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November 22, 2022

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U.S. Nuclear Regulatory Commission
Office of Nuclear Material Safety and Safeguards
Reactor Decommissioning Branch
Mail Stop: T-5A10
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Subject: Emergency Planning Exemption Request and License Amendment Request for the Indian Point Site

Dear Mr. Sturzebecher:

The State of New York opposes reduction of emergency planning requirements before all spent fuel at the Indian Point site is removed from the spent fuel pools and placed in dry cask storage. On December 22, 2021, Holtec Decommissioning International, LLC (HDI) submitted two requests related to emergency preparedness for Indian Point Nuclear Generating Units 1, 2, and 3 (Indian Point): a request for exemptions from certain emergency planning requirements and a license amendment request (LAR) to revise the Permanently Defueled Emergency Plan (PDEP) and Permanently Defueled Emergency Action Level (EAL) scheme. New York State has reviewed the request documents, specifically:

- Exemption Request to Certain Emergency Preparedness Requirements
  - Initial Request dated December 22, 2021 (ML21356B693)
  - Supplement dated February 1, 2022 (ML22032A017)
  - Revision dated February 2, 2022 (ML22033A348)
- License Amendment Request for Permanently Defueled Emergency Plan (PDEP) and Emergency Action Level Scheme
  - Initial Request dated December 22, 2022 (ML21356B704)
  - Revision dated February 4, 2022 (ML22035A121)

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The requests seek reductions in emergency preparedness requirements reflective of those presented in NRC's proposed rulemaking proceeding entitled "Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning" (NRC-2015-0700). (That rulemaking proceeding is not expected to be final for another year.) New York State previously submitted comments in response to various stages of that rulemaking. We incorporate and reassert those by reference here. See comments of:

- New York, Vermont, Massachusetts, and Connecticut (March 18, 2016) (ML16085A310);
- New York State Comments (March 18, 2016) (ML16081A495);
- New York State Energy Research and Development Authority and New York State Department of Public Service (June 13, 2017) (ML17165A386);
- New York, Connecticut, Maryland, Michigan, Massachusetts, and Vermont (August 30, 2022) (ML22257A195);
- New York State (August 30, 2022) (ML22257A229); and
- New York State Department of Public Service (August 31, 2022) (ML22243A206).

The State of New York opposes reduction of emergency planning requirements before all spent fuel at the site is removed from the spent fuel pools and placed in dry cask storage. At Indian Point, that is currently scheduled to occur in approximately November 2023—just ten months following NRC's anticipated decision on the exemption request and LAR.

Holtec acknowledges in its exemption request that the risk of credible accidents will still exist during this time period. In Enclosure HDI-IPEC-21-015 (pp. 2), Holtec states that "the spectrum of credible accidents is much *smaller*" and that "the *majority* of the design basis accident (DBA) scenarios previously postulated in the safety analyses for the plant are no longer possible" (emphasis added). But Holtec does not state that the risk is zero.

It is this continuing non-zero risk with which the State expresses concern. The Indian Point site is unlike any other commercial nuclear site in the county, and no site-specific analysis of a potential severe spent fuel pool accident's impacts has ever been conducted by NRC. With mere months remaining before all waste is scheduled to be out of the pools, passing any such level of risk on to neighboring communities is without justification and contrary to the public interest.

CHARACTERISTICS OF THE INDIAN POINT SITE

A. Population

Indian Point's fifty-mile radius is densely populated and contains some of the most expensive real estate in the country, along with landmarks, parks, arenas, universities, and transportation facilities. The Indian Point power reactors, spent fuel pools, and dry storage casks are 24 miles north of New York City, 35 miles from Times Square, and approximately 38 miles from Wall Street. The U.S. Census Bureau recognizes that New York City is the largest city in the nation—with more than 8,000,000 residents.

Additionally, Indian Point's facilities are approximately 3 miles southwest of Peekskill, with a population of 22,441; 5 miles northeast of Haverstraw, with a population of 33,811; 16 miles southeast of Newburgh, with a population of 31,400; and 17 miles northwest of White Plains, with a population of 52,802; 23 miles northwest of Greenwich, Connecticut; 37 miles west of Bridgeport, Connecticut; and 37-39 miles northeast of Jersey City and Newark, New Jersey.

With approximately 17 million people currently living within 50 miles of Indian Point, no other operating reactor site in the country comes close to Indian Point in terms of surrounding population. According to NRC:

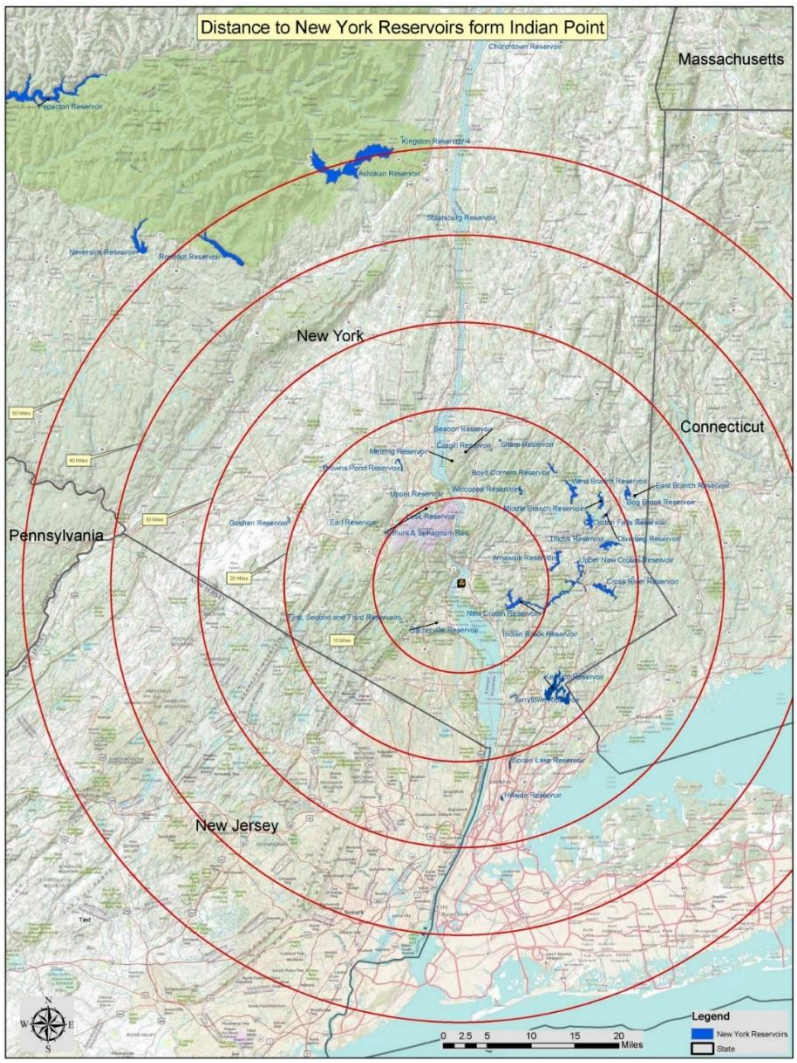
> Typically, nuclear power plant sites and the surrounding area are flat-to-rolling countryside in wooded or agricultural areas. More than 50 percent of the sites have 80-km (50-mile) population densities of less than 200 persons per square mile, and over 80 percent have 80-km (50-mile) densities of less than 500 persons per square mile. The most notable exception is the Indian Point Station, located within 80 km (50 miles) of New York City, which has a projected 1990 population density within 80 km (50 miles) of almost 2000 persons per square mile.

NUREG-1437 (1996) at p. 2-2. NRC should not overlook the common-sense point that a credible accident affecting a hyper-urbanized area with 2,000 people per square mile plainly will have greater public health and

other consequences than a comparable accident affecting a rural area with only 300 or 800 people per square mile.

B. Drinking Water Resources

Indian Point's spent fuel pools are also 6 miles west of the New Croton Reservoir in Westchester County, which is part of the New York City reservoir system and provides drinking water to New York City residents. The pools are also in close proximity to other critical reservoirs in the New York metropolitan area:

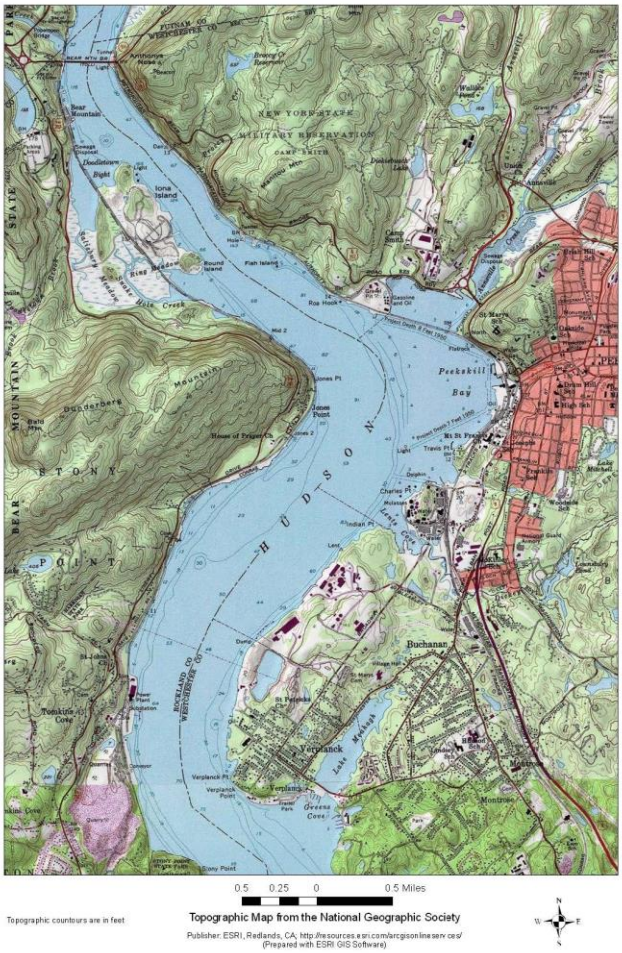


A credible accident at Indian Point may accordingly threaten drinking water resources for millions of New York City residents.

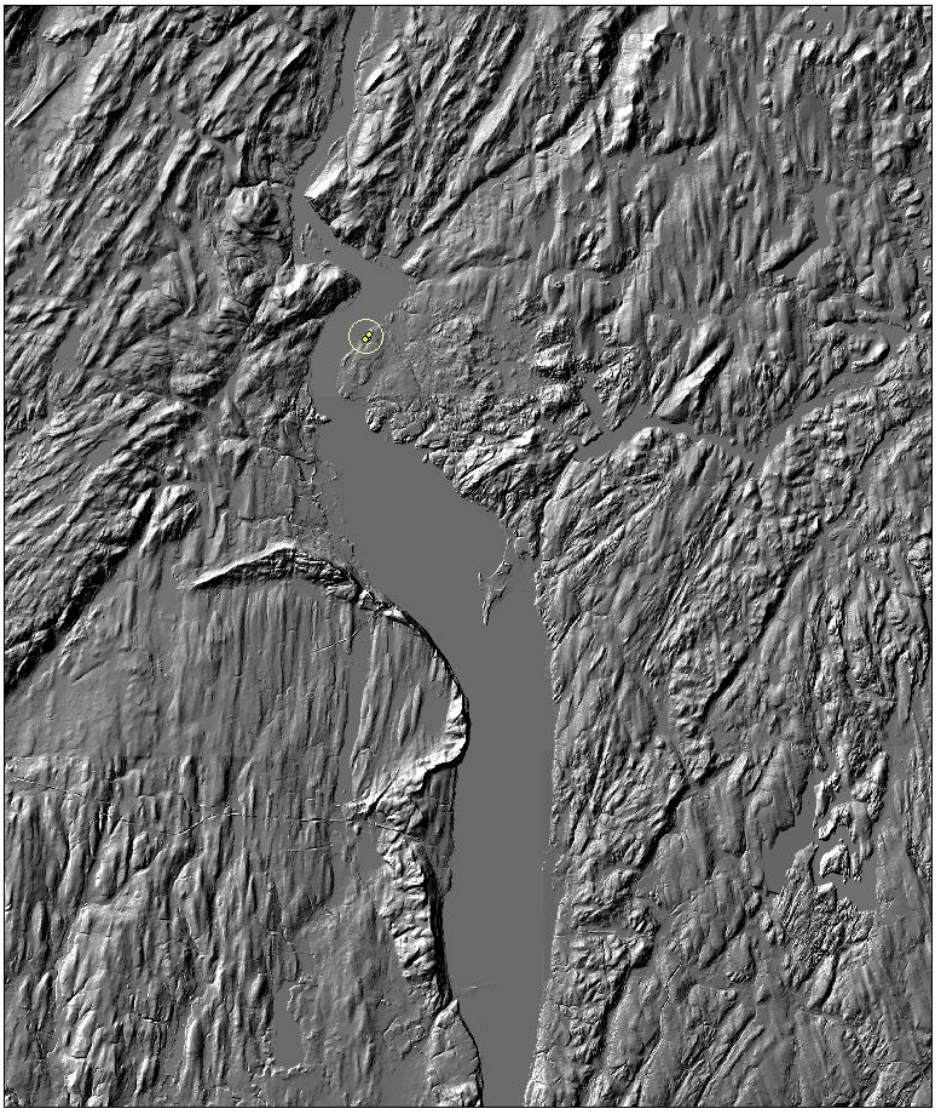
C. Topography and Meteorology

The Indian Point facilities were constructed close to the riverbank and are located at a relatively low point in the valley formed by the Hudson River. The hills of the Hudson River Valley in the vicinity of the Indian Point facilities are illustrated in the following two topographical maps.

The first map depicts the area within five miles of the facilities:



The following “hillshade” map depicts the lower Hudson River Valley in the vicinity of the Indian Point site:



◇ Reactors

3 1.5 0 3 Miles

N
W E
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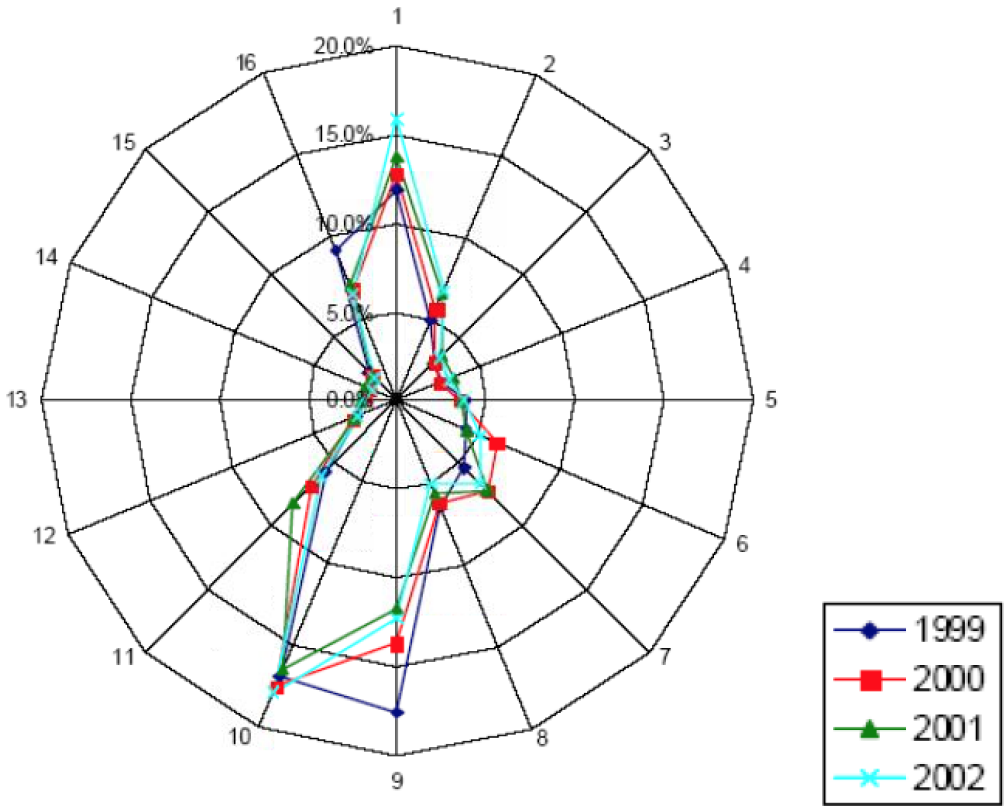
Hillshade from USGS 10 meter digital elevation model
(Prepared with ESRI GIS Software)

This topography tends to concentrate wind direction to the south (toward the New York City metropolitan area) or to the north toward the U.S. Military Academy at West Point and other Hudson River cities and towns. The following wind rose, prepared by Indian Point's former owner, illustrates the dominant wind direction.



Plot of Weather for Years 1999 – 2002 from the site 10-meter tower showing wind direction (percent by direction) (ML093020492)

And the following population rose depicts the relative population densities in the various sectors around Indian Point. [1]

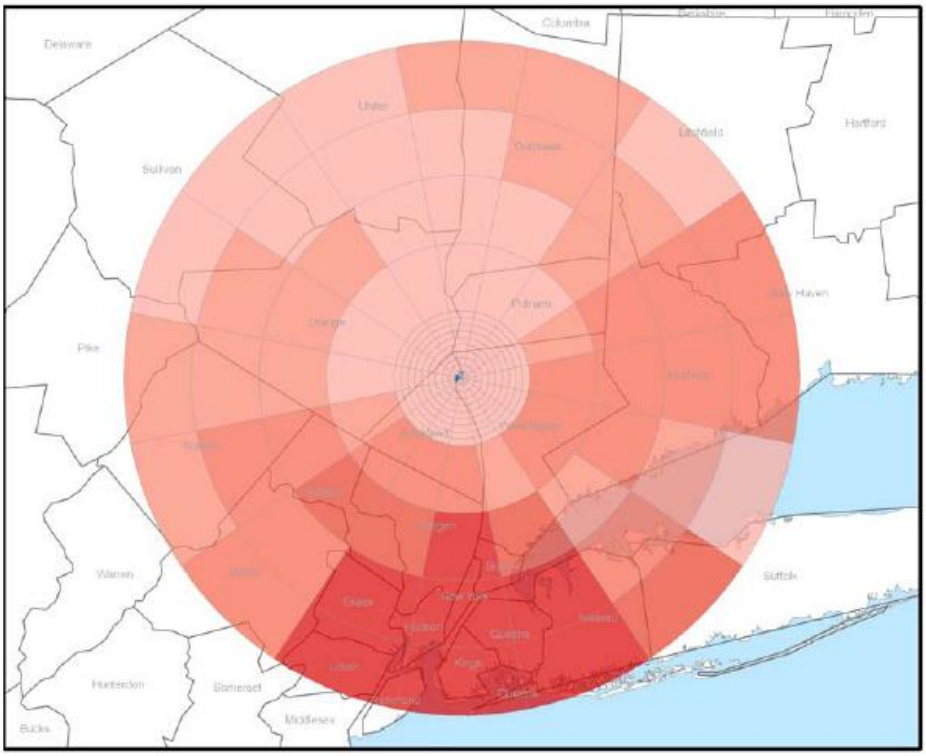


Figure 2.1 2035 projected total population by spatial element (dark red indicates highest population).

[1] *Source*: Site Specific MACCS2 Input Data for Indian Point Energy Center, Rev. 1, (December 1, 2009), Enercon Services, Inc. Prepared for Entergy Nuclear Northeast, at 2-7. As noted, winds blow from the Indian Point facilities southward—toward the New York City metropolitan area.

Accordingly, there is reason to believe that Indian Point's prevailing topographical and meteorological characteristics would direct the impacts of any accident at the site toward some of the State's (and the country's) most densely populated areas.

D. The Hudson River Ecosystem

The Indian Point facilities are located on the eastern bank of the Hudson River at river mile 43. The Indigenous name for the river, Mahicantuck, means "great waters in constant motion" or "river that flows two ways." This name highlights the fact that this waterway is more than a river—it is a tidal estuary. The Hudson River is an important regional resource of significant aesthetic value in addition to providing transportation, recreation, and water supply. More than 200 species of fish are found in the Hudson and its tributaries. Bald eagles, herons, waterfowl, and other birds feed from the river's bounty. Tidal marshes, mudflats, and other significant habitats in and along the estuary support a diversity of life. Tidal freshwater wetlands near Indian Point support this life web. The Hudson River is one of the nation's fourteen American Heritage Rivers. A credible accident at the Indian Point site, however, could cause potentially irreparable harm to this vital natural resource.

E. Seismic Hazards

Indian Point is susceptible to earthquake damage since it was initially designed to withstand an earthquake and ground acceleration that are now deemed to be below the reasonably predictable earthquake and ground acceleration for the site and its environs.[2] In 2008, the Bulletin of the Seismological Society of America

[2] *See generally*, Declaration of Lynn R. Sykes, Ph.D., and Declaration of Leonardo Seeber and accompanying Exhibits, (Nov. 2007) (ML073400205) (Volume I of II); Letter from Attorney General Schneiderman to NRC Commissioners, Seismic Risk at Indian Point Nuclear Generating Station, (March 18, 2011) (ML110820058); *see also* Comments Concerning the Proposed Generic Communication "Draft NRC Generic Letter 2011-XX: Seismic Risk Evaluations for Operating Reactors," Docket ID NRC-2011-0202, at 14-19 (Dec. 15, 2011) (ML11354A231).

published a peer-reviewed identifying a new seismic feature in the vicinity of Indian Point.[3] The article concluded:

> Two nuclear power plants at Indian Point (near Peekskill in Fig. 2) are located closer to more people at any given distance than any other similar facilities in the United States. Entergy, their owner, recently applied for 20-yr extensions of their existing 40-yr licenses. Much new seismological information is available since their initial approvals in 1973 and 1975. Nevertheless, the U.S. Nuclear Regulatory Commission so far has not permitted any new information to be used or old information on which the original licenses were based to be contested in considering extensions of licenses. Indian Point is situated at the intersection of the two most striking linear features marking the seismicity (Fig. 3) and also in the midst of a large population that is at risk in case of an accident to the plants. This is clearly one of the least favorable sites in our study area from an earthquake hazard and risk perspective.

There is now substantial evidence that there is earthquake risk that NRC did not take into consideration when approving operating licenses for existing reactors and spent fuel storage facilities. In 2004, the United States Geological Survey (USGS) told NRC that earthquake hazards in the Central and Eastern United States (CEUS), the portion of the lower 48 states east of the Rocky Mountains, were higher than previously understood. In May 2005, NRC staff acknowledged that earthquake risk for reactors and spent fuel storage in CEUS may be greater than NRC assumed when it approved operating licenses for these facilities.[4]

In 2014, Entergy provided an updated seismic hazard analysis for IP2 and IP3. That analysis shows that the anticipated ground motion is larger for higher frequency events than was understood when the two units received their operating licenses. After receiving the Entergy updated analysis, NRC Staff performed its own

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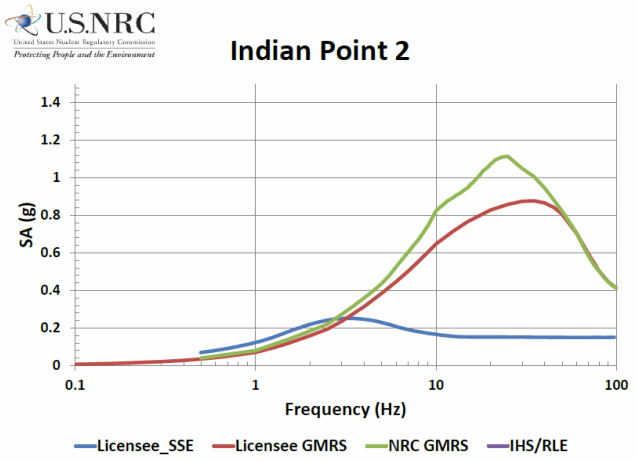
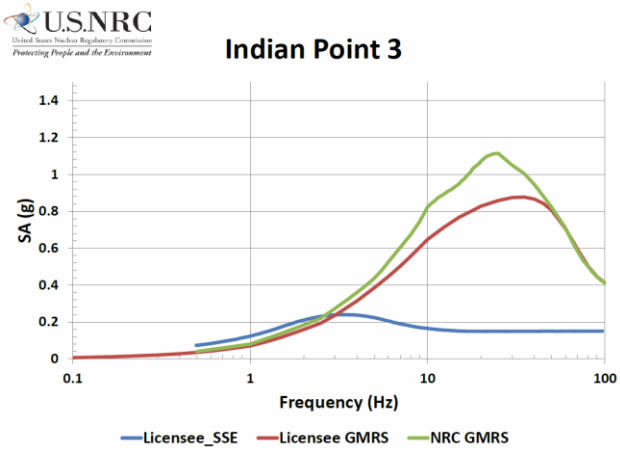
[3] Observations and Tectonic Setting of Historic and Instrumentally Located Earthquakes in the Greater New York City–Philadelphia Area, BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, Vol. 98:1696-1719 (Aug. 2008).

[4] *See, e.g.*, May 26, 2005 NRC Staff memorandum re: Identification of a Generic Seismic Issue (ML051450456).

analysis. The resulting ground motion curves appear to be higher than the Safe Shutdown Earthquake (or SSE) design curves that resulted from licensing hearings in the 1970s and were adopted by the Commission at that time.[5]





[5] *See* NRC Staff, Slides, Near-Term Task Force Recommendation 2.1: Entergy, at 6 (June 19, 2014) (ML14169A489).

The revised seismic curves reflect a significantly greater seismic risk for certain systems, structures, and components at both units when compared to their original safe shutdown earthquakes.

LACK OF SITE-SPECIFIC ANALYSIS OF SPENT FUEL POOL ACCIDENT AT INDIAN POINT

The current exemption request, if approved, would effectuate a change to generally applicable NRC regulations as implemented at the Indian Point site in Buchanan, New York, and the surrounding Emergency Planning Zone. As such it would constitute a change to the Indian Point facilities' "current licensing basis," their operating licenses, and hence the regulatory baseline or status quo.[6] Before engaging in such a site-specific regulatory change and site-specific amendment to federal regulations, the National Environmental Policy Act (NEPA) requires NRC to examine the site-specific environmental impacts of the proposed change. Such a review must also include a site-specific analysis of a severe spent pool accident at Indian Point and its impact on the site's Emergency Planning Zone and the New York City metropolitan area. No such review has ever been conducted for the Indian Point site.

When the Atomic Energy Commission (AEC) authorized the Consolidated Edison Company to construct the first nuclear power reactor at the Indian Point site, the federal government did not have siting regulations or restrictions for nuclear reactors to address site-specific issues such as nearby hazards, seismicity, sabotage, and population risks. Given this regulatory history, the Indian Point spent fuel pools and their dense inventory of spent nuclear fuel were not subjected to a severe accident mitigation alternatives analysis when AEC and NRC issued the construction permits and operating licenses for those facilities.

Spent nuclear fuel, one of the most dangerous and long-lasting substances known to humans, was never meant to be stored long-term and densely packed in pools at nuclear plants. When many of these facilities were built, AEC and NRC told the public that the spent fuel would be stored temporarily in pools only for a

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[6] 10 C.F.R. §54.3(a). The current licensing basis is the set of NRC requirements applicable to a specific plant. *Id.* The current licensing basis for Indian Point, which is in place and applicable today, includes the regulations that are the focus of the proposed exemption request. The NRC promulgated those regulations through a formal notice and comment rulemaking proceeding pursuant to the Administrative Procedure Act.

brief time before being promptly removed from the host communities. Contrary to those assurances, spent nuclear fuel has remained in densely packed spent fuel pools for decades.

When the federal government first licensed the operation of Indian Point Unit 2 and Indian Point Unit 3 it authorized each unit's single spent fuel pool to hold 241 spent fuel assemblies. NRC subsequently authorized the pools to hold five times the original limit.

If NRC wishes to exempt Indian Point from NRC regulations and the current licensing basis while spent fuel remains in the pools, it must conduct a site-specific review of the potential environmental impacts of such a change. All of the unique and "outlier" characteristics of the Indian Point site discussed above demonstrate why it is essential that a site-specific analysis of the potential environmental impacts from the storage of spent fuel at the Indian Point facilities and measures to mitigate those potential impacts must be addressed.

Once NRC recognizes the potential significant environmental impacts that spent fuel storage may have at Indian Point and surrounding host communities, there are a wide array of mitigation measures and alternatives that it is obligated to consider as part of the NEPA review. First, NRC is obligated to assure that:

> "the Commission has taken all practicable measures within its jurisdiction to avoid or minimize environmental harm from the alternative selected, and if not, to explain why those measures were not adopted."

10 C.F.R. § 51.103(a)(4). One such mitigation measure is to retain in place the currently applicable emergency planning regulations until all spent fuel is removed from the Indian Point Unit 3 spent fuel pool (the last pool to be emptied).

Second, where, as here, no legally sufficient prior analysis of spent fuel pool severe accident mitigation alternatives has been completed, NRC is obligated to assure that such an analysis has occurred, and that all reasonable severe accident scenarios and mitigation measures have been evaluated. The State further urges NRC to ensure that the severe accident mitigation alternatives analyses rely on site-specific cost estimates (*i.e.,* inputs based on costs for the Indian Point site and its unique 50-mile EPZ—and not the inputs generated at the rural Surrey, Virginia, site).

NEPA further requires NRC to review the impacts and the mitigation measures *before*, not after, NRC takes a regulatory action. NEPA requires NRC to evaluate, to the fullest extent possible, the environmental impacts of

the proposed action and alternatives to mitigate those impacts at the earliest stage—before commitment of resources and other actions narrow the scope and viability of alternatives. As the U.S. Court of Appeals for the District of Columbia observed in a case where the Atomic Energy Commission sought to avoid or defer a NEPA environmental impact review:

> "By refusing to consider requirement of alterations until construction is completed, the Commission may effectively foreclose the environmental protection desired by Congress. It may also foreclose rigorous consideration of environmental factors at the eventual operating license proceedings. If "irreversible and irretrievable commitment[s] of resources" have already been made, the license hearing (and any public intervention therein) may become a hollow exercise."

Calvert Cliffs' Coordinating Comm. v. Atomic Energy Comm'n, 449 F.2d 1109, 1128 (D.C. Cir. 1971)*; accord NRDC v. United States NRC,* 539 F.2d 824 (2d Cir. 1976), *vacated sub nom. as moot*, *Allied-General Nuclear Servs. v. NRDC*, 434 U.S. 1030 (1978):

> "Although an EIS may be supplemented, the critical agency decision must, of course, be made after the supplement has been circulated, considered and discussed in the light of the alternatives, not before. Otherwise, the process becomes a useless ritual, defeating the purpose of NEPA, and rather making a mockery of it." (*Natural Resources Defense Council, Inc. v. Callaway, supra,* 524 F.2d at 92.)

NRDC, 539 F.2d at 845.

To comply with NEPA, NRC's environmental impact and regulatory analysis should acknowledge and include, for example, the impact of severe spent fuel pool accidents on drinking water resources within NRC's designated 50-mile Emergency Planning Zone around the Indian Point facilities. To date, NRC's analysis has not included an acknowledgment and analysis of the cost to replace these drinking water resources, which play a critical role in the daily life of New York City's residents. Replacing radionuclide-contaminated drinking water resources for millions of City residents would likely represent a substantial cost, and this is by no means the only impact for which NEPA requires an analysis.

Conclusion

Finally, because site owners have strong incentives to minimize fund expenditures where possible, NRC must closely scrutinize this type of request and strike an appropriate balance between licensee convenience and the

public's interests. In this case, investing in emergency preparedness for the final 10 months until all spent fuel is in dry cask storage is well worth the modest expense. Moreover, a high number of recent safety violations at Holtec's Oyster Creek facility raise questions about whether this facility and this owner in particular warrant this exemption; while similar exemptions have been granted at other facilities, it is not clear that this workforce is as experienced as that of other nationwide facilities not operating under this contract-worker business model.[7] Holtec recently detailed each of these violations in a letter to the Indian Point Decommissioning Board; a copy of that letter is attached and incorporated herein.

Additionally, we submit that an exemption of this kind is inappropriate because this very issue is the subject of NRC rulemaking and one NRC Commissioner has noted that "radiological risks remain at shutdown nuclear power plants that must be taken seriously" and "the revised draft proposed rule should postpone the Level 2 emergency preparedness reductions *until all spent fuel at a site is transferred to dry cask storage*." *See* SECY-18-0055, Proposed Rule: Regulatory Improvements for Production and Utilization Facilities Transitioning to Decommissioning (RIN 3150-AJ59) Notation Vote at 2 (ML21230A313).

Finally, we request that NRC conduct a public statement hearing regarding HDI's two requests related to emergency preparedness to garner additional public input prior to any recommendations or determinations being rendered by NRC staff or the Commission.

We appreciate the continued opportunity to provide input on facility licensing actions and other initiatives through NRC's State Consultation and State Liaison Officer programs. If you have any questions, please contact me.

Sincerely,

Alyse Peterson

Alyse Peterson, P.E.
Senior Advisor

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[7] *See* Douglas Macmillan, The dangerous business of decommissioning America's nuclear plants - The Washington Post (May 13, 2022).

Attachment

cc: Doug Tifft, NRC (w/attachment)
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