HEMMERA ENVIROCHEM INC.
ATTN: Natasha Sandys
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Date Received: 04-SEP-15
Report Date: 29-OCT-15 14:30 (MT)
Version: FINAL REV. 2

Client Phone: 867-456-4865

# Certificate of Analysis

## Lab Work Order #: L1668494

| | |
|---|---|
| Project P.O. #: | NOT SUBMITTED |
| Job Reference: | 1343-005.11 |
| C of C Numbers: | 1-1343-005.11-2-2, 1-1343-005.11-2-3, 1-1343-055.11-2-1 |
| Legal Site Desc: | |

Comments: 29-OCT-2015 This report replaces and supersedes previously sent report. This report includes modified sample id for ALS identified sample L1668494-14.

Brent Mack, B.Sc.
Account Manager

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-1 | L1668494-2 | L1668494-3 | L1668494-4 | L1668494-6 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| | Sampled Time | 17:45 | 17:33 | 17:10 | 15:42 | 14:50 |
| | Client ID | GSI-HA-01A | GSI-HA-03A | GSI-DC-02B | MP09-14 | W14103083BH03 |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | | | | | 597 |
| | Hardness (as CaCO3) (mg/L) | | | | 493 | 280 |
| | pH (pH) | | | | | 6.58 |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | | | | | 193 |
| | Ammonia, Total (as N) (mg/L) | 0.0363 | 0.501 | 0.828 | | 5.53 |
| | Chloride (Cl) (mg/L) | | | | | 0.81 |
| | Fluoride (F) (mg/L) | | | | | <0.40 DLM |
| | Nitrate (as N) (mg/L) | | | | | <0.0050 |
| | Nitrite (as N) (mg/L) | | | | | <0.0010 |
| | Total Kjeldahl Nitrogen (mg/L) | | | | | 6.64 |
| | Sulfate (SO4) (mg/L) | | | | | 124 |
| | Sulphide as S (mg/L) | <0.020 | | <0.020 | | 0.097 |
| | Anion Sum (meq/L) | | | | | 6.46 |
| | Cation Sum (meq/L) | | | | | 10.6 |
| | Cation - Anion Balance (%) | | | | | 24.4 |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | <0.0050 | <0.0050 | <0.0050 | | <0.0050 |
| | Cyanide, Total (mg/L) | <0.0050 | <0.0050 | <0.0050 | | <0.0050 |
| | Thiocyanate (SCN) (mg/L) | <0.50 | <0.50 | <0.50 | | 0.53 |
| | Cyanide, Free (mg/L) | <0.0050 | <0.0050 | <0.0050 | | <0.0050 |
| **Organic / Inorganic Carbon** | Total Inorganic Carbon (mg/L) | 41.0 | | 60.9 | | 41.0 |
| | Total Organic Carbon (mg/L) | 9.28 | 10.2 | 11.7 | | 29.2 |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | | | | | |
| | Antimony (Sb)-Total (mg/L) | | | | | |
| | Arsenic (As)-Total (mg/L) | | | | | |
| | Barium (Ba)-Total (mg/L) | | | | | |
| | Beryllium (Be)-Total (mg/L) | | | | | |
| | Bismuth (Bi)-Total (mg/L) | | | | | |
| | Boron (B)-Total (mg/L) | | | | | |
| | Cadmium (Cd)-Total (mg/L) | | | | | |
| | Calcium (Ca)-Total (mg/L) | | | | | |
| | Chromium (Cr)-Total (mg/L) | | | | | |
| | Cobalt (Co)-Total (mg/L) | | | | | |
| | Copper (Cu)-Total (mg/L) | | | | | |
| | Iron (Fe)-Total (mg/L) | | | | | |
| | Lead (Pb)-Total (mg/L) | | | | | |
| | Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-7 | L1668494-8 | L1668494-9 | L1668494-10 | L1668494-11 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| Sampled Time | 12:59 | 12:15 | 10:30 | 08:45 | 08:30 |
| Client ID | MP09-12 | MP09-11 | MW09-24 | W14103083BH04 | W14103083BH02 |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Physical Tests** Conductivity (uS/cm) | | 1040 | 1130 | 1070 | 1110 |
| Hardness (as CaCO3) (mg/L) | 534 | 557 | 747 | 643 | 738 |
| pH (pH) | | 7.41 | 7.82 | 8.21 | 8.17 |
| **Anions and Nutrients** Alkalinity, Total (as CaCO3) (mg/L) | | 564 | 353 | 185 | 216 |
| Ammonia, Total (as N) (mg/L) | | 13.7 | 0.0075 | <0.0050 | <0.0050 |
| Chloride (Cl) (mg/L) | | 1.7 | <1.0 | <1.0 DLA | <1.0 DLA |
| Fluoride (F) (mg/L) | | 0.467 | <0.040 | 0.193 | 0.254 |
| Nitrate (as N) (mg/L) | | <0.010 DLA | 2.74 | 2.05 | 0.708 |
| Nitrite (as N) (mg/L) | | <0.0020 DLA | 0.0026 | <0.0020 DLA | <0.0020 DLA |
| Total Kjeldahl Nitrogen (mg/L) | | 17.1 | 0.663 | 0.388 | 0.238 |
| Sulfate (SO4) (mg/L) | | 46.8 | 310 | 435 | 445 |
| Sulphide as S (mg/L) | | <0.020 | <0.020 | | <0.020 |
| Anion Sum (meq/L) | | 12.3 | 13.7 | 12.9 | 13.6 |
| Cation Sum (meq/L) | | 14.9 | 15.3 | 13.4 | 15.2 |
| Cation - Anion Balance (%) | | 9.6 | 5.5 | 1.8 | 5.5 |
| **Cyanides** Cyanide, Weak Acid Diss (mg/L) | | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Cyanide, Total (mg/L) | | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| Thiocyanate (SCN) (mg/L) | | 0.74 | <0.50 | | <0.50 |
| Cyanide, Free (mg/L) | | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| **Organic / Inorganic Carbon** Total Inorganic Carbon (mg/L) | | 118 | 75.7 | | 46.0 |
| Total Organic Carbon (mg/L) | | 42.4 | 11.1 | 5.40 | 5.29 |
| **Total Metals** Aluminum (Al)-Total (mg/L) | | | | | |
| Antimony (Sb)-Total (mg/L) | | | | | |
| Arsenic (As)-Total (mg/L) | | | | | |
| Barium (Ba)-Total (mg/L) | | | | | |
| Beryllium (Be)-Total (mg/L) | | | | | |
| Bismuth (Bi)-Total (mg/L) | | | | | |
| Boron (B)-Total (mg/L) | | | | | |
| Cadmium (Cd)-Total (mg/L) | | | | | |
| Calcium (Ca)-Total (mg/L) | | | | | |
| Chromium (Cr)-Total (mg/L) | | | | | |
| Cobalt (Co)-Total (mg/L) | | | | | |
| Copper (Cu)-Total (mg/L) | | | | | |
| Iron (Fe)-Total (mg/L) | | | | | |
| Lead (Pb)-Total (mg/L) | | | | | |
| Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-12 | L1668494-13 | L1668494-14 | L1668494-15 | L1668494-16 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| Sampled Time | 11:14 | 14:30 | 13:13 | 17:15 | 15:15 |
| Client ID | MW09-06 | MP09-09* | MP09-10 | GSI-HA-03A | GSI-DC-07B |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Physical Tests** Conductivity (uS/cm) | 1730 | 721 | 77.6 | | 1270 |
| Hardness (as CaCO3) (mg/L) | 1040 | 307 | 35.9 | | 733 |
| pH (pH) | 7.92 | 8.69 | 8.02 | | 7.13 |
| **Anions and Nutrients** Alkalinity, Total (as CaCO3) (mg/L) | 147 | 67.0 | 37.4 | | 169 |
| Ammonia, Total (as N) (mg/L) | 1.04 | 4.51 | 0.222 | | 2.09 |
| Chloride (Cl) (mg/L) | <2.5 DLA | 2.64 | <0.50 | | 1.3 |
| Fluoride (F) (mg/L) | 0.33 | 1.70 | 0.169 | | 0.046 |
| Nitrate (as N) (mg/L) | 0.128 | <0.0050 | 0.0219 | | 0.018 |
| Nitrite (as N) (mg/L) | 0.0110 | 0.0031 | 0.330 | | <0.0020 DLA |
| Total Kjeldahl Nitrogen (mg/L) | 1.58 | 5.32 | 1.42 | | 2.75 |
| Sulfate (SO4) (mg/L) | 939 | 272 | 5.56 | | 567 |
| Sulphide as S (mg/L) | <0.020 | 0.031 | | 0.031 | <0.020 |
| Anion Sum (meq/L) | 22.5 | 7.17 | 0.90 | | 15.2 |
| Cation Sum (meq/L) | 22.5 | 7.95 | 0.84 | | 17.9 |
| Cation - Anion Balance (%) | 0.0 | 5.2 | -3.2 | | 8.2 |
| **Cyanides** Cyanide, Weak Acid Diss (mg/L) | <0.0050 | 1.13 | 0.051 | | <0.0050 |
| Cyanide, Total (mg/L) | <0.0050 | 2.02 | 1.89 | | 0.0074 |
| Thiocyanate (SCN) (mg/L) | <0.50 | 0.83 | <0.50 | | <0.50 |
| Cyanide, Free (mg/L) | <0.0050 | 1.05 | 0.043 | | <0.0050 |
| **Organic / Inorganic Carbon** Total Inorganic Carbon (mg/L) | 31.2 | 9.4 | | 39.5 | 35.9 |
| Total Organic Carbon (mg/L) | 6.26 | 28.6 | 7.39 | | 15.3 |
| **Total Metals** Aluminum (Al)-Total (mg/L) | | | | | |
| Antimony (Sb)-Total (mg/L) | | | | | |
| Arsenic (As)-Total (mg/L) | | | | | |
| Barium (Ba)-Total (mg/L) | | | | | |
| Beryllium (Be)-Total (mg/L) | | | | | |
| Bismuth (Bi)-Total (mg/L) | | | | | |
| Boron (B)-Total (mg/L) | | | | | |
| Cadmium (Cd)-Total (mg/L) | | | | | |
| Calcium (Ca)-Total (mg/L) | | | | | |
| Chromium (Cr)-Total (mg/L) | | | | | |
| Cobalt (Co)-Total (mg/L) | | | | | |
| Copper (Cu)-Total (mg/L) | | | | | |
| Iron (Fe)-Total (mg/L) | | | | | |
| Lead (Pb)-Total (mg/L) | | | | | |
| Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-17 | L1668494-18 | L1668494-19 | L1668494-20 | L1668494-21 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 13:55 | 13:55 | 09:45 | 09:45 | 09:45 |
| | Client ID | GSI-DC-06B | MW15-500 | MP09-08 | MW15-400 | FB15-400 |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | 1390 | 1360 | 747 | 750 | <2.0 |
| | Hardness (as CaCO3) (mg/L) | 844 | 856 | 436 | 436 | <0.50 |
| | pH (pH) | 7.55 | 7.55 | 7.42 | 7.51 | 6.07 |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | 868 | 850 | 242 | 246 | <1.0 |
| | Ammonia, Total (as N) (mg/L) | 2.78 | 2.70 | 0.0288 | 0.0302 | <0.0050 |
| | Chloride (Cl) (mg/L) | 7.3 | 7.2 | <0.50 | <0.50 | <0.50 |
| | Fluoride (F) (mg/L) | 0.254 | 0.250 | 0.075 | 0.082 | <0.020 |
| | Nitrate (as N) (mg/L) | <0.010 DLA | <0.010 DLA | <0.0050 | <0.0050 | <0.0050 |
| | Nitrite (as N) (mg/L) | <0.0020 DLA | <0.0020 DLA | <0.0010 | <0.0010 | <0.0010 |
| | Total Kjeldahl Nitrogen (mg/L) | 6.02 | 5.99 | 0.592 | 0.536 | <0.050 |
| | Sulfate (SO4) (mg/L) | 3.07 | 5.34 | 185 | 185 | <0.30 |
| | Sulphide as S (mg/L) | 0.036 | 0.035 | 0.320 | 0.321 | <0.020 |
| | Anion Sum (meq/L) | 17.6 | 17.3 | 8.70 | 8.78 | <0.10 |
| | Cation Sum (meq/L) | 19.6 | 19.9 | 9.10 | 9.10 | <0.10 |
| | Cation - Anion Balance (%) | 5.3 | 6.9 | 2.2 | 1.8 | 0.0 |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| | Cyanide, Total (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| | Thiocyanate (SCN) (mg/L) | 0.58 | 0.60 | <0.50 | <0.50 | <0.50 |
| | Cyanide, Free (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | <0.0050 |
| **Organic / Inorganic Carbon** | Total Inorganic Carbon (mg/L) | 186 | 191 | 52.2 | 50.8 | <0.50 |
| | Total Organic Carbon (mg/L) | 66.5 | 68.0 | 11.0 | 10.3 | <0.50 |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | | | | | |
| | Antimony (Sb)-Total (mg/L) | | | | | |
| | Arsenic (As)-Total (mg/L) | | | | | |
| | Barium (Ba)-Total (mg/L) | | | | | |
| | Beryllium (Be)-Total (mg/L) | | | | | |
| | Bismuth (Bi)-Total (mg/L) | | | | | |
| | Boron (B)-Total (mg/L) | | | | | |
| | Cadmium (Cd)-Total (mg/L) | | | | | |
| | Calcium (Ca)-Total (mg/L) | | | | | |
| | Chromium (Cr)-Total (mg/L) | | | | | |
| | Cobalt (Co)-Total (mg/L) | | | | | |
| | Copper (Cu)-Total (mg/L) | | | | | |
| | Iron (Fe)-Total (mg/L) | | | | | |
| | Lead (Pb)-Total (mg/L) | | | | | |
| | Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-22 | L1668494-23 | L1668494-24 | L1668494-25 | L1668494-26 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| Sampled Time | 11:10 | 08:30 | 14:50 | 13:01 | 10:50 |
| Client ID | GSI-PC-03B | MP09-03 | GSI-DC-09B | GSI-DC-10B | GSI-PC-04B |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Physical Tests** | | | | | |
| Conductivity (uS/cm) | | | 533 | 1210 | 377 |
| Hardness (as CaCO3) (mg/L) | 275 | 56.2 | 236 | 642 | 323 |
| pH (pH) | | | 6.92 | 6.17 | 7.31 |
| **Anions and Nutrients** | | | | | |
| Alkalinity, Total (as CaCO3) (mg/L) | | | 98.3 | 96.7 | 145 |
| Ammonia, Total (as N) (mg/L) | | | 1.79 | 1.79 | |
| Chloride (Cl) (mg/L) | | | <0.50 | 1.2 | 0.83 |
| Fluoride (F) (mg/L) | | | 0.087 | 0.057 | 0.101 |
| Nitrate (as N) (mg/L) | | | <0.0050 | <0.010 DLA | 0.0511 |
| Nitrite (as N) (mg/L) | | | <0.0010 | <0.0020 DLA | 0.0011 |
| Total Kjeldahl Nitrogen (mg/L) | | | 2.77 | 3.17 | |
| Sulfate (SO4) (mg/L) | | | 173 | 608 | 59.9 |
| Sulphide as S (mg/L) | | | 0.118 | <0.020 | |
| Anion Sum (meq/L) | | | 5.58 | 14.6 | 4.18 |
| Cation Sum (meq/L) | | | 6.64 | 19.7 | 7.42 |
| Cation - Anion Balance (%) | | | 8.7 | 14.9 | 27.9 |
| **Cyanides** | | | | | |
| Cyanide, Weak Acid Diss (mg/L) | <0.0050 | | <0.0050 | <0.010 DLM | |
| Cyanide, Total (mg/L) | <0.0050 | | 0.0101 | 0.011 | |
| Thiocyanate (SCN) (mg/L) | | | 0.67 | 0.70 | |
| Cyanide, Free (mg/L) | <0.0050 | | <0.0050 | <0.010 DLM | |
| **Organic / Inorganic Carbon** | | | | | |
| Total Inorganic Carbon (mg/L) | | | 19.8 | 15.7 | |
| Total Organic Carbon (mg/L) | | | 28.3 | 35.8 | |
| **Total Metals** | | | | | |
| Aluminum (Al)-Total (mg/L) | | | | | |
| Antimony (Sb)-Total (mg/L) | | | | | |
| Arsenic (As)-Total (mg/L) | | | | | |
| Barium (Ba)-Total (mg/L) | | | | | |
| Beryllium (Be)-Total (mg/L) | | | | | |
| Bismuth (Bi)-Total (mg/L) | | | | | |
| Boron (B)-Total (mg/L) | | | | | |
| Cadmium (Cd)-Total (mg/L) | | | | | |
| Calcium (Ca)-Total (mg/L) | | | | | |
| Chromium (Cr)-Total (mg/L) | | | | | |
| Cobalt (Co)-Total (mg/L) | | | | | |
| Copper (Cu)-Total (mg/L) | | | | | |
| Iron (Fe)-Total (mg/L) | | | | | |
| Lead (Pb)-Total (mg/L) | | | | | |
| Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L1668494-27 Water 03-SEP-15 17:15 GSI-PC-05B* | L1668494-28 Water 03-SEP-15 TRAVEL BLANK | L1668494-29 Water 02-SEP-15 10:30 MW15-300 | L1668494-30 Water 02-SEP-15 10:30 FB15-300 | L1668494-31 Water 02-SEP-15 17:45 GSI-HA-01A - DISSOLVED ALKALINITY |
|---|---|---|---|---|---|---|
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | 250 | <2.0 | 1040 | <2.0 | |
| | Hardness (as CaCO3) (mg/L) | 128 | <0.50 | 737 | <0.50 | |
| | pH (pH) | 7.28 | 5.41 | 7.63 | 5.44 | |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | 64.6 | <1.0 | 353 | <1.0 | 197 |
| | Ammonia, Total (as N) (mg/L) | 0.0112 | 0.0107 RRV | 0.0093 | <0.0050 | |
| | Chloride (Cl) (mg/L) | <0.50 | <0.50 | <1.0 DLA | <0.50 | |
| | Fluoride (F) (mg/L) | 0.060 | <0.020 | <0.040 DLA | <0.020 | |
| | Nitrate (as N) (mg/L) | 0.0228 | <0.0050 | 2.75 | <0.0050 | |
| | Nitrite (as N) (mg/L) | 0.0011 | <0.001 | 0.0023 | <0.0010 | |
| | Total Kjeldahl Nitrogen (mg/L) | 0.384 | <0.050 | 0.600 | <0.050 | |
| | Sulfate (SO4) (mg/L) | 61.1 | <0.30 | 268 | <0.30 | |
| | Sulphide as S (mg/L) | <0.020 | <0.020 | <0.020 | <0.020 | |
| | Anion Sum (meq/L) | 2.57 | <0.10 | 12.8 | <0.10 | |
| | Cation Sum (meq/L) | 2.72 | <0.10 | 15.1 | <0.10 | |
| | Cation - Anion Balance (%) | 2.9 | 0.0 | 8.2 | 0.0 | |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | |
| | Cyanide, Total (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | |
| | Thiocyanate (SCN) (mg/L) | <0.50 | <0.50 | <0.50 | <0.50 | |
| | Cyanide, Free (mg/L) | <0.0050 | <0.0050 | <0.0050 | <0.0050 | |
| **Organic / Inorganic Carbon** | Total Inorganic Carbon (mg/L) | 13.6 | <0.50 | 74.3 | <0.50 | |
| | Total Organic Carbon (mg/L) | 12.3 | <0.50 | 11.3 | <0.50 | |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | | <0.0030 | | | |
| | Antimony (Sb)-Total (mg/L) | | <0.00010 | | | |
| | Arsenic (As)-Total (mg/L) | | <0.00010 | | | |
| | Barium (Ba)-Total (mg/L) | | <0.000050 | | | |
| | Beryllium (Be)-Total (mg/L) | | <0.000020 | | | |
| | Bismuth (Bi)-Total (mg/L) | | <0.000050 | | | |
| | Boron (B)-Total (mg/L) | | <0.010 | | | |
| | Cadmium (Cd)-Total (mg/L) | | <0.0000050 | | | |
| | Calcium (Ca)-Total (mg/L) | | <0.050 | | | |
| | Chromium (Cr)-Total (mg/L) | | <0.00010 | | | |
| | Cobalt (Co)-Total (mg/L) | | <0.00010 | | | |
| | Copper (Cu)-Total (mg/L) | | <0.00050 | | | |
| | Iron (Fe)-Total (mg/L) | | <0.010 | | | |
| | Lead (Pb)-Total (mg/L) | | <0.000050 | | | |
| | Lithium (Li)-Total (mg/L) | | <0.0010 | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-32 | L1668494-33 | L1668494-34 | L1668494-35 | L1668494-36 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| | Sampled Time | 17:10 | 14:50 | 12:15 | 10:30 | 08:30 |
| | Client ID | GSI-DC-02B - DISSOLVED ALKALINITY | W14103083BH03 - DISSOLVED ALKALINITY | MP09-11 - DISSOLVED ALKALINITY | MW09-24 - DISSOLVED ALKALINITY | W14103083BH02 - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | | | | | |
| | Hardness (as CaCO3) (mg/L) | | | | | |
| | pH (pH) | | | | | |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | 292 | <1.0 | 580 | 379 | 221 |
| | Ammonia, Total (as N) (mg/L) | | | | | |
| | Chloride (Cl) (mg/L) | | | | | |
| | Fluoride (F) (mg/L) | | | | | |
| | Nitrate (as N) (mg/L) | | | | | |
| | Nitrite (as N) (mg/L) | | | | | |
| | Total Kjeldahl Nitrogen (mg/L) | | | | | |
| | Sulfate (SO4) (mg/L) | | | | | |
| | Sulphide as S (mg/L) | | | | | |
| | Anion Sum (meq/L) | | | | | |
| | Cation Sum (meq/L) | | | | | |
| | Cation - Anion Balance (%) | | | | | |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | | | | | |
| | Cyanide, Total (mg/L) | | | | | |
| | Thiocyanate (SCN) (mg/L) | | | | | |
| | Cyanide, Free (mg/L) | | | | | |
| **Organic / Inorganic Carbon** | Total Inorganic Carbon (mg/L) | | | | | |
| | Total Organic Carbon (mg/L) | | | | | |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | | | | | |
| | Antimony (Sb)-Total (mg/L) | | | | | |
| | Arsenic (As)-Total (mg/L) | | | | | |
| | Barium (Ba)-Total (mg/L) | | | | | |
| | Beryllium (Be)-Total (mg/L) | | | | | |
| | Bismuth (Bi)-Total (mg/L) | | | | | |
| | Boron (B)-Total (mg/L) | | | | | |
| | Cadmium (Cd)-Total (mg/L) | | | | | |
| | Calcium (Ca)-Total (mg/L) | | | | | |
| | Chromium (Cr)-Total (mg/L) | | | | | |
| | Cobalt (Co)-Total (mg/L) | | | | | |
| | Copper (Cu)-Total (mg/L) | | | | | |
| | Iron (Fe)-Total (mg/L) | | | | | |
| | Lead (Pb)-Total (mg/L) | | | | | |
| | Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-37 | L1668494-38 | L1668494-39 | L1668494-40 | L1668494-41 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 02-SEP-15 | 02-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 11:14 | 14:30 | 15:15 | 13:55 | 13:22 |
| | Client ID | MW09-06 - DISSOLVED ALKALINITY | MP09-09* - DISSOLVED ALKALINITY | GSI-DC-07B - DISSOLVED ALKALINITY | GSI-DC-06B - DISSOLVED ALKALINITY | MW15-500 - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | | | | | |
| | Hardness (as CaCO3) (mg/L) | | | | | |
| | pH (pH) | | | | | |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | 152 | 67.6 | 176 | 768 | 766 |
| | Ammonia, Total (as N) (mg/L) | | | | | |
| | Chloride (Cl) (mg/L) | | | | | |
| | Fluoride (F) (mg/L) | | | | | |
| | Nitrate (as N) (mg/L) | | | | | |
| | Nitrite (as N) (mg/L) | | | | | |
| | Total Kjeldahl Nitrogen (mg/L) | | | | | |
| | Sulfate (SO4) (mg/L) | | | | | |
| | Sulphide as S (mg/L) | | | | | |
| | Anion Sum (meq/L) | | | | | |
| | Cation Sum (meq/L) | | | | | |
| | Cation - Anion Balance (%) | | | | | |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | | | | | |
| | Cyanide, Total (mg/L) | | | | | |
| | Thiocyanate (SCN) (mg/L) | | | | | |
| | Cyanide, Free (mg/L) | | | | | |
| **Organic / Inorganic Carbon** | Total Inorganic Carbon (mg/L) | | | | | |
| | Total Organic Carbon (mg/L) | | | | | |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | | | | | |
| | Antimony (Sb)-Total (mg/L) | | | | | |
| | Arsenic (As)-Total (mg/L) | | | | | |
| | Barium (Ba)-Total (mg/L) | | | | | |
| | Beryllium (Be)-Total (mg/L) | | | | | |
| | Bismuth (Bi)-Total (mg/L) | | | | | |
| | Boron (B)-Total (mg/L) | | | | | |
| | Cadmium (Cd)-Total (mg/L) | | | | | |
| | Calcium (Ca)-Total (mg/L) | | | | | |
| | Chromium (Cr)-Total (mg/L) | | | | | |
| | Cobalt (Co)-Total (mg/L) | | | | | |
| | Copper (Cu)-Total (mg/L) | | | | | |
| | Iron (Fe)-Total (mg/L) | | | | | |
| | Lead (Pb)-Total (mg/L) | | | | | |
| | Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-42 | L1668494-43 | L1668494-44 | L1668494-45 | L1668494-46 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 09:45 | 09:45 | 09:45 | 14:50 | 13:01 |
| | Client ID | MP09-08 - DISSOLVED ALKALINITY | MW15-400 - DISSOLVED ALKALINITY | FB15-400 - DISSOLVED ALKALINITY | GSI-DC-09B - DISSOLVED ALKALINITY | GSI-DC-10B - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | | | | | |
| | Hardness (as CaCO3) (mg/L) | | | | | |
| | pH (pH) | | | | | |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | 249 | 248 | <1.0 | 103 | 91.0 |
| | Ammonia, Total (as N) (mg/L) | | | | | |
| | Chloride (Cl) (mg/L) | | | | | |
| | Fluoride (F) (mg/L) | | | | | |
| | Nitrate (as N) (mg/L) | | | | | |
| | Nitrite (as N) (mg/L) | | | | | |
| | Total Kjeldahl Nitrogen (mg/L) | | | | | |
| | Sulfate (SO4) (mg/L) | | | | | |
| | Sulphide as S (mg/L) | | | | | |
| | Anion Sum (meq/L) | | | | | |
| | Cation Sum (meq/L) | | | | | |
| | Cation - Anion Balance (%) | | | | | |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | | | | | |
| | Cyanide, Total (mg/L) | | | | | |
| | Thiocyanate (SCN) (mg/L) | | | | | |
| | Cyanide, Free (mg/L) | | | | | |
| **Organic / Inorganic Carbon** | Total Inorganic Carbon (mg/L) | | | | | |
| | Total Organic Carbon (mg/L) | | | | | |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | | | | | |
| | Antimony (Sb)-Total (mg/L) | | | | | |
| | Arsenic (As)-Total (mg/L) | | | | | |
| | Barium (Ba)-Total (mg/L) | | | | | |
| | Beryllium (Be)-Total (mg/L) | | | | | |
| | Bismuth (Bi)-Total (mg/L) | | | | | |
| | Boron (B)-Total (mg/L) | | | | | |
| | Cadmium (Cd)-Total (mg/L) | | | | | |
| | Calcium (Ca)-Total (mg/L) | | | | | |
| | Chromium (Cr)-Total (mg/L) | | | | | |
| | Cobalt (Co)-Total (mg/L) | | | | | |
| | Copper (Cu)-Total (mg/L) | | | | | |
| | Iron (Fe)-Total (mg/L) | | | | | |
| | Lead (Pb)-Total (mg/L) | | | | | |
| | Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-47 | L1668494-48 | L1668494-49 | | |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | | |
| | Sampled Date | 03-SEP-15 | 02-SEP-15 | 02-SEP-15 | | |
| | Sampled Time | 09:45 | 10:30 | 10:30 | | |
| | Client ID | GSI-PC-05B* - DISSOLVED ALKALINITY | MW15-300 - DISSOLVED ALKALINITY | FB15-300 - DISSOLVED ALKALINITY | | |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Physical Tests** | Conductivity (uS/cm) | | | | | |
| | Hardness (as CaCO3) (mg/L) | | | | | |
| | pH (pH) | | | | | |
| **Anions and Nutrients** | Alkalinity, Total (as CaCO3) (mg/L) | 64.5 | 376 | <1.0 | | |
| | Ammonia, Total (as N) (mg/L) | | | | | |
| | Chloride (Cl) (mg/L) | | | | | |
| | Fluoride (F) (mg/L) | | | | | |
| | Nitrate (as N) (mg/L) | | | | | |
| | Nitrite (as N) (mg/L) | | | | | |
| | Total Kjeldahl Nitrogen (mg/L) | | | | | |
| | Sulfate (SO4) (mg/L) | | | | | |
| | Sulphide as S (mg/L) | | | | | |
| | Anion Sum (meq/L) | | | | | |
| | Cation Sum (meq/L) | | | | | |
| | Cation - Anion Balance (%) | | | | | |
| **Cyanides** | Cyanide, Weak Acid Diss (mg/L) | | | | | |
| | Cyanide, Total (mg/L) | | | | | |
| | Thiocyanate (SCN) (mg/L) | | | | | |
| | Cyanide, Free (mg/L) | | | | | |
| **Organic / Inorganic Carbon** | Total Inorganic Carbon (mg/L) | | | | | |
| | Total Organic Carbon (mg/L) | | | | | |
| **Total Metals** | Aluminum (Al)-Total (mg/L) | | | | | |
| | Antimony (Sb)-Total (mg/L) | | | | | |
| | Arsenic (As)-Total (mg/L) | | | | | |
| | Barium (Ba)-Total (mg/L) | | | | | |
| | Beryllium (Be)-Total (mg/L) | | | | | |
| | Bismuth (Bi)-Total (mg/L) | | | | | |
| | Boron (B)-Total (mg/L) | | | | | |
| | Cadmium (Cd)-Total (mg/L) | | | | | |
| | Calcium (Ca)-Total (mg/L) | | | | | |
| | Chromium (Cr)-Total (mg/L) | | | | | |
| | Cobalt (Co)-Total (mg/L) | | | | | |
| | Copper (Cu)-Total (mg/L) | | | | | |
| | Iron (Fe)-Total (mg/L) | | | | | |
| | Lead (Pb)-Total (mg/L) | | | | | |
| | Lithium (Li)-Total (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-1 | L1668494-2 | L1668494-3 | L1668494-4 | L1668494-6 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| Sampled Time | 17:45 | 17:33 | 17:10 | 15:42 | 14:50 |
| Client ID | GSI-HA-01A | GSI-HA-03A | GSI-DC-02B | MP09-14 | W14103083BH03 |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Total Metals** Magnesium (Mg)-Total (mg/L) | | | | | |
| Manganese (Mn)-Total (mg/L) | | | | | |
| Mercury (Hg)-Total (mg/L) | | | | | |
| Molybdenum (Mo)-Total (mg/L) | | | | | |
| Nickel (Ni)-Total (mg/L) | | | | | |
| Phosphorus (P)-Total (mg/L) | | | | | |
| Potassium (K)-Total (mg/L) | | | | | |
| Selenium (Se)-Total (mg/L) | | | | | |
| Silicon (Si)-Total (mg/L) | | | | | |
| Silver (Ag)-Total (mg/L) | | | | | |
| Sodium (Na)-Total (mg/L) | | | | | |
| Strontium (Sr)-Total (mg/L) | | | | | |
| Sulfur (S)-Total (mg/L) | | | | | |
| Thallium (Tl)-Total (mg/L) | | | | | |
| Tin (Sn)-Total (mg/L) | | | | | |
| Titanium (Ti)-Total (mg/L) | | | | | |
| Uranium (U)-Total (mg/L) | | | | | |
| Vanadium (V)-Total (mg/L) | | | | | |
| Zinc (Zn)-Total (mg/L) | | | | | |
| Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** Dissolved Mercury Filtration Location | | | | FIELD | FIELD |
| Dissolved Metals Filtration Location | | | | FIELD | FIELD |
| Aluminum (Al)-Dissolved (mg/L) | | | | 0.0031 | 0.0727 |
| Antimony (Sb)-Dissolved (mg/L) | | | | 0.00553 | 0.00031 |
| Arsenic (As)-Dissolved (mg/L) | | | | 3.94 | 0.0576 |
| Barium (Ba)-Dissolved (mg/L) | | | | 0.117 | 0.280 |
| Beryllium (Be)-Dissolved (mg/L) | | | | <0.000020 | 0.000025 |
| Bismuth (Bi)-Dissolved (mg/L) | | | | <0.000050 | <0.000050 |
| Boron (B)-Dissolved (mg/L) | | | | 0.065 | 0.011 |
| Cadmium (Cd)-Dissolved (mg/L) | | | | 0.0000896 | 0.0000490 |
| Calcium (Ca)-Dissolved (mg/L) | | | | 160 | 74.6 |
| Chromium (Cr)-Dissolved (mg/L) | | | | 0.00056 | 0.00076 |
| Cobalt (Co)-Dissolved (mg/L) | | | | 0.00118 | 0.00077 |
| Copper (Cu)-Dissolved (mg/L) | | | | 0.00047 | <0.00020 |
| Iron (Fe)-Dissolved (mg/L) | | | | 4.12 | 77.3 |
| Lead (Pb)-Dissolved (mg/L) | | | | 0.000441 | 0.000064 |
| Lithium (Li)-Dissolved (mg/L) | | | | 0.0124 | <0.0010 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L1668494-7 Water 02-SEP-15 12:59 MP09-12 | L1668494-8 Water 02-SEP-15 12:15 MP09-11 | L1668494-9 Water 02-SEP-15 10:30 MW09-24 | L1668494-10 Water 02-SEP-15 08:45 W14103083BH04 | L1668494-11 Water 02-SEP-15 08:30 W14103083BH02 |
|---|---|---|---|---|---|---|
| **WATER** | | | | | | |
| **Total Metals** | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| | Dissolved Metals Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0061 | 0.0076 | 0.0021 | 0.0032 | 0.0021 |
| | Antimony (Sb)-Dissolved (mg/L) | 0.0427 | 0.0202 | 0.00018 | 0.00018 | 0.00019 |
| | Arsenic (As)-Dissolved (mg/L) | 6.62 | 13.9 | 0.00183 | 0.00353 | 0.00361 |
| | Barium (Ba)-Dissolved (mg/L) | 0.0217 | 0.286 | 0.0938 | 0.129 | 0.117 |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000020 | <0.000040 DLA | <0.000020 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | <0.00010 DLA | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | 0.131 | 0.036 | 0.012 | 0.015 | 0.020 |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.000489 | 0.000506 | 0.0000683 | 0.00143 | 0.000345 |
| | Calcium (Ca)-Dissolved (mg/L) | 137 | 124 | 209 | 169 | 193 |
| | Chromium (Cr)-Dissolved (mg/L) | 0.00019 | 0.00139 | 0.00026 | 0.00014 | 0.00021 |
| | Cobalt (Co)-Dissolved (mg/L) | 0.00253 | 0.00177 | <0.00010 | <0.00010 | <0.00010 |
| | Copper (Cu)-Dissolved (mg/L) | 0.00045 | 0.00044 | 0.00811 | 0.00274 | 0.00220 |
| | Iron (Fe)-Dissolved (mg/L) | 4.19 | 30.6 | <0.010 | <0.010 | <0.010 |
| | Lead (Pb)-Dissolved (mg/L) | 0.00408 | 0.0379 | <0.000050 | 0.000053 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | 0.0043 | 0.0030 | 0.0012 | 0.0012 | 0.0012 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L1668494-12 Water 02-SEP-15 11:14 MW09-06 | L1668494-13 Water 02-SEP-15 14:30 MP09-09* | L1668494-14 Water 02-SEP-15 13:13 MP09-10 | L1668494-15 Water 03-SEP-15 17:15 GSI-HA-03A | L1668494-16 Water 03-SEP-15 15:15 GSI-DC-07B |
|---|---|---|---|---|---|---|
| **WATER** | | | | | | |
| **Total Metals** | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | FIELD | FIELD | FIELD | | FIELD |
| | Dissolved Metals Filtration Location | FIELD | FIELD | FIELD | | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0046 | 0.0057 | 0.0317 | | 0.0103 |
| | Antimony (Sb)-Dissolved (mg/L) | 0.299 | 0.0765 | 0.0424 | | 0.00014 |
| | Arsenic (As)-Dissolved (mg/L) | 0.131 | 14.2 | 1.82 | | 0.188 |
| | Barium (Ba)-Dissolved (mg/L) | 0.00694 | 0.00064 | 0.00466 | | 0.235 |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000040 DLA | <0.000040 DLA | <0.000020 | | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.00010 DLA | <0.00010 DLA | 0.000113 | | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | 0.137 | 0.196 | 0.045 | | 0.023 |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.00581 | 0.000950 | 0.000386 | | <0.0000050 |
| | Calcium (Ca)-Dissolved (mg/L) | 333 | 122 | 13.9 | | 204 |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00020 DLA | <0.00020 DLA | 0.00047 | | 0.00029 |
| | Cobalt (Co)-Dissolved (mg/L) | 0.00148 | 0.0456 | 0.00241 | | 0.00209 |
| | Copper (Cu)-Dissolved (mg/L) | 0.00689 | 0.327 | 0.0507 | | <0.00020 |
| | Iron (Fe)-Dissolved (mg/L) | <0.010 | 0.213 | 0.328 | | 41.7 |
| | Lead (Pb)-Dissolved (mg/L) | 0.00018 | 0.00037 | 0.0192 | | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | 0.0111 | <0.0020 DLA | <0.0010 | | 0.0018 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-17 | L1668494-18 | L1668494-19 | L1668494-20 | L1668494-21 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 13:55 | 13:55 | 09:45 | 09:45 | 09:45 |
| | Client ID | GSI-DC-06B | MW15-500 | MP09-08 | MW15-400 | FB15-400 |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Total Metals** | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| | Dissolved Metals Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0174 | 0.0178 | 0.0049 | 0.0045 | <0.0010 |
| | Antimony (Sb)-Dissolved (mg/L) | 0.00042 | 0.00038 | 0.00282 | 0.00226 | <0.00010 |
| | Arsenic (As)-Dissolved (mg/L) | 0.492 | 0.470 | 0.0328 | 0.0260 | <0.00010 |
| | Barium (Ba)-Dissolved (mg/L) | 0.177 | 0.180 | 0.0632 | 0.0583 | <0.000050 |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000020 | <0.000020 | 0.000021 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | 0.012 | 0.011 | <0.010 | <0.010 | <0.010 |
| | Cadmium (Cd)-Dissolved (mg/L) | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| | Calcium (Ca)-Dissolved (mg/L) | 202 | 204 | 121 | 121 | <0.050 |
| | Chromium (Cr)-Dissolved (mg/L) | 0.00170 | 0.00169 | <0.00010 | <0.00010 | <0.00010 |
| | Cobalt (Co)-Dissolved (mg/L) | 0.00206 | 0.00209 | 0.00050 | 0.00051 | <0.00010 |
| | Copper (Cu)-Dissolved (mg/L) | 0.00021 | <0.00020 | <0.00020 | <0.00020 | <0.00020 |
| | Iron (Fe)-Dissolved (mg/L) | 27.4 | 27.8 | 0.519 | 0.562 | <0.010 |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | 0.000080 | <0.000050 | <0.000050 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | <0.0010 | <0.0010 | 0.0042 | 0.0044 | <0.0010 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-22 | L1668494-23 | L1668494-24 | L1668494-25 | L1668494-26 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 11:10 | 08:30 | 14:50 | 13:01 | 10:50 |
| | Client ID | GSI-PC-03B | MP09-03 | GSI-DC-09B | GSI-DC-10B | GSI-PC-04B |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Total Metals** | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| | Dissolved Metals Filtration Location | FIELD | FIELD | FIELD | FIELD | FIELD |
| | Aluminum (Al)-Dissolved (mg/L) | 0.0071 | 0.0146 | 0.0670 | 0.166 | 0.0452 |
| | Antimony (Sb)-Dissolved (mg/L) | 0.00334 | 0.00101 | 0.00023 | 0.00033 | 0.00082 |
| | Arsenic (As)-Dissolved (mg/L) | 0.00274 | 0.00631 | 0.0595 | 0.102 | 0.0107 |
| | Barium (Ba)-Dissolved (mg/L) | 0.151 | 0.0323 | 0.0235 | 0.391 | 0.158 |
| | Beryllium (Be)-Dissolved (mg/L) | <0.000020 | <0.000020 | 0.000033 | <0.000040 DLA | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.00010 DLA | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | <0.010 | <0.010 | 0.014 | <0.020 DLA | <0.010 |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.000231 | 0.0000873 | <0.0000050 | <0.000010 DLA | 0.0000160 |
| | Calcium (Ca)-Dissolved (mg/L) | 75.2 | 15.6 | 56.0 | 172 | 93.7 |
| | Chromium (Cr)-Dissolved (mg/L) | 0.00166 | 0.00047 | 0.00107 | 0.00194 | 0.0184 |
| | Cobalt (Co)-Dissolved (mg/L) | 0.00051 | 0.00082 | 0.00147 | 0.0248 | 0.00244 |
| | Copper (Cu)-Dissolved (mg/L) | 0.0145 | 0.00093 | <0.00020 | <0.00040 DLA | 0.00337 |
| | Iron (Fe)-Dissolved (mg/L) | 0.085 | 1.48 | 15.2 | 90.8 | 9.79 |
| | Lead (Pb)-Dissolved (mg/L) | 0.000408 | 0.000576 | 0.000067 | 0.00013 | 0.000254 |
| | Lithium (Li)-Dissolved (mg/L) | <0.0010 | <0.0010 | <0.0010 | <0.0020 DLA | 0.0013 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-27 | L1668494-28 | L1668494-29 | L1668494-30 | L1668494-31 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 03-SEP-15 | 03-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| Sampled Time | 17:15 | | 10:30 | 10:30 | 17:45 |
| Client ID | GSI-PC-05B* | TRAVEL BLANK | MW15-300 | FB15-300 | GSI-HA-01A - DISSOLVED ALKALINITY |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Total Metals** | | | | | |
| Magnesium (Mg)-Total (mg/L) | | <0.10 | | | |
| Manganese (Mn)-Total (mg/L) | | <0.00010 | | | |
| Mercury (Hg)-Total (mg/L) | | <0.0000050 | | | |
| Molybdenum (Mo)-Total (mg/L) | | <0.000050 | | | |
| Nickel (Ni)-Total (mg/L) | | <0.00050 | | | |
| Phosphorus (P)-Total (mg/L) | | <0.050 | | | |
| Potassium (K)-Total (mg/L) | | <0.10 | | | |
| Selenium (Se)-Total (mg/L) | | <0.000050 | | | |
| Silicon (Si)-Total (mg/L) | | <0.050 | | | |
| Silver (Ag)-Total (mg/L) | | <0.000010 | | | |
| Sodium (Na)-Total (mg/L) | | <0.050 | | | |
| Strontium (Sr)-Total (mg/L) | | <0.00020 | | | |
| Sulfur (S)-Total (mg/L) | | <0.50 | | | |
| Thallium (Tl)-Total (mg/L) | | <0.000010 | | | |
| Tin (Sn)-Total (mg/L) | | <0.00010 | | | |
| Titanium (Ti)-Total (mg/L) | | <0.00030 | | | |
| Uranium (U)-Total (mg/L) | | <0.000010 | | | |
| Vanadium (V)-Total (mg/L) | | <0.00050 | | | |
| Zinc (Zn)-Total (mg/L) | | <0.0030 | | | |
| Zirconium (Zr)-Total (mg/L) | | <0.00030 | | | |
| **Dissolved Metals** | | | | | |
| Dissolved Mercury Filtration Location | FIELD | | FIELD | FIELD | |
| Dissolved Metals Filtration Location | FIELD | | FIELD | FIELD | |
| Aluminum (Al)-Dissolved (mg/L) | 0.0177 | | 0.0023 | <0.0010 | |
| Antimony (Sb)-Dissolved (mg/L) | 0.00081 | | 0.00018 | <0.00010 | |
| Arsenic (As)-Dissolved (mg/L) | 0.00230 | | 0.00197 | <0.00010 | |
| Barium (Ba)-Dissolved (mg/L) | 0.0274 | | 0.0924 | <0.000050 | |
| Beryllium (Be)-Dissolved (mg/L) | <0.000020 | | <0.000020 | <0.000020 | |
| Bismuth (Bi)-Dissolved (mg/L) | <0.000050 | | <0.000050 | <0.000050 | |
| Boron (B)-Dissolved (mg/L) | <0.010 | | 0.012 | <0.010 | |
| Cadmium (Cd)-Dissolved (mg/L) | 0.000132 | | 0.0000674 | <0.0000050 | |
| Calcium (Ca)-Dissolved (mg/L) | 36.8 | | 208 | <0.050 | |
| Chromium (Cr)-Dissolved (mg/L) | 0.00013 | | 0.00026 | <0.00010 | |
| Cobalt (Co)-Dissolved (mg/L) | <0.00010 | | <0.00010 | <0.00010 | |
| Copper (Cu)-Dissolved (mg/L) | 0.00200 | | 0.00820 | <0.00020 | |
| Iron (Fe)-Dissolved (mg/L) | 0.018 | | <0.010 | <0.010 | |
| Lead (Pb)-Dissolved (mg/L) | 0.000105 | | <0.000050 | <0.000050 | |
| Lithium (Li)-Dissolved (mg/L) | <0.0010 | | 0.0011 | <0.0010 | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-32 | L1668494-33 | L1668494-34 | L1668494-35 | L1668494-36 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| | Sampled Time | 17:10 | 14:50 | 12:15 | 10:30 | 08:30 |
| | Client ID | GSI-DC-02B - DISSOLVED ALKALINITY | W14103083BH03 - DISSOLVED ALKALINITY | MP09-11 - DISSOLVED ALKALINITY | MW09-24 - DISSOLVED ALKALINITY | W14103083BH02 - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Total Metals** | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | | | | | |
| | Dissolved Metals Filtration Location | | | | | |
| | Aluminum (Al)-Dissolved (mg/L) | | | | | |
| | Antimony (Sb)-Dissolved (mg/L) | | | | | |
| | Arsenic (As)-Dissolved (mg/L) | | | | | |
| | Barium (Ba)-Dissolved (mg/L) | | | | | |
| | Beryllium (Be)-Dissolved (mg/L) | | | | | |
| | Bismuth (Bi)-Dissolved (mg/L) | | | | | |
| | Boron (B)-Dissolved (mg/L) | | | | | |
| | Cadmium (Cd)-Dissolved (mg/L) | | | | | |
| | Calcium (Ca)-Dissolved (mg/L) | | | | | |
| | Chromium (Cr)-Dissolved (mg/L) | | | | | |
| | Cobalt (Co)-Dissolved (mg/L) | | | | | |
| | Copper (Cu)-Dissolved (mg/L) | | | | | |
| | Iron (Fe)-Dissolved (mg/L) | | | | | |
| | Lead (Pb)-Dissolved (mg/L) | | | | | |
| | Lithium (Li)-Dissolved (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-37 | L1668494-38 | L1668494-39 | L1668494-40 | L1668494-41 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 02-SEP-15 | 02-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 11:14 | 14:30 | 15:15 | 13:55 | 13:22 |
| | Client ID | MW09-06 - DISSOLVED ALKALINITY | MP09-09* - DISSOLVED ALKALINITY | GSI-DC-07B - DISSOLVED ALKALINITY | GSI-DC-06B - DISSOLVED ALKALINITY | MW15-500 - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Total Metals** | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | | | | | |
| | Dissolved Metals Filtration Location | | | | | |
| | Aluminum (Al)-Dissolved (mg/L) | | | | | |
| | Antimony (Sb)-Dissolved (mg/L) | | | | | |
| | Arsenic (As)-Dissolved (mg/L) | | | | | |
| | Barium (Ba)-Dissolved (mg/L) | | | | | |
| | Beryllium (Be)-Dissolved (mg/L) | | | | | |
| | Bismuth (Bi)-Dissolved (mg/L) | | | | | |
| | Boron (B)-Dissolved (mg/L) | | | | | |
| | Cadmium (Cd)-Dissolved (mg/L) | | | | | |
| | Calcium (Ca)-Dissolved (mg/L) | | | | | |
| | Chromium (Cr)-Dissolved (mg/L) | | | | | |
| | Cobalt (Co)-Dissolved (mg/L) | | | | | |
| | Copper (Cu)-Dissolved (mg/L) | | | | | |
| | Iron (Fe)-Dissolved (mg/L) | | | | | |
| | Lead (Pb)-Dissolved (mg/L) | | | | | |
| | Lithium (Li)-Dissolved (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-42 | L1668494-43 | L1668494-44 | L1668494-45 | L1668494-46 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 09:45 | 09:45 | 09:45 | 14:50 | 13:01 |
| | Client ID | MP09-08 - DISSOLVED ALKALINITY | MW15-400 - DISSOLVED ALKALINITY | FB15-400 - DISSOLVED ALKALINITY | GSI-DC-09B - DISSOLVED ALKALINITY | GSI-DC-10B - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Total Metals** | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | | | | | |
| | Dissolved Metals Filtration Location | | | | | |
| | Aluminum (Al)-Dissolved (mg/L) | | | | | |
| | Antimony (Sb)-Dissolved (mg/L) | | | | | |
| | Arsenic (As)-Dissolved (mg/L) | | | | | |
| | Barium (Ba)-Dissolved (mg/L) | | | | | |
| | Beryllium (Be)-Dissolved (mg/L) | | | | | |
| | Bismuth (Bi)-Dissolved (mg/L) | | | | | |
| | Boron (B)-Dissolved (mg/L) | | | | | |
| | Cadmium (Cd)-Dissolved (mg/L) | | | | | |
| | Calcium (Ca)-Dissolved (mg/L) | | | | | |
| | Chromium (Cr)-Dissolved (mg/L) | | | | | |
| | Cobalt (Co)-Dissolved (mg/L) | | | | | |
| | Copper (Cu)-Dissolved (mg/L) | | | | | |
| | Iron (Fe)-Dissolved (mg/L) | | | | | |
| | Lead (Pb)-Dissolved (mg/L) | | | | | |
| | Lithium (Li)-Dissolved (mg/L) | | | | | |

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-47 | L1668494-48 | L1668494-49 | | |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | | |
| | Sampled Date | 03-SEP-15 | 02-SEP-15 | 02-SEP-15 | | |
| | Sampled Time | 09:45 | 10:30 | 10:30 | | |
| | Client ID | GSI-PC-05B* - DISSOLVED ALKALINITY | MW15-300 - DISSOLVED ALKALINITY | FB15-300 - DISSOLVED ALKALINITY | | |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Total Metals** | Magnesium (Mg)-Total (mg/L) | | | | | |
| | Manganese (Mn)-Total (mg/L) | | | | | |
| | Mercury (Hg)-Total (mg/L) | | | | | |
| | Molybdenum (Mo)-Total (mg/L) | | | | | |
| | Nickel (Ni)-Total (mg/L) | | | | | |
| | Phosphorus (P)-Total (mg/L) | | | | | |
| | Potassium (K)-Total (mg/L) | | | | | |
| | Selenium (Se)-Total (mg/L) | | | | | |
| | Silicon (Si)-Total (mg/L) | | | | | |
| | Silver (Ag)-Total (mg/L) | | | | | |
| | Sodium (Na)-Total (mg/L) | | | | | |
| | Strontium (Sr)-Total (mg/L) | | | | | |
| | Sulfur (S)-Total (mg/L) | | | | | |
| | Thallium (Tl)-Total (mg/L) | | | | | |
| | Tin (Sn)-Total (mg/L) | | | | | |
| | Titanium (Ti)-Total (mg/L) | | | | | |
| | Uranium (U)-Total (mg/L) | | | | | |
| | Vanadium (V)-Total (mg/L) | | | | | |
| | Zinc (Zn)-Total (mg/L) | | | | | |
| | Zirconium (Zr)-Total (mg/L) | | | | | |
| **Dissolved Metals** | Dissolved Mercury Filtration Location | | | | | |
| | Dissolved Metals Filtration Location | | | | | |
| | Aluminum (Al)-Dissolved (mg/L) | | | | | |
| | Antimony (Sb)-Dissolved (mg/L) | | | | | |
| | Arsenic (As)-Dissolved (mg/L) | | | | | |
| | Barium (Ba)-Dissolved (mg/L) | | | | | |
| | Beryllium (Be)-Dissolved (mg/L) | | | | | |
| | Bismuth (Bi)-Dissolved (mg/L) | | | | | |
| | Boron (B)-Dissolved (mg/L) | | | | | |
| | Cadmium (Cd)-Dissolved (mg/L) | | | | | |
| | Calcium (Ca)-Dissolved (mg/L) | | | | | |
| | Chromium (Cr)-Dissolved (mg/L) | | | | | |
| | Cobalt (Co)-Dissolved (mg/L) | | | | | |
| | Copper (Cu)-Dissolved (mg/L) | | | | | |
| | Iron (Fe)-Dissolved (mg/L) | | | | | |
| | Lead (Pb)-Dissolved (mg/L) | | | | | |
| | Lithium (Li)-Dissolved (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-1 | L1668494-2 | L1668494-3 | L1668494-4 | L1668494-6 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| Sampled Time | 17:45 | 17:33 | 17:10 | 15:42 | 14:50 |
| Client ID | GSI-HA-01A | GSI-HA-03A | GSI-DC-02B | MP09-14 | W14103083BH03 |
| **Grouping** **Analyte** | | | | | |
| **WATER** | | | | | |
| **Dissolved Metals** Magnesium (Mg)-Dissolved (mg/L) | | | | 22.8 | 22.7 |
| Manganese (Mn)-Dissolved (mg/L) | | | | 0.344 | 2.03 |
| Mercury (Hg)-Dissolved (mg/L) | | | | 0.0000092 | 0.0000079 |
| Molybdenum (Mo)-Dissolved (mg/L) | | | | 0.00876 | 0.000135 |
| Nickel (Ni)-Dissolved (mg/L) | | | | 0.0169 | 0.00064 |
| Phosphorus (P)-Dissolved (mg/L) | | | | <0.050 | 0.242 |
| Potassium (K)-Dissolved (mg/L) | | | | 48.9 | 1.52 |
| Selenium (Se)-Dissolved (mg/L) | | | | 0.000122 | 0.000196 |
| Silicon (Si)-Dissolved (mg/L) | | | | 3.03 | 10.8 |
| Silver (Ag)-Dissolved (mg/L) | | | | <0.000010 | <0.000010 |
| Sodium (Na)-Dissolved (mg/L) | | | | 22.6 | 8.40 |
| Strontium (Sr)-Dissolved (mg/L) | | | | 0.664 | 0.268 |
| Sulfur (S)-Dissolved (mg/L) | | | | 137 | 42.1 |
| Thallium (Tl)-Dissolved (mg/L) | | | | <0.000010 | <0.000010 |
| Tin (Sn)-Dissolved (mg/L) | | | | 0.00013 | <0.00010 |
| Titanium (Ti)-Dissolved (mg/L) | | | | <0.00030 | 0.00249 |
| Uranium (U)-Dissolved (mg/L) | | | | 0.000247 | 0.000116 |
| Vanadium (V)-Dissolved (mg/L) | | | | <0.00050 | 0.00212 |
| Zinc (Zn)-Dissolved (mg/L) | | | | 0.0126 | 0.0047 |
| Zirconium (Zr)-Dissolved (mg/L) | | | | <0.00030 | 0.00047 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-7 | L1668494-8 | L1668494-9 | L1668494-10 | L1668494-11 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| Sampled Time | 12:59 | 12:15 | 10:30 | 08:45 | 08:30 |
| Client ID | MP09-12 | MP09-11 | MW09-24 | W14103083BH04 | W14103083BH02 |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Dissolved Metals** Magnesium (Mg)-Dissolved (mg/L) | 46.9 | 59.9 | 54.7 | 53.8 | 62.0 |
| Manganese (Mn)-Dissolved (mg/L) | 4.38 | 3.44 | 0.00108 | 0.00272 | 0.0110 |
| Mercury (Hg)-Dissolved (mg/L) | 0.0000105 | 0.0000122 | 0.0000102 | <0.0000050 | <0.0000050 |
| Molybdenum (Mo)-Dissolved (mg/L) | 0.00690 | 0.00408 | 0.000377 | 0.000843 | 0.00125 |
| Nickel (Ni)-Dissolved (mg/L) | 0.00774 | 0.0054 | 0.00055 | 0.00078 | 0.00064 |
| Phosphorus (P)-Dissolved (mg/L) | 0.054 | 0.116 | <0.050 | <0.050 | <0.050 |
| Potassium (K)-Dissolved (mg/L) | 7.15 | 13.3 | 1.66 | 2.98 | 3.69 |
| Selenium (Se)-Dissolved (mg/L) | 0.000096 | 0.00029 | 0.000354 | 0.00249 | 0.000830 |
| Silicon (Si)-Dissolved (mg/L) | 13.2 | 10.6 | 6.18 | 4.98 | 5.30 |
| Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000020 DLA | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Dissolved (mg/L) | 3.93 | 16.4 | 7.87 | 10.4 | 8.91 |
| Strontium (Sr)-Dissolved (mg/L) | 0.517 | 1.04 | 0.681 | 0.736 | 0.776 |
| Sulfur (S)-Dissolved (mg/L) | 47.9 | 16.8 | 117 | 151 | 171 |
| Thallium (Tl)-Dissolved (mg/L) | 0.000182 | 0.000289 | <0.000010 | <0.000010 | <0.000010 |
| Tin (Sn)-Dissolved (mg/L) | <0.00010 | <0.00020 DLA | <0.00010 | <0.00010 | <0.00010 |
| Titanium (Ti)-Dissolved (mg/L) | 0.00031 | 0.00174 | <0.00030 | <0.00030 | <0.00030 |
| Uranium (U)-Dissolved (mg/L) | 0.00127 | 0.000424 | 0.00790 | 0.00933 | 0.00513 |
| Vanadium (V)-Dissolved (mg/L) | 0.00064 | 0.0063 | <0.00050 | 0.00068 | 0.00093 |
| Zinc (Zn)-Dissolved (mg/L) | 0.0472 | 0.0670 | 0.0016 | 0.0037 | 0.0013 |
| Zirconium (Zr)-Dissolved (mg/L) | 0.00030 | 0.00231 | <0.00030 | <0.00030 | <0.00030 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-12 | L1668494-13 | L1668494-14 | L1668494-15 | L1668494-16 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| Sampled Time | 11:14 | 14:30 | 13:13 | 17:15 | 15:15 |
| Client ID | MW09-06 | MP09-09* | MP09-10 | GSI-HA-03A | GSI-DC-07B |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Dissolved Metals** Magnesium (Mg)-Dissolved (mg/L) | 50.1 | 0.78 | 0.28 | | 54.5 |
| Manganese (Mn)-Dissolved (mg/L) | 4.34 | 0.0196 | 0.0691 | | 3.33 |
| Mercury (Hg)-Dissolved (mg/L) | 0.0000095 | 0.0000697 | 0.0000293 | | 0.0000094 |
| Molybdenum (Mo)-Dissolved (mg/L) | 0.00518 | 0.0200 | 0.000840 | | 0.000309 |
| Nickel (Ni)-Dissolved (mg/L) | 0.0027 | 0.0178 | 0.00238 | | 0.00081 |
| Phosphorus (P)-Dissolved (mg/L) | <0.050 | 0.191 | 0.171 | | 0.095 |
| Potassium (K)-Dissolved (mg/L) | 18.5 | 10.4 | 0.99 | | 3.68 |
| Selenium (Se)-Dissolved (mg/L) | <0.00010 DLA | 0.00187 | 0.000558 | | 0.000131 |
| Silicon (Si)-Dissolved (mg/L) | 8.11 | 6.72 | 2.28 | | 8.85 |
| Silver (Ag)-Dissolved (mg/L) | 0.000043 | 0.0110 | 0.000491 | | <0.000010 |
| Sodium (Na)-Dissolved (mg/L) | 24.1 | 27.5 | 1.32 | | 15.7 |
| Strontium (Sr)-Dissolved (mg/L) | 0.698 | 0.173 | 0.0242 | | 0.667 |
| Sulfur (S)-Dissolved (mg/L) | 315 | 155 | 2.51 | | 196 |
| Thallium (Tl)-Dissolved (mg/L) | 0.000333 | 0.000043 | 0.000019 | | <0.000010 |
| Tin (Sn)-Dissolved (mg/L) | <0.00020 DLA | <0.00020 DLA | 0.00026 | | <0.00010 |
| Titanium (Ti)-Dissolved (mg/L) | <0.00060 DLA | <0.00060 DLA | <0.00030 | | <0.0012 DLM |
| Uranium (U)-Dissolved (mg/L) | 0.00162 | 0.000825 | 0.000164 | | 0.000051 |
| Vanadium (V)-Dissolved (mg/L) | <0.0010 DLA | <0.0010 DLA | <0.00050 | | 0.00135 |
| Zinc (Zn)-Dissolved (mg/L) | 0.110 | 0.0125 | 0.0124 | | 0.0010 |
| Zirconium (Zr)-Dissolved (mg/L) | <0.00060 DLA | <0.00060 DLA | <0.00030 | | 0.00035 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-17 | L1668494-18 | L1668494-19 | L1668494-20 | L1668494-21 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| Sampled Time | 13:55 | 13:55 | 09:45 | 09:45 | 09:45 |
| Client ID | GSI-DC-06B | MW15-500 | MP09-08 | MW15-400 | FB15-400 |
| **Grouping** **Analyte** | | | | | |
| **WATER** | | | | | |
| **Dissolved Metals** Magnesium (Mg)-Dissolved (mg/L) | 82.7 | 83.8 | 32.4 | 32.5 | <0.10 |
| Manganese (Mn)-Dissolved (mg/L) | 3.72 | 3.78 | 1.00 | 0.923 | <0.00010 |
| Mercury (Hg)-Dissolved (mg/L) | 0.0000117 | 0.0000203 | <0.0000050 | <0.0000050 | <0.0000050 |
| Molybdenum (Mo)-Dissolved (mg/L) | 0.00249 | 0.00247 | 0.00301 | 0.00320 | <0.000050 |
| Nickel (Ni)-Dissolved (mg/L) | 0.00385 | 0.00367 | 0.00131 | 0.00185 | <0.00050 |
| Phosphorus (P)-Dissolved (mg/L) | 0.301 | 0.317 | <0.050 | <0.050 | <0.050 |
| Potassium (K)-Dissolved (mg/L) | 4.26 | 4.28 | 1.15 | 1.17 | <0.10 |
| Selenium (Se)-Dissolved (mg/L) | 0.000532 | 0.000467 | 0.000066 | 0.000074 | <0.000050 |
| Silicon (Si)-Dissolved (mg/L) | 8.89 | 9.08 | 7.37 | 7.43 | <0.050 |
| Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000050 DLM | <0.000010 | <0.000010 | <0.000010 |
| Sodium (Na)-Dissolved (mg/L) | 19.4 | 19.4 | 7.00 | 6.53 | <0.050 |
| Strontium (Sr)-Dissolved (mg/L) | 0.988 | 1.01 | 1.20 | 1.24 | <0.00020 |
| Sulfur (S)-Dissolved (mg/L) | 8.55 | 7.17 | 65.5 | 65.9 | <0.50 |
| Thallium (Tl)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <0.000010 |
| Tin (Sn)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| Titanium (Ti)-Dissolved (mg/L) | 0.00298 | 0.00318 | 0.00059 | 0.00047 | <0.00030 |
| Uranium (U)-Dissolved (mg/L) | 0.000199 | 0.000188 | 0.00481 | 0.00457 | <0.000010 |
| Vanadium (V)-Dissolved (mg/L) | 0.00784 | 0.00810 | 0.00162 | 0.00108 | <0.00050 |
| Zinc (Zn)-Dissolved (mg/L) | 0.0019 | 0.0012 | <0.0010 | <0.0010 | <0.0010 |
| Zirconium (Zr)-Dissolved (mg/L) | 0.00225 | 0.00231 | <0.00030 | <0.00030 | <0.00030 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | L1668494-22 | L1668494-23 | L1668494-24 | L1668494-25 | L1668494-26 |
|---|---|---|---|---|---|
| Description | Water | Water | Water | Water | Water |
| Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| Sampled Time | 11:10 | 08:30 | 14:50 | 13:01 | 10:50 |
| Client ID | GSI-PC-03B | MP09-03 | GSI-DC-09B | GSI-DC-10B | GSI-PC-04B |
| **Grouping** / **Analyte** | | | | | |
| **WATER** | | | | | |
| **Dissolved Metals** Magnesium (Mg)-Dissolved (mg/L) | 21.1 | 4.23 | 23.4 | 51.7 | 21.6 |
| Manganese (Mn)-Dissolved (mg/L) | 1.05 | 0.325 | 0.706 | 15.5 | 2.71 |
| Mercury (Hg)-Dissolved (mg/L) | <0.0000050 | <0.0000050 | 0.0000166 | 0.0000131 | 0.0000095 |
| Molybdenum (Mo)-Dissolved (mg/L) | 0.00339 | 0.000392 | 0.000296 | 0.00100 | 0.00201 |
| Nickel (Ni)-Dissolved (mg/L) | 0.0190 | 0.00414 | 0.00083 | 0.0065 | 0.0236 |
| Phosphorus (P)-Dissolved (mg/L) | <0.050 | <0.050 | 0.175 | <0.050 | 0.090 |
| Potassium (K)-Dissolved (mg/L) | 1.05 | 1.43 | 2.17 | 3.19 | 1.61 |
| Selenium (Se)-Dissolved (mg/L) | <0.000050 | <0.000050 | 0.000174 | 0.00025 | 0.000051 |
| Silicon (Si)-Dissolved (mg/L) | 6.80 | 1.19 | 7.48 | 8.04 | 10.2 |
| Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | <0.000020 DLA | <0.000010 |
| Sodium (Na)-Dissolved (mg/L) | 5.28 | 1.68 | 20.4 | 28.6 | 6.93 |
| Strontium (Sr)-Dissolved (mg/L) | 0.460 | 0.0928 | 0.175 | 0.639 | 0.513 |
| Sulfur (S)-Dissolved (mg/L) | 34.4 | 3.89 | 61.3 | 214 | 32.7 |
| Thallium (Tl)-Dissolved (mg/L) | 0.000026 | <0.000010 | <0.000010 | <0.000020 DLA | <0.000010 |
| Tin (Sn)-Dissolved (mg/L) | <0.00010 | 0.00012 | <0.00010 | <0.00020 DLA | 0.00016 |
| Titanium (Ti)-Dissolved (mg/L) | <0.00030 | 0.00067 | 0.00429 | 0.00194 | 0.00143 |
| Uranium (U)-Dissolved (mg/L) | 0.000166 | 0.000044 | 0.000172 | 0.000574 | 0.000075 |
| Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.00050 | 0.00609 | 0.0126 | 0.00156 |
| Zinc (Zn)-Dissolved (mg/L) | 0.0182 | 0.0285 | 0.0019 | 0.0104 | 0.0092 |
| Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | <0.00030 | 0.00071 | 0.00135 | 0.00031 |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| Grouping | Analyte | L1668494-27 Water 03-SEP-15 17:15 GSI-PC-05B* | L1668494-28 Water 03-SEP-15 TRAVEL BLANK | L1668494-29 Water 02-SEP-15 10:30 MW15-300 | L1668494-30 Water 02-SEP-15 10:30 FB15-300 | L1668494-31 Water 02-SEP-15 17:45 GSI-HA-01A - DISSOLVED ALKALINITY |
|---|---|---|---|---|---|---|
| **WATER** | | | | | | |
| **Dissolved Metals** | Magnesium (Mg)-Dissolved (mg/L) | 8.87 | | 52.5 | <0.10 | |
| | Manganese (Mn)-Dissolved (mg/L) | 0.0205 | | 0.00127 | <0.00010 | |
| | Mercury (Hg)-Dissolved (mg/L) | 0.0000086 | | 0.0000101 | <0.0000050 | |
| | Molybdenum (Mo)-Dissolved (mg/L) | 0.000186 | | 0.000367 | <0.000050 | |
| | Nickel (Ni)-Dissolved (mg/L) | 0.00062 | | 0.00083 | <0.00050 | |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | | <0.050 | <0.050 | |
| | Potassium (K)-Dissolved (mg/L) | 0.55 | | 1.66 | <0.10 | |
| | Selenium (Se)-Dissolved (mg/L) | <0.000050 | | 0.000305 | <0.000050 | |
| | Silicon (Si)-Dissolved (mg/L) | 6.06 | | 6.15 | <0.050 | |
| | Silver (Ag)-Dissolved (mg/L) | <0.000010 | | <0.000010 | <0.000010 | |
| | Sodium (Na)-Dissolved (mg/L) | 3.07 | | 8.01 | <0.050 | |
| | Strontium (Sr)-Dissolved (mg/L) | 0.249 | | 0.655 | 0.00041 | |
| | Sulfur (S)-Dissolved (mg/L) | 21.5 | | 120 | <0.50 | |
| | Thallium (Tl)-Dissolved (mg/L) | 0.000011 | | <0.000010 | <0.000010 | |
| | Tin (Sn)-Dissolved (mg/L) | <0.00010 | | <0.00010 | <0.00010 | |
| | Titanium (Ti)-Dissolved (mg/L) | 0.00057 | | <0.00030 | <0.00030 | |
| | Uranium (U)-Dissolved (mg/L) | 0.000069 | | 0.00774 | <0.000010 | |
| | Vanadium (V)-Dissolved (mg/L) | 0.00067 | | <0.00050 | <0.00050 | |
| | Zinc (Zn)-Dissolved (mg/L) | 0.0046 | | 0.0019 | <0.0010 | |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | | <0.00030 | <0.00030 | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-32 | L1668494-33 | L1668494-34 | L1668494-35 | L1668494-36 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 | 02-SEP-15 |
| | Sampled Time | 17:10 | 14:50 | 12:15 | 10:30 | 08:30 |
| | Client ID | GSI-DC-02B - DISSOLVED ALKALINITY | W14103083BH03 - DISSOLVED ALKALINITY | MP09-11 - DISSOLVED ALKALINITY | MW09-24 - DISSOLVED ALKALINITY | W14103083BH02 - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Dissolved Metals** | Magnesium (Mg)-Dissolved (mg/L) | | | | | |
| | Manganese (Mn)-Dissolved (mg/L) | | | | | |
| | Mercury (Hg)-Dissolved (mg/L) | | | | | |
| | Molybdenum (Mo)-Dissolved (mg/L) | | | | | |
| | Nickel (Ni)-Dissolved (mg/L) | | | | | |
| | Phosphorus (P)-Dissolved (mg/L) | | | | | |
| | Potassium (K)-Dissolved (mg/L) | | | | | |
| | Selenium (Se)-Dissolved (mg/L) | | | | | |
| | Silicon (Si)-Dissolved (mg/L) | | | | | |
| | Silver (Ag)-Dissolved (mg/L) | | | | | |
| | Sodium (Na)-Dissolved (mg/L) | | | | | |
| | Strontium (Sr)-Dissolved (mg/L) | | | | | |
| | Sulfur (S)-Dissolved (mg/L) | | | | | |
| | Thallium (Tl)-Dissolved (mg/L) | | | | | |
| | Tin (Sn)-Dissolved (mg/L) | | | | | |
| | Titanium (Ti)-Dissolved (mg/L) | | | | | |
| | Uranium (U)-Dissolved (mg/L) | | | | | |
| | Vanadium (V)-Dissolved (mg/L) | | | | | |
| | Zinc (Zn)-Dissolved (mg/L) | | | | | |
| | Zirconium (Zr)-Dissolved (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-37 | L1668494-38 | L1668494-39 | L1668494-40 | L1668494-41 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 02-SEP-15 | 02-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 11:14 | 14:30 | 15:15 | 13:55 | 13:22 |
| | Client ID | MW09-06 - DISSOLVED ALKALINITY | MP09-09* - DISSOLVED ALKALINITY | GSI-DC-07B - DISSOLVED ALKALINITY | GSI-DC-06B - DISSOLVED ALKALINITY | MW15-500 - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Dissolved Metals** | Magnesium (Mg)-Dissolved (mg/L) | | | | | |
| | Manganese (Mn)-Dissolved (mg/L) | | | | | |
| | Mercury (Hg)-Dissolved (mg/L) | | | | | |
| | Molybdenum (Mo)-Dissolved (mg/L) | | | | | |
| | Nickel (Ni)-Dissolved (mg/L) | | | | | |
| | Phosphorus (P)-Dissolved (mg/L) | | | | | |
| | Potassium (K)-Dissolved (mg/L) | | | | | |
| | Selenium (Se)-Dissolved (mg/L) | | | | | |
| | Silicon (Si)-Dissolved (mg/L) | | | | | |
| | Silver (Ag)-Dissolved (mg/L) | | | | | |
| | Sodium (Na)-Dissolved (mg/L) | | | | | |
| | Strontium (Sr)-Dissolved (mg/L) | | | | | |
| | Sulfur (S)-Dissolved (mg/L) | | | | | |
| | Thallium (Tl)-Dissolved (mg/L) | | | | | |
| | Tin (Sn)-Dissolved (mg/L) | | | | | |
| | Titanium (Ti)-Dissolved (mg/L) | | | | | |
| | Uranium (U)-Dissolved (mg/L) | | | | | |
| | Vanadium (V)-Dissolved (mg/L) | | | | | |
| | Zinc (Zn)-Dissolved (mg/L) | | | | | |
| | Zirconium (Zr)-Dissolved (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-42 | L1668494-43 | L1668494-44 | L1668494-45 | L1668494-46 |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | Water | Water |
| | Sampled Date | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 | 03-SEP-15 |
| | Sampled Time | 09:45 | 09:45 | 09:45 | 14:50 | 13:01 |
| | Client ID | MP09-08 - DISSOLVED ALKALINITY | MW15-400 - DISSOLVED ALKALINITY | FB15-400 - DISSOLVED ALKALINITY | GSI-DC-09B - DISSOLVED ALKALINITY | GSI-DC-10B - DISSOLVED ALKALINITY |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Dissolved Metals** | Magnesium (Mg)-Dissolved (mg/L) | | | | | |
| | Manganese (Mn)-Dissolved (mg/L) | | | | | |
| | Mercury (Hg)-Dissolved (mg/L) | | | | | |
| | Molybdenum (Mo)-Dissolved (mg/L) | | | | | |
| | Nickel (Ni)-Dissolved (mg/L) | | | | | |
| | Phosphorus (P)-Dissolved (mg/L) | | | | | |
| | Potassium (K)-Dissolved (mg/L) | | | | | |
| | Selenium (Se)-Dissolved (mg/L) | | | | | |
| | Silicon (Si)-Dissolved (mg/L) | | | | | |
| | Silver (Ag)-Dissolved (mg/L) | | | | | |
| | Sodium (Na)-Dissolved (mg/L) | | | | | |
| | Strontium (Sr)-Dissolved (mg/L) | | | | | |
| | Sulfur (S)-Dissolved (mg/L) | | | | | |
| | Thallium (Tl)-Dissolved (mg/L) | | | | | |
| | Tin (Sn)-Dissolved (mg/L) | | | | | |
| | Titanium (Ti)-Dissolved (mg/L) | | | | | |
| | Uranium (U)-Dissolved (mg/L) | | | | | |
| | Vanadium (V)-Dissolved (mg/L) | | | | | |
| | Zinc (Zn)-Dissolved (mg/L) | | | | | |
| | Zirconium (Zr)-Dissolved (mg/L) | | | | | |

# ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID | L1668494-47 | L1668494-48 | L1668494-49 | | |
|---|---|---|---|---|---|---|
| | Description | Water | Water | Water | | |
| | Sampled Date | 03-SEP-15 | 02-SEP-15 | 02-SEP-15 | | |
| | Sampled Time | 09:45 | 10:30 | 10:30 | | |
| | Client ID | GSI-PC-05B* - DISSOLVED ALKALINITY | MW15-300 - DISSOLVED ALKALINITY | FB15-300 - DISSOLVED ALKALINITY | | |
| **Grouping** | **Analyte** | | | | | |
| **WATER** | | | | | | |
| **Dissolved Metals** | Magnesium (Mg)-Dissolved (mg/L) | | | | | |
| | Manganese (Mn)-Dissolved (mg/L) | | | | | |
| | Mercury (Hg)-Dissolved (mg/L) | | | | | |
| | Molybdenum (Mo)-Dissolved (mg/L) | | | | | |
| | Nickel (Ni)-Dissolved (mg/L) | | | | | |
| | Phosphorus (P)-Dissolved (mg/L) | | | | | |
| | Potassium (K)-Dissolved (mg/L) | | | | | |
| | Selenium (Se)-Dissolved (mg/L) | | | | | |
| | Silicon (Si)-Dissolved (mg/L) | | | | | |
| | Silver (Ag)-Dissolved (mg/L) | | | | | |
| | Sodium (Na)-Dissolved (mg/L) | | | | | |
| | Strontium (Sr)-Dissolved (mg/L) | | | | | |
| | Sulfur (S)-Dissolved (mg/L) | | | | | |
| | Thallium (Tl)-Dissolved (mg/L) | | | | | |
| | Tin (Sn)-Dissolved (mg/L) | | | | | |
| | Titanium (Ti)-Dissolved (mg/L) | | | | | |
| | Uranium (U)-Dissolved (mg/L) | | | | | |
| | Vanadium (V)-Dissolved (mg/L) | | | | | |
| | Zinc (Zn)-Dissolved (mg/L) | | | | | |
| | Zirconium (Zr)-Dissolved (mg/L) | | | | | |

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

# Reference Information

**QC Samples with Qualifiers & Comments:**

| QC Type Description | Parameter | Qualifier | Applies to Sample Number(s) |
|---|---|---|---|
| Method Blank | Conductivity | B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -6, -8, -9 |
| Matrix Spike | Total Kjeldahl Nitrogen | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -24, -25, -27, -28, -29, -30, -6, -8, -9 |
| Matrix Spike | Total Kjeldahl Nitrogen | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -24, -25, -27, -28, -29, -30, -6, -8, -9 |
| Matrix Spike | Sulfate (SO4) | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -24, -25, -26, -27, -29, -30, -6, -8, -9 |
| Matrix Spike | Calcium (Ca)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Iron (Fe)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Magnesium (Mg)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Silicon (Si)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Boron (B)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Total Organic Carbon | MS-B | L1668494-1, -2, -3 |
| Matrix Spike | Total Organic Carbon | MS-B | L1668494-1, -2, -3 |
| Matrix Spike | Arsenic (As)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Total Organic Carbon | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -24, -25, -27, -28, -29, -30, -6, -8, -9 |
| Matrix Spike | Sodium (Na)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Total Inorganic Carbon | MS-B | L1668494-1, -11, -12, -13, -15, -16, -17, -18, -19, -20, -21, -24, -25, -27, -28, -29, -3, -30, -6, -8, -9 |
| Matrix Spike | Total Inorganic Carbon | MS-B | L1668494-1, -11, -12, -13, -15, -16, -17, -18, -19, -20, -21, -24, -25, -27, -28, -29, -3, -30, -6, -8, -9 |
| Matrix Spike | Arsenic (As)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Molybdenum (Mo)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Silicon (Si)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |

# Reference Information

| | Parameter | Qualifier | Applies to Sample Number(s) |
|---|---|---|---|
| Matrix Spike | Sulfur (S)-Dissolved | MS-B | L1668494-10, -11, -12, -13, -14, -16, -17, -18, -19, -20, -21, -22, -23, -24, -25, -26, -27, -29, -30, -4, -6, -7, -8, -9 |
| Matrix Spike | Aluminum (Al)-Total | MS-B | L1668494-28 |
| Matrix Spike | Barium (Ba)-Total | MS-B | L1668494-28 |
| Matrix Spike | Manganese (Mn)-Total | MS-B | L1668494-28 |
| Matrix Spike | Sodium (Na)-Total | MS-B | L1668494-28 |
| Matrix Spike | Strontium (Sr)-Total | MS-B | L1668494-28 |

**Qualifiers for Individual Parameters Listed:**

| Qualifier | Description |
|---|---|
| B | Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable. |
| DLA | Detection Limit adjusted for required dilution |
| DLM | Detection Limit Adjusted due to sample matrix effects. |
| MS-B | Matrix Spike recovery could not be accurately calculated due to high analyte background in sample. |
| RRV | Reported Result Verified By Repeat Analysis |

## Test Method References:

| ALS Test Code | Matrix | Test Description | Method Reference** |
|---|---|---|---|
| **ALK-TITR-VA** | Water | Alkalinity Species by Titration | APHA 2320 Alkalinity |

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

**BE-D-L-CCMS-VA** Water Diss. Be (low) in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**BE-T-L-CCMS-VA** Water Total Be (Low) in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**CARBONS-TIC-VA** Water Total inorganic carbon by CO2 purge APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

**CARBONS-TOC-VA** Water Total organic carbon by combustion APHA 5310B TOTAL ORGANIC CARBON (TOC)

This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)".

**CL-IC-N-WR** Water Chloride in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**CN-FREE-CFA-VA** Water Free Cyanide in water by CFA ASTM 7237

This analysis is carried out using procedures adapted from ASTM Method 7237 "Free Cyanide with Flow Injection Analysis (FIA) Utilizing Gas Diffusion Separation and Amperometric Detection". Free cyanide is determined by in-line gas diffusion at pH 6 with final determination by colourimetric analysis.

**CN-SCN-VA** Water Thiocyanate by Colour APHA 4500-CN CYANIDE

This analysis is carried out using procedures adapted from APHA Method 4500-CN- M "Thiocyanate" Thiocyanate is determined by the ferric nitrate colourimetric method.

**CN-T-CFA-VA** Water Total Cyanide in water by CFA ISO 14403:2002

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

**CN-WAD-CFA-VA** Water Weak Acid Diss. Cyanide in water by CFA APHA 4500-CN CYANIDE

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

**EC-PCT-VA** Water Conductivity (Automated) APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity

# Reference Information

electrode.

**F-IC-N-WR** Water Fluoride in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**HARDNESS-CALC-VA** Water Hardness APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

**HG-D-CVAA-VA** Water Diss. Mercury in Water by CVAAS or CVAFS APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

**HG-T-CVAA-VA** Water Total Mercury in Water by CVAAS or CVAFS EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

**IONBALANCE-VA** Water Ion Balance Calculation APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

**MET-D-CCMS-VA** Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**MET-DIS-LOW-ICP-VA** Water Dissolved Metals in Water by ICPOES EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**MET-T-CCMS-VA** Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

**MET-TOT-LOW-ICP-VA** Water Total Metals in Water by ICPOES EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

**NH3-F-VA** Water Ammonia in Water by Fluorescence APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NH3-F-VA** Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

**NO2-L-IC-N-WR** Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**NO3-L-IC-N-WR** Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H "pH Value"

# Reference Information

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**PH-PCT-VA** Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

**S-DIS-ICP-VA** Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**S-TOT-ICP-VA** Water Total Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

**S2-T-COL-VA** Water Total Sulphide by Colorimetric APHA 4500-S2 Sulphide

This analysis is carried out using procedures adapted from APHA Method 4500-S2 "Sulphide". Sulphide is determined using the methlyene blue colourimetric method.

**SO4-IC-N-WR** Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

**TKN-F-VA** Water TKN in Water by Fluorescence APHA 4500-NORG D.

This analysis is carried out using procedures adapted from APHA Method 4500-Norg D. "Block Digestion and Flow Injection Analysis". Total Kjeldahl Nitrogen is determined using block digestion followed by Flow-injection analysis with fluorescence detection.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

*The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:*

| Laboratory Definition Code | Laboratory Location |
|---|---|
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

**Chain of Custody Numbers:**

1-1343-005.11-2-2 1-1343-005.11-2-3 1-1343-055.11-2-1

# Reference Information

**GLOSSARY OF REPORT TERMS**

*Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.*
*mg/kg - milligrams per kilogram based on dry weight of sample.*
*mg/kg wwt - milligrams per kilogram based on wet weight of sample.*
*mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.*
*mg/L - milligrams per litre.*
*< - Less than.*
*D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).*
*N/A - Result not available. Refer to qualifier code and definition for explanation.*

*Test results reported relate only to the samples as received by the laboratory.*
*UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.*
*Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.*

ALS Environmental

www.alsglobal.com

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1668494-COFC

COC Number: 1 - 1343-005.11-2

Page 1 of 3

| Report To | | Report Format / Distribution | Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) |
|---|---|---|---|
| Company: | Hemmera Environchem Inc. | Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL) | R ☑ Regular (Standard TAT if received by 3 pm - business days) |
| Contact: | Natasha Sandys | Quality Control (QC) Report with Report ☑ Yes ☐ No | P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT |
| Address: | 230 - 2237 2nd Avenue<br>Whitehorse, YT | ☐ Criteria on Report - provide details below if box checked<br>Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX | E [redacted]<br>E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge |
| Phone: | 867-456-4865 | Email 1 or Fax nsandys@hemmera.com, rmartinka@hemmera.com | Specify Date Required for E2,E or P: |
| | | Email 2 chris@elr.ca | |

| Invoice To | | Invoice Distribution | Analysis Request |
|---|---|---|---|
| | Same as Report To ☑ Yes ☐ No | Select Invoice Distribution: ☑ EMAIL ☑ MAIL ☐ FAX | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below |
| | Copy of Invoice with Report ☐ Yes ☑ No | | |
| Company: | Hemmera Environchem Inc. | Email 1 or Fax nsandys@hemmera.com | |
| Contact: | Natasha Sandys | Email 2 chris@elr.ca | |

| Project Information | | Oil and Gas Required Fields (client use) | |
|---|---|---|---|
| ALS Quote #: | Q50588 | Approver ID: | Cost Center: |
| Job #: | 1343-005.11 | GL Account: | Routing Code: |
| PO / AFE: | | Activity Code: | |
| LSD: | | Location: | |

**ALS Lab Work Order # (lab use only):** | **ALS Contact:** | **Sampler:** RM, JC, AN, MN

**Short Holding Time** *Rush Processing*

| ALS Sample # (lab use only) | Sample Identification and/or Coor (This description will appear on the | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | F/P Dissolved Metals, Hardness | F/P Dissolved Mercury | Nitrate, Nitrite, Total Kjeldahl N (TKN) | Cl, Fl, Sulfate, conductivity, pH, alkalinity | Anion Sum, Cation Sum, Cation/Anion Balan | P Cyanide - Weak Acid Diss., Total, Free | P Ammonia N (total), Total Organic Carbon | P Thiocyanate (SCN) | P Sulphide as S | Total Inorganic Carbon | F Dissolved Alkalinity | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | GSI-HA-01A | 02/09/2015 | 17:45 | Water | | | | | | R | R | R | R | R | R | | | 6 |
| | GSI-HA-03A | 02/09/2015 | 17:33 | Water | | | | | | R | R | R | | | | | | 3 |
| | GSI-DC-02B | 02/09/2015 | 17:10 | Water | | | | | | R | R | R | R | R | R | | | 6 |
| | MP09-14 | 02/09/2015 | 15:42 | Water | R | R | | | | | | | | | | | | 2 |
| | W14103083BH03 | 02/09/2015 | 14:50 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | MP09-12 | 02/09/2015 | 12:59 | Water | R | R | | | | | | | | | | | | 2 |
| | MP09-11 | 02/09/2015 | 12:15 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | MW09-24 | 02/09/2015 | 10:30 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | W14103083BH04 | 02/09/2015 | 8:45 | Water | R | R | R | R | R | R | R | | | | | | | 5 |
| | W14103083BH02 | 02/09/2015 | 8:30 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | MW09-06 | 02/09/2015 | 11:14 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | MP09-09* | 02/09/2015 | 14:30 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |

| Drinking Water (DW) Samples[1] (client use) | Special Instructions / Specify Criteria to add on report (client Use) | SAMPLE CONDITION AS RECEIVED (lab use only) |
|---|---|---|
| Are samples taken from a Regulated DW System? ☐ Yes ☑ No<br>Are samples for human drinking water use? ☐ Yes ☑ No | - See attached parameter sheet for list of full parameters and metals required.<br>-Sample MP09-14 Dissolved Metals has low quantity. | Frozen ☐ SIF Observations Yes ☐ No ☐<br>Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐<br>Cooling Initiated ☐ |

| INITIAL COOLER TEMPERATURES °C | | | FINAL COOLER TEMPERATURES °C | | |
|---|---|---|---|---|---|
| 4.5, 3.2 | 4.2, 4.2 | | 8.2 | 10 | 6.5 |

| SHIPMENT RELEASE (client use) | | | INITIAL SHIPMENT RECEPTION (lab use only) | | | FINAL SHIPMENT RECEPTION (lab use only) | | |
|---|---|---|---|---|---|---|---|---|
| Released by: Julia Harris | Date: 01/09/15 | Time: 13:10 | Received by: [signature] | Date: 4 Sept 15 | Time: 1320 | Received by: PAUL | Date: SEP 5 | Time: 12:52 |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0328e v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

# Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L1668494-COFC

COC Number: 1 - 1343-005.11-2

Page 3 of 3

| Report To | | Report Format / Distribution | Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) |
|---|---|---|---|
| Company: | Hemmera Environchem Inc. | Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL) | R ☑ Regular (Standard TAT if received by 3 pm - business days) |
| Contact: | Natasha Sandys | Quality Control (QC) Report with Report ☑ Yes ☐ No | P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT |
| Address: | 230 - 2237 2nd Avenue<br>Whitehorse, YT | ☐ Criteria on Report - provide details below if box checked | E [redacted] |
| Phone: | 867-456-4865 | Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX | E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge |
| | | Email 1 or Fax nsandys@hemmera.com, rmartinka@hemmera.com | Specify Date Required for E2,E or P: |
| | | Email 2 chris@elr.ca | |

| Invoice To | Same as Report To ☑ Yes ☐ No | Invoice Distribution | Analysis Request |
|---|---|---|---|
| | Copy of Invoice with Report ☐ Yes ☑ No | Select Invoice Distribution: ☑ EMAIL ☑ MAIL ☐ FAX | Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below |
| Company: | Hemmera Environchem Inc. | Email 1 or Fax nsandys@hemmera.com | |
| Contact: | Natasha Sandys | Email 2 chris@elr.ca | |

| Project Information | | Oil and Gas Required Fields (client use) | |
|---|---|---|---|
| ALS Quote #: | Q50588 | Approver ID: | Cost Center: |
| Job #: | 1343-005.11 | GL Account: | Routing Code: |
| PO / AFE: | | Activity Code: | |
| LSD: | | Location: | |

| ALS Lab Work Order # (lab use only) | | ALS Contact: | Sampler: RM, JC, AN, MN |
|---|---|---|---|

| ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | Dissolved Metals, Hardness | Dissolved Mercury | Nitrate, Nitrite, Total Kjeldahl N (TKN) | Cl, Fl, Sulfate, conductivity, pH, alkalinity | Anion Sum, Cation Sum, Cation/Anion Balan | Cyanide - Weak Acid Diss., Total, Free | Ammonia N (total), Total Organic Carbon | Thiocyanate (SCN) | Sulphide as S | Total Inorganic Carbon | Dissolved Alkalinity | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | F/P | F/P | | | | P | P | P | P | | F | | | |
| | MW09-10 | 02/09/2015 | 13:13 | Water | R | R | R | R | R | R | R | R | | | | | | 6 |
| | GSI-HA-03A | 03/09/2015 | 17:15 | Water | | | | | | | | | R | R | | | | 2 |
| | GSI-DC-07B | 03/09/2015 | 15:15 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | GSI-DC-06B | 03/09/2015 | 13:55 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | MW15-500 | 03/09/2015 | 13:55 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | MP09-08 | 03/09/2015 | 9:45 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | MW15-400 | 03/09/2015 | 9:45 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | FB15-400 | 03/09/2015 | 9:45 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | GSI-PC-03B | 03/09/2015 | 11:10 | Water | R | R | | | | R | | | | | | | | 3 |
| | MP09-03 | 03/09/2015 | 8:30 | Water | R | R | | | | | | | | | | | | 2 |
| | GSI-DC-09B | 03/09/2015 | 14:50 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | GSI-DC-10B | 03/09/2015 | 13:01 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |

| Drinking Water (DW) Samples[1] (client use) | Special Instructions / Specify Criteria to add on report (client Use) | SAMPLE CONDITION AS RECEIVED (lab use only) |
|---|---|---|
| Are samples taken from a Regulated DW System? ☐ Yes ☑ No | - See attached parameter sheet for list of full parameters and metals required. | Frozen ☐ SIF Observations Yes ☐ No ☐ |
| Are samples for human drinking water use? ☐ Yes ☑ No | | Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐ |
| | | Cooling Initiated ☐ |

| INITIAL COOLER TEMPERATURES °C | | | FINAL COOLER TEMPERATURES °C | | |
|---|---|---|---|---|---|
| 45.32 | 42.42 | | | | |

| SHIPMENT RELEASE (client use) | | | INITIAL SHIPMENT RECEPTION (lab use only) | | | FINAL SHIPMENT RECEPTION (lab use only) | | |
|---|---|---|---|---|---|---|---|---|
| Released by: Justin Hains | Date: 04/09/15 | Time: 13:10 | Received by: Shyamo | Date: 9Sep15 | Time: 1320 | Received by: | Date: | Time: |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-PM-0326a v09 Front/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental

www.alsglobal.com

# Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L1668494-COFC

COC Number: 1 - 1343-005.11-2

Page 3 of 3

| Report To | | Report Format / Distribution | Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) |
|---|---|---|---|
| Company: | Hemmera Environchem Inc. | Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL) | R ☑ Regular (Standard TAT if received by 3 pm - business days) |
| Contact: | Natasha Sandys | Quality Control (QC) Report with Report ☑ Yes ☐ No | P ☐ Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT |
| Address: | 230 - 2237 2nd Avenue<br>Whitehorse, YT | ☐ Criteria on Report - provide details below if box checked | E [redacted] |
| Phone: | 867-456-4865 | Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX | E2 ☐ Same day or weekend emergency - contact ALS to confirm TAT and surcharge |
| | | Email 1 or Fax nsandys@hemmera.com, rmartinka@hemmera.com | Specify Date Required for E2,E or P: |
| | | Email 2 chris@elr.ca | |

| Invoice To | Same as Report To ☑ Yes ☐ No | Invoice Distribution |
|---|---|---|
| | Copy of Invoice with Report ☐ Yes ☑ No | Select Invoice Distribution: ☑ EMAIL ☑ MAIL ☐ FAX |
| Company: | Hemmera Environchem Inc. | Email 1 or Fax nsandys@hemmera.com |
| Contact: | Natasha Sandys | Email 2 chris@elr.ca |

| Project Information | | Oil and Gas Required Fields (client use) | |
|---|---|---|---|
| ALS Quote #: | Q50588 | Approver ID: | Cost Center: |
| Job #: | 1343-005.11 | GL Account: | Routing Code: |
| PO / AFE: | | Activity Code: | |
| LSD: | | Location: | |

**ALS Lab Work Order # (lab use only):**

**ALS Contact:**

**Sampler:** RM, JC, AN, MN

**Analysis Request**

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

| ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | F/P Dissolved Metals, Hardness | F/P Dissolved Mercury | Nitrate, Nitrite, Total Kjeldahl N (TKN) | Cl, Fl, Sulfate, conductivity, pH, alkalinity | Anion Sum, Cation Sum, Calion/Anion Balan | P Cyanide - Weak Acid Diss., Total, Free | P Ammonia N (total), Total Organic Carbon | P Thiocyanate (SCN) | P Sulphide as S | Total Inorganic Carbon | F Dissolved Alkalinity | | | Number of Containers |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | GSI-PC-04B | 03/09/2015 | 10:50 | Water | R | R | R | R | R | | | | | | | | | 3 |
| | GSI-PC-05B* | 03/09/2015 | 9:45 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | Travel Blank | 03/09/2015 | | | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | MW15-300 | 02/09/2015 | 10:30 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | FB15-300 | 02/09/2015 | 10:30 | Water | R | R | R | R | R | R | R | R | R | R | R | | | 9 |
| | | | | | | | | | | | | | | | | | | |
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**Drinking Water (DW) Samples[1] (client use)**

Are samples taken from a Regulated DW System?
☐ Yes ☑ No

Are samples for human drinking water use?
☐ Yes ☑ No

**Special Instructions / Specify Criteria to add on report (client Use)**

- See attached parameter sheet for list of full parameters and metals required.

**SAMPLE CONDITION AS RECEIVED (lab use only)**

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice packs Yes ☐ No ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

| INITIAL COOLER TEMPERATURES °C | | | FINAL COOLER TEMPERATURES °C | | |
|---|---|---|---|---|---|
| 4.5 | 3.2 | 4.2 | 4.2 | | |

| SHIPMENT RELEASE (client use) | | | INITIAL SHIPMENT RECEPTION (lab use only) | | | FINAL SHIPMENT RECEPTION (lab use only) | | |
|---|---|---|---|---|---|---|---|---|
| Released by: Justin Harris | Date: 04/09/15 | Time: 13:10 | Received by: [signature] | Date: 4 Sept 15 | Time: 1320 | Received by: | Date: | Time: |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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NA-FM-0328r-v09 Front/04 January 2014

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