NUCLEAR ENERGY INSTITUTE

Janet R. Schlueter
DIRECTOR
FUEL & MATERIALS SAFETY
NUCLEAR GENERATION DIVISION

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RULES AND DIRECTIVES
BRANCH
USNRC

Mr. Michael T. Lesar
Chief
Rulemaking, Editing and Directives Branch
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Industry Comments on Draft Regulatory Guide 4017, "Monitoring and Reporting Radioactive Materials in Liquid and Gaseous Effluents from Nuclear Fuel Cycle Facilities"

Project Number: 689

Dear Mr. Lesar:

On behalf of the fuel cycle industry, the Nuclear Energy Institute (NEI)[1] submits the following comments for your consideration as you work to finalize the subject draft regulatory guide applicable to fuel cycle facilities. We trust you will find the general comments below and the specific comments enclosed useful and look forward to reviewing the final guidance document.

The proposed revision offers no significant benefit over the current Regulatory Guide 4.16, which has been successfully applied for many years by licensees including uranium user licensees. The summary of cost savings discussion may be an overstatement since the NRC's inspection program for uranium facilities is mature. Specifically, the NRC routinely evaluates and reviews compliance issues such as licensee estimates of worker and public doses, adequacy of effluent controls and other points of interest addressed in the draft guide. Therefore, there is no indication to suggest that the NRC will reduce its oversight efforts and associated costs as a result of implementing this guidance document.

Also, many licensees have been authorized to use the updated annual intake limits and dose calculations in the International Council on Radiation Protection (ICRP) report number 68. However, the draft guide refers extensively to 10 CFR Part 20, which is based on the outdated methodology

[1] NEI is the organization responsible for establishing unified nuclear industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all utilities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel fabrication facilities, materials licensees, and other organizations and individuals involved in the nuclear energy industry.

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1776 I Street, NW | Suite 400 | Washington, DC | 20006-3708 | P: 202.739.8098 | F: 202.533.0132 | jrs@nei.org | www.nei.org

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contained in ICRP 30 creating an inconsistency with authorized practices at many licensed facilities. Therefore, the draft guide should add the words "Part 20 or equivalent" and be modified to recognize the authorized use of ICRP 68.

If you have any questions or would like to discuss these comments, please feel free to contact me (202-739-8098; jrs@nei.org).

Sincerely,

Janet R. Schlueter

Attachment

c: Mr. Gregory E. Chapman, NMSS/FCSS/FFLD/E, NRC

Attachment

Industry's Specific Comments on Draft Regulatory Guide DG-4017 (Proposed Rev. 2 of Regulatory Guide 4.16)

Section	Comments
2.0	• This section states that periodic replicate grab sampling of liquid effluents should be done. It should be noted that this practice is not currently performed nor is it required by the rule.
2.1	• Section 2.1 states "Licensees should use this guidance (ANSI/HPSN13.1-1999) to establish sampling and monitoring methods for those gaseous effluent points that emit 90 percent or more of the total radioactivity released from the facility, as well as those points that generate 90 percent or more of the total estimated offsite exposure from facility releases." Application of the physical sampling equipment (shrouded probes, large diameter transport tubing, etc.) called for in ANSI/HPS N13.1-1999 will necessitate major sampling system retrofits across the industry, something that even the EPA has not recommended based on their extensive comparisons to systems designed to the 1969 standard. NRC's application of this technology should be risk-based, for example, calling for the 1999 ANSI standard for stacks with a likelihood of exceeding a certain percent of a dose-based limit (50% of the 10 CFR 20 limits, for instance). The current wording would apply the 1999 standard to stacks emitting 90% or more of the facility's total release or generating 90% or more of the resultant offsite dose no matter how miniscule the concentrations and doses are. This gives no consideration to risk.
	• Use of the term "continuous monitoring" should be replaced with "continuous sampling," as continuous monitoring can be interpreted to mean on-line or real-time monitoring.
	• In paragraphs 4 and 5, "could emit" and "has the potential to emit", respectively, should be replaced with "could be expected to emit" or something similar. The current wording could be interpreted as endorsing the "potential to emit" (or PTE) concept used by the EPA in some applications whereby the licensee is required to consider potential emissions from a source devoid of emission controls, e.g. giving no credit for HEPA filters. We do not believe this should be the NRC's intent in these paragraphs.
	• In paragraphs 4 and 5 it also needs to be clear that we are not comparing in-stack concentrations to the Appendix B Table 2 limits that in actuality apply to radionuclide concentrations at the boundary of the restricted area. So rather than say "emit", it would be better to say (consistent with the prior comment) "could be expected to emit radionuclides such that environmental concentrations at the boundary of the restricted area are...."
	• If no radiological source can contaminate an effluent, sampling of the effluent for radionuclide concentrations is not necessary (e.g. a nonradiological stack). However, licensees should evaluate each effluent point periodically (e.g. quarterly) to verify that its radiological status has not changed." The frequency requirement is new and unneeded. Requirements for ISA and change management processes are considerable and offer a preferable basis for

	review. As the review process is related to change, the issues that might change the stack status if any are specifically addressed, instead of a generic review.
3.1	• The concept of DQOs in place of fixed criteria (10% of concentration limits) adds much complexity to the process and will require even more accurate estimates of the measurement of uncertainty including sampling and measurement techniques in the absence of a safety concern.
3.2	• The section replaces a simple <10% MDC requirement with much more elaborate programmatic DQOs. The majority of licensees have low releases and very limited potential or actual public dose. Enhancing the complexity and requirements for monitoring low level releases does not seem productive. However as an alternative option for licensees with difficult monitoring issues or who are closer to release or public exposure limits, it seems reasonable. *Note that the additional effort for the more complex system is an additional and unidentified cost to the Licensee*
3.3	• Section 3.3 states "For example, in plants handling uranium, the licensee should perform a chemical or isotopic analysis for uranium at least quarterly on selected samples." Such analysis should not be necessary if the Table 2 environmental concentrations for each isotope are approximately the same, or if the limits are conservatively chosen, for example, based upon the most conservative isotope or a conservative mix of the isotopes.
3.9	• The section replaces a simple measurement error requirement with much more complex systemic error. The majority of licensees have low releases and very limited potential or actual public dose. Enhancing the complexity and requirements for monitoring low level releases does not seem productive. However as an alternative option for licensees with difficult monitoring issues or who are closer to release or public exposure limits, it seems reasonable. Licensees with releases > a percentage of dose limits might adopt the more complex error band. *Note that the additional effort for the more complex system is an additional and unidentified cost to the Licensee. To determine uncertainty in flow rate measurements could require a number of stack flow rate measurements through the monitoring period, as fluctuations in stack flow are a complex function of atmospheric conditions, heating and cooling, building enclosure, fan efficiency, and system resistance to name a few. For a stack with a long history, the use of year to year variance may be possible.*
	• Measurement uncertainty to include sampling errors would require replicate stack samples – a costly technique not currently performed or required.
6.5	• The last sentence in the 1st paragraph of section 6.5 "The licensee should investigate significantly negative numbers less than 3 standard deviations below zero as it is unlikely that these values represent random uncertainties for a result near zero. " Should read **greater** than 3 standard deviations below zero.
	• Section 6.5 discusses results less than minimum detectable concentrations. This section should be modified to explicitly include concentration determinations from other than counting techniques. For example, mass spectroscopy analyses could be used to determine isotopic concentrations and changes in voltage could be used to determine radon concentrations.