UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
2100 RENAISSANCE BLVD., SUITE 100
KING OF PRUSSIA, PA 19406-2713

July 18, 2014

Indian Point Safe Energy Coalition
P.O. Box 131
Ossining, NY 10562-0131

Dear Sir or Madam:

I am writing in response to your June 4, 2014, letter to Mr. William Dean, Regional Administrator, Region I, U.S. Nuclear Regulatory Commission (NRC). In that letter, you listed 30 questions and requested responses from the NRC. The enclosure to this letter provides the responses to your questions.

Throughout our response, you will find references to publically available documents identified by Accession Numbers (ML#). These documents can be retrieved using the NRC's publically available web-based Agencywide Documents Access and Management System (ADAMS). To retrieve the document, enter the Accession Number (ML#) in the Document Properties field located in the Advanced Search tab at the following webpage: http://adams.nrc.gov/wba/. Webpage links are also provided throughout the document where applicable.

Thank you for your questions regarding Indian Point. I hope this response addresses your concerns.

Sincerely,

/RA/

Arthur L. Burritt, Chief
Reactor Projects Branch 2
Division of Reactor Projects

Enclosure: Response to IPSEC Letter
dated June 4, 2014

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OFFICE	RI/DRP				
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DATE	7/18/14				

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Response to IPSEC Letter dated June 4, 2014

1. Regarding your question that the U.S. Nuclear Regulatory Commission (NRC) does not create a public record of public meetings, we note that many NRC meetings and hearings have publically available records. In the case of Annual Assessment meetings, these are not hearings or decision-making sessions. As such, we have determined that transcription is not necessary for these meetings. We engage in active listening and note-taking during these meetings and do our best to respond to questions and concerns. The NRC does not preclude members of the public from video-taping or otherwise recording public meetings, and we would note that a non-governmental organization video-recorded the recent Indian Point meeting and posted it on the YouTube website: http://www.youtube.com/watch?v=gKcZejs6cZs. Each year we look at ways to improve public meetings. The Chairman has tasked the staff with looking at how we can improve NRC meetings, and an initiative to do that has just begun. This initiative includes determining ways to better document public meetings, such as considering the use of transcription.

2. Regarding the operating licenses at Indian Point, both Indian Point Unit 2 and Unit 3 license renewal applications meet the "timely renewal" provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 2.109(b). This states, "If the licensee of a nuclear power plant licensed under 10 CFR 50.21(b) or 50.22 files a sufficient application for renewal of either an operating license or a combined license at least 5 years before the expiration of the existing license, the existing license will not be deemed to have expired until the application has been finally determined." Indian Point Unit 2 entered the period of extended operations in September 2013, and the original 40-year license for Unit 3 expires in December 2015. While Indian Point Unit 2 continues to operate under its current license, they have implemented commitments made to the NRC in their renewed license application. The NRC has performed inspections to ensure that the licensee has properly implemented these commitments.

3. Regarding your question on why the NRC gave Entergy a green rating (Licensee Response Column of the NRC's Reactor Oversight Process Action Matrix) in 2013 despite having taken enforcement action on April 29, 2014 (ML14118A124), the NRC took significant enforcement action against Entergy and the individual for this issue. This included issuing a Severity Level III Notice of Violation to Entergy and the individual, as well as an order to the individual prohibiting involvement in NRC-licensed activities for one year. These violations were issued under the NRC's Traditional Enforcement process, and require that we follow up on the issues involved. While these enforcement actions were significant, they did not negatively affect our 2013 overall safety assessment of Indian Point that the plant should remain under the normal oversight level (green). Additionally, these enforcement actions result in increased NRC oversight through additional inspections, and the NRC plans to perform inspection procedure 92702, "Follow-up on Corrective Actions for Violations and Deviations," later this year.

4. Regarding your question about technical standards and NRC oversight, the NRC requires licensee procedures and technical specifications to be followed as part of the facility's operating license, and failure to comply with these can result in significant NRC

enforcement action, as was the case in the April 29, 2014, enforcement actions (ML14118A124). If you are aware of specific violations of standards that the NRC has not acted on, please inform us by calling the NRC's toll-free safety hotline at (800) 695-7403.

5. Regarding your question as to why the NRC didn't require a shutdown of Indian Point before Superstorm Sandy, the NRC closely monitored the plant during the storm to verify safe operations and to determine whether it should remain online. No safety concerns were identified with the continued operation of Indian Point. Additionally, wind speed thresholds requiring shutdown, which are described in the Indian Point Technical Requirements Manual and monitored by NRC inspectors, were not exceeded. Indian Point Unit 3 automatically shut down in response to electrical grid disturbances caused by the storm. Shutdowns as a result of grid disturbances are within the plant design and safety system readiness to provide core cooling or emergency electric power was not affected. Information related to hurricane preparations and press releases can be found in ADAMS (ML12305A045, ML12305A046, ML12305A051, and ML12305A055).

6. Regarding your question about a 2003 report co-authored by NRC Chairman Macfarlane on the topic of dry cask storage, the NRC Chairman, along with the other four members of the Commission that oversees NRC policy and decision-making, recently articulated their views on requiring the expedited transfer of spent fuel to dry cask storage. Each Commissioner decides these matters based on his or her own careful evaluation. Ultimately, the Commission voted against requiring expedited transfer of the spent fuel. To review each Commissioner's voting record and basis for their decision, visit the following link at the NRC website: http://www.nrc.gov/reading-rm/doc-collections/commission/comm-secy/2013/2013-0030comvtr.pdf.

   Indian Point began using dry cask storage for some of its spent nuclear fuel several years ago. As is the case at other U.S. nuclear power plants, Indian Point schedules periodic dry cask loading campaigns, during which a number of spent fuel assemblies are removed from the spent fuel pools and moved into dry casks. These moves are made to afford the licensee operational flexibility and to comply with regulatory requirements regarding spent fuel pool capacity.

7. Regarding your question of Indian Point's current spent fuel storage amounts, anytime a plant's owner intends to increase the capacity of its spent fuel pool beyond the licensed amount, a thorough evaluation must be conducted to ensure the continued safe storage of the material, including a review of the increased heat load and an analysis of any potential safety hazards. In the case of Indian Point, this took place each time they changed the configuration of the spent fuel pools, providing assurance that the pools remained safe. The NRC independently reviewed each of the spent fuel pool evaluations and concluded that the spent fuel pools remain safe under the licensed loading limit. Both Indian Point Unit 2 and 3 were originally licensed for a maximum capacity of 264 fuel assemblies. Since then, analyses and evaluations have proven that the pool can safely accommodate more than the original licensed limit. Currently, the Unit 2 spent fuel pool has a capacity of 1374 assemblies, and the Unit 3 spent fuel pool has a capacity of 1345 assemblies. Both pools are similarly loaded near full capacity. Entergy has also been granted license amendments to allow spent fuel transfer from the Unit 3 spent fuel pool to the Unit 2 spent fuel pool using a newly designed transfer cask. The NRC has performed a significant amount of inspection regarding this fuel transfer (ML13039A047) to verify that it is executed safely.

8. Regarding your question of the continued operation of Indian Point absent a long-term solution for spent fuel storage, the NRC has repeatedly reaffirmed its view that spent fuel can be safely stored on-site at U.S. nuclear power plants, either in spent fuel pools or in dry cask storage. The D.C. Circuit of Appeals several years ago remanded the agency's 2010 Waste Confidence Decision and Rule to the agency for further environmental review. The NRC is currently in the process of addressing those concerns. For more information about the Waste Confidence Decision and Rule, see the following webpage on the NRC website: http://www.nrc.gov/waste/spent-fuel-storage/wcd.html

9,10. Regarding your questions on the amount of high burn-up fuel in the Indian Point spent fuel pool, that information would be considered security-related and therefore is not available for public release. Planning has begun for an important new confirmatory study, run jointly by the nuclear industry and the Department of Energy, with regulatory oversight by the NRC. In this study, high burn-up spent fuel will be loaded into a cask fitted with instruments to provide temperature readings and allow gas sampling. Those readings, combined with tests on the fuel assemblies and inspection of the cask's interior after years of dry storage, will provide additional understanding of what happens to high burn-up spent fuel in a storage cask as it cools over time. An NRC publically available background document is available at the following webpage on the NRC website: http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/bg-high-burnup-spent-fuel.html

11,12,13. Regarding your questions on seismic events, seismic standards of the spent fuel pools, and whether the Indian Point reactor buildings were built to withstand a 6.1-magnitude earthquake, nuclear plants are designed to withstand certain levels of ground motion measured in accelerations (g's), not the Richter scale. Ground motion depends not only on an earthquake's magnitude, but also on its distance from the site and geological characteristics of materials (density, saturation, elasticity, and energy damping properties) through which the energy waves travel. The ground acceleration used for the design of Indian Point Units 2 and 3 safety-related structures, including the spent fuel pool, is 0.15g. As part of the NRC's post-Fukushima actions, each plant is required to perform a seismic hazard reevaluation. We are currently in the process of reviewing those reevaluations. Indian Point has been prioritized as a Tier 1 plant, which means the results of its reevaluation qualify it for the most immediate attention. Please see ML14030A046 regarding the NRC's request for information to licensees for seismic hazard reevaluations. Entergy submitted seismic reevaluations for Indian Point Unit 2 (ML14099A110) and Unit 3 (ML14099A111) on March 31, 2014. The plants can continue to operate until these reviews are complete because their robust designs and redundant safety features ensure they can safely shut down during the largest postulated seismic event. Since plants generally have significant margin beyond their existing seismic design basis, it is possible they can continue to operate safely without modification even with a higher seismic hazard. No decisions have been made yet with respect to whether any structures at Indian Point will have to be modified or reinforced.

14. Regarding your question on real-time radiation monitoring and radiation spikes, nuclear plants are instrumented to provide operators real-time radiation conditions for inside the plant and for amounts that are discharged to the environment. The NRC requires each U.S. nuclear power plant to maintain a Radiological Environmental Monitoring Program (REMP). Under REMP, each plant owner must report discharges from the facility and the results of environmental monitoring around the plants to ensure that potential

impacts are detected and reviewed. The NRC conducts inspections of these programs to ensure they are in compliance with NRC requirements. These programs give the NRC a high degree of confidence that any releases from plants are being accurately measured and recorded. We do not have any information supporting any unreported spikes in radioactive releases from Indian Point. We would certainly review any such information that was brought to our attention. Radioactive effluent reports, which are required to be submitted by each nuclear power plant annually, can be found at the following webpage: http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html

15. Regarding your question of equipment for inspection of underground pipe inspections, the NRC continues to engage the nuclear industry on the subject of underground piping integrity. The NRC has a significant amount of information related to this topic and our requirements in this area on our website, including inspecting underground piping. More information on underground piping can be found at the following webpage: http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/buried-pipes-tritium.html. To date, the NRC has not identified any safety significant issues with underground piping integrity at Indian Point.

16,17. Your statement that Indian Point is continually allowed to ignore fire safety violations is incorrect. Indian Point is not allowed to ignore fire safety violations. As is the case with all U.S. nuclear power plants, the NRC conducts regular inspections of fire safety at Indian Point. Even if a plant has an "exemption" from a part of the NRC's protection approach, called Appendix R, the plant must implement alternative methods to ensure it can shut down safely in case of a fire. Exemptions are only authorized if the plant can maintain the reactor's safe shutdown capability in the event of a fire and the exemption does not present an undue public health and safety risk. More information regarding fire protection at nuclear power plants can be found at the following webpage: http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fire-protection-fs.html

For information on how many regulatory exemptions Indian Point has received, please see ML12172A370. For a press release regarding Indian Point exemptions which were turned down, please see ML120320428.

18. Regarding your question about alleged repeated failures of force-on-force drills at Indian Point, the NRC conducts inspections of force-on-force security exercises routinely and takes enforcement action when regulatory requirements are not met. Any security vulnerabilities or deficiencies found during the NRC force-on-force drills or inspections are required to be compensated for or corrected before the NRC inspectors leave the site. Significant issues that occur during exercises are required to be captured in the licensee's corrective action program. The NRC inspects licensee corrective action program security items (condition reports) to ensure the adverse conditions are identified, properly compensated for, and corrected in a timely manner. Inspection reports which describe detailed security-related inspections are not publically available. More information regarding security force-on-force security exercises can be found at the following website: http://www.nrc.gov/security/faq-force-on-force.html

19. Regarding your question on when Indian Point corrected the lack of wiring separation identified in 2004 by William Lemanski, this was addressed many years ago at Indian Point. We examined Entergy's corrective action plans and found the approach adequate to address the existing deficiencies and enhance controls associated with the cable

separation process. You can find details of the NRC's assessment and conclusion in NRC inspection report ML042330354. Additionally, correspondence related to wiring separation issues can be found in ML042930347.

20. Regarding your question of potassium iodide (KI) in the 50-mile ingestion pathway zone, the NRC's current consideration of KI in emergency planning is described on the following website: http://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide.html#current-status. Additionally, further information on the topic of KI can be found at the following webpage: http://www.nrc.gov/about-nrc/emerg-preparedness/about-emerg-preparedness/potassium-iodide/ki-faq.html

21. Regarding your question of why the evacuation zone is only 10 miles given the exposure distances of Fukushima and Chernobyl, the NRC has determined that the 10-mile-radius Emergency Planning Zone (EPZ) should be the focus of emergency planning activities, including biennial exercises, sirens, and the stockpiling of KI tablets, because that is the area that would likely be most significantly impacted by a severe accident at a U.S. nuclear power plant. However, evacuations or other protective actions would not be bound by that geographical area. Emergency planning decision-makers have the ability to call for protective measures beyond the EPZ if they deem that necessary. The Federal Emergency Management Agency (FEMA) takes the lead in initially reviewing and assessing the offsite planning and response and in assisting State and local governments, while the NRC reviews and assesses the onsite planning and response. We would also note that once every six years, a 50-mile Ingestion Planning Zone drill is conducted. Please see our April 9, 2013, letter to Chairman Michael Yohan, Swift River School Committee, which addressed a similar concern (ML13087A842).

22. Regarding your question on why the NRC has not forced closed-cycle cooling to be installed at Indian Point, an alternative cooling system was evaluated during the initial licensing process for the Indian Point units, and has been evaluated during the License Renewal process in the Generic Environmental Impact Statement for License Renewal of Nuclear Plants. More information on the Generic Impact Statement and closed-cycle cooling hearings can be found in ML103350405, ML101190319, and ML100350787. We understand there are ongoing interactions between the state and Entergy associated with the state's role delegated to them by the Environmental Protection Agency (EPA) regarding the use of technologies for minimizing environmental impact. The EPA recently issued new standards with respect to power plant water intake/discharge uses. You can read more about the EPA final rule required by the Clean Water Act at the following EPA webpage: http://yosemite.epa.gov/opa/admpress.nsf/f0d7b5b28db5b04985257359003f533b/f14b3341fbd63e8085257cdd006fb489!OpenDocument

23,24,25. Regarding your questions about emergency protocols, evacuations, and what parts of the Indian Point evacuation plan have been upgraded to remedy deficiencies identified in the Witt report in 2003, the NRC has reviewed the report prepared by James Lee Witt Associates, LLC, and our continuing efforts to ensure adequate emergency planning and preparedness can be found in ML030280005. More information on emergency preparedness and response can be found at the following webpage: http://www.nrc.gov/about-nrc/emerg-preparedness.html.

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assesses the onsite planning and response. In July 2003, FEMA addressed the Witt Report and informed New York State (NYS) that it had reasonable assurance that appropriate protective measures to protect the health and safety of the public could be taken in the event of a radiological incident at the Indian Point facility. The NRC also determined that Indian Point met the criteria for adequate protection based on FEMA's finding of reasonable assurance and based on the NRC's assessment of onsite emergency response capabilities.

26. Regarding your question on the topic of shadow evacuations (evacuation by persons outside any officially declared evacuation zone), NRC Chairman Allison Macfarlane wrote the following to members of Congress in June 2013 (ML13127A440):

> "The NRC has studied evacuations of populations (greater than 1,000 people) from a variety of hazardous conditions in the U.S. Shadow evacuations and the potential impacts on the evacuated population were among many factors studied. While the studies indicated that shadow evacuations occur, they also showed the impact on the overall evacuation to be relatively minor. A number of NRC licensees have completed sensitivity analyses on the impact of shadow evacuations in NRC-required evacuation time estimates. Again, these analyses show that shadow evacuations will have an effect, but that the effect is minimal. There are several reasons for this conclusion. First, the network of roads rapidly expands further away from each site, providing greater capacity to absorb additional cars. Additionally, the population that would be part of a shadow evacuation resides beyond the 10-mile emergency planning zone border and would enter into the roadways at a distance well removed from the site; this population would be miles ahead of the evacuating population. Further, real-world evidence shows that shadow evacuations occur in a graduated manner with an increased population evacuating closer to the source and tapering to zero at greater distances from the incident. To ensure that the impacts of shadow evacuations are appropriately considered, the NRC included guidance on how licensees should evaluate shadow evacuations in NUREG/CR-7002, "Criteria for Development of Evacuation Time Estimate Studies."

27,28. Regarding your questions of compensation and the Price-Anderson Act, please see the following webpage for information on nuclear insurance and disaster relief funds: http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/funds-fs.html

29. Please see Response 7.

30. Regarding your question on the Bureau of Coastal Management, the NRC is engaged with the NYS Department of State (DOS) regarding the Coastal Zone Management Act (CZMA) consistency review regarding renewal of the licenses for Indian Point. These interactions include formal letters between the NRC and NYS DOS (ML13346A960, ML14024A064, ML14023A586, ML14156A168) and summary of status calls (ML14136A005, ML14024A372).