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Comment On: NRC-2008-0672-0029
Entergy Nuclear Operations, Inc.; Indian Point Nuclear Generating Unit Nos. 2 and 3; Draft Supplemental Environmental Impact Statement; Request for Comment

Document: NRC-2008-0672-DRAFT-0031
Comment on FR Doc # 2015-32777

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General Comment

Please find attached public comments for Docket Number 2008-0672: The Nuclear Regulatory Commission (NRC) Notice: Entergy Nuclear Operations, Inc.; Indian Point Nuclear Generating Unit Nos. 2 and 3; Draft Supplemental Environmental Impact Statement; Request for Comment, Federal Register Number: 2015-32777.

Attachments

PHASE Letter to NRC re IP SEIS comments

SUNSI Review Complete
Template = ADM – 013
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March 4, 2016

NRC
Public Comments

RE: Docket Number 2008-0672: The Nuclear Regulatory Commission (NRC) Notice: Entergy Nuclear Operations, Inc.; Indian Point Nuclear Generating Unit Nos. 2 and 3; Draft Supplemental Environmental Impact Statement; Request for Comment, Federal Register Number: 2015-32777

I am submitting these comments on behalf of Public Health and Sustainable Energy (PHASE) in response to the SEIS issued on December 29, 2015.

17-L14-1

Since the SEIS was written prior to significant "new information" and the change of circumstance as a result of the dramatically increased levels of tritium found in the groundwater in February 2016, the SEIS contains misleading information and cannot be accepted as accurate and complete. Either significant corrections must be made to the SEIS or this Board should require another SEIS be conducted to address the unconsidered significant increase of radionuclides in groundwater.

The SEIS incorrectly states that the radioactivity in the leaks is reducing, when in fact the radioactivity has progressively increased from when leaks at Indian Point were first reported in the 1990's yet have never been fully identified or stopped.

In March 2014, readings were as high as 660,000 pCi/liter, which is 33 times higher than the safe drinking water limit (20,000 pCi/l).

February 2015 readings were as high as 900,000 pCi/l – 45 times higher than the safe drinking water limit.

The February 2016 new reading of 8,000,000 pCi/l is not only 400 times above the safe drinking water limit of 20,000 pCi/l, but it is nearly 10 times higher than a year ago.

Leaks at Indian Point have been progressively getting worse (by an order of magnitude) yet Entergy's only solution is to allow for "natural attenuation" which results in dumping increasingly high levels of tritium into the groundwater and the Hudson River.

17-L14-1
cont'd

Entergy has not provided any plan to find all the leaks, stop the leaks and clean up the site, except to discharge radioactive waste into the Hudson River through natural attenuation. To repeat an old adage, "Dilution is not a solution to pollution."

The NRC's staff conclusion that during the relicensing period, rapid dilution of an unknown amount of radionuclides into the Hudson has SMALL (SEIS p 99) environmental impact, has no rational basis, since the source of the leaks from Spent Fuel Pool #2 remains unknown "the full extent of the leaks is not known" (SEIS p 92, 8) and therefore cannot be sustained

Since the Hudson is a tidal estuary river, radioactive pollution does not only go down-river, but also goes up-river , where communities, including environmental justice communities of Poughkeepsie, has no other supply and rely on the Hudson for its the drinking water.

If the NRC accepts this SEIS as accurate, it will be improperly condemning communities that rely upon the Hudson River to drink tritium spiked water.

"Once ingested, tritium's minimal penetration depth could be sufficient to inflict deleterious effects". (4.2.1 Physical and Chemical Properties of Tritium, Lawrence Berkeley National Laboratory http://www2.lbl.gov/ehs/esg/tritium/tritium/TritCh4.html

SEIS incorrectly states that IP2 and IP3 will not adversely affect operations of the proposed Haverstraw Water Supply Project. While currently the Hudson River is not currently being used as a drinking water supply, in part it is due to the increasing radioactive pollution into the Hudson by Indian Point. The Suez/United Water plan to desalinate the Hudson River water in the Haverstraw Bay, three (3) miles downriver from Indian Point, was vehemently opposed by Rockland County residents, for among other reasons, the people of Rockland County refused to finance the desalination plant which would always be at risk of contamination in the event the leaks at Indian Point continue to increase.

The samples from the pilot desalination plant in the Haverstraw Bay identified measurable levels of Strontium 90 detected in the majority of the samples which were taken in 2007, (see Exhibit 1).

In 2007 levels of total radiation is 9030 picocuries (pCi/l). The 2015 levels of tritium levels 8,000,000 pCi/l.

17-L14-1
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Water Resources

The SEIS incorrectly states in 5.4.1.3 Water Resources that

> "Potable water sources near the IP2 and IP3 site are not presently derived from groundwater sources or the Hudson River (NRC 2010). There are no residential or municipal drinking water wells near IP2 and IP3 (Entergy 2012a; NYSDEC 2007; NRC 2010)."

IP2 and IP3 should not be allowed to continue releasing radioactive pollution into groundwater and Hudson River. New York State law requires that all groundwater in the state is potable.

Entergy notes, that the inspection report was supposed to begin a remediation effort to stop the spread of contamination and get the leaks under control. This Board must ask then why is the problem getting so much worse, and not better?

The comparison to Flint must be made; if the NRC adopts this SEIS, groundwater will be polluted because government regulators have failed in their job of protecting public health and safety.

These leaks maps included in the SEIS show that the radioactive effluent is imbedded deeply in fracture bedrocks to depths 2 to 3 times the height of the containment structure. The containment structure is 27 stories, or 276 feet; underground wells of radioactive waste are as much as 54-81 stories or 552 ft to 828 feet deep. (a mining permit is needed for infiltration into the ground of more than 500 feet) . A new SEIS must be ordered to investigate the impact of increasing radiation plumes over 500 feet deep.

The SEIS fails to consider the airborne impacts of increased leaks which releases increased levels of radiation into the Hudson River, as a result of evaporation and condensation.

Although the NRC has acknowledged that Spent Fuel Pool #2 has seismic cracks and a 9 inch "pin-hole", they had failed to require it be repaired, or even fully inspected. To date, only 40% of the pool has been inspected.

In 2014 monitoring wells showed 616,000 pci,
In 2015 monitoring well showed 900,000 pci
Now in 2016 its over 8,000,000 pci
The leaks have been progressively getting worse.

Based on recent dramatic increase in leak levels, SEIS section 5.4.2 Radionuclides Release to Groundwater is wholly incomplete and insufficient and a supplemental SEIS must be conducted on this issue, especially since Entergy acknowledges in the SEIS that they do not know, "How these radionuclides got into the groundwater has not been determined". (SEIS p 81, 7)

The SEIS provides no mitigation measures to find, stop and remediate all the leaks at Indian Point. Although more comprehensive monitoring is necessary for both air and water releases, just increasing monitoring or watching as leaks occur is not an aging management strategy to protect the environment and human health of increase exposure to toxic radiation. Thus, the SEIS is incomplete, since the only mitigating measures considered is to increase "natural attenuation" leaking into New York State's groundwater and Hudson River.

17-L14-1 cont'd

In September 2009, the NRC staff issued a report that confirmed that Entergy was conforming to NRC regulatory requirements that protect public health and safety and the environment (NRC 2012e)", and "there is no radiological impact to the surrounding environment from the IP2 and IP3 site 40 (NRC 2010)" . It is unfounded to include this statement in the SEIS, in light of the large new leaks.

The SEIS claims that, "The planned remedy for the strontium-90 contamination (i.e., removal of the spent fuel and water from the IP1 spent fuel pool) will remove the active source of contamination for that plume, but residual contamination will continue for many years."

Therefore, since it is acknowledged that tritium contamination primarily came from the IP2 spent fuel pool, and since, "the full extent of the leaks is not known because of an inability to inspect the liner in the IP2 spent fuel pool while the unit is operating", the NRC must order IP2 spent fuel pool to be immediately shut down, excessive spent fuel must be removed from the pool and placed into dry cask storage, immediately, and a complete inspection, identification and remediation of the entire spent fuel pool must be conducted.

The SEIS's planned use of monitored natural attenuation is NOT an acceptable approach to managing the remaining strontium-90 and tritium plumes.

Entergy's aging management plan to increase radioactive pollution in the Hudson River cannot rationally or reasonably be approved as have SMALL impact.

SEIS incorrectly asserts that if the NRC approves a 20 year license for Entergy to continue operations at Indian Point "the mass of a radiological contaminants decreases, the concentration of that radiological contaminants would see a corresponding decrease". (SEIS p 69).

This is utter nonsense. If the plant operates for 20 more years, every day it continues to operate the amount of radiological contaminants correspondingly increase. If amounts of nuclear waste increases , so does the amount of radiological contaminants.

The NRC can not adopt this SEIS , as it includes too many misrepresentations, which defy simple reason and logic.

While we agree that, "When the source of water containing tritium is stopped, the contaminated water reaching the water table should eventually stop." (SEIS p 69-70) Yet, the current SEIS allows for continued attenuation of the leaks into the Hudson River.

Based on the new circumstances of the progressively worsening leaks, the SEIS includes a statement which is patently incorrect, and must be changed, "From 2007 through 2014, tritium concentrations have generally decreased, . . . [and] concentrations of radionuclides in groundwater entering the river are generally remaining the same or decreasing. Therefore, over the period of license renewal, the Hudson River is unlikely to see higher concentrations of radionuclides flowing into the Hudson River." (SEIS p. 71)

17-L14-1 cont'd

The recent larger leaks are clear evidence that the tritium concentrations have increased, not decreased at Entergy projected. Thus, any references to decreasing concentration of radionuclides of tritium in the SEIS must be removed, otherwise the document is not based in fact, but fiction.

Entergy's claim that they can predict that the leaks at Indian Point will decrease during the next 20 years, cannot be relied upon, since this assertion has already been shown to be untrue by incontraverable evidence.

SEIS Table 5 -3 Yearly Average of Radionuclide Concentration in Groundwater Sampling Station Located near Hudson River shows that in 2007, 9,030 pCi/L of Tritium were found in the groundwater. Now 9 years later in 2016, over 8,000,000 pCi/L of tritium has been found.

This is 1000 fold increase in levels of radiation being leaked into the ground water and Hudson River. The new leaks have created a significant new circumstance upon which the NRC must require an additional SEIS be conducted to consider the environmental impacts of the radiological continuing and increasing radioactive leaks at Indian Point.

The current SEIS is inadequate, as it contains many incorrect statements such as that , "The sealing of leaks associated with the IP2 spent fuel pool has stopped the leakage of tritium into the groundwater in those sources." (SEIS p 99) And that "tritium concentrations in the groundwater have deceased substantially." (SEIS p 94) This statement is factually incorrect and should not be included in the SEIS.

The NRC's conclusion that impacts to groundwater quality could be mitigated to SMALL during the license renewal term through elimination radionuclides leaks to the groundwater and the use of monitored natural attenuation. (SEIS p128)

This board must either require a rewrite of the SEIS or a new SEIS based on the significant new information and change of circumstances, which found an increase in radioactive material, and one of the wells showed a 65,000 percent increase in radioactive waste, for which Entergy's only plan for remediation is to allow it to pollute the Hudson River.

CLIMATE CHANGE

SEIS 5.13. Greenhouse Gas Emissions and Climate Change, correctly concludes that, "the effects from climate change could have negative implications for industrial cooling and potable water use." (SEIS p.104) Yet it does not provide any mitigation measures to address these significant issues. 17-L14-2

The SEIS fails to consider the impact of increased levels of the Hudson River during larger storm systems associated with climate change and rising sea levels. Super Storm Sandy was approximately only a foot away from breaching the banks of the Hudson and flooding Indian Point, which would result enormous releases of radiation into the Hudson and Hudson Valley air.

SEIS Table 5-6 Comparison of GHG Emission Inventories, is inaccurate and incomplete and does not include the new carbon atoms, Carbon 14, produced by Indian Point every day from fission. Every day nuclear fission occurs, new carbon atoms, Carbon 14 atoms, are created and released as radioactive C02 and methane emission from IP2 and 3. Unlike fossil fuels which release sequestered carbon during energy production, fission actually creates new carbon atoms, which changes the Earth's carbon balance. 17-L14-3

Thus the newly created carbon emissions from nuclear fission are not monitored, but only estimated since 2010, therefore Table 5-4 cannot be accepted by this Board as being factually accurate or complete. Without actual data and measurements the statement "that GHG emissions resulting from operations at IP2 and IP3 are below the EPA's reporting threshold of 25,000 MT (27,558 tons) of C02." is without factual basis.

Please refer to the EPRI 2010 Technical Report, Estimation of Carbon-14 in Nuclear Power Plant Gaseous Effluents which references a study which found that "people living 1 km from the site could potentially double their carbon body burden if all of the gaseous releases were as CO2 (EPRI 2010 report 4-11).

Thus Indian Point's impacts on climate change have not been fully considered and the SEIS cannot be relied upon.

The SEIS fails to consider the impacts of direct of thermal pollution produced by Indian Point 2 and 3 on climate change. 17-L14-4

17-L14-4
cont'd

The above thermal infra-red image taken by scientists from GER/SpectroTech, Inc. indicates discharge temperatures from Indian Point to be up to 14.5 degrees hotter than ambient river water. One scientist noted that the plume appeared to be devoid of life. This image was taken in 1998, prior to the use of high-burn up fuel, which burns much hotter and most likely creates hotter discharge temperatures.

One of the primary byproducts of nuclear fuel generation is hot water, since water is used to cool the nuclear reactor and heats up during the process. Much of that hot water is dumped into lakes and streams; the process could potentially raise the temperature both of these bodies of water and of the ground.

Swedish scientists Bo Nordell and Bruno Gervet, in the International Journal of Global Warming, 2010, found that heat itself, not just gas, could change the climate, as net heat emissions, which includes low-temperature waste heat which is dumped into sea/river water or the atmosphere or heat leakage from buildings is transferred to the surrounding air or ground. Accordingly nuclear power is a large contributor to global warming

Forty years of nuclear energy production worldwide has produced approximately 11% of worldwide electricity, yet has released approximately 1.58E +18 BTUs, which is enough thermal heat to melt 25% of the earth's ice .

Indian Point 2 and Indian Point 3 has released 7.89E +15E BTUs over the past 40 years. 20 more years of operation, if permitted, would increase thermal pollution by 3.84E+15 BTU. The cumulative thermal pollution releases from Indian Point 2 and 3 are approximately 1.18E +16.

The SEIS does not consider thermal pollution impacts to climate change.

17-L14-4 cont'd

Nor does the SEIS consider the climate change impacts ozone production released from Indian Point.

17-L14-5

Nor does the SEIS consider climate change impacts which, over the next 20 years, storms will increase in size and intensity, which will result in increased storms surges, flooding and will raise Hudson River water levels.

During Super Storm Sandy, the Hudson River rose swiftly and nearly breached Indian Point's storm surge barrier. Yet, this important matter has not been addressed in the SEIS.

17-L14-6

6.0 Continued Storage of Spent Nuclear Fuel

The SEIS finding that short term (120 year) storage of additional radioactive waste produced if the requested new 20 years of a license is approved will have only SMALL impacts. is wholly unsupported by fact.

The statement that indefinite timeframe -- continuing to store nuclear fuel indefinitely -- is unlikely, as well as wholly unsupported by fact or historical evidence.

Additionally the SEIS fails to consider how both long and short term storage will be maintained and continued without adequate decommissioning funds being available in perpetuity.

17-L14-7

In conclusion, there is no reasonable or rational basis for this Board to accept this SEIS as being accurate or complete.

Sincerely yours,

Susan H. Shapiro, Esq.
On behalf of PHASE

EXHIBIT I

RADIOLOGICAL ANALYSIS

Due to the presence of the Indian Point nuclear power plant on the eastern shore of the Hudson River in Buchanan, NY, some have expressed concern regarding the possible radiological contamination of groundwater as well as the Hudson River close to the plant. A summary of the radiological results from United Water's sampling program is provided below. Table 2-4 summarizes the analyses performed for radionuclides in water samples collected at several locations in the Hudson River in 2007 and 2008.

17-L14-1 cont'd

Table 2-4
Results of Radionuclide Sampling

Radionuclide	*n*	Results: Range	Results: Average[1]	MCL[2]	Notes
Gross alpha	18	0-20	3.5	15 pCi/L	
Gross beta	19	0-62	10.8	50 pCi/L	Dosage: 4 mrems/yr
Radium 226/228 (combined)	16	ND		5 pCi/L	
Total uranium	19	0-0.689	0.400	30 ug/L	
Strontium 90	11	0-0.82	0.680	8 ug/L[3]	Not detected in 5 out of 11 samples
Tritium	11	0-397	36	20,000 pCi/L[3]	Not detected in 10 out of 11 samples

Notes:
n = Number of samples
1 Not detected treated as 0.
2 MCL = Maximum contaminant level, the standard set by EPA for these radionuclides. MCLs are calculated as the average of four quarterly samples.
3 Used as guidance when gross beta < 50 pCi/L.

Drinking water standards for radionuclides first require the determination of "gross alpha" and "gross beta" measurements; these measurements are useful in providing an overall screening to determine if further analysis of specific radionuclides is needed. Standards of the U.S. Environmental Protection Agency (EPA) may be satisfied by testing for gross alpha and gross beta radioactivity. The standards are considered to be met when the gross beta activity is lower than or at the maximum contaminant level (MCL) set by EPA and concentrations of tritium and strontium 90 are lower than or at the MCL. (MCLs for these radionuclides are calculated as the average of four quarterly samples.) As shown in Table 2-4, both gross alpha and gross beta were well below the EPA MCLs. Also, radium, uranium, strontium 90, and tritium were well below their respective MCLs and /or guidance values.