

IPRenewalCEmails

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To: Andrew Stuyvenberg
Subject: submission of testimony
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Dear Drew,

Please accept the attached as a formal submission of my own testimony regarding the adequacy of the DSEIS Supplement 38 for Indian Point Reactor 2 and 3.

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TESTIMONY OF MICHAEL R. EDELSTEIN, PH.D.
President, Orange Environment, Inc.

At the
HEARING FOR INDIAN POINT NUCLEAR GENERATING
UNIT NOS. 2 AND 3, LICENSE RENEWAL APPLICATION
COMMENTS ON THE DRAFT GENERIC ENVIRONMENTAL IMPACT
STATEMENT
SUPPLEMENT 38

February 12, 2009
Cortland Manor, Putnam, County
Submitted as Written Testimony March 10, 2009

I am President of a 501C3 organization, Orange Environment, Inc. that for the past 26 years has been deeply involved in the crucial environmental, community and sustainability issues affecting Orange County, New York and its region. OEI has intervened in numerous permit hearings for hazardous facilities. OEI has had a long term interest in issues of safety relating to Indian Point. I am speaking tonight on behalf of OEI.

I am also Professor of Psychology at Ramapo College of New Jersey, whose campus and nearly 6,000 students and staff are also potentially within an impact region for the Indian Point Complex. At Ramapo, I head the Environmental Studies program and co-direct the Institute for Environmental Studies. Tonight, students from my Environmental Assessment course are with me and some will offer testimony.

Recently I was listed by Clearwater, an intervener into the Permit Hearings on this matter, as a potential Expert Witness. I do not address in any detail issues relating to my potential testimony in these comments.

In this written version I expand upon my February 12 oral comments. I further reviewed my expertise with regard to issues pertinent to this application in my scoping comments submitted at a hearing in the same location in September of 2007 (see Edelstein 2004). I will not repeat details discussed then.

I began my oral testimony on February 12 by recalling the purpose of NEPA as a tool for rationally informing decision makers of potentially significant impacts that must be weighed in the decision making process. The aim of these comments is accordingly to assure that this hard look record is created.

I have reviewed the Draft Impact Statement that is subject of this hearing and hereby offer these comments pertinent to further research and revision required prior to issuance of a Final impact study.

My initial comment is my disappointment that many of the issues that I raised in my scoping submission have not been addressed or were minimally addressed in the Draft document.

I wish to ask that these comments be revisited point by point in constructing the Scope for the Final.

In addition, I have these comments.

1. Comment One: Revisiting the Generic Impact Study

NRC rationally conducted a GEIS covering 69 issues that it found to be similar to all nuclear reactors that might seek twenty year extended operating permits. However, this generic study is now 13 years old, creating a potential that conditions have changed in the intervening time that might have led to different conclusions for all reactors or specifically for Indian Point. I offer but one example. Thirteen years ago, there was a greater certitude that Yucca Mountain would open in the near term as a national nuclear repository. In the intervening time, cask storage in situ has been implemented as a recognition that imminent disposal in Nevada was no longer a reality that could be counted upon. The use of monitored retrievable storage as potentially a long-term rather than interim solution to nuclear waste management has potential implications for the entire reactor system, but certainly for Indian Point's review.

Rather than reviewing all 69 issues in this submission, it seems more appropriate to ask the generic question. Therefore, I ask that NRC review the entire generic impact assessment looking for new information that might result in different findings of impact or mitigation or the different weighing of alternatives with regard to generic considerations or specifically with implications for the Indian Point review. The goal will be to bring that review up to date with current conditions, knowledge and assumptions regarding impacts, mitigation and alternatives.

2. Shifting Generic Issues to Site Specific Issues

In the above process, there must also be a reconsideration of issues that were considered to be generic but would better be viewed as site unique and therefore must be considered in Supplement 38.

I offer the specific instance of the risk assessment and the conclusion that because there was a generic finding of safety that this finding applies to Indian Point. In fact, both the generic and supplemental studies offer evidence that contradicts this logic. Specifically, with regard to risk assessment, it is clear that there are sensitive receptor issues at Indian Point that differ from those encountered in the larger reactor "population."

As found in the early CRAC II studies, for example, it was recognized that an accident at Indian Point would cause a different and greater magnitude of deaths, injuries and financial loss than would an accident at any other reactor location. These findings are

mirrored of necessity in subsequent studies. The underlying facts are that Indian Point contains a disproportionately large sized population within both the inner and outer proximate zones of impact resulting in the likelihood if not certitude of substantial losses--human and economic---were an accident to occur. Because the magnitude of this impact does not parallel the situation at other reactors, the Supplemental review clearly must address questions of risk that are ruled out in the Generic study and consequently the Draft.

3. EJ and Other Issues Improperly Dismissed Due to the Misapplication of Generic and Questionable Findings of No Risk

The Draft study recognizes that Indian Point has nearly a 50% EJ population at risk, a situation that again has no parallels for other reactors among the Generic Pool and, therefore, requires a unique analysis in the Supplemental Study. Over the twenty year extension, the proportion of EJ members of the surrounding is likely to increase. As a secondary impact of the failure of the Draft to consider risk as a unique issue, it dismisses the EJ differential as moot because if there is no risk at all, there is no risk to minorities and poor. In revisiting the issue of risk at IP, it thus becomes necessary to analyze in detail all issues that pertain to Environmental Justice. The mootness is removed. I make parenthetical note, here, of the findings of the Advisory Committee on Reactor Safeguard, rendered only a few days ago, that cite concerns with the age and performance of Indian Point, making special note of chronic leaks.

It should be mentioned here that the area of reactor risk has always been looked at as the classic case of “low probability/high consequence” accident. The GEIS does not claim zero risk; rather, while the consequences of a “severe” accident are acknowledged to be significant, the probability is defined as “small” (DSEIS at 5.3). There is a logical fallacy engaged here. The probability of an accident, no matter how remote, does not diminish the severity of an accident should it occur. Therefore, weighting the severity as a function of probability is meaningless. Severity and probability are really independent factors to be properly considered in isolation. Unless it can be shown that low probability is really zero chance, then the consequences pertain. And, they need to be fully described and analyzed and, if possible, mitigated. And, consequently, in the case of Indian Point, issues of Environmental Justice are therefore directly relevant.

4. Consequence Not Just Mitigation of Accidents is Required to be Analyzed

As a further implication of the above, the fact that Supplement 38 examines mitigations for accidents but not the consequences of accidents is inappropriate and makes no sense. Bogard (1989) wrote presciently that a mitigation is merely a restatement and backdoor recognition of a hazard. If one requires a discussion of mitigations, therefore, one acknowledges that there is not zero chance of failure. Instead, an accident of some form may occur. The FSEIS must discuss the potential consequences of different accident scenarios. One might argue that the occurrence of a given disaster might be minimized by a range of mitigations, but were the accident to occur, what would the impact be?

The brief treatment of different scenarios in Tables 5.3-5.4 falls far short of meeting the need for analysis of accidents. For example, in the instance of an accident caused release due to a failure of the “SGTR” contaminant failure mode (the gas distribution system), it is indicated that a population dose of 7.7 person-rems/year would occur at IP2 and 16.6 at IP3 (Table 5.4 at DGEIS 5.6). If this accident scenario were then linked to the sensitive receptor information, what then would the consequences be? Likewise, for other failures listed here. This section must be expanded to present a thorough analysis of what it would mean for the affected populations should any of the potential event scenarios unfold.

There are likely many scenarios not reflected in these tables. In fact, after the Three Mile Island accident, Environmental Sociologist Chip Perrow (1984) coined the term “normal accident” to refer to events that are catastrophic in consequence even though simple and mundane in cause. Rather than major systems failure, they occur due to operational error, simple mistakes, poor control design or errors in institutional thinking. The worst disasters have been of a normal rather than systems failure nature. The potential for normal accidents may expand the list of failures that requires analysis here. To normal accidents we now must add the potential for terrorism, or deliberate accidents, as well as such non deliberate accidents as an airplane crash (not that an airplane would ever come down on the Hudson River).

Finally, it should be noted that the protracted use of spent-fuel pools and the addition of interim on-site waste storage represents a new condition for inclusion in these analyses.

5. Significant new information

Beyond the above considerations, several new areas of exploration have emerged that require analysis in themselves and that are associated with the likelihood of release and exposure events.

- a. Testimony on February 12 called attention to the problem of reference dose. This is only one of the methodological assumption issues discussed in the literature and the FSEIS should review all areas of controversy over methodological assumptions that might alter impact conclusions. In this instance, without repeating testimony put on the record, it should be clear that analysis would include outcomes if different reference dose assumptions were made. That is, if we looked at vulnerable populations rather than least vulnerable populations, would conclusions change?
- b. Furthermore, evidence was introduced showing excess cancers in populations proximate to Indian Point. A full and detailed analysis of this data should be presented, drawing conclusions that are appropriate.
- c. While the above point shows consequence without a causal linkage, another study introduced at the hearings indicates an exposure pathway at Indian Point

through mother's milk. Testing of this pathway should be included in the FSEIS.

- d. These pieces of new data need to be considered in light of known release from leaking storage pools at Indian Point, as well as other known and potential forms of release.
- e. Finally, new indications of seismic activity are known to have occurred in the Indian Point region that bear thorough analysis.

6. Inappropriate Segmentation of Impacts: the Case of Warning and Evacuation

NEPA is an integrative tool that clearly seeks analysis that is not compartmentalized artificially. Through such tools as cumulative impact assessment, analysis of secondary impacts, analysis of long range as well as short term impacts, NEPA seeks to present a comprehensive portrait of the impacts for consideration by the decision makers.

In this regard, there is an inappropriate segmentation made in the DSEIS that results in ignoring issues covered by other regulatory frameworks outside of licensing and re-licensing. Of major concern here is the exclusion from analysis of the adequacy of contingency plans relating to warning, protection and evacuation of populations in the face of an accident. This segmentation has no legitimacy under NEPA. It confuses the regulatory need for contingency planning with NEPA's demand for a hard look. They are independent demands for different actions.

The issue of protection and evacuation is of particular salience in New York, where a constructed reactor at Shoreham was never operated because it failed to meet requirements for evacuation. At Indian Point, where County Executives have refused to certify evacuation plans, there is a danger that NRC would allow Entergy to upgrade the Indian Point reactors only to face a subsequent and expensive decision to mothball or remove the reactors. NEPA seeks to avoid such occurrences and New York State would have been well served had NRC been able to conclude after NEPA/SEQRA review that the Shoreham plant was not operable under existing evacuation considerations. The failure to take a hard look in the Shoreham case illustrates the risk of the same kinds of segmentation employed here. It is neither prudent nor consistent with the law.

There is no analysis here of the myriad problems Entergy has encountered with its warning systems (the fact that systems worked days before the hearing merely calls attention to the fact that, given their history, one would be forced to conclude that they might not work at a point when needed). There is no review of the problems to be encountered were evacuation of populations surrounding the plant and outward were necessitated. Again, the fact that County Executives of surrounding counties have not certified safety precautions on numerous occasions is a fact for consideration, as are the reasons for these decisions.

Likewise, the issue of where fleeing residents would go, the ability of road networks to get them out of harm's way, the realistic availability of busses and drivers,

complications surrounding school children and pets and the safety and suitability of emergency destinations all need to be considered. As seen in the Katrina disaster, some do not evacuate even when told to for reasons not previously considered as serious impediments to the efficacy of contingencies. Others lack the ability to evacuate. And, impacts of evacuation also can be serious (potential for automobile accidents, for example).

And, there also needs to be a consideration of populations that would not or can not evacuate and how well protected they can be in situ. These sheltered-in-place populations would face what added risks? Are there contingencies to protect them?

The demographics of the region further suggest that an EJ analysis and vulnerable population analysis is required for each of these outcomes---evacuation, failure to evacuate, unable to evacuate, sheltered in place.

The psycho-social analysis that I had requested during scoping would include in its consideration the issue of perceived risk and resulting fear and changed behaviors in the community. For example, within the evacuation zones, how many people trust that they can be protected should an event occur? What is the basis of their perceptions? How are their lives affected by the potential for exposure, evacuation etc.? What prevalent beliefs about safety occur, how are they manifested and upon what are they grounded?

During the hearing, testimony was heard from those fearing the loss of jobs, tax losses and economic consequences to the community should re-licensing fail. These issues need to be explored as impacts and in light of possible mitigation. The DSEIS discusses the potential for a new gas-fired plant on the IP site. Other mitigations may be existent or possible. For example, if not re-licensed, would not Indian Point continue as owner of the property and as a tax payer? Would not decommissioning activities employ workers for an extended period of time? Could not some socio-economic impacts be mitigated through new uses of the land? Would not decommissioning provide a sufficient delay in order to develop mitigations for job loss and economic impacts? Since the plants would presumably be decommissioned twenty years hence even if re-licensed, would not adverse socio-economic consequences occur at a later point? Are there other economic values diminished by Indian Point that might flourish in its absence and make up for losses (for example eco-tourism)?

Additional testimony was heard from leaders of the African American and Hispanic communities of the region. This testimony consistently espoused the additional belief that Indian Point's closure would force combustion based power plants to be built in New York City, further exacerbating current unacceptable levels of asthma for largely EJ populations there. What credibility is there to this belief that closing Indian Point would spike asthma rates? And were these speakers aware of consequences projected from various accident scenarios and the implications for their communities?

Some basis for informed choice is needed for the communities designated as potentially affected should an accident occur. The FSEIS should meet this need if a hard look is taken.

By extension, other areas of segmentation must also be revisited in detail, including on-site waste storage. A full catalog of excluded considerations from the DSEIS should be made and addressed in the FSEIS under cumulative, secondary and long-term impacts.

7. Greenhouse Gas

The belief that re-licensing Indian Point would help to control greenhouse gas emissions was a prevalent belief espoused at the hearing. The veracity of this belief should be fully considered. The Greenhouse gas section of the DSEIS (Section 6) indeed implies that nuclear plants do not have an adverse impact on climate. However, a close reading of the section reveals that the primary scientist cited for this conclusion (Mortimer 1990) stated a clear assumption for his findings, namely their calculation upon conditions in uranium mining and refinement that no longer pertain. As available concentrations of uranium ore decrease and its resulting level of refinement increases, the climate-friendly finding would be reversed (DSEIS at 6-10). Twenty years after key studies were conducted, and with uranium long past peak supply, this assumption is no longer valid and new analysis is required.

References:

- Bogard, William. 1989. *The Bhopal Tragedy: Language, Logic and Politics in the Production of a Hazard*. Boulder, Co.: Westview Press.
- Edelstein, Michael R. 2004. *Contaminated Communities: Coping with Residential Toxic Exposure*. Boulder, Co.: Westview Press.
- Perron, Charles. 1984. *Normal Accidents: Living with High Risk Technologies*. N.Y.: Basic.