

Samples:

2017 Fall Penobsoct Mini Core soils

Lab:

SERC

Analyst:

Alyssa McBurney

Samples:

18

QA

C Gilmour

Calibration Std:

BrooksRand 1ppm THg std purchased 9/2015

QCS Std:

SCP Science 10ppm std (purchased 2/2014) diluted to 1ppm 9/20/2017

Inorganic Ventures 100ppm std (purchased 2/2014) diluted to 1ppm 9/20/2017

ID:

200Hg stock solution of 22.2ppm

100ppb 200Hg working solution

2/20/2018

ID value:

94.97 ng/mL

RL is calculated from 3X the standard deviation of digestion blanks, corrected to sample mass and ID recovery for each sample

Sample Data

\*freeze dried

| LAB SAMPLE ID | SITE    | COLLECTION DATE | SAMPLE TYPE | TREATMENT | TREATMENT NUMBER | PLOT          | ROW | ANALYSIS DATE | PARAMETER | VALUE | RL   | DL FLAG | UNITS  | MASS DIGESTED | ID RECOVERY | ANALYSIS COMMENT                   |
|---------------|---------|-----------------|-------------|-----------|------------------|---------------|-----|---------------|-----------|-------|------|---------|--------|---------------|-------------|------------------------------------|
| PB17-7020     | West    | 9/18/2017       | Bulk solid  | Biochar   | 2                | R1.2-Biochar  | 1   | 2/16/2018     | THg-solid | 184   | 16.3 |         | ng/gdw | 0.058         | 110%        |                                    |
| PB17-7031     | West    | 9/18/2017       | Bulk solid  | Control   | 1                | R1.3-Control  | 1   | 2/16/2018     | THg-solid | 160   | 21.0 |         | ng/gdw | 0.052         | 97%         |                                    |
| PB17-7031     | West    | 9/18/2017       | Bulk solid  | Control   | 1                | R1.3-Control  | 1   | 2/16/2018     | THg-solid | 164   | 20.1 |         | ng/gdw |               | 101%        | analytical replicate               |
| PB17-7042     | West    | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R1.5-Sedimite | 1   | 2/16/2018     | THg-solid | 122   | 12.1 |         | ng/gdw | 0.076         | 108%        |                                    |
| PB17-7042     | West    | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R1.5-Sedimite | 1   | 2/16/2018     | THg-solid | 143   | 16.5 |         | ng/gdw | 0.056         | 104%        | digestion duplicate                |
| PB17-7053     | West    | 9/18/2017       | Bulk solid  | Biochar   | 2                | R2.2-Biochar  | 2   | 2/16/2018     | THg-solid | 160   | 19.0 |         | ng/gdw | 0.049         | 110%        |                                    |
| PB17-7064     | West    | 9/18/2017       | Bulk solid  | Control   | 1                | R2.4-Control  | 2   | 2/16/2018     | THg-solid | 148   | 15.1 |         | ng/gdw | 0.065         | 101%        |                                    |
| PB17-7075     | West    | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R2.1-Sedimite | 2   | 2/16/2018     | THg-solid | 152   | 17.8 |         | ng/gdw | 0.058         | 98%         |                                    |
| PB17-7086     | West    | 9/18/2017       | Bulk solid  | Biochar   | 2                | R3.3-Biochar  | 3   | 2/16/2018     | THg-solid | 193   | 12.8 |         | ng/gdw | 0.074         | 104%        |                                    |
| PB17-7086     | West    | 9/18/2017       | Bulk solid  | Biochar   | 2                | R3.3-Biochar  | 3   | 2/16/2018     | THg-solid | 208   | 14.8 |         | ng/gdw | 0.058         | 116%        | digestion duplicate                |
| PB17-7086     | West    | 9/18/2017       | Bulk solid  | Biochar   | 2                | R3.3-Biochar  | 3   | 2/16/2018     | THg-solid | 243   | 3.7  |         | ng/gdw | 0.255         | 107%        | more mass digested                 |
| PB17-7097     | West    | 9/18/2017       | Bulk solid  | Control   | 1                | R3.2-Control  | 3   | 2/16/2018     | THg-solid | 205   | 21.6 |         | ng/gdw | 0.047         | 100%        |                                    |
| PB17-7108     | West    | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R3.4-Sedimite | 3   | 2/16/2018     | THg-solid | 182   | 13.9 |         | ng/gdw | 0.069         | 103%        |                                    |
| PB17-7108     | West    | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R3.4-Sedimite | 3   | 2/16/2018     | THg-solid | 219   | 3.9  |         | ng/gdw | 0.242         | 109%        | more mass digested                 |
| PB17-7119     | Central | 9/18/2017       | Bulk solid  | Biochar   | 2                | R1.2-Biochar  | 1   | 2/16/2018     | THg-solid | 217   | 16.2 |         | ng/gdw | 0.064         | 97%         |                                    |
| PB17-7119     | Central | 9/18/2017       | Bulk solid  | Biochar   | 2                | R1.2-Biochar  | 1   | 2/16/2018     | THg-solid | 217   | 16.1 |         | ng/gdw |               | 98%         | analytical replicate               |
| PB17-7130     | Central | 9/18/2017       | Bulk solid  | Control   | 1                | R1.3-Control  | 1   | 2/16/2018     | THg-solid | 217   | 19.5 |         | ng/gdw | 0.055         | 94%         |                                    |
| PB17-7141     | Central | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R1.5-Sedimite | 1   | 2/16/2018     | THg-solid | 172   | 14.4 |         | ng/gdw | 0.068         | 104%        |                                    |
| PB17-7152     | Central | 9/18/2017       | Bulk solid  | Biochar   | 2                | R2.2-Biochar  | 2   | 2/16/2018     | THg-solid | 216   | 19.3 |         | ng/gdw | 0.055         | 96%         |                                    |
| PB17-7163     | Central | 9/18/2017       | Bulk solid  | Control   | 1                | R2.4-Control  | 2   | 2/16/2018     | THg-solid | 185   | 18.6 |         | ng/gdw | 0.055         | 98%         |                                    |
| PB17-7174     | Central | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R2.1-Sedimite | 2   | 2/16/2018     | THg-solid | 195   | 17.6 |         | ng/gdw | 0.05          | 111%        |                                    |
| PB17-7174     | Central | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R2.1-Sedimite | 2   | 2/16/2018     | THg-solid | 220   | 3.6  |         | ng/gdw | 0.264         | 111%        | more mass digested                 |
| PB17-7174     | Central | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R2.1-Sedimite | 2   | 2/16/2018     | THg-solid | 218   | 4.2  |         | ng/gdw |               | 93%         | more mass digested; analytical rep |
| PB17-7185     | Central | 9/18/2017       | Bulk solid  | Biochar   | 2                | R3.3-Biochar  | 3   | 2/16/2018     | THg-solid | 270   | 13.2 |         | ng/gdw | 0.067         | 112%        |                                    |
| PB17-7196     | Central | 9/18/2017       | Bulk solid  | Control   | 1                | R3.2-Control  | 3   | 2/16/2018     | THg-solid | 255   | 11.2 |         | ng/gdw | 0.077         | 117%        |                                    |
| PB17-7196     | Central | 9/18/2017       | Bulk solid  | Control   | 1                | R3.2-Control  | 3   | 2/16/2018     | THg-solid | 239   | 14.8 |         | ng/gdw | 0.067         | 100%        | digestion duplicate                |
| PB17-7207     | Central | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R3.4-Sedimite | 3   | 2/16/2018     | THg-solid | 217   | 16.9 |         | ng/gdw | 0.054         | 109%        |                                    |
| PB17-7207     | Central | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R3.4-Sedimite | 3   | 2/16/2018     | THg-solid | 221   | 17.7 |         | ng/gdw |               | 104%        | analytical replicate               |
| PB17-7207     | Central | 9/18/2017       | Bulk solid  | Sedimite  | 3                | R3.4-Sedimite | 3   | 2/16/2018     | THg-solid | 267   | 2.9  |         | ng/gdw | 0.263         | 128%        | more mass digested                 |

QC data

Sample Replicates

| Sample ID | Analysis Date | Parameter | Value | RL | Units     | ID Recovery | Replicate Type |
|-----------|---------------|-----------|-------|----|-----------|-------------|----------------|
| PB17-7031 | 2/16/2018     | THg-solid | 159.6 |    | 21 ng/gdw | 97%         | analytical     |
| PB17-7031 | 2/16/2018     | THg-solid | 163.6 |    | 20 ng/gdw | 101%        | analytical     |
|           |               | %RPD      | 2%    |    |           |             |                |
| PB17-7042 | 2/16/2018     | THg-solid | 122.4 |    | 12 ng/gdw | 108%        | digestion      |
| PB17-7042 | 2/16/2018     | THg-solid | 142.7 |    | 17 ng/gdw | 104%        | digestion      |
|           |               | %RPD      | 15%   |    |           |             |                |
| PB17-7086 | 2/16/2018     | THg-solid | 255.3 |    | 11 ng/gdw | 117%        | digestion      |
| PB17-7086 | 2/16/2018     | THg-solid | 238.5 |    | 15 ng/gdw | 100%        | digestion      |
|           |               | %RPD      | 7%    |    |           |             |                |
| PB17-7196 | 2/16/2018     | THg-solid | 122.4 |    | 12 ng/gdw | 108%        | digestion      |
| PB17-7196 | 2/16/2018     | THg-solid | 142.7 |    | 17 ng/gdw | 104%        | digestion      |
|           |               | %RPD      | 15%   |    |           |             |                |
| PB17-7207 | 2/16/2018     | THg-solid | 216.6 |    | 17 ng/gdw | 109%        | analytical     |
| PB17-7207 | 2/16/2018     | THg-solid | 221.3 |    | 18 ng/gdw | 104%        | analytical     |
|           |               | %RPD      | 2%    |    |           |             |                |

Standard Reference Material

\* MESS-4 is certified at 80 ± 6 ng/gdw

| Sample ID | Analysis Date | QC Type | Position | Parameter    | Method    | QC value | QC Nominal | Units | % recovery | RL | Unit        | ID Recovery | Dilution |
|-----------|---------------|---------|----------|--------------|-----------|----------|------------|-------|------------|----|-------------|-------------|----------|
| MESS-4a   | 2/16/2018     | CRM     |          | 31 THg-solid | Digestion | 73.5     | 80 ng/gdw  |       | 92%        |    | 4.60 ng/gdw | 88%         | 2        |
| MESS-4b   | 2/16/2018     | CRM     |          | 47 THg-solid | Digestion | 74.7     | 80 ng/gdw  |       | 93%        |    | 4.11 ng/gdw | 84%         | 2        |
| MESS-4c   | 2/16/2018     | CRM     |          | 60 THg-solid | Digestion | 75.4     | 80 ng/gdw  |       | 94%        |    | 4.70 ng/gdw | 90%         | 2        |

Digestion Blanks

| Sample ID      | Analysis Date | QC Type         | Position | Parameter    | Method    | QC value | Units | ID Recovery | Dilution |
|----------------|---------------|-----------------|----------|--------------|-----------|----------|-------|-------------|----------|
| Digest Blank 1 | 2/16/2018     | Digestion Blank |          | 30 THg-solid | Digestion | 0.062    | ng/L  | 129%        | 2        |
| Digest Blank 2 | 2/16/2018     | Digestion Blank |          | 46 THg-solid | Digestion | 0.067    | ng/L  | 105%        | 2        |
| Digest Blank 3 | 2/16/2018     | Digestion Blank |          | 59 THg-solid | Digestion | 0.067    | ng/L  | 98%         | 2        |
| Digest Blank 4 | 2/16/2018     | Digestion Blank |          | 71 THg-solid | Digestion | 0.072    | ng/L  | 92%         | 2        |
|                |               |                 |          |              | Average   | 0.065    |       |             |          |
|                |               |                 |          |              | Std Dev.  | 0.003    |       |             |          |
|                |               |                 |          |              | % RSD     | 5%       |       |             |          |

Comparison w/ Eurofins:

| Total Hg soils          | Eurofins<br>ng/g | sample weight | SERC<br>ng/g | RL | 2/16/2018<br>sample weight |
|-------------------------|------------------|---------------|--------------|----|----------------------------|
| PB17-7097 W21-UM-West-4 | 174              | 0.5348        | 205          |    | 21.6 0.047                 |
| PB17-7119 W21-UM-Centra | 241              | 0.5079        | 217          |    | 16.2 0.064                 |
| PB17-7163 W21-UM-Centra | 234              | 0.5405        | 185          |    | 18.6 0.055                 |
| PB17-7185 W21-UM-Centra | 279              | 0.5054        | 270          |    | 13.2 0.067                 |
| PB17-7020 W21-UM-West-4 | 164              | 0.5003        | 184          |    | 16.3 0.058                 |
| PB17-7075 W21-UM-West-4 | 148              | 0.5001        | 152          |    | 17.8 0.058                 |