**Supplementary Table 2** Radium equivalent activity (Bq kg-1), air absorbed gamma radiation dose rate (nGy h-1), annual effective dose (mSvy-1) and external radiation hazard index (H*ex*)for subsurfacesand

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Sample code | 226Ra | 232Th | 40K | Raeq | D | E | Hex |
| SB1 | 19.5 ± 2.9 | 15.5 ± 2.3 | 416 ± 17 | 73.7 | 36.2 | 0.04 | 0.20 |
| SB2 | 20.7 ± 2.7 | 12.9 ± 2.1 | 377 ± 15 | 68.2 | 33.3 | 0.04 | 0.18 |
| SB3 | 20.6 ± 2.7 | 10.3 ± 1.3 | 686 ± 21 | 88.2 | 44.5 | 0.05 | 0.24 |
| SB4 | 19.3 ± 2.5 | 12.3 ± 1.5 | 504 ± 15 | 75.7 | 37.6 | 0.05 | 0.20 |
| SB5 | 23.9 ± 2.8 | 9.80 ± 1.1 | 416 ± 13 | 69.9 | 34.3 | 0.04 | 0.19 |
| SB6 | 22.2 ± 2.4 | 10.1 ± 1.1 | 358 ± 14 | 64.2 | 31.3 | 0.04 | 0.17 |
| SB7 | 24.5 ± 2.9 | 14.9 ± 2.3 | 506 ± 15 | 91.7 | 41.7 | 0.05 | 0.23 |
| SB8 | 31.4 ± 3.4 | 16.6 ± 3.0 | 437 ± 16 | 88.8 | 42.9 | 0.05 | 0.24 |
| SB9 | 27.3 ± 3.1 | 8.70 ± 1.0 | 421 ± 13 | 72.2 | 35.2 | 0.04 | 0.19 |
| SB10 | 29.1± 3.2 | 17.3 ± 2.1 | 387 ± 12 | 83.6 | 40.3 | 0.05 | 0.23 |
| SB11 | 30.1± 3.9 | 16.2 ± 2.2 | 472 ± 16 | 89.6 | 43.5 | 0.05 | 0.24 |
| SB12 | 24.5 ± 3.1 | 17.3 ± 2.4 | 404 ± 12 | 80.3 | 39.0 | 0.05 | 0.22 |
| min | 19.3 ± 2.5 | 8.70 ± 1.0 | 358 ± 14 | 64.2 | 31.3 | 0.04 | 0.17 |
| max | 31.4 ± 3.4 | 17.3 ± 2.1 | 686 ± 21 | 91.7 | 44.5 | 0.05 | 0.24 |
| mean | 23.9 ± 2.9 | 12.8 ± 1.8 | 451± 15 |  |  |  |  |