

2013 CITIZENS' ANNUAL ASSESSMENT OF ENTERGY AND NRC RELATED TO INDIAN POINT

EVACUATION PLANNING:

GRADE: F

- Reliance on a defective and unworkable plan, which cannot be fixed
- GAO says the current Evacuation Plan underestimated the number of residents who would flee outside the 10-mile zone

EVALUATION CRITERIA:

- Have the NRC and/or Entergy adequately incorporated lessons learned from the Fukushima disaster into current evacuation plan? Two years after the start of the continuing disaster at Fukushima Daiichi, what emergency planning and evacuation steps have been taken?
- Have the NRC and/or Entergy expanded the planning and preparation to include a 50-mile radius, as recommended for the Fukushima disaster?
- Have Entergy or the NRC fixed flaws in the Emergency Planning Zone (EPZ) that were identified by the Witt Report issued in 2003?
- Have emergency protocols at Indian Point been revised and upgraded to cover involvement of both units at Indian Point? Does each spent fuel facility at Indian Point now have its own fire-fighting and back-up electricity supply? Are there now separate fire-fighting teams for each reactor? Is there a full battery of fire-fighting equipment for each reactor? Is all fire-fighting equipment now seismically tested and certified?
- Have drills been conducted to practice a multiple-scenario emergency?
- Does the Nuclear Regulatory Commission accept as credible the operator's recent claims about the Emergency Plan? Specifically, that
 - The residents of the EPZ could be safely evacuated in less than six hours if terrorists overran the plant in major weather event where travel was impeded?
 - In this time of instant communications and notification of any societal disruption, that parents will not flood the schools to get their children?
 - The shadow evacuation by residents outside the EPZ shadow evacuation by residents outside the EPZ will be less than previously thought and won't obstruct the evacuation pathways?

COMMENTS: We are not aware of any steps or measures on behalf of Entergy or the NRC to proactively address any of these issues. Our government advised all Americans in proximity of Fukushima Daiichi to get at least 50 miles from the failed nuclear plant. The current 10-mile "key-hole" EPZ focuses on a 2-mile evacuation radius with up to 10 miles in the direction of the radioactive plume (exposure pathway) and focuses on direct exposure and inhalation. The 50-mile ingestion pathway focuses mainly ingestion of contaminated water and food. However, the emergency evacuation plan does not take into consideration gridlock, how quickly the emergency medical facilities would be overwhelmed, and how unprepared receiving areas would be. In fact, the recent report by the Government Accountability Office (GAO) states that the Evacuation Plan underestimates the number of residents who would flee outside the 10-mile zone.

The EPZ should be altered to include the 50-mile radius around Indian Point, the distance that was classified as the "Peak Injury Zone" by the CRAC-2 Study conducted for the House of Representatives in 1982. In fact, the current emergency plan allows evacuation from within the 10-mile EPZ to shelters located within the 17-mile radius, which is the distance classified as the "Peak Fatality Zone" by the CRAC-2 Study (and about the size of the Chernobyl Exclusion Zone).

In addition, no new protocols have been instituted to safely evacuate special needs populations such as patients in assisted living or nursing homes, inmates in prisons, especially Sing-Sing, and latchkey children who may be stranded at home before their parents come home from work.

The Witt Report indicated that residents, both within and beyond the EPZ, would act in their own perceived self-interests rather than follow the plan procedures. We are not aware of anything that has been done to address this, such as outreach to educate neighborhoods about where their relocation reception areas are and how they should get there, or any live drills to demonstrate and inform residents of the Emergency Plan protocols.

RECOMMENDED ACTION: We call on Congress to hold hearings on the viability of current evacuation plans for Indian Point and to require that the NRC and FEMA expand the Emergency Planning Zone to 50-miles.

EMERGENCY RESPONSE:

GRADE: F

- NRC did not demand that Indian Point shut down during Super Storm Sandy, despite the fact that all NYC and Westchester transportation systems were shut down a day earlier.
- This resulted in the need for an emergency shut down at 10 p.m.

EVALUATION CRITERIA:

- Were the NRC and/or Entergy proactive in protecting public health and safety before, during and after the severe weather events of the past year and before?
- Are they reconsidering more protective standards than currently exist with regard to expected severe weather conditions (high winds, flooding, storm surge, etc.)?
- With so much advance warning, why didn't the NRC require planned, orderly powering down of Indian Point Units 2 and 3, instead of waiting for a predictable SCRAM emergency to occur at Unit-3?
- Why did the NRC allow Entergy to operate Indian Point when the evacuation plan was suspended during Super Storm Sandy? How could Homeland Security and FEMA allow Entergy to operate Indian Point once the public transportation system was suspended by Governor Cuomo and Mayor Bloomberg?

COMMENTS: We are not aware of any steps or measures on behalf of Entergy or the NRC to proactively address these issues. "Super Storm Sandy" was a Category One storm. The full moon created very high tides, high winds, and an extreme storm surge. Many structures on land adjacent to the Hudson River were destroyed by the storm surge and wind, and many people had to be relocated to shelters. Much of this damage and destruction occurred in areas neighboring Indian Point, including Verplanck, which borders Indian Point; Ossining a few miles south along the River; and Stony Point, across the River from Indian Point in Rockland County. Many other Hudson River communities also suffered severe damage, flooding, road closures, and power outages. Many people were stranded or forced from their devastated homes (including in Verplanck and Stony Point).

Throughout the region, power was out and trees were down on wires and roads, many of which were flooded, making any travel or communication extremely difficult. There was plenty of warning that the grid might have major outages, dramatically reducing demand for power. With the grid down, many people lost all communication with the "outside world". It was also clear that inadequate local evacuation routes would be flooded before the storm hit. Many roads were blocked for more than a week by downed trees and power lines, which presented obstacles to Emergency Vehicles, and would have further complicated evacuation in the event of a compound emergency. The entire New York City and Westchester County Transportation Systems were shut down far in advance of the storm surge, as was the entire Metro North Rail System, as was all other Public Transportation.

Rising sea level and stronger storm surges have been predicted for the foreseeable future; however, neither Entergy nor the NRC are considering safer standards and procedures for powering down or addressing evacuation issues in the case of a combination of another tropical Super Storm.

RECOMMENDED ACTION: NRC should reevaluate the standards for powering down in the event of severe weather conditions and should require emergency planning to address a combination of multiple disasters occurring simultaneously. Future plans should require powering down in the event of multiple road closures and suspension of public transportation systems, as evacuation would be impossible and the movement of any needed emergency vehicles would be impeded.

STORAGE OF HIGH-LEVEL RADIOACTIVE WASTE:

GRADE: F

- Pools contain 4 times as much spent fuel as original design basis allows
- Much of what is still in pools has been moveable for years
- Regulations were changed to allow overfilling of storage pools

EVALUATION CRITERIA:

- Has the NRC required Entergy to relieve the dangerously overcrowded condition in the fuel pools for IP-2 and IP-3 by removing older spent fuel assemblies to dry cask storage?
- Has the NRC provided information to the public as to how the impending Environmental Impact Statement that is being developed will be structured and how long it will take?

COMMENTS: The NRC considers storage of irradiated fuel rods in water to provide the same degree of safety as storage in dry casks. It is hard to understand how this is justified, since the outcomes of an accident are so dramatically different with these two very different methods of storage. A worst-case scenario for dry-cask storage would be a Level 4 unusual event, like the earthquake that moved the casks at the Santa Anna reactor in Virginia four inches. On the other hand, the worst-case scenario for pool storage is a Level 1 emergency, which, according to the NRC, could require public evacuation and contaminate the region. In addition, the Boraflex liners, which are meant to absorb neutrons and reduce the hazard of a spontaneous fuel-pool fire, are degrading. Removing fuel assemblies to dry cask storage will reduce the danger, although it will not remedy the problem.

There has been a lack of information regarding the required EIS for waste storage from nuclear power plants. Will this be a comparative study that compares Indian Point to other power plants? Will it look at the true impact of the plant on river and the aquatic ecosystem?

RECOMMENDED ACTION: We urge the NRC to require Entergy to immediately move older fuel rods to dry cask storage to unburden the overcrowded fuel pools, which represent a potential disaster waiting to happen.

FIRE PROTECTION:

GRADE: F

- NRC has allowed regulatory exemptions of fire safety requirements
- Entergy failed to retrofit critical fire wrap protection, when tests showed it did not meet regulations

EVALUATION CRITERIA: Has the NRC required Entergy to meet fire safety standards at Indian Point?

COMMENTS: Fire is the single most common cause of nuclear disasters. Since 2007, the NRC has failed to require Entergy to retrofit defective fire-protection insulation in areas of the plant, which are necessary for safe shut down in the event of a fire. Instead, the NRC and Entergy continue to litigate this matter, even though the Federal District Court has ordered them to resolve the problem. In addition, Entergy requested numerous other fire protection exemptions because the plant has been operating in non-compliance with its license. Although these exemptions were denied, the public is unaware of any fixes made to bring Indian Point into compliance with fire safety regulations, as is required by its license.

The NRC instead has allowed Entergy to operate IP in violation of its license requirements, which means a 24-minute fire could cause a melt down which could destroy millions of lives and \$8.5 trillion in property value.

RECOMMENDED ACTIONS: We are once again urging the NRC to require Entergy to retrofit the defective HemyC fire insulation, which only offers 24 minutes of fire protection instead of the required 1 hour.

ADHERENCE TO STATE REGULATIONS:

GRADE: F

- NYS DEC has determined that Indian Point violates the Clean Water Act and has withheld issuing the Water Quality Certification required for relicensing unless a closed-cycle cooling system is installed.
- Operator continues to operate and is appealing NYS's decision in Federal Court

EVALUATION CRITERIA:

- Has Entergy agreed to use closed-cycle cooling as the best available technology to minimize mortality to declining Hudson River fish populations, as required by NY State?
- Have the NRC and/or Entergy shared the report on the impacts of once-through cooling in 2013 on Hudson River ecosystem, especially its declining fish population, with several endangered species?

COMMENTS: Entergy continues to minimize the impacts of once-through cooling on Hudson River Fish. The NRC, under its own regulations, was required to solicit expert advice on this matter. It did so by consulting with the National Marine Fisheries Services, but then it totally ignored their advice. NMFS's report cites the once-through cooling used at Indian Point, and the damage it does to juvenile fish and eggs, as more responsible for declining fish stocks in the northeast than overfishing of adult fish. The NRC dismissed this information and the damage Indian Point causes to the Hudson River aquatic ecosystem, but rather compared Indian Point to other power plants and found that it did no more damage than any other plant of a similar size.

RECOMMENDED ACTION: NRC should recognize the NMFS report and other sound science and support NYS's requirement for closed-cycle cooling, if the plant is to be relicensed.

DECOMMISSIONING:

GRADE: F

- Available funds far short of regulatory requirements
- NRC says: no problem
- NRC allows 60 years after closure for decommissioning

EVALUATION CRITERIA:

- Have NRC and/or Entergy advanced a plan to safely decommission the facility after closure and to assure current workforce is either retained or trained for jobs in the expanding green-energy economy of energy efficiency, renewable energy, smart grid, etc.? Is the decommissioning fund sufficient to cover all costs of full decommissioning and restoration?

COMMENTS: The mission of the NRC was originally to restore the property on which a closed nuclear power plant had operated to its original use. Instead they have increasingly deferred to the company's balance sheet rather than the public's need for protection. They have used a formula that has allowed the company to put in less money than required with some vague hope that it will generate enough interest over the decades so that there will be enough money will be available for a proper clean up. In reality as the fund grows through added interest, so do costs. Contamination from the radioactive water under the plant will also spread, given more time, making the final clean up even more costly. There is no guarantee that Entergy, the current owner of Indian Point, will even exist as a company in the future. The NRC has allowed the company to list the decommissioning funds as a cash asset, which allows the profits from investment to be returned to shareholders, instead of their being returned to the decommissioning fund. The decommissioning fund is designed to be a benefit to the public, not a cash cow for shareholders. Workers at Indian Point have no guarantee that they will be retained during decommissioning. They could be replaced by non-unionized, outside contractors who are not familiar with the plant.

RECOMMENDED ACTION: Congress should hold hearings on the safest, most beneficial approach to decommissioning Indian Point. The NRC should assess whether the decommissioning fund is sufficient to accomplish the most protective plan. Interest from the decommissioning fund should accrue to additional decommissioning costs. Workers should be assured that their jobs will be protected and that they will be retained during decommissioning.

NRC COMMUNICATION:

GRADE: F

- Refuses to record public meetings to have public record of comments presented at Annual Assessment
 - Chairman Macfarlane opens dialogue with stakeholder organizations
- Grade: Incomplete**

EVALUATION CRITERIA:

- Has the NRC requested input from elected officials, key stakeholders, and the public at large regarding the continued operation of Indian Point? Is this input given serious and unbiased consideration?
- Are meetings notices, summaries and transcripts posted in a timely manner and easily accessible to interest members of the public?
- Are meetings held in locations that are easily accessible to stakeholders?

COMMENTS: Information from Entergy is not made available prior to the annual meeting for review by stakeholders; meetings are not videotaped for public viewing during or after. We do applaud Chairperson MacFarlane for meeting with elected officials and the key stakeholders on her visit to tour Indian Point and encourage ongoing communication between the NRC Commissioners and effected parties in this region. The long history of disappointment and mistrust engendered by the NRC staff will not, however, be easily overcome.

RECOMMENDED ACTIONS: NRC meetings should be videotaped and posted for easy access by interested public. Commissioner Macfarlane should continue the dialogue with municipal officials and interested organizations and individuals.

DO WE NEED INDIAN POINT?

REPLACEMENT ENERGY:

COMMENTS: The NYS Public Service Commission has required Con Ed and NYPA to evaluate replacement energy in the case that Indian Point is not relicensed. They have responded by proposing 1,350 MW of replacement power and 100 MW of energy efficiency and have issued a Request for Proposal to fulfill this commitment.

Entergy responded by citing negative economic impacts. They would serve the region well by completing a full cost accounting and/or an analysis of the job-creation potential and other economic benefits of actively transitioning to a truly Green Energy Economy based on energy efficiency, fuel-free, renewable energy resources, and a smart grid to balance a diverse portfolio of sources.

The October 2011 and 2012 Synergy Reports found that the energy from Indian Point is not needed and is easily replaced.

In just the last year, New York State began developing at least 25 percent of the alternative electricity sources necessary to replace the Indian Point nuclear power plant, according to the 2012 report prepared for the Natural Resources Defense Council and Riverkeeper by prepared by Synapse Energy Economics, Inc., entitled, *Indian Point Replacement Analysis – A Clean Energy Roadmap*. The report also provides a detailed roadmap for fully and cost-effectively replacing the aging nuclear facility's power with equal investments in energy efficiency and renewable power sources alone, with no impact to the reliability of the region's energy supply. The report assesses clean energy resources in the state, as well as the policies necessary to implement them. This report provides a "how-to" policy guide, focusing solely on efficiency and renewable energy options. Among its key findings, the analysis concludes that:

- New York will maintain a surplus of energy capacity through 2020, even if Indian Point is retired.
- With the right policies in place, New York could rely on energy efficiency, wind and solar power resources alone to replace Indian Point's power. The core of this report provides a detailed policy roadmap that describes how the state can secure this clean replacement power.
- The portfolio of clean energy outlined in this report is expected to have a very small impact on consumer costs, adding an estimated 1 percent to energy bills in 2022 – that's one dollar a month for the average residential customer

In March 2013 Stanford University's Mark Z. Jacobsen, Robert Howarth, *et al* published a study, entitled, "Examining the feasibility of converting New York State's all-purpose energy infrastructure to one using wind, water, and sunlight" demonstrates how NY State's energy can be derived entirely from wind, water, and sunlight; that doing so will create more jobs than lost (since most energy will be generated in the state), long-term energy price stability (since fuel costs will be zero), and a decrease in air pollution deaths of 4000/yr (\$33 billion/yr or 3% of NYS GDP).¹

**With failing grades and most of the plant's output being sold outside this area,
we recommend that the plant be closed.**

We don't need the power; why take the risk?

Respectful submitted by:

Brooklyn for Peace
Hudson River Sloop Clearwater, Inc.
Indian Point Safe Energy Coalition (IPSEC)
New York Environmental Law & Public Justice Project
New York Public Interest Group (NYPIRG)

PHASE
Riverkeeper, Inc.
Stony Point Convergence
WESPAC
WestCAN

¹ <http://www.stanford.edu/group/efmh/jacobson/Articles/I/NewYorkWWSEnPolicy.pdf>