

Rulemaking Comments

**PR 51
(74FR38117)**

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From: Michael Hubbard [mshubb1@yahoo.com]
Sent: Friday, October 02, 2009 11:13 AM
To: Rulemaking Comments
Subject: RIN 3150-AI42 / NRC-2008-0608

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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

2 October 2009

Dr. Gregory B. Jaczko, Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Attn: Rulemakings and Adjudications Staff

Via e-mail to: Rulemaking.Comments@nrc.gov

Re: RIN 3150-AI42

Dear Chairman Jaczko:

I appreciate the opportunity to provide my comments to the Nuclear Regulatory Commission's (NRC) proposed revisions to 10 CFR Part 51 published in the 31 July 2009 Federal Register regarding license renewal of nuclear power plants.

The following comments refer to the issues listed in Table B-1 (Appendix B to Subpart A of Part 51) and are numbered according to the proposed revision discussion section.

9. Surface-water use and quality.

This criterion is proposed to remain a Category 1 issue that is addressed in the revised GEIS generically for all nuclear power plants. It is illogical to propose Category 2 status for terrestrial ecosystems (no. 29) and for five groundwater issues on the basis of differing environmental conditions at each nuclear plant site, and then claim that surface-water ecosystems are so similar that a generic impacts analysis can be used to represent all the diverse surface-water systems surrounding all nuclear plant sites.

"Environmental conditions are different at each nuclear plant site and impacts cannot be determined generically." This statement is used throughout the proposed revisions discussion to explain why certain issues cannot be given Category 1 status and I fail to see how this statement does not also apply to surface waters. This issue should be Category 2 and addressed individually in the SEIS for each re-licensing application due to differing environmental conditions and diversity of surface waters across the nation.

For example, at least 24 of 104 nuclear power reactors are situated in areas subject to severe drought conditions. Water use changes due to human population growth, alteration of agricultural water use, and increased environmental limitations on water use need to be

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evaluated on a site-by-site basis. Nuclear power plants consume enormous amounts of water and, as water restrictions and limitations become tighter, the availability of water for use in nuclear plants will become an increasingly questionable use for our water supply. Water use issues will be dynamic and cannot be addressed with a generic, fixed-in-time impacts assessment.

In addition to the need to perform site-by-site analysis of surface-water use impacts, the quality of surface waters is also site specific, dynamic, and unfit for a generic impacts analysis. For example, tritium is produced by all nuclear reactors and routinely released to the environment in both liquid and gaseous forms. While Category 2 issue numbers 27 and 28 deal with radionuclide and other contamination of groundwater, no such issue is included for surface-water quality. From tritium release data supplied by nuclear power plants to the NRC, reported liquid tritium releases vary from 142 curries (Fort Calhoun) to 1715 curries (Millstone 3) for pressurized water reactors in 2005. This is a difference greater than a factor of 10 and exemplifies how a generic impacts analysis is inappropriate.

Furthermore, tritium releases are found to vary by reactor type, vary among reactors of the same type and capacity, and to vary year by year from the same reactor. Gaseous tritium releases vary by several factors of 10 among reactors and can also impact surface waters via rainfall. How can a generic impacts analysis cover all this variation representatively?

Discussion of this issue in the proposed revisions concludes that "the impact on surface-water use and quality during a license renewal term will *continue* to be small for all plants." [emphasis added] However, tritium is generally the largest routine release from nuclear plants and has caused widespread, low-level contamination of water bodies. Tritium monitoring and reporting requirements set by the NRC have been found to be inadequate due to differing measurement practices, inconsistencies in how tritium releases are reported, lack of representative sampling locations, and failure to monitor for rainfall during gaseous discharges. These inadequacies in tritium release data alone illustrate how a generic impacts analysis is inappropriate for the issue of surface-water quality.

In addition to variation in reported routine tritium releases among nuclear plants, tritium leaks have occurred at (at least) seven nuclear plants. That represents over 10 percent of the currently active reactors. Obviously, at least one-tenth of the nuclear reactors have leak histories differing from those plants that have not had leaks. Representative consideration of surface-water quality should include site-specific leak histories and should be more rigorous than is provided by the revised GEIS.

It is my understanding that a nuclear plant applying for a license renewal has been releasing tritium for nearly 40 years. There are at least 16 nuclear reactors on the banks of the Mississippi River and its major tributaries. There are at least six nuclear reactors on Lake Michigan. How will a generic impacts analysis for surface-water quality be representative for surface waters such as these that are impacted by more than one nuclear power plant? How can a generic impacts analysis, which by nature must be fixed in time, account for the year-by-year accumulation of tritium in our surface waters?

Does the NRC understand that it takes about 250 years for tritium to decay to negligible levels? Does the NRC understand that tritium can enter the body through ingestion, absorption, or inhalation and that numerous agencies, including the National Academy of Sciences and the EPA, have concluded that there is no level of radiation exposure that is harmless or beneficial, and that even the smallest dose of ionizing radiation is capable of contributing to the development of cancer?

Consideration of tritium and other contaminant releases affecting surface-water quality should be a Category 2 issue reviewed on a site-by-site basis in the SEIS for each license renewal application.

16. Water use conflicts (plants with once-through cooling systems).

It is inconceivable that the NRC should conclude that this issue can be adequately dealt with generically. The generic impacts "evaluation" seems to conclude that, since these types of conflicts have not been "found to be a problem" in the past, water-use conflicts will continue not to be a problem.

Increases in human water use and realization that adequate water levels and flows are necessary to support healthy aquatic ecosystems dictate that water use impacts be re-evaluated because this issue is dynamic and a generic impact assessment is not.

"Environmental conditions are different at each nuclear plant site and impacts cannot be determined generically." I do not see how it can be argued that this issue does not fit with that statement. This issue should clearly be assessed on a site-by-site basis and, therefore, given Category 2 status.

20. Groundwater use and quality.

Groundwater quality is dealt with at issue numbers 24 and 25 (Groundwater quality degradation), 27 (Groundwater and soil contamination), and 28 (Radionuclides released to groundwater), and, therefore, the term "quality" should be removed from this issue. Groundwater quality will be determined in the SEIS under issues 27 and 28 (and issues 24 and 25 should also be Category 2) and inclusion of "quality" in the title is not representative. Furthermore, the idea that groundwater quality or use can be generically addressed is illogical because "Environmental conditions are different at each nuclear plant site and impacts cannot be determined generically."

This issue should be titled "Groundwater use" and should be a Category 2 issue due to differing environmental conditions and changing attitudes about how we use our limited water supply that will affect groundwater use at each nuclear plant.

24. Groundwater quality degradation (plants with once-through cooling systems or cooling ponds).

It is illogical to propose that environmental conditions of the groundwater at each nuclear plant are so similar that addressing the issue can be handled with a generic evaluation. Not only does a generic impact analysis assume that environmental conditions are generically similar, but that plant design, configuration, operations and maintenance philosophies and attitudes are universally equal, and accident histories are also generically similar at all plants.

It is not representative to utilize a generic impacts analysis due to differing environmental conditions, and also not representative to assume that design and maintenance issues fit within a one-size-fits-all impacts evaluation. Operational and design conditions are different enough on many levels to preclude the use of a generic impacts evaluation. This issue should be assigned Category 2 status and evaluated on a site-specific basis.

25. Groundwater quality degradation (plants with cooling ponds in salt marshes).

Salt marshes are one of the most biologically productive habitats on the planet. They are also more highly protected than they were decades earlier, during the original licensing process.

In addition, human expansion has led to more and more use of our groundwater for residential, agricultural, and industrial uses. There is no possible way for generic treatment of this issue to

cover the differences in groundwater use from one nuclear plant to another. "Environmental conditions are different at each nuclear plant site and impacts cannot be determined generically." I fail to see how this statement does not apply to this issue. Therefore, this issue should be designated with Category 2 status.

Discussion of this issue in Table B-1 is perplexing. The discussion section consists of this statement:

"Sites with closed-cycle cooling ponds could degrade groundwater quality; however, because groundwater in salt marshes is brackish, this is not a concern for plants located in salt marshes."

Does this mean that plants in salt marshes are immune to radionuclides, or any other types of releases? or that salt marsh plants are not important? Does it mean that we do not care about groundwater quality if it is brackish? Does it mean that only salt marsh plant health was considered in the impacts evaluation?

This is one of the worst sentences ever constructed and I beg NRC staff to revise it. This sentence should not only make sense, but also provide some support to the conclusion that these impacts are SMALL.

41. Effects of cooling water discharge on dissolved oxygen, gas supersaturation, and eutrophication.

"Environmental conditions are different at each nuclear plant site and impacts cannot be determined generically."

Rates of eutrophication vary significantly due to differences in climate. Climate and local temperature differences also impact dissolved oxygen production, uptake, and saturation levels. While Table B-1 makes the claim that eutrophication has not been a problem at nuclear plants, thermal pollution from cooling water discharge does negatively impact eutrophication and dissolved oxygen. So much so that some plants across the nation have to reduce power or shut down when the ambient temperatures are extremely high. This evaluation makes no mention of that fact.

Furthermore, 36 nuclear plants are located on lakes, 47 on rivers, and 18 on coasts, bays, and estuaries. To claim that the effects of cooling water discharge at sites located from the state of Washington to southern California on the west coast, and from Vermont to southern Florida on the east coast, can be generically treated in a single impacts evaluation brings into question the NRC's willingness or ability to conduct environmental impacts assessments. This issue should be assigned Category 2 status and evaluated on a site-specific basis.

66. Severe accidents.

NRC stating that a severe accident's impact is SMALL just because the NRC has judged the probability of a severe accident to be small defies logic and does not meet the intent of the NEPA requirements.

For example, Dr. Ed Lyman of the Union of Concerned Scientists, using the NRC's own analysis method, determined that a worst-case accident or attack at the Indian Point nuclear power facility 35 miles north of New York City could cause up to 43,700 immediate deaths and up to 518,000 cancer deaths over time. The costs could reach \$2.1 trillion and would result in the permanent relocation of 11.1 million people. And the NRC deems this a SMALL impact because it probably won't happen?

As a member of the public dependent on the NRC to protect human and environmental health, I am uncomfortable with this blithe proclamation that impacts from a severe accident are SMALL. Such a claim erodes public faith in the NRC's ability or willingness to protect human and environmental health.

69. Onsite storage of spent nuclear fuel.

The proposed revisions list this issue as Category 1. However, a generic, fixed-in-time impact analysis cannot possibly cover the changing events occurring now and expected to occur in the future due to the difficulty of finding a suitable long-term repository for spent fuels. Additionally, spent fuels were initially only planned to be stored onsite for several decades. The International Atomic Energy Agency, in its *Nuclear Safety Review for the Year 2007*, states that:

"Spent fuel storage is becoming more and more important as the construction of geological disposal facilities is being delayed. In consequence, storage periods are extended and storage times of 100 years or longer are being taken into consideration."

Generic impacts evaluation assumes that, in regard to onsite spent fuel storage, all plants: are managed equally; maintenance programs are effective and adequately comprehensive; all facilities have the capacity and are willing to shift spent fuels from pools to dry casks; spill and leak histories at each plant are compatible; original designs for temporary storage are all equally sound for decades-long storage in a safe manner; and that volumes and radioactivity of the spent fuels are the same at each plant.

Due to the varying conditions among nuclear facilities, and especially because the longer-term storage of spent nuclear fuel was not part of any nuclear plant's original design, this issue should be assigned Category 2 status. To assume a generic impacts analysis can accurately represent the conditions at every plant is implausible.

70. Offsite radiological impacts of spent nuclear fuel and high-level waste disposal.

Due to the fact that no country has resolved the issue of safely storing radioactive wastes on a long-term basis, changes in the process and methodology are expected. Since there is no long-term repository, no generic impact can be determined because conditions of offsite storage are at this time unknown. This issue should clearly be a Category 2 issue until such time as an offsite repository is found and a generic impacts analysis can be supported with real data.

Discussion of this issue in Table B-1 indicates that the generic impacts evaluation was clearly based on EPA radiation dose limits specific to the proposed repository at Yucca Mountain. The Yucca Mountain site is not ever going to be a radioactive waste repository for reasons too broad and numerous to list here. Obviously, this proposed generic impacts analysis is already dated and not applicable. This issue must be given Category 2 status at least until a long-term repository is designated.

77. Transportation.

The continued production of radioactive waste will also require its regular transportation through communities across the U.S. Since the Yucca Mountain repository is unlikely to accept radioactive wastes anytime soon, if ever, the shipment of spent fuels cannot be adequately modeled as to the human and environmental health risks. Since each facility will be shipping over different routes and different distances, this risk should be evaluated on a site-by-site basis. The generic evaluation in the proposed revisions is already based on faulty assumptions (i.e., that Yucca Mountain will receive wastes). The transportation of new and spent fuels needs to be a Category 2 issue included in each plant's SEIS.

Additionally, the NRC is proposing revisions to 10 CFR Part 110 that will, according to NRC discussion in the Federal Register, "facilitate the licensing process for exports and imports of radioactive wastes..." Approval of these revisions is expected to increase shipping of imported wastes and is not covered in the revised GEIS; increased shipping of fuel and spent fuel will increase if new nuclear plants are constructed, and shipment of spent fuels will increase once a long-term repository is opened.

The dynamic nature of the transportation issue makes it inappropriate for generic impact analysis and should be addressed as a Category 2 issue for evaluation on a site-by-site basis, not so much for differing environmental conditions among nuclear plants, but due to the changing amounts of transportation that are expected over time.

To date, the NRC has not denied **ANY** re-licensing application despite the inevitable fatigue of critical components after 40 years of operation and the fact that onsite storage of radioactive wastes and security of fuel pools remain serious unresolved issues. Many of the issues proposed to be handled under a generic analysis are inappropriate, and so obviously so the integrity of the NRC is at issue. Many of the proposed revisions appear to benefit the nuclear plant owners to the detriment of the agency's legislated goals of protecting human and environmental health and national security.

Please be reminded of the NRC's mission:

"To regulate the nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment."

Thank you for considering my concerns.

Sincerely,

Michael S. Hubbard

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