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Food Chain Sampling Results (grass, spinach, etc.)

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Radionuclides, once deposited by rainwater or air onto the ground, will find their way through the ecosystem. We are already tracking its path from [rainwater](#) to [creek runoff](#) to [tap water](#), but we would also like to monitor how much these isotopes that make their way into our food. For example, how much gets taken up by the grass and eventually winds up in our [milk](#)?

We have been collecting produce that is as local as possible to test for the radioactive isotopes. We might expect different kinds of plants to take up different quantities of cesium and iodine, so we are trying to measure as many different plants and fruits as we are able to. So far, we have measured:

- [Grass](#)
- [Wild mushrooms](#)
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- [Salmon](#) from the Pacific Northwest

The Bay Area topsoil, grass, and wild mushroom samples collected all come from the same location, so comparing grass samples to each other is a fair "apples to apples" comparison. For most of the produce, different samples came from different markets and different farms, so there will be many factors influencing the results. This variety of produce helps provide a picture of the food chain as a whole. But for understanding the time-dependence of the food chain results, the grass and soil is what to look at.

In the tables below, we are providing two numbers for each of the isotopes. The first is a standard concentration unit of Becquerel per kilogram (Bq/kg) which is the number of particles decaying per second in each kilogram of the sample. The number in parentheses after the activity is the number of kilograms that one would need to consume to equal the radiation exposure of a single round trip flight from San Francisco to Washington D.C. (0.05 mSv). For more information on how this equivalent dose is calculated, the details are here: [How Effective Dose is Calculated](#)

The experimental setup used for the food testing is the same setup used for the [Rainwater Collection Experiment](#).

Topsoil

source: Alameda, CA

| Collection Date | Sample Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Be7* | Data |
|------------------|-------------|--------------------------------------|---------------------|--------------------------------------|--------------------------------------|---------------------|---------------------------------------|----------------------|
| | kg | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | |
| 04/06/2011 10:15 | 1.04 | 12.42±1.24 [MDA=0.25] (89) | < MDA [MDA=0.38] | 0.99±0.10 [MDA=0.25] (2.6E+03) | 1.53±0.15 [MDA=0.33] (2.4E+03) | < MDA [MDA=0.17] | 14.74±1.47 [MDA=2.23] (1.0e+05) | data |
| 04/08/2011 08:00 | 0.91 | 7.55±0.76 [MDA=0.31] (1.5E+02) | < MDA [MDA=0.51] | 0.41±0.08 [MDA=0.31] (6.3E+03) | 0.90±0.12 [MDA=0.39] (4.1E+03) | < MDA [MDA=0.19] | 5.21±0.67 [MDA=2.20] (2.8e+05) | data |
| 04/13/2011 08:00 | 1.30 | 3.79±0.38 [MDA=0.18] (2.9E+02) | < MDA [MDA=0.25] | 1.04±0.10 [MDA=0.21] (2.5E+03) | 1.16±0.12 [MDA=0.26] (3.2E+03) | < MDA [MDA=0.13] | 10.06±1.00 [MDA=1.74] (1.5e+05) | data |
| 04/21/2011 08:00 | 1.49 | 1.41±0.14 [MDA=0.15] (7.9E+02) | < MDA [MDA=0.24] | 0.99±0.10 [MDA=0.17] (2.6E+03) | 1.21±0.12 [MDA=0.20] (3.1E+03) | < MDA [MDA=0.10] | 10.92±1.10 [MDA=1.34] (1.4e+05) | data |

| | | | | | | | | |
|---------------------|------|--------------------------------------|---------------------|--------------------------------------|--------------------------------------|---------------------|--------------------------------------|------|
| 05/02/2011 18:00 | 1.26 | 0.60±0.06 [MDA=0.08] (1.9e+03) | < MDA [MDA=0.13] | 0.76±0.08 [MDA=0.09] (3.4e+03) | 1.11±0.11 [MDA=0.10] (3.3e+03) | < MDA [MDA=0.06] | 7.05±0.71 [MDA=0.71] (2.1e+05) | data |
| 05/18/2011 08:00 | 1.48 | 0.14±0.02 [MDA=0.10] (7.7e+03) | < MDA [MDA=0.38] | 0.43±0.04 [MDA=0.07] (6.0e+03) | 0.73±0.07 [MDA=0.08] (5.1e+03) | < MDA [MDA=0.17] | 3.59±0.36 [MDA=0.56] (4.1e+05) | data |
| 06/03/2011 08:00 | 0.9 | < MDA [MDA=0.09] | < MDA [MDA=0.17] | 0.58±0.06 [MDA=0.09] (4.5e+03) | 1.17±0.12 [MDA=0.11] (3.2e+03) | < MDA [MDA=0.07] | 6.79±0.68 [MDA=0.76] (2.2e+05) | data |

Grass

source: Alameda, CA

| Collection Date | Sample Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Be7* | Data |
|---------------------|-------------|--------------------------------------|---------------------|--------------------------------------|--------------------------------------|---------------------|------------------------------------|------|
| | kg | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | |
| 04/03/2011 10:00 | 0.4 | 9.93±0.99 [MDA=0.31] (1.1E+02) | < MDA [MDA=0.61] | 6.99±0.70 [MDA=0.37] (3.7E+02) | 7.04±0.70 [MDA=0.42] (5.3E+02) | < MDA [MDA=0.26] | 68.3±6.8 [MDA=2.8] (2.2e+04) | data |
| 04/05/2011 08:30 | 0.36 | 6.82±0.68 [MDA=0.54] (1.6E+02) | < MDA [MDA=1.07] | 4.39±0.44 [MDA=0.72] (5.9E+02) | 3.80±0.38 [MDA=0.79] (9.7E+02) | < MDA [MDA=0.34] | 48.2±4.8 [MDA=5.3] (3.1e+04) | data |
| 04/06/2011 20:00 | 0.26 | 6.02±0.60 [MDA=0.65] (1.8E+02) | < MDA [MDA=1.09] | 4.61±0.46 [MDA=0.85] (5.6E+02) | 5.26±0.53 [MDA=0.93] (7E+02) | < MDA [MDA=0.40] | 35.2±3.5 [MDA=6.2] (4.2e+04) | data |
| 04/11/2011 07:30 | 0.51 | 1.55±0.15 [MDA=0.29] (7.2E+02) | < MDA [MDA=0.38] | 1.63±0.16 [MDA=0.30] (1.6E+03) | 2.20±0.22 [MDA=0.39] (1.7E+03) | < MDA [MDA=0.16] | 16.8±1.7 [MDA=2.6] (8.8e+04) | data |
| 04/14/2011 08:00 | 0.45 | 1.03±0.12 [MDA=0.39] (1.1E+03) | < MDA [MDA=1.19] | 1.38±0.15 [MDA=0.48] (1.9E+03) | 1.24±0.18 [MDA=0.61] (3E+03) | < MDA [MDA=0.31] | 7.1±1.0 [MDA=3.3] (2.1e+05) | data |
| 05/02/2011 18:00 | 0.18 | < MDA [MDA=0.64] | < MDA [MDA=1.56] | 0.92±0.21 [MDA=0.84] (2.8e+03) | 1.68±0.30 [MDA=1.16] (2.2e+03) | < MDA [MDA=0.47] | 9.9±2.0 [MDA=7.9] (1.5e+05) | data |
| 06/03/2011 08:00 | 0.575 | < MDA [MDA=0.17] | < MDA [MDA=0.52] | < MDA [MDA=0.14] | < MDA [MDA=0.19] | < MDA [MDA=0.23] | 5.6±0.6 [MDA=1.3] (2.6e+05) | data |

Wild Mushrooms

source: Alameda, CA

| Collection Date | Sample Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Be7* | Data |
|---------------------|-------------|--------------------------------------|---------------------|---------------------|---------------------|---------------------|------------------------------------|------|
| | kg | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | |
| 04/02/2011 10:00 | 0.39 | 7.35±0.73 [MDA=0.37] (1.5E+02) | < MDA [MDA=1.15] | < MDA [MDA=0.33] | < MDA [MDA=0.40] | < MDA [MDA=0.22] | 11.3±1.1 [MDA=3.5] (1.3e+05) | data |
| 05/02/2011 18:00 | 0.49 | < MDA [MDA=0.11] | < MDA [MDA=0.26] | < MDA [MDA=0.24] | < MDA [MDA=0.15] | < MDA [MDA=0.11] | < MDA [MDA=0.87] | data |

Seaweed

source: coastal areas of Northern California

| Collection Date | Sample Mass | Species | I131 | I132 | Cs134 | Cs137 | Te132 | Be7* | Data |
|-----------------|---------------|----------|---------------------|---------------------|---------------------|---------------------|---------------------|--------------------------------------|------|
| | kg | | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | | |
| 04/19/2011 | 0.55 (wet) | Porphyra | < MDA [MDA=0.15] | < MDA [MDA=0.57] | < MDA [MDA=0.30] | < MDA [MDA=0.28] | < MDA [MDA=0.12] | 3.16±0.61 [MDA=2.59] (4.7e+05) | data |
| 05/18/2011 | 1.87 (wet) | Porphyra | < MDA [MDA=0.17] | < MDA [MDA=2.23] | < MDA [MDA=0.11] | < MDA [MDA=0.09] | < MDA [MDA=1.01] | 0.80±0.16 [MDA=0.66] (1.9e+06) | data |
| 05/04/2011 | 0.50 (dry) | Wakame | < MDA [MDA=0.57] | < MDA [MDA=4.00] | < MDA [MDA=0.41] | < MDA [MDA=0.41] | < MDA [MDA=1.79] | < MDA [MDA=2.33] | data |

| | | | | | | | | | |
|------------|------------|--------|---------------------|--------------------|---------------------|---------------------|--------------------|---------------------|------|
| 05/05/2011 | 0.11 (dry) | Nori | < MDA [MDA=1400] | N/A | < MDA [MDA=0.62] | < MDA [MDA=0.62] | N/A | < MDA [MDA=13.7] | data |
| 05/05/2011 | 0.14 (dry) | Kombu | < MDA [MDA=2800] | N/A | < MDA [MDA=1.33] | < MDA [MDA=1.11] | N/A | < MDA [MDA=20.5] | data |
| 06/01/2011 | 0.15 (dry) | Kombu | < MDA [MDA=230] | N/A | < MDA [MDA=0.92] | < MDA [MDA=0.79] | N/A | < MDA [MDA=12.5] | data |
| 06/08/2012 | 0.36 (dry) | Wakame | < MDA [MDA=0.70] | < MDA [MDA=4.9] | < MDA [MDA=0.12] | < MDA [MDA=0.15] | < MDA [MDA=4.2] | < MDA [MDA=1.8] | data |
| 05/21/2012 | 0.34 (dry) | Kombu | < MDA [MDA=57] | N/A | < MDA [MDA=0.10] | < MDA [MDA=0.16] | N/A | < MDA [MDA=2.1] | data |
| 05/24/2012 | 0.08 (dry) | Nori | < MDA [MDA=660] | N/A | < MDA [MDA=0.30] | < MDA [MDA=0.33] | N/A | < MDA [MDA=5.1] | data |

Spinach

source: various local organic farms

| Collection Date | Food Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Data |
|----------------------------|-----------|--------------------------------------|---------------------------|--------------------------------------|--------------------------------------|---------------------------|------|
| | kg | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | |
| 04/08/2011 (Best By Date) | 0.284 | 1.47±0.15 [MDA=0.50] (7.5E+02) | < MDA [MDA=0.88] | < MDA [MDA=0.43] | < MDA [MDA=0.62] | < MDA [MDA=0.29] | data |
| 04/06/2011 (Purchase Date) | 0.30 | 1.44±0.15 [MDA=0.54] (7.7E+02) | < MDA [MDA=1.66] | < MDA [MDA=0.89] | < MDA [MDA=0.60] | < MDA [MDA=0.28] | data |
| 04/07/2011 (Purchase Date) | 0.25 | 2.50±0.25 [MDA=0.63] (4.4E+02) | < MDA [MDA=0.97] | 0.89±0.19 [MDA=0.73] (2.9E+03) | 1.14±0.25 [MDA=0.96] (3.3E+03) | < MDA [MDA=0.38] | data |
| 04/20/2011 (Purchase Date) | 0.56 | < MDA [MDA=0.28] | < MDA [MDA=0.39] | < MDA [MDA=0.23] | < MDA [MDA=0.32] | < MDA [MDA=0.16] | data |
| 04/28/2011 (Purchase Date) | 0.44 | < MDA [MDA=0.27] | < MDA [MDA=0.46] | < MDA [MDA=0.34] | < MDA [MDA=0.37] | < MDA [MDA=0.20] | data |
| 04/28/2011 (Purchase Date) | 0.42 | < MDA [MDA=0.20] | < MDA [MDA=0.36] | < MDA [MDA=0.22] | < MDA [MDA=0.38] | < MDA [MDA=0.15] | data |

Strawberries

source: various local organic farms

| Purchase Date | Food Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Data |
|---------------|-----------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|---------------------------|------|
| | kg | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | |
| 04/01/2011 | 1.23 | 0.21±0.03 [MDA=0.10] (5.3E+03) | 0.35±0.07 [MDA=0.29] (4.3E+05) | 0.71±0.07 [MDA=0.13] (3.6E+03) | 0.72±0.07 [MDA=0.15] (5.1E+03) | < MDA [MDA=0.07] | data |
| 04/07/2011 | 1.06 | 0.32±0.04 [MDA=0.15] (3.5E+03) | < MDA [MDA=0.41] | 0.50±0.06 [MDA=0.19] (5.2E+03) | 0.48±0.07 [MDA=0.23] (7.7E+03) | < MDA [MDA=0.10] | data |
| 04/20/2011 | 1.08 | < MDA [MDA=0.11] | < MDA [MDA=0.40] | 0.49±0.05 [MDA=0.15] (5.3E+03) | 0.64±0.06 [MDA=0.21] (5.8E+03) | < MDA [MDA=0.077] | data |
| 04/20/2011 | 1.20 | < MDA [MDA=0.073] | < MDA [MDA=0.13] | 0.27±0.03 [MDA=0.10] (9.5E+03) | 0.26±0.03 [MDA=0.10] (1.4E+04) | < MDA [MDA=0.060] | data |
| 04/28/2011 | 1.08 | < MDA [MDA=0.09] | < MDA [MDA=0.21] | 0.23±0.03 [MDA=0.11] (1.1E+04) | 0.42±0.05 [MDA=0.18] (8.7E+03) | < MDA [MDA=0.06] | data |

| | | | | | | | |
|------------|-------|---------------------|---------------------|--------------------------------------|--------------------------------------|---------------------|------|
| 04/28/2011 | 1.02 | < MDA [MDA=0.08] | < MDA [MDA=0.14] | 0.29±0.03 [MDA=0.12] (8.9e+03) | 0.44±0.04 [MDA=0.15] (8.4e+03) | < MDA [MDA=0.06] | data |
| 05/19/2011 | 0.905 | < MDA [MDA=0.10] | < MDA [MDA=0.32] | 0.15±0.03 [MDA=0.11] (1.7e+04) | 0.15±0.03 [MDA=0.13] (2.4e+04) | < MDA [MDA=0.14] | data |
| 06/09/2011 | 0.80 | < MDA [MDA=0.38] | < MDA [MDA=4.60] | < MDA [MDA=0.09] | < MDA [MDA=0.20] | < MDA [MDA=0.79] | data |
| 06/30/2011 | 0.99 | < MDA [MDA=0.08] | < MDA [MDA=0.16] | < MDA [MDA=0.19] | < MDA [MDA=0.11] | < MDA [MDA=0.07] | data |

Cilantro

source: various local organic farms

| Purchase Date | Food Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Data |
|---------------|-----------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|------|
| | kg | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | |
| 04/04/2011 | 0.50 | < MDA [MDA=0.34] | < MDA [MDA=0.41] | < MDA [MDA=0.34] | < MDA [MDA=0.56] | < MDA [MDA=0.15] | data |

Kale

source: various local organic farms

| Purchase Date | Food Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Data |
|---------------|-----------|--------------------------------------|---------------------------|--------------------------------------|--------------------------------------|---------------------------|------|
| | kg | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | |
| 04/06/2011 | 0.34 | < MDA [MDA=0.64] | < MDA [MDA=0.81] | < MDA [MDA=0.87] | 0.65±0.17 [MDA=0.62] (5.7E+03) | < MDA [MDA=0.34] | data |
| 04/07/2011 | 0.38 | 0.93±0.13 [MDA=0.47] (1.2E+03) | < MDA [MDA=0.64] | 1.14±0.20 [MDA=0.80] (2.3E+03) | 0.59±0.15 [MDA=0.57] (6.2E+03) | < MDA [MDA=0.28] | data |
| 04/20/2011 | 0.50 | < MDA [MDA=0.28] | < MDA [MDA=0.44] | < MDA [MDA=0.30] | < MDA [MDA=0.49] | < MDA [MDA=0.20] | data |
| 04/20/2011 | 0.34 | < MDA [MDA=0.35] | < MDA [MDA=0.64] | < MDA [MDA=0.47] | < MDA [MDA=0.56] | < MDA [MDA=0.25] | data |
| 04/28/2011 | 0.60 | < MDA [MDA=0.23] | < MDA [MDA=0.55] | < MDA [MDA=0.26] | < MDA [MDA=0.30] | < MDA [MDA=0.18] | data |
| 04/28/2011 | 0.41 | < MDA [MDA=0.19] | < MDA [MDA=0.39] | 0.39±0.07 [MDA=0.26] (6.6e+03) | 0.52±0.09 [MDA=0.34] (7.1e+03) | < MDA [MDA=0.15] | data |
| 05/19/2011 | 0.555 | < MDA [MDA=0.19] | < MDA [MDA=1.70] | < MDA [MDA=0.25] | < MDA [MDA=0.19] | < MDA [MDA=0.50] | data |

Arugula

source: various local organic farms

| Purchase Date | Food Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Data |
|---------------|-----------|--------------------------------------|---------------------------|---------------------------|--------------------------------------|---------------------------|------|
| | kg | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | Bq/kg (kg ^{**}) | |
| 04/07/2011 | 0.38 | 0.41±0.07 [MDA=0.24] (2.7E+03) | < MDA [MDA=1.11] | < MDA [MDA=0.35] | 0.66±0.12 [MDA=0.45] (5.6E+03) | < MDA [MDA=0.19] | data |
| 04/20/2011 | 0.36 | < MDA [MDA=0.32] | < MDA [MDA=0.90] | < MDA [MDA=0.49] | < MDA [MDA=0.51] | < MDA [MDA=0.25] | data |
| 04/28/2011 | 0.313 | < MDA [MDA=0.31] | < MDA [MDA=0.57] | < MDA [MDA=0.37] | < MDA [MDA=0.41] | < MDA [MDA=0.25] | data |

Carrots

Source: a local organic farm

| Collection Date | Sample Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Be7* | Data |
|-----------------|-------------|------|------|-------|-------|-------|------|------|
|-----------------|-------------|------|------|-------|-------|-------|------|------|

| | | | | | | | | |
|------------|------|---------------------|---------------------|--------------------------------------|--------------------------------------|---------------------|------------------------------------|------|
| 08/16/2011 | 0.56 | < MDA [MDA=0.53] | < MDA [MDA=6.41] | 5.18±0.52 [MDA=0.14] (5.0e+02) | 7.93±0.79 [MDA=0.17] (4.7e+02) | < MDA [MDA=3.37] | 16.6±1.7 [MDA=1.5] (8.9e+04) | data |
|------------|------|---------------------|---------------------|--------------------------------------|--------------------------------------|---------------------|------------------------------------|------|

Soil from Sonoma County

Source: Farm in Sonoma County

| Collection Date | Sample Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Be7* | Data |
|-----------------|-------------|-----------------|-----------------|---|---|-----------------|---|------|
| | kg | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | |
| 04/27/2011 | 2.21 | N/A | N/A | 0.347±0.035 [MDA=0.056] (7.5e+03) | 1.905±0.190 [MDA=0.057] (1.9e+03) | N/A | 3.436±0.493 [MDA=2.138] (4.3e+05) | data |

Soil from Oakland

Source: a grassless, treeless front yard

| Collection Date | Sample Mass | Sample depth | Sample dimensions | I131 | I132 | Cs134 | Cs137 | Te132 | Be7* | Data |
|-----------------|-------------|--------------|-------------------|----------------------|----------------------|---|--------------------------------------|----------------------|---|------|
| | kg | cm | cm × cm | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | |
| 09/08/2011 | 2.03 | 0–2 | 25 × 38 | < MDA [MDA=0.037] | < MDA [MDA=0.105] | 0.087±0.010 [MDA=0.046] (3.0e+04) | 2.46±0.25 [MDA=0.05] (1.5e+03) | < MDA [MDA=0.057] | 0.441±0.088 [MDA=0.402] (3.4e+06) | data |
| 09/08/2011 | 1.25 | 2–4 | 16.5 × 33 | < MDA [MDA=0.095] | < MDA [MDA=0.47] | < MDA [MDA=0.083] | 4.91±0.49 [MDA=0.09] (7.5e+02) | < MDA [MDA=0.264] | < MDA [MDA=0.474] | data |
| 09/08/2011 | 1.08 | 4–6 | 15 × 28 | < MDA [MDA=0.173] | < MDA [MDA=1.31] | < MDA [MDA=0.119] | 3.62±0.36 [MDA=0.13] (1.0e+03) | < MDA [MDA=0.694] | < MDA [MDA=0.769] | data |
| 09/08/2011 | 1.23 | 6–9 | 14 × 22 | < MDA [MDA=0.372] | < MDA [MDA=16.7] | < MDA [MDA=0.075] | 2.74±0.27 [MDA=0.08] (1.4e+03) | < MDA [MDA=9.18] | < MDA [MDA=0.55] | data |
| 09/08/2011 | 1.37 | 9–14 | 13 × 15 | < MDA [MDA=1.147] | < MDA [MDA=79.5] | < MDA [MDA=0.051] | 3.06±0.31 [MDA=0.09] (1.2e+03) | < MDA [MDA=62.8] | < MDA [MDA=0.91] | data |

Sand from Palo Alto

Source: Yard

For comparison, the activity concentration of Potassium-40 (K-40) in this sample was 730±73 Bq/kg.

| Collection Date | Sample Mass | I131 | I132 | Cs134 | Cs137 | Te132 | Be7* | Data |
|-----------------|-------------|---------------------|--------------------|---|---|--------------------|--------------------------------------|------|
| | kg | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | |
| 05/29/2012 | 2.6 | < MDA [MDA=0.26] | < MDA [MDA=5.1] | 0.129±0.013 [MDA=0.030] (2.0e+04) | 0.181±0.018 [MDA=0.032] (2.0e+04) | < MDA [MDA=4.0] | 1.29±0.13 [MDA=0.31] (1.2e+06) | data |

Soy Sauce

Source: Product of Japan, purchased in local grocery store

For comparison, the activity concentration of Potassium-40 (K-40) in this sample was approximately 100 Bq/L.

| Collection Date | Sample Volume | I-131 | I-132 | Cs-134 | Cs-137 | Te-132 | Data |
|-----------------|---------------|----------------------|----------------------|----------------------|----------------------|----------------------|------|
| | L | Bq/L (L**) | Bq/L (L**) | Bq/L (L**) | Bq/L (L**) | Bq/L (L**) | |
| 08/21/2012 | 1.08 | < MDA [MDA=0.027] | < MDA [MDA=0.044] | < MDA [MDA=0.029] | < MDA [MDA=0.032] | < MDA [MDA=0.065] | data |

Salmon

Source: Pacific Northwest, purchased in local grocery store

| Collection Date | Sample Mass | I-131 | I-132 | Cs-134 | Cs-137 | Te-132 | Data |
|-----------------|-------------|----------------------|---------------------|----------------------|----------------------|---------------------|------|
| | kg | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | Bq/kg (kg**) | |
| 01/31/2013 | 1.36 | < MDA [MDA=0.085] | < MDA [MDA=0.25] | < MDA [MDA=0.049] | < MDA [MDA=0.056] | < MDA [MDA=0.39] | data |

* Be-7 is observed normally due to its being produced by cosmic rays interacting with the atmosphere.

** The number in parentheses is the number of kilograms of the item that one would need to consume to equal the radiation exposure of a single round trip flight from San Francisco to Washington D.C. (0.05 mSv). To see how we

calculate these numbers, please visit [our explanation of the equivalent dose calculation](#).

Note: "MDA" is the estimated minimum detectable activity for a given isotope in the detector.

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