

SACRAMENTO METROPOLITAN
AIR QUALITY MANAGEMENT DISTRICT

CLIENT # S061
REPORT # 20-372

SUBMITTED BY:
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Case Narrative

Date: September 11, 2020

General Information

Client: Sacramento Metropolitan Air Quality Management District
Client Number: S061
Report Number: 20-372
Sample Description: 47mm Teflon filters
Sample Numbers: 19-T3960, 19-T3961, 19-T3963, 19-T3964

Analysis

Analytes: Particulate Mass, XRF Metals (Na – Pb)
Analytical Protocols: Gravimetry: 40 CFR 50 Appendix L (10/17/06 version)
X-Ray Fluorescence: EPA IO-3.3 (June 1999 version)
Analytical Notes: No problems were encountered during the analyses. Results have **not** been blank corrected.
QA/QC Review: All of the data have been reviewed by the analysts performing the analyses and the project manager. All of the quality control and sample-specific information in this package is complete and meets or exceeds the minimum requirements for acceptability.
Comments: If you have any questions or concerns regarding this analysis, please feel free to contact the project manager.
Disclaimer: This report shall not be reproduced, except in full, without the written approval of the laboratory. The results only represent that of the samples as received into the laboratory.


Project Manager
Paul Duda
9/11/20
Date

Lab ID: 19-T3960
 Filter ID: D9082957
 Site: Station 56
 Sample Date: 8/25/20
 Filter Lot #: W9080002
 Volume: $7.200 \pm 0.360 \text{ m}^3$
 Deposit Area: 11.3 cm²
 Size Fraction: PM2.5

These columns are intermediate data used to calculate the concentration.

This column is the concentration of each analyte in ug/m³. This is the column that is the best measurement of what is in the community air.

This column is the uncertainty of the concentration measured.

Analyte	μg/filter		percent	μg/m ³	
Gravimetry					
Net Mass	264.	± 10.		36.67	± 2.300
XRF					
Na	2.840	± 0.6091	1.076	0.3944	± 0.0869
Mg	0.4927	± 0.1503	0.1866	0.0684	± 0.0212
Al	0.7707	± 0.0734	0.2919	0.1070	± 0.0115
Si	1.293	± 0.0734	0.4897	0.1795	± 0.0136
P	0.1141	± 0.0226	0.0432	0.0159	± 0.0032
S	4.962	± 0.2520	1.879	0.6891	± 0.0491
Cl	0.2735	± 0.0282	0.1036	0.0380	± 0.0044
K	1.733	± 0.0870	0.6566	0.2408	± 0.0171
Ca	0.4136	± 0.0237	0.1567	0.0574	± 0.0044
* Sc	0.0000	± 0.0090	0.0000	0.0000	± 0.0013
Ti	0.0452	± 0.0079	0.0171	0.0063	± 0.0011
* V	0.0000	± 0.0079	0.0000	0.0000	± 0.0011
* Cr	0.0000	± 0.0068	0.0000	0.0000	± 0.0009
* Mn	0.0147	± 0.0136	0.0056	0.0020	± 0.0019
Fe	0.5752	± 0.0294	0.2179	0.0799	± 0.0057
* Co	0.0000	± 0.0068	0.0000	0.0000	± 0.0009
* Ni	0.0045	± 0.0056	0.0017	0.0006	± 0.0008
Cu	0.0407	± 0.0056	0.0154	0.0056	± 0.0008
Zn	0.1232	± 0.0079	0.0467	0.0171	± 0.0014
* Ga	0.0090	± 0.0034	0.0034	0.0013	± 0.0005
* As	0.0000	± 0.0056	0.0000	0.0000	± 0.0008
Se	0.0124	± 0.0034	0.0047	0.0017	± 0.0005
Br	0.0554	± 0.0045	0.0210	0.0077	± 0.0007
* Rb	0.0113	± 0.0045	0.0043	0.0016	± 0.0006
* Sr	0.0000	± 0.0056	0.0000	0.0000	± 0.0008
* Y	0.0000	± 0.0068	0.0000	0.0000	± 0.0009
* Zr	0.0000	± 0.0090	0.0000	0.0000	± 0.0013
* Nb	0.0000	± 0.0113	0.0000	0.0000	± 0.0016
* Mo	0.0068	± 0.0147	0.0026	0.0009	± 0.0020
* Ag	0.0282	± 0.0260	0.0107	0.0039	± 0.0036
* Cd	0.0226	± 0.0362	0.0086	0.0031	± 0.0050
* In	0.0938	± 0.0441	0.0355	0.0130	± 0.0062
* Sn	0.0339	± 0.0475	0.0128	0.0047	± 0.0066
* Sb	0.0000	± 0.0927	0.0000	0.0000	± 0.0129
* Cs	0.0000	± 0.0158	0.0000	0.0000	± 0.0022
Ba	0.0814	± 0.0158	0.0308	0.0113	± 0.0023
La	0.0531	± 0.0113	0.0201	0.0074	± 0.0016
* Ce	0.0011	± 0.0158	0.0004	0.0002	± 0.0022
* Sm	0.0000	± 0.0192	0.0000	0.0000	± 0.0027
* Eu	0.0023	± 0.0215	0.0009	0.0003	± 0.0030
* Tb	0.0000	± 0.0305	0.0000	0.0000	± 0.0042
* Hf	0.0147	± 0.0102	0.0056	0.0020	± 0.0014
* Ta	0.0000	± 0.0102	0.0000	0.0000	± 0.0014
* W	0.0113	± 0.0090	0.0043	0.0016	± 0.0013
* Ir	0.0000	± 0.0068	0.0000	0.0000	± 0.0009
* Au	0.0000	± 0.0068	0.0000	0.0000	± 0.0009
* Hg	0.0000	± 0.0102	0.0000	0.0000	± 0.0014
* Pb	0.0158	± 0.0158	0.0060	0.0022	± 0.0022

* - XRF Concentration is less than three times the uncertainty

The asterisk indicates that the analyte was detected in small amounts. There is more relative inaccuracy in measurements at very low levels. This inaccuracy is generally not a concern for air quality because that inaccuracy only occurs at low concentrations of the analyte.

Lab ID: 19-T3961
Filter ID: D9082958
Site: Impact
Sample Date: 8/25/20
Filter Lot #: W9080002
Volume: 7.200 ± 0.360 m³
Deposit Area: 11.3 cm²
Size Fraction: PM2.5

Analyte	µg/filter		percent		µg/m ³	
Gravimetry						
Net Mass	262. ± 10.				36.39	± 2.289
XRF						
Na	2.453	± 0.6034	0.9363	± 0.2331	0.3407	± 0.0855
Mg	0.6644	± 0.1514	0.2536	± 0.0586	0.0923	± 0.0215
Al	0.8678	± 0.0780	0.3312	± 0.0323	0.1205	± 0.0124
Si	1.928	± 0.1028	0.7358	± 0.0483	0.2677	± 0.0196
P	0.2373	± 0.0249	0.0906	± 0.0101	0.0330	± 0.0038
S	4.780	± 0.2430	1.824	± 0.1160	0.6639	± 0.0473
Cl	0.4848	± 0.0350	0.1850	± 0.0151	0.0673	± 0.0059
K	1.723	± 0.0870	0.6577	± 0.0416	0.2393	± 0.0170
Ca	1.822	± 0.0915	0.6953	± 0.0439	0.2530	± 0.0179
Sc	0.0610	± 0.0124	0.0233	± 0.0048	0.0085	± 0.0018
Ti	0.0463	± 0.0079	0.0177	± 0.0031	0.0064	± 0.0011
* V	0.0056	± 0.0079	0.0022	± 0.0030	0.0008	± 0.0011
* Cr	0.0000	± 0.0068	0.0000	± 0.0026	0.0000	± 0.0009
Mn	0.0452	± 0.0136	0.0173	± 0.0052	0.0063	± 0.0019
Fe	0.7616	± 0.0384	0.2907	± 0.0184	0.1058	± 0.0075
* Co	0.0000	± 0.0068	0.0000	± 0.0026	0.0000	± 0.0009
* Ni	0.0068	± 0.0056	0.0026	± 0.0022	0.0009	± 0.0008
Cu	0.0429	± 0.0056	0.0164	± 0.0022	0.0060	± 0.0008
Zn	0.1333	± 0.0068	0.0509	± 0.0032	0.0185	± 0.0013
* Ga	0.0079	± 0.0034	0.0030	± 0.0013	0.0011	± 0.0005
* As	0.0034	± 0.0056	0.0013	± 0.0022	0.0005	± 0.0008
* Se	0.0000	± 0.0045	0.0000	± 0.0017	0.0000	± 0.0006
Br	0.0486	± 0.0056	0.0185	± 0.0023	0.0067	± 0.0009
* Rb	0.0000	± 0.0045	0.0000	± 0.0017	0.0000	± 0.0006
* Sr	0.0045	± 0.0056	0.0017	± 0.0022	0.0006	± 0.0008
* Y	0.0000	± 0.0068	0.0000	± 0.0026	0.0000	± 0.0009
* Zr	0.0000	± 0.0090	0.0000	± 0.0035	0.0000	± 0.0013
* Nb	0.0124	± 0.0113	0.0047	± 0.0043	0.0017	± 0.0016
* Mo	0.0056	± 0.0147	0.0022	± 0.0056	0.0008	± 0.0020
* Ag	0.0350	± 0.0260	0.0134	± 0.0099	0.0049	± 0.0036
* Cd	0.0000	± 0.0362	0.0000	± 0.0138	0.0000	± 0.0050
* In	0.0441	± 0.0429	0.0168	± 0.0164	0.0061	± 0.0060
* Sn	0.0000	± 0.0475	0.0000	± 0.0181	0.0000	± 0.0066
* Sb	0.0000	± 0.0927	0.0000	± 0.0354	0.0000	± 0.0129
* Cs	0.0000	± 0.0158	0.0000	± 0.0060	0.0000	± 0.0022
Ba	0.1096	± 0.0170	0.0418	± 0.0067	0.0152	± 0.0025
* La	0.0350	± 0.0158	0.0134	± 0.0061	0.0049	± 0.0022
* Ce	0.0147	± 0.0192	0.0056	± 0.0073	0.0020	± 0.0027
* Sm	0.0000	± 0.0192	0.0000	± 0.0073	0.0000	± 0.0027
* Eu	0.0124	± 0.0215	0.0047	± 0.0082	0.0017	± 0.0030
* Tb	0.0384	± 0.0362	0.0147	± 0.0138	0.0053	± 0.0050
* Hf	0.0000	± 0.0102	0.0000	± 0.0039	0.0000	± 0.0014
* Ta	0.0090	± 0.0102	0.0035	± 0.0039	0.0013	± 0.0014
* W	0.0192	± 0.0090	0.0073	± 0.0035	0.0027	± 0.0013
* Ir	0.0000	± 0.0068	0.0000	± 0.0026	0.0000	± 0.0009
* Au	0.0090	± 0.0068	0.0035	± 0.0026	0.0013	± 0.0009
* Hg	0.0090	± 0.0079	0.0035	± 0.0030	0.0013	± 0.0011
* Pb	0.0124	± 0.0158	0.0047	± 0.0060	0.0017	± 0.0022

* - XRF Concentration is less than three times the uncertainty

Lab ID: 19-T3963
Filter ID: D9082960
Site: Florin
Sample Date: 8/25/20
Filter Lot #: W9080002
Volume: 7.200 ± 0.360 m³
Deposit Area: 11.3 cm²
Size Fraction: PM2.5

Analyte	µg/filter		percent		µg/m ³	
Gravimetry						
Net Mass	272. ± 10.				37.78	± 2.345
XRF						
Na	2.470	± 0.6283	0.9082	± 0.2334	0.3431	± 0.0889
Mg	1.224	± 0.1616	0.4499	± 0.0617	0.1700	± 0.0240
Al	1.377	± 0.0927	0.5064	± 0.0388	0.1913	± 0.0160
Si	3.136	± 0.1627	1.153	± 0.0733	0.4355	± 0.0314
P	0.3062	± 0.0260	0.1126	± 0.0104	0.0425	± 0.0042
S	4.572	± 0.2328	1.681	± 0.1056	0.6350	± 0.0453
Cl	0.5480	± 0.0441	0.2015	± 0.0178	0.0761	± 0.0072
K	1.915	± 0.0972	0.7042	± 0.0441	0.2660	± 0.0189
Ca	2.068	± 0.1040	0.7603	± 0.0474	0.2872	± 0.0204
Sc	0.0576	± 0.0136	0.0212	± 0.0050	0.0080	± 0.0019
Ti	0.0802	± 0.0079	0.0295	± 0.0031	0.0111	± 0.0012
* V	0.0000	± 0.0090	0.0000	± 0.0033	0.0000	± 0.0013
* Cr	0.0000	± 0.0068	0.0000	± 0.0025	0.0000	± 0.0009
Mn	0.0531	± 0.0136	0.0195	± 0.0050	0.0074	± 0.0019
Fe	1.012	± 0.0508	0.3722	± 0.0232	0.1406	± 0.0100
* Co	0.0000	± 0.0090	0.0000	± 0.0033	0.0000	± 0.0013
* Ni	0.0000	± 0.0056	0.0000	± 0.0021	0.0000	± 0.0008
Cu	0.0384	± 0.0045	0.0141	± 0.0017	0.0053	± 0.0007
Zn	0.1085	± 0.0068	0.0399	± 0.0029	0.0151	± 0.0012
* Ga	0.0068	± 0.0034	0.0025	± 0.0012	0.0009	± 0.0005
* As	0.0056	± 0.0056	0.0021	± 0.0021	0.0008	± 0.0008
* Se	0.0000	± 0.0045	0.0000	± 0.0017	0.0000	± 0.0006
Br	0.0407	± 0.0056	0.0150	± 0.0021	0.0056	± 0.0008
* Rb	0.0090	± 0.0045	0.0033	± 0.0017	0.0013	± 0.0006
Sr	0.0170	± 0.0056	0.0062	± 0.0021	0.0024	± 0.0008
* Y	0.0000	± 0.0079	0.0000	± 0.0029	0.0000	± 0.0011
Zr	0.0294	± 0.0090	0.0108	± 0.0033	0.0041	± 0.0013
* Nb	0.0000	± 0.0124	0.0000	± 0.0046	0.0000	± 0.0017
* Mo	0.0000	± 0.0158	0.0000	± 0.0058	0.0000	± 0.0022
* Ag	0.0554	± 0.0260	0.0204	± 0.0096	0.0077	± 0.0036
* Cd	0.0000	± 0.0362	0.0000	± 0.0133	0.0000	± 0.0050
* In	0.0000	± 0.0429	0.0000	± 0.0158	0.0000	± 0.0060
* Sn	0.1017	± 0.0475	0.0374	± 0.0175	0.0141	± 0.0066
* Sb	0.0000	± 0.0927	0.0000	± 0.0341	0.0000	± 0.0129
* Cs	0.0000	± 0.0158	0.0000	± 0.0058	0.0000	± 0.0022
* Ba	0.0000	± 0.0215	0.0000	± 0.0079	0.0000	± 0.0030
* La	0.0000	± 0.0181	0.0000	± 0.0066	0.0000	± 0.0025
* Ce	0.0000	± 0.0192	0.0000	± 0.0071	0.0000	± 0.0027
* Sm	0.0000	± 0.0203	0.0000	± 0.0075	0.0000	± 0.0028
* Eu	0.0011	± 0.0215	0.0004	± 0.0079	0.0002	± 0.0030
* Tb	0.0000	± 0.0429	0.0000	± 0.0158	0.0000	± 0.0060
* Hf	0.0090	± 0.0102	0.0033	± 0.0037	0.0013	± 0.0014
* Ta	0.0362	± 0.0181	0.0133	± 0.0067	0.0050	± 0.0025
* W	0.0102	± 0.0090	0.0037	± 0.0033	0.0014	± 0.0013
* Ir	0.0056	± 0.0068	0.0021	± 0.0025	0.0008	± 0.0009
* Au	0.0181	± 0.0068	0.0066	± 0.0025	0.0025	± 0.0010
* Hg	0.0170	± 0.0102	0.0062	± 0.0037	0.0024	± 0.0014
* Pb	0.0271	± 0.0158	0.0100	± 0.0058	0.0038	± 0.0022

* - XRF Concentration is less than three times the uncertainty

Lab ID: 19-T3964
Filter ID: D9082961
Site: Sump 50
Sample Date: 8/25/20
Filter Lot #: W9080002
Volume: 7.200 ± 0.360 m³
Deposit Area: 11.3 cm²
Size Fraction: PM2.5

Analyte	µg/filter		percent		µg/m ³	
Gravimetry						
Net Mass	241. ± 10.				33.47	± 2.175
XRF						
Na	2.547	± 0.6012	1.057	± 0.2533	0.3538	± 0.0853
* Mg	0.3819	± 0.1424	0.1585	± 0.0594	0.0530	± 0.0200
Al	0.6836	± 0.0712	0.2837	± 0.0318	0.0950	± 0.0110
Si	0.8769	± 0.0554	0.3639	± 0.0275	0.1218	± 0.0098
P	0.0667	± 0.0215	0.0277	± 0.0090	0.0093	± 0.0030
S	4.642	± 0.2350	1.926	± 0.1261	0.6447	± 0.0459
Cl	0.2836	± 0.0294	0.1177	± 0.0131	0.0394	± 0.0045
K	1.561	± 0.0791	0.6475	± 0.0424	0.2167	± 0.0154
Ca	0.2768	± 0.0203	0.1149	± 0.0097	0.0385	± 0.0034
* Sc	0.0000	± 0.0090	0.0000	± 0.0038	0.0000	± 0.0013
* Ti	0.0136	± 0.0079	0.0056	± 0.0033	0.0019	± 0.0011
* V	0.0170	± 0.0079	0.0070	± 0.0033	0.0024	± 0.0011
* Cr	0.0000	± 0.0068	0.0000	± 0.0028	0.0000	± 0.0009
* Mn	0.0079	± 0.0136	0.0033	± 0.0056	0.0011	± 0.0019
Fe	0.3435	± 0.0181	0.1425	± 0.0096	0.0477	± 0.0035
* Co	0.0000	± 0.0068	0.0000	± 0.0028	0.0000	± 0.0009
* Ni	0.0068	± 0.0056	0.0028	± 0.0023	0.0009	± 0.0008
Cu	0.0396	± 0.0056	0.0164	± 0.0024	0.0055	± 0.0008
Zn	0.1130	± 0.0068	0.0469	± 0.0034	0.0157	± 0.0012
* Ga	0.0034	± 0.0034	0.0014	± 0.0014	0.0005	± 0.0005
* As	0.0079	± 0.0056	0.0033	± 0.0023	0.0011	± 0.0008
* Se	0.0000	± 0.0045	0.0000	± 0.0019	0.0000	± 0.0006
Br	0.0441	± 0.0056	0.0183	± 0.0025	0.0061	± 0.0008
* Rb	0.0079	± 0.0045	0.0033	± 0.0019	0.0011	± 0.0006
* Sr	0.0000	± 0.0056	0.0000	± 0.0023	0.0000	± 0.0008
* Y	0.0068	± 0.0068	0.0028	± 0.0028	0.0009	± 0.0009
Zr	0.0237	± 0.0079	0.0098	± 0.0033	0.0033	± 0.0011
* Nb	0.0068	± 0.0124	0.0028	± 0.0052	0.0009	± 0.0017
* Mo	0.0023	± 0.0147	0.0009	± 0.0061	0.0003	± 0.0020
* Ag	0.0000	± 0.0260	0.0000	± 0.0108	0.0000	± 0.0036
* Cd	0.0000	± 0.0362	0.0000	± 0.0150	0.0000	± 0.0050
* In	0.0396	± 0.0429	0.0164	± 0.0178	0.0055	± 0.0060
* Sn	0.0712	± 0.0497	0.0295	± 0.0207	0.0099	± 0.0069
* Sb	0.0000	± 0.0927	0.0000	± 0.0384	0.0000	± 0.0129
* Cs	0.0000	± 0.0158	0.0000	± 0.0066	0.0000	± 0.0022
Ba	0.0667	± 0.0158	0.0277	± 0.0067	0.0093	± 0.0022
La	0.0599	± 0.0158	0.0249	± 0.0066	0.0083	± 0.0022
* Ce	0.0090	± 0.0192	0.0038	± 0.0080	0.0013	± 0.0027
* Sm	0.0000	± 0.0192	0.0000	± 0.0080	0.0000	± 0.0027
* Eu	0.0282	± 0.0226	0.0117	± 0.0094	0.0039	± 0.0031
* Tb	0.0000	± 0.0260	0.0000	± 0.0108	0.0000	± 0.0036
* Hf	0.0136	± 0.0102	0.0056	± 0.0042	0.0019	± 0.0014
* Ta	0.0181	± 0.0102	0.0075	± 0.0042	0.0025	± 0.0014
* W	0.0090	± 0.0090	0.0038	± 0.0038	0.0013	± 0.0013
* Ir	0.0000	± 0.0068	0.0000	± 0.0028	0.0000	± 0.0009
* Au	0.0102	± 0.0068	0.0042	± 0.0028	0.0014	± 0.0009
* Hg	0.0192	± 0.0102	0.0080	± 0.0042	0.0027	± 0.0014
* Pb	0.0000	± 0.0158	0.0000	± 0.0066	0.0000	± 0.0022

* - XRF Concentration is less than three times the uncertainty

Client: Sacramento Metro - AQMD
Report: 20-372
Analysis Period: September 9, 2020
Number of Samples: 4

This section of the report provides information about the quality assurance/quality control (QA/QC) measurements done by the lab to confirm that the instruments are measuring accurately.

The accuracy is generally evaluated by measuring a sample with a known amount of analyte (precision and accuracy) or by measuring a sample multiple times (relative percent difference or RPD).

1. Precision Data

Micromatter Multi-elemental Quality Control Standard: 34103

QC Standard Results

Analyte	n	micrograms per square centimeter			c.v.	%E
		Calib.	Meas.	S.D.		
Si	1	7.91	8.01	na	na	1.33
Ti	1	10.84	11.02	na	na	1.59
Fe	1	11.22	11.51	na	na	2.60
Se	1	5.19	5.42	na	na	4.28
Cd	1	6.87	6.80	na	na	-1.02
Pb	1	12.57	13.22	na	na	5.18

2. Accuracy Data

NIST Standard Reference Materials: SRM 2783

Analyte/ SRM	n	Certified Value($\mu\text{g}/\text{cm}^2$)	Measured Value ($\mu\text{g}/\text{cm}^2$)			% Rec.
			High	Low	Average	
K 2783	4	0.5301	0.4667	0.3804	0.4402 +/- 0.0348	83.0
Ca 2783	4	1.3253	1.1173	0.9810	1.0795 +/- 0.0570	81.5
Ti 2783	4	0.1496	0.1416	0.1387	0.1398 +/- 0.0011	93.5
Fe 2783	4	2.6606	2.5045	2.3095	2.4483 +/- 0.0803	92.0
Cu 2783	4	0.0406	0.0372	0.0292	0.0339 +/- 0.0031	83.4
Zn 2783	4	0.1797	0.2133	0.1995	0.2079 +/- 0.0051	115.7
Pb 2783	4	0.0318	0.0345	0.0298	0.0324 +/- 0.0018	102.0

3. Addendum

Micromatter Certified Reference Materials

CRM	Analytes	Certified Value($\mu\text{g}/\text{cm}^2$)	Measured Value($\mu\text{g}/\text{cm}^2$)	% Rec.
39149	Cr	53.7	51.8	96.5
39150	Cu	49.4	46.7	94.5
39151	Zn, Te	49.8	48.6	97.6
39152	Ga, As	50.9	50.0	98.3
39153	Se, Cd	47.1	46.8	99.4
39154	Pb	47.9	46.9	97.8

NIST: National Institute of Standards and Technology

% Rec: Percent Recovery = (Experimental/Given) x 100

n: Number of Observations

S.D.: Standard Deviation

c.v.: Coefficient of Variation = (S.D./Measured) x 100

% E: Percent Error = [(Measured-Calibrated)/Calibrated] x 100

QUANT'X 1020 REPLICATE REPORT

 2.13
 Original ID: 19T3963
 Replicate ID: RT3963

This is an analysis of a single sample multiple times. Ideally, the analyses would match perfectly, but no analyzer is perfect. The RPD shows how different the results of one analysis are from another.

Either the RPD or the absolute difference should be small to indicate that the instrument is measuring precisely.

Element	Original ug/cm ²			Replicate ug/cm ²			Difference ug/cm ²			RPD			
Na	0.2186	+-	0.0556	0.2303	+-	0.0558	-0.0117	+-	0.0788	+	-5.2	+-	35.1
Mg	0.1083	+-	0.0143	0.0833	+-	0.0138	0.0250	+-	0.0199	0	26.1	+-	20.8
Al	0.1219	+-	0.0082	0.1103	+-	0.0082	0.0116	+-	0.0116	0	10.0	+-	10.0
Si	0.2775	+-	0.0144	0.2619	+-	0.0137	0.0156	+-	0.0199	+	5.8	+-	7.4
P	0.0271	+-	0.0023	0.0302	+-	0.0024	-0.0031	+-	0.0034	+	-10.8	+-	11.7
S	0.4046	+-	0.0206	0.4002	+-	0.0203	0.0044	+-	0.0289	+	1.1	+-	7.2
Cl	0.0485	+-	0.0039	0.0449	+-	0.0038	0.0036	+-	0.0055	+	7.7	+-	11.7
K	0.1695	+-	0.0086	0.1597	+-	0.0081	0.0098	+-	0.0118	+	6.0	+-	7.2
Ca	0.1830	+-	0.0092	0.1773	+-	0.0089	0.0057	+-	0.0128	+	3.2	+-	7.1
Sc	0.0051	+-	0.0012	0.0053	+-	0.0012	-0.0002	+-	0.0017	+	-3.8	+-	32.4
Ti	0.0071	+-	0.0007	0.0082	+-	0.0008	-0.0010	+-	0.0011	+	-13.6	+-	14.0
V	0.0000	+-	0.0008	0.0012	+-	0.0008	-0.0012	+-	0.0011				
Cr	0.0000	+-	0.0006	0.0000	+-	0.0006	0.0000	+-	0.0009				
Mn	0.0047	+-	0.0012	0.0037	+-	0.0012	0.0010	+-	0.0017	+	24.6	+-	41.4
Fe	0.0896	+-	0.0045	0.0883	+-	0.0045	0.0013	+-	0.0063	+	1.5	+-	7.1
Co	0.0000	+-	0.0008	0.0000	+-	0.0006	0.0000	+-	0.0010				
Ni	0.0000	+-	0.0005	0.0002	+-	0.0005	-0.0002	+-	0.0007				
Cu	0.0034	+-	0.0004	0.0030	+-	0.0004	0.0005	+-	0.0006	+	14.3	+-	19.6
Zn	0.0096	+-	0.0006	0.0109	+-	0.0007	-0.0014	+-	0.0009	0	-13.6	+-	8.7
Ga	0.0006	+-	0.0003	0.0005	+-	0.0003	0.0001	+-	0.0005				
As	0.0005	+-	0.0005	0.0008	+-	0.0005	-0.0003	+-	0.0008				
Se	0.0000	+-	0.0004	0.0000	+-	0.0004	0.0000	+-	0.0005				
Br	0.0037	+-	0.0005	0.0048	+-	0.0004	-0.0012	+-	0.0006	0	-28.0	+-	14.9
Rb	0.0008	+-	0.0004	0.0018	+-	0.0004	-0.0010	+-	0.0005				
Sr	0.0015	+-	0.0005	0.0018	+-	0.0005	-0.0003	+-	0.0008				
Y	0.0000	+-	0.0007	0.0003	+-	0.0007	-0.0003	+-	0.0009				
Zr	0.0026	+-	0.0008	0.0011	+-	0.0008	0.0015	+-	0.0011	0	81.1	+-	58.2
Nb	0.0000	+-	0.0011	0.0012	+-	0.0011	-0.0012	+-	0.0015				
Mo	0.0000	+-	0.0014	0.0024	+-	0.0014	-0.0024	+-	0.0020				
Ag	0.0049	+-	0.0023	0.0059	+-	0.0023	-0.0010	+-	0.0033				
Cd	0.0000	+-	0.0032	0.0000	+-	0.0032	0.0000	+-	0.0045				
In	0.0000	+-	0.0038	0.0000	+-	0.0038	0.0000	+-	0.0054				
Sn	0.0090	+-	0.0042	0.0140	+-	0.0043	-0.0050	+-	0.0060				
Sb	0.0000	+-	0.0082	0.0030	+-	0.0082	-0.0030	+-	0.0116				
Cs	0.0000	+-	0.0014	0.0000	+-	0.0014	0.0000	+-	0.0019				
Ba	0.0000	+-	0.0019	0.0000	+-	0.0019	0.0000	+-	0.0027				
La	0.0000	+-	0.0016	0.0000	+-	0.0016	0.0000	+-	0.0023				
Ce	0.0000	+-	0.0017	0.0020	+-	0.0017	-0.0020	+-	0.0025				
Sm	0.0000	+-	0.0018	0.0000	+-	0.0018	0.0000	+-	0.0026				
Eu	0.0001	+-	0.0019	0.0000	+-	0.0019	0.0001	+-	0.0028				
Tb	0.0000	+-	0.0038	0.0000	+-	0.0038	0.0000	+-	0.0054				
Hf	0.0008	+-	0.0009	0.0015	+-	0.0009	-0.0007	+-	0.0013				
Ta	0.0032	+-	0.0016	0.0000	+-	0.0016	0.0032	+-	0.0023				
W	0.0009	+-	0.0008	0.0000	+-	0.0008	0.0009	+-	0.0011				
Ir	0.0005	+-	0.0006	0.0000	+-	0.0006	0.0005	+-	0.0009				
Au	0.0016	+-	0.0006	0.0008	+-	0.0006	0.0009	+-	0.0008				
Hg	0.0015	+-	0.0009	0.0000	+-	0.0009	0.0015	+-	0.0013				
Pb	0.0024	+-	0.0014	0.0021	+-	0.0014	0.0003	+-	0.0020				

RPD: Relative Percent Difference $(X_1 - X_2) / [(X_1 + X_2) / 2] * 100$. RPD is calculated when original value is greater than three times its uncertainty.

CHESTER LabNet

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CHAIN-OFF-CUSTODY RECORD

CLIENT INFORMATION	
Company Name: SMAQMD	
Contact: Levi Ford	Email: lford@airquality.org Office: 916-874-4868
Cell:	
Report To: <u>Levi Ford</u>	Billing Address: <u>777 12th Street</u> <u>777 12th Street</u> <u>Sacramento, CA 95814</u>

Do the samples pose any potential hazards?

If yes please explain:

Special Instructions/QC Requirements & Comments:

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Relinquished by: <u>FCC</u>	Date/Time: <u>9/2/2014:00</u>	Received By: <u>J. G. Ball</u>	Date/Time/Temp: <u>9/3/2013:20</u>
Relinquished by:	Date/Time:	Received By:	Date/Time/Temp: <u>3.2°C</u>

Laboratory Receipt Comments:

RAW DATA

Available upon request