# ZAHN'S CORNER MIDDLE SCHOOL SAMPLING

Sample Results JULY 24, 2019

## **GROUPI SAMPLES:**

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

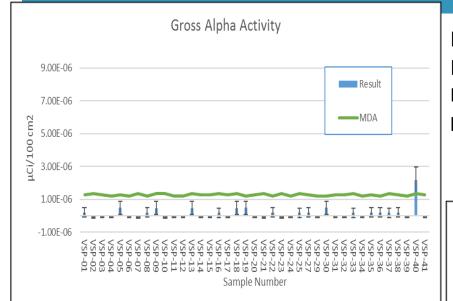
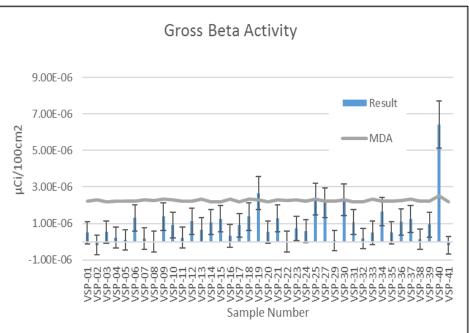


Figure 2: Gross Beta Activity vs. Minimum Detectable Activity.

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

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)



### **GROUP I SAMPLES:**

Micro Curie per Sample

Follow on analysis of 4 Group 1 samples with activities greater than detection limits

1.4E-07 **Results show** • SCF-00522 (VSP-19) only low 1.2E-07 levels of SCF-00502 (VSP-25) natural 0.0000001 radionuclides ▲ SCF-00525 (VSP-30) 8E-08 · These are SCF-00515 (VSP-40) consistent 6E-08 with results ♦ (VSP-19) Avg. Blank from the 4E-08 blanks. O (VSP-25) Avg. Blank 2E-08 △ (VSP-30) Avg. Blank NP-231 PU-238 PU-239 U-234 U-235 U-238 AM-241 TH-228 TH-230 TH-231 □ (VSP-40) Avg. Blank

Group 1 Alpha Spectroscopy follow-up analysis

#### **GROUP 2 SAMPLES**

#### **Group 2 High Volume Air Sampler Results**

**High Volume Air Sampler Results** 6E-09 5E-09 4E-09 Micro Curie /m3 3E-09 2E-09 1E-09 0 PU-239 1-234

V-238

Am-241

Th-231

1.235

 Results show only low levels of natural radionuclides

SCF-00015 Results

SCF-00016 Results

SCF-00017 Results SCF-00015 blank

SCF-00016 blank

SCF-00017 blank

SCF-00015 MDA

SCF-00016 MDA

-SCF-00017 MDA

0

The filter • media contains trace levels of uranium and thorium consistent with natural activity

#### **GROUP 2 SAMPLES**

Micro Curies per m3

#### **Group 2 Low Volume Air Sampler Results**

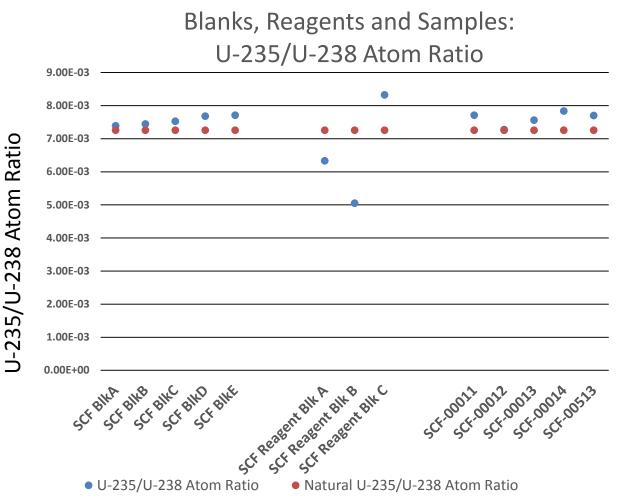
Low Volume Air Sampler Results 6E-09 5E-09 SCF-000529 4E-09 SCF-000530 SCF-000544 SCF-000545 3E-09 Blank for 000529 0 Blank for 000530 П Λ Blank for 000544 Blank for 000545 2E-09 SCF-000529 MDA SCF-000530 MDA SCF-000544 MDA 1E-09 SCF-000545MDA 0 U-23° AM-2A, TH-22.

N.Y.

- 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)



- 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 I 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