

DOCKET: 70-143

LICENSEE: Nuclear Fuel Services, Inc.
Erwin, Tennessee

SUBJECT: SAFEGUARDS EVALUATION REPORT: SUBMITTAL DATED DECEMBER 31, 2009, ONE-TIME EXEMPTION REQUEST FROM MEASURING HEELS IN 2S URANIUM HEXAFLUORIDE (UF₆) CYLINDERS

1.0 BACKGROUND

A request to renew Materials License SNM-124 is pending. Separately, by cover letter dated December 31, 2009, Nuclear Fuel Services (NFS) requested a one-time exemption from measuring the heel content in certain 2S UF₆ cylinders it holds at its facility. The amendment in response to this request would relieve the licensee from the measurement requirement of Title 10 of the *Code of Federal Regulations* (10 CFR) 74.59(d)(1), which states in relevant part that "the uranium element and isotope content" of all strategic special nuclear material received at or shipped from a facility must be substantiated. Granting the December 31 request would also relieve the licensee from a commitment specified in Section 4.3 of its Fundamental Nuclear Material Control Plan (FNMCP). This exemption is requested under the auspices of 10 CFR 74.7 for specific exemptions. The staff processed this amendment request in accordance with the provisions of 10 CFR 70.34 to ensure that there is no decrease in the effectiveness of the facility's Material Control and Accounting (MC&A) Program.

2.0 DISCUSSION

In the past, NFS received a limited number of 2S cylinders containing UF₆ from the Department of Energy (DOE) Y-12 complex. Model 2S cylinders are small (3.5-inch diameter x 8.5-inch tall) and only hold about 2000 grams of material when full. Approximately, 30 cylinders have been processed at NFS, leaving a small heel of material in each cylinder (100 – 300 grams), which includes uranium and its related isotopes. Under a contract with DOE, NFS still retains these heel cylinders for possible future forensic analysis. Because of the trace condition of heel material, it is difficult to perform destructive or nondestructive analyses to measure the uranium element and isotope content of the material remaining in these small 2S cylinders. It requires expensive equipment, which NFS does not possess, to sample and analyze UF₆ gas. Therefore, NFS is requesting a one-time exemption to allow the use of assigned values for each cylinder based on the net weight of the heel, and concentration and enrichment factors. These assigned values will be used for inventory, receipt and shipment practices.

Granting the December 31 request requires issuance of an exemption from the established measurement requirement in 10 CFR 74.59(d)(1), and the related commitment in Section 4.3 of the facility's FNMCP. In the request letter, the licensee stated that the facility will adjust the receipt and shipment values of these cylinders in case the Y-12 complex receives back the cylinders and is able to measure the heels. Based on the review of the above-described conditions, the staff determined that the assignment of measured values for these cylinders is appropriate since the uranium element and isotope content should remain unchanged and cannot be altered. Further, the staff determined that any errors in the assigned values of these cylinders would pose an insignificant risk of loss, theft, or diversion because the quantities of uranium and its related isotopes in the heels are small. The staff finds that the licensee's

request for the measurement exemption is justified and appropriate because it will not decrease the effectiveness of the MC&A Program, and will enable the licensee to maintain a continuous accounting record of the heels in the cylinders.

3.0 ENVIRONMENTAL REVIEW

The staff performed an environmental assessment (EA) for this action in accordance with 10 CFR Part 51. The EA concluded that this action would have no significant impact on the environment. On December 8, 2010, a finding of no significant impact was published in the *Federal Register* (75 FR 76496).

4.0 CONCLUSION

The staff concludes that granting the licensee's one-time exemption request for not measuring the cylinder heels is justified and warranted, and will not reduce the effectiveness of the licensee's safeguards program. Therefore, Safeguards License Condition SG-4.38 should be added to incorporate for this one-time exemption as follows:

SG-4.38 Notwithstanding the requirements of 10 CFR 74.59(d)(1) and Section 4.3 of the facility's Fundamental Nuclear Material Control Plan identified in Condition SG-5.1 to measure the uranium element and isotope content of all strategic special nuclear materials, the licensee shall provide assigned values for the 2S cylinder heels identified in the December 31, 2009, request letter. This one-time exemption will expire when all of these cylinders are shipped from the site.

PRINCIPAL CONTRIBUTOR
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