Supporting Information (for Publication)

Microscale Isotopic Variation observed in Uranium Fuel Pellets with implications for Nuclear Forensics

Ruth Kips*, Peter K. Weber*, Michael J. Kristo, Benjamin Jacobsen, Erick Ramon Lawrence Livermore National Laboratory, P.O. Box 808, Livermore CA 94551, USA *Correspondence: kips1@llnl.gov; weber21@llnl.gov

Figure S1 and S2 below show the three-isotope ratio plots from Fig. 6(B) and Fig. 7, with error bars on the data points (two standard errors).



Figure S1: ${}^{234}\text{U}/{}^{238}\text{U}$ vs. ${}^{235}\text{U}/{}^{238}\text{U}$ ratio plot for the two CMX-4 samples. The regression lines and equations are based on the automatically generated ROIs (ES-2: red data points, N = 142; ES-3: blue data points, N = 252); the box around each equation has the same format as the corresponding regression line. The data for ES-3 were divided at the average value to make the upper and lower regression lines (full and dotted blue lines, see text). Note the line of data points extending below the average value along the upper regression line were part of the lower regression data set, not the upper one; these data points correspond to the projection of the ${}^{236}\text{U}/{}^{238}\text{U}$ vs. ${}^{235}\text{U}/{}^{238}\text{U}$ data above the average value in Fig. S2. The error bars represent two standard errors.



Figure S2: ${}^{236}U/{}^{238}U$ vs. ${}^{235}U/{}^{238}U$ ratio plot for CMX-4 sample ES-3 using NanoSIMS data showing all ROIs defined automatically (N = 117, blue data points) and manually (N = 6 grey data points) (total area analyzed = 4800 μ m²). The black marker represents the average of the NanoSIMS data; the error bars represent two standard errors.