

United States Nuclear Regulatory Commission Official Hearing Exhibit	
In the Matter of:	Entergy Nuclear Operations, Inc. (Indian Point Nuclear Generating Units 2 and 3)
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Submitted 12/22/11

**UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION**

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)	Docket Nos. 50-247-LR
)	and
)	50-286-LR
ENTERGY NUCLEAR OPERATIONS, INC.)	
)	
(Indian Point Nuclear Generating Units 2 and 3))	
)	Filed on December 22, 2011

**TESTIMONY OF DR. MICHAEL EDELSTEIN IN SUPPORT OF HUDSON RIVER SLOOP
CLEARWATER, INC.'s CONTENTION REGARDING ENVIRONMENTAL JUSTICE**

Q1. What is your name and your employment?

A1. My name is Michael Edelstein and I am employed as a professor of environmental psychology at Ramapo College of New Jersey.

Q2. In what capacity are you providing testimony today?

A2. I am providing testimony as an expert in the assessment of the tangible and intangible effects of environmental disasters. I have over 30 years of experience in this field and have carefully studied the literature concerning the effects of environmental disaster including Bhopal, Chernobyl, and Katrina. In the course of my own research, I have made field visits to disaster sites and have interviewed disaster victims. My resume showing my experience in the field is attached to this testimony as Exhibit CLE00011.

Q3. Do you also have personal knowledge of the conditions inside Sing Sing prison and the sociology of the prisoners?

A3. Yes I do. As part of my preparation for this testimony I visited Sing Sing and was afforded the opportunity to speak with some of the prisoners.

Q4. Have you prepared a report detailing the opinions you have formed about this case?

A4. Yes I have. My report is called *Environmental Justice Impacts from the Proposed Relicensing of the Indian Point Nuclear Power Complex: a Focus on Sing Sing Prison*. It is attached to this testimony as Exhibit CLE000012.

Q5. Do you hereby incorporate that report into your testimony today and swear in accordance with 28 U.S.C. § 1746, under penalty of perjury, that the report is true and correct?

A5. Yes I do. My sworn testimony in this case comprises both this question and answer and the report itself.

Q6. As part of the preparation of your report have you carefully examined the relevant portions of all the documents listed in the endnotes?

A6. Yes I have.

Q7. Do those documents include the Final Supplemental Environmental Impact Statement, dated December 2010 for the license renewal at the Indian Point reactor complex (the "FSEIS")?

A7. Yes.

Q8. Does the FSEIS adequately assess the potential environmental justice ("EJ") impacts from relicensing?

A8. No it does not. I summarize the deficiencies of the FSEIS on pages 4 and 5 of my report. Most obviously, the report purports to have examined EJ impacts on census block level, but fails to mention Sing Sing at all. This is extremely puzzling because Sing Sing has its own dedicated census block and, as shown on pages 11 and 12 of my report Sing Sing is majority minority. Indeed, the Caucasian population of Sing Sing is just under 21%. Furthermore the Sing Sing census block has a far higher African-American population than adjacent census blocks. There is also no doubt that during severe accident scenarios Sing Sing prisoners would be affected more severely than the general population.

Q9. Is there an evacuation plan in place for Sing Sing?

A9. The documents I have reviewed indicate that Sing Sing would probably not be evacuated even in the most dire emergency. The Commissioner of Social Sciences for Westchester Court stated that there was no plan and complained this was insane and showed a lack of respect for the lives of the prisoners:

The inmates at Sing Sing are not to be evacuated because of the problems with security. This goes well beyond the border of insanity. Does this reflect the degree of respect for human life upon which this plan is founded?

Letter from Bates to DelBello, dated February 4, 1981 at 3 (p.19 of pdf file, available in ADAMS at ML100150865 – attached as Exhibit CLE000013). The absence of an evacuation plan or priority means that shelter-in-place is the de facto response should a disaster occur. This outcome is confirmed by a variety of documents. The Westchester County Emergency Plan states that shelter in place may be used for "special populations" Westchester County, Westchester County Emergency Radiological Emergency Plan for the Indian Point Energy Center (September 2008) at IPEC00200120. Extract attached as Exhibit CLE000014. This document even provides a definition of "shelter in place" as "an action that . . . would be taken by persons who should be evacuated but cannot because of . . . special populations (prisons, nursing homes etc.)" *Id.* The document also states that Sing Sing will shelter-in-place unless otherwise directed. *Id.* at IPEC00200354. The New York State emergency plan fails to

provide an evacuation plan for Sing Sing. New York State Radiological Emergency Preparedness Plan for Commercial Nuclear Power Plants (April 2009), IPEC0021196-00201721; extract attached as Exhibit CLE000015. Finally, a FEMA report about an exercise simulating radioactive release and exposure comments that “the State plan clearly indicates that this correctional facility [Sing Sing] will not be evacuated but will shelter in place.” Chapter 11, page 213, concerning the evacuation of "Sing Sing" (the Ossining Correctional Facility). FEMA, Final Exercise Report for the Indian Point 2 Full-Participation Plume Exposure Pathway (2003) at 176 (of pdf file, available in ADAMS at ML061150609 – attached as Exhibit CLE000016).

Even the study done for Entergy estimating the time to evacuate the general population assumed that so called “special facilities” such as prisons and hospitals will shelter in place. For Westchester, those facilities are the VA Hospital in Montrose and Sing Sing. KLD Associates, Inc., Indian Point Energy Center Evacuation Time Estimate (October 2004) at 2-8 (relevant extract available on ADAMS at ML032510774 – attached as Exhibit CLE000017). In contradiction, the Witt Report, prepared for New York State in 2003, does refer to the potential for evacuation, but states that “the decision to evacuate would be based on health considerations and whether it is riskier to move inmates than to stay in place.” James Lee Witt Associates, LLC., Draft Review of Emergency Preparedness at Indian Point and Millstone (2002) at 68 (available in ADAMS as ML062970228). The report also refers to a plan for a “two-tier process of evacuation using 36 secure coaches, 18 secure vans, and 10-non-secure vans.”

In summary, all these documents show that the plan is for prisoners to shelter in place at Sing Sing, even when the general population is being evacuated. It is unclear whether there is a contingency plan to evacuate Sing Sing. The failure to mention such a plan in the State emergency preparedness plan, dated 2009, tends to indicate that there is no such plan.

Q10. Did the FEIS clarify whether such an evacuation plan is in place?

A10. No, the FSEIS fails to discuss either the challenges of evacuating or sheltering in place at Sing Sing.

Q11. Why would Sing Sing prisoners be affected worse than the general population?

A11. First, if there is no evacuation plan in place then the disparate impact is obvious, because prisoners could be left to shelter in place while the general population evacuates. Even if there is a plan in place, both the Westchester and State emergency plans contemplate sheltering in place populations that are hard to evacuate, even when the general population is being evacuated. This would naturally lead to disparate impact. This is a critical issue that the authors of the FSEIS needed to determine, but failed to do so. Second, even if there is a plan in place, evacuation of prisoners is far more complex than evacuation of the general population and carries far more risk of harm to the prisoners either during evacuation or upon their arrival at the temporary prison. Third, even if the prison shelters in place along with the general population, the prison is a totally different structure and social context than the residences and offices that contain the general population. Thus, in a shelter in place scenario impacts are likely to be higher due to inability to seal the building and the potential for social disruption and violence. Overall, if a release of radiation occurred at Indian Point, I think it is likely that the population of Sing Sing would be affected significantly more adversely than the general

population.

Q12. How did the authors of the FSEIS reach their conclusions about Sing Sing?

A12. It is not at all clear to me that the authors of the FSEIS did any study of the issues Sing Sing raises. I am informed by Clearwater that the NRC Staff did not disclose the New York State or the Westchester County Emergency Plans. Without these basic documents I cannot see how the NRC Staff could even start to assess what the impact of a radiation release would be on Sing Sing. As my report illustrates, assessing what would occur at Sing Sing in such an eventuality is a complex and difficult task. All indications are that the NRC Staff did not do a careful scientific analysis of the potential for disparate impact on the prison population, if indeed they did any analysis at all. Had they done such an analysis, I believe they would have found that significant disparate impact is likely, necessitating an analysis of mitigation possibilities and options.

Q13. Which elements of mitigation would be most effective?

A13. Sing Sing is a maximum-security prison with approximately 1,700 inmates. The best possible scenario is to avoid situations where those inmates could be exposed to radiation. This could be done by making the chance of a severe accident as low as possible, by either closing Indian Point or doing everything possible to make it safer. As an alternative, the prison could be relocated considerably further from a nuclear power plant or the prisoners moved to facilities that meet this requirement.

Q14. What else should be done to mitigate the disparate impacts you have identified?

A14. At pages 38 to 42 of my attached report, I outline a wide range of mitigation measures that need to be considered as part of the FSEIS. They include planning for evacuation of Sing Sing, doing tests and drills to practice the evacuation plan, educate and inform inmates, storing water and food, improving windows and ventilation to allow the outside air to be excluded while keeping the indoor atmosphere livable, providing for measurement of radiation exposure at Sing Sing during a release, assuring an adequate supply of KI is dedicated to prisoners, limiting the use of Sing Sing as shelter by community members and families, and improved communications during emergencies to allow inmates and staff to communicate with their families.

Q15. Do you think that the accident at Fukushima in Japan has provided valuable information about preparation for severe accidents?

A15. Yes. The accident at Fukushima shows that releases of radiation from nuclear accidents can be long term and sustained. In addition, significant contamination can occur in the zone close to the reactor. This information makes it even more imperative to carefully assess and then mitigate the effects of a severe accident at the Indian Point reactors on the Sing Sing population.

Q16. Have you also considered Rockland County Jail?

A16. Yes. Subsequently to preparing my report I reviewed an interview done by Clearwater researcher Susan Shapiro with four staff at this jail, which are included as Q157- Q168 in Exhibit CLE000010, from interview dated 9/24/11. Based upon this information, pertinent observations can be made. That jail is just outside the 10-mile zone and holds around 240 inmates, 60 to 70% of whom are members of minority groups. Around half of the prisoners are awaiting trial, while the rest have sentences of less than one year. *Id.* Sheltering in place would result in lack of air circulation, leading to extreme heat in summer and extreme cold in winter. *Id.* There is no contingency plan if the water supply becomes contaminated. *Id.* No potassium iodide pills are stored on site and the staff were not even aware of the potential use for these pills in an emergency. *Id.* Evacuation would take a minimum of 8 to 10 hours if sufficient transport were available. *Id.* The prison is controlled by New York State, which would decide on whether evacuation is necessary. *Id.*

Despite the lack of knowledge of the jail staff, the Rockland County emergency plan recommends distribution of potassium iodide to incarcerated populations, nursing home patients and staff, and hospital patients and staff, “where evacuation is not possible or feasible.” Rockland County, Rockland County Radiological Emergency Response Plan (2008) at IPEC00201102 – attached as Exhibit CLE00018. Further implying that the jail will be treated differently to the general population, the plan designates the jail (and a hospital) as a “special facility” *Id.* at IPEC00200933. The plan also recognizes that even if the County orders evacuation for the general population, selective shelter in place may be a “protective option for those individuals who could not be safely evacuated.” *Id.* at IPEC00200992. These individuals include those “who have been designated medically unable to evacuate, individuals who require constant, sophisticated medical attention, or are incarcerated.” IPEC00200992. It states that the primary locations for implementing selective shelter in place are the Helen Hayes Rehabilitation Hospital (in West Haverstraw), the Robert E. Yaeger Health Center (in Pomona), and the County Jail in New City. *Id.*

Thus, prisoners in the Rockland County jail are an environmental justice population that is likely to experience significant disparate impact if there were a radiation release from Indian Point.

Q17. Do you believe that other prisons in the area would suffer from similar impacts to those you have detailed for Sing Sing?

A17. Because Sing Sing is closest to Indian Point, is a maximum security prison, and has a large population, I think it would suffer more severe impacts than other prisons in the area. However, that does not mean that the potential impacts at the many other prisons in the areas should not be assessed. Instead, the FSEIS should assess these impacts and devise appropriate mitigation.

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



Michael Edelstein, PhD

Date: 11/6/2011