantage in advocating for public health and safety, when Entergy has the ability to throw it's unprecedented financial weight behind a powerful legal staff and major public propaganda campaign. As example, NEI has been running fraudulent ads on local networks claiming nuclear is Green and Safe, and pollution free.

In order to mitigate this imbalance, the NRC would be warranted in requiring Entergy to pay for the legal expenses of the community Stakeholders, and require a comprehensive study of the actual costs to taxpayers for the operation of Indian Point, including, but not limited to:

a. Annual Federal, State and local Subsidies and tax credits

b. State and local pilot tax deferments

c. Price Anderson Insurance Liability Limitation-specifically the costs to citizens should and accidents occur, since the act makes it impossible for citizens to insure against the losses that would be incurred from a significant nuclear incident or terrorist attack at the facility. Price Anderson is a DEFACTO takings, denying citizens a basic property right…insurance against catastrophic loss.

d. Costs of emergency preparedness (at all levels of government).

e. Costs of security for all nuclear facilities that are absorbed or offset by all levels of government.

f. Federal and state funded research and development. This is to include all research for the ENTIRE fuel cycle.

g. Costs of mining, including clean up of contaminated sites involved in the nuclear fuel cycle, including specifically Paducah and Portsmouth Gaseous Diffusion Plants. Further, all pay outs to former nuclear workers for health related issues should be included in this figure.

h. Cost of processing, including transportation at all steps of the process, governmental paid expenses associated with construction of fuel processing facilities, such as the Gaseous Diffusion Plants, and the proposed GNEP reprocessing plant. These costs should also include environmental restoration and clean up costs associated with these processing facilities, such as Hanford and other locations. Additionally, all tax payer supported support of nuclear energy in foreign countries should be factored in as well.

i. Costs of plant construction (including loan guarantees, and siting grants.

j. Costs of transportation

k. Costs of radioactive waste storage (which should include the monthly surcharge being added to our bills to cover the expected costs of off site storage. Where is this money in trust, who is collecting it, how is it managed, and how is it that Entergy is getting back what is in effect OUR MONEY from the DOE.

l. Costs of decommissioning and returning site to green field.

m. Cost of health effects, including deaths associated with the entire fuel cycle, including up through the long term storage of nuclear waste streams.

n. Costs of regulatory enforcement not covered by licensee fees. As example, the $980 million dollar budget this year for the NRC.

Additionally, to the extent that there are unequal subsidies and life-cycle costs, the total costs and values of energy efficiency and renewable energy sources, such as geothermal, photovoltaic and wind, must be comprehensively considered. All reasonable energy alternatives, especially the renewable, sustainable, safe, forms of energy that are widely viewed as the energy technologies of the "future" as well as efficiency technologies and demand-side options must be considered in the EIS, including the replacement energy study by NAS .

Due to the fact that the environmental issues of violations of Fair Trade, and financially prejudice advocacy have not been considered in the GEIS, nor has mitigation of these issues, therefore the issues of Environmental Justice as it relates to Fair Trade must be fully considered as a Category 2 issue in the EIS.

D. Issue 92: Environmental Justice - Sustenance Fishermen

Sustenance Fisherman are affected by Entergy's failure to properly prevent releases of unmonitored radioactive waste into the environment, the air, the water and the ground.

The affected populations are those residents. specifically the non-English speaking residents living within 10 miles of Indian Point, specifically the residents in Haverstraw, Stony Point, and Peekskill are unjustly endangered for the following reasons: 1) The Emergency Evacuation Booklet is in English, it is true that if you can read the booklet in English you could find out how to get a Spanish version; 2) A large number of non-English speaking residents are sustenance fishermen, fish the Hudson River, without being informed that they are catching fish which are laced with strontium. There is no educational campaign or warning signs placed along the river, at the customary fishing sites to inform such fisherman not to eat the fish. These fishermen are unaware of the radioactive strontium in the bones of the fish. This is an issue of environmental justice because under represented members of the community and their families are being placed in danger from the ingestion of strontium 90. This is especially dangerous for young children, as strontium acts like calcium

in bone formation. (See the Tooth Fairy Project.)

The magnitude of the impact on the affected population currently is at least MODERATE, and currently is evidenced by the increase in thyroid cancer in those communities closest to the plant, however as the plant continues to leak strontium, tritium and cesium into the Hudson River, the magnitude of the impact during the 20 year new superceding license will become at least LARGE if not GARGANTUIN, and the radiological adverse health effects will expand exponentially.

Indian Point is the only plant in the nation profusely leaking strontium 90, therefore the impact on the environment and human health is site specific. Mitigation measures which find, stop, remediate, any and all leaks of strontium, cesium and tritium from Indian Point into the ground, air, groundwater and river must be taken, and those site specific mitigation measures must be included in the EIS.

The Category 1 analysis in the GEIS is insufficient because 1) the sustenance fisherman in the area surrounding Indian Point are uniquely affected by the site specific leaks at Indian Point and the geological attributes of the site and the Hudson River are unduly effected.

E. <u>Issue no. 98 Fish return pipeline</u>

Since 1986 Indian Point was required to build a fish return pipeline and since that time received multiple construction permits pending issuance of a new easement. However the fish return pipeline was not constructed and therefore a final easement has not been issued.

Entergy is in violation of New York State law, which affects all the residents of New York State who own the Hudson River, and affects the aquatic life in the river, and the environment of the Hudson Valley.

The significance of the effect of this failure to build the fish return pipeline is MODERATE as its environmental effects are

sufficient to alter noticeably, but not to destabilize important attributes of the resources. However, granting of a license renewal for 20 more years of operation could see the cumulative effects of this non action elevate this issue to high.

The requirement of the FISH RETURN PIPELINE is site specific, and is not part of the GEIS. Mitigation measures that would be warranted would be for the NRC to require that the Fish Return Pipeline be constructed prior to approval of the misguided LRA. A comprehensive analysis as to why Entergy has not built the required FISH RETURN PIPELINE must be included in the EIS.

F. Issue No. 99 Stainless Steel Corrosion Of Roller bearings On Travelling Water Screens

The series 400 stainless steel roller bearings on the traveling water screens for IP3 have large holes, which are caused by corrosive microbes or a horrific lack of maintenance.

This condition has existed since 1991, yet remains un-remediated. Workers at the plant have found that stainless steel nuts and bolts thrown into water are rapidly disintegrated, "eaten", by the microbes. The microbial corrosion potentially effects all the 400 series stainless steel, inspected and uninspected, components, pipes, filters, and valves at Indian Point. Therefore the ability of Entergy to maintain a safe, once through or closed system that does not contaminate the environment is jeopardized.

The population affected by this corrosion is the entire community within 50 miles of the plant, as such rapid corrosion due to the microbes may lead to a significant release of radioactive nuclides into the air, water, or ground.

The significance of the huge holes in the roller bearings on the traveling water screens is MODERATE, as it does not destabilize important attributes, however, the possibility of the corrosive microbes damaging other stainless steel components, pipes, filters and valves is LARGE because it would have environmental effects that are clearly noticeable and are sufficient to destabilize important attributes of Indian Point.

The GEIS does not include analysis of this microbial corrosion which is site specific to Indian Point. The GEIS does not consider additional mitigation measures to prevent the adverse effects of the microbial corrosion, such mitigation would be warranted. Therefore the criteria of Category 1 have not been met, and an additional plant specific review in the EIS is required.

IV. Examination of Appendix E first in scope and the second in specific criteria derived from federal regulations in particular 10CFR51.20.

A. *Surface Water Quality, Hydrology and Use (for all plants)*

Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow) [10 CFR 51.53(c)(3) (ii)(A)]

NONE. IP2 and IP3 are equipped with once-through cooling systems that utilize make-up water from an estuary on the Hudson River. IP2 and IP3 do not have or use cooling ponds or cooling towers. Consideration of mitigation is not required.

The way Entergy presents Surface Water Quality, Hydrology and Use (for all plants) would seem upon its face to be true, and to close this environmental issue. Here's the problem, the licensee is basically lying by omission, is deliberately obfuscating the facts of this issue. In the original Environmental Impact Study for IP2 LLC and IP3 LLC, both plants made a COMMITMENT to go to a closed cooling system. There are current and significant (unresolved) issues as relates to this very issue. Until a decision is made on Indian Point's original commitments to go to a closed cooling system, Entergy's comments here are at best misleading.

As a part of the EIS Supplement, all environmental costs associated with a Closed verse Once through cooling system should be completely investigated and resolved to the satisfaction of all parties.

Additionally, regardless of which cooling system is employed at Indian Point, the thermal discharge effects on the environment, plant and aquatic life, and on Global Warming must be evaluated.

B. *Aquatic Ecology (for all plants with once-through and cooling pond heat dissipation systems)*

Entrainment of fish and shellfish [10 CFR 51.53(c)(3)(ii)(B)]

SMALL. Historic and current studies have shown no negative trend in overall aquatic river species populations related to plant operations. Current mitigation measures implemented through the HRSA and fourth amended Consent Order, and the ongoing SPDES permitting process will ensure impacts remain SMALL. Further consideration of mitigation measures is not warranted. Impingement of fish and shellfish [10 CFR 51.53(c)(3)(ii)(B)]

This is speculative on the part of the Licensee. Further, NRC needs to take specific notice of the use of the phrase "OVERALL AQUATIC RIVER SPECIES". The real question avoided in this presentation, is what effects to SPECIFIC RIVER SPECIES. Licensee must not be allowed to mitigate significant environmental impacts and costs to very SPECIFIC SPECIES by painting with a broad brush through the use of terms like OVERALL liberally used in their Environmental Report. We refer the NRC to Entergy's own words in 6.2.2 of Appendix E of their application:

> **6.2.2 Entergy Response**
> As discussed in Supplement 1 to Regulatory Guide 4.2, "Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses," when adverse environmental effects are identified, 10 CFR 51.45(c) requires consideration of alternatives available to reduce or avoid these adverse effects. Furthermore, Supplement 1 states**, "Mitigation alternatives are to be considered no matter how small the adverse impact;** (emphasis added) however, the extent of the consideration should be proportional to the significance of the impact" [NRC 2000].

First, based on the licensees own words as found in its own EIS ER, they admit that when adverse effects are identified, 10 CFR 51.45 (c) requires consideration of alternatives available to reduce or avoid these adverse effects. No such alternatives are listed and evaluated. The licensee goes on further to state, "Furthermore, Supplement 1 states, 'Mitigation alternatives are to be considered NO MATTER HOW SMALL THE ADVERSE IMPACT'". (Emphasis added)

1. You cannot consider mitigation alternatives unless you specifically identify the adverse effect, regardless of how SMALL THE ADVERSE IMPACT.
2. Though Entergy, painting with a broad brush may claim there is no negative trend in OVERALL Aquatic and Plant river species that is not the question in the ER. Rather, the question is what the negative trend is for EACH SPECIFIC SPECIES. It is therefore imperative that each plant, animal and aquatic species be A) identified, B) inventoried, and C) the potential negative effects be measured in species specific studies. If a particular species is being negatively impacted, what is that impact, and what are the MITIGATION ALTERNATIVES? Further, Entergy's hired experts should not be allowed to cruise the Internet, and pull down as proof statistical data that supports their claim…that is not a study, that is cherry picking of data, as is witnessed in their list of sources for Appendix E.
3. It is pointed out here, that this STANDARD must be applied to each and every ENVIRONMENTAL issue that has an associated cost.

SMALL. Historic and current studies have shown no negative trend in overall aquatic river species populations related to plant operations. Current mitigation measures implemented through the HRSA and fourth amended Consent Order, and the ongoing SPDES permitting process will ensure impacts remain SMALL. Further consideration of mitigation measures is not warranted. Heat shock [10 CFR 51.53(c)(3)(ii)(B)]

First, based on the licensees own words as found in its own EIS ER, they admit that when adverse effects are identified, 10 CFR 51.45 (c) requires consideration of alternatives available to reduce or avoid these adverse effects. No such alternatives are listed and evaluated. The licensee goes on further to state, "Furthermore, Supplement 1 states, 'Mitigation alternatives are to be considered NO MATTER HOW SMALL THE ADVERSE IMPACT'". (Emphasis added)

1. You cannot consider mitigation alternatives unless you specifically identify the adverse effect, regardless of how SMALL THE ADVERSE IMPACT.
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3. It is pointed out here, that this STANDARD must be applied to each and every ENVIRONMENTAL issue that has and associated cost.
4. Again, we have used the same identical words in pointing out Entergy's significant flaw in their ER. First, they attempt to lump ALL SPECIES into one group, rather than identifying each species, and the negative effects on that specific species. We agree that the EIS does not need to address species NOT AFFECTED, but some species ARE NEGATIVELY AFFECTED. In fact, even in their grouped species, they admit there are small impacts, yet they fail to lay out what Mitigation Alternatives are available for said impact.

SMALL. Historic and current studies have shown no negative trend in overall aquatic river species populations related to plant operations. Current mitigation measures implemented through the HRSA and fourth amended Consent Order, and the ongoing SPDES permitting process will ensure impacts remain SMALL. Further consideration of mitigation measures is not warranted.

Even if there are no negative trends in overall aquatic river species populations related to plant operations, what negative trends exist for specific plants, animals and aquatic species that live by, on and in the Hudson River? Further, what Mitigation Alternatives exist to reverse these negative trends? Effects on these population should be measured within the ten mile peak impact zone, rather than allowed Entergy to take a more global view in supporting their claims.

C. *Ground-water Use and Quality*

Groundwater use conflicts (plants using > 100 gpm of groundwater) [10 CFR 51.53(c)(3)(ii)(C)]

NONE. There are no pumpable groundwater wells at the IP2 and IP3 site. Potable water is supplied by the Village of Buchanan with cooling and service water taken from the Hudson River estuary. Consideration of mitigation is not required. Groundwater use conflicts (plants using cooling towers withdrawing make-up water from a small river) [10 CFR 51.53(c)(3)(ii)(A)]

The alleged fact that no pumpable groundwater wells exist at IP2 and IP3 does not mean the potable water of the State of New York is not being negatively affected because of known radiological leaks, and unknown buried mixed wastes at the IP1, IP2 and IP3 plant site. In fact, Indian Point's DELIBERATE (emphasis added) omission of IP1 in and of itself is suspicious. The ER must evaluate the effects to the potable water, and then provide Mitigation Alternatives, including locating and repairing the leaks that ARE CONTAMINATING the potable water of the state of New York, which is a violation of New York State Environmental Conservation Law 6 NYCRR 701.1- "General Conditions Applying to all Water Classifications" states that:

> "The discharge of sewage, industrial waste or other wastes shall not cause impairment of the best usages of the receiving water as specified by the water classifications at the location of discharge and at other locations that may be affected by such discharge."
>
> –6 NYCRR 701.15- "Class GA Fresh Groundwaters" states that "The best usage of Class GA waters is as a source of potable water supply. Class GA waters are fresh groundwaters."

Under New York State regulations the Levels of Cesium-137, Strontium-90 and Tritium in the groundwater under Indian Point far exceed NYS and EPA drinking water limits for these toxic substances. It does not matter whether anyone drinks the water at IP- the law is intended to protect all groundwater in the state equally, so there is never a chance of contamination reaching drinking water aquifers. Indian Point is clearly in violation of the state's groundwater quality standards for these toxic substances

NONE. IP2 and IP3 do not have or use cooling towers. The Station obtains cooling and service water from the Hudson River estuary and potable water from the Village of Buchanan. Consideration of mitigation is not required. Groundwater use conflicts (Ranney Wells) [10 CFR 51.53(c)(3)(ii)(C)]

There are EXISTING LICENSE COMMITMENTS (Emphasis Added) requiring the installation and use of a closed cooling system (Towers) for IP2 and IP3. Therefore, the environmental costs of a closed cooling system should be fully studied as a part of the ER. Potable water (from Buchanan), and all Hudson

River water comes from Ground Water (within the earth). Therefore, Entergy statements are materially false. It's easy, but incorrect to claim that your water, because it comes from a water plant, or is drawn from the river is not groundwater. Creeks, streams, rivers, lakes and even oceans are to a great degree fed and nurtured FROM GROUND WATER. Therefore, any ground water contamination on or under Indian Point is affecting potable water resources.

NONE. IP2 and IP3 do not have or use Ranney wells. Consideration of mitigation is not required. Indian Point Energy Center Applicant's Environmental Report Operating License Renewal Stage 6-3 Degradation of ground water quality [10 CFR 51.53(c)(3)(ii)(D)].

Further the 2nd Circuit Court in 2006 denied Entergy's appeal to overturn the lower court decision requiring Entergy to comply with "best technology" available standard for cooling towers, prior to relicensing (Exhibit 14 DEC case)

Interveners reserve comment on this alleged fact.

NONE. IP2 and IP3 do not have or utilize cooling ponds. IP2 and IP3 are equipped with once-through cooling systems. Consideration of mitigation is not required.

There is at least ONE POND on the Indian Point site. If there is any chance that said pond could be used for EMERGENCY COOLING of the reactors or fire protection during the extended period of operation, then the negative impacts of said potential use would be cause for further exploration of this issue.

D. *Terrestrial Resources*

Refurbishment impacts on terrestrial resources [10 CFR 51.53(c)(3)(ii)(E)]

NONE. No refurbishment activities have been identified. Consideration of mitigation is not required.

Entergy's claim that there are no known or expected refurbishment issues goes against industry experience and knowledge, and further contradicts their own records. Currently, Entergy is committed to the purchase and installation of four reactor vessel heads…two of those heads are for IP2 and IP3 respectively. There are known, and expected refurbishment issues, that are specifically contemplated and/or anticipated because of license renewal. As example, there would likely

not be a need for reactor vessel heads if the facility was not seeking license renewal. Therefore, even if the reactor vessel heads were installed before the license renewal began, their installation is being considered because of the potential extended 20 year period of operation. Further, past reactor history leads to the conclusion that the turbines will have to be replaced at least once during the period of license renewal.

E. *Threatened or Endangered Species (for all plants)*
Threatened or endangered species [10 CFR 51.53(c)(3)(ii)(E)]

SMALL. No refurbishment activities have been identified. No adverse impacts to threatened or endangered species were expected due to continued operations of IP2 and IP3. Further consideration of mitigation measures is not warranted.

Again, there are refurbishment issues…further more, these refurbishment issues could disturb known PCB's at the site, which in turn could threaten (as one example) American Bald Eagles.

F. *Air Quality*

Air quality during refurbishment [10 CFR 51.53(c)(3)(ii)(F)]

NONE. No refurbishment activities have been identified. Consideration of mitigation is not required.

As has been stated, FUSE USA has uncovered the fact that Entergy has made commitments to purchase and install new reactor vessel heads at both IP2 and IP3. According to experts in the specific area of reactor vessel head replacement and repair, the installation of a reactor vessel head is highly complex, and comes with a host of potentially significant issues, including the possibility of cutting a hole in the containment if said head will not fit otherwise.

To skew and limit the scope of the EIS Supplemental ER, Entergy has deliberately omitted any and all refurbishment issues planned in anticipation of, or during the period of license renewal. It is pointed out, that numerous Generic Letters issued by the NRC anticipate numerous refurbishment issues during the period of license renewal for a nuclear reactor.

Each of these refurbishment issues, and specific reactor vessel head replacement will have potentially SIGNIFICANT impacts on air quality that must be investigated in the GEIS Supplemental ER process.

G. *Human Health*

Microbiological (Thermophilic) Organisms [10 CFR 51.53(c)(3)(ii)(G)]

NONE. IP2 and IP3 are not located on a small river or small lake, and do not have or use cooling ponds. Further consideration of mitigation measures is not warranted. Electromagnetic fields – Acute effects [10 CFR 51.53(c)(3)(ii)(H)]

FUSE USA reserves comment on this issue.

SMALL.

Transmission lines constructed to connect the plant to the transmission system meet the NESC® recommendations for preventing electric shock from induced currents. Further consideration of mitigation measures is not warranted.

FUSE USA reserves comment on this issue.

H. *Socioeconomics*

Housing impacts [10 CFR 51.53(c)(3)(ii)(I)]

SMALL. No refurbishment activities have been identified. Entergy does not anticipate an increase in employment during the period of extended operation. Therefore, no additional impacts to housing are expected due to continued operations of IP2 and IP3. Further consideration of mitigation measures is not warranted.

Entergy wrongfully assumes that a stable work force at the plant with numbers neither going up, or going down is the only potential effect on housing in the period of continued operation of IP2 and IP3. IP1 LLC, IP2 LLC and IP3 LLC are all aging industrial facilities with known radiological leaks and contaminant flows. Its current operation has suppressed, and will continue to suppress the property values of those communities closest to the plant, specifically Buchanan and Peekskill. It is expected, that this suppression of real estate prices will

worsen during the period of license renewal as the media coverage of an increasing number of incidents caused by aging, and poor management increase.

Further, Entergy fails to spell out what the effects would be on housing should a significant fire, radiological accident and/or terrorist event occur at the Indian Point facility during the period of license renewal.

6.3 Unavoidable Adverse Impacts

6.3.1 Requirement [10 CFR 51.45(b)(2)]

The applicant's report shall discuss any adverse environmental effects which cannot be avoided upon implementation of the proposed project. Public utilities: public water supply availability [10 CFR 51.53(c)(3)(ii)(I)]

SMALL. No refurbishment activities have been identified and no additional workers anticipated during the period of extended operation. PWSs near IP2 and IP3 currently have adequate system capacity to meet demand of residential and industrial customers in the area. Further consideration of mitigation measures is not warranted.

First and foremost, Entergy fails to adequate address the public's use of the Hudson River as both a primary and secondary source of water supply. As one example, we reference United Water's announcement in the Journal News of their plans to build a new desalination water processing plant for Rockland County drinking and tap water down the Hudson River directly across from of Indian Point, in either Stony Point or Haverstraw. Further, Indian Point fails to identify effects of on going leaks, and allowed releases at the plant have on both the potable and public waters of our community, both from and individual and cumulative perspective.

I. *Education impacts from refurbishment [10 CFR 51.53(c)(3)(ii)(I)]*

NONE. No refurbishment activities have been identified. Consideration of mitigation is not required. Offsite land use (effects of refurbishment activities) [10 CFR 51.53(c)(3)(ii)(I)]

The validity of this comment depends on the accuracy of Entergy's assertion that no refurbishment issues exist, or are expected during the period of license renewal. It is pointed out here, that Entergy as a Fleet Operator has claimed NO

REFURISHMENT ISSUES EXIST for any of their reactor sites. As example, from Entergy's Arkansas One Plant ER:

> In addition, an evaluation of structures and components as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications necessary to support the continued operation of ANO-1 during the license renewal term. Therefore, evaluation of refurbishment issues was not considered.

A cursory review of other License Renewal Applications and their Environmental Reports shows a very disturbing trend. Despite the self admitted fact that all 104 reactors in the American Fleet are aging, and have some known, and serious issues that will need to be addressed through refurbishment during the license renewal period, both the NRC and their licensees have been side stepping this significant Category 1 issue by simply claiming there ARE NO REFURBISHMENT ISSUES, and they thus do not need to be discussed in the Supplemental Report. As example, we quote from the Wolf Creek Environmental Report:

> WCGS has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of WCGS for the license renewal period. In addition, any replacement of components or additional inspection activities are within the bounds of normal plant operation, and are not expected to affect the environment outside of the bounds of the plant operations evaluated in the U.S. Nuclear Regulatory Commission's 1982 *Final Environmental Statement Related to Operation of Wolf Creek Generating Station, Unit No. 1*.

Even more disturbing, is the almost identical cut and paste preparation of site specific reports that is taking place. Below is a passage from Vermont Yankee's Environmental Report, and the similiarity between it, and the Wolf Creek Passage above is startling.

> Entergy has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of VYNPS for the license renewal period. In addition, any replacement of components or additional inspection activities are within the bounds of normal plant operation and are not expected to affect the environment

> outside of the bounds of the plant operations evaluated in the U.S. Atomic Energy Commission's 1972 *Final Environmental Statement.*

Again, if we look at the Environmental Report for Pilgrim, we again find the same identical cut and paste.

> PNPS has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of PNPS for the license renewal period. In addition, any replacement of components or additional inspection activities are within the bounds of normal plant operation, and are not expected to affect the environment outside of the bounds of the plant operations evaluated in the U.S. Atomic Energy Commission's 1972 *Final Environmental Statement Related to Operation of PNPS*.

This startling cut and paste is INDUSTRY WIDE, as is further witnessed by the same comment lifted from Nine Mile Point's Environmental Report:

> NMPNS has stated that its |evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of NMP, for the license renewal period. In addition, any replacement of components | or additional inspection activities are within the bounds of normal plant operation, and are not expected to affect the environment outside of the bounds of the plant operations evaluated in the U.S. Atomic Energy Commission's 1972 *Final Environmental Statement Related to Operation of Nine Mile Point Nuclear Station*.

The integrity of the entire EIS Scoping process is further questioned when we look at the Environmental Report for Brunswick, and find again almost word for word cut and pasting going on throughout. The only difference in these examples, is the name of the plant, and the original EIS referenced…otherwise, they are identical presentations.

> CP&L has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as being necessary to support the continued operation of BSEP for the license renewal term. In addition, any replacement of components or additional inspection activities that are within the bounds of normal plant operation are not expected to affect the

> environment outside the bounds of the plant operations evaluated in the *Final Environmental Statement Related to Operation of Brunswick Nuclear Steam Electric Plant Units 1 and 2,* issued by the U.S. Atomic Energy Commission in 1974.

It's breathtaking to realize that the biggest Category 2 issue in the license renewal Environmental Scoping process, refurbishment is side stepped by the industry by claim after claim that there are no refurbishment issues anticipated for 104 aging, embrittled reactors with known Boric Acid Corrosion Issues as relates to reactor vessel heads and spray nozzles. This claim by the industry is even more disturbing in light of the NRC's attempts to LOWER SAFETY MARGINS for Reactor Vessel Heads because no PWR's can meet those standards during their period of extended operation. Couple that with the fact that Entergy has already placed orders for replacement reactor vessel heads for both IP2 LLC and IP3 LLC, and it is clear their claim of no refurbishment is anticipated fails to meet the smell test.

NONE. No refurbishment activities have been identified. Consideration of mitigation is not required. Offsite land use (effects of license renewal) [10 CFR 51.53(c)(3)(ii)(I)]

There are numerous issues that will affect land use, primary among them, lack of and off site repository for Indian Point's radiological and mixed waste streams.

Further, as has already been shown, Entergy's claim that no refurbishment issues exist is a blatant lie, and misrepresentation of the facts.

SMALL. The area around IP2 and IP3 has pre-established land patterns of development and has public services and regulatory controls in place to support and guide development. No additional workers are anticipated during the period of extended operation. Further consideration of mitigation measures is not warranted. Local transportation impacts 10 CFR 51.53(c)(3)(ii)(J)]

This is a categorical lie. Industry best standards and experience have shown, that the additional inspection requirements in the period of license renewal is likely to add up to 60 people to the staff of each licensed reactor facility. Further, continued transport of materials into and out of Indian Point, as well as potential refurbishment issues will create local transportation impacts. Additionally, any

significant incident at Indian Point will create transportation impacts. We again remind the NRC of Entergy's own words that all negative impacts, no matter how small must be evaluated, and mitigation alternatives reviewed. Instead, Entergy attempts to remain mute on these issues by claiming they simply do not exist.

SMALL. No refurbishment activities have been identified and no increases in total number of employees during the period of extended operation are expected. Further consideration of mitigation measures is not warranted. Historic and archaeological properties [10 CFR 51.53(c)(3)(ii)(K)]

The validity of this comment depends on the accuracy of Entergy's assertion that no refurbishment issues exist, or are expected during the period of license renewal. It is pointed out here, that Entergy as a Fleet Operator has claimed NO REFURISHMENT ISSUES EXIST for any of their reactor sites. As example, from Entergy's Arkansas One Plant ER:

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SMALL. No refurbishment activities have been identified and no archaeologically and historically sensitive areas are present onsite. Further consideration of mitigation measures is not warranted.

Without excavation of the site, it is impossible to state with certainty that no archaeologically and historically sensitive areas are present onsite. As example, it was only recently discovered, during excavation for planned expansion of the New York subway system that one of the ORIGINAL walls of the city were found. Entergy's claim is convenient, but not necessarily FACTUAL.

J. *Postulated Accidents*

Severe accident mitigation alternatives [10 CFR 51.53(c)(3)(ii)(L)]

SMALL. No impact from continued operation. Potentially cost effective SAMAs are not related to adequately managing the effects of aging during period of extended operation. Further consideration of mitigation measures is not warranted.

There are a host of accident scenarios that must be evaluated, with various mitigation alternatives explored. Has Entergy already forgotten about the 2000 Tube Rupture at Indian Point 2, or simply hoping we as a community had forgotten about it? We had the flood of the containment, with over 350,000 gallons of contaminated water. There was an NRC allowed emergency dump of radiological contaminants into the air a few years back as well, and what about protecting spent fuel pools and the reactors from accidental aerial bombardment from falling aircrafts? What constitutes COST EFFECTIVE for a company that reported profits last year of almost one half of one billion dollars? Is the NRC ready to PUBLICALLY put a PRICE TAG on human life?

V. Changes to the facility under 10CFR50.59 apparently did not aggregate environmental impact analysis and provide necessary comprehensive EIS as required under section 102(C) of the NEPA

From 10 CFR 50.59

2) A licensee shall obtain a license amendment pursuant to Sec. 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would:

(i) Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the final safety analysis report (as updated);

(ii) Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the final safety analysis report (as updated);

(iii) Result in more than a minimal increase in the consequences of an accident previously evaluated in the final safety analysis report (as updated);

(iv) Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the final safety analysis report (as updated);

(v) Create a possibility for an accident of a different type than any previously evaluated in the final safety analysis report (as updated);

(vi) Create a possibility for a malfunction of an SSC important to safety with a different result than any previously evaluated in the final safety analysis report (as updated);

(vii) Result in a design basis limit for a fission product barrier as described in the FSAR (as updated) being exceeded or altered; or

(viii) Result in a departure from a method of evaluation described in the FSAR (as updated) used in establishing the design bases or in the safety analyses.

VI. Entergy's site specific environmental analysis is not site specific, and is actually word for word identical in content to other Entergy plants regardless of the distinct site specific characteristics.

A. <u>For example, the final SEIS report for Vermont Yankee and Pilgrim and preliminary SEIS for Indian Point are confirmed identical. In fact a brief examination of seven plants contained word for word precisely the same language. See exhibits [xx and yy].</u>

B. <u>Equally troubling is that in each case, no changes were made from preliminary SEIS to final SEIS. The regulatory authorities apparently were satisfied with the generic versions what was supposed to be a site specific SEIS for each site as submitted</u>.

One is compelled to ask why? In each SEIS, Entergy arguments turn on there being no refurbishment issues. The argument collapses on a fact analysis alone. Refurbishment issues are predicted, and in fact required for many active components, and the consequences of rationalizing not performing them are immediately obvious. One only has to look at Entergy Vermont Yankee's cooling tower collapse after a lengthy environmental intervention by the stakeholders to include the cooling towers as within scope which the ALSB ultimately ruled against the petitioner.

Closer examination reveals more disturbing activities that appear to deliberately circumvent refurbishment of equipment during the renewal period, by upgrading or refurbishing the equipment prior to the renewal period. Examples are provided in section VI including the refurbishment plans for both Indian Point Plant reactor vessel heads scheduled for 2011 and 2012 and the refurbishment of equipment during power uprate initiatives. Or substantial historical events that show no signs of simply disappearing over the extended operation.

On the accuracy of Entergy's assertion that no refurbishment issues exist, or are expected during the period of license renewal. It is pointed out here, that Entergy as a Fleet Operator has claimed NO REFURISHMENT ISSUES EXIST for any of their reactor sites. As example, from Entergy's Arkansas One Plant ER:

> In addition, an evaluation of structures and components as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications necessary to support the continued operation of ANO-1 during the license renewal term. Therefore, evaluation of refurbishment issues was not considered.

A cursory review of other License Renewal Applications and their Environmental Reports shows a very disturbing trend. Despite the self admitted fact that all 104 reactors in the American Fleet are aging, and have some known, and serious issues that will need to be addressed through refurbishment during the license renewal period, both the NRC and their licensees have been side stepping this significant Category issue by simply claiming there ARE NO REFURBISHMENT ISSUES, and they thus do not need to be discussed in the Supplemental Report. As example, we quote from the Wolf Creek Environmental Report:

> WCGS has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of WCGS for the license renewal period. In addition, any replacement of components or additional inspection activities are within the bounds of normal plant operation, and are not expected to affect the environment outside of the bounds of the plant operations evaluated in the U.S. Nuclear Regulatory Commission's 1982 *Final Environmental Statement Related to Operation of Wolf Creek Generating Station, Unit No. 1*.

Even more disturbing, is the almost identical cut and paste preparation of site specific reports that is taking place. Below is a passage from Vermont Yankee's Environmental Report, and the similiarity between it, and the Wolf Creek Passage above is startling.

> Entergy has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of VYNPS for the license renewal period. In addition, any replacement of components or additional inspection activities are within the bounds of normal plant operation and are not expected to affect the environment outside of the bounds of the plant operations evaluated in the U.S. Atomic Energy Commission's 1972 *Final Environmental Statement.*

Again, if we look at the Environmental Report for Pilgrim, we again find the same identical cut and paste.

> PNPS has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of PNPS for the license renewal period. In addition, any replacement of components or additional inspection activities are within the bounds of normal plant operation, and are not expected to affect the environment outside of the bounds of the plant operations evaluated in the U.S. Atomic Energy Commission's 1972 *Final Environmental Statement Related to Operation of PNPS*.

This startling cut and paste is INDUSTRY WIDE, as is further witnessed by the same comment lifted from Nine Mile Point's Environmental Report:

> NMPNS has stated that its |evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as necessary to support the continued operation of NMP, for the license renewal period. In addition, any replacement of components | or additional inspection activities are within the bounds of normal plant operation, and are not expected to affect the environment outside of the bounds of the plant operations evaluated in the U.S. Atomic Energy Commission's 1972 *Final Environmental Statement Related to Operation of Nine Mile Point Nuclear Station*.

The intergrity of the entire EIS Scoping process is further questioned when we look at the Environmental Report for Brunswick, and find again almost word for word cut and pasting going on throughout.

> CP&L has stated that its evaluation of structures and components, as required by 10 CFR 54.21, did not identify any major plant refurbishment activities or modifications as being necessary to support the continued operation of BSEP for the license renewal term. In addition, any replacement of components or additional inspection activities that are within the bounds of normal plant operation are not expected to affect the environment outside the bounds of the plant operations evaluated in the *Final Environmental Statement Related to Operation of Brunswick Nuclear Steam Electric Plant Units 1 and 2,* issued by the U.S. Atomic Energy Commission in 1974.

C. Aesthetic Impacts (license renewal term)

Several commitments were made to the citizens of the host community in the final EIS issued for IP2 LLC, and IP3 LLC, which were intended to mitigate the aesthetic impacts of the Indian Point site. These commitments that have not been kept include, but are not limited to:

> *80 acres of the 235 acre Indian Point site were to be changed into a beautiful woodland park complete with walking paths that would be used and enjoyed by the surrounding community.*
>
> *Extensive landscaping of the entire 235 acre site to make it less stark and industrial.*
>
> *There was to be a public access information and events center built, again with extensive landscaping for citizen use and enjoyment.*

These commitments are now over 30 years old. We do not have our 80 acre public park on the site. Not sure we have the land donated, and the public boat marina built as well over in Buchanan. The center envisioned and originally promised has not been delivered as well, and the landscaping of the site is woefully inadequate to mitigate the harsh industrial look of the Indian Point site.

These unfilled License Commitments though OLD, are new information that could only be learned with a complete review of the Final SER and Final EIS for the original licensing of IP2 LLC and IP3 LLC. The NRC has categorized Aesthetics issues as Category 1 , it is assumed, because they place little if any importance on landscaping and beautification of their License Sites. This assumption is born out in the classification of small given to Aesthetics issues in the GEIS.

Failure to fulfill your commitments is a serious violation of 10 CFR Rules and Regulations, but more importantly, failure to keep major commitments to the community erodes public trust in the licensee, and in the NRC charged with over sight. Turning 80 of the 235 acres of the Indian Point sight is not a small issue of little importance, not a medium issue, but a MAJOR issue. A full one third of the Indian Point was promised to the community, to be used for the public good in

the form of a PUBLIC woodland park complete with walking paths, and thirty years later that License Commitment is unfulfilled.

It is imperative that promises made to create publicly accessible infrastructure be kept when significant projects such as Indian Point are built and constructed. The time has come for Entergy to fulfill those commitments, irrespective of the decision on their license renewal. We ask that $25 million dollars be placed into a trust by Entergy for the creation of the 80 acre park on site, and that a committee is formed consisting of not less than nine people, and not more than twelve people to oversee the Indian Point Woodland Park creation on the Indian Point site and management of its long term viability. Said committee must include on its board one member from Riverkeeper, Clearwater, IPSEC and FUSE USA, and at least one citizen at large. The remaining board members should be nominated by the governments of Buchanan and Peekskill. Committee members will serve for a term of ten years, and no committee member can serve more than three consecutive terms. Additionally, no current or past employee of any utility company, or company that has worked for a utility company can serve on this committee. Lastly, the 80 acre park area on the Indian Point land shall be signed over to a living trust managed by the committee.

Furthermore, to keep their promise to the community, Entergy needs to earmark five percent of their pretax profits from the operation of Indian Point for landscaping of the Indian Point site, park management and maintenance, and community beautification. Entergy claims to be GREEN, and the time has come for them to put their money where their propaganda campaign is at. All funds will be managed and awarded by the committee.

Further, in keeping commitments already made to the community, licensee should be ordered to build a publicly accessible information center that includes and auditorium of not less than 2500 seats to be used for various public stakeholder meetings. Said auditorium size is conservative in size, and would only house one percent of the stakeholders within a ten mile radius of the reactors. All expenses of constructing, operating and managing this public access building shall be born by Entergy (parent company).

When commitments are made, it’s a deal with the public, with the host community. In exchange for use of these lands, you agree to something. When that commitment is not kept, when the licensee tries to wiggle out of it, they become scoundrels, misfits, dishonest cheats. The commitments were made to our community, and the time has come that those promises be kept.

BACKGROUND:

The current operating licenses for Indian Point Nuclear Generating Unit Nos. 2 and 3 expire on September 9, 2013, and December 12, 2015, respectively. The application for renewal, dated April 23, 2007, as supplemented by letters dated May 3, 2007, and June 21, 2007, was submitted pursuant to Title 10 of the Code of Federal Regulations (10 CFR) Part 54. A notice of receipt and availability of the application, which included Entergy's Environmental Report (ER), was published in the Federal Register on May 11, 2007 (72 FR 26850). A notice of acceptance for docketing of the application for renewal of the facility operating license was published in the Federal Register on August 1, 2007 (72 FR 42134).

Entergy submitted an Environmental Report (ER) allegedly prepared in accordance with the requirements of Title 10, Part 51, of the Code of Federal Regulations (10 CFR Part 51) identified as Appendix E to the LRA for IP2 LLC

and IP3 LLC. 10 CFR51 contains the NRC requirements for implementing the National Environmental Policy Act (NEPA) of 1969 and the implementing regulations promulgated by the Council on Environmental Quality (CEQ). Section 51.53 of 10 CFR Part 51 outlines the requirements to be met in the preparation and submittal of ERs to the NRC.

Section 51.53(c)(3) is based upon the findings documented in NUREG-1437, Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants, (GEIS). The GEIS, in which the staff identified and evaluated the Environmental Costs and impacts associated with license renewal, was first issued as a draft for public comment (when?) . The NRC received limited input from Federal and State agencies, public organizations, and private citizens before developing the final document.

As a result of the assessments in the GEIS, a number of impacts were determined to be generic to all nuclear power plants. These were designated as Category 1 impacts. An applicant for license renewal may adopt the conclusions contained in the GEIS for Category 1 impacts, absent new and significant information that may cause the conclusions to fall outside those of the GEIS.

Category 2 impacts are those impacts that have been determined to be plant-specific and are required to be evaluated in the applicant's ER.

The Commission determined that the NRC does not have a role in energy-planning decision making for existing plants; decisions for existing plants should be left to State regulators and utility officials. Therefore, an applicant for license renewal need not provide an analysis of the need for power or the economic costs and economic benefits of the proposed action.

Additionally, the Commission determined that the ER need not discuss any aspect of storage of spent fuel for the facility that is within the scope of the generic determination in 10 CFR 51.23(a) and in accordance with 10 CFR 51.23(b), however FUSE submits that the use of the site for indefinite storage of spent fuel is significant new information that must be considered in the EIS, as it is outside the Commission's prior GEIS.

As outlined by NEPA, the NRC initiated the scoping process with the issuance of the Federal Register Notice on August 10, 2007. The NRC invited the applicant; Federal, State, and local government agencies; local organizations; and individuals to participate in the scoping process by providing oral comments at

the scheduled public meetings and/or by submitting written suggestions and comments no later than October 12, 2007.

The scoping process is the singular opportunity for the public to participate in identifying issues that Stakeholders request the NRC to address in the plant-specific supplement to the GEIS. The Intent, as 10 CFR and NUREG guidance lays out, of the Scoping Process should include the following objectives:

- Define the proposed action, which, to date, has not been adequately done by the NRC,

- Determine the scope of the supplement to the GEIS and identify significant issues to be analyzed in depth, including category 1 issues that have changed significantly in the aftermath of September 11, 2001, the determination that Yucca Mountain, or any other long term storage facility has not to date been approved, and the specific on-site underground leaks which to date have not been identified or remediated, and are factual proof that zero-emissions are not being maintained. remediated.

- Identify and eliminate peripheral issues, or where necessary bring into the process peripheral issues that are site specific to IP2 LLC and IP3 LLC,

• Identify any EnvironmentalEnvironmental Cost assessments and other environmental impact statements being prepared that are related to the supplement to the GEIS, including those necessary for other licenses and or permits required to operate the Indian Point Plants in a lawful manner,

• Identify other environmental review and consultation requirements, and ways in which we the public can be actively involved in these processes,

• Indicate the schedule for preparation of the supplement to the GEIS, and in a timely fashion at the beginning of the scoping process provide the host community StakeholdersStakeholders with a list of all items NRC staff will not include in the process, with their specific reasoning and justifications for said decision,

• Identify any cooperating agencies, and

• Describe how the supplement to the GEIS will be prepared, and what steps will be taken to assure adequate public inclusion from the onset of the EIS scoping.

FUSE requests that NRC alter the method used in EIS Scoping process by categorizing issues deemed to be within Scope for the site specific supplement to the GEIS. In previous LRA GEIS Scoping processes, NRC has dedicated a category over to comments in favor of license renewal, and a category against license renewal, but then broke out the various issues to be reviewed into separate and distinct categories, such as surface-water quality, hyrdrology, human health and socioeconomics to name a few.

FUSE requests that these categories be handled in the review as sub-categories under three main categories, rather than stand alone categories. FUSE requests that the Site Specific Supplement to the GEIS have the following three main categories, A) NRC's concerns or topics, B) pro-license renewal, and C) against license renewal; all all other categories defined and included, should be placed under these main categories based on who raised the concern. Use of this system will allow the host community Stakeholders and elected officials the opportunity to evaluate the process, by being able to see which issues are given more weight by the NRC. It is imperative in this important federal action that the process be completely transparent, and such a system will contribute greatly to accomplishing that task.

FUSE points out, that many component parts and systems reviewed in the technical review, in the weighing of the adequacy of Entergy's Aging Management Plans do carry Environmental Costs if those component parts and systems, or the Aging Management plans fail. A NEPA review is not concerned with these specific component parts and systems, but instead focuses specifically on Environmental Costs, should they fail. In submitting our comments on the Scope of the site specific supplement to the GEIS, FUSE will include numerous component parts and systems that are within Scope in the duel technical track that is a part of the LRA process.

With regard to what the scope of the site specific supplement to the GEIS should be, FUSE does not present a position as to the adequacy or lack there of IP2 LLC or IP3 LLC's Aging Management Plans, or the ability of specific parts or systems to perform as intended. Instead, FUSE points out that industry guidance and lessons learned show that these items can fail, and when they do, there is a potential for off site Environmental Costs to occur which must be included in the Environmental Scoping process, and final draft of the Site Specific Supplemental ER.

ISSUES TO BE INCLUDED IN EIS SCOPE

The additional issues FUSE USA submits for inclusion in the GEIS Scoping process include the following concerns, and accident pathways which can lead to potentially significant off site Environmental Costs.

1. Required State Permits and Licenses: Required State Permits and Licenses from State agencies, specifically DEC SPDES permits to discharge thermal pollution into the state owned discharge channel, and required fish return pipe lines. These required permits must be included in the EIS scoping as they directly relate to the Environmental Costs of thermal pollution, and potable water quality as required by State law, during the 20 year period of the new superseding license. Further, the cumulative effects of ALL discharges from IP2 LLC and IP3 LLC must be weighed, and their Environmental Costs considered in the EIS Scoping process. It is impossible to know the Environmental Costs associated with Indian Point Discharges without looking at the whole, as well as its singular year effluents totals.

2. New Superseding License: Since under the NRC regulations in the event Entergy;s LRA is approved the NRC will be retiring the current license and issuing a new superceding license for a twenty year period, therefore all Environmental citing criteria promulgated in the NRC regulations for a new license must be included in the EIS as they have significant impact on

Environmental Costs, including but not limited to seismology, population density, water quality, emergency evacuation plans (etc).

US License Renewal Workshop Slide Presentation of Dr. P.T. Kuo, Director, Division of License Renewal March 28-30, 2007

Slide 4

Introduction

• Atomic Energy Act, as amended 1954

– 40-year license to operate

– Allows for renewal

• 10 CFR 54, "License Renewal Rule" allows a new license to be issued to operate for up to 20 years beyond the current 40-year term

All the original siting criteria for a new license must be considered, as delineated in Regulatory Guide 4.7 - Appendix A - Site Safety Considerations for Assessing Site Suitability for Nuclear Power Stations.

The criteria I includes the following Regulations and Regulatory Guides which must be considered by the NRC prior to the issuance of a new license:

a. Geology/Seismology

Geologic and seismic characteristics of a site, such as surface faulting, ground motion, and foundation conditions (including liquefaction, subsidence, and landslide potential), may affect the safety of a nuclear power station. Including Relevant regulations 10 CFR 100.23 Geologic and Seismic Siting Factors", and Regulatory Guide 1.70, Chapter 2 (identifies safety-related site characteristics) Regulatory Guide 1.29 (discusses plant safety features which should be controlled by engineering design, Regulatory Guide 1.165 Identification and Characterization of Seismic Sources and Determination of Safe Shutdown Earthquake Ground Motion, Regulatory Guide 1.132 Site Investigations for Foundations of Nuclear Power Plant.

Indian Point is located on the Ramapo fault. At the time of its initial siting 10 CFR 100.23 had not been finalized, and therefore a complete seismology evaluation was never done and/or completed.

b. Atmospheric Dispersion,

The atmospheric conditions at a site must provide sufficient dispersion of radioactive materials released during a postulated accident to reduce the radiation exposures of individuals at the exclusion area and low population zone boundaries to the values in 10 CFR 50.34, including 10CFR Part 50, and Regulatory Guide 1.23 "Onsite Meteorological Programs", Regulatory Guide1.145 Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants", Regulatory Guide 1.4, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Loss of Coolant Accident for Pressurized Water Reactors, Regulatory Guide 1.25, "Assumptions Used for Evaluating the Potential Radiological Consequences of a Fuel Handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors.

c.. Exclusion Area and Low Population Zone

In the event of a postulated accident at a nuclear power station, radiological consequences for individual members of the public outside the station must be acceptably low, including 10 CFR Part 100, "Reactor Site Criteria," requires an "exclusion area" surrounding the reactor in which the reactor licensee has the authority to determine all activities, including exclusion or removal of personnel and property, and a "low population zone" (LPZ) which immediately surrounds the exclusion area.

10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," requires that at any point on the exclusion area boundary and on the outer boundary of the LPZ the exposure of an individual to a postulated release of fission products (as a consequence of an accident) be less than 25 rem total effective dose equivalent, for specified time periods. Regulatory Guides 1.3, 1.4, 1.5, and 1.25 give calculational methods,

d, Population Considerations

Locating reactors away from densely populated centers is part of the NRC's defense-in-depth philosophy and facilitates emergency planning and preparedness as well as reducing potential doses and property damage in

the event of a severe accident. 10 CFR Part 100, "Reactor Site Criteria," requires the following:

An "exclusion area" surrounding the reactor in which the reactor licensee has the authority to determine all activities, including exclusion or removal of personnel and property, and a "low population zone" (LPZ), which immediately surrounds the exclusion area.

The nearest distance to the boundary of a densely populated center containing more than about 25,000 residents must be at least one and one-third times the distance from the reactor to the outer boundary of the LPZ.

Reactor sites should be located away from very densely populated centers. Areas of low population density are, generally, preferred. However, in determining the acceptability of a particular site located away from a very densely populated center but not in an area of low density, consideration will be given to safety, environmental, economic, or other factors, which may result in the site being found acceptable. NRC and Entergy fail to realize the argument, that what was once and acceptable zone for original licensing, is no longer acceptable when considering a new superceding license.

The population density within the 50 mile Ingestion Pathway EPZ of Indian Point is over 21 million, the population within in the 10 mile plume exposure pathway EPZ exceeds 500,000. Indian Point is surrounded by one of the most densely populated area in the United States.

The projected Population increase during the new superseding 20 year license period must be considered in the EIS, because distinguished from any other plant in the nation, the population surrounding Indian Point has exponentially increased since 1970 by 32%. The populations in the surrounding Counties are continuing to rapidly grow. In fact, Orange County, is the fastest growing county in New York State. Based on census studies from 1970, 1990, 2000 and updates in 2002 and 2006, the projected average annual rate of population increase has been 1.23%. Using the same rate of increase, the projected population in the counties surrounding Indian Point will be 2, 250,619 or a 63% increase from the time the plans were originally licensed. (Exhibit 15 Census Study 1970-2006), or if a more modest rate of 50% is used, 1,958,575.

This is new information and must be considered as a site specific category 2 issue in the EIS. This dramatic increase in population and population density has LARGE and significant impacts with regard to public health and safety. Public

health and safety cannot be grandfathered in, especially in light of such substantial changes in population. Therefore a full comprehensive study of population and population increases in the surrounding Counties: Westchester, Rockland, Orange and Putnam and Dutchess must be included in the EIS.

e. Emergency Planning

To ensure that adequate protective measures can be taken to protect members of the public in the event of an emergency, the characteristics of the site should not preclude development of such plans. 10 CFR Part 100, "Reactor Site Criteria," requires that:

Site characteristics must be such that adequate plans to take protective actions for members of the public in the event of emergency can be developed.

10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," requires:

Reasonable assurance that adequate protection can and will be taken in the event of a radiological emergency.

Emergency planning zones (EPZ) consisting of the plume exposure pathway EPZ with an area about 16 km (10 mi) in radius, and the ingestion pathway EPZ with an area about 80 km (50 mi) in radius.

NUREG-0654/FEMA-REP-1, Rev.1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980),2 provides guidance on performing an ETE.

It is important to note that NRC does not have a clearly defined definition of "reasonable assurance" or of "adequate protection". (attached is Exhibit 17).

The Counties, surrounding Indian Point and retired FEMA director James Lee Witt, who was hired by the State of New York to evaluate the Emergency Planning for Indian Point, have determined that the current evacuation plan is inadequate and unfixable, due to the limited road infrastructure and enormous population density surrounding Indian Point.

f. Security Plans

To prevent plant damage and possible radiological consequences to the public as a result of acts of sabotage, the characteristics of the site should not preclude development of adequate security plans.

10 CFR 100.21(f) states that site characteristics must be such that adequate security plans and measures can be developed.

Also, 10 CFR Part 73, "Physical Protection of Plants and Materials," prescribes requirements for establishment and maintenance of a physical protection system for the protection of special nuclear materials at fixed sites and of plants in which special nuclear material is used. Not evaluating the Security (DBT) or the evacuation plan is one thing, not evaluating the environmental impacts of their failure, or the environmental impacts of a terrorist attack is criminal.

g. Hydrology and .g1 Flooding

Precipitation, wind, or seismically induced flooding (e.g., resulting from dam failure, from river blockage or diversion, or from distantly and locally generated sea waves) can affect the safety of a nuclear power station. 10 CFR 100.23, "Geologic and Seismic Siting Criteria"; Regulatory Guide 1.59, "Design Basis Floods for Nuclear Power Plants"; Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants" (Section 2.4); 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" Criterion 2, "Design Bases for Protection Against Natural Phenomena".

h. Water Quality

Contamination of ground water and surface water by radioactive materials discharged from nuclear stations could cause public health hazards. 10 CFR Part 20, "Standards for Protection Against Radiation"; 10 CFR Part 50, "Licensing of Production and Utilization Facilities".

The current ground water contamination at Indian Point must be fully evaluated and remediated to protect the public against radiation, prior to the issuance of a new license for 20 years.

i. Industrial, Military, and Transportation Facilities

Accidents at present or projected nearby industrial, military, and transportation facilities may affect the safety of the nuclear power station. 10 CFR 100.21, "Non-seismic Siting Criteria"; 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants," Criterion 4, "Environmental and Dynamic Effects Design Bases"; Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants," Section 2.21 (lists types of facilities and potential accidents); Regulatory Guide 1.78, "Assumptions for Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release".

It should be noted that the West Point Military Academy is less than 8 miles from Indian Point and Fort Smith is less than 3 miles.

Public health and safety cannot and must not be grandfathered in for an additional 20 year period of licensed operation without properly evaluating the siting of the plant under NRC regulations. Therefore because the current license will be retired and in the event of acceptance of Entergy's LRA, the NRC

will issue a 20 year new superceding license, therefore all the regulatory Environment citing criteria for a new license must be part of the EIS.;

,

3.3. Refurbishment: Entergy alleges in their EIS Statement, marked as Appendix E to the LRA that there are no refurbishment issues anticipated in the period of license renewal, and therefore no Environmental Costs need be considered. This statement on the part of the licensees (IP2 LLC and IP3 LLC) is the equivalent of the owner of a Chevy Vega or Ford Pinto claiming their vehicles were going to require no significant repairs in the next 20 years, even though the car is being driven 60 miles a day.

\ This statement is a gross misrepresentation due to the fact that Entergy has already committed to the purchase new reactor vessel heads for both IP2 LLC and IP3 LLC, with delivery and installment tentatively scheduled for 2011 and 2012 respectively. Even if installation were to occur before the period of license renewal were to begin, said major refurbishment is being contemplated, or planned in expectation of license renewal. Additionally such refurbishment effects many other systems and components whose failure will have significant Environmental Costs. Therefore Refurbishment of the reactor vessel heads and other refurbishment issues must be included in the EIS.

4. **Fire Protection:** Both facilities currently have in place one or more EXEMPTIONS, EXCEPTIONS, RELIEFS OR DEVIATIONS from NRC rules that will need to be carried forth into a new superceding license. Entergy is required as a part of the license renewal application to supply an analysis justifying why such exemptions should be carried forth into the new superceding license. Fire Protection or the compromise of it is very much an Environmental Cost issue that must be thoroughly investigated in the EIS Scoping. The Environmental Costs of a significant fire at Indian Point are monumental in scope.

Any fires that compromise the reactor, damages the reactor core, breaches the spent fuel pools, or impinges upon Entergy's ability to conduct and maintain Safe Shutdown of the reactors, are potentially catastrophic in nature and scope. The issue of whether both facilities can adequately protect human health and the environment with regard to Fire Protection, includes but is not limited to, any exemptions, exceptions, reliefs or deviations granted by the NRC, and must be included in the EIS, as Fire Protection issues have significant Environmental Costs.

5. Impingement or significant damage to water intake: Individual or multiple failures of various infrastructures at the plant presents unique environmental risks and associated cost scenarios that must be included within the scope of the EIS investigation and report. Impingment and or significant damage to the water intake for IP2 and IP3 (separately) will seriously damage and eliminate Entergy's ability to conduct and maintain a safe shut down of the individual reactors and have significant Environmental Costs. Therefore, impingment or significant damage to water intake caused by clogging of screens as has occurred on numerous occassions must be included in the EIS,

6. Exemptions, Exceptions and Deviations of the Design Basis or Current Licensing Basis of Indian Point 1, 2 or 3. Any and all exemptions, exceptions and deviations of the Design Basis or Current Licensing Basis of Indian Point 1, 2, or 3 have potentially significant Environmental Costs and impacts and must be included the EIS. In September, 2007 the NRC informed Sherwood Martinelli, Vice President of FUSE that such a list does not exist, even though it is required in the relicensing regulations. Therefore, such changes must be comprehensively evaluated with regard to Environmental Impacts and Costs.

7.7. Air Traffic Risk: Air traffic, including but not limited to, helicopters, as well as airplanes (private planes, private jets, large commercial planes) fly over Indian Point, as there is no no-fly zone, present a clear and significant danger with serious Environmental Costs, impacts and risk. There are 6 major airports within the 50 miles of Indian Point, including Westchester Airport, Steward Airport, JFK International Airport, La Guardia Airport, Newark International Airport and Bradley Airport, and numerous private airports. An inadvertent crash will have serious Environmental Costs which must be considered in the EIS.

Recent accidents in New York area highlight the necessity of a comprehensive study of the air traffic within the 50 miles of Indian Point to be included in the EIS. Two recent examples are set forth below:

a) NEW YORK (CNN) Yankees pitcher Cory Lidle and his flight instructor were killed Wednesday when the 34-year-old ballplayer's plane crashed into a high-rise apartment building in New York, city baseball team officials said.

b) American Airlines Flight 587 on November 12, 2001 crashed into the Belle Harbor neighborhood of Queens in New York City

shortly after takeoff from John F. Kennedy International Airport.

This was the second deadliest U.S. aviation accident to date.

On January 1, 2006 The National Transportation Safety Board said 44 aviation accidents took place in New Jersey in the past year, double the number in 2004, the most in more than 10 years.

Eight fatal accidents killed 13 people, The Star-Ledger reported and half of those accidents involved home-built aircraft. Curious, could a TERRORIST build a homemade plane?

The impact of potential aviation accident(s) such as those described above, will have a direct impact and will impinge on critical infrastructure at Indian Point, resulting in significant Environmental impacts and costs, and therefore must be included in the EIS. Can imagine what would happen if one of those new Boeing 787 full of fuel accidentally CRASHED into one of the reactors

Wouldn't be PRUDENT not to investigate such and occurrence! Remember 9/11?

8. **FAA recent decision to increase commercial air traffic over Rockland County**:

The residents in the Hudson Valley have recently been advised of the FAA's

decision to increase air traffic in the region. Entergy's Environmental review reports no foreseeable related Federal projects were identified. As the FAA Redesign Project is a Federal project, that has been considered since 1999, we ask what effect increased air traffic on increasing crash risks, and the background noise of increased air traffic might have on the efficacy of the emergency alert system. Oh, and we would like to know how come Entergy was so in the dark as to have missed this PUBLICALLY known FACT? Specifically, was the emergency siren system which fails to meet Design Basis criteria designed to be heard above the increased noise coming from the increased noise levels projected for Rockland County?

["2.13 Related Federal Project Activities

During the preparation of this report, Entergy did not identify any known or reasonably foreseeable federal projects or other activities that could contribute to the cumulative environmental impacts of license renewal at the site." Perhaps because they were not looking for them very hard?

http://www.nrc.gov/reactors/operating/licensing/renewal/applications/indian-point/1-ipec-lra-appendix-e_1- 2.pdf, pg 113 of 156)**]**

Entergy's Environmental Report in it's LRA failed to identify this significant change by another federal agency with regard to the area within 50 miles of Indian Point, despite the fact that the FAA has posted such increase in the Federal Registry, therefore by regulation and because of the potential significant Environmental Costs such increased air traffic must be considered in the EIS.

9. Mixed Radioactive Waste Contamination of the Site: Pre-existing and known radiological and mixed waste contamination of the site is not being adequately addressed and remediated, thus causing and on-going harm to the environment, both on and off site, which must be fully addressed in the EIS. The areas of environmental concern and resultant Environmental Costs with regard to mixed radioactive waste contamination of Indian Point, include but are not limited to the following.

a. During construction, and operation, IP1 and perhaps IP2 buried mixed wastes in various and **in some cases unknown** locations on the IP site. Further, it is known that some mixed wastes, that have not been adequately accounted for or disposed of in a safe manner, are currently in the reactor core area.
b. Various known and unknown leaks throughout the IP1 LLC, IP2 LLC and IP3 LLC site(s) are leaking radiological contaminants into the ground water and Hudson River , including but not limited to,

strontium 90, tritium and cesium 137, yet the leaks remain unidentified, stopped or remediated.

c. Various low level radioactive waste streams are inadequately stored in buildings in violation of LLRW(Low Level Radioactive Waste) storage facility guidelines. Currently cheap steel buildings housing radioactively contaminated waste for both Indian Point 2 and Indian Point 3 have failed turbines, are not air tight, and are thus allowing radiological decay chains to be released into the air, thus migrating off site without adequate monitoring, The above issues of mixed radioactive waste contamination of the site must be addressed in the EIS.

10. Long Term on-site radioactive waste storage: NRC's admitted in public documents that it is very likely that these contaminated materials will need to be stored onsite at Indian Point for periods in excess of 100 years.

The Spent Fuel pools currently unsafely hold 18,000 tons of high level radioactive waste and the currently proposed 20 year new superseding license another 9,000 tons or more of high level radioactive waste will be produced. The storage areas/facilities onsite must meet the same safety and public health criteria established for license of LLRW Disposal/Storage Facilities, such as Envirocare in Utah. The DOE and NRC do not have workable long term plans adequate to address the offsite disposal of

radioactive waste streams produced at Indian Point, as required by Federal Law and are not likely to have disposal options before the year 2110.

The Environmental Costs associated with the storage of these waste streams, and of bringing onsite storage facilities into compliance with NRC rules and regulations promulgated for LLRW storage facilities must be included within the scope of the EIS for Entergy's LRA for IP2 LLC and IP3 LLC.

The NRC and the DOE must fulfill their legal responsibilities and obligations to safely dispose of radioactive wastes, however presently the only plan is to store the radioactive waste produced by Indian Point **indefinitely (at least 100 more years)** on the site of Indian Point 2 and Indian Point 3. Therefore, such indefinite, long term, *albeit permanent* storage must comply with the same standards as a licensed radioactive waste storage/disposal site. Since there is no safe disposal of radioactive waste currently available off site, and none are expected before the year 2110, such information must be comprehensively considered, evaluated and included in the EIS for relicensing of IP2 and IP3. And such impacts and costs of such indefinite, long term storage of these enormous quantities of radioactive waste at Indian Point must be fully considered in the EIS, as it has significantly LARGE Environmental Costs.

11. 11 Dry Cask Storage

The new use of the Indian Point site for Dry Cask Storage is a new use of the land, and was never contemplated when the site was first approved. Therefore the use of the land on the banks of the Hudson for so-called interim spent fuel storage, must be considered as new information with a potential large affect on human health and the environment, as there is no current functional or realistic plan**s** to ever remove the waste from the site. Therefore is must be clearly included in the EIS that the plan for "interim spent fuel storage", dry cask storage, is actually a plan for indefinite long term, and potentially infinite high level radioactive waste storage on the banks of the Hudson River. Further, with the Red Herring of GNEP and reprocessing, the potential impacts of reclassifying these waste streams as potential future use resources must also be fully evaluated in the EIS Scoping process for Indian Point.

Independent Spent Fuel Storage Installation (ISFSI), also known as Dry Cask Storage estimates

Estimates capacity of: 75 Holtec 100 High Holtec Storm Casks, 18ft high x 14 ft in diameter, 2.5 feet apart. Each cask or canister will hold

Multipurpose Canister ½ inch diameter holder 32 PDR fuel assemblies, with a total of 2,400 fuel assemblies The casks will not be bolted down to the pad, even though ISFSI is situated on top of the Ramapo Fault line. The concrete pad on .5 acre with a 100 meter buffer of controlled land, uses assemblies

Tech spacing for heat dissipation told us approximately 40 acres of 239 acres site in Buchanan, and then sent correct memo of 2.5 feet between casks.

The casks are 3 ft thick made of carbon steel inside concrete, which is highly corrosive.

It is estimated that Each Reactor has 193 fuel assemblies – nominally 1/3 of the core is replaced at each refueling once every 2 years.

Per plant will require one cask per year, during the new superceding license period, approximately 64 assemblies move every two years, assuming there is no need to change fuel assemblies because of power uprate or other problems.

The pad can store a total of 75 casks.

It is estimated that one cask per year, per plant.

Capacity amount of spent fuel in pools is

Unit 2 1374, which is currently almost full, and IP3

Unit 3 134, which is 1345 currently almost full.

IP 1 needs approximately 5 MPC (casks) and must be emptied immediately due to the strontium leaking from it into the groundwater and Hudson River. In the event the LRA of IP2 is approved by the NRC it will be in operation for 26 continuous years, and In the event the LRA of IP2 is approved by the NRC it will be in operation for 28 continuous years. IP2 would require 26 casks and IP3 28 casks, a total of 54 casks.

Leaving only 16 additional casks. Due to the inability of the Energy to find the leaks at IP2 spent fuel pool, there is a very real possibility that the only way to find the leaks is to empty the pools as was done at IP1 LLC. It requires 42.1 casks to empty Indian Point 2, and 42 casks to empty Indian Point 3.

IP 1 approximately 5 MPC (casks)

Looking into the future – fuel cladding problem was early generations.

Casks are 3 ft thick made of carbon steel inside concrete ---

Each PWR fuelassembly and dry cask weighs approx 1,400 lbs.

100 meter buffer of controlled land

Barnwell closing – so low level waste will be stored on site. They will get back to us regarding capacity for low level waste storage

Not sure about commingling at Unit 1

Plan to move Unit 3 waste to Unit 2 to package and move to Pad. Temporarily commingling waste of separate licensed reactor radiological waste streams.

Design Control program details certification – Amendment to support off loading fuel from Unit One – special transfer cask needed to remove fuel from #1 because shorter rods. Amend # 4 to high storm systems.

Part 72 Process – Site Specific- Certificate of Compliance HOLTEC

John Bosca – Project manager – Part 50

In the event need to empty either pool at 2 or 3 due to need to find and remediate leak during next 20 years. Not enough room

Must decommission unit #1 pool itself, contaminated structure – water intrusion

Comingling create contaminates and isotopes can be created that are not predicted.

Various accident and spent fuel pool failure scenarios could leave Indian Point with an inability to adequately store their spent fuel on site for the extended period of license renewal. These scenarios and mitigation alternatives, including denial of license renewal need to be reviewed and weighed during the license renewal process.

12. Propaganda: The NRC, and other governmental agencies plan to change public sentiment regarding radioactive waste, rather than deal with the radioactive waste streams generated through the production of nuclear energy, directly impacts the Environmental Costs to the Stakeholder community must be included in the EIS, as is witnessed in excerpts from a governmental task force report:

> **U.S. Nuclear Regulatory Commission Implementation Plan for the Radiation Source Protection and Security Task Force Report**
>
> **Task:** The Task Force recommends that there be a coordinated **public education campaign (Federal, State, and industry) to reduce fears of radioactivity**, diminish the impact of a radiological attack if one were to occur, and provide a deterrent to attackers considering the use of radiological materials.
>
> Report Context: Another important aspect of response training is public education. Proactively educating the public about the radiation risks of an RDD may **reduce the public's anxiety and**

ameliorate the psychological impacts in the event of RDD attack and thereby mitigate some of the physical and social disruption consequences caused by fear and panic. Agencies should coordinate this effort to avoid duplication of effort and ensure the consistency of the intended message. Therefore, the Task Force recommends that there be a coordinated interagency (Federal and State) campaign, which would work with industry groups, to educate the public on the effects of and response to an RDD event.

It is the intent of the nuclear industry, NEI and the NRC to change public perception of risk in order to make reactor sites unlicensed high and low level radioactive waste disposal sites, with waste streams created from Nuclear Energy stored at these sites for periods far in excess of 100 years.

There is no near future solution as to how to dispose of radioactive waste. It amounts to criminal deception for the benefit of the nuclear industry, the NRC and the DOE. By perpetuating a fraudulent propaganda campaign on members of the general public, and failing to fulfill their legal responsibilities and obligations to safely dispose of radioactive wastes OFF SITE, the responsible agencies, the NRC and DOE are in violation of their organizing mandates to "protect public health and safety".

The responsible agencies, the NRC and DOE, as well as Entergy and the NEI, must disclose, any and all costs, funds, incentives, and contributions used in this propaganda campaign, including but not limited to, donations to community groups, paid advertisements for Indian Point and or nuclear renaissance and proliferation, as part of the EIS scoping.

The proposed propaganda campaign regarding radioactive waste, and the long term storage of radioactive waste at Indian Point must be included in the EIS, as it creates public deception with regard to significant Environmental Costs.

13. Leaks:

Various and assorted leaks of unknown origin and undiscovered specific locations are indicative of deteriorating stability and tensile strength of plant infrastructure and systems. Many of the underground pipes and all the spent fuel pools on the Indian Point site are leaking radiological contaminants into the ground under the Indian Point site, and thus contaminating various potable water supplies in violation of both State and Federal laws.

Further, said radiological contaminants are migrating towards the Hudson River. It is only a matter of a few years, if not months before the underground

plumes migrate off site, and reach the Hudson River, thus creating a serious risk of contaminating both the river, a key fresh water resource.

The current status of the leaks is that the NRC and Entergy have been investigating them since 2005 and still have not found the source(s). Recently it was decided not to remove the radioactive effluent from the ground. This decision was reached when siphoning began and caused more radioactive materials to be released. Doing nothing is not a answer, in fact it just proves the lack of knowledge and ability of both Entergy and the NRC to properly managed radioactive pollution into the environment,.

a. These leaks unchecked and un-repaired will further increase the contaminant levels in potable water sources, and the Hudson River.

b. The risk of wall collapse in one of the spent fuel pools is greatly increased, as winter temperature shifts coupled with the leaks creates a much higher risk of damage caused from ground heave.

c. The radiological and chemical contaminants associated with these known, yet non-specifically identified leaks hold the potential to increase the rates of corrosion in the underground pipes and other structures at the Indian Point site. This is significantly worrisome, as these unreachable pipes and systems cannot be tested with any certainty

as it is. To strengthen this contention, it is pointed out, that reactor coolant chemistry is considered a key issue of concern in Flow Accelerated Corrosion (FAC). If water chemistry inside of the pipes of the reactor is a concern, then it makes since that over 250,000 gallons of radioactively contaminated water under the site should be a corrosion concern as relates to the outside of the pipes.

If the NRC allows this high level radioactive effluent to remain unchecked in the ground during the 20 year new superseding license they are granting permission to Entergy to release unmonitored radioactive waste into the groundwater and the Hudson River, through off-site migration, gravity, tidal pull and capillary action, Until all the leaks are identified, located, repaired and fully remediated, significant Environmental Costs and risks continue to increase, therefore a comprehensive study of all aspects of the leaks at Indian Point 1,2, and 3 must be included in the EIS.

Additionally the NRC must require Entergy to make all plume maps and leak reports available to elected officials and the public, even though Entergy has claimed such materials to be proprietary, as the information contained in the plume maps and leak reports directly impact Environmental Costs which must be included in the EIS. (Exhibit PLUME MAP PHOTOS THAT NRC WILL NOT RELEASE TO US)

Specifically any unmonitored releases are in violation of NRC regulations § 20.1301 Dose limits for individual members of the public.

(a) Each licensee shall conduct operations so that —

> (1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 mSv) in a year, exclusive of the dose contributions from background radiation, from any administration the individual has received, from exposure to individuals administered radioactive material and released under § 35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with § 20.2003 NRC's Regulations.

§ 20.1302 Compliance with dose limits for individual members of the public.

> (a) The licensee shall make or cause to be made, as appropriate, surveys of radiation levels in unrestricted and controlled areas and radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in § 20.1301.

14. Water quality issues: The EIS must include fully independent and comprehensive studies of groundwater, including but not limited to, testing for radio nuclides including strontium 90, as well as strontium 89, which has a shorter half life, tritium, cesium 137, and trace levels of plutonium and PCB's. Such testing must include samples from wells, riverbeds, silts, **all discharge points** and river water, at high and low tides, as well as all seasons. In addition testing of wildlife, including but not limited to, captured fish, oyster beds, turtles, frogs, nesting birds, egg shells must be fully monitored for a complete growth cycle from spring to fall. Water quality of the groundwater and river has a

direct effect on Environmental Costs and therefore such comprehensive analysis must be included in the EIS.

15, United Water Hudson River Water Desalination

A proposal for a desalinization plant along the Hudson in a location not yet disclosed, though it is anticipated to be in Stony Point or Haverstraw, due to the salinity of the water in those locations, has been submitted for review by United Water of New York (UWNY). As the proposed facility is anticipated to be in use by UWNY within the proposed 20 year superseding license period of Indian Point 2 & 3, it must be fully evaluated considered in Entergy's environmental impact study. Given the leakage of strontium 90, cesium 137, and tritium into the Hudson it would be unreasonable not to consider the full environmental impact on the desalinization plant and the other River intake sites of water for human consumption, such as the Croton Station, which is New York City's emergency water source. Due to the radioactive releases from Indian Point the costs of removal of radioactive nuclides from the water for human consumption must be included in the EIS.

16. Health Issues:

Continued operation of Indian Point raises the risk of radioactivity exposure in two ways. First, the reactor cores would maintain high levels of radioactivity in the core and add waste to the approximately 10,000 tons already at the site, worsening the consequences of a large-scale release after a mechanical failure or act of sabotage. Many thousands would be stricken with acute radiation poisoning or cancer.

Second, because reactors routinely release radioactivity, persons living near Indian Point are exposed to more of these radioactive chemicals. Historically, Indian Point has a checkered record of contaminating the local environment.

- It released the 5th most airborne radioactivity of 103 U.S. nuclear plants.

- Radioactivity levels in the Hudson River are over 10 times greater than in Albany.

- Levels of Strontium-90 in local baby teeth are the highest of any area near seven U.S. nuclear plants, and rose 38% since the late 1980s.

This record of contamination raises health concerns, which are heightened when considering that since 2000, in the four counties closest to Indian Point,

- Childhood cancer incidence is 22% above the U.S. rate

- Thyroid cancer incidence is 70% above the U.S. rate

- Cancer incidence in the six towns within five miles of Indian Point is 20% greater than the rest of Rockland and Westchester Counties.

Closure of Indian Point will result in decreases in cancer mortality, as it did near the closed Rancho Seco plant in California. In the event the NRC does not approve Entergy's LRA and the plants closes in 2013 and 2015, respectively, 5000 fewer cancer deaths would occur in the next 20 years in Westchester, Rockland, Orange, and Putnam Counties. 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.

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

The National Academy of Sciences BEIR VII report concludes that women are significantly more vulnerable to radiation than are men and that the cancer mortality risks for solid tumors are almost 50% greater for women (though for leukemia, the risk estimates are higher for men). The BEIR VII panel was also in accord with the European Commission on Radiation Risk, in determining that the risk differential for children – especially babies and very young children – is even more dramatic. For instance, the cancer risk for male infants up to age one is 3 - 4 times that for males in the age range of 20 - 50 exposed to the same amount of radiation. Female babies and children are even more vulnerable than males. Moreover, infants are vulnerable to the transference of isotopes like strontium-90 which can be fed to a newborn during breastfeeding.

It is also well established that radiation is most potent to the rapidly dividing cells of babies in utero. (Gamma rays can pass through the fetus. Alpha and beta particles can be transmitted via the placenta.) Radiation interferes to a high degree with cell proliferation and such rates exist throughout prenatal development. The central nervous system may be at especially high risk. Central nervous system development starts during the first weeks of embryonic development and continues through the early postnatal period. This system is accordingly quite vulnerable for a very long period. The constellation of effects from injury to the developing central nervous system includes: mental retardation, autism spectrum disorders, learning disabilities, and ADD.

Tissues that are particularly susceptible if exposed during normal periods of rapid growth (i.e., prenatal, early childhood and puberty) are the brain, thyroid, bone and breast.

Notably, a Radiation and Public Health Project study published in the February 2003 issue of the Archives of Environmental Health examined rates of cancer of children living near operating U.S. nuclear reactors. The study found that cancer incidence for children under age 10 living within 30 miles of each of the 14 nuclear plants in the eastern U.S. exceeded the national average. Incidence was particularly elevated for leukemia. Of the 14 power plant regions

studied, the childhood cancer rates in Rockland and Westchester Counties near the Indian Point plant was 4th highest (17.4% above the U.S. average). While such findings are not determinative, they are highly suggestive of the possibility that Indian Point is posing a consequential risk to its surrounding population.

Notwithstanding their special vulnerability, women, children, babies and the embryo/fetus are not given corresponding consideration in the regulatory framework which governs nuclear power plant emissions. The current outmoded standards do not incorporate the medical knowledge that has been attained during the past 20 years and continues to be based on "Reference Man" which is defined as a young adult Caucasian male. This is a violation of basic civil rights, is prejudiced, and chauvinistic. (The term actually derives from the standards created to protect the young, white, male scientists working in nuclear labs during the early post-Manhattan Project era.) The regulatory paradigm is also narrowly oriented to genetic effects and cancer, thereby ignoring the wide panoply of other extensively reported conditions that can result from exposure to ionizing radiation.

Compliance with standards does not mean that the health of the public is not compromised, as radioactive exposure is cumulative, and therefore must be evaluated over the period of 60 years, rather than 40 in the EIS,

Additionally comprehensive health studies and associated Environmental Costs must be included in the EIS as part of the relicensing application for Indian Point 2 and Indian Point 3 with those studies including ALL communities in all three states (Connecticut, New York and New Jersey) that are within the 50 mile Peak Zone of Detriment.

POPULATION:

The projected Population increase during the new superseding 20 year license period must be considered in the EIS, because distinguished from any other plant in the nation, the population surrounding Indian Point has exponentially increased since 1970 by 32%. The population in the surrounding Counties are continuing to rapidly grow, In fact, Orange County, is the fastest growing county in New York State. Based on census studies from 1970, 1990, 2000 and updates in 2002 and 2006, the projected average annual rate of pollution increase has been 1.23%. Using the same rate of increase, the projected population in the counties surrounding Indian Point will be 2, 250,619 or a 63% increase. (Exhibit 15, Census Study 1970-2006), or at a more modest rate of 50%, 1,958,575.

Locating reactors away from densely populated centers is part of the NRC's defense-in-depth philosophy and facilitates emergency planning and

preparedness as well as reducing potential doses and property damage in the event of a severe accident. 10 CFR Part 100,

An "exclusion area" surrounding the reactor in which the reactor licensee has the authority to determine all activities, including exclusion or removal of personnel and property, and a "low population zone" (LPZ), which immediately surrounds the exclusion area. Indian Point not longer can maintain these important criterion.

The nearest distance to the boundary of a densely populated center containing more than about 25,000 residents must be at least one and one-third times the distance from the reactor to the outer boundary of the LPZ.
In 2006 the immediately surrounding area had substantially more than 25, 000 residents, in fact the communities directly adjacent to Indian Point had 84,848 residents: Peekskill 24,601, Buchanan 2, 269,. Croton-on-Hudson 7,899, Stony Point 14,975 and Haverstraw 35,104. Public health and safety cannot be grandfathered in, therefore population increases is new information which raises this issue to Category 2 issue of LARGE concern, as it directly affects the ability to evacuate the areas and protect public health and safety, and must be included in the EIS.

Reactor sites should be located away from very densely populated centers. Areas of low population density are, generally, preferred. However, in determining the acceptability of a particular site located away from a very densely populated center but not in an area of low density, consideration will be given to safety, environmental, economic, or other factors, which may result in the site being found acceptable.

This is new information and must be considered as a site specific category 2 issue in the EIS. This dramatic increase in population and population density has LARGE and significant impacts with regard to public health and safety. Public health and safety cannot be grandfathered in, especially in light of such substantial changes in population. Therefore a full comprehensive study of population and population increases in the surrounding counties, Westchester, Rockland, Orange and Putnam must be included in the EIS.

17. **Accidents involving the breakdown of certain in-scope parts, components and systems:** Accidents involving the breakdown of certain in-scope parts, components and systems present greatly increased risks of and off site migration of radiological contaminants. Accident scenarios, and their

associated significant Environmental Costs, include but are not limited to, the following parts, components and systems at the Indian Point Facility,

a) Boric acid corrosion (BAC) represents a significant aging management issue affecting primary systems at Indian Point that could lead to release of radioactive contaminants into the environment. Indian Points Aging Management plan for this important issue fails to adequately address, as one example, valve packing and valve body-to-bonnet gaskets. The fact that IP2 and IP3 are already working on the engineering difficulties involved in a complicated and dangerous reactor vessel head replacement is a significant issue, that can result in an accidental release of radioactivity into the environment from reactor vessel head failure. Therefore the significant Environmental Costs of such accident pathways must be included in the EIS.

b) The reactor vessel internals bolting at Indian Point is susceptible to age-related degradation which could lead to a off site release of radioactive contaminants. The LRA and UFSAR documents fail to lay out an adequate aging management plan for inspection and replacement when necessary of reactor vessel internal baffle bolts. This creates and accident pathway which could lead to off site release of radioactive

contaminants, with the resultant environmental risks , and therefore associated Environmental Costs of such accident pathways must be included in the EIS.

c) There are serious environmental and safety concerns related to Indian Points inadequate Aging Management Plans for the Fuel Rod Control System, that include dropped rod events, unplanned plant trips, complete equipment failure, shut-downs, and highly dangerous at-power-maintenance attempts. Such equipment failure creates significant off site release scenarios to the environment, and public safety issues, therefore the associated Environmental Costs of such accident pathways must be included in the EIS.

d) Severe Duty Valve failure, further complicated with sourcing issues for many approved valves are no longer available, create serious potential risks to Indian Points ability to accomplish and maintain a safe shutdown of the facility. These valves include, but are not limited to, Feedpump recirculation control valves, Feedwater regulating valves, Atmospheric dump valves, Condenser dump valves, Feedpump discharge check valves, feedpump discharge check valves and

Pressurizer spray valves. Failure of these valves, or inability to find and obtain approved replacement valves directly impacts safety and reliability of the plant during the 20 years of the new superseding license period, and therefore the associated Environmental Costs of such accident pathways must be included in the EIS.

e) The reactor water coolant environment can have dramatic negative effects and increase the fatigue on important pressure water components, and greatly increase pipe leakage which in turn can lead to significant pipe burst events, or core damage events. The associated Environmental Costs of such pipe leaks, bursts and core damage accidents must be included in the EIS.

f) Cable degradation, especially in underground wet circuits is a pathway to massive circuit failures that lead to loss of employees ability to safely shut down reactor. Further, these wet circuits, and generally known fatigue issues surrounding medium voltage Ethylene Propyiene Rubber Cables could create a serious electrical fire as the cables can reach a point of electrical breakdown. The NRC has raised concerns on this very issue, and the associated significant Environmental Costs of such accident pathways must be included in the EIS.

g) The potential accident pathways and associated significant Environmental Costs associated with Indian Point reactor vessel internals having been, and continuing to be exposed to neutron irradiation which in turn causes a severe reduction in the fracture toughness and ductility of the PWR internals, must be included in the EIS.

h) Entergy alleges there are no refurbishment issues to be considered in the EIS Scoping process. However, there is a far greater than 50 percent chance that IP2 and IP3 are facing the necessity of replacing feedwater heaters. Lack of industry expertise, fewer vendors and manufacturers, coupled with material changes, are serious issues that negatively impinge on the licensee's ability to maintain safe operation of the reactors, therefore, the associated significant Environmental Costs of such accident pathways must be included in the EIS.

i) Primary Water Stress Corrosion Cracking (PWSCC) which appear in heat affected zones of the stub runner/divider plate weld, though not mentioned in Entergy's LRA Appendix E, will result in significant

Environmental Costs and therefore all associated Environmental Costs must be included in the EIS.

j) Shell and heat exchanger replacement was not mentioned by Entergy's LRA Appendix E, however such shell and heat exchanger replacement will inevitably occur during the 20 year new superseding license, therefore the associated significant Environmental Costs of such accident pathways must be included in the EIS.

k) Entergy's LRA fails to adequately address the issue of PWSCC (Primary Water Stress Corrosion Cracking) of Alloy 600 and its weld metals. This serious issue impinges on both upper and lower reactor pressure vessel head penetrations. Additionally, this issue potentially manifests itself in reactor coolant system piping, lower head pressurizer penetrations and other components at Indian Point. Ongoing weld failures, coupled with a serious shortfall in technology keeping up with site degradation, weld failures and fatigue make this a potentially significant pathway for environmental contaminations and or accident

pathways, therefore the associated significant Environmental Costs of such accident pathways must be included in the EIS.

l) Fatigue of metal components, void swelling of reactor internals as well as serious issues regarding Entergy's inability to visually examine certain difficult, if not impossible, to reach components and containments creates pathways resulting in significant release accidents, and therefore all associated Environmental Costs that must be included in the EIS Scoping process.

m) Appendix E of Entergy's LRA fails to address any accident analysis for events that are beyond the current design basis for IP2 and IP3. Further, no plant specific analysis have been conducted for these types of events, therefore the significant Environmental Impacts and Costs of such accident pathways must be included in the EIS.

n) Entergy's LRA Environmental Supplement fails to address the obsolescence concerns as relates to digital upgrade of the rod control logic and power cabinets at Indian Point which will result in significant Environmental Costs of such accident pathways, and therefore all

associated Environmental Impacts and Costs must be included in the EIS.

o)) Entergy's LRA Environmental Supplement fails to address the risks associated with lo-temperature flow-accelerated corrosion (FAC), including unanticipated emergency shutdowns, which would result in significant Environmental Impacts and Costs of such accident pathways, therefore all associated Environmental Costs must be included in the EIS.

p)) Entergy's LRA Environmental Supplement fails to address the known industry wide problem of securing and having on hand contingency spare parts. availability or lack thereof, in an emergency event, which would result in significant Environmental Impacts and Costs of such accident pathways, and therefore all associated Environmental Costs must be included in the EIS.

q)) Entergy's LRA Environmental Supplement to the GEIS, fails to address the shortage of seasoned engineers with the knowledge pool to maintain the aging Indian Point Reactors. This severe intellectual shortage becomes crucial in numerous cases, such as where reverse

engineering would be necessary to build replacement parts which are no longer available on the open market. Even if said reverse engineering is possible, the replacement part would no longer be a like-for-like replacement, resulting in significant Environmental Impacts and Costs of such accident pathways , and therefore all associated Environmental Costs must be included in the EIS.

r)) Entergy's LRA Environmental Supplement Appendix E fails to adequately address known premature failure of containment coatings, resulting in significant Environmental Impacts and Costs of such accident pathways, and therefore all associated Environmental Costs must be included in the EIS.

s)) Entergy's LRA Environmental Supplement fails to address the industry wide, and site specific problem of ever increasing obsolescence issues with original equipment installed for Indian Point's instrumentation, control and safety system applications, the associated significant Environmental Impacts Costs of such accident pathways must be included in the EIS.

t) Reactor Pressure Vessel is the critical component for plant life management, due to the unacceptable consequences of its failure and due to the difficulty of its replacement. The RPV is subjected to neutron irradiation in the core region, which results in irradiation-induced embrittlement that may lead to a shift of the ductile-to-brittle transition temperature. Entergy fails to adequately address this issue in their LRA, their UFSAR, and in Appendix E EIS supplemental report. Further, both industry and NRC have admitted to a severe lack of knowledge in this area, therefore all associated significant Environmental Costs and Impacts of such accident pathways must be included in the EIS.

u) Cables are CRITICAL for safe plant operation and shut down at Indian Point, however, Entergy's fails to present an adequate aging management program for this critical component for safe plant operation, and shut down. Degradation of these cables lead to catastrophic accidents caused by

i) electric fire destroying major plant components and infrastructure including, but not limited to, key safety components necessary for safe shut down, that in turn lead to

core meltdown. Therefore, all associated Environmental Costs and Impacts of such accident pathways must be included in the EIS.

v) CREEP FATIGUE AND FRACTURE??? Why this isn't adequately mentioned in the Environmental Reports…the potential accident pathways are enormous, the potential environmental impacts gargantuan in scope.

18.Emergency Plans: The purpose of the EIS as originally spelled out in the NEPA laws, is that the Scoping process should be used to ascertain ALL potential environmental costs of a particular federal action. The Environmental Costs associated with the issuance of a new 20 year superseding license by the NRC with regard to a potential significant radiological event with the current emergency plan that has been deemed inadequate, to provide reasonable assurance of public health and safety, by the local and state authorities for the past five years, must be considered in the EIS, The NRC acknowledges this in the followingfolllowing statement:

For operating power reactors, 10 CFR 50.54(s)(2)(ii) requires that "If ... the NRC finds that the state of emergency preparedness does not provide reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency ... the Commission will determine whether the reactor shall be shut down until such deficiencies are remedied or whether other enforcement action is appropriate."

adequate Emergency Plan is a requirement and an important part of the issuance of a new nuclear plant operating license.

> In § 50.47, "Emergency Plans," of 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," paragraph (a)(1) states that no initial operating license for a nuclear power reactor will be issued unless a finding is made by the NRC that there is reasonable assurance that adequate protective measures can and will be taken in the event of a radiological emergency.

To be clear, FUSE, is not requesting that the entire adequacy of the evacuation plan be placed within scope of the EIS,, however FUSE asserts that any and all resulting Environmental impacts and costs of such accident pathway caused by failure of the Emergency Plans must be included in the EIS.

> A comprehensive evaluation of any and all the environmental costs and impacts in the event Indian Point's Emergency Plan fail during a radiological release, and therefore must be included in the EIS.

FUSE asserts that all costs of a failed Emergency Plan do rightfully belong in the EIS Scoping process, with a full complete record of those potential costs as set forth in various scientific studies including, but not limited to, the Witt Report, included in the Final Environmental Impact Statement to be issued as a contributing document to the LRA.

The NRC acknowledged that risk associated with shutdown and refueling (however remote) can occur:

> In January 1992, the Nuclear Utilities Management and Resource Council (NUMARC) issued Revision 2 of NUMARC/NESP-007, "Methodology for Development for Emergency Action Levels,"[2] which contained guidance on EAL development that accounted for lessons learned from ten years of using the NUREG-0654 guidance. The NRC stated in Revision 3 of Regulatory Guide 1.101 (August

1992), that Revision 2 of NUMARC/NESP-007 was considered to be an acceptable alternative to the guidance provided in NUREG-0654 for development of EALs to comply with 10 CFR 50.47 and Appendix E to 10 CFR Part 50. In addition, the NRC stated in Revision 3 of Regulatory Guide 1.101 that there is a likelihood that the results of ongoing risk studies related to shutdown may necessitate revision of both the NRC EAL guidance (NUREG-0654) and the NUMARC EAL guidance (NUMARC/NESP-007). Appendix E to 10 CFR Part 50 specifies that EALs are to be used as criteria for determining the need for taking emergency response actions (e.g., notification of emergency response organizations). The need for emergency response actions depends on the degree of degradation of plant safety during an event. **The shutdown risk studies have demonstrated that events warranting emergency classification and response (although very unlikely) can occur in the shutdown and refueling mode of plant operation.**

The above passages from, "**Regulatory Guide 1.101 - Emergency Planning and Preparedness for Nuclear Power Reactors".** Here the NRC admits there are events that can occur that would require implementation of the Emergency Plan.

Since said plan can/could be implemented, then there is also the possibility of failure of the plan to perform adequately in the intended activation scenario. The environmental costs of said Emergency Plan's failure, without specifically discussing the adequacy of the plan itself must be addressed in the EIS.

Reactor core components are designed and built to function, built in a fashion meant to avoid core damage and/or meltdown, yet due to the possibility of failure the reactor core components are nonetheless, included within the scope of the EIS.

Therefore, applying the same standards the Emergency Plan is designed to adequately protect public health and safety, yet due to the possibility of failure of the Emergency plan it must be included within the scope of the EIS.

> If, and when, the necessity comes where the Emergency Plan has to be implemented, we are talking a very serious life and death situation, therefore, the potential Environmental Costs and Impacts of such failure must be transparently evaluated and considered in the EIS,

(FUSE reserves all rights to raise the underlying adequacy of the Indian Point's Emergency Plan).

19. Sirens:

The NRC continuous saga of the failing siren system should have already have kicked in 10 CFR 50.54 Cl (s) (2) (ii) at Indian Point.

The Environmental Impacts of failure in the Emergency Siren system must be included in the EIS, Additionally the FAA's plan to greatly increase air traffic in the area, the decibel requirements must be addressed for the sirens to adequately perform the function they were designed to perform,.

Any and all associated Environmental impacts and cost regarding failure of the Emergency Siren systems to properly perform must be included within the EIS.

20. Thermal Shock:

Thermal Shock. Old reactors well past their anticipated age of expected retirement are embrittled due to various factors, key among them is constant radiological bombardment. Any rapid significant change in temperature, such as a sudden flooding of the reactor core can cause said core to literally crack, or worse break apart. Thermal shock is a key accident pathway that would result in the potential for significant off site release of radiological contaminants into the air, water and ground that must be investigated, resulting in significant Environmental costs and impact, and therefore a comprehensive study of such Environnmental costs and impacts must be inlucded in the EIS. Further, NRC's

proposed rule change that would lower the Safety Margins for Thermal Shock must also be evaluated in the SEIS Scoping process.

21. Global Warming: Weather related accidents, such as floods, tornados, hurricanes can cause various accidents which impact, compromise and prevent reactors ability to conduct and maintain safe shutdown. In light of Global Warming which will significantly change weather patterns throughout the world rising river waters and warming rivers which may not be adequate to cool the "hot" components and fuel during the 20 year new superceding license period. Attached is a map of the Hudson River in 2050, whereby Indian Point is partially or wholly under water.

Weather related accidents, such as floods, tornados, hurricanes can cause various accidents which impact, compromise and prevent a reactor's ability to conduct and maintain safe shutdown. In light of Global Warming which will significantly change weather patterns throughout the world rising river waters and warming rivers which may not be adequate to cool the "hot" components and fuel during the 20 year new superceding license period. Attached is a map of the Hudson River in 2050, whereby Indian Point is partially or wholly under water.

> These are key accident pathways that would result in the potential for significant off site release of radiological contaminants into the air, water and ground that must be investigated.

On August 23, 2007 the Union of Concerned Scientists wrote,. "As global warming pushes temperatures upward, scientists project increased heat waves and drought in the United States, Europe and elsewhere. Such conditions spell

trouble for nuclear power plants. The water they rely on from lakes and rivers to cool reactors during the summer are either drying up or too warm to use.

On August 16, the Tennessee Valley Authority (TVA) had to shut down one of the three units at its Browns Ferry nuclear power plant because the Tennessee River water it uses to cool the reactor was too hot, exceeding a 90-degree average over 24 hours. The two other reactors at the plant had to be run at reduced capacity. The same day, demand for TVA power set a record, presumably due in large part to the increased use of air conditioning. The average high temperature for five of the largest cities in TVA's service area, including Memphis and Nashville, was 105 degrees. There were similar incidents in the summer of 2006. In August, for example, Exelon had to cut power at its Quad Cities, Illinois, nuclear power plant after a heat wave warmed the Mississippi River. Other plants in Illinois and some in Minnesota had to cut power due to drought.

An extended heat wave last summer in Europe also intensified drought conditions, lowering water levels in the lakes and rivers that nuclear plants rely on for their water supply. French, Spanish and German utility companies had to shut down some of their plants and reduce power at others. Several Western European governments exempted nuclear plants from regulations against discharging

overheated water into waterways. The situation in Europe was even worse during the summer of 2003. An unprecedented heat wave forced France to shut down a quarter of its 58 nuclear power plants. The use of our fresh water supplies is one of the biggest issues of our time, and the costs of using it to heat water in a nuclear reactor, verse using it for other purposes, and to help cool the planet must be evaluated in the EIS Scoping Process.

"Nuclear plants as they're designed now will produce less power in a warming world," said Dave Lochbaum, the Union of Concerned Scientists' nuclear safety project director. "The industry can't use global warming as a justification for building more plants without papering over the fact that they don't do well in extremely hot weather."

Nuclear power plants split atoms to produce heat to boil water, Lochbaum explained. The resulting steam spins turbines that produce electricity. After the steam exits the turbine, a large amount of water drawn from a nearby lake or river is used to cool it down so it can be recycled to make steam again. The plants discharge the water (2.4 Billions gallons a day at Indian Point) from the lake or river back into the same water body, but the process warms it as much as 30 degrees higher than it was originally. Hotter weather disrupts this cycle. When river or lake water temperatures rise from 70 degrees to 90 degrees, for example,

a nuclear power plant's electrical output is reduced nearly 5 percent. Higher water temperatures can impair the ability to cool down the steam to a point where a reactor must be shut down.

Meanwhile, electricity demand spikes when temperatures rise, putting more strain on the grid. Safety equipment also can be compromised when temperatures go up. A reactor at the Donald C. Cook nuclear plant in Michigan, for example, was forced to shut down in July 2006 because of temperature-related safety concerns. "If average global temperatures continue to rise, as climate scientists predict, the nuclear industry will literally be in hot water," Lochbaum said. "It really makes no sense to spend billions of federal dollars to build new nuclear power plants until we solve the climate crisis. That means we should be betting on conservation, energy efficiency, and solar and wind power, none of which rely on water." Further, at the very time when Entergy claims we need their base load (hot summer days) is the very time when said reactors are being forced to cut power or shut down. The Environmental impacts of this unreliability must be investigated in the SEIS Scoping Process.

August 23, 2007 Union of Concerned Scientists Backgrounder Rising Temperatures Undermine Nuclear Power's Promise

This issue has large significance and must comprehensively considered in the EIS.

These are key accident pathways that would result in the potential for significant off site release of radiological contaminants into the air, water and ground that must be investigated.

22. Transporation: Transportation accident involving radiological materials coming into or leaving the Indian Point facility. (This scenario should also include radiological materials leaving Indian Point in any unplanned fashion, which has already occurred at the plant facility.) Unregulated transportation of radioactive materials is a key accident pathway that would result in the potential for significant off site release of radiological contaminants into the air, water and ground, resulting in significant Environmental costs and impact, and therefore a comprehensive study of such Environnmental costs and impacts must be inlucded in the EIS.

23. Large releases of radioactive particulates and or contaminants into the air or water: Large releases of radioactive particulates and or contaminants into the air or water, which also has occurred previously at the Indian Point site. In the past there has been more than one incident at Indian Point in which such releases have occurred, including but not limited to the current leaks, the steam generator spill in 2000 of radioactive waste. Large releases of radioactive particulates are a key accident pathway that results in significant off site release of radiological contaminants into the air, water and ground that must be investigated, and thereby resutling in associated significant Environmental costs and impact, that must be inlucded in the EIS.

24. Missile projectile damage to reactor coolant and steam piping systems; Missile projectile damage to reactor coolant and steam piping systems is a key accident pathway that results in significant off site release of radiological contaminants into the air, water and ground that must be investigated, and thereby associated significant Environmental costs and impacts must be inlucded in the EIS.

25. Internal reactor chemistry corrosion induced incidents. Internal reactor chemistry corrosion induced incidents are key accident pathways that results in significant off site release of radiological contaminants into the air, water and ground that must be investigated, and thereby associated significant Environmental costs and impacts must be inlucded in the EIS.

26. Pipe bursts from fatigue, corrosion, and other aging related failure scenarios. Pipe bursts from fatigue, corrosion, and other aging related failure scenarios are key accident pathways that results in significant off site release of radiological contaminants into the air, water and ground that must be investigated, and thereby associated significant Environmental costs and impacts must be inlucded in the EIS.

27. Pipe burst and leaks caused by plugs, and vibration redistribution. Pipe burst and leaks caused by plugs, and vibration redistribution are key accident pathways that results in significant off site release of radiological contaminants into the air, water and ground that must be investigated, and thereby associated significant Environmental costs and impacts must be inlucded in the EIS.

DECOMMISSIONING

The **GEIS** has taken the position that the environmental impact of on-site spent fuel storage at generic reactor sites does not require any further environmental analysis because it is has already been generically determined that such impacts will be SMALL. However, that position can no longer be sustained because, as per well-established law, there is new and significant information suggesting that the basis for the original GEIS conclusion is no longer valid, and specifically related to Indian Point, that conclusion is invalid because of known serious structural issues (known leaks), which greatly change and impact the costs of decommissioning, yet

such new information regarding additional costs has not be incorporated into the GEIS.

As example, Entergy's ER (Appendix E), nor the **GEIS** does not address, much less provide a reasoned analysis, of the new and significant information (leaks) and its impact on the original GEIS findings with regard to the Decommissioning trust funds.

The GEIS evaluates the impacts associated with onsite land use as Category 1, SMALL. The basis for this assessment is the assumption that the land used for storage of nuclear wastes at the generic reactor site will not exceed 30 years after the end of the license term and based on a zero leak assumption. That flawed assumption, based on the facts that the plant is already leaking unmonitored radioactive effluent into the bedrock, groundwater and Hudson River and in turn, relies upon the misdirected assumption the decommissioning of Indian Point will be generic decommissioning, however the leaks into the bedrock will dramatically increase Decommissioning costs at this site, thereby causing the impacts to be LARGE and therefore Decommissioning must be a Category 2, site specific issue based on new information, in the EIS.

Entergy's decommissioning trust fund balances are inadequate and insufficient to properly decommission the site, as required by 10CFR 54.3 to properly restore the site including, but not limited to, removal of underground radioactive contamination in the bedrock under the plant. Per NRC Section PART 50 Sec. 50.75: Reporting and recordkeeping for decommissioning plan Indian Point's decommissioning funds are inadequate to clean up the bedrock site from the ongoing underground leaks. The costs for complete decommissioning and cleanup of the site must be adjusted to reflect significant changes in the contamination streams including the large underground radioactive leaks. The EIS must include a comprehensive evaluation of actual decommissioning funds required to decontaminate the site in light of ongoing massive underground radioactive effluent and leaks. In addition such funds must be placed into the decommissioning fund to protect the public health and safety, as well as the environment prior to acceptance of Entergy's LRA.

The Indian Point 2 decommissioning fund has not been adjusted to take into consideration the enormous, underground radioactive contamination accidentally discovered in 2005. The current decommissioning plan for aging management of the plant is inadequate to clean up the bedrock site and is not addressed in the Applicant's LRA, and must be adjusted to reflect the large underground radioactive leaks, as required by: Section PART 50 Sec. 50.75 (2) (e)(1)(v); any

modifications occurring to a licensee's current method of providing financial assurance since the last submitted report; and any material changes to trust agreements.... or where conditions have changed such as: (iii) The current situation with regard to disposal of high-level and low-level radioactive waste; (iv) Residual radioactivity criteria; (v) Other site-specific factors which could affect decommissioning planning and cost; (1) Records of spills or other unusual occurrences involving the spread of contamination in and around the facility, equipment, or site. These records may be limited to instances when significant contamination remains after any cleanup procedures or when there is reasonable likelihood that contaminants may have spread to inaccessible areas as in the case of possible seepage into porous materials such as concrete. These records must include any known information on identification of involved nuclides, quantities, forms, and concentrations., or certification is used.

It has been acknowledged by the NRC that numerous systems, structures and components can experience undetected radioactive leaks over a prolonged period of time and that ―relatively large volumes of contamination above the decommissioning release limits‖ can result in ―notable increases in remediation time and costs‖ in the sums of hundreds of millions of present value dollars. NRC's Liquid Radiation Release Lessons Learned Task Force Final Report, ML062650312 2006-09-013.4.3 The past and present leaks at Indian Point 2

provide indicia of continued and future leaks. In 2006 Don Mayer, Director of Special Projects for Entergy said that "The underground area of the Indian Point site has contaminated water that is 50 to 60 feet deep, ...and there is also another area, or underground plume, that is about 30 feet wide by 350 feet long."

In the Matter of Power Authority Of The State Of New York And Entergy Nuclear Fitzpatrick LLC, Entergy Nuclear Indian Point 3 LLC, And Entergy Nuclear Operations, Inc. (James A. FitzPatrick Nuclear Power Plant and Indian Point Nuclear Generating Unit No. 3) Docket Nos. 50-333-LT and 50-286-LT regarding the license transfer to Entergy, the Nuclear Regulatory Commission held that decommissioning shortfall ―did not fall within the scope of this license transfer proceeding, as Entergy Indian Point was not seeking in its application to renew or extend the Indian Point 3 operating license, nor does its pending application assume such a request.

The Commission further states, ―that regarding decommissioning Stakeholders have the right to seek intervenor status in any application for license renewal or license extension that Entergy Indian Point may file Therefore, based on the Commission‘s own decision, the issue of whether there are adequate decommissioning funds is within scope of the licensing renewal proceedings, specifically included in the EIS.

Additionally, Energy's violation of the terms of the SAFESTOR for Indian Point 1, must be comprehensively evaluated in the EIS, as it is a Category 2 issue, due to the new information regarding the leaks of strontium 90 and cesium 137 from Indian Point 1 which have LARGE significant impacts to the environment and costs of decommissioning. This further should be included, as the decommissioning of IP1 LLC is incestuously tied to the shut down and decommissioning of IP2 LLC.

The method of cost analysis of adequate decommissioning funds must be clearly stated. Entergy's application and Environmental Supplement E does not outline an adequate decommissioning and clean up plan for the large amounts of underground radioactive waste, for which the source has not yet been identified, and therefore the extent of the contamination remains unknown.

Entergy initiated actions to pump out the Unit 1 Containment Spray Sump through a filter/demineralizer system, designed to remove Strontium 90, and investigate the source and means of the Strontium 90 groundwater contamination.

When Entergy began removing the underground leaks by pumping the radioactive contamination out of the ground, it caused more radioactive material to be released. Therefore, the NRC ordered Entergy to discontinue removal of the radioactive effluent from ground, and to monitor it while the issue was further investigated.

The NRC has ordered that the contaminated materials remain under the plant in the bedrock, until some date uncertain when Applicant figures out a method to find, stop and remediate the Radiation Leaks. Until that time radioactivity will continue to leach into the groundwater and the Hudson River. At a recent annual assessment NRC meeting in Croton, NY, NRC officials stated that since they can‘t dig the radioactive contamination out, and can‘t blast it out, therefore they will have to chisel out the tritium, cesium and strontium from the bedrock. If such remediation work is required to bring the reactor site into compliance with NRC guidelines and PART 50.7 it will require additional protective actions during the remediation work to keep radioactive contaminants from migrating off site, and exposing both humans, workers and the public, as well as the environment, to unnecessary additional exposure risks and pathways.

In the NRC‘s Liquid Radiation Release Lessons Learned Task Force Final Report, ML062650312 2006-09-013.4.3, it was concluded and recommended

that, in some cases, such as Indian Point, the relatively large volumes of contamination above the decommissioning release limits resulted in notable increases in remediation time and costs. The NRC staff estimates the increased cost to be in the tens of millions of dollars, although specific actual cost data is not available to the staff.

The decommissioning reports for Indian Point 2 from 2002 to 2006 indicate that the Urban Inflation rate has been 2.9% per year, yet the adjustment of the decommissioning funds for IP2 has only been 1% per year. However, the decommissioning reports falsely state the escalation rate is 3.0%. The decommissioning funds for Indian Point have a substantial shortfall, as they are not even keeping up with the rate of inflation, as evidenced in the March 29, 2005 Report BVY-05-033/NL-05-039/JNP-05-005/Entergy Nuclear Operations Ltr.2.05.023 and the March 29, 2007 Report Entergy Nuclear Operations C-07-00007.

The newly proposed onsite storage of an additional 20 years of waste, either in the spent fuel pools or in dry cask storage, increases the risk to human health and safety far beyond the original Design Basis for this site. Additionally, the NRC has been discussing plans to store both LLRW and HLRW on site at reactor facilities for a period in excess of 100 years, while failing to provide the public

with the protection standards and additional decommissioning funds, that are required for a long term LLRW or HLRW storage facility is they had been cited at the facility.

The lack of protection and additional decommissioning costs associated with forced onsite storage of radioactive waste streams must be addressed in the license renewal process. Spent fuel pools are not designed to meet the basic minimum requirements for structural stability and integrity, as is outlined in the citing criteria for new reactors in place at the time the NRC granted the original license, and it thus becomes imperative that the structural degradation indicated by the leaks of both Spent Fuel Pools 1 and 2 be addressed and remediated before the license renewal application is allowed to move forward.

Moreover, the dry cask storage facility at Indian Point presents an additional hazards, decommissioning costs, and risk to New York (and other Northeastern states) that will very possibly continue for centuries. The costs of assuming these burdens cannot be placed on the taxpayers, but should be assumed by the Applicant which profits from the operation. These additional costs must be added to the decommissioning fund. Even the Nuclear Energy Institute (NEI) recommends that although NRC regulations do not require the inclusion of used-fuel storage costs in decommissioning funds, companies should include such

costs in their estimates, because no federal repository or interim storage facility is available.

Properly adjusted amounts the decommissioning trust funds are substantially new information, which must be considered a Category 2 issues that are not covered in the GEIS, and which have significantly LARGE impacts to the environment and public health and safety and therefore must be included in the EIS.

28, BARNWELL

The GEIS not address disposal of low-level radioactive waste on site, thereby turning Indian Point into a low level waste disposal site, since it has been recently announced that Barnwell, the only radioactive waste disposal site in the US that is operating and accessible "low-level" radioactive waste, is closing in 2008, and will not accept low-level radioactive waste from Indian Point. This new information clearly places "low-level" waste disposal into a Category 2 issue which has LARGE impact on the environmental, as well as, public health and safety.

The only radioactive waste disposal site in the United States that is currently operating and accessible for all classes A, B, and C (and greater than c

on a case-by-case basis) of "low-level" radioactive waste generated by all nuclear power plants is the EnergySolutions-operated site at Barnwell South Carolina will be closed for use by states other than New Jersey, Conneticut and South Carolina after June 2008.

Some less concentrated of the so-called "low-level" radioactive waste (Class A) could still go to the Class A-only waste site that EnergySolutions owns and runs in Clive, Utah, but Classes B and C will not have a place to go after June 2008. Currently the Department of Energy (DOE) is doing an EIS on the disposal of greater than Class C waste.

The low level waste site at Indian Point is relatively small and the main purpose of the site is for interim waste storage. Due to the closure of Barnwell, Indian Point 2 must start storing low-level waste on the site.

In a letter from the NRC to all licenses dated August 1, 1985 U.S. Nuclear Regulatory Commission Commercial Storage at Power Plant Sites of Radwaste Not Generated by the Utility HPPOS-092 PDR-9111210185, W.J. Dircks states that:

> *NRC is opposed to any activity at a reactor site that is not supportive of authorized activities. Interim storage of low-level radioactive waste matter of policy, NRC is opposed to any activity at a nuclear reactor site which may divert attention of licensee management from its primary task of safe operation or construction of the power reactor.*
>
> *The operator must demonstrate that the increased use of the low level waste facility do not involve a safety or environmental question, and that safe operation of the reactor will not be affected.*

The licensee must consider:

1. Direct impacts of commercial storage activities on reactor operations during normal and accident conditions.

2. Diversion of utility management and personnel attention from safe reactor operation.

3. Combined effects of onsite and offsite dose during normal and accident conditions.

4. Influence on effectiveness of both reactor emergency plans and reactor security plans.

5. Financial liability provisions, including impact on indemnity coverage.

6. Environmental impact of the storage facility, including potential interaction with the generating station.

In addition the following issues must be considered:

1. Safety of the commercial storage operation.

2. Environmental impact of the storage operation in sufficient detail for NRC to establish the need for an Environmental Impact Statement.

3. Financial assurance to provide for commercial storage operation and decommissioning including any necessary repackaging, transportation and disposal of the waste.

Barnwell, the only radioactive waste disposal site in the US that is operating and currently accessible for Indian Point's "low-level" radioactive waste, is closing in 2008. Thereby, changing how low-level radioactive waste from Indian Point will be disposed. Thus far the only plan is to increase "low-

level" radioactive waste storage on site without ADEQUATE protections of human health and the environment.

The capacity of Indian Point as a "low-level" waste storage facility must be comprehensively studied in the EIS. The NRC has not provided requested information regarding the capacity of "low-level" radioactive waste storage on site, so we respectfully reserve the right to amend this entire EIS Scoping document as FOIAed information is made available to FUSE USA.

Further, if Entergy is proposing to use the Indian Point site for a new "low-level" waste storage facility for disposal of Class B and C radioactive waste, then a fully independent application and review of such a change must be commenced, for public and regulatory comment and consideration.

Specifically, with regard to the known radioactive leaks and planned refurbishment of the reactor vessel heads, the EIS must included a comprehensive review of the disposal plan of the old, highly irradiated and contaminated reactor vessel heads, once again this new information, which Entergy has failed to include in Environmental Supplement E, must be included as a Category 2 issue of MAJOR impact and costs to the Environment.

27. Spent Fuel Pools/Dry Cask Storage at Indian Point-NEPA imposes on every federal agency certain obligations to gather and analyze information in order to determine the environmental impacts of any proposed major federal. action. *42 U.S.C. § 4332(2)(C).* In the site specific case of Indian Point, that environmental analysis, with respect to the non-radiological impacts of on-site spent fuel storage as undertaken in the GEIS fails to adequate address A) site specific issues not dealt with adequately in the GEIS, and B) new information, specifically the attacks on the World Trade Centers, and the elevated risk of attack that exists for Indian Point. The issue for consideration when a specific plant is seeking a specific license extension is whether a supplemental impact statement is required. The NRC has determined, by rule, that supplementation is required when a specific application is being considered but has limited the scope of that review to certain issues that involve more than what it characterizes in the GETS as small environmental impacts.

Known serious leak issues involving the spent fuel pools for IP1 LLC, IP2 LLC, and IP3 LLC fall outside the normal scope of the GEIS. Further, the events of 9/11 have created dramatic new sources of information that must be reviewed within the scope of the Supplemental EIS Scoping process.

The **GEIS** has taken the position that the environmental impact of on-site spent fuel storage at generic reactor sites does not require any further environmental analysis because it is has already been generically determined that such impacts will be small. However, that position can no longer be sustained generally because, as per well-established law, there is new and significant information suggesting that the basis for the original GEIS conclusion is no longer valid, and specifically related to Indian Point, that conclusion is invalid because of known serious structural issues (known leaks), and the changing scenarios as relates to risk created in the aftermath of September 11, 2001.

As example, Entergy's ER (Appendix E), nor the **GEIS** does not address, much less provide a reasoned analysis, of the new and significant information (leaks and terrorist threats) and its impact on the original GEIS findings.

In Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 109 S.Ct. 1851 (1989) the Court concluded: NEPA does require that

agencies take a "hard look" at the environmental effects,of their planned action, even after a proposal has received initial approval...Application of the "rule of reason" thus turns on the value of the new information to the still pending decision making process.

Id. 490 U.S. at 374, 109 S.Ct. at 1859. That same year the Court emphasized the importance of a full discussion of the potential environmental impacts as a vital prerequisite to a proper analysis of steps that could be taken to mitigate those impacts and alternative actions:

Implicit in NEPA's demand that an agency prepare a detailed statement on "any adverse environmental effects which cannot be avoided should the proposal be implemented," *42 U.S.C. § 4332(C)(ii)*, is an understanding that the **EIS** will discuss the extent to which adverse effects can be avoided.... More generally, omission of a reasonably complete discussion of possible mitigation measures would undermine the "action-forcing" function of NEPA.

Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity, of the adverse effects. An adverse effect that can be fully remedied by, for example, an inconsequential public expenditure is certainly not as serious as a similar effect that can only be modestly ameliorated through the commitment of vast public and private resources. Recognizing the importance of such a discussion in guaranteeing that the agency has taken a "hard look" at the environmental consequences of proposed federal action, CEQ regulations require that the agency discuss possible mitigation measures in defining the scope of the EIS, *40 CFR § 1508.25(b) (1987)*, in discussing alternatives to the proposed action, *§ 1502.14(t)*, and consequences of that action, *§ 1502.16(h)*, and in explaining its ultimate decision, *§ 1505.2C. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351-52, 109 S.Ct. 1835, 1846-47 (1 989)(citation omitted).*

By submitting its comments at an early stage in the process and not waiting for publication of the Draft EIS, FUSE USA is fulfilling our duty to alert the agency (NRC) at an early date to relevant information that may impact on the decision making process. This long-standing duty and its value in creating an iterative process was recently reconfirmed by the Supreme Court:

> Persons challenging an agency's compliance with NEPA must "structure their participation so that it ... alerts the agency to the [parties'] position and contentions," in order to allow the agency to give the issue meaningful consideration. Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519, 553, 98 S.Ct. 1197, 55 L.Ed.2d 460 (1978).

If a Stakeholder in oral or written statements provides new, site-specific information which demonstrates that the analysis of an impact codified in the rule is incorrect with respect to the particular plant, the NRC staff should seek Commission approval to waive the application of the rule with respect to that analysis in that specific renewal proceeding. The supplemental' EIS would reflect the revised site specific analysis as appropriate.

Such a waiver of the application of the rule with respect to IP2 LLC and IP3 LLC's application and the EIS Scoping process for the LRA is appropriate and warranted. Various and assorted leaks of unknown location and amount are widely known to exist at Indian Point, with specific leak locations attributed to the spent fuel pools of IP1, IP2 and IP3.

Further, a recently discovered leak at IP2 is directly tied to the fuel transfer tube attached to the spent fuel pool for IP2. These examples of new information on their own are substantial enough to fulfill the requirements necessary for NRC staff to seek a waiver of the rules application in this site specific Supplemental ER. See statement of Considerations upon issuance of amendments to Part 51 addressing rules to apply in proceedings involving applications for license renewal *(61 FR 28467, 28470 (1996)).*

Additional new information not available at the time the GEIS for License Renewal was created and issued for public comment revolves around a significant legal case brought by Entergy against the DOE. Contrary to nuclear industry and NRC public statements, the court case makes it apparent that there is no near term solution to the spent fuel disposal problem. This is germane to the site specific spent fuel issues at Indian Point. First, the fuel pools at Indian Point are already exhibiting very troublesome infrastructure fatigue. A failure of these spent fuel pools, even with dry cask storage capabilities would greatly impinge on Licensees ability to conduct and maintain a safe shutdown of the reactor core.

Further, even the dry cask storage system(s) and casks approved for Indian Point have a limited usage lifetime of approximately 20 years. The court case in question makes it abundantly clear, that no off site solution will be available with that limited window of opportunity.

> *In Entergy Nuclear Generating Co. v. U.S., 64 Fed.Cl. 336 (2005)* Entergy successfully sued the United States on the theory that DOE had breached a contractual duty to take possession of, and title to, spent nuclear fuel (SNF) within 63 months after a utility submitted a delivery commitment schedule (DCS) with regard to such Spent Nuclear Fuel (SNF). In that suit, and at the urging of Entergy, the Court of Claims, in reliance on the stipulation of the parties and otherwise undisputed facts. reached the following conclusion:
>
>> This aborted effort in 2004 to reinstitute the DCS process signals that no disposal of SNF will occur during 2010, taking into account the 63-month period between designation and collection, and moreover that **disposal' may not occur within any foreseeable time in the future. No repository is available.**
>
> *Id. 64 Fed.Cl. at 340 (citation omitted)*(the chaotic nature of the entire spent fuel storage management scheme is detailed in the Court's opinion at footnotes 3 and 4). Entergy is fully capable of setting forth these new and significant facts, plus we suspect much more information not readily available from the printed case, in order to meet its obligations under *10 CFR §51.53(c)(3)(iv)* but so far has failed to do so, thus depriving the NRC, and potential intervenors the truth about the uncertainty in how Entergy will manage the spent fuel it proposes to generate over the extended 20 years of operation of Indian Point. This omission is both deliberate and egregious, as Entergy plans to do nothing with the waste streams generated at the Indian Point site other than let them accumulate on site, thus defacto creating both and unlicensed LLRW and HLRW storage facility, and in turn greatly increasing the environmental risks to members of the host community, and our environment.

FUSE USA feels it is imperative to include within the Scope of the Supplemental ER for Indian Point's IP2 LLC, and IP3 certain category one issues that are materially false if the GEIS information on these issues is incorporated as a part of the LRA and Appendix E Environmental Report.

You cannot fit a size 11 foot into a pair of 9 shoes, and many of the assumed facts in the GEIS are simply wrong as relates to site specific facts as relates to Entergy's IP2 and IP3 licensees.

Category I item - Onsite Land Use

1. *10 C.F.R. §54.23* requires the Applicant to submit an environmental report that complies with *Subpart A of 10 C.F.R. Part 51*.

2. *10 CFR §51.53(c)(3)(iv)* provides that the environmental report must contain any new and **significant information regarding the environmental impacts of license renewal of which the applicant is aware.** Entergy and the NRC are very aware that there is no solution available currently for disposal of Indian Point radiological waste streams, and additionally have crafted, and are aware of industry reports discussing storage of radiological waste streams on site at reactor sites, including spent fuel, for periods in excess of 100 years.

3. New and significant information exists regarding the time for which onsite land will be removed from other uses, and whether such land use is irretrievable, which was not provided in the ER by the Applicant in accordance with *10 C.F.R. §51.53(c)(3)(iv)*. The current estimate in the Generic Environment Impact Statement (GEIS) is on-site storage of spent fuel will not last beyond 30 years after the end of the license period (including an extended license period). GEIS, Sections 6.4.6.2, 3. Simply stated, both the NRC and Entergy know it is virtually impossible to have spent fuel removed from the Indian Point site within the stated time lines identified in the GEIS. This means significant portions of the 235 acre Indian Point site cannot be returned to productive use for a period of over 100 years. This in turn puts a blight on the community, and negatively impacts real estate costs.

4. The GEIS evaluates the impacts associated with onsite land use as Category 1, SMALL. The basis for this assessment is the assumption that the land used for storage of nuclear wastes at the generic reactor site will not exceed 30 years after the end of the license term. That flawed assumption, in turn, relies upon the misdirected assumption that a permanent high level waste repository, and perhaps even a second repository, will be in place in time to receive the reactor wastes. Based on those assumptions the use of the Indian Point reactor site for storing spent fuel, in this case for a period ending no later than 2065, has been deemed

to be a small impact. The problem with that assumption of waste storage being small is passed upon unrealistic and perhaps patently false information as relates to availability of off site storage.

5. These assumptions for off site storage, and thus future potential land uses are fundamentally flawed. Recent evidence, not evaluated previously in the GEIS, discloses that:

A. The likelihood that a permanent high level waste repository will be in place by 2065 is slight due to unanticipated technical problems uncovered at the Yucca Mountain site coupled with changes in national policy;

B. The currently contemplated high level waste repository can possibly accommodate the quantity of spent nuclear fuel expected to be produced by Indian Point 1, 2 and 3 through the end of their originally licensed life, but Entergy does not have space for at least a part of the additional spent nuclear fuel generated by Indian Point during extended licensing; even if Yucca Mountain is eventually opened

C. No present plans exist for building a second high level waste repository nor has any site been identified for consideration for such a facility;

D. The United States is now embarking upon a changed policy for waste disposal which will make all the current schedules obsolete and for which there is no reliable time frame for its implementation;

E. There is not now nor has there been any reasonable prospect that the federal government or any third party will take title to the license-renewal spent fuel waste and remove it from the site, even though we through our utility bills are paying for said waste streams to be stored from the Indian Point facility in a timely manner; and

F. It follows that it is reasonable to expect that at least a part of spent fuel to be generated at Indian Point during the period of an extended license will remain at the site for a much longer time than evaluated in the GEIS and perhaps indefinitely.

6. Since this new information, that was not available at the time of development of the GEIS, demonstrates that the commitment of onsite land for storage/disposal of spent nuclear fuel from license renewal will be substantially longer than assumed in the GELS, and may be indefinite, which amounts to an irretrievable commitment of onsite land with a MODERATE or LARGE impact to the community, and our environment.

7. As demonstrated in our laws regarding land uses, Westchester, Dutchess, Orange and Rockland counties and our communities have firmly established values associated with land use such that the long-term or indefinite use of a portion of the Indian Point site for spent nuclear fuel storage should clearly be evaluated as a MODERATE or LARGE impact in the Indian Point 2 and 3 supplement to the GEIS.

8. Entergy identifies in Environmental Report (ER) that the land required to dispose of spent nuclear fuel as a result of operation during an extended license represents a irreversible and irretrievable commitment of resources. Entergy does not qualify the irreversible or irretrievable nature of this land use to a limited time period. Therefore, Entergy is identifying this use as indefinite. This identification is in conflict with the GEIS which does not identify such land use as irreversible and irretrievable. This difference from the GEIS should be addressed in the EIS for the impact of onsite land use.

9. In ER Entergy refers to 10 CFR 51, Appendix B, Table B-i, which identifies onsite land use as Category 1, SMALL impact. But this identification only refers to the portion of land from license renewal as being "a small fraction of any nuclear power plant site," and does not include evaluation of the indefinite removal of the land from any beneficial use.

10. Entergy demonstrates in the Environmental Report (ER) a flawed application of its obligations to identify new and significant information.

11. The EIS should take into account that the nation's policy with regard to spent fuel management has changed since the GEIS. The current administration and Congress have announced a major shift in policy called the Global Nuclear Energy Partnership (GNEP). Refer in general to the Administration's GNEP website, http://www.gnep.energy.gov/, which

contains the announcement and much information regarding this new policy direction. Proponents of this new policy hope this new approach will not separate out plutonium products. However the referenced website shows that this technique has neither been developed nor demonstrated. Further, it holds out a false promise for final disposition of spent fuel from reactor sites such as Indian Point. In reality, the plan is devious to its core, and attempts to convert radioactive wastes streams into supposedly potential future use resources with the stroke of the pen, and in doing so, clear the path to leave these waste streams sitting on reactor sites for hundreds of years into the future.

12. This shift in policy will remove attention and resources from repository development under the false conclusion that spent fuel will not have to be stored on site at Indian Point beyond 2065 as it will have been reprocessed. It is pointed out here, that the next generation of proposed reactors (AP 1000) is not capable of burning the fuel that would be created from this proposed new reprocessing proposal known as GNEP. Included in this segment are comments from Sen. Pete Domenici:

MOVEMENT OF SPENT FUEL IN THE US COULD BE FURTHER DELAYED, according to Senator Pete Domenici, the New Mexico Republican who chairs the Energy and Natural Resources Committee. Domenici indicated during a status hearing on DOE's repository program at Yucca Mountain, Nevada that it was unrealistic to proceed with a status-quo repository project and later factor in spent fuel reprocessing waste and recycling activities associated with DOE's new fuel-cycle initiative, the Global Nuclear Energy Partnership. It ought to be pretty clear to everyone that spent fuel rods won't be put into Yucca Mountain, Domenici said in an apparent reference to GNEP, which is aimed, in part, at closing the nuclear fuel cycle in the US and abroad. Recycling will determine what kind of repository the US needs, he added. "It's a mess," Domenici said, of the Yucca Mountain program as reporters approached him after the hearing. He said that he believes any legislation on Yucca Mountain would have to include language on spent fuel recycling. Draft legislation DOE sent to Congress did not include language on spent fuel reprocessing. *Platts Nuclear News Flashes, Tuesday, May 16, 2006, Copyright McGraw Hill Publications 2005*

13. Additionally, the EIS should consider the previous assumption regarding the suitability of Yucca Mountain as a permanent waste disposal site is no longer valid. At Yucca Mountain, the assumptions underlying the

GEIS, it has been discovered that the disposal area is subject to water in-leakage. Therefore the design must be changed from that previously assumed and it is not clear a new design can be developed which will meet dose and integrity requirements. Partially in response to this discovery, DOE has abandoned previous cask designs and now proposes a concept called the TAD (transportation, aging and disposal) standard canister for which there is not presently even a preliminary design.

14. Further, the EIS supplement for Indian Point should note that these changes have occurred in an increasingly hostile political environment. Senate minority leader Harry Reid (D-NV) strongly opposes development of Yucca Mountain and is able to use his position as majority leader effectively to advance this. And, the Western Governor's Association (WGA) has the following active resolution (03-16): On December 1, 1989, the **Western Governors' Association adopted Resolution 89-024 which stated that spent nuclear fuel should remain at reactor sites until a state has agreed to storage and DOE provides reasonable transportation, safety, and emergency response assurances to the western states.** The resolution was readopted in 1992, 1995, 1997, and 1999. All of the new information identified above provides additional arguments and evidence to bolster the position of Senator Reid and the WGA and undercut the assumed completion date for a usable high level waste repository.

15. Further, the EIS Supplement should evaluate the environmental costs associated with the aftermath of a terrorist attack on Indian Point, because the GEIS was prepared before September 11, 2001, it does not factor in the impact of viable terrorist threats into the evaluation of the socioeconomic impacts of indefinitely storing spent fuel at the reactor site. The extended long-term or indefinite presence of spent nuclear fuel at Indian Point after permanent shutdown means a defined terrorist target will be present for the long-term of at least 100 years, or indefinitely.

In its news release *No. 03-053 (April 29, 2003)*, NRC stated: **The Commission believes that this DBT [Design Basis Threat] represents the largest reasonable threat against which a regulated private security force should be expected to defend under existing law.** (Emphasis added). The phrase “should be expected to defend”, means there is a limit on the expectation for Entergy, and that state resources will be expected to provide additional security responses beyond Entergy's

capability. The very presence of this target creates an effect on that land, contiguous lands, and the surrounding area, creating the need for continuous augmented emergency preparedness plans and security response from the State. The EIS should evaluate this increased, long term burden on state resources. See also the decision of *San Luis Obispo Mothers for Peace V Nuclear Regulatory Commission, U.S. Court of Appeals for the Ninth Circuit, No. 03-74628 (June 2, 2006)*. Included in these costs, should be the emotional stresses of being forced to live under the constant threat of attack because of Indian Point, and the associated mental health costs of all counseling created by this additional stress load.

16. Entergy has stated that all of the spent fuel projected to be generated by Indian Point 2 and 3 through the end of its current operating license (including increases of spent fuel from power up rates) will be within the metric ton storage limits of the "first" repository. The EIS Supplement should identify that at least some part of the spent fuel from license renewal will exceed the metric ton limit (when all spent fuel being generated nationally is considered) and must go into a second repository, and that this entry of Entergy into the currently unplanned, nor approved second repository would be specifically the result of the proposed license renewal.

17. The Massachusetts Institute of Technology (MIT), in 2003, performed a study: "The Future of Nuclear Power: An Interdisciplinary MIT Study". **Entergy should have identified that it sponsored the co-chair of the study, Dr. Ernest Moniz, Director of Energy Studies, Laboratory for Energy and the Environment, MIT Department of Physics, as a witness in PSB Docket No. 7082, regarding authorization for dry cask storage.** In that docket, Dr. Moniz testified: The MIT Study argues that "interim" storage of spent fuel (which can be carried out either at reactor sites or in consolidated facilities, possibly under federal control) for fifty to seventy years is in any case a preferred approach for design of an integrated spent fuel management system. The implication of Entergy's testimony through Dr. Moniz is that the first repository will not be available for "fifty to seventy years." If the schedule for the first repository is "fifty to seventy years," a time period greater than evaluated in the GEIS, then the schedule for a second repository is indefinite at best, if such a repository could ever be built. The Indian Point EIS Supplemental Report should take note of this fact.

Original Siting Criteria especially with regard to seismology, population density, water quality, evacuation planning

Cooling issue installation prior to relicensing of best technology available cooling towers, as required by the EPA

- **Fish kills**
- **Larvae kills**
- **Increase temperature of the river**
- **Absence of "best available" technology**

Leak issue

- Absence of plan to remediate plum resulting from past and current leak
- Failure to identify all past and current leak
- Danger to plume area due to current and proposed construction of cask platforms
- Quantifying the amount of cesium, tritium and strontium 90 that is being leaked into the Hudson
- **Impact of radioactive nucleotides on river life (including but not limited to, fish, birds, mammals**
- Measurement and ongoing analysis of radioactive isotopes in ground water and adjacent wells,
- Review of location, placement and methods of measuring radionuclides in groundwater
- The impact of Indian Point leaks on the proposed desalinization plant for drinking water by Rockland County

Spent Fuel pools

- **The placement, security and racking of spent fuel rods which are nearly at capacity in all three reactor pools.**
- **The leaks, both identified and yet to be determined, in all 3 reactor pool**
- **The casking and or removal and shipping of radioactive rods through local communities**
- **Low level radioactive storage since in 2008 Barnwell closes**

Decommissiong Funds – inadequacy due to ongoing leaks and additional waste storage

Public Health and Safety issues

- Comprehensive review of cancer clusters, especially thyroid cancer and childhood leukemia in a 30 mile radius of IP (based on the accepted research that shows increase rates of both these cancers and other rarer forms in reactor communities both nationally and internationally)
- Sampling of captured fish and animal bones for SR90

- The measurement and associated cancer risks with the standard, regular releases of radioactive steam which is current released as standard procedure of regular operation of pant, especially with regard to acceptable levels for children and pregnant women
- Daily postings as to when and amount radioactive is releasedThe public and frequent posting of the days and amount of radiation released during the everyday operation of the plant
- Unaccounted and missing irradiated fuel rods

Seismic issues

- Potential for earthquake along the Ramapo fault has been shown to be of concern by Lamont geologist. Indian Point sits directly on top of this fault
- Disparity between potential quake strength and plant design
- Impact of quake on future casks which will not be secured to the ground nor bermed and stand to be as vuleneralbe as those in the Kashiwazaki-Kariwa Nuclear plant in Japan last month (that was a 6.6. The potential for the Ramapo Fault line is well beyond that measure)

Unfixable evacuation plan

- Witt report
- Insufficient to do high volume decontamination of those coming in from hot zone

Spend Fuel Pool 1

The Emergency Plan remains unsuccessful for certain accident scenarios, and as recently as August 14,2007, again failed. The issue is now more than 36 years old. Analysis performed in 2003 requiring substantial changes has not been implemented.

Global Warming issue

Index of FUSE Enviromental Issues against 10CFR51 Appendix B SubPart A				
Issue Number[4]	**Issue Title**	**Category**	**Page Number**	**Subsection Number**
1	Impacts of refurbishment on surface-water quality	1		
2	Impacts of refurbishment on surface-water use	1		
3	Altered current patterns at intake and discharge structures	1		
4	Altered salinity gradients	1		
5	Altered thermal stratification of lakes	1		
6	Temperature effects on sediment transport capacity	1		
7	Scouring caused by discharged cooling water	1		
8	Eutrophication the process by which a body of water becomes rich in dissolved nutrients from fertilizers or sewage, thereby encouraging the growth and decomposition of oxygen-depleting plant life and resulting in harm to other organisms	1		
9	Discharge of chlorine or other biocides	1		
10	Discharge of sanitary wastes and minor chemical spills	1		
11	Discharge of other metals in wastewater	1		
12	Water use conflicts (plants with once-through cooling systems)	1		
13	Water use conflicts (plants with cooling ponds or cooling towers using make-up water from a small river with low flow)	2		
14	Refurbishment	1		
15	Accumulation of contaminants in sediments or biota	1		
16	Entrainment of phytoplankton and zooplankton	1		
17	Cold shock	1		
18	Thermal plume barrier to migrating fish	1		
19	Distribution of aquatic organisms	1		

[4] NEPA Issues for License Renewal of Nuclear Power Plants. Provided from Appendix A of NUREG 1850 as well as 10CFR51 Appendix B subpart A.

Index of FUSE Enviromental Issues against 10CFR51 Appendix B SubPart A				
Issue Number[4]	**Issue Title**	**Category**	**Page Number**	**Subsection Number**
20	Premature emergence of aquatic insects	1		
21	Gas supersaturation (gas bubble disease)	1		
22	Low dissolved oxygen in the discharge	1		
23	Losses from predation, parasitism, and disease among organisms exposed to sublethal stresses	1		
24	Stimulation of nuisance organisms	1		
25	Entrainment of fish and shellfish in early life stages	2		
26	Impingement of fish and shellfish	2		
27	Heat shock	2		
28	Entrainment of fish and shellfish in early life stages	1		
29	Impingement of fish and shellfish	1		
30	Heat shock	1		
31	Impacts of refurbishment on groundwater use and quality	1		I.
32	Groundwater-use conflicts (potable and service water; plants that use <100 gpm).	1		I.
33	Groundwater-use conflicts (potable and service water, and dewatering; plants that use > 100 gpm)	2		
34	Groundwater-use conflicts (plants using cooling towers withdrawing makeup water from a small river)	2		
35	Groundwater-use conflicts (Ranney wells)	2		
36	Groundwater quality degradation (Ranney wells)	1		I.
37	Groundwater quality degradation (saltwater intrusion)	1		I.
38	Groundwater quality degradation (cooling ponds in salt marshes)	1		
39	Groundwater quality degradation (cooling ponds at inland sites)	2		

Index of FUSE Enviromental Issues against 10CFR51 Appendix B SubPart A				
Issue Number[4]	**Issue Title**	**Category**	**Page Number**	**Subsection Number**
40	Refurbishment impacts	2		I.
41	Cooling tower impacts on crops and ornamental vegetation	1		Cooling tower issue is an issue that was set aside
42	Cooling tower impacts on native vegetation	1		
43	Bird collisions with cooling towers	1		
44	Cooling pond impacts on terrestrial resources	1		
45	Power line right-of-way management (cutting and herbicide application)	1		
46	Bird collisions with power lines	1		
47	Impacts of electromagnetic fields on flora and fauna (plants, agricultural crops, honeybees, wildlife, livestock)	1		
48	Flood plains and wetland on power line right-of-way	1		
49	Threatened or endangered species	2		
50	Air quality during refurbishment (nonattainment and maintenance areas)	2		
51	Air-quality effects of transmission lines	1		
52	Onsite land use	1		I.
53	Power line right-of-way	1		
54	Radiation exposures to the public during refurbishment	1		
55	Occupational radiation exposures during refurbishment	1		
56	Microbial organisms (occupational health)	1		
57	Microbiological organisms (public health) (plants using lakes or canals or cooling towers that discharge into a small river)	2		
58	Noise	1		
59	Electromagnetic fields, acute effects (electric shock)	2		
60	Electromagnetic fields, chronic effects	N/A		

Index of FUSE Enviromental Issues against 10CFR51 Appendix B SubPart A				
Issue Number[4]	**Issue Title**	**Category**	**Page Number**	**Subsection Number**
61	Radiation exposures to public (license renewal term)	1		
62	Occupational radiation exposures (license renewal term)	1		
63	Housing impacts	2		II.
64	Public services: public safety, social services, and tourism and recreation	1		I.
65	Public services: public utilities-water supply	2		
66	Public services: education (refurbishment)	2		
67	Public services: education (license renewal term)	1		
68	Offsite land use (refurbishment)	2		
69	Offsite land use (license renewal term)	2		
70	Public Services, transportation	2		
71	Historic and archaeological resources	2		
72	Aesthetic impacts (refurbishment)	1		
73	Aesthetic impacts (license renewal term)	1		
74	Aesthetic impacts of transmission lines (license renewal term)	1		
75	Design-basis accidents (DBAs)	1		IV.
76	Severe Accidents	2		II.
77	Offsite radiological impacts (individual effects from other than the disposal of spent fuel and HLW)	1		
78	Offsite radiological impacts (collective effects)	1		
79	Offsite radiological impacts (spent fuel and HLW)	1		
80	Nonradiological impacts of the uranium fuel cycle	1		
81	Low-level waste storage and disposal	1		
82	Mixed waste storage and disposal	1		

Index of FUSE Enviromental Issues against 10CFR51 Appendix B SubPart A				
Issue Number[4]	**Issue Title**	**Category**	**Page Number**	**Subsection Number**
83	Onsite spent fuel	1		III.
84	Nonradiological waste	1		
85	Transportation	1		
86	Radiation Doses	1		
87	Waste Management	1		
88	Air Quality	1		
89	Water Quality	1		
90	Ecological Resources	1		
91	Socioeconomic Impacts	1		
92	Environmental Justice	N/A		
93[5]	Changes in Seismology information	n/a		III.
94	Accumulated EIS's that are based on incomplete or no longer valid assumptions.	n/a		III.
95	SAMA analysis	n/a		III.
96	50.59 analysis for Indian point fails to adequate address Environmental consequences	n/a		III.
97	Un accounted for uranium noticed on September 7, 2007	n/a		IV.
98	Recently approved Appendix R Exemptions	na		IV.

[5] Emergent issues not previously examined and relevant to Indian point.

Index of FUSE Enviromental Issues against 10CFR51 Appendix B SubPart A				
Issue Number[4]	**Issue Title**	**Category**	**Page Number**	**Subsection Number**

Exhibit 1

Examination of scope is based upon criteria derived directly from 10CFR51, and NUREG 1850.

1. The environmental review does take into account the environmental effects of postulated plant accidents that might occur during the license renewal term. It also includes a review of the alternatives to mitigate severe accidents if this has not previously been evaluated for the applicant's plant (see Section 4.4). The purpose of this consideration is to ensure that plant changes (i.e., hardware, procedures, and training) with the potential for improving severe accident safety performance are identified, evaluated, and, if appropriate, implemented. As a result, the impacts of accidents are considered within the scope of the environmental review for license renewal.
2. New and significant information (see responses to Questions 4.2.4.11 and 4.2.4.12),
3. changes in NRC staff practices resulting from legislative or industry actions, for example, the designation of Yucca Mountain as the repository for spent nuclear waste in Public Law 107-200, 116 Stat. 735 (2002) (see response to Question 4.5.2),
4. statutory or regulatory changes, for example, the U.S. Environmental Protection Agency's (EPA's) regulations establishing performance standards on cooling water intake structures for existing facilities,
5. industry structural changes, for example, changes in the regulation of the power market or the distinctions between generators and distributors of power, which may have some bearing on the influence or control over activities that the current license holder may have as compared with that of the original license holder,
6. incorrect characterizations that occurred in the GEIS, for example, the statement that license renewal is a major Federal action significantly affecting the quality of the human environment (see response to Question 4.2.1.2),
7. omitted issues, for example, the impacts associated with dredging activities that may occur periodically and within the period of extended operation,
8. confusion, for example, confusion between the impacts from severe accidents, which is a generic (Category 1) issue, and the analysis of severe accident mitigation alternatives, which is a site-specific (Category 2) issue, and
9. realignment to improve clarity, for example, of the 92 specific issues listed in the GEIS, some are listed twice – once pertaining to the renewal process and again pertaining to refurbishment. Other issues are listed once, with a

statement that they apply to both refurbishment and renewal. This can be confusing for a reader who is trying to understand how many issues are involved.

Exhibit 2

The reasonable assurance standard is applied NEPA when examining each of these 92 Issues as well as emergent issues. FUSE also contends that scope analysis be inclusive to potential alternative solutions as opposed to exclusive. By this rationale, balancing of alternative energy production options and their own specific EIS are provided in accordance with the § of NEPA. Under this rule, alternative analysis is compulsory and may not be set aside as the Commission believes is outside their purview.

Exhibit 3

Mitigation is also considered-- and where possible, EIS scope provided are derived from analysis under CEQ (40CFR 1508.20), mitigation requires:

- avoiding the impact altogether by not taking a certain action or parts of an action,
- minimizing impacts by limiting the degree or magnitude of the action and its implementation,
- rectifying the impact by repairing, rehabilitating, or restoring the affected environment,
- reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action, and
- compensating for the impact by replacing or providing substitute resources or environments. In terms of the impacts during license renewal, this definition can include such activities as:
- using best-management practices to mitigate the impact of any required dredging,
- relocating a project, such as additional storage or lay-down yards, to avoid impact on a historic or an archaeological site,
- reconfiguring intake structures to reduce impingement or entrainment of fish and shellfish larvae, and
- making structural changes to equipment to mitigate the potential for severe accidents

Exhibit 6

Newsday.com

Indian Point cited for minor uranium problem

12:42 PM EDT, September 29, 2007

BUCHANAN, N.Y.

Operators at the Indian Point nuclear plant failed to keep tabs on a small amount of radioactive material, but the incident created no real threat and required no sanctions against its owner, a Nuclear Regulatory Commission spokesman said Saturday.

No fine was imposed against Entergy Nuclear, which owns the plant 35 miles north of New York City. Earlier this month, the NRC said it was considering possible penalties against Entergy for missing inventory checks on some tiny amounts of uranium 235.

"We considered the safety significance to be very low," said Neil Sheehan of the NRC. "Indian Point received two non-cited violations that will not count on their next performance evaluation."

The uranium was contained in 32 in-core detectors once used to measure power in the plant's two nuclear reactors. Sheehan said the company was able to account for the detectors, which were stored 18 years ago in a spent fuel pool, but could not show that the container holding the detectors was tamperproof.

Entergy, which took over at Indian Point in 2001, was cited for a deficiency in tracking the material and for not storing it in a tamperproof area, Sheehan said. The check at Indian Point was part of a national push by the NRC to crack down on potential storage problems at nuclear plants.

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Exhibit 7 reasonable assurance definition as provided by Richard Barkley of U.S. NRC

REASONABLE ASSURANCE OF ADEQUATE PROTECTION OF PUBLIC HEALTH AND SAFETY

On June 12, 2006, Richard S, Barkley, of the NRC wrote that the NRC's definition of REASONABLE ASSURANCE OF ADEQUATE PROTECTION OF PUBLIC HEALTH AND SAFETY was stated in the Director's Decision, in the matter of Docket No. 50-346 (License No. NPF-3) FIRSTENERGY NUCLEAR OPERATING COMPANY (Davis-Besse Nuclear Power Station, Unit 1, April 22, 2004, 59 NRC 215),
and NRC case law, to be, " as a general matter, defined by the Commission's health and safety regulations themselves…. There is reasonable assurance of adequate protection of public health and safety when the applicant or licensee demonstrates compliance with the Commission's regulations. The regulations were established using defense-in-depth principles and conservation practice.

However since, the NRC cannot take enforcement actions solely on the basis of whether licensees fulfill commitment, as failure to meet a commitment in itself does not constitute a violation of a legally binding requirement. However, when failure to meet a commitment results in violation of the Commission's health and safety regulations, the Staff will take the appropriate enforcement actions. Due to the fact that the NRC has granted seemingly endless exemptions, exceptions and deviations from its regulations, and the fact that Indian Point was built to industry guidance, instead of NRC regulations, the standard of REASONABLE ASSURANCE OF ADUQATE PROTECTION OF PUBLIC HEALTH AND SAFETY is meaningless at Indian Point.

Therefore the entire population, of 20 million residents, 8% of the United State population, living within the 10 mile emergency evacuation zone, 17.5 mile peak injury zone, and the 50 miles ingestion zone are all affected by the NRC's inability to maintain an enforceable standard of REASONABLE ASSURANCE OF ADEQUATE PROTECTION OF PUBLIC HEALTH AND SAFETY.

The magnitude of the impact on the effected population is LARGE, as the impact of the NRC not enforcing the required standard its own regulations has adverse significant affect on the population. This evidenced by the fact that the State and County government surrounding the plant have found the emergency evacuation plans to be wholly inadequate. Robert Stephan, Homeland Security's Assistant Secretary for Infrastructure Protection reported in the Journal News, March 23, 2006 stated that, "The Nuclear Regulatory Commission has ranked Indian Point 'in terms of potential human consequences as the No. 1 site in the nation."

Since the issues surrounding Indian Point are unique and the GEIS does not adequately address the site specific and unique issues of Indian Point to give REASONABLE ASSURANCE OF ADEQUATE PROTECTION OF PUBLIC HEALTH AND SAFETY including but not limited to the following:

A. The population mass within a 50 mile radius of Indian Point far exceeds 20 Million citizens, 8% of the U.S. population, and is located in the most densely populated area surrounding a nuclear facility in the nation.

B. New York city located 25 miles from the plant is the hub of America's Financial institutions. A significant nuclear incident (accident) or terrorist attack on the facility that led to off site migration of radiological contaminants would be catastrophic in nature to not only the surrounding region, but the entire nation, as it could quickly lead to Environmental Costs in excess of half a trillion dollars and could bankrupt America.

C. West Point Military Academy, the training
ground for America's future leaders, and a vital American brain trust, which includes a U.S. mint, it located less than 8 miles away.

D. Indian Point is the only reactor site that is leaking
radioactive strontium 90 into the ground, groundwater and Hudson River.

E. Indian Point is located on an active fault line, the Ramapo fault.

F. On 9/11 t least one of the hijacked planes flew directly over Indian Point 2 and 3 before it destroyed the World Trade Center.

G. Since 9/11 Indian Point is considered one of the most attractive and vulnerable terrorist targets in the nation.

2. The addition, the Indian Point site already has numerous non-compliance issues that place it in violation of NRC Rules and Regulations, with said issues that are already contaminating the environment, and increasing the risk to the general public. These risks include, but are not limited to:

A. Numerous members of Congress, and a majority of the elected officials and local communities question whether
Indian Point is safe, and have repeatedly called for, and asked the NRC for an Independent Safety Assessment (ISA).

B. Despite various extensions granted by the NRC, Entergy has yet to come into compliance with NRC regulations as relates to having a working siren system. FEMA recently failed the system, and a full review of Entergy's own documents shows that the system ordered and installed FAILS to meet the Design Basis Criteria. Further, the old system as NRC records show also fails to come close to being in compliance with 10 CFR Rules and Regulations.

C. The State and County governments within the 10 mile Emergency Evacuation Zone have stated it is there own

belief that the Evacuation Plan is fundamentally flawed, and the Witt Report supports their conclusions.

It is pointed out here, that the Emergency Plans tells us, "When you hear the sirens..." go inside and follow instructions. However FEMA has admitted the Siren level is inadequate and therefore the sirens cannot be heard.

D. Significant spent fuel pool leaks at IP1, IP2 and IP3,
which are leaking strontium 90, cesium 137 and tritium. All the spent fuel pools at Indian showing clear evidence of serious aged related degradation. Yet, since 2005 Entergy has been unable to locate, identify, stop and remediate said leaks.

E. A recently discovered leak at IP2 that was incorrectly
categorized as a conduit leak was in fact a leak in the fuel transfer tube.

F. Entergy has been unable to locate and identify
the leaks associated with reactor cooling system, which were only accidentally discovered when workers saw steam rising through the black top.

G, There are known Tritium, Strontium 90 and Cesium 137 plumes under the entire reactor site that are rapidly migrating towards the Hudson River. Said leak represent a minimum of 250,000 gallons of radiological contaminants that are polluting the potable water resources of New York State, in violation of New York State Law, and such leaks have been and continue to be unmonitored in violation of the NRC own regulations.

H. Both reactors are suffering severe BAC (Boric Acid Corrosion) of the reactor vessel heads...in fact, the corrosion issues are significant enough that Entergy has a standing order for new reactor vessel heads for IP2 and IP3 with delivery slated for 2011 and 2012 respectively. In order to install these vessel heads, it is probable that containment will have to be breeched.

I. IP2 is one of the few reactors in America to have
suffered a significant Tube Rupture back in 2000. Further, a recent Industry study has shown that tube fouling becomes a significant safety issue in pipes adjoining plugged pipes. Indian Point 2 and Indian Point 3 together have literally hundreds of plugged pipes in the reactor cooling system.

J. The series 400 stainless steel roller bearings on the traveling water screens for IP3 have huge holes, which is believed to be caused by corrosive microbes or lack of maintenance, This condition has existed since 1991, yet remains unremediated.

K. One of the steel containment plates at Indian Point is failing.

L. Indian Point cannot meet the Fire regulations of 10 CFR, and in fact has just requested the NRC further lower the SAFETY MARGINS for and already granted exemption from the rules and regulations.

M. Due to the closure of Barnwell, the “low-level” radioactive waste site, Entergy is planning

to turn Indian Point into a low level radioactive site., without proper application and review.

N. Due to the failure of approval of Yucca Mountain, the spent fuel produced by Indian Point, which by regulation is only to be stored on site on an interim, temporary basis, such storage has now become indefinite and potentially permanent.

O. The Decommissioning Trust Funds for IP1, IP2 and IP3, are insufficient to restore the site, especially in light of the multiple leaks first noticed in 2005.

Mitigation measures with regard to REASONALE ASSURANCE OF PUBLIC HEALTH AND SAFETY would be warranted for impacts that would have the same significance level for all plants, however due to the unique facts and issues at Indian Point, such mitigation must be site specific, the criteria of Category 1 cannot be met, and therefore, additional plant-specific review is required of the environmental impacts as a Category 2 issue, due to the unenforceable nature of the definition of REASONABLE ASSURANCE OF ADEQUATE PROTECTION TO PUBLIC HEALTH AND SAFETY at Indian Point, which is the underlying organizing purpose of the NRC.

Exhibit 8

Historic Time Line For Indian Point, Including Some Early Historical Nuclear Moments

1898: Pierre and Marie Sklodowska Curie discover radium, a powerful radiation source which is soon used for medical treatment and atomic physics research.

1905: Albert Einstein shows how large releases of energy can come from the breakdown of small amounts of matter in the atom.

1942: First nuclear reactor is built at the University of Chicago.

1945: Atomic bombs dropped on Hiroshima and Nagasaki, Japan-it is estimated that 214,000 innocent civilians were killed in these two bombings.

1946: Atomic Energy Commission is formed.

1951: World's first nuclear plant built near Arco, Idaho, starts up in 1955.

1952: The Atomic Energy Commission brings Con Edison together with other energy companies to develop commercial nuclear plants. The commission had already developed a prototype, but it was found to be inefficient.

Jan. 5, 1954: The Buchanan Village Board holds a 10-minute public hearing on rezoning the area known as Indian Point, formerly a popular park with beaches, trails, swimming pools and two piers receiving thousands of people by boat out for a day of fun. The plan is passed without opposition. According to terms of the deal, Con Edison is to pay 70 percent of the Hendrick-Hudson school district's taxes, install a village-wide sewer system, pave streets and provide mercury streetlights.

October 1954: Consolidated Edison buys Indian Point Park and an adjacent tract, totaling 350 acres on the banks of the Hudson River at Indian Point, which is a popular park with beaches, trails, swimming pools and two piers. The plants are sited on the Hudson River, the Ramapo earthquake fault line, and 24 miles from the New York City line.

1955 After considering several reactor types, Con Edison, selected for development a pressurized-water thorium-uranium converter reactor. This concept was proposed by the B&W Co ., the contractor for basic nuclear engineering and the designer and manufacturer of the major items of nuclear plant equipment.

1955 1955 Babcock & Wilcox issued construction permit for IP1 for Con Ed; AEC has no citing criteria for nuclear plants, thus the plant, which is on the Hudson River, on an active earthquake fault line, and is 24 miles from the NYC line, is approved without discussion of any of these factors (when such criteria are proposed in 1979, the IP plants are the only operating plants in the country to fail 5 of the 6 proposed criteria; theNRC refuses to adopt the new criteria, instead reverting to its 1962 "interim" rules). When it comes on-line in 1962, the construction costs total 2 1/2 times higher than projected. Within a year of operation, its generating system fails, and is replaced with

a Westinghouse system.

1963: The 265 megawatt Indian Point 1 plant starts operating.

1966 Westinghouse issued construction permit for IP2, to be operated by ConEd.

1966: Indian Point 2 starts construction.

1969 Westinghouse issued construction permit for IP3, to be operated by Con Ed

1969 Indian Point 3 starts construction; Con Ed starts operation in 1976.

1971 An arsonist sets fire to a building housing much of the cooling system, causing $10 million in damage.

Feb 1972 a 1/2 million gallon water tank spills at IP2.

Aug 1972 Westinghouse replaces defective fuel system at IP2 at $10 million cost.
Nov 1972 ConEd President expresses disappointment at nuke plants' operations, noting that frequent breakdowns and repairs make plants uneconomical. Plants were built with promises of 80% or better capacity; IP1 has operated at less than 50% capacity, and nationally nuke plants operate at only 60% capacity.

1973: Operation at Indian Point 2 begins

Nov, 1973 Engineers shut down IP1, hearing a "hammering noise." A 300-degree steam leak buckles the "heat proof" steel liner of the containment vessel,and leaking water fills the reactor vessel 4 1/2 feet
deep. The reactor is shut down until March, 1974.

Oct 1974 IP1 ordered to shut down, as it lacks mandated ECCS (emergency cooling systems). The reactor was never issued a full-term operating license, but ran for 12 years on its 18-month "provisional" license.

1975 As part of a controversial state bail-out of ConEd, IP3 is bought by NYPA for $349 million.

Jan, 1976 Robert D. Pollard, NRC chief safety engineer and project manager for IP2 resigns, calling IP2 "an accident waiting to happen," and **citing design deficiencies in both IP plants.**

1976 IP2 operates at 29% capacity for the year, due to extensive repairs. Con Ed is fined for overexposing a worker to radiation.

July 1977: A transformer explosion at Indian Point triggers a major blackout, causing dozens of people, fearing a major accident, to flee.

1977 A leak spills tens of thousands of gallons of radioactive water into the basement of the reactor building.

MARCH 28, 1979 A pressure relief valve sticks at Three Mile Island, a reactor in central PA, leading to a major accident (a partial meltdown) and forcing the evacuation of nearly 100,000 people.

Sept 1979 UCS, NYPIRG, and WESPAC petition the NRC to decommission IP1 and suspend operations at IP2 &3, citing over 60 unresolved safety deficiencies, including problems in plant design.

Dec 1979 IP2 cited for one of the highest rates of worker radiation exposure in the nuke industry.

May, 1980 After a bombing at the Statue of Liberty, police receive a threatening call that "IP is next."

June, 1980 NYPIRG releases a citizens task force report prepared with WESPAC, SHAD, and others, criticizing IP evacuation plan and IP2 safety record, and calling for shut down of the plant.

Oct 17, 1980 to 1982 Con Ed discovers over 100,000 gallons of radioactive water spilled in the containment building of IP2, with water rising 25 feet in a floor cavity and eventually rising nine feet up the reactor vessel. No one had checked the area since Oct 3, despite warning lights showing water build-up, hence it is unclear how long the water had been leaking. Con ED then attempts to restart the reactor three times, without first checking on possible damage from the spill. Neither the NRC, local officials, or the public are notified of the accident for three days. A UCS study showed 24 equipment failures and 21 management & operations errors in the period from Oct 1 to 20. IP2 is shut for 8 months; ConEd attempts to recoup losses from the shut down, estimated at $800,000/day, with a 10% rate hike; WESPAC, NYPIRG, and 20 other groups organize a rate payers boycott, which by Dec includes nearly 1 million customers; WESPAC also calls for a public takeover of ConEd.(

1980-82 UCS, NYPIRG, and WESPAC initiate legal action to close IP pending NRC analysis of the consequences of a major accident. Subsequent NRC hearings on IP operations and emergency planning are stalled when the hearing board chair resigns in protest of a ruling that excludes much anti-nuclear testimony. The board declines the activists' petition. A NY Times editorial calls the hearing a "kangaroo conference," and states that the "regulatory game" is likely rigged against anti-nuke activists. Former NRC Commissioner Peter Bradford states afterwards, **"Nowhere has the commission majority's hostility to fundamental legal concepts of fairness been more clearly shown than in the Indian Point hearings."**

April 26, 1986 Chernobyl accident: a Ukrainian reactor explodes, releasing most (if not all) of its radioactive matter.

Aug, 1987 A GAO report notes that the NRC is slow to require corrective action in plants with chronic safety violations, **takes 10 years or more to act on even the riskiest safety problems, and lacks guidelines that identify safety violations severe enough to shut nuke plants. Note-almost 20 years later, these quidelines still do not exist.**

May, 1992 IP3 fined for failing to maintain critical safety systems.

Sept, 1992 IP3 fined for failing to fix leaky coolant pipes. **A control room operator who failed a July drug test is back on the job, without a retest.**

Oct, 1992 An NRC report card on IP3 finds declining performance in 5 of seven areas evaluated, including dropping the "engineering and technical support" grade from good to acceptable. The NRC points to a backlog of 3,500 pairs needing attention at IP3. (10)

Dec, 1992 The FBI seizes NYPA records regarding a meeting at which a senior plant manager knowingly lied to the NRC; in addition, the FBI seizes records showing that 25-30 plant operators admitted to "occasionally" falsifying log entries.

Feb 27, 1993 NYPA shuts IP3, after a series of violations over the past year that led to fines totaling $462,500. NYPA spokespeople hope for a restart in 2-3 months.

June-Oct, 1993 NRC fines NYPA $300,000 for 17 safety violations disclosed in April, 1993, including defects that caused a six month failure in a backup reactor shutdown system. NYPA also admits that it has been issuing inaccurate reports on radiation releases for 13 years. The utility was issuing the information assuming that a filtering device that was disconnected in 1980 had still been operable; **the NRC's resident inspector notes "They released more**

(radiation) than they thought they released."

June 22, 1993: Indian Point 3 is placed on the NRC's "Watch List" of troubled plants. NRC fines Indian Point 3 $300,000 for 17 safety violations.

Sept, 1993 NRC report shows backup cooling pumps went for ten years without fuses; the report also cites a backup generator that operated 11 years longer than recommended by the manufacturer, louvers stuck shut due to lack of simple maintenance, and a reactor shield fastened with incorrect bolts--and missing nuts.

September 14, 1993: Plant workers accidentally dump 900 gallons of radioactive water into the Hudson; four days later, 1,000 gallons of boric acid solution are spilled at the plant.

Nov, 1993 A senior operator, after getting caught submitting a bogus urine sample, tests positive for cocaine and marijuana, forcing his resignation. He is the 2nd senior operator testing positive for drugs at
IP3.

Nov, 1993 Two original safety valves at IP3 found to be insufficiently rated; in the rush to replace them before an upcoming NRC inspection, engineers install them backwards, blocking both cooling systems and disabling backup generators. (18)

Dec 93-Jan, 1994 Parts of a secret nuclear industry document is leaked, revealing dangerous conditions at IP3 that both NYPA and the NRC were aware of for months or years before the Feb '93 shut down, including defects in the same kind of valves implicated in the 1979 meltdown at 3 Mile Island.

April, 1994 Lehman Brothers ranks IP3 one of 8 US nuclear plants as "poor performers" in a report on nuclear investments.

May, 1994 After an NRC directive forces the utility to inspect its spent fuel pool at IP1, Con Ed admits that water has been leaking the site for four years, with estimates of up to **150 gallons of radioactive water leaking each day.**

June, 1994 An underground pipe at the shut down IP3 plant breaks, spilling 1,600 gallons of toxic waste into the Hudson. The spill continues for nine days before the rupture is discovered.
July 1994 A maintenance worker at IP3 accidentally opens a valve and spills 500 gallons of water.

Sept, 1994 Assemblymen Richard Brodsky holds hearings on IP3 that challenge the notion that the plants' generate energy cheaply enough to balance the public safety, health, and environmental costs. Testimony shows that other energy options are cheaper, that IP3 has run at only 42% efficiency over its lifetime, and that it ranks 95th out of 109 US nuclear plants in its lifetime capacity factor. Testimony shows
rate payers could save up to $140 million/year from closing IP3. (22)

Oct, 1994 Another maintenance worker at IP3 accidentally opens a valve and spills 1500 gallons of water.

April, 1995 Steam generator tube cracking discovered in 25% of tubes at IP2; despite recent findings at the Maine Yankee plant that such cracking can be missed by standard testing procedures, the NRC refuses to require that both IP plants immediately institute enhanced tests, despite their regulations that require such testing. (23)

July 19, 1995 IP3 restarted after 2 1/2 year shut down. NYPA, having replaced 19 of its top 27

managers, claims that a "nuclear religion" instituted at the plant will insure safe operations.

July, 1995 NYPA runs IP3 improperly for three days, risking safety system failures; the violation brings an NRC citation in Oct 95. (25)

July 18, 1995 28 thousand gallons of water spill from IP1 into the Hudson.

August, 1995 NRC reports on July-August operations at IP3 criticizes operators for using strict procedural standards as loose guidelines and failing to report deviations from standards. (26)

September 14, 1995 NYPA shuts IP3, again, citing need to review safety & operational procedures. NYPA expects shutdown to last 2-3 months.

Jan, 1996 NRC fines NYPA $50,000 for safety violations involving running while backup safety pumps are inoperable. (27)

April 6, 1996 IP3 restarted after a 7 month shutdown.

June, 1996 A hydrogen gas leak causes an explosion at IP3.

October 1996 IP3 is cited as one of the nation's worst plants by PublicCitizen, who note the plant's 22 safety system failures over three years --three times the national average. Although not on the list, IP2 is ranked third worst in the nation for safety system actuation and ninthworst for worker exposure.

Oct, 1996 Con Ed announces reorganization plans, including moving its IP2 plant into a state regulated subsidiary, thereby shielding the plant from potential free market competition. Meanwhile, a NYPA deal to turn over management of IP3 to a private company falls through, as negotiators cannot agree on terms. (29)

Jan, 1997 IP3 shut down for heater repairs. IP2 shut down due for valve repairs.

Feb, 1997 Assemblyman R. Brodsky excoriates IP3 President Robert Schoenberger at a public hearing for secret NYPA dealings to turn over management to a private company, and accuses the NYPA executive of misleading the Assembly. (30)

May, 1997 A GAO report notes lax oversight at the NRC, echoing the 1987 GAO report. (31)

June 25, 1997 IP3 removed from NRC Watch List. Plant spokespeople assert that management's pursuit of excellence has turned things around, and will insure safe operations. (32)

August, 1997 IP3 is cited by the NRC for an "apparent" violation of safety standards, by failing to correctly translate design basis information into procedures. The utility is fined $55,000 by the NRC for inadequacies in its emergency safety procedures. (33)

Aug 6-15, 1997 IP2 shut down, due to questionable pressurizer safety valve settings; also, the plant's fire protection systems are found in a degraded condition.

1997: Indian Point 3 is cited by the NRC for safety violations.

November 19, 1998, Indian Point 3 shut down in response to unauthorized entry into

protected area.

February 15, 2000: First full scale alert declared at Indian Point when Indian Point 2 reactor manually tripped due to indications of steam generator tube rupture in generator number 24. Contaminated steam is released. The NRC later reveals that hundreds of gallons of radioactive water leaked into the Hudson River and the Buchanan water system. Indian Point 2 is shut down until December 2000.

April 2, 2000: NRC rates Indian Point 2 most trouble-plagued nuclear power plant in the country.

November 2000: Entergy, an energy conglomerate based in New Orleans , purchases Indian Point 3 & the James A. Fitzpatrick for $967 million. Entergy's Northeast regional headquarters in White Plains announced the plant was worth more than $152 million a year to the local economy.

September 2001: Entergy purchases Indian Point 1 and 2 for $502 million.

September 21, 2001: NRC admits uncertainty that the nation's 103 plants could withstand the same kind of impact that leveled the World Trade Center .

May 18, 2002: Christopher Kozlow, Westchester 's deputy commissioner of emergency services, is dismissed after about six months on the job. Kozlow is to claim the county wouldn't let him change the evacuation plan.

June 5, 2002: Testimony before the U.S. Senate states that security guards at the nation's 104 nuclear power plants are not equally paid, trained or armed. Some earn less than janitors and carry shotguns that would be no defense against terrorists with automatic weapons, say lawmakers and security experts.

June 8, 2002: Westchester County gives away potassium iodide pills at first of three public distributions. Thousands show up to receive pills.

August 2002: Governor Pataki Hires James Lee Witt Associates to evaluate emergency plans for Indian Point and other state nuclear facilities.

September 11, 2002: Entergy shuts down Indian Point 2 to prevent a growing hydrogen gas leak from reaching potentially explosive levels in the air outside the nuclear power plant.

January 10, 2003: The Witt Report, an independent study of the evacuation plan commissioned by Governor George Pataki, is made public. Report states evacuation plan can't protect public.

January 14, 2003: County executives from Westchester, Putnam, Rockland and Orange counties refuse to sign evacuation plan.

February 2, 2003: FEMA tells the state it must ignore the counties' protest and make its own decision about the

January 10, 2003: The Witt Report, an independent study of the evacuation plan commissioned by Governor George Pataki, is made public. Report states evacuation plan can't protect public.

January 14, 2003: County executives from Westchester, Putnam, Rockland and Orange counties refuse to sign evacuation plan.

February 2, 2003: FEMA tells the state it must ignore the counties' protest and make its own decision about the emergency evacuation plans.

February 4, 2003: Invoking the principle of home rule, SEMO rejects the federal directive, saying it will not overrule the counties' decision to refuse to sign their annual

certification letters.

February 21, 2003: FEMA refuses to certify the emergency evacuation plans, saying it cannot give "reasonable assurance" that they can protect the public.

February 28, 2003: Riverkeeper releases study by Synapse Energy Economics that demonstrates closure of the Indian Point Nuclear Plant would have little or no effect on reliable electric service for New Yorkers.

April 9, 2003: Justice Thomas W. Keegan orders the State Department of Environmental Conservation to issue a draft permit for Indian Point's cooling system by Nov. 14, in response to a lawsuit brought by Assemblyman Richard Brodsky, Clearwater , Riverkeeper, Pete Seeger, and others. Millions of fish eggs, larvae, and young fish are killed every year by the power plant's water-intake system.

April 28/29, 2003: Mechanical problems cause Reactor 2 to trip due to offsite electrical problems on April 28. On April 29 a fire breaks out in Reactor 3; it took over 45 minutes to bring the fire under control. Both reactors are taken off-line.

May 1, 2003: Over 175 first responders state they cannot guarantee safety of residents.

July 25, 2003: FEMA and the NRC overrule the counties' and state's determination that the emergency evacuation plans can't protect the public. County inquiries and Congressional hearings are called in the aftermath.

July 2003: NRC reports that IP 2 & 3 received 28 whistleblower complaints for 2002, a 22 percent increase. 75% of the complaints primarily involved issues of security. National median was four.

August 12, 2003: NRC launches investigation into cause of 9 unplanned shutdowns at IP during the past 18 months. The national average is less than one unplanned shutdown per reactor.

Aug14, 2003: Blackout 2003. The entire region regains power without IP being online for nearly a week. This was an historic day for the nuclear power industry, as nine nuclear reactors at seven power plants in New York, Ohio, Michigan, and New Jersey were forced to shut down during largest and most severe electricity blackout in U.S. history. The infamous Indian Point NPP in New York reported its two reactors having suffered an "Automatic reactor scram due to a loss of offsite power. All rods fully inserted. Supplying power to vital buses via emergency diesel generators. All systems operating properly." The event was later updated, with a declaration that "RPS Actuation (loss of flow) due to loss of site ' power. Auto actuation of AFW in response to the unit trips. Auto Start and Load of Emergency diesel generators in response to the loss of off-site power."

September 8, 2003: The Union of Concerned Scientists and Riverkeeper formally petition the Nuclear Regulatory Commission (NRC) to order the immediate shutdown of both nuclear power reactors, because the plant's drainage pits (also known as containment sumps) are "almost certain" to be blocked with debris during an accident.

September 9, 2003: NRC conducts a special inspection of IP's emergency-alert system to examine a discrepancy between Entergy and the 4 EPZ counties over the reliability of 154 sirens.

September 13, 2003: Nearly 600 electrical workers at Indian Point ask a federal court to block managers from shifting them between the Indian Point 2 & 3. The electrical workers

claim that cuts in the work force have led to unsafe working conditions and poses safety issues for the public. Local 1-2 of the Utility Workers Union of America requests a restraining order against Entergy Nuclear Operations, a subdivision of Entergy Nuclear Northeast.

September 16, 2003: Project on Government Oversight (POGO) releases a letter it sent to the NRC criticizing the agency for making the security tests at Indian Point nuclear plant too easy. The letter based criticism of the "force-on-force" test on information gathered from participants and observers of the test.

September 18, 2003: The NRC initiates a special inspection of Indian Point's emergency-alert system to examine a discrepancy between Entergy Nuclear and the four emergency planning zone counties over the reliability of 154 sirens.

November 20, 2003: 276 rank-and-file workers at the Indian Point 3 unit schedule a strike authorization vote for Dec. 4, Local 1-2 Utility Workers Union of America. Manny Hellen, president of the local, said a strike would occur if a new contract isn't reached by Jan. 17.

October 22, 2003: An Entergy official admits on NRP-affiliate station WAMC that there is no updated seismic hazard analysis for Indian Point.

December 22, 2003: The Nuclear Regulatory Commission issues a report that examined numerous unplanned outages at Indian Point. The report reveals that during the August 14th blackout key back-up systems were not in operation. The NRC found that Entergy had not corrected a known problem with some of the plant's back-up diesel generators. As a result the diesel generators, needed to power air-conditioning to cool emergency response equipment, failed during the blackout.

December 29, 2003: Entergy sends a letter to the NRC formally notifying the agency of their intent to store irradiated nuclear fuel in dry casks on the site of the Indian Point nuclear power plant, in an Independent Spent Fuel Storage Installation (ISFSI). Industry whistleblowers and nuclear safety watchdogs have raised concerns about design flaws with the Holtec dry cask model Entergy proposes to use at Indian Point and about Holtec's inadequate quality assurance program.

January 18, 2004: Entergy and Local 1-2 Utility Workers Union of America reach a tentative four-year agreement, averting a strike.

March 1, 2004: William Lemanski – a town councilman of Tuxedo, NY and a retired software manager at Indian Point 2 publicly announces at a town board meeting his concerns regarding improperly sorted electric cables at the Indian Point 2 nuclear power plant.

March 9, 2004: Indian Point 2 & 3 receives NRC green rating for safety. As a result, Indian Point will receive less intense oversight from the NRC.

April 15, 2004: A hundred concerned residents attend an NRC open meeting to discuss Entergy's plans to store high-level radioactive waste in above-the-ground casks.

April 26, 2004: The Indian Point Safe Energy Coalition calls on the NRC to conduct a realistic drill that includes a terrorist scenario with a fast-breaking release for the emergency plans for the 10-mile Emergency Planning Zone near Indian Point.

May 5, 2004: Stamford , CT emergency officials request to be on the Emergency Notification list for Indian Point.

May 2004: For the first time in US nuclear power history, the NRC ends the public's right to a hearing on safety issues.

May 25, 2004: Westchester County hires Boston-based Levitan & Associates to determine if and how the Indian Point nuclear plants can be closed and replaced with an alternative energy source

June 2, 2004: Dr. Erik Larsen, medical director of the STAT Flight emergency helicopter

operation at the Westchester Medical Center , raises concerns that the facility could "fall apart" with as few as 50 people seeking treatment after an accident at Indian Point.

June 8, 2004: Biennial emergency evacuation drill for Indian Point conducted. Elected officials and the public are outraged when it is learned that the drill included a "terrorist-type attack" but no radiation was released in the scenario. FEMA and the NRC quickly rubber stamp the test as adequate.

June 2004: The 9/11 commission and its witnesses divulge that additional air-based terrorist attacks have already been attempted, that more major attacks are likely in the near future, and that nuclear power plants are top al-Qaeda targets.

June 23, 2004: Entergy employee raises concerns that emergency sirens may not operate properly during hot summer days.

July 15, 2004: Over 100 concerned residents attend NRC open house to discuss Entergy's proposed dry cask storage system. IPSEC and nuclear safety experts argue that large casks containing deadly toxic waste are attractive terrorist targets, particularly since Entergy's plan is to place them on a concrete pad with no protective structures or barriers.

July 22, 2004: The 9/11 commission report suggests that the 9/11 plot's ringleader had considered crashing a commercial airliner into a nuclear power plant in the New York area. The report explains that Mohamed Atta, who piloted one of the planes that hit the World Trade Center , "considered targeting a nuclear facility he had seen during familiarization flights near New York ."

August 9, 2004: The NRC announces that it will no longer make available to the public the results of physical assessments of nuclear plant security or enforcement actions associated with such evaluations.

September 2, 2004: Entergy announces plans to cut work force at Indian Point by up to 500 workers.

September 2, 2004: Indian Point 2 shutdown for valve failure.

September 3, 2004: A new patrol boat is approved to be permanently stationed at Indian Point. Oversight of the boat will fall to the authority of the state Division of Military and Naval Affairs, which uses National Guard troops to staff its marine force.

September 8, 2004: Riverkeeper releases a study that finds the potential health consequences of a successful terrorist attack on the Indian Point nuclear plant could cause as many as 518,000 long-term deaths from cancer and as many as 44,000 near-term deaths from acute radiation poisoning, depending on weather conditions. Dr. Edwin Lyman , a senior staff scientist in the Global Security Program at the Union of Concerned Scientists, authored the report entitled "Chornobyl-on-the-Hudson?: The Health and Economic Impacts of a Terrorist Attack at the Indian Point Nuclear Plant."

September 15, 2004: Indian Point 2 shutdown for valve failure.

September 6, 2004: Entergy announces that it will seek a power uprate for Indian Point. The company wants to increase power generation by 90 megawatts.

September 20, 2004: Entergy drops its interest in building a small onsite gas plant at Indian Point site.

September 21, 2004: Congresswoman Sue Kelly (R-Katonah) calls on the NRC to inspect wiring at Indian Point after former worker raised allegations of improper cable separation at Indian Point.

September 24, 2004: Indian Point 2 shutdown for valve failure.

September 24, 2004: Orange County Board of Legislators Public Safety Committee passes resolution calling on federal authorities to investigate the safety of spent fuel storage at the Indian Point nuclear plant.

October 1, 2004: Indian Point security guards ratify a new five-year contract, averting a possible strike.

October 19, 2004: A labor dispute at Indian Point 2 triggers a sickout by approximately 40 electricians and other craft union workers after several workers were fired for allegedly raising safety concerns.

October 27, 2004: The NRC approves a 3.26% increase of electricity generating capacity for Indian Point 2.

November 2004: Up to 300 Indian Point workers are exposed to asbestos. Charles Pencola, a steam-fitter who has worked at Indian Point for 35 years, said Entergy managers declined to stop work in the area until the problem was properly corrected.

December 2004: A nuclear watchdog group releases data showing that there is no backup power for sirens, in the event of loss of electricity. Indian Point is one of many U.S nuclear plants without backpower to emergency sirens.

December 3, 2004: Indian Point 2 is shutdown for welding problems.

December 10, 2004: Emergency sirens fail to rotate properly.

January 2005: For the third consecutive year Westchester, Rockland , and Orange County officials refuse to submit their Annual Certification Letters, a checklist for the Indian Point emergency evacuation plans. For the second year in a row Putnam County Executive Robert Bondi submits his county's paperwork, despite no material changes to the plan since the Witt Report concluded that the plan is gravely flawed and probably cannot be fixed.

January, 19 2005: Westchester County hosts State Emergency Management Office Open House for Indian Point. Potassium Iodide pills are distributed to the public.

January 24, 2005: IP guard discovered drunk while acting as a safety supervisor at a firing range where other Entergy security workers were undergoing firearms training on the job at Indian Point. He receives a two week suspension.

January 26, 2005: Congressional delegates, Eliot Engel (D-NY), Nita Lowey (D-Westchester/Rockland) and Sue Kelly (R-NY) notify the NRC that any failure of emergency sirens at Indian Point is unacceptable.

January 31, 2005: At a Press Club luncheon NYS Attorney General Eliot Spitzer says he supports the closure of Indian Point, if energy reliability can be assured.

February 8, 2005: Westchester County Executive Andy Spano calls on the NRC to investigate emergency sirens at Indian Point.

February 10/11, 2005: Control rods fail to load properly at Indian Point.

February 10, 2005: Ulster County Board of Legislators overwhelmingly votes in favor of opposing a 20-year license extension on Indian Point. Ulster County becomes fourth county board, and joins an addition 16 municipal boards that have passed a similar resolution opposing the relicensing of Indian Point.

February 14, 2005: Due to Entergy's improper handling of radioactive waste, an Indian Point shipment of low-level radioactive waste is discovered leaking upon arrival at the Barnwell Waste Management Facility in Barnwell , South Carolina . According to the NRC at least one worker was exposed to radioactive materials; this is in violation of South Carolina laws regulating the handling of nuclear waste at the Barnwell facility.

April 6, 2005: The long awaited study by the National Academy of Sciences on the vulnerability of spent fuel pools at U.S. nuclear power plants is released. The report, released yesterday, confirms what Riverkeeper has maintained since the terrorist attacks of September 11, 2001: the spent fuel pools at nuclear power plants are soft targets, vulnerable to terrorist attack by aircraft or high explosives, and pose a high risk to public

health and safety due to the high levels of volatile radionuclides present in the irradiated fuel. Riverkeeper calls on Governor Pataki and Congressional delegates to immediately appoint an independent commission to review Indian Point's spent fuel pools, their vulnerability to terrorist attack, and possible solutions to minimize the grave risks posed to the public in the event of a terrorist attack at Indian Point.

April 12, 2005: The Government Accountability Office issues a scathing report of the Nuclear Regulatory Commission and nuclear power plant owners, including Entergy, for their ineffective oversight, poor inventory management, and lax safety and security management of high-level radioactive spent fuel at the 103 nuclear power plants in the United States . In 2004 Entergy lost high-level radioactive spent fuel rods at its Vermont Yankee nuclear plant.

May 18, 2005: NRC issues a Notice of Violation to Entergy Nuclear, Indian Point 2, following an inspection revealing that Entergy failed to respond adequately to a buildup of nitrogen gas in the safety injection pump system, which controls water flow in the emergency backup cooling system. The buildup of nitrogen gas had continued for 77 days before the NRC notified Entergy of the seriousness of the problem, knocking out one pump completely and damaging two others.

June 9, 2005: Levitan Associates releases a report commissioned by Westchester County to study the feasibility of retiring Indian Point before its licenses expire. The report states that the energy currently supplied by Indian Point 2 & 3 could be easily replaced through a combination of new plants and increased energy efficiency measures at the state level, with the increase to ratepayers estimated to be "less than a slice of pizza per month."

June 20, 2005: Congresswoman Nita Lowey authors The Nuclear Power Licensing Reform Act of 2005. If passed, it would require that the Nuclear Regulatory Commission must apply the same licensing standards to old nuclear power plants as new nuclear power plants, must take into account changes in population around a nuclear power plant, must require adequate emergency evacuation plans for populations within a 50-mile radius of a nuclear power plant, and must take into account threats to the population due to security and safety vulnerabilities at a nuclear power plant.

July 2005: Power to Indian Point's emergency siren system is knocked out on two different occasions, once for six hours before officials were aware of the problem.

July 29, 2005 : Entergy Nuclear NE publicly commits to replacing the malfunctioning emergency siren system, following repeated failed tests and power outages earlier in the summer. NY Senator Hillary Clinton's amendment to the 2005 Energy Bill– which was signed into law by President Bush – mandates that Indian Point's sirens have reliable backup power.

August/September 2005: The emergency siren system fails to operate properly during testing on several occasions, due to problems with Verizon's phone lines and software failures that resulted in all of Rockland County 's sirens failing to sound for nearly an hour.

August 1, 2005: NRC issues a "White Finding" to Entergy for their failed response to a nitrogen gas leak first discovered in April 2005.

September 12-15, 2005: Department of Homeland Security conducts a review of security and emergency planning at Indian Point, as part of the federal government's "Comprehensive Assessment" of the vulnerability of the nation's infrastructure to terrorist attack. A siren test conducted during the review once again fails to activate a significant number of sirens. The review is unrelated to the widespread criticism of FEMA/DHS following Hurricane Katrina.

September 20, 2005: NRC and Entergy notify the public that radioactive water is leaking from IP2's spent fuel pool. The leak was discovered by contractors excavating earth from the base of the pool in preparation for the installation of a new crane, for use in transferring spent fuel from the pool to dry cask storage. NRC assures the public there is

no "immediate risk to public health or the environment." NRC later admits that Entergy first discovered the leak twenty days earlier, but did not believe it was serious enough to warrant public notification. NRC orders a special inspection to determine the source of the leak.

September 29, 2005: A control rod malfunction at IP3 forces the reactor to cut power by 35% immediately and notify the NRC. The control rods are designed to operate in unison, dropping into the reactor core to slow the fission process if a problem arises. In this case, a single rod dropped into the core without warning.

October 2-9, 2005: Indian Point 3 is completely shut down following the control rod malfunction. The electrical switch the NRC believes caused the problem is replaced. Despite the loss of 1,000 MW to the NY power grid, there are no disruptions or significant price increases during the week that IP3 is inoperative.

October 5, 2005: Entergy notifies the NRC that a sample from a monitoring well located in the IP2 transformer yard shows tritium contamination that is ten times the EPA drinking water limit for the radionuclide, and is consistent with tritiated water from a spent fuel pool. The NRC broadens its special inspection to include this new information. The NRC also states in its report that the monitoring well had not been checked since its installation in 2000, following the transfer of IP's ownership from ConEd to Entergy.

October 7, 2005 : The NRC updates its Special Inspection Charter for the IP2 Tritium Leak to include a review of Entergy's efforts to control the ongoing leak from the IP1 Spent Fuel Pool.

October 18, 2005 : The NRC and Entergy confirm that the radioactive leak discovered in August is greater than initially believed. The radioactive isotope, tritium, has been discovered in five sampling wells around Indian Point 2, while the leak at the spent fuel pool has increased to about two liters per day. Exposure to tritium increases the risk of developing cancer. The company plans to test more wells, inspect the liner of the leaking fuel pool, and install additional monitoring wells.

October 18, 2005: A test of the Indian Point sirens failed again today. Ten of 15 sirens in Orange County and another four of the 156 total sirens within the 10-mile evacuation zone failed to sound during the routine test.

October 28, 2005 : NRC Region 1 Director Sam Collins formally requests permission from the agency's Executive Director of Operations to increase oversight at Indian Point on two matters, the tritium leak and the continued problems with the emergency sirens. Permission is granted three days later.

November 16, 2005: The NRC holds a public meeting with Entergy to discuss the company's plan for replacing the emergency siren system at Indian Point. Entergy announces their commitment to completely replacing the system by January 2007 with new sirens that will have backup battery power. However, statements by DHS officials regarding a lengthy approval process for the sirens put the time schedule in doubt. In addition, NRC official Erik Leeds argued that the Energy Policy Act of 2005 required that the NRC enforce the order within 18 months, not that backup power be installed within 18 months.

November 26, 2005 : The tritium leak at IP2 remains unsolved, nearly three months after its discovery. Entergy's use of underwater cameras and divers to visually inspect and test for leaks at three locations on the steel liner's surface yield no results. Entergy must now employ different cameras to inspect the liner near the bottom of the pool, where the radiation is too high for a human diver to enter.

December 1, 2005 : Entergy reports to the NRC that an initial sample from a new monitoring well five feet from the wall of the IP2 Spent Fuel Pool shows tritium levels in the groundwater at thirty times the EPA limit, the highest level of tritium contamination yet discovered. In addition, the NRC announces that preliminary tests of tritiated water

found in the IP1 Pool Collection System contain too much tritium to be from the IP1 Pool, suggesting that tritium-laced water is being collected in the IP1 Drain from another, unknown source. The NRC still does not know where the leak is coming from, how long it has been leaking, or the extent of groundwater contamination under the plant

Exhibit 9

Davis-Besse witness set to testify against trio
Engineer to discuss coverup accusation

By TOM HENRY
BLADE STAFF WRITER

One of the key witnesses in the U.S. Department of Justice's case against three former Davis-Besse engineers is expected to testify today about the government's theory that he and the trio were part of a coverup that jeopardized northern Ohio's safety in the fall of 2001.

Prasoon Goyal, 61, of Toledo, who took the stand late yesterday, is a former senior design engineer who avoided prosecution by agreeing to cooperate with the Justice Department in its case against the other three.

Prosecutors said when the indictments were issued in 2006, Mr. Goyal and the three defendants - David Geisen, Rodney N. Cook, and Andrew Siemaszko - intentionally deceived the Nuclear Regulatory Commission about the dangerous state of the plant's old reactor head in the fall of 2001, when it was leaking boric acid from its reactor.

When the plant was shut down in early 2002, the NRC learned so much acid had leaked and burned through the plant's reactor lid that it nearly burst - an event that would have allowed radioactive steam to form in containment for the first time since half of Three Mile Island Unit 2's reactor melted in 1979.

The accusation of a coverup was based on the results of a two-year grand jury inquiry.

Mr. Goyal agreed to a one-year ban on employment in the nuclear industry in exchange for his testimony. He has not returned to Davis-Besse, where he had worked since 1986.

Mr. Geisen and Mr. Cook are being tried first. Mr. Siemaszko's trial is to follow. All three face up to five years in prison and separate $250,000 fines if convicted.

Earlier yesterday, an NRC metallurgical engineer, James A. Davis, who was part of the agency's augmented inspection team that was sent to the plant within hours after the near-rupture was discovered, testified that cracks in the old reactor head's most problematic nozzle likely started about 1990 - six years before any sizable leakage was documented and 12 years before the lid nearly blew.

Mr. Davis made a point of saying he was testifying as an independent witness and not as an NRC employee.

He said the nuclear industry and his agency have long settled on the average crack growth rate for reactor-head nozzles at 4 millimeters a year.

At that rate, it would have taken at least four years for a crack in one of those nozzles to develop a leak. Testimony last week revealed evidence of leaking as of 1996.
There are 69 such nozzles implanted in the reactor heads of pressurized-water reactors like Davis-Besse's.
They are made of a metal alloy that was found in France during the late 1980s to be susceptible to vertical cracks after years of high-temperature, high-pressure operation.
At 605 degrees, Davis-Besse was America's hottest-operating nuclear plant.
In 2001, the stakes were raised when the NRC learned that several U.S. reactor heads, especially Davis-Besse's, were susceptible to a more dangerous form of nozzle cracks, one that could form a circular pattern and pop off like champagne corks under an operating reactor's extreme pressure of 2,200 pounds per square inch.
Under that scenario, a flash of radioactive steam could form.
Mr. Davis testified that the cavity in Davis-Besse's reactor head - 5 inches wide, 7 inches long, and 6 1/2 inches deep - could not have been missed during FirstEnergy Corp.'s previous inspection in 2000 if the utility had done a credible job of inspecting the device.
Defense attorneys referred to a recent FirstEnergy consultant report, which claimed the bulk of damage could have occurred unbeknownst to anyone during the last three weeks before shutdown.
FirstEnergy is using that report to support its claim for a $200 million insurance payment on the grounds that the near-rupture might have been a fluke.
But prosecutors yesterday presented more evidence of a systematic, ongoing breakdown within the utility.
Greg Gibbs, a onetime Davis-Besse quality-assurance director and engineering director who left the plant in 1994, said he was disappointed after coming back as a consultant in 2001 to learn the utility never acted upon his insistence for larger holes in the reactor head's service structure to be used for inspections and cleaning.
A Blade investigation in 2002 showed that FirstEnergy vetoed a work order during the early 1990s for larger inspection ports, known as "mouse holes," to save $250,000, even after being encouraged to do the modification by officials at a plant in Crystal River, Fla., with a similar design.
The modification, which officials have said could have headed off Davis-Besse's problems, was done after the old reactor head nearly burst in 2002.
Contact Tom Henry at: thenry@theblade.com or 419-724-6079.