

**TABLE 4**  
**Results of Equivalence Test for Secular Equilibrium of Radionuclides<sup>1</sup>**  
**Area II Soils - Phase A & B**  
**Uranium Decay Series (U-238 Chain)**

| Shallow (Alluvium 0 to 10 ft) |                         |       |                          |                |         |                                   |                       |        |                     |
|-------------------------------|-------------------------|-------|--------------------------|----------------|---------|-----------------------------------|-----------------------|--------|---------------------|
| <i>p</i> -value               | Conclusion <sup>2</sup> | Delta | Sample Size <sup>4</sup> | Number Missing | Analyte | Mean Proportions of Radioactivity | 95% Confid. Intervals |        | Shifts <sup>3</sup> |
|                               |                         |       |                          |                |         |                                   | Lower                 | Upper  |                     |
| <0.0001                       | in Secular Equilibrium  | 0.10  | 210                      | 5              | Ra-226  | 0.2209                            | 0.2061                | 0.2357 | 0                   |
|                               |                         |       |                          |                | Th-230  | 0.268                             | 0.2551                | 0.2808 | 0                   |
|                               |                         |       |                          |                | U-234   | 0.2651                            | 0.2534                | 0.2768 | 0                   |
|                               |                         |       |                          |                | U-238   | 0.2461                            | 0.2352                | 0.257  | 0                   |

| Middle (Alluvium 10 ft to UMCf) |                         |       |                          |                |         |                                   |                       |        |                     |
|---------------------------------|-------------------------|-------|--------------------------|----------------|---------|-----------------------------------|-----------------------|--------|---------------------|
| <i>p</i> -value                 | Conclusion <sup>2</sup> | Delta | Sample Size <sup>4</sup> | Number Missing | Analyte | Mean Proportions of Radioactivity | 95% Confid. Intervals |        | Shifts <sup>3</sup> |
|                                 |                         |       |                          |                |         |                                   | Lower                 | Upper  |                     |
| <0.0001                         | in Secular Equilibrium  | 0.10  | 109                      | 4              | Ra-226  | 0.2134                            | 0.1915                | 0.2352 | 0                   |
|                                 |                         |       |                          |                | Th-230  | 0.2818                            | 0.262                 | 0.3015 | 0                   |
|                                 |                         |       |                          |                | U-234   | 0.2623                            | 0.2439                | 0.2806 | 0                   |
|                                 |                         |       |                          |                | U-238   | 0.2426                            | 0.2262                | 0.259  | 0                   |

| Deep (UMCf)     |                         |       |                          |                |         |                                   |                       |        |                     |
|-----------------|-------------------------|-------|--------------------------|----------------|---------|-----------------------------------|-----------------------|--------|---------------------|
| <i>p</i> -value | Conclusion <sup>2</sup> | Delta | Sample Size <sup>4</sup> | Number Missing | Analyte | Mean Proportions of Radioactivity | 95% Confid. Intervals |        | Shifts <sup>3</sup> |
|                 |                         |       |                          |                |         |                                   | Lower                 | Upper  |                     |
| 0.0003          | in Secular Equilibrium  | 0.10  | 58                       | 3              | Ra-226  | 0.209                             | 0.1793                | 0.2387 | 0                   |
|                 |                         |       |                          |                | Th-230  | 0.2542                            | 0.2333                | 0.2751 | 0                   |
|                 |                         |       |                          |                | U-234   | 0.2751                            | 0.257                 | 0.2931 | 0                   |
|                 |                         |       |                          |                | U-238   | 0.2618                            | 0.243                 | 0.2805 | 0                   |

<sup>1</sup> Analyzed using the EnviroGISdT software tool from Neptune & Company, Inc.

<sup>2</sup> Tool states "in Secular Equilibrium" if the computed *p*-value is less than a standard significance level of 0.05.

<sup>3</sup> Data Shift - Lists the values of the data shift utilized by the tool in case of negative radioactivity measurements. All measurements values for that radioisotope are shifted upwards by the shift value so that all values are non-negative. A zero shift value indicates lack of negative measurements.

<sup>4</sup> Sample dataset includes field duplicates

**TABLE 4**  
**Results of Equivalence Test for Secular Equilibrium of Radionuclides<sup>1</sup>**  
**Area II Soils - Phase A & B**  
**Thorium Decay Series (Th-232 Chain)**

| Shallow (Alluvium 0 to 10 ft)   |                         |       |                          |                |         |                                   |                       |        |                     |
|---------------------------------|-------------------------|-------|--------------------------|----------------|---------|-----------------------------------|-----------------------|--------|---------------------|
| <i>p</i> -value                 | Conclusion <sup>2</sup> | Delta | Sample Size <sup>4</sup> | Number Missing | Analyte | Mean Proportions of Radioactivity | 95% Confid. Intervals |        | Shifts <sup>3</sup> |
|                                 |                         |       |                          |                |         |                                   | Lower                 | Upper  |                     |
| 0.0008                          | in Secular Equilibrium  | 0.10  | 210                      | 5              | Ra-228  | 0.2804                            | 0.2616                | 0.2992 | 0                   |
|                                 |                         |       |                          |                | Th-228  | 0.3797                            | 0.3685                | 0.3910 | 0                   |
|                                 |                         |       |                          |                | Th-232  | 0.3399                            | 0.3293                | 0.3504 | 8.00E-04            |
| Middle (Alluvium 10 ft to UMCf) |                         |       |                          |                |         |                                   |                       |        |                     |
| <i>p</i> -value                 | Conclusion <sup>2</sup> | Delta | Sample Size <sup>4</sup> | Number Missing | Analyte | Mean Proportions of Radioactivity | 95% Confid. Intervals |        | Shifts <sup>3</sup> |
|                                 |                         |       |                          |                |         |                                   | Lower                 | Upper  |                     |
| 0.001                           | in Secular Equilibrium  | 0.10  | 109                      | 4              | Ra-228  | 0.2912                            | 0.2650                | 0.3174 | 0                   |
|                                 |                         |       |                          |                | Th-228  | 0.3752                            | 0.3582                | 0.3922 | 0                   |
|                                 |                         |       |                          |                | Th-232  | 0.3336                            | 0.3212                | 0.3460 | 0                   |
| Deep (UMCf)                     |                         |       |                          |                |         |                                   |                       |        |                     |
| <i>p</i> -value                 | Conclusion <sup>2</sup> | Delta | Sample Size <sup>4</sup> | Number Missing | Analyte | Mean Proportions of Radioactivity | 95% Confid. Intervals |        | Shifts <sup>3</sup> |
|                                 |                         |       |                          |                |         |                                   | Lower                 | Upper  |                     |
| <0.0001                         | in Secular Equilibrium  | 0.10  | 58                       | 3              | Ra-228  | 0.3199                            | 0.2868                | 0.3530 | 0                   |
|                                 |                         |       |                          |                | Th-228  | 0.3536                            | 0.3341                | 0.3730 | 0                   |
|                                 |                         |       |                          |                | Th-232  | 0.3265                            | 0.3071                | 0.3458 | 0                   |

<sup>1</sup> Analyzed using the EnviroGISdT software tool from Neptune & Company, Inc.

<sup>2</sup> Tool states "in Secular Equilibrium" if the computed *p*-value is less than a standard significance level of 0.05.

<sup>3</sup> Data Shift - Lists the values of the data shift utilized by the tool in case of negative radioactivity measurements. All measurements values for that radioisotope are shifted upwards by the shift value so that all values are non-negative. A zero shift value indicates lack of negative measurements.

<sup>4</sup> Sample dataset includes field duplicates