

**Suggested Talking Points Regarding the U.S. Nuclear Regulatory Commission's (NRC)  
Waste Confidence Draft Generic Environmental Impact Statement (GEIS)**

For information on the waste confidence issue, including the public meeting schedule, relevant documents, how to file comments, etc. visit the NRC's Waste Confidence webpages at:

<http://www.nrc.gov/waste/spent-fuel-storage/wcd.html>

**REMINDER:** *Written public comments are due by December 20, 2013.* Find instructions on how to submit comments at the end of this document or online at:

<http://www.nrc.gov/waste/spent-fuel-storage/wcd/pub-involve.html#comment>

**SUMMARY:** For over three decades, the NRC has licensed nuclear reactors to produce highly radioactive spent fuel, based on the assumption that a leak-tight repository will be available for disposal of the spent fuel at the end of the reactor's life. Despite the obvious absurdity of this assumption, NRC regulations prevented any member of the public from challenging it. In 2012, a federal court ruled that the NRC can no longer presume the existence of a federal repository. Therefore, under the court's order, the NRC has published the Draft GEIS, in which it claims to address the impacts to public health and the environment that could occur if spent reactor fuel is not disposed of in a repository.

Instead of acknowledging the potentially catastrophic impacts of leaving spent fuel on the surface of the earth indefinitely, the NRC claims that no serious impacts will happen. In place of the previous assumption that a safe repository will be licensed, the NRC has substituted a new and even more absurd assumption -- that spent fuel can and will be safely managed at reactor sites and in other above-ground storage facilities for the indefinite future. This assumption is inconsistent with the Nuclear Waste Policy Act (NWPA); it violates NRC's own regulations and runs counter to common sense and the experience of human history.

In the proposed rule that accompanies the draft GEIS, the NRC also proposes to incorporate into every reactor license the Draft GEIS' conclusion that spent fuel can be safely stored above ground forever. Thus, the NRC would forbid any further public discussion, in individual reactor licensing actions, of the serious question of whether generation of additional spent fuel is justifiable in light of the absence of any means of safe disposal.

**Bottom line:** By eliminating repository disposal as part of the Waste Confidence Decision, and by protecting licensing decisions from intervenors who raise questions about the environmental effects of continuing to generate spent fuel without a repository, the NRC effectively would institutionalize extended spent fuel storage as a *de facto* means of spent fuel disposal. This result is inconsistent with Congress' policy in the NWPA, and completely unacceptable from an environmental standpoint. ***The Draft GEIS should be sent back to the drawing board and the proposed rule should be scuttled.***

**Background -- the spent fuel problem:** At the outset, it is important to recognize that the NRC faces a serious environmental problem that has been accumulating since reactors were first licensed:

- Tons of highly radioactive “spent” fuel are building up at every nuclear reactor site in the country, stored at high density in water-filled spent fuel pools that are vulnerable to attack. If pools are even partially drained they pose a risk of catastrophic fire.
- The NRC contemplates that these pools may remain in use for 60 years *after* reactor operation ceases, where they will remain vulnerable to fires and also to leakage of tritium and other radioactive materials to soil and groundwater.
- After decades of searching for a deep geologic repository -- and in spite of Congressional legislation mandating the search for a repository -- the NRC has yet to license one.
- The NRC faces the prospect that highly radioactive reactor fuel will need to be stored on the surface of the earth for hundreds of years, well beyond the 100-year period the NRC considers safe or reliable for containment of even “low-level” radioactive waste. Thus, reactor sites may become *de facto* radioactive waste dumps – an outcome Congress sought to avoid by mandating the search for a repository in the Nuclear Waste Policy Act.

Despite being ordered by a federal court to address the environmental impacts associated with these serious problems, the NRC has concocted the draft Waste Confidence GEIS, a pseudo-environmental study that either ignores these problems or assumes they will not happen. A few egregious examples:

- The NRC asserts that highly radioactive spent fuel stored for hundreds of years at reactors or other surface facilities will not leak radioactivity because the fuel will be safely managed indefinitely, including transfer of radioactive spent fuel into new storage casks every 100 years. This assumption that government institutions will function safely for hundreds of years is not only absurd and inconsistent with NRC’s own regulations and human history, but it is inconsistent with the mandate of the NWPA that spent fuel may be stored above ground only on an interim basis while a repository is being developed.
- The NRC refuses to consider the vulnerability of high-density spent fuel storage pools to catastrophic fire caused by an attack. According to the NRC, attacks are separately addressed under NRC security regulations. But no reactor licensee in the U.S. has eliminated the use of high-density storage racks from spent fuel pools, or even lowered the density of fuel stored in pools. Thus, a serious environmental threat remains.
- Undetected leakage from spent fuel pools and other reactor components has plagued reactor licensees and communities for decades. Tritium – the principal contaminant – is notoriously hard to clean up, and the quantity in spent fuel is increasing due to the increased use of high burn-up fuel. Yet the NRC declares that the impacts of pool leaks are insignificant.
- NRC is seeking to establish indefinite above-ground storage as an acceptable alternative for disposing of spent fuel, to eliminate any opportunity to question the environmental impacts of extended spent fuel storage, and to *completely remove* the expectation of a repository from its waste confidence rule.

## **POINTS TO MAKE REGARDING ENVIRONMENTAL IMPACTS OF SPENT FUEL DISPOSAL AND EXTENDED STORAGE --**

**NRC did not do the environmental impact analysis ordered by the Court of Appeals in *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012).** In *New York*, the Court ordered NRC to conduct a “full analysis” of “the potential environmental effects” of storing spent fuel onsite at nuclear plants “on a permanent basis.” 681 F.3d at 479.

NRC did not do the “full analysis” required by the Court. Instead of examining what would happen if spent fuel remained unprotected on the earth’s surface indefinitely, the NRC *assumed* that spent fuel would be safely managed in surface storage for an indefinite period. But the Court required NRC to *examine the risks* of spent fuel storage, and did not allow NRC to merely *assume* that storage would be safe.

**NRC should go back to the drawing-board with a new EIS.** Instead of assuming that spent fuel can be stored safely forever, NRC should examine:

- the probability that a repository will be successfully sited,
- the probability that a successfully sited repository will actually contain radiation,
- the degree to which a repository may leak radiation, and
- the public health and environmental consequences that may occur if a repository is not sited or it ineffectively contains radioactivity.

**Until it does that analysis, the Draft GEIS does not provide an environmental analysis that is sufficient to justify eliminating consideration of spent fuel disposal impacts or storage impacts from every licensing proceeding, as proposed in 10 C.F.R § 51.23.**

## **POINTS TO MAKE REGARDING SPENT FUEL POOL FIRE RISKS --**

**The vulnerability of spent fuel pools to malicious attack is the single biggest issue that is missing from the draft GEIS.** Spent fuel is building up at every reactor site in the country, stored in high-density pools that are vulnerable to attack and pose a risk of catastrophic fire. The NRC contemplates that these pools may remain in use for 60 years after operation ceases, where they will remain vulnerable to fires.

According to the NRC, the risk of attacks need not be addressed in the GEIS because NRC security regulations ensure that reactor spent fuel pools are protected. But no reactor licensee in the U.S. has eliminated the use of high-density storage racks from fuel pools, or even lowered the density of fuel stored in pools. Thus, a serious environmental threat remains.

## **POINTS TO MAKE REGARDING SPENT FUEL POOL LEAK RISKS --**

**The Draft GEIS considers only human health impacts and not environmental impacts in general.** The Draft GEIS does not address impacts to the non-human environment. Contamination that is too low to cause disease in humans may affect plants and animals. And even small leaks may grow. In the past, the casual acceptance of leakage has undermined public trust in the NRC.

**The Draft GEIS does not address impacts to drinking water quality.** Instead, it discounts them. For instance, while NRC notes that onsite contamination in excess of drinking water standards exists, it discounts the significance of these instances because the contamination has not migrated offsite. Given that (a) the NRC's goal is to release all decommissioned sites for unrestricted use, and (b) 10 C.F.R. § 20.1402 requires reduction of radiological emissions from decommissioned sites to 25 mrem from all sources including drinking water, the impact of contamination caused by spent fuel pool leakage to drinking water must be addressed.

**The GEIS underestimates the likelihood of past leaks and does not fully consider the consequences of such leaks.** NRC failed to adequately assess the likelihood of future leaks because it did not consider at least two important past leaks. A Yankee Rowe leak released approximately 2 million gallons of contaminated water. Some of this leakage made its way into the Deerfield River.<sup>1</sup> And in 1997, ground water samples were taken by Brookhaven National Labs (BNL) that revealed concentrations of tritium at twice the allowable federal drinking water limits. Some samples taken later were 32 times the standard. The tritium was found to be leaking from the High Flux Beam Reactor's spent fuel pool into the aquifer that provides drinking water for nearby Suffolk County residents.<sup>2</sup> DOE's and BNL's investigation of this incident concluded that the tritium had been leaking for as long as 12 years without their knowledge.<sup>3</sup>

**NRC's leak detection analysis fails to consider difficulties associated with leak detection, especially with long-term, low-volume leaks.** Several spent fuel pool leaks have gone undetected for prolonged periods of time despite NRC's assurance that measures are in place to ensure timely detection. This undercuts NRC's conclusion that it is unlikely for leaks to occur and go undetected long enough to result in significant impacts to the environment. The Yankee Rowe and BNL leaks went undetected for longer than one year and perhaps as long as twelve years. At Salem, a leak thought to be only a few gallons per day turned out to be about 100 gallons per day. The volume and significance of this leak were NOT detected by the spent fuel pool water level instrumentation or the installed leak detection system because of a clogged drain in the monitoring system.<sup>4</sup>

**NRC's analysis of pool leak impacts is devoid of any quantitative assessment.** The Draft GEIS does not consider the numerical limits of impactful spent fuel pool leaks in terms of volume and duration. A quantitative analysis of spent fuel pool leak detection is necessary for a forward-looking spent fuel pool leak analysis, as required by the Court in *New York v. NRC*.

**The Draft GEIS inappropriately relies on inapplicable regulations and guidelines.** NRC incorrectly relied on spent fuel pool monitoring requirements that are only applicable during the

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<sup>1</sup> See Yankee Atomic Electric Company (YAEC). 2006. *Groundwater Protection – Data Collection Questionnaire*. Rowe, MA. July 19. Online at <http://pbadupws.nrc.gov/docs/ML0620/ML062080156.pdf>.

<sup>2</sup> See General Accounting Office (now called the Government Accountability Office) (GAO), *Department of Energy: Information on the Tritium Leak and Contractor Dismissal at the Brookhaven National Laboratory*. GAO/RCED-98-26 (1997). Online at <http://pbadupws.nrc.gov/docs/ML1209/ML120960692.pdf>.

<sup>3</sup> *Id.*

<sup>4</sup> See NRC, Spent Fuel Pool Leakage to Onsite Groundwater, Information Notice 2004-05 (March 3, 2004). Online at <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/info-notices/2004/in200405.pdf>

movement of spent fuel from one storage facility to another. NRC also incorrectly relied on groundwater monitoring and inspection programs that are not mandatory or not applicable.

**NRC failed to consider the inadequacy of its regulatory program to detect future leaks.**

NRC failed to consider the significant reduction in regulatory oversight and regulation of spent fuel storage that occurs after reactors shut down. NRC also failed to consider the future implications of the probability and consequences of past leaks, leak detection difficulties, and difficulties that arise with monitoring and inspections. Therefore, NRC failed to properly determine the significant impacts of spent fuel pool leaks because it did not conduct a forward-looking analysis.

**The Draft GEIS is not adequate to address the circumstances of individual reactors.** The circumstances of individual reactor sites are distinct, and do not fit within the broad generalizations made in the Draft GEIS. Examples of unique circumstances include, but are not limited to:

- Leakage from spent fuel pools at many sites is significant, especially when taken together with leakage from other parts of the reactor. These cumulative impacts must be evaluated on a site-specific basis.
- Some reactor sites are in environments that are particularly vulnerable to the adverse effects of groundwater contamination. Reactors in Florida are notable examples.
- Numerous reactor sites across the country, especially those in coastal areas, are threatened by sea level rise and associated storm surge.
- Groundwater contamination from spent fuel pool leaks may affect known drinking water sources, and may also impinge on Native American trust lands. Examples are Prairie Island and Columbia.
- Individual reactors are making increasing use of high burn-up fuel. Each reactor varies. High burn-up fuel has more tritium, which is notoriously hard to clean up if it contaminates groundwater.
- Environmental impacts of leaks are likely to be more severe at reactors where NRC oversight has been weak or erratic.
- Some reactor sites are located in environmentally vulnerable locations. For instance, the Prairie Island reactors are located on an island in the Mississippi River and the Three Mile Island reactors are located on an island in the Susquehanna River. The Columbia, Washington reactor is located close to the Columbia River, and Indian Point is located close to the eastern shore of the Hudson River. The Turkey Point reactors in Florida are located above fragile aquifers and adjacent to Everglades National Park. Other reactors (such as Diablo Canyon) are in areas of relatively high seismic risk.

**HOW TO FILE COMMENTS WITH THE NRC – DEADLINE IS DECEMBER 20, 2013:**

E-mail: [Rulemaking.Comments@nrc.gov](mailto:Rulemaking.Comments@nrc.gov), citing Docket ID No. NRC-2012-0246

Submit comments online at: [www.regulations.gov](http://www.regulations.gov) using Docket ID No. NRC-2012-0246

Mail comments to: Secretary  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001  
ATTN: Rulemakings and Adjudications Staff

Fax comments to: Secretary  
U.S. Nuclear Regulatory Commission  
301-415-1101, citing Docket ID No. NRC-2012-0246