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15100 Westbury Road  
Rockville, MD 20853  
December 6, 2000

Chief, Rules and Directives Branch  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

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NRC

Subject: Comments on Draft NUREG-1671

I am writing as an interested individual to comment on Draft NUREG-1671, "Standard Review Plan for the Re-certification of the Gaseous Diffusion Plants," Chapter 8.0 Nuclear Criticality Safety. The availability of this chapter for comment was announced in the Federal Register on November 6 (65FR66573). My interest is in obtaining a clear understanding of NRC's intended requirements for nuclear criticality safety.

Following 7 years of nuclear reactor regulatory involvement, I have spent the past 10 years in the regulation of the gaseous diffusion plants and the regulation of the fuel cycle industry. I participated in drafting the proposed 10 CFR 76 submitted to the NRC on July 15, 1993, and in the ensuing comments, comment resolution and revisions that led to its issuance. I participated in the development of the revised 10 CFR 70 beginning with the May 2, 1995, public kickoff. I participated as a member of a fuel cycle industry group in virtually every meeting associated with the formulation of revised 10 CFR 70. I also participated in the transition of the gaseous diffusion plants from Department of Energy to NRC regulation. During this time I have reviewed many proposed NRC guidance documents associated with fuel cycle facilities.

Draft NUREG-1671 is the latest of a number of attempts by NRC to impose new requirements for nuclear criticality safety (NCS) on the gaseous diffusion plants and other fuel cycle facilities. For example, it appears to require the submittal of nuclear criticality safety approvals and evaluations to support the re-certification of the gaseous diffusion plants (§ 8.3.1, 8.3.2, 8.3.3, 8.3.4, 8.3.5, 8.3.6), something not heretofore provided. Historically, at the gaseous diffusion plants and other fuel cycle facilities, the operators prepare and approve nuclear criticality safety approvals and evaluations in accord with an NRC approved program. NRC has historically reviewed these approvals and evaluations as part of their inspection program. This regulatory relationship was carefully crafted to allow NRC to determine that the plant was being operated safely while affording the operator sufficient authority to operate and modify the plant. Changes to this relationship should receive due consideration before they are imposed.

Similarly, NUREG-1671 imposes new standards for acceptance of nuclear criticality analyses (e.g. § 8.4.2.2.4). These standards are similar to previously proposed standards that the Chairman of the American Nuclear Society Nuclear Criticality Safety Division opposed in his December 1, 1998 letter to Dr. Paperiello and were later omitted from the 10 CFR 70 Standard Review Plan ( NUREG-1520, Chapter 5.0, April 3, 2000).

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Add: A: Hoadley-(DAH)

However, there is no explanatory material with the draft NUREG-1671 identifying the new requirements and the basis for them.

NUREG-1671 appears to be a new, entirely unique criticality safety review guidance document whose relationship to other NRC NCS requirements and guidance is not clear. A brief history of my recent experience with NRC NCS requirements and guidance may best illustrate the difficulty in understanding the draft NUREG-1671.

- 1) September 23, 1994 – NRC finalized 10 CFR 76, “Certification of Gaseous Diffusion Plants.” The rule was required by the Energy Policy Act of 1992 to provide for certification, vs. licensing, of the existing gaseous diffusion plants. Not surprisingly owing to the similarities of hazards associated with other fuel cycle facilities and the gaseous diffusion plants, the rule was largely based on 10 CFR 70, “Domestic Licensing of Special Nuclear Material.” Specifically, the explicit requirements for nuclear criticality safety in 10 CFR 76 are essentially identical to those in 10 CFR 70. Nothing in the 10 CFR 76 rulemaking package (SECY-94-216) suggests that there was any intent to impose new or unique requirements for NCS on the gaseous diffusion plants.
- 2) January 1995 – NRC issued draft Regulatory Guide 3.52, “Standard Format and Content for the Health and Safety Sections of the License Applications for Fuel Cycle Facilities.” This draft Regulatory Guide was introduced as part of the initiation of what finally became the 10 CFR 70 rulemaking. Chapter 6 of draft Regulatory Guide 3.52 outlined the required NCS content for license applications. This Regulatory Guide was never finalized.
- 3) July 30, 1998 – NRC issued 10 CFR 70 proposed rulemaking (SECY 98-185). The background for the proposed rulemaking cited the May 1991 near-criticality at the General Electric plant as a basis for the rulemaking. Significantly, no explicit changes to the NCS provisions of 10 CFR 70 were proposed. Included in the package was NUREG-1520, “Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility.” Chapter 5 addressed NCS and included substantial changes to historic NCS practices.
- 4) August 1998 – NRC issued Regulatory Guide 3.71, “Nuclear Criticality Safety Standards for Fuels and Material Facilities.” This guide consolidated and replaced the guidance from 10 NCS Regulatory Guides. This Regulatory Guide appears to remain effective, is referred to in NUREG-1671 section 8.5.2, has some overlap with NUREG-1671 but the relationship of the two documents is not discussed.
- 5) March 16, 1999 – NRC posted a revision of NUREG-1520, Chapter 5 reflecting resolution of comments. The content of Chapter 5 changed in its entirety since the version released with SECY 98-185.
- 6) March 1999 – NRC issued draft NUREG-1701, “Standard Review Plan for the Review of a License Application for the Atomic Vapor Laser Isotope (AVLIS)

Facility.” Chapter 5 addressed NCS review requirements that were different in format and content from those in NUREG-1520, Chapter 5. AVLIS was to be licensed under 10 CFR 70.

- 7) June 2, 1999 – NRC issued the 10 CFR 70 final rulemaking package (SECY-99-147). The rulemaking package included draft NUREG-1520, “Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility.” Chapter 5.0 of draft NUREG-1520 addressed NCS review requirements. The format of the chapter changed from the March 16, 1999 version. Content seems similar but the differences are not readily discerned.
- 8) April 3, 2000 – NRC issued a revised draft NUREG-1520 Chapter 5.0 responding to comments received on the proposed 10 CFR 70 rulemaking. Substantial format and content changes were made to the June 2, 1999, version without clear explanation.
- 9) November 14, 2000 – NRC issued for comment draft NUREG 1671, “Standard Review Plan for the Re-certification of the Gaseous Diffusion Plants,” Chapter 8.0 Nuclear Criticality Safety. The NCS chapter differs substantially in format and content from its predecessors.

Six of the NRC NCS guidance documents above (#2,3,4,5,6,9) have unique formats and contents. Also, the 4 versions of NUREG-1520, Chapter 5, that have been issued differ substantially from one another without clear traceability for the changes. One might expect each of these different versions of NCS guidance to be closely related with a few, justified changes from one to another. Unfortunately, this is not the case, making review extremely difficult. Each appears to be a unique document with some similar features. It is impossible, therefore, to discern precisely what is new about each, much less why that new provision is included.

One thing that is apparent, however, is that the NRC continues to propose new ways to exercise its regulation over NCS. Each of these guidance documents, including NUREG-1671, proposes unique new NCS requirements. None of the documents include an explanation of what changes are proposed to the existing requirements. To ensure an improvement to safety, each proposed change must be clearly understood and justified before it is put into effect.

In summary, there appear to be repeated efforts to substantially change the way NRC regulates NCS. NUREG-1671 is the latest example. If it is indeed NRC’s intention to change the way NCS is regulated, they owe it to the public and the industry to explicitly identify the new requirements and provide a justification for them. The new requirements and their basis must be clear and unambiguous. This affords the opportunity for all interested parties, including the NCS community, to understand what is proposed and have their concerns expressed and comments considered.

Thank you for considering my comments. Feel free to reach me at 301-929-3112 for clarification of the above.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Woolley". The signature is fluid and cursive, with a large initial "R" and a long, sweeping underline.

Robert Woolley