



ZAHN'S CORNER MIDDLE SCHOOL SAMPLING

Sample Results

JULY 24, 2019

GROUP I SAMPLES:

39 statistically directed; analyzed for gross alpha and beta activity.

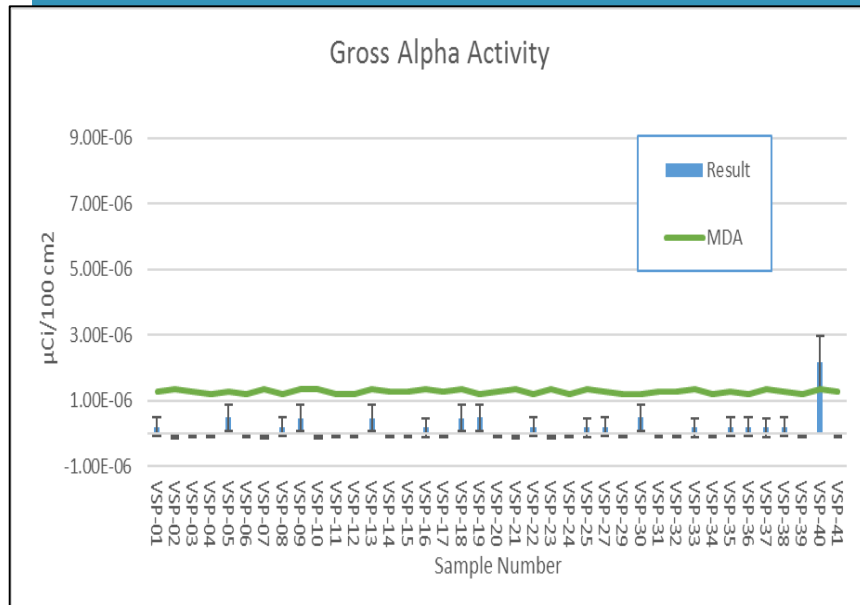
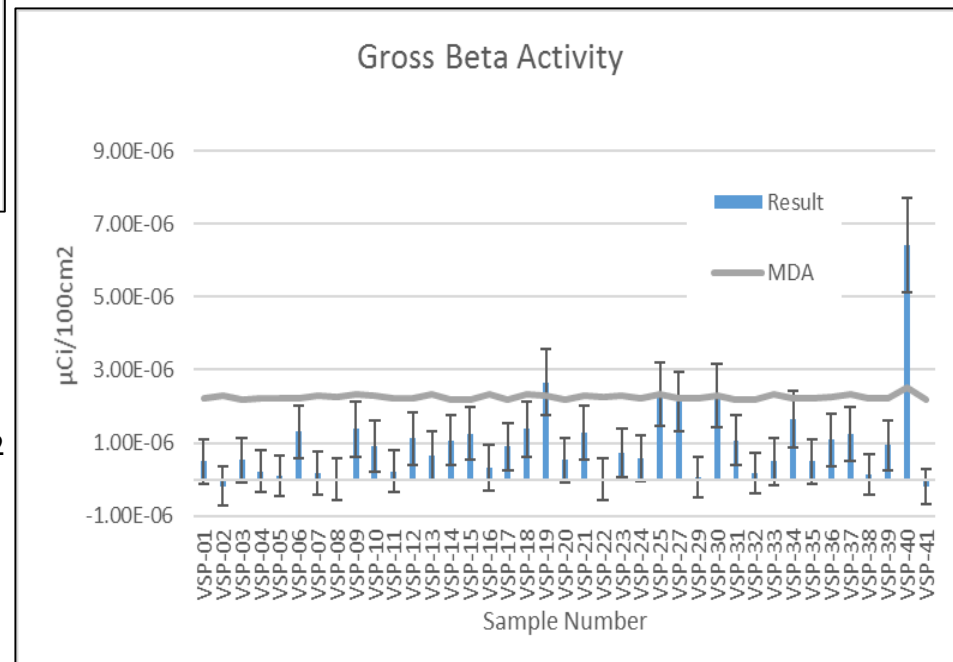


Figure 1: Gross Alpha Activity vs. Minimum Detectable Activity.

Note: The action level corresponding to a 100 mrem per year for alpha is $2.41 \times 10^{-2} \mu\text{Ci}/100\text{cm}^2$ (off scale)

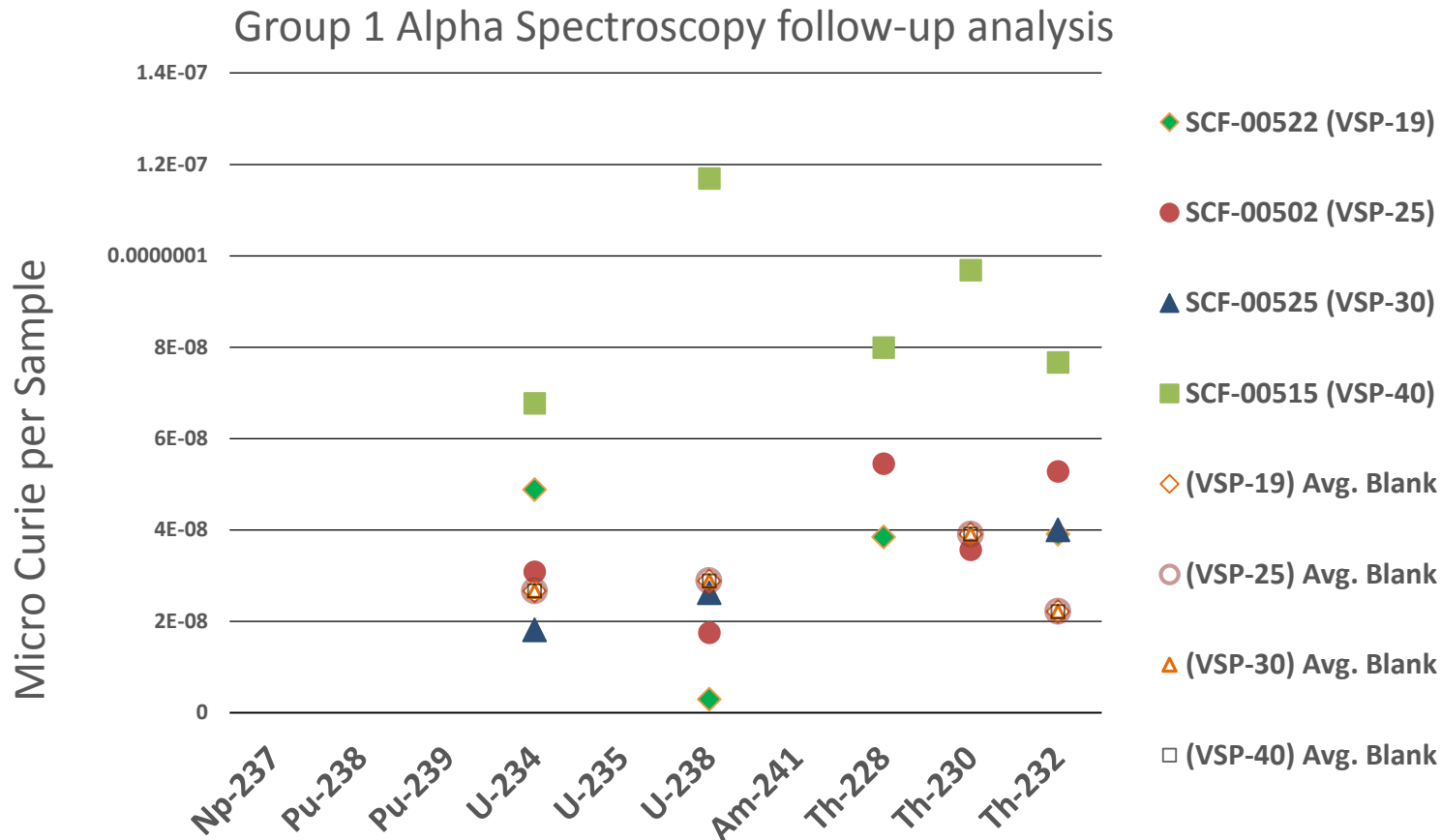
Figure 2: Gross Beta Activity vs. Minimum Detectable Activity.

Note: The action level corresponding to a 100 mrem per year for beta is $2.09 \times 10^{-4} \mu\text{Ci}/100\text{cm}^2$ (off scale)



GROUP I SAMPLES:

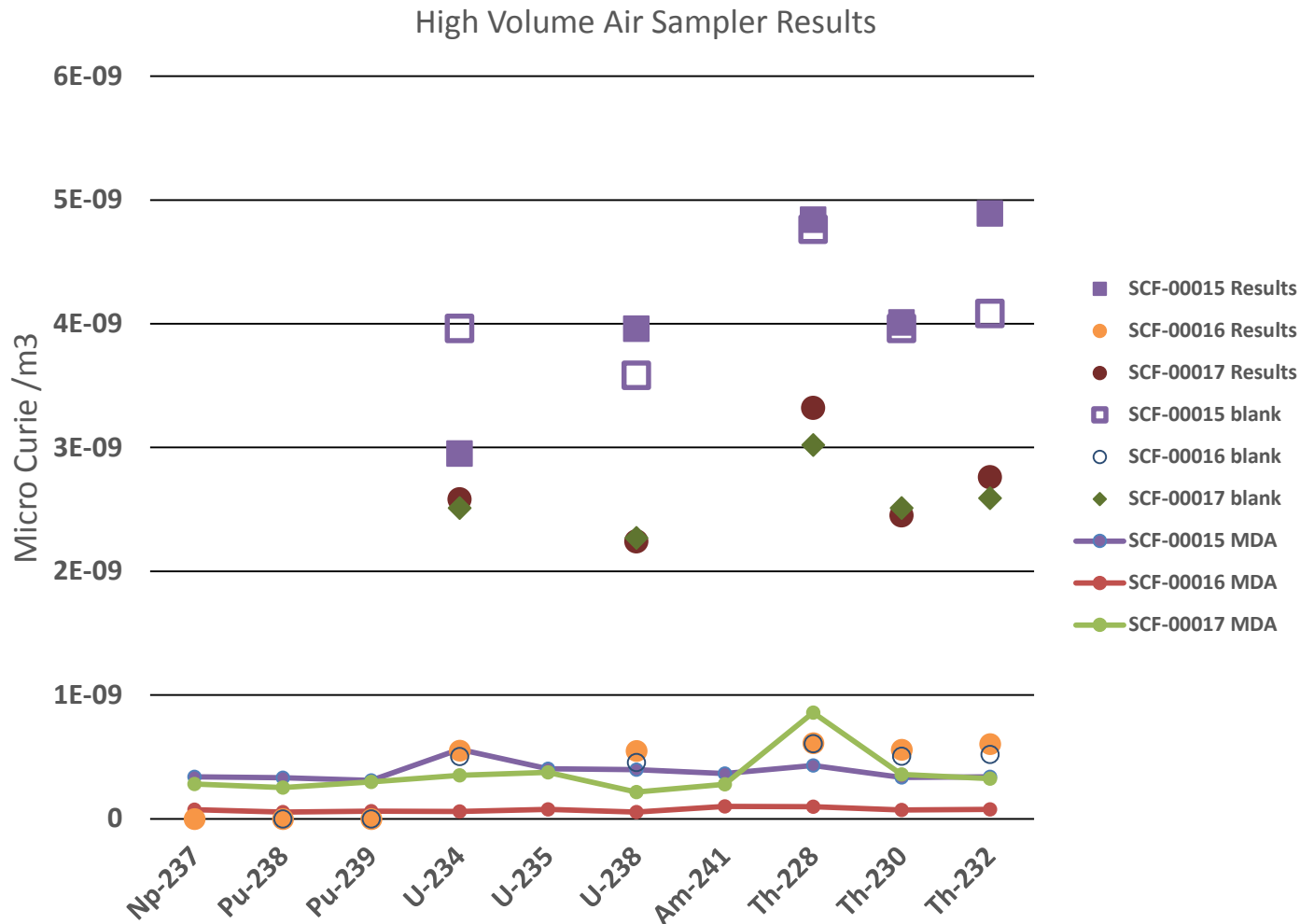
Follow on analysis of 4 Group I samples with activities greater than detection limits



- Results show only low levels of natural radionuclides
- These are consistent with results from the blanks.

GROUP 2 SAMPLES

Group 2 High Volume Air Sampler Results

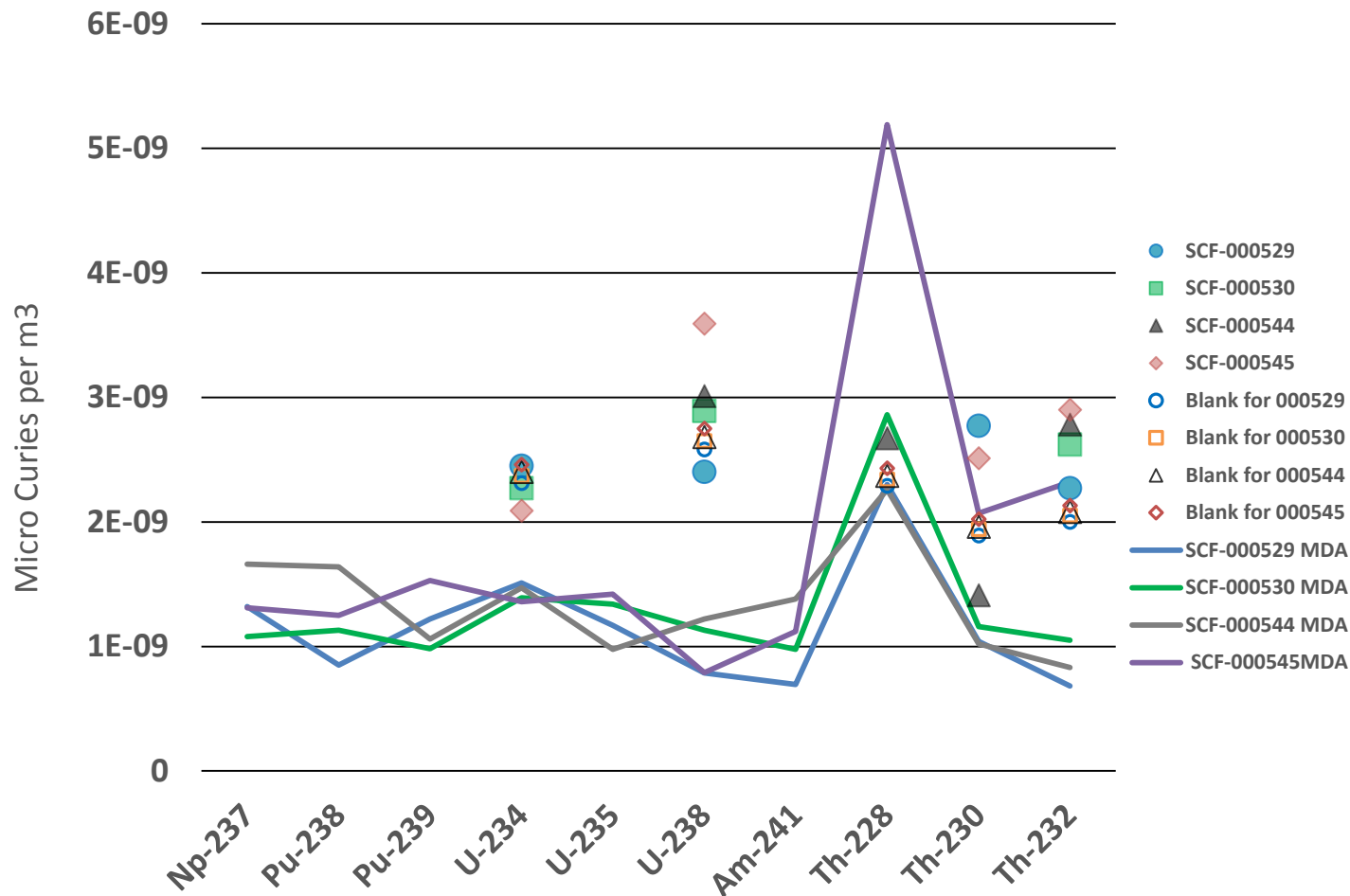


- Results show only low levels of natural radionuclides
- The filter media contains trace levels of uranium and thorium consistent with natural activity

GROUP 2 SAMPLES

Group 2 Low Volume Air Sampler Results

Low Volume Air Sampler Results

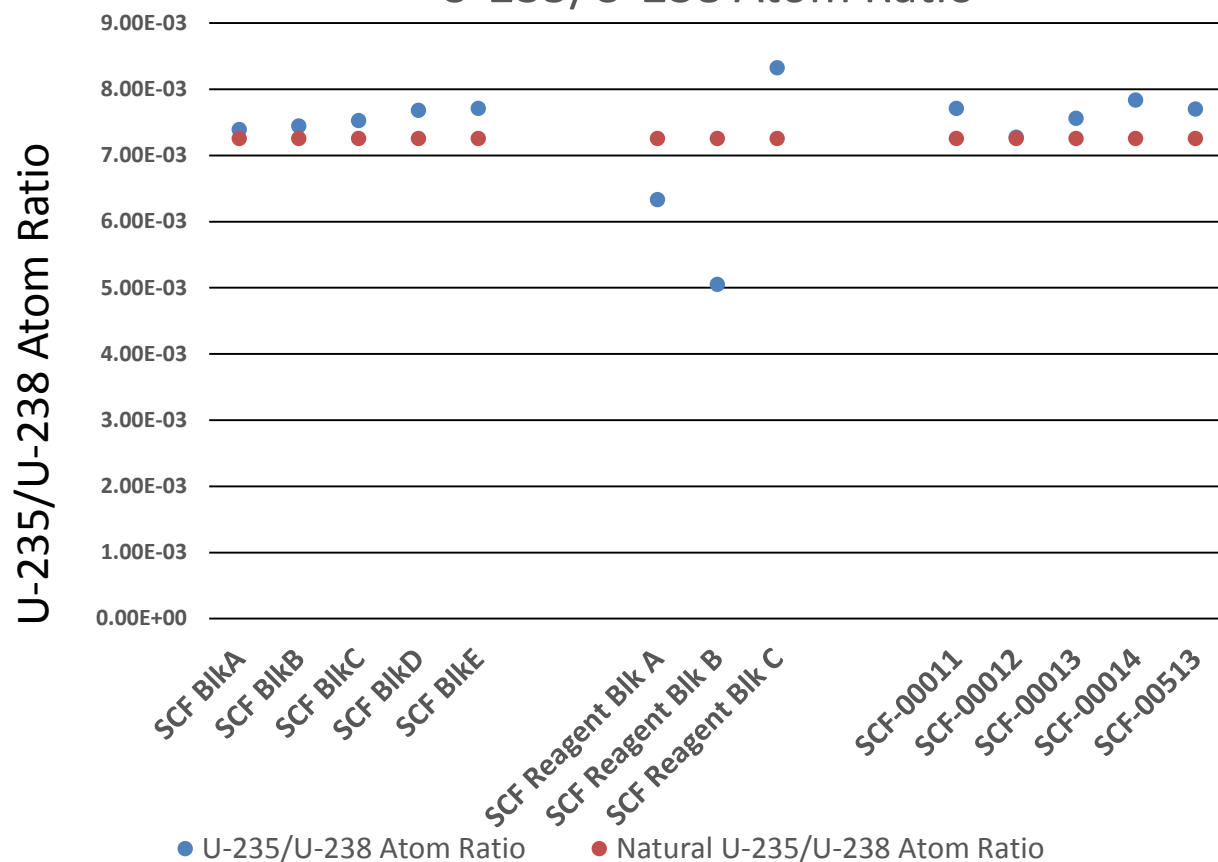


- Results show only low levels of natural radionuclides
- The filter media contains trace levels of uranium and thorium consistent with natural activity

GROUP 3 SAMPLES

Group 3 Samples (Resampling of Five Community Requests/Ketterer Report)

Blanks, Reagents and Samples:
U-235/U-238 Atom Ratio



- U-235 and U-238 were the only radionuclides detected in the five samples
 - Filter blanks had natural uranium
 - Reagents (e.g. acids) had natural uranium
 - Five smear samples had no detectable uranium beyond that contributed by the filter material and the chemical reagents
- Natural uranium 235/238 ratio is 0.0073
- **Amounts in the 5 samples were consistent with natural uranium**

SAMPLING RESULTS SUMMARY

- Three separate sampling efforts were undertaken
 - Group 1 – statistically directed smear sampling
 - Group 2 – high and low volume air sampling
 - Group 3 – replicated locations identified in Ketterer report
- All sampling results showed
 - Low levels of naturally occurring radioactivity
 - Dose projections extremely low (1/10,000 of standard)
 - No man made isotopes were detected
 - No enriched uranium was detected