

Request for Additional Information
Nuclear Fuel Services, Inc.
Final Status Survey Report for BLEU Complex
Radiological Survey Report for the Land Area of the
Former Blended Low Enriched Uranium Facility
at the Nuclear Fuel Services Site

1. Detection Sensitivities of Gamma Scanning

Background:

The scan sensitivity values for six isotopes of uranium are presented on the bottom of page 1 of Appendix B, Detection Sensitivities Of Gamma Scanning. The scan sensitivity calculation is based on the guidance presented in Section 6, Human Performance and Scan Sensitivity of NUREG-1507, Minimum Detectable Concentrations With Typical Radiation Survey Instruments for Various Contaminants and Field Conditions. Three of the six isotopes of uranium indicate not detectable values, two are listed as just slightly below their default screening concentrations, and U-238 is shown having a calculated scan sensitivity of 26 pCi/g. Table 1 of this Final Status Survey Report indicates a default screening value from NUREG-1757, Consolidated Decommissioning Guidance, Table H.2 for U-238 of 14 pCi/g. According to this data, the instrument scan sensitivity for U-238 is insufficient to detect radioactivity from U-238 at the screening value concentration presented in Table 1 of this Final Status Survey Report. Based on this information, the use of the Ludlum Model 44-10 2x2 NaI detector coupled with the Ludlum Model 2221 scaler/ratemeter is not acceptable for scan detection of U-238 at or below the default screening concentration.

Request: Clarify the process for confirming that scans for U-238 can detect concentrations at and below the default screening value of 14 pCi/g in order to comply with the radiological criteria for unrestricted use in Title 10 of the *Code of Federal Regulations* (10 CFR), Part 20.1402. If alternative methods are used to demonstrate scan measurement capability for U-238 at or below the default screening concentration, provide additional information and a basis for the alternate method.

Basis:

Subpart E of 10 CFR Part 20, Standards for Protection Against Radiation, contains the radiological criteria for license termination. The radiological criteria for unrestricted use of a site are defined in 10 CFR 20.1402 as "A site will be considered acceptable for unrestricted use if the residual activity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 25 mrem per year, including that from groundwater sources of drinking water, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA)."

This information is required to verify compliance with the U.S. Nuclear Regulatory Commission's radiological criteria for unrestricted use of licensed sites. Specifically, the instrumentation used to demonstrate compliance with the public dose limit must be capable of detecting concentrations of radioactive materials at or below their respective default screening values. Default screening values from NUREG-1757 and NUREG-5512 are the concentrations of individual radioactive isotopes equivalent to a total effective dose equivalent of 25 mrem per year.

Enclosure

2. Default Screening Concentrations of Uranium Isotopes in Surface Soil

Request:

(Page 12, Section 6.0, Table 1, Document Table)

The default screening values from NUREG-1757 and NUREG/CR-5512 in Table 1 are correct, however the Document Table citations for the NUREG-1757 and NUREG/CR-5512 values are incorrect. Change the existing Document Table citations for each of the NUREG-1757 and NUREG/CR-5512 default screening values to Table H.2 and Table 6.91 respectively.

Basis:

The correct Table 1 Document Table reference for the NUREG-5512 default screening concentrations is Table 6.91.

The correct Table 1 Document Table reference for NUREG-1757 default screening concentrations is Table H.2.