

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

# Methods: 106

Sample # 160512

Statistical Summary

# Labs Reporting: 72

Micros

Issue Date : 06/30/2016

| Method Code | Analyte & Method                                           | # Tests Submitted | # Tests in Robust Calculations | Raw Mean | Raw SD | Assigned Value Robust Mean | IA at Analyte Value | Robust sd | Robust Uncertainty (U) | Robust % RSD | IA %RSD | Average Range (R-bar) | Horwitz %RSD |
|-------------|------------------------------------------------------------|-------------------|--------------------------------|----------|--------|----------------------------|---------------------|-----------|------------------------|--------------|---------|-----------------------|--------------|
| 001.99      | Ammoniacal Nitrogen, Other (%)                             | 1                 |                                | 0.7550   |        |                            |                     |           |                        |              |         |                       |              |
| 010.60      | Total Nitrogen, Combustion (%)                             | 6                 | 6                              | 2.448    | 0.1244 | 2.462                      |                     | 0.1071    | 0.0437                 | 4.35%        |         | 0.0406                | 3.49%        |
| 020.40      | Total Phosphorus as P2O5, Automated (%)                    | 1                 |                                | 0.5000   |        |                            |                     |           |                        |              |         |                       |              |
| 020.50      | Total Phosphorus as P2O5, ICP (%)                          | 1                 |                                | 0.4100   |        |                            |                     |           |                        |              |         |                       |              |
| 030.40      | Citrate Insoluble Phosphorus as P2O5, Automated, t... (%)  | 1                 |                                | 0.2100   |        |                            |                     |           |                        |              |         |                       |              |
| 040.40      | Indirect Available Phosphorus as P2O5, Automated (%)       | 1                 |                                | 0.2900   |        |                            |                     |           |                        |              |         |                       |              |
| 041.50      | Direct Available Phosphorus as P2O5, ICP (%)               | 1                 |                                | 0.1000   |        |                            |                     |           |                        |              |         |                       |              |
| 041.60      | Direct Available Phosphorus as P2O5, Citrate-EDTA ... (%)  | 1                 |                                | 0.1310   |        |                            |                     |           |                        |              |         |                       |              |
| 048.40      | Water Soluble Phosphorus as P2O5, Automated (%)            | 1                 |                                | 0.0550   |        |                            |                     |           |                        |              |         |                       |              |
| 050.51      | Soluble Potassium as K2O, ICP (Citrate) (%)                | 1                 |                                | 0.7350   |        |                            |                     |           |                        |              |         |                       |              |
| 050.52      | Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)           | 1                 |                                | 0.9570   |        |                            |                     |           |                        |              |         |                       |              |
| 050.99      | Soluble Potassium as K2O, Other (%)                        | 5                 | 5                              | 0.7150   | 0.1778 | 0.7150                     |                     | 0.1778    | 0.0795                 | 24.87%       |         | 0.0540                | 4.21%        |
| 060.00      | Water (Free), Vacuum Oven (%)                              | 2                 | 2                              | 1.616    | 0.0412 |                            |                     |           |                        |              |         |                       |              |
| 101.00      | Acid Soluble Calcium, AA, inorganic 965.09 (%)             | 3                 | 3                              | 1.855    | 0.3166 | 1.855                      |                     | 0.3166    | 0.1828                 | 17.06%       |         | 0.0387                | 3.64%        |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorganic ... (%)  | 9                 | 8                              | 1.706    | 0.0995 | 1.706                      |                     | 0.1128    | 0.0399                 | 6.61%        |         | 0.0294                | 3.69%        |
| 101.33      | Acid Soluble Calcium, ICP, test portion 2006.03A-C... (%)  | 2                 | 2                              | 1.696    | 0.0452 |                            |                     |           |                        |              |         |                       |              |
| 101.99      | Acid Soluble Calcium, Other (%)                            | 1                 |                                | 1.560    |        |                            |                     |           |                        |              |         |                       |              |
| 121.00      | Acid Soluble Magnesium, AA, inorganic 965.09 (%)           | 2                 | 2                              | 1.603    | 0.0113 |                            |                     |           |                        |              |         |                       |              |
| 121.30      | Acid Soluble Magnesium, ICP, test portion inorgani... (%)  | 9                 | 8                              | 1.548    | 0.0812 | 1.548                      |                     | 0.0920    | 0.0325                 | 5.94%        |         | 0.0131                | 3.75%        |
| 121.33      | Acid Soluble Magnesium, ICP, test portion 2006.03A... (%)  | 3                 | 3                              | 1.472    | 0.1183 | 1.472                      |                     | 0.1183    | 0.0683                 | 8.04%        |         | 0.1281                | 3.77%        |
| 121.99      | Acid Soluble Magnesium, Other (%)                          | 1                 |                                | 1.600    |        |                            |                     |           |                        |              |         |                       |              |
| 143.00      | Elemental Sulfur, Gravimetric Sulfur - carbon disu... (%)  | 1                 |                                | 11.68    |        |                            |                     |           |                        |              |         |                       |              |
| 143.99      | Elemental Sulfur, Other (%)                                | 2                 | 2                              | 11.93    | 3.348  |                            |                     |           |                        |              |         |                       |              |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulfur - ... (%)  | 7                 | 6                              | 11.34    | 0.7321 | 11.34                      |                     | 0.8302    | 0.3389                 | 7.32%        |         | 0.0950                | 2.78%        |
| 145.99      | Sulfate Sulfur, HCl soluble, Other (%)                     | 3                 | 3                              | 11.78    | 0.7087 | 11.78                      |                     | 0.7087    | 0.4092                 | 6.01%        |         | 0.2133                | 2.76%        |
| 146.00      | Total Sulfur in Liquid, Gravimetric - sulfate, sul... (%)  | 1                 |                                | 11.45    |        |                            |                     |           |                        |              |         |                       |              |
| 148.00      | Total Sulfur, Combustion (9%)                              | 9                 | 9                              | 13.02    | 0.5995 | 13.02                      | 0.8048              | 0.6798    | 0.2266                 | 5.22%        | 3.09%   | 0.2844                | 2.72%        |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elemental... (9%)  | 16                | 16                             | 12.00    | 0.9813 | 11.86                      | 0.8048              | 0.6674    | 0.1668                 | 5.63%        | 3.39%   | 0.1914                | 2.76%        |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03 modi... (9%) | 13                | 13                             | 11.52    | 1.359  | 11.53                      | 0.8048              | 1.519     | 0.4214                 | 13.18%       | 3.49%   | 0.2722                | 2.77%        |
| 148.99      | Total Sulfur, Other (9%)                                   | 9                 | 9                              | 12.14    | 1.391  | 12.15                      | 0.8048              | 1.555     | 0.5182                 | 12.80%       | 3.31%   | 0.5507                | 2.75%        |
| 149.04      | Sulfur - HNO3 soluble, ICP (%)                             | 2                 | 2                              | 10.90    | 2.465  |                            |                     |           |                        |              |         |                       |              |

| Method Code | Analyte & Method                                            | # Tests Submitted | # Tests in Robust Calculations | Raw Mean | Raw SD | Assigned Value Robust Mean | IA at Analyte Value | Robust sd | Robust Uncertainty (U) | Robust % RSD | IA %RSD | Average Range (R-bar) | Horwitz %RSD |
|-------------|-------------------------------------------------------------|-------------------|--------------------------------|----------|--------|----------------------------|---------------------|-----------|------------------------|--------------|---------|-----------------------|--------------|
| 151.00      | Acid Soluble Arsenic , AA, test portion as in 2006... (ppm) | 1                 |                                | 6.400    |        |                            |                     |           |                        |              |         |                       |              |
| 151.30      | Acid Soluble Arsenic , ICP (ppm)                            | 4                 | 4                              | 5.847    | 0.6248 | 5.847                      |                     | 0.6248    | 0.3124                 | 10.69%       |         | 0.1650                | 12.26%       |
| 151.33      | Acid Soluble Arsenic , ICP, 2006.03 modified w/9:3... (ppm) | 1                 |                                | 5.720    |        |                            |                     |           |                        |              |         |                       |              |
| 151.34      | Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)           | 1                 |                                | 9.405    |        |                            |                     |           |                        |              |         |                       |              |
| 151.99      | Acid Soluble Arsenic , Other (ppm)                          | 2                 | 2                              | 5.095    | 3.458  |                            |                     |           |                        |              |         |                       |              |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)                | 11                | 11                             | 0.9111   | 0.2636 | 0.9656                     | 0.1602              | 0.1308    | 0.0394                 | 13.54%       | 8.30%   | 0.0248                | 4.02%        |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982.01 (1%)       | 20                | 20                             | 1.084    | 0.1399 | 1.062                      | 0.1602              | 0.0882    | 0.0197                 | 8.30%        | 7.54%   | 0.0365                | 3.96%        |
| 165.99      | Acid Soluble Boron , Other (1%)                             | 16                | 16                             | 1.080    | 0.0749 | 1.086                      | 0.1602              | 0.0698    | 0.0174                 | 6.42%        | 7.37%   | 0.0346                | 3.95%        |
| 171.99      | Water Soluble Boron , Other (%)                             | 2                 | 2                              | 1.036    | 0.0156 |                            |                     |           |                        |              |         |                       |              |
| 181.00      | Acid Soluble Cadmium , AA, test portion as in 2006... (ppm) | 2                 | 2                              | 13.30    | 5.586  |                            |                     |           |                        |              |         |                       |              |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                            | 8                 | 8                              | 9.044    | 1.902  | 9.044                      |                     | 2.157     | 0.7627                 | 23.85%       |         | 0.5335                | 11.48%       |
| 181.33      | Acid Soluble Cadmium , ICP, 2006.03 modified w/9:3... (ppm) | 2                 | 2                              | 10.62    | 1.248  |                            |                     |           |                        |              |         |                       |              |
| 181.34      | Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppm)           | 1                 |                                | 10.20    |        |                            |                     |           |                        |              |         |                       |              |
| 181.99      | Acid Soluble Cadmium , Other (ppm)                          | 3                 | 3                              | 7.657    | 4.494  | 7.657                      |                     | 4.494     | 2.594                  | 58.69%       |         | 0.2933                | 11.78%       |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                           | 8                 | 8                              | 224.4    | 45.53  | 229.5                      |                     | 39.05     | 13.81                  | 17.01%       |         | 9.928                 | 7.06%        |
| 191.33      | Acid Soluble Chromium , ICP, 2006.03 modified w/9:... (ppm) | 2                 | 2                              | 288.2    | 8.351  |                            |                     |           |                        |              |         |                       |              |
| 191.34      | Acid Soluble Chromium , ICP, EPA 3050B/6010C (ppm)          | 1                 |                                | 243.5    |        |                            |                     |           |                        |              |         |                       |              |
| 191.99      | Acid Soluble Chromium , Other (ppm)                         | 3                 | 3                              | 190.2    | 88.06  | 190.2                      |                     | 88.06     | 50.84                  | 46.29%       |         | 5.167                 | 7.26%        |
| 202.00      | Acid Soluble Cobalt , AA, test portion as in 2006.... (ppm) | 1                 |                                | 18.50    |        |                            |                     |           |                        |              |         |                       |              |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                             | 8                 | 8                              | 15.70    | 5.549  | 15.70                      |                     | 6.293     | 2.225                  | 40.08%       |         | 0.7409                | 10.57%       |
| 202.33      | Acid Soluble Cobalt , ICP, 2006.03 modified w/9:3 ... (ppm) | 2                 | 2                              | 23.14    | 0.6965 |                            |                     |           |                        |              |         |                       |              |
| 202.34      | Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)            | 1                 |                                | 19.45    |        |                            |                     |           |                        |              |         |                       |              |
| 202.99      | Acid Soluble Cobalt , Other (ppm)                           | 3                 | 3                              | 12.31    | 11.19  | 12.31                      |                     | 11.19     | 6.463                  | 90.92%       |         | 0.1367                | 10.96%       |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)             | 11                | 11                             | 1.778    | 0.2017 | 1.797                      | 0.1888              | 0.1820    | 0.0549                 | 10.13%       | 5.25%   | 0.0358                | 3.66%        |
| 221.03      | Acid Soluble Copper , AA, 965.09, test portion 200... (1%)  | 1                 |                                | 1.787    |        |                            |                     |           |                        |              |         |                       |              |
| 221.30      | Acid Soluble Copper , ICP, test portion inorganic ... (1%)  | 29                | 29                             | 1.833    | 0.2007 | 1.862                      | 0.1888              | 0.1087    | 0.0202                 | 5.84%        | 5.07%   | 0.0666                | 3.64%        |
| 221.31      | Acid Soluble Copper , ICP, test portion organic 96... (1%)  | 1                 |                                | 1.745    |        |                            |                     |           |                        |              |         |                       |              |
| 221.32      | Acid Soluble Copper , ICP, test portion 2006.03A-C... (1%)  | 1                 |                                | 98.47    |        |                            |                     |           |                        |              |         |                       |              |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006.03A-C... (1%)  | 10                | 10                             | 1.821    | 0.1847 | 1.816                      | 0.1888              | 0.1723    | 0.0545                 | 9.49%        | 5.20%   | 0.0624                | 3.66%        |
| 221.99      | Acid Soluble Copper , Other (1%)                            | 6                 | 6                              | 4.639    | 7.312  | 1.848                      | 0.1888              | 0.6404    | 0.2614                 | 34.64%       | 5.11%   | 0.0455                | 3.65%        |
| 241.00      | Acid Soluble Iron , AA, inorganic 965.09 (%)                | 2                 | 2                              | 6.605    | 0.1340 |                            |                     |           |                        |              |         |                       |              |
| 241.30      | Acid Soluble Iron , ICP, test portion inorganic 965... (%)  | 12                | 11                             | 5.758    | 1.763  | 6.254                      |                     | 0.7843    | 0.2365                 | 12.54%       |         | 0.1707                | 3.04%        |
| 241.33      | Acid Soluble Iron , ICP, test portion 2006.03A-C, w... (%)  | 3                 | 3                              | 4.740    | 3.073  | 4.740                      |                     | 3.073     | 1.774                  | 64.83%       |         | 0.2202                | 3.16%        |
| 241.99      | Acid Soluble Iron , Other (%)                               | 1                 |                                | 6.190    |        |                            |                     |           |                        |              |         |                       |              |
| 251.00      | Acid Soluble Lead , AA, test portion as in 2006.03... (ppm) | 2                 | 2                              | 62.68    | 47.13  |                            |                     |           |                        |              |         |                       |              |
| 251.30      | Acid Soluble Lead , ICP (ppm)                               | 8                 | 8                              | 92.07    | 49.49  | 92.41                      |                     | 45.44     | 16.06                  | 49.17%       |         | 11.63                 | 8.09%        |
| 251.33      | Acid Soluble Lead , ICP, 2006.03 modified w/9:3 HN... (ppm) | 2                 | 2                              | 102.2    | 6.215  |                            |                     |           |                        |              |         |                       |              |
| 251.34      | Acid Soluble Lead , ICP, EPA 3050B/6010C (ppm)              | 1                 |                                | 103.0    |        |                            |                     |           |                        |              |         |                       |              |
| 251.99      | Acid Soluble Lead , Other (ppm)                             | 4                 | 4                              | 88.77    | 47.11  | 88.77                      |                     | 47.11     | 23.56                  | 53.07%       |         | 2.134                 | 8.14%        |
| 261.00      | Acid Soluble Manganese , AA, Mn2+ only (4%)                 | 2                 | 2                              | 4.210    | 0.0849 |                            |                     |           |                        |              |         |                       |              |
| 261.11      | Acid Soluble Manganese , AA, total Mn (4%)                  | 3                 | 3                              | 3.955    | 0.1222 | 3.955                      | 0.4217              | 0.1222    | 0.0705                 | 3.09%        | 5.33%   | 0.1167                | 3.25%        |
| 261.12      | Acid Soluble Manganese , AA, inorganic 965.09 (4%)          | 6                 | 6                              | 4.082    | 0.1624 | 4.082                      | 0.4217              | 0.1841    | 0.0752                 | 4.51%        | 5.17%   | 0.0925                | 3.24%        |

| Method Code | Analyte & Method                                            | # Tests Submitted | # Tests in Robust Calculations | Raw Mean | Raw SD | Assigned Value Robust Mean | IA at Analyte Value | Robust sd | Robust Uncertainty (U) | Robust % RSD | IA %RSD | Average Range (R-bar) | Horwitz %RSD |
|-------------|-------------------------------------------------------------|-------------------|--------------------------------|----------|--------|----------------------------|---------------------|-----------|------------------------|--------------|---------|-----------------------|--------------|
| 261.13      | Acid Soluble Manganese , AA, organic 965.09 (4%)            | 1                 |                                | 3.910    |        |                            |                     |           |                        |              |         |                       |              |
| 261.14      | Acid Soluble Manganese , AA, 965.09, test portion ... (4%)  | 1                 |                                | 4.010    |        |                            |                     |           |                        |              |         |                       |              |
| 261.30      | Acid Soluble Manganese , ICP, test portion 972.02a (4%)     | 21                | 20                             | 4.176    | 0.3136 | 4.185                      | 0.4217              | 0.2508    | 0.0561                 | 5.99%        | 5.04%   | 0.0842                | 3.22%        |
| 261.31      | Acid Soluble Manganese , ICP, test portion 972.02b (4%)     | 3                 | 3                              | 4.453    | 0.3022 | 4.453                      | 0.4217              | 0.3022    | 0.1745                 | 6.79%        | 4.73%   | 0.0733                | 3.19%        |
| 261.32      | Acid Soluble Manganese , ICP, test portion inorgan... (4%)  | 5                 | 5                              | 4.217    | 0.1776 | 4.217                      | 0.4217              | 0.1776    | 0.0794                 | 4.21%        | 5.00%   | 0.0622                | 3.22%        |
| 261.35      | Acid Soluble Manganese , ICP, test portion 2006.03... (4%)  | 11                | 11                             | 4.265    | 0.3689 | 4.187                      | 0.4217              | 0.2382    | 0.0718                 | 5.69%        | 5.03%   | 0.0969                | 3.22%        |
| 261.99      | Acid Soluble Manganese , Other (4%)                         | 7                 | 7                              | 4.194    | 0.1767 | 4.194                      | 0.4217              | 0.2004    | 0.0757                 | 4.78%        | 5.03%   | 0.0773                | 3.22%        |
| 271.00      | Water Soluble Manganese , AA (%)                            | 2                 | 2                              | 2.057    | 0.0446 |                            |                     |           |                        |              |         |                       |              |
| 271.30      | Water Soluble Manganese , ICP, Ext. 972.03 (%)              | 6                 | 5                              | 2.253    | 0.2388 | 2.253                      |                     | 0.2388    | 0.1068                 | 10.60%       |         | 0.0611                | 3.54%        |
| 281.30      | Acid Soluble Mercury , ICP (ppm)                            | 1                 |                                | 0.0650   |        |                            |                     |           |                        |              |         |                       |              |
| 281.99      | Acid Soluble Mercury , Other (ppm)                          | 1                 |                                | 0.5550   |        |                            |                     |           |                        |              |         |                       |              |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                         | 7                 | 7                              | 8.062    | 3.317  | 7.685                      |                     | 2.838     | 1.073                  | 36.93%       |         | 3.744                 | 11.77%       |
| 289.33      | Acid Soluble Molybdenum , ICP, 2006.03 modified w/... (ppm) | 2                 | 2                              | 12.22    | 1.404  |                            |                     |           |                        |              |         |                       |              |
| 289.34      | Acid Soluble Molybdenum , ICP, EPA 3050B/6010C (ppm)        | 1                 |                                | 11.35    |        |                            |                     |           |                        |              |         |                       |              |
| 289.99      | Acid Soluble Molybdenum , Other (ppm)                       | 2                 | 2                              | 33.35    | 40.52  |                            |                     |           |                        |              |         |                       |              |
| 291.00      | Acid Soluble Nickel , AA, test portion as in 2006.... (ppm) | 2                 | 2                              | 265.6    | 154.8  |                            |                     |           |                        |              |         |                       |              |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                             | 9                 | 9                              | 356.4    | 35.53  | 355.6                      |                     | 38.42     | 12.81                  | 10.80%       |         | 11.26                 | 6.61%        |
| 291.33      | Acid Soluble Nickel , ICP, 2006.03 modified w/9:3 ... (ppm) | 2                 | 2                              | 374.8    | 5.830  |                            |                     |           |                        |              |         |                       |              |
| 291.34      | Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)            | 1                 |                                | 357.5    |        |                            |                     |           |                        |              |         |                       |              |
| 291.99      | Acid Soluble Nickel , Other (ppm)                           | 4                 | 4                              | 317.4    | 137.1  | 317.4                      |                     | 137.1     | 68.54                  | 43.19%       |         | 18.61                 | 6.72%        |
| 301.30      | Acid Soluble Selenium , ICP (ppm)                           | 2                 | 2                              | 4.738    | 4.967  |                            |                     |           |                        |              |         |                       |              |
| 301.33      | Acid Soluble Selenium , ICP, 2006.03 modified w/9:... (ppm) | 1                 |                                | 21.84    |        |                            |                     |           |                        |              |         |                       |              |
| 301.99      | Acid Soluble Selenium , Other (ppm)                         | 1                 |                                | 3.330    |        |                            |                     |           |                        |              |         |                       |              |
| 311.32      | Sodium, ICP, 2006.03 test portion (%)                       | 1                 |                                | 0.7226   |        |                            |                     |           |                        |              |         |                       |              |
| 311.33      | Sodium, ICP, 2006.03 modified w/9:3 HNO3:HCl test ... (%)   | 2                 | 2                              | 0.7450   | 0.0339 |                            |                     |           |                        |              |         |                       |              |
| 311.99      | Sodium, Other (%)                                           | 3                 | 3                              | 0.7303   | 0.0516 | 0.7303                     |                     | 0.0516    | 0.0298                 | 7.07%        |         | 0.0133                | 4.19%        |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)              | 14                | 13                             | 19.63    | 0.7396 | 19.68                      | 1.0000              | 0.7152    | 0.1984                 | 3.63%        | 2.54%   | 0.4323                | 2.55%        |
| 321.01      | Acid Soluble Zinc , AA, organic 965.09 (20%)                | 1                 |                                | 16.99    |        |                            |                     |           |                        |              |         |                       |              |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorganic 96... (20%) | 31                | 30                             | 19.91    | 1.926  | 20.13                      | 1.0000              | 1.535     | 0.2803                 | 7.63%        | 2.48%   | 0.3543                | 2.55%        |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03A-C, ... (20%) | 11                | 10                             | 20.21    | 0.8674 | 20.21                      | 1.0000              | 0.9837    | 0.3111                 | 4.87%        | 2.47%   | 0.3589                | 2.54%        |
| 321.99      | Acid Soluble Zinc , Other (20%)                             | 5                 | 5                              | 20.29    | 0.5491 | 20.29                      | 1.0000              | 0.5491    | 0.2456                 | 2.71%        | 2.46%   | 0.2320                | 2.54%        |
| 325.00      | Water Soluble Zinc , AA (%)                                 | 3                 | 3                              | 12.25    | 2.226  | 12.25                      |                     | 2.226     | 1.285                  | 18.17%       |         | 0.6547                | 2.74%        |
| 325.30      | Water Soluble Zinc , ICP (%)                                | 8                 | 7                              | 13.21    | 3.505  | 13.10                      |                     | 3.703     | 1.400                  | 28.27%       |         | 0.3148                | 2.72%        |

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

Sample # 160512

Method Precision Report

Micros

Issue Date : 06/30/2016

| Method Code | Analyte & Method                                                           | # Tests Submitted | # Tests Used in Precision Calcs | Mean   | SD     | Between Labs sL | Within Labs sr | Reproducibility SR | Between Labs %RSD | Within Labs %rsd | Reproducibility %RSD | sR/sr |
|-------------|----------------------------------------------------------------------------|-------------------|---------------------------------|--------|--------|-----------------|----------------|--------------------|-------------------|------------------|----------------------|-------|
| 010.60      | Total Nitrogen, Combustion (%)                                             | 6                 | 6                               | 2.448  | 0.1244 | 0.1214          | 0.0384         | 0.1274             | 4.96%             | 1.57%            | 5.20%                | 3.319 |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorganic 965.09 (%)               | 9                 | 8                               | 1.706  | 0.0995 | 0.0977          | 0.0262         | 0.1012             | 5.73%             | 1.54%            | 5.93%                | 3.857 |
| 121.30      | Acid Soluble Magnesium, ICP, test portion inorganic 965.09 (%)             | 9                 | 7                               | 1.545  | 0.0871 | 0.0870          | 0.0077         | 0.0873             | 5.63%             | 0.50%            | 5.65%                | 11.37 |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulfur - sulfate form (%)         | 7                 | 6                               | 11.34  | 0.7321 | 0.7299          | 0.0791         | 0.7342             | 6.44%             | 0.70%            | 6.47%                | 9.281 |
| 148.00      | Total Sulfur, Combustion (9%)                                              | 9                 | 8                               | 12.96  | 0.6110 | 0.5958          | 0.1919         | 0.6259             | 4.60%             | 1.48%            | 4.83%                | 3.262 |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elemental (9%)                     | 16                | 15                              | 11.79  | 0.5475 | 0.5363          | 0.1561         | 0.5585             | 4.55%             | 1.32%            | 4.74%                | 3.578 |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03 modified w/9:3 HNO3:HCl (9%) | 13                | 13                              | 11.52  | 1.359  | 1.346           | 0.2604         | 1.371              | 11.69%            | 2.26%            | 11.90%               | 5.264 |
| 148.99      | Total Sulfur, Other (9%)                                                   | 9                 | 8                               | 12.20  | 1.473  | 1.440           | 0.4408         | 1.506              | 11.80%            | 3.61%            | 12.34%               | 3.416 |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)                               | 11                | 10                              | 0.9853 | 0.1004 | 0.0991          | 0.0224         | 0.1016             | 10.06%            | 2.27%            | 10.31%               | 4.543 |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982.01 (1%)                      | 20                | 18                              | 1.047  | 0.0669 | 0.0629          | 0.0321         | 0.0706             | 6.01%             | 3.06%            | 6.74%                | 2.201 |
| 165.99      | Acid Soluble Boron , Other (1%)                                            | 16                | 16                              | 1.080  | 0.0749 | 0.0712          | 0.0330         | 0.0784             | 6.59%             | 3.05%            | 7.26%                | 2.380 |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                                           | 8                 | 8                               | 9.044  | 1.902  | 1.867           | 0.5189         | 1.937              | 20.64%            | 5.74%            | 21.42%               | 3.733 |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                                          | 8                 | 7                               | 237.9  | 27.01  | 26.09           | 9.893          | 27.91              | 10.97%            | 4.16%            | 11.73%               | 2.821 |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                                            | 8                 | 7                               | 14.87  | 5.423  | 5.411           | 0.5212         | 5.436              | 36.39%            | 3.51%            | 36.56%               | 10.43 |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)                            | 11                | 9                               | 1.805  | 0.1369 | 0.1358          | 0.0246         | 0.1380             | 7.52%             | 1.36%            | 7.64%                | 5.617 |
| 221.30      | Acid Soluble Copper , ICP, test portion inorganic 965.09 (1%)              | 29                | 27                              | 1.880  | 0.0982 | 0.0899          | 0.0560         | 0.1059             | 4.78%             | 2.98%            | 5.63%                | 1.890 |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006.03A-C, w/dual acid (1%)       | 10                | 10                              | 1.821  | 0.1847 | 0.1775          | 0.0724         | 0.1917             | 9.75%             | 3.97%            | 10.53%               | 2.649 |
| 221.99      | Acid Soluble Copper , Other (1%)                                           | 6                 | 5                               | 1.656  | 0.3490 | 0.3486          | 0.0254         | 0.3495             | 21.04%            | 1.53%            | 21.10%               | 13.78 |
| 241.30      | Acid Soluble Iron, ICP, test portion inorganic 965.09 (%)                  | 12                | 10                              | 6.178  | 1.138  | 1.134           | 0.1344         | 1.142              | 18.36%            | 2.18%            | 18.48%               | 8.494 |
| 251.30      | Acid Soluble Lead , ICP (ppm)                                              | 8                 | 8                               | 92.07  | 49.49  | 48.49           | 13.95          | 50.46              | 52.67%            | 15.15%           | 54.80%               | 3.617 |
| 261.12      | Acid Soluble Manganese , AA, inorganic 965.09 (4%)                         | 6                 | 6                               | 4.082  | 0.1624 | 0.1492          | 0.0906         | 0.1745             | 3.66%             | 2.22%            | 4.28%                | 1.927 |
| 261.30      | Acid Soluble Manganese , ICP, test portion 972.02a (4%)                    | 21                | 19                              | 4.221  | 0.2469 | 0.2422          | 0.0683         | 0.2516             | 5.74%             | 1.62%            | 5.96%                | 3.682 |
| 261.35      | Acid Soluble Manganese , ICP, test portion 2006.03A-C, w/dual acid (4%)    | 11                | 10                              | 4.267  | 0.3888 | 0.3853          | 0.0737         | 0.3923             | 9.03%             | 1.73%            | 9.20%                | 5.323 |
| 261.99      | Acid Soluble Manganese , Other (4%)                                        | 7                 | 6                               | 4.149  | 0.1444 | 0.1416          | 0.0397         | 0.1471             | 3.41%             | 0.96%            | 3.54%                | 3.706 |
| 271.30      | Water Soluble Manganese , ICP, Ext. 972.03 (%)                             | 6                 | 5                               | 2.253  | 0.2388 | 0.2361          | 0.0503         | 0.2414             | 10.48%            | 2.23%            | 10.72%               | 4.803 |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                                        | 7                 | 7                               | 8.062  | 3.317  |                 | 4.889          |                    |                   | 60.64%           |                      |       |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                                            | 9                 | 8                               | 361.7  | 34.06  | 33.62           | 7.749          | 34.50              | 9.30%             | 2.14%            | 9.54%                | 4.452 |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)                             | 14                | 12                              | 19.77  | 0.5662 | 0.5319          | 0.2743         | 0.5985             | 2.69%             | 1.39%            | 3.03%                | 2.182 |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorganic 965.09 (20%)               | 31                | 27                              | 20.20  | 1.325  | 1.304           | 0.3287         | 1.345              | 6.46%             | 1.63%            | 6.66%                | 4.092 |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03A-C, w/dual acid (20%)        | 11                | 10                              | 20.21  | 0.8674 | 0.8349          | 0.3327         | 0.8988             | 4.13%             | 1.65%            | 4.45%                | 2.701 |

| Method Code | Analyte & Method             | # Tests Submitted | # Tests Used in Precision Calcs | Mean  | SD    | Between Labs sL | Within Labs sr | Reproducibility sR | Between Labs %RSD | Within Labs %rstd | Reproducibility %RSD | sR/sr |
|-------------|------------------------------|-------------------|---------------------------------|-------|-------|-----------------|----------------|--------------------|-------------------|-------------------|----------------------|-------|
| 325.30      | Water Soluble Zinc , ICP (%) | 8                 | 7                               | 13.21 | 3.505 | 3.496           | 0.3489         | 3.514              | 26.46%            | 2.64%             | 26.59%               | 10.07 |

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Method Proficiency For All Labs (Lab Values)

# Methods: 106

Sample # 160512

Lab Values

# Labs Reporting: 72

Micros

Issue Date : 06/30/2016

| Method Code | Analyte Name and Method (Units)                      | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                      |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 001.99      | Ammoniacal Nitrogen, Other (%)                       | 0096     | 0.7550   | 0.0500 |               |        |        | 1       |                     |                | 0    |
| 010.60      | Total Nitrogen, Combustion (%)                       | 0457     | 2.218    | 0.1033 | 2.462         | 0.1071 | 0.0406 | 6       | -2.11               | 5%             | 0    |
| 010.60      | Total Nitrogen, Combustion (%)                       | 0354     | 2.412    | 0.0000 | 2.462         | 0.1071 | 0.0406 | 6       | -0.43               | 1%             | 0    |
| 010.60      | Total Nitrogen, Combustion (%)                       | 0389     | 2.470    | 0.0200 | 2.462         | 0.1071 | 0.0406 | 6       | 0.07                | 0%             | 0    |
| 010.60      | Total Nitrogen, Combustion (%)                       | 0325     | 2.505    | 0.0700 | 2.462         | 0.1071 | 0.0406 | 6       | 0.37                | 1%             | 0    |
| 010.60      | Total Nitrogen, Combustion (%)                       | 0482     | 2.515    | 0.0100 | 2.462         | 0.1071 | 0.0406 | 6       | 0.46                | 1%             | 0    |
| 010.60      | Total Nitrogen, Combustion (%)                       | 0096     | 2.570    | 0.0400 | 2.462         | 0.1071 | 0.0406 | 6       | 0.93                | 2%             | 0    |
| 020.40      | Total Phosphorus as P2O5, Automated (%)              | 0096     | 0.5000   | 0.0400 |               |        |        | 1       |                     |                | 0    |
| 020.50      | Total Phosphorus as P2O5, ICP (%)                    | 0483     | 0.4100   | 0.5600 |               |        |        | 1       |                     |                | 0    |
| 030.40      | Citrate Insoluble Phosphorus as P2O5, Automat... (%) | 0096     | 0.2100   | 0.0200 |               |        |        | 1       |                     |                | 0    |
| 040.40      | Indirect Available Phosphorus as P2O5, Automa... (%) | 0096     | 0.2900   | 0.0600 |               |        |        | 1       |                     |                | 0    |
| 041.50      | Direct Available Phosphorus as P2O5, ICP (%)         | 0325     | 0.1000   | 0.0000 |               |        |        | 1       |                     |                | 0    |
| 041.60      | Direct Available Phosphorus as P2O5, Citrate-... (%) | 0354     | 0.1310   | 0.0000 |               |        |        | 1       |                     |                | 0    |
| 048.40      | Water Soluble Phosphorus as P2O5, Automated (%)      | 0096     | 0.0550   | 0.0100 |               |        |        | 1       |                     |                | 0    |
| 050.51      | Soluble Potassium as K2O, ICP (Citrate) (%)          | 0483     | 0.7350   | 0.2300 |               |        |        | 1       |                     |                | 0    |
| 050.52      | Soluble Potassium as K2O, ICP (Citrate-EDTA) (%)     | 0354     | 0.9570   | 0.0000 |               |        |        | 1       |                     |                | 0    |
| 050.99      | Soluble Potassium as K2O, Other (%)                  | 0043     | 0.4700   | 0.0200 | 0.7150        | 0.1778 | 0.0540 | 5       | -1.38               | 17%            | 0    |
| 050.99      | Soluble Potassium as K2O, Other (%)                  | 0096     | 0.6400   | 0.0200 | 0.7150        | 0.1778 | 0.0540 | 5       | -0.42               | 5%             | 0    |
| 050.99      | Soluble Potassium as K2O, Other (%)                  | 0325     | 0.7500   | 0.1000 | 0.7150        | 0.1778 | 0.0540 | 5       | 0.20                | 2%             | 0    |
| 050.99      | Soluble Potassium as K2O, Other (%)                  | 0389     | 0.7600   | 0.0000 | 0.7150        | 0.1778 | 0.0540 | 5       | 0.25                | 3%             | 0    |
| 050.99      | Soluble Potassium as K2O, Other (%)                  | 0482     | 0.9550   | 0.1300 | 0.7150        | 0.1778 | 0.0540 | 5       | 1.35                | 17%            | 0    |
| 060.00      | Water (Free), Vacuum Oven (%)                        | 0416     | 1.587    | 0.0154 |               |        |        | 2       |                     |                | 0    |
| 060.00      | Water (Free), Vacuum Oven (%)                        | 0096     | 1.645    | 0.1500 |               |        |        | 2       |                     |                | 0    |
| 101.00      | Acid Soluble Calcium, AA, inorganic 965.09 (%)       | 0457     | 1.578    | 0.0670 | 1.855         | 0.3166 | 0.0387 | 3       | -0.88               | 7%             | 0    |
| 101.00      | Acid Soluble Calcium, AA, inorganic 965.09 (%)       | 0105     | 1.789    | 0.0490 | 1.855         | 0.3166 | 0.0387 | 3       | -0.21               | 2%             | 0    |
| 101.00      | Acid Soluble Calcium, AA, inorganic 965.09 (%)       | 0043     | 2.200    | 0.0000 | 1.855         | 0.3166 | 0.0387 | 3       | 1.09                | 9%             | 0    |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0035     | 1.590    | 0.0800 | 1.706         | 0.1128 | 0.0294 | 8       | -0.97               | 3%             | 0    |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0055     | 1.625    | 0.0300 | 1.706         | 0.1128 | 0.0294 | 8       | -0.68               | 2%             | 0    |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0354     | 1.653    | 0.0130 | 1.706         | 0.1128 | 0.0294 | 8       | -0.45               | 2%             | 0    |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0482     | 1.655    | 0.0100 | 1.706         | 0.1128 | 0.0294 | 8       | -0.42               | 1%             | 0    |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0096     | 1.685    | 0.0500 | 1.706         | 0.1128 | 0.0294 | 8       | -0.17               | 1%             | 0    |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0102     | 1.739    | 0.0120 | 1.706         | 0.1128 | 0.0294 | 8       | 0.28                | 1%             | 0    |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0041     | 1.830    | 0.0200 | 1.706         | 0.1128 | 0.0294 | 8       | 1.04                | 4%             | 0    |

| Method Code | Analyte Name and Method (Units)                      | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                      |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0452     | 1.870    | 0.0200 | 1.706         | 0.1128 | 0.0294 | 8       | 1.37                | 5%             | 0    |
| 101.30      | Acid Soluble Calcium, ICP, test portion inorg... (%) | 0483     | 2.180    | 0.2400 | 1.706         | 0.1128 | 0.0294 | 8       | 3.96                | 14%            | 1    |
| 101.33      | Acid Soluble Calcium, ICP, test portion 2006.... (%) | 0117     | 1.665    | 0.0030 |               |        |        | 2       |                     |                | 0    |
| 101.33      | Acid Soluble Calcium, ICP, test portion 2006.... (%) | 0025     | 1.728    | 0.1425 |               |        |        | 2       |                     |                | 0    |
| 101.99      | Acid Soluble Calcium, Other (%)                      | 0389     | 1.560    | 0.0800 |               |        |        | 1       |                     |                | 0    |
| 121.00      | Acid Soluble Magnesium, AA, inorganic 965.09 (%)     | 0043     | 1.595    | 0.0500 |               |        |        | 2       |                     |                | 0    |
| 121.00      | Acid Soluble Magnesium, AA, inorganic 965.09 (%)     | 0105     | 1.611    | 0.1280 |               |        |        | 2       |                     |                | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0354     | 1.416    | 0.0050 | 1.548         | 0.0920 | 0.0131 | 8       | -1.36               | 4%             | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0096     | 1.505    | 0.0100 | 1.548         | 0.0920 | 0.0131 | 8       | -0.44               | 1%             | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0055     | 1.510    | 0.0200 | 1.548         | 0.0920 | 0.0131 | 8       | -0.39               | 1%             | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0482     | 1.515    | 0.0100 | 1.548         | 0.0920 | 0.0131 | 8       | -0.34               | 1%             | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0102     | 1.566    | 0.0100 | 1.548         | 0.0920 | 0.0131 | 8       | 0.18                | 1%             | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0041     | 1.570    | 0.0400 | 1.548         | 0.0920 | 0.0131 | 8       | 0.22                | 1%             | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0483     | 1.625    | 0.0100 | 1.548         | 0.0920 | 0.0131 | 8       | 0.79                | 2%             | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0452     | 1.680    | 0.0000 | 1.548         | 0.0920 | 0.0131 | 8       | 1.35                | 4%             | 0    |
| 121.30      | Acid Soluble Magnesium, ICP, test portion ino... (%) | 0035     | 1.395    | 0.0900 | 1.548         | 0.0920 | 0.0131 | 8       | -1.57               | 5%             | 1    |
| 121.33      | Acid Soluble Magnesium, ICP, test portion 200... (%) | 0325     | 1.365    | 0.2100 | 1.472         | 0.1183 | 0.1281 | 3       | -0.90               | 4%             | 0    |
| 121.33      | Acid Soluble Magnesium, ICP, test portion 200... (%) | 0117     | 1.451    | 0.0220 | 1.472         | 0.1183 | 0.1281 | 3       | -0.17               | 1%             | 0    |
| 121.33      | Acid Soluble Magnesium, ICP, test portion 200... (%) | 0025     | 1.599    | 0.1522 | 1.472         | 0.1183 | 0.1281 | 3       | 1.08                | 4%             | 0    |
| 121.99      | Acid Soluble Magnesium, Other (%)                    | 0389     | 1.600    | 0.0400 |               |        |        | 1       |                     |                | 0    |
| 143.00      | Elemental Sulfur, Gravimetric Sulfur - carbon... (%) | 0055     | 11.68    | 0.0100 |               |        |        | 1       |                     |                | 0    |
| 143.99      | Elemental Sulfur, Other (%)                          | 0472     | 9.565    | 0.2700 |               |        |        | 2       |                     |                | 0    |
| 143.99      | Elemental Sulfur, Other (%)                          | 0389     | 14.30    | 0.2000 |               |        |        | 2       |                     |                | 0    |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%) | 0211     | 10.13    | 0.0600 | 11.34         | 0.8302 | 0.0950 | 6       | -1.35               | 5%             | 0    |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%) | 0444     | 10.78    | 0.0700 | 11.34         | 0.8302 | 0.0950 | 6       | -0.63               | 3%             | 0    |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%) | 0233     | 11.57    | 0.0200 | 11.34         | 0.8302 | 0.0950 | 6       | 0.25                | 1%             | 0    |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%) | 0043     | 11.77    | 0.1000 | 11.34         | 0.8302 | 0.0950 | 6       | 0.48                | 2%             | 0    |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%) | 0397     | 11.81    | 0.2100 | 11.34         | 0.8302 | 0.0950 | 6       | 0.52                | 2%             | 0    |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%) | 0027     | 12.01    | 0.1100 | 11.34         | 0.8302 | 0.0950 | 6       | 0.74                | 3%             | 0    |
| 145.00      | Sulfate Sulfur, HCl soluble, Gravimetric Sulf... (%) | 0498     | 12.90    | 0.8000 | 11.34         | 0.8302 | 0.0950 | 6       | 1.74                | 7%             | 1    |
| 145.99      | Sulfate Sulfur, HCl soluble, Other (%)               | 0444     | 11.12    | 0.0600 | 11.78         | 0.7087 | 0.2133 | 3       | -0.94               | 3%             | 0    |
| 145.99      | Sulfate Sulfur, HCl soluble, Other (%)               | 0506     | 11.70    | 0.4000 | 11.78         | 0.7087 | 0.2133 | 3       | -0.12               | 0%             | 0    |
| 145.99      | Sulfate Sulfur, HCl soluble, Other (%)               | 0200     | 12.53    | 0.1800 | 11.78         | 0.7087 | 0.2133 | 3       | 1.05                | 3%             | 0    |
| 146.00      | Total Sulfur in Liquid, Gravimetric - sulfate... (%) | 0324     | 11.45    | 0.5000 |               |        |        | 1       |                     |                | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0360     | 12.31    | 0.6400 | 13.02         | 0.6798 | 0.2844 | 9       | -0.99               | 3%             | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0157     | 12.35    | 0.3000 | 13.02         | 0.6798 | 0.2844 | 9       | -0.93               | 3%             | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0025     | 12.57    | 0.1000 | 13.02         | 0.6798 | 0.2844 | 9       | -0.62               | 2%             | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0029     | 12.62    | 0.0500 | 13.02         | 0.6798 | 0.2844 | 9       | -0.56               | 2%             | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0136     | 12.85    | 0.0600 | 13.02         | 0.6798 | 0.2844 | 9       | -0.23               | 1%             | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0474     | 13.48    | 0.1800 | 13.02         | 0.6798 | 0.2844 | 9       | 0.65                | 2%             | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0377     | 13.50    | 1.000  | 13.02         | 0.6798 | 0.2844 | 9       | 0.67                | 2%             | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0451     | 13.60    | 0.2000 | 13.02         | 0.6798 | 0.2844 | 9       | 0.81                | 2%             | 0    |
| 148.00      | Total Sulfur, Combustion (9%)                        | 0211     | 13.89    | 0.0300 | 13.02         | 0.6798 | 0.2844 | 9       | 1.21                | 3%             | 0    |

| Method Code | Analyte Name and Method (Units)                        | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|--------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                        |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0520     | 10.82*   | 0.3400 | 11.86         | 0.6674 | 0.1914 | 16      | -1.56               | 4%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0444     | 10.97*   | 0.2300 | 11.86         | 0.6674 | 0.1914 | 16      | -1.34               | 4%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0231     | 11.16*   | 0.0200 | 11.86         | 0.6674 | 0.1914 | 16      | -1.05               | 3%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0040     | 11.40    | 0.0000 | 11.86         | 0.6674 | 0.1914 | 16      | -0.69               | 2%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0102     | 11.41    | 0.1230 | 11.86         | 0.6674 | 0.1914 | 16      | -0.67               | 2%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0481     | 11.58    | 0.0300 | 11.86         | 0.6674 | 0.1914 | 16      | -0.42               | 1%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0043     | 11.77    | 0.1000 | 11.86         | 0.6674 | 0.1914 | 16      | -0.13               | 0%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0485     | 11.80    | 0.1700 | 11.86         | 0.6674 | 0.1914 | 16      | -0.09               | 0%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0105     | 12.04    | 0.3000 | 11.86         | 0.6674 | 0.1914 | 16      | 0.27                | 1%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0095     | 12.09    | 0.0400 | 11.86         | 0.6674 | 0.1914 | 16      | 0.35                | 1%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0157     | 12.25    | 0.1000 | 11.86         | 0.6674 | 0.1914 | 16      | 0.59                | 2%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0029     | 12.29    | 0.0300 | 11.86         | 0.6674 | 0.1914 | 16      | 0.64                | 2%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0073     | 12.33    | 0.5700 | 11.86         | 0.6674 | 0.1914 | 16      | 0.70                | 2%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0114     | 12.45    | 0.2000 | 11.86         | 0.6674 | 0.1914 | 16      | 0.89                | 2%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0230     | 12.50    | 0.2000 | 11.86         | 0.6674 | 0.1914 | 16      | 0.96                | 3%             | 0    |
| 148.01      | Total Sulfur, Gravimetric - sulfate and elem... (9%)   | 0457     | 15.10    | 0.6100 | 11.86         | 0.6674 | 0.1914 | 16      | 4.85                | 14%            | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0519     | 9.130*   | 0.0600 | 11.53         | 1.519  | 0.2722 | 13      | -1.58               | 10%            | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0117     | 9.237*   | 0.0720 | 11.53         | 1.519  | 0.2722 | 13      | -1.51               | 10%            | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0406     | 10.30*   | 0.5100 | 11.53         | 1.519  | 0.2722 | 13      | -0.81               | 5%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0486     | 10.31*   | 0.2900 | 11.53         | 1.519  | 0.2722 | 13      | -0.80               | 5%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0444     | 11.34    | 0.1800 | 11.53         | 1.519  | 0.2722 | 13      | -0.12               | 1%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0325     | 11.65    | 0.7000 | 11.53         | 1.519  | 0.2722 | 13      | 0.08                | 1%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0422     | 11.92    | 0.3700 | 11.53         | 1.519  | 0.2722 | 13      | 0.25                | 2%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0292     | 12.30    | 0.0300 | 11.53         | 1.519  | 0.2722 | 13      | 0.51                | 3%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0023     | 12.38    | 0.6180 | 11.53         | 1.519  | 0.2722 | 13      | 0.56                | 4%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0102     | 12.48    | 0.0060 | 11.53         | 1.519  | 0.2722 | 13      | 0.63                | 4%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0177     | 12.80    | 0.0131 | 11.53         | 1.519  | 0.2722 | 13      | 0.84                | 6%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0037     | 12.81    | 0.0900 | 11.53         | 1.519  | 0.2722 | 13      | 0.84                | 6%             | 0    |
| 148.07      | Total Sulfur, ICP, test portion as in 2006.03... (9%)  | 0483     | 13.10    | 0.6000 | 11.53         | 1.519  | 0.2722 | 13      | 1.03                | 7%             | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0354     | 9.721*   | 0.1640 | 12.15         | 1.555  | 0.5507 | 9       | -1.48               | 10%            | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0482     | 11.20*   | 0.0000 | 12.15         | 1.555  | 0.5507 | 9       | -0.58               | 4%             | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0307     | 11.63    | 2.252  | 12.15         | 1.555  | 0.5507 | 9       | -0.31               | 2%             | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0506     | 11.70    | 0.4000 | 12.15         | 1.555  | 0.5507 | 9       | -0.27               | 2%             | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0096     | 11.74    | 0.1800 | 12.15         | 1.555  | 0.5507 | 9       | -0.25               | 2%             | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0291     | 12.11    | 0.0800 | 12.15         | 1.555  | 0.5507 | 9       | -0.02               | 0%             | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0220     | 13.08    | 0.1600 | 12.15         | 1.555  | 0.5507 | 9       | 0.57                | 4%             | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0452     | 13.73    | 0.0300 | 12.15         | 1.555  | 0.5507 | 9       | 0.96                | 6%             | 0    |
| 148.99      | Total Sulfur, Other (9%)                               | 0072     | 14.32    | 1.690  | 12.15         | 1.555  | 0.5507 | 9       | 1.32                | 9%             | 0    |
| 149.04      | Sulfur - HNO3 soluble, ICP (%)                         | 0040     | 9.155    | 0.0900 |               |        |        | 2       |                     |                | 0    |
| 149.04      | Sulfur - HNO3 soluble, ICP (%)                         | 0368     | 12.64    | 0.0372 |               |        |        | 2       |                     |                | 0    |
| 151.00      | Acid Soluble Arsenic , AA, test portion as in... (ppm) | 0136     | 6.400    | 0.0000 |               |        |        | 1       |                     |                | 0    |
| 151.30      | Acid Soluble Arsenic , ICP (ppm)                       | 0096     | 5.350    | 0.1000 | 5.847         | 0.6248 | 0.1650 | 4       | -0.80               | 4%             | 0    |
| 151.30      | Acid Soluble Arsenic , ICP (ppm)                       | 0368     | 5.350    | 0.3000 | 5.847         | 0.6248 | 0.1650 | 4       | -0.80               | 4%             | 0    |



| Method Code | Analyte Name and Method (Units)                        | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|--------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                        |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 151.30      | Acid Soluble Arsenic , ICP (ppm)                       | 0519     | 6.040    | 0.0800 | 5.847         | 0.6248 | 0.1650 | 4       | 0.31                | 2%             | 0    |
| 151.30      | Acid Soluble Arsenic , ICP (ppm)                       | 0102     | 6.647    | 0.1800 | 5.847         | 0.6248 | 0.1650 | 4       | 1.28                | 7%             | 0    |
| 151.33      | Acid Soluble Arsenic , ICP, 2006.03 modified ... (ppm) | 0037     | 5.720    | 0.7600 |               |        |        | 1       |                     |                | 0    |
| 151.34      | Acid Soluble Arsenic , ICP, EPA 3050B/6010C (ppm)      | 0230     | 9.405    | 0.8100 |               |        |        | 1       |                     |                | 0    |
| 151.99      | Acid Soluble Arsenic , Other (ppm)                     | 0042     | 2.650    | 0.6400 |               |        |        | 2       |                     |                | 0    |
| 151.99      | Acid Soluble Arsenic , Other (ppm)                     | 0481     | 7.540    | 0.2000 |               |        |        | 2       |                     |                | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0309     | 0.1700*  | 0.0200 | 0.9656        | 0.1308 | 0.0248 | 11      | -5.82               | 41%            | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0506     | 0.7750*  | 0.0500 | 0.9656        | 0.1308 | 0.0248 | 11      | -1.40               | 10%            | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0498     | 0.9300   | 0.0600 | 0.9656        | 0.1308 | 0.0248 | 11      | -0.26               | 2%             | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0481     | 0.9350   | 0.0100 | 0.9656        | 0.1308 | 0.0248 | 11      | -0.22               | 2%             | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0037     | 0.9420   | 0.0180 | 0.9656        | 0.1308 | 0.0248 | 11      | -0.17               | 1%             | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0220     | 0.9550   | 0.0100 | 0.9656        | 0.1308 | 0.0248 | 11      | -0.08               | 1%             | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0397     | 0.9875   | 0.0370 | 0.9656        | 0.1308 | 0.0248 | 11      | 0.16                | 1%             | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0029     | 1.063    | 0.0070 | 0.9656        | 0.1308 | 0.0248 | 11      | 0.71                | 5%             | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0416     | 1.080    | 0.0400 | 0.9656        | 0.1308 | 0.0248 | 11      | 0.84                | 6%             | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0028     | 1.088    | 0.0020 | 0.9656        | 0.1308 | 0.0248 | 11      | 0.90                | 6%             | 0    |
| 165.00      | Acid Soluble Boron , Spectrophotometric (1%)           | 0055     | 1.098    | 0.0190 | 0.9656        | 0.1308 | 0.0248 | 11      | 0.97                | 7%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0325     | 0.9350   | 0.1300 | 1.062         | 0.0882 | 0.0365 | 20      | -1.44               | 6%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0397     | 0.9625   | 0.0110 | 1.062         | 0.0882 | 0.0365 | 20      | -1.13               | 5%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0136     | 0.9900   | 0.0600 | 1.062         | 0.0882 | 0.0365 | 20      | -0.82               | 3%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0211     | 1.000    | 0.0400 | 1.062         | 0.0882 | 0.0365 | 20      | -0.70               | 3%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0389     | 1.005    | 0.0100 | 1.062         | 0.0882 | 0.0365 | 20      | -0.65               | 3%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0354     | 1.014    | 0.0910 | 1.062         | 0.0882 | 0.0365 | 20      | -0.55               | 2%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0072     | 1.015    | 0.0100 | 1.062         | 0.0882 | 0.0365 | 20      | -0.53               | 2%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0040     | 1.022    | 0.0120 | 1.062         | 0.0882 | 0.0365 | 20      | -0.46               | 2%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0292     | 1.030    | 0.0000 | 1.062         | 0.0882 | 0.0365 | 20      | -0.36               | 2%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0023     | 1.032    | 0.0040 | 1.062         | 0.0882 | 0.0365 | 20      | -0.34               | 1%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0371     | 1.040    | 0.0000 | 1.062         | 0.0882 | 0.0365 | 20      | -0.25               | 1%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0422     | 1.058    | 0.0220 | 1.062         | 0.0882 | 0.0365 | 20      | -0.05               | 0%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0377     | 1.079    | 0.0500 | 1.062         | 0.0882 | 0.0365 | 20      | 0.19                | 1%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0433     | 1.097    | 0.0123 | 1.062         | 0.0882 | 0.0365 | 20      | 0.40                | 2%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0368     | 1.105    | 0.0077 | 1.062         | 0.0882 | 0.0365 | 20      | 0.48                | 2%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0090     | 1.115    | 0.0100 | 1.062         | 0.0882 | 0.0365 | 20      | 0.60                | 2%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0519     | 1.170    | 0.0200 | 1.062         | 0.0882 | 0.0365 | 20      | 1.22                | 5%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0444     | 1.185    | 0.0500 | 1.062         | 0.0882 | 0.0365 | 20      | 1.39                | 6%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0307     | 1.244    | 0.1500 | 1.062         | 0.0882 | 0.0365 | 20      | 2.06                | 9%             | 0    |
| 165.30      | Acid Soluble Boron , ICP, test portion in 982... (1%)  | 0324     | 1.580    | 0.0400 | 1.062         | 0.0882 | 0.0365 | 20      | 5.87                | 24%            | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                        | 0230     | 0.9115   | 0.0310 | 1.086         | 0.0698 | 0.0346 | 16      | -2.51               | 8%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                        | 0513     | 0.9470   | 0.0140 | 1.086         | 0.0698 | 0.0346 | 16      | -2.00               | 6%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                        | 0482     | 1.005    | 0.0300 | 1.086         | 0.0698 | 0.0346 | 16      | -1.17               | 4%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                        | 0117     | 1.026    | 0.0060 | 1.086         | 0.0698 | 0.0346 | 16      | -0.86               | 3%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                        | 0291     | 1.070    | 0.0400 | 1.086         | 0.0698 | 0.0346 | 16      | -0.23               | 1%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                        | 0025     | 1.076    | 0.0326 | 1.086         | 0.0698 | 0.0346 | 16      | -0.14               | 0%             | 0    |

| Method Code | Analyte Name and Method (Units)                    | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|----------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                    |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0169     | 1.085    | 0.0300 | 1.086         | 0.0698 | 0.0346 | 16      | -0.02               | 0%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0231     | 1.090    | 0.0200 | 1.086         | 0.0698 | 0.0346 | 16      | 0.05                | 0%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0508     | 1.095    | 0.0300 | 1.086         | 0.0698 | 0.0346 | 16      | 0.12                | 0%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0043     | 1.110    | 0.1000 | 1.086         | 0.0698 | 0.0346 | 16      | 0.34                | 1%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0486     | 1.110    | 0.0200 | 1.086         | 0.0698 | 0.0346 | 16      | 0.34                | 1%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0360     | 1.120    | 0.0200 | 1.086         | 0.0698 | 0.0346 | 16      | 0.48                | 2%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0472     | 1.135    | 0.0700 | 1.086         | 0.0698 | 0.0346 | 16      | 0.70                | 2%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0452     | 1.140    | 0.0000 | 1.086         | 0.0698 | 0.0346 | 16      | 0.77                | 2%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0042     | 1.175    | 0.1100 | 1.086         | 0.0698 | 0.0346 | 16      | 1.27                | 4%             | 0    |
| 165.99      | Acid Soluble Boron , Other (1%)                    | 0483     | 1.180    | 0.0000 | 1.086         | 0.0698 | 0.0346 | 16      | 1.34                | 4%             | 0    |
| 171.99      | Water Soluble Boron , Other (%)                    | 0444     | 1.025    | 0.0100 |               |        |        | 2       |                     |                | 0    |
| 171.99      | Water Soluble Boron , Other (%)                    | 0027     | 1.047    | 0.0060 |               |        |        | 2       |                     |                | 0    |
| 181.00      | Acid Soluble Cadmium , AA, test portion as in...   | 0136     | 9.350    | 0.5000 |               |        |        | 2       |                     |                | 0    |
| 181.00      | Acid Soluble Cadmium , AA, test portion as in...   | 0498     | 17.25    | 1.100  |               |        |        | 2       |                     |                | 0    |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                   | 0444     | 6.730    | 0.2800 | 9.044         | 2.157  | 0.5335 | 8       | -1.01               | 13%            | 0    |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                   | 0096     | 7.150    | 0.5000 | 9.044         | 2.157  | 0.5335 | 8       | -0.83               | 10%            | 0    |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                   | 0368     | 7.650    | 0.1000 | 9.044         | 2.157  | 0.5335 | 8       | -0.61               | 8%             | 0    |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                   | 0519     | 8.395    | 0.0100 | 9.044         | 2.157  | 0.5335 | 8       | -0.28               | 4%             | 0    |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                   | 0102     | 9.587    | 0.4980 | 9.044         | 2.157  | 0.5335 | 8       | 0.24                | 3%             | 0    |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                   | 0035     | 9.800    | 1.200  | 9.044         | 2.157  | 0.5335 | 8       | 0.33                | 4%             | 0    |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                   | 0482     | 10.85    | 1.500  | 9.044         | 2.157  | 0.5335 | 8       | 0.79                | 10%            | 0    |
| 181.30      | Acid Soluble Cadmium , ICP (ppm)                   | 0452     | 12.19    | 0.1800 | 9.044         | 2.157  | 0.5335 | 8       | 1.37                | 17%            | 0    |
| 181.33      | Acid Soluble Cadmium , ICP, 2006.03 modified ...   | 0117     | 9.735    | 0.3260 |               |        |        | 2       |                     |                | 0    |
| 181.33      | Acid Soluble Cadmium , ICP, 2006.03 modified ...   | 0037     | 11.50    | 1.020  |               |        |        | 2       |                     |                | 0    |
| 181.34      | Acid Soluble Cadmium , ICP, EPA 3050B/6010C (ppm)  | 0230     | 10.20    | 0.2000 |               |        |        | 1       |                     |                | 0    |
| 181.99      | Acid Soluble Cadmium , Other (ppm)                 | 0042     | 3.035    | 0.1500 | 7.657         | 4.494  | 0.2933 | 3       | -1.03               | 30%            | 0    |
| 181.99      | Acid Soluble Cadmium , Other (ppm)                 | 0506     | 7.925    | 0.6500 | 7.657         | 4.494  | 0.2933 | 3       | 0.06                | 2%             | 0    |
| 181.99      | Acid Soluble Cadmium , Other (ppm)                 | 0481     | 12.01    | 0.0800 | 7.657         | 4.494  | 0.2933 | 3       | 0.97                | 28%            | 0    |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                  | 0519     | 130.2    | 0.2500 | 229.5         | 39.05  | 9.928  | 8       | -2.40               | 22%            | 0    |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                  | 0444     | 212.0    | 26.00  | 229.5         | 39.05  | 9.928  | 8       | -0.42               | 4%             | 0    |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                  | 0368     | 214.0    | 8.000  | 229.5         | 39.05  | 9.928  | 8       | -0.37               | 3%             | 0    |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                  | 0482     | 216.5    | 5.000  | 229.5         | 39.05  | 9.928  | 8       | -0.31               | 3%             | 0    |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                  | 0096     | 224.4    | 4.800  | 229.5         | 39.05  | 9.928  | 8       | -0.12               | 1%             | 0    |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                  | 0452     | 257.0    | 1.300  | 229.5         | 39.05  | 9.928  | 8       | 0.66                | 6%             | 0    |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                  | 0035     | 270.5    | 17.00  | 229.5         | 39.05  | 9.928  | 8       | 0.99                | 9%             | 0    |
| 191.30      | Acid Soluble Chromium , ICP (ppm)                  | 0102     | 270.6    | 17.07  | 229.5         | 39.05  | 9.928  | 8       | 0.99                | 9%             | 0    |
| 191.33      | Acid Soluble Chromium , ICP, 2006.03 modified...   | 0117     | 282.3    | 2.800  |               |        |        | 2       |                     |                | 0    |
| 191.33      | Acid Soluble Chromium , ICP, 2006.03 modified...   | 0037     | 294.1    | 2.800  |               |        |        | 2       |                     |                | 0    |
| 191.34      | Acid Soluble Chromium , ICP, EPA 3050B/6010C (ppm) | 0230     | 243.5    | 1.000  |               |        |        | 1       |                     |                | 0    |
| 191.99      | Acid Soluble Chromium , Other (ppm)                | 0042     | 93.16    | 4.500  | 190.2         | 88.06  | 5.167  | 3       | -1.10               | 26%            | 0    |
| 191.99      | Acid Soluble Chromium , Other (ppm)                | 0506     | 212.5    | 1.000  | 190.2         | 88.06  | 5.167  | 3       | 0.25                | 6%             | 0    |
| 191.99      | Acid Soluble Chromium , Other (ppm)                | 0481     | 265.0    | 10.00  | 190.2         | 88.06  | 5.167  | 3       | 0.85                | 20%            | 0    |
| 202.00      | Acid Soluble Cobalt , AA, test portion as in ...   | 0498     | 18.50    | 1.000  |               |        |        | 1       |                     |                | 0    |

| Method Code | Analyte Name and Method (Units)                        | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|--------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                        |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                        | 0519     | 7.545    | 0.0100 | 15.70         | 6.293  | 0.7409 | 8       | -1.22               | 26%            | 0    |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                        | 0368     | 11.45    | 0.1000 | 15.70         | 6.293  | 0.7409 | 8       | -0.64               | 14%            | 0    |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                        | 0102     | 12.82    | 0.3570 | 15.70         | 6.293  | 0.7409 | 8       | -0.43               | 9%             | 0    |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                        | 0095     | 13.00    | 0.0000 | 15.70         | 6.293  | 0.7409 | 8       | -0.40               | 9%             | 0    |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                        | 0482     | 16.50    | 1.200  | 15.70         | 6.293  | 0.7409 | 8       | 0.12                | 3%             | 0    |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                        | 0452     | 18.54    | 0.0700 | 15.70         | 6.293  | 0.7409 | 8       | 0.42                | 9%             | 0    |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                        | 0035     | 21.55    | 2.700  | 15.70         | 6.293  | 0.7409 | 8       | 0.88                | 19%            | 0    |
| 202.30      | Acid Soluble Cobalt , ICP (ppm)                        | 0096     | 24.22    | 1.490  | 15.70         | 6.293  | 0.7409 | 8       | 1.28                | 27%            | 0    |
| 202.33      | Acid Soluble Cobalt , ICP, 2006.03 modified w... (ppm) | 0037     | 22.65    | 0.2100 |               |        |        | 2       |                     |                | 0    |
| 202.33      | Acid Soluble Cobalt , ICP, 2006.03 modified w... (ppm) | 0117     | 23.63    | 0.0400 |               |        |        | 2       |                     |                | 0    |
| 202.34      | Acid Soluble Cobalt , ICP, EPA 3050B/6010C (ppm)       | 0230     | 19.45    | 1.100  |               |        |        | 1       |                     |                | 0    |
| 202.99      | Acid Soluble Cobalt , Other (ppm)                      | 0042     | 3.835    | 0.1100 | 12.31         | 11.19  | 0.1367 | 3       | -0.76               | 34%            | 0    |
| 202.99      | Acid Soluble Cobalt , Other (ppm)                      | 0506     | 8.100    | 0.3000 | 12.31         | 11.19  | 0.1367 | 3       | -0.38               | 17%            | 0    |
| 202.99      | Acid Soluble Cobalt , Other (ppm)                      | 0481     | 25.00    | 0.0000 | 12.31         | 11.19  | 0.1367 | 3       | 1.13                | 52%            | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0513     | 1.325*   | 0.0100 | 1.797         | 0.1820 | 0.0358 | 11      | -2.48               | 13%            | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0457     | 1.516*   | 0.0480 | 1.797         | 0.1820 | 0.0358 | 11      | -1.48               | 8%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0291     | 1.725    | 0.0500 | 1.797         | 0.1820 | 0.0358 | 11      | -0.38               | 2%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0481     | 1.770    | 0.0400 | 1.797         | 0.1820 | 0.0358 | 11      | -0.14               | 1%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0029     | 1.787    | 0.0220 | 1.797         | 0.1820 | 0.0358 | 11      | -0.05               | 0%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0028     | 1.810    | 0.0000 | 1.797         | 0.1820 | 0.0358 | 11      | 0.07                | 0%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0043     | 1.850    | 0.0400 | 1.797         | 0.1820 | 0.0358 | 11      | 0.28                | 1%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0040     | 1.860    | 0.0186 | 1.797         | 0.1820 | 0.0358 | 11      | 0.33                | 2%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0105     | 1.929    | 0.0450 | 1.797         | 0.1820 | 0.0358 | 11      | 0.69                | 4%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0516     | 1.990    | 0.1200 | 1.797         | 0.1820 | 0.0358 | 11      | 1.01                | 5%             | 0    |
| 221.00      | Acid Soluble Copper , AA, inorganic 965.09 (1%)        | 0498     | 2.000    | 0.0000 | 1.797         | 0.1820 | 0.0358 | 11      | 1.07                | 6%             | 0    |
| 221.03      | Acid Soluble Copper , AA, 965.09, test portio... (1%)  | 0023     | 1.787    | 0.1070 |               |        |        | 1       |                     |                | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0420     | 1.075*   | 0.1510 | 1.862         | 0.1087 | 0.0666 | 29      | -7.25               | 21%            | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0519     | 1.340*   | 0.0800 | 1.862         | 0.1087 | 0.0666 | 29      | -4.81               | 14%            | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0360     | 1.705    | 0.0100 | 1.862         | 0.1087 | 0.0666 | 29      | -1.45               | 4%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0233     | 1.740    | 0.0530 | 1.862         | 0.1087 | 0.0666 | 29      | -1.13               | 3%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0472     | 1.750    | 0.1000 | 1.862         | 0.1087 | 0.0666 | 29      | -1.03               | 3%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0230     | 1.765    | 0.0100 | 1.862         | 0.1087 | 0.0666 | 29      | -0.90               | 3%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0090     | 1.805    | 0.0300 | 1.862         | 0.1087 | 0.0666 | 29      | -0.53               | 2%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0402     | 1.810    | 0.0600 | 1.862         | 0.1087 | 0.0666 | 29      | -0.48               | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0157     | 1.815    | 0.0300 | 1.862         | 0.1087 | 0.0666 | 29      | -0.44               | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0433     | 1.824    | 0.0012 | 1.862         | 0.1087 | 0.0666 | 29      | -0.35               | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0035     | 1.830    | 0.1800 | 1.862         | 0.1087 | 0.0666 | 29      | -0.30               | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0096     | 1.832    | 0.0225 | 1.862         | 0.1087 | 0.0666 | 29      | -0.28               | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0452     | 1.840    | 0.0400 | 1.862         | 0.1087 | 0.0666 | 29      | -0.21               | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0324     | 1.850    | 0.0800 | 1.862         | 0.1087 | 0.0666 | 29      | -0.11               | 0%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0073     | 1.870    | 0.1200 | 1.862         | 0.1087 | 0.0666 | 29      | 0.07                | 0%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0444     | 1.870    | 0.1200 | 1.862         | 0.1087 | 0.0666 | 29      | 0.07                | 0%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%)  | 0055     | 1.878    | 0.1350 | 1.862         | 0.1087 | 0.0666 | 29      | 0.14                | 0%             | 0    |

| Method Code | Analyte Name and Method (Units)                       | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|-------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                       |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0307     | 1.885    | 0.0500 | 1.862         | 0.1087 | 0.0666 | 29      | 0.21                | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0231     | 1.890    | 0.0800 | 1.862         | 0.1087 | 0.0666 | 29      | 0.25                | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0368     | 1.894    | 0.0252 | 1.862         | 0.1087 | 0.0666 | 29      | 0.29                | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0102     | 1.915    | 0.0850 | 1.862         | 0.1087 | 0.0666 | 29      | 0.48                | 1%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0095     | 1.925    | 0.0700 | 1.862         | 0.1087 | 0.0666 | 29      | 0.58                | 2%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0482     | 1.940    | 0.0200 | 1.862         | 0.1087 | 0.0666 | 29      | 0.71                | 2%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0041     | 1.945    | 0.0300 | 1.862         | 0.1087 | 0.0666 | 29      | 0.76                | 2%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0114     | 1.970    | 0.1400 | 1.862         | 0.1087 | 0.0666 | 29      | 0.99                | 3%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0483     | 1.990    | 0.0200 | 1.862         | 0.1087 | 0.0666 | 29      | 1.17                | 3%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0354     | 2.041    | 0.1370 | 1.862         | 0.1087 | 0.0666 | 29      | 1.64                | 5%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0377     | 2.078    | 0.0320 | 1.862         | 0.1087 | 0.0666 | 29      | 1.98                | 6%             | 0    |
| 221.30      | Acid Soluble Copper , ICP, test portion inorg... (1%) | 0371     | 2.100    | 0.0200 | 1.862         | 0.1087 | 0.0666 | 29      | 2.19                | 6%             | 0    |
| 221.31      | Acid Soluble Copper , ICP, test portion organ... (1%) | 0211     | 1.745    | 0.1300 |               |        |        | 1       |                     |                | 0    |
| 221.32      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0292     | 98.47    | 193.1  |               |        |        | 1       |                     |                | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0486     | 1.500*   | 0.0000 | 1.816         | 0.1723 | 0.0624 | 10      | -1.75               | 9%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0397     | 1.596*   | 0.0030 | 1.816         | 0.1723 | 0.0624 | 10      | -1.22               | 6%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0220     | 1.760    | 0.0200 | 1.816         | 0.1723 | 0.0624 | 10      | -0.31               | 2%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0325     | 1.805    | 0.2100 | 1.816         | 0.1723 | 0.0624 | 10      | -0.06               | 0%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0136     | 1.830    | 0.0200 | 1.816         | 0.1723 | 0.0624 | 10      | 0.08                | 0%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0177     | 1.832    | 0.0007 | 1.816         | 0.1723 | 0.0624 | 10      | 0.09                | 0%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0037     | 1.894    | 0.0370 | 1.816         | 0.1723 | 0.0624 | 10      | 0.43                | 2%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0117     | 1.894    | 0.0640 | 1.816         | 0.1723 | 0.0624 | 10      | 0.43                | 2%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0025     | 1.918    | 0.2296 | 1.816         | 0.1723 | 0.0624 | 10      | 0.57                | 3%             | 0    |
| 221.33      | Acid Soluble Copper , ICP, test portion 2006... (1%)  | 0422     | 2.180    | 0.0400 | 1.816         | 0.1723 | 0.0624 | 10      | 2.01                | 10%            | 0    |
| 221.99      | Acid Soluble Copper , Other (1%)                      | 0042     | 1.065*   | 0.0500 | 1.848         | 0.6404 | 0.0455 | 6       | -1.13               | 21%            | 0    |
| 221.99      | Acid Soluble Copper , Other (1%)                      | 0506     | 1.695    | 0.0300 | 1.848         | 0.6404 | 0.0455 | 6       | -0.22               | 4%             | 0    |
| 221.99      | Acid Soluble Copper , Other (1%)                      | 0493     | 1.705    | 0.0300 | 1.848         | 0.6404 | 0.0455 | 6       | -0.21               | 4%             | 0    |
| 221.99      | Acid Soluble Copper , Other (1%)                      | 0508     | 1.850    | 0.0400 | 1.848         | 0.6404 | 0.0455 | 6       | 0.00                | 0%             | 0    |
| 221.99      | Acid Soluble Copper , Other (1%)                      | 0027     | 1.967    | 0.0230 | 1.848         | 0.6404 | 0.0455 | 6       | 0.17                | 3%             | 0    |
| 221.99      | Acid Soluble Copper , Other (1%)                      | 0389     | 19.55    | 0.1000 | 1.848         | 0.6404 | 0.0455 | 6       | 25.59               | 479%           | 0    |
| 241.00      | Acid Soluble Iron, AA, inorganic 965.09 (%)           | 0043     | 6.510    | 0.1000 |               |        |        | 2       |                     |                | 0    |
| 241.00      | Acid Soluble Iron, AA, inorganic 965.09 (%)           | 0105     | 6.700    | 0.3170 |               |        |        | 2       |                     |                | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0482     | 1.555    | 0.4300 | 6.254         | 0.7843 | 0.1707 | 11      | -5.99               | 38%            | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0420     | 3.140    | 0.1400 | 6.254         | 0.7843 | 0.1707 | 11      | -3.97               | 25%            | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0354     | 5.654    | 0.3970 | 6.254         | 0.7843 | 0.1707 | 11      | -0.77               | 5%             | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0402     | 6.295    | 0.1500 | 6.254         | 0.7843 | 0.1707 | 11      | 0.05                | 0%             | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0035     | 6.300    | 0.3400 | 6.254         | 0.7843 | 0.1707 | 11      | 0.06                | 0%             | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0102     | 6.418    | 0.1360 | 6.254         | 0.7843 | 0.1707 | 11      | 0.21                | 1%             | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0055     | 6.673    | 0.1450 | 6.254         | 0.7843 | 0.1707 | 11      | 0.53                | 3%             | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0452     | 6.680    | 0.0200 | 6.254         | 0.7843 | 0.1707 | 11      | 0.54                | 3%             | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0096     | 6.705    | 0.0100 | 6.254         | 0.7843 | 0.1707 | 11      | 0.58                | 4%             | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0090     | 6.765    | 0.0500 | 6.254         | 0.7843 | 0.1707 | 11      | 0.65                | 4%             | 0    |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0483     | 7.150    | 0.0600 | 6.254         | 0.7843 | 0.1707 | 11      | 1.14                | 7%             | 0    |

| Method Code | Analyte Name and Method (Units)                       | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|-------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                       |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 241.30      | Acid Soluble Iron, ICP, test portion inorgani... (%)  | 0041     | 7.690    | 1.440  | 6.254         | 0.7843 | 0.1707 | 11      | 1.83                | 11%            | 1    |
| 241.33      | Acid Soluble Iron, ICP, test portion 2006.03A... (%)  | 0117     | 1.205    | 0.0640 | 4.740         | 3.073  | 0.2202 | 3       | -1.15               | 37%            | 0    |
| 241.33      | Acid Soluble Iron, ICP, test portion 2006.03A... (%)  | 0034     | 6.244    | 0.0900 | 4.740         | 3.073  | 0.2202 | 3       | 0.49                | 16%            | 0    |
| 241.33      | Acid Soluble Iron, ICP, test portion 2006.03A... (%)  | 0025     | 6.771    | 0.5067 | 4.740         | 3.073  | 0.2202 | 3       | 0.66                | 21%            | 0    |
| 241.99      | Acid Soluble Iron, Other (%)                          | 0389     | 6.190    | 0.1200 |               |        |        | 1       |                     |                | 0    |
| 251.00      | Acid Soluble Lead, AA, test portion as in 20... (ppm) | 0498     | 29.35    | 4.300  |               |        |        | 2       |                     |                | 0    |
| 251.00      | Acid Soluble Lead, AA, test portion as in 20... (ppm) | 0136     | 96.00    | 4.000  |               |        |        | 2       |                     |                | 0    |
| 251.30      | Acid Soluble Lead, ICP (ppm)                          | 0096     | 4.145    | 0.0715 | 92.41         | 45.44  | 11.63  | 8       | -1.83               | 48%            | 0    |
| 251.30      | Acid Soluble Lead, ICP (ppm)                          | 0095     | 66.00    | 42.00  | 92.41         | 45.44  | 11.63  | 8       | -0.55               | 14%            | 0    |
| 251.30      | Acid Soluble Lead, ICP (ppm)                          | 0368     | 81.70    | 3.800  | 92.41         | 45.44  | 11.63  | 8       | -0.22               | 6%             | 0    |
| 251.30      | Acid Soluble Lead, ICP (ppm)                          | 0444     | 87.62    | 4.340  | 92.41         | 45.44  | 11.63  | 8       | -0.10               | 3%             | 0    |
| 251.30      | Acid Soluble Lead, ICP (ppm)                          | 0519     | 88.65    | 0.7400 | 92.41         | 45.44  | 11.63  | 8       | -0.08               | 2%             | 0    |
| 251.30      | Acid Soluble Lead, ICP (ppm)                          | 0482     | 107.0    | 2.000  | 92.41         | 45.44  | 11.63  | 8       | 0.30                | 8%             | 0    |
| 251.30      | Acid Soluble Lead, ICP (ppm)                          | 0102     | 123.5    | 4.084  | 92.41         | 45.44  | 11.63  | 8       | 0.64                | 17%            | 0    |
| 251.30      | Acid Soluble Lead, ICP (ppm)                          | 0035     | 178.0    | 36.00  | 92.41         | 45.44  | 11.63  | 8       | 1.78                | 46%            | 0    |
| 251.33      | Acid Soluble Lead, ICP, 2006.03 modified w/9... (ppm) | 0117     | 97.83    | 0.9300 |               |        |        | 2       |                     |                | 0    |
| 251.33      | Acid Soluble Lead, ICP, 2006.03 modified w/9... (ppm) | 0037     | 106.6    | 1.810  |               |        |        | 2       |                     |                | 0    |
| 251.34      | Acid Soluble Lead, ICP, EPA 3050B/6010C (ppm)         | 0230     | 103.0    | 0.0000 |               |        |        | 1       |                     |                | 0    |
| 251.99      | Acid Soluble Lead, Other (ppm)                        | 0042     | 23.00    | 1.210  | 88.77         | 47.11  | 2.134  | 4       | -1.40               | 37%            | 0    |
| 251.99      | Acid Soluble Lead, Other (ppm)                        | 0506     | 87.50    | 3.000  | 88.77         | 47.11  | 2.134  | 4       | -0.03               | 1%             | 0    |
| 251.99      | Acid Soluble Lead, Other (ppm)                        | 0481     | 115.9    | 2.700  | 88.77         | 47.11  | 2.134  | 4       | 0.57                | 15%            | 0    |
| 251.99      | Acid Soluble Lead, Other (ppm)                        | 0027     | 128.7    | 1.627  | 88.77         | 47.11  | 2.134  | 4       | 0.85                | 23%            | 0    |
| 261.00      | Acid Soluble Manganese, AA, Mn2+ only (4%)            | 0043     | 4.150    | 0.0200 |               |        |        | 2       |                     |                | 0    |
| 261.00      | Acid Soluble Manganese, AA, Mn2+ only (4%)            | 0028     | 4.270    | 0.0600 |               |        |        | 2       |                     |                | 0    |
| 261.11      | Acid Soluble Manganese, AA, total Mn (4%)             | 0356     | 3.870    | 0.0200 | 3.955         | 0.1222 | 0.1167 | 3       | -0.70               | 1%             | 0    |
| 261.11      | Acid Soluble Manganese, AA, total Mn (4%)             | 0498     | 3.900    | 0.2000 | 3.955         | 0.1222 | 0.1167 | 3       | -0.45               | 1%             | 0    |
| 261.11      | Acid Soluble Manganese, AA, total Mn (4%)             | 0516     | 4.095    | 0.1300 | 3.955         | 0.1222 | 0.1167 | 3       | 1.15                | 2%             | 0    |
| 261.12      | Acid Soluble Manganese, AA, inorganic 965.09 (4%)     | 0513     | 3.915    | 0.0100 | 4.082         | 0.1841 | 0.0925 | 6       | -0.84               | 2%             | 0    |
| 261.12      | Acid Soluble Manganese, AA, inorganic 965.09 (4%)     | 0457     | 3.935    | 0.0520 | 4.082         | 0.1841 | 0.0925 | 6       | -0.74               | 2%             | 0    |
| 261.12      | Acid Soluble Manganese, AA, inorganic 965.09 (4%)     | 0029     | 4.034    | 0.0340 | 4.082         | 0.1841 | 0.0925 | 6       | -0.24               | 1%             | 0    |
| 261.12      | Acid Soluble Manganese, AA, inorganic 965.09 (4%)     | 0040     | 4.100    | 0.1590 | 4.082         | 0.1841 | 0.0925 | 6       | 0.09                | 0%             | 0    |
| 261.12      | Acid Soluble Manganese, AA, inorganic 965.09 (4%)     | 0169     | 4.150    | 0.0400 | 4.082         | 0.1841 | 0.0925 | 6       | 0.34                | 1%             | 0    |
| 261.12      | Acid Soluble Manganese, AA, inorganic 965.09 (4%)     | 0105     | 4.356    | 0.2600 | 4.082         | 0.1841 | 0.0925 | 6       | 1.38                | 3%             | 0    |
| 261.13      | Acid Soluble Manganese, AA, organic 965.09 (4%)       | 0211     | 3.910    | 0.2200 |               |        |        | 1       |                     |                | 0    |
| 261.14      | Acid Soluble Manganese, AA, 965.09, test por... (4%)  | 0292     | 4.010    | 0.0000 |               |        |        | 1       |                     |                | 0    |
| 261.30      | Acid Soluble Manganese, ICP, test portion 97... (4%)  | 0072     | 3.320*   | 0.3800 | 4.185         | 0.2508 | 0.0842 | 20      | -3.45               | 10%            | 0    |
| 261.30      | Acid Soluble Manganese, ICP, test portion 97... (4%)  | 0230     | 3.905    | 0.1100 | 4.185         | 0.2508 | 0.0842 | 20      | -1.12               | 3%             | 0    |
| 261.30      | Acid Soluble Manganese, ICP, test portion 97... (4%)  | 0073     | 3.965    | 0.0500 | 4.185         | 0.2508 | 0.0842 | 20      | -0.88               | 3%             | 0    |
| 261.30      | Acid Soluble Manganese, ICP, test portion 97... (4%)  | 0307     | 3.983    | 0.2330 | 4.185         | 0.2508 | 0.0842 | 20      | -0.81               | 2%             | 0    |
| 261.30      | Acid Soluble Manganese, ICP, test portion 97... (4%)  | 0157     | 3.985    | 0.0700 | 4.185         | 0.2508 | 0.0842 | 20      | -0.80               | 2%             | 0    |
| 261.30      | Acid Soluble Manganese, ICP, test portion 97... (4%)  | 0433     | 4.000    | 0.0080 | 4.185         | 0.2508 | 0.0842 | 20      | -0.74               | 2%             | 0    |
| 261.30      | Acid Soluble Manganese, ICP, test portion 97... (4%)  | 0354     | 4.048    | 0.1260 | 4.185         | 0.2508 | 0.0842 | 20      | -0.54               | 2%             | 0    |
| 261.30      | Acid Soluble Manganese, ICP, test portion 97... (4%)  | 0420     | 4.070    | 0.0800 | 4.185         | 0.2508 | 0.0842 | 20      | -0.46               | 1%             | 0    |

| Method Code | Analyte Name and Method (Units)                       | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|-------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                       |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0233     | 4.122    | 0.0110 | 4.185         | 0.2508 | 0.0842 | 20      | -0.25               | 1%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0096     | 4.145    | 0.0715 | 4.185         | 0.2508 | 0.0842 | 20      | -0.16               | 0%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0114     | 4.165    | 0.0100 | 4.185         | 0.2508 | 0.0842 | 20      | -0.08               | 0%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0368     | 4.219    | 0.0398 | 4.185         | 0.2508 | 0.0842 | 20      | 0.14                | 0%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0291     | 4.250    | 0.0200 | 4.185         | 0.2508 | 0.0842 | 20      | 0.26                | 1%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0472     | 4.285    | 0.0300 | 4.185         | 0.2508 | 0.0842 | 20      | 0.40                | 1%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0231     | 4.290    | 0.0000 | 4.185         | 0.2508 | 0.0842 | 20      | 0.42                | 1%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0102     | 4.412    | 0.2110 | 4.185         | 0.2508 | 0.0842 | 20      | 0.90                | 3%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0090     | 4.460    | 0.1600 | 4.185         | 0.2508 | 0.0842 | 20      | 1.10                | 3%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0377     | 4.486    | 0.0530 | 4.185         | 0.2508 | 0.0842 | 20      | 1.20                | 4%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0452     | 4.535    | 0.0100 | 4.185         | 0.2508 | 0.0842 | 20      | 1.40                | 4%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0041     | 4.875    | 0.0100 | 4.185         | 0.2508 | 0.0842 | 20      | 2.75                | 8%             | 0    |
| 261.30      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0035     | 3.700*   | 0.8800 | 4.185         | 0.2508 | 0.0842 | 20      | -1.93               | 6%             | 1    |
| 261.31      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0360     | 4.105    | 0.0500 | 4.453         | 0.3022 | 0.0733 | 3       | -1.15               | 4%             | 0    |
| 261.31      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0482     | 4.610    | 0.1000 | 4.453         | 0.3022 | 0.0733 | 3       | 0.52                | 2%             | 0    |
| 261.31      | Acid Soluble Manganese , ICP, test portion 97... (4%) | 0324     | 4.645    | 0.0700 | 4.453         | 0.3022 | 0.0733 | 3       | 0.63                | 2%             | 0    |
| 261.32      | Acid Soluble Manganese , ICP, test portion in... (4%) | 0402     | 4.020    | 0.1200 | 4.217         | 0.1776 | 0.0622 | 5       | -1.11               | 2%             | 0    |
| 261.32      | Acid Soluble Manganese , ICP, test portion in... (4%) | 0444     | 4.095    | 0.0100 | 4.217         | 0.1776 | 0.0622 | 5       | -0.69               | 1%             | 0    |
| 261.32      | Acid Soluble Manganese , ICP, test portion in... (4%) | 0055     | 4.216    | 0.1510 | 4.217         | 0.1776 | 0.0622 | 5       | -0.01               | 0%             | 0    |
| 261.32      | Acid Soluble Manganese , ICP, test portion in... (4%) | 0519     | 4.275    | 0.0300 | 4.217         | 0.1776 | 0.0622 | 5       | 0.33                | 1%             | 0    |
| 261.32      | Acid Soluble Manganese , ICP, test portion in... (4%) | 0483     | 4.480    | 0.0000 | 4.217         | 0.1776 | 0.0622 | 5       | 1.48                | 3%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0117     | 3.968    | 0.0810 | 4.187         | 0.2382 | 0.0969 | 11      | -0.88               | 3%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0220     | 3.980    | 0.0800 | 4.187         | 0.2382 | 0.0969 | 11      | -0.83               | 2%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0034     | 3.987    | 0.0510 | 4.187         | 0.2382 | 0.0969 | 11      | -0.81               | 2%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0023     | 4.050    | 0.0190 | 4.187         | 0.2382 | 0.0969 | 11      | -0.55               | 2%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0397     | 4.081    | 0.0170 | 4.187         | 0.2382 | 0.0969 | 11      | -0.43               | 1%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0037     | 4.145    | 0.0300 | 4.187         | 0.2382 | 0.0969 | 11      | -0.17               | 1%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0177     | 4.191    | 0.0473 | 4.187         | 0.2382 | 0.0969 | 11      | 0.02                | 0%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0025     | 4.252    | 0.3508 | 4.187         | 0.2382 | 0.0969 | 11      | 0.26                | 1%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0136     | 4.320    | 0.0600 | 4.187         | 0.2382 | 0.0969 | 11      | 0.53                | 2%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0422     | 4.905    | 0.2900 | 4.187         | 0.2382 | 0.0969 | 11      | 2.88                | 9%             | 0    |
| 261.35      | Acid Soluble Manganese , ICP, test portion 20... (4%) | 0486     | 5.040    | 0.0400 | 4.187         | 0.2382 | 0.0969 | 11      | 3.43                | 10%            | 0    |
| 261.99      | Acid Soluble Manganese , Other (4%)                   | 0493     | 3.950    | 0.0400 | 4.194         | 0.2004 | 0.0773 | 7       | -1.14               | 3%             | 0    |
| 261.99      | Acid Soluble Manganese , Other (4%)                   | 0481     | 4.065    | 0.0100 | 4.194         | 0.2004 | 0.0773 | 7       | -0.60               | 2%             | 0    |
| 261.99      | Acid Soluble Manganese , Other (4%)                   | 0042     | 4.120    | 0.0600 | 4.194         | 0.2004 | 0.0773 | 7       | -0.34               | 1%             | 0    |
| 261.99      | Acid Soluble Manganese , Other (4%)                   | 0506     | 4.130    | 0.0000 | 4.194         | 0.2004 | 0.0773 | 7       | -0.30               | 1%             | 0    |
| 261.99      | Acid Soluble Manganese , Other (4%)                   | 0389     | 4.290    | 0.1000 | 4.194         | 0.2004 | 0.0773 | 7       | 0.45                | 1%             | 0    |
| 261.99      | Acid Soluble Manganese , Other (4%)                   | 0508     | 4.340    | 0.0600 | 4.194         | 0.2004 | 0.0773 | 7       | 0.68                | 2%             | 0    |
| 261.99      | Acid Soluble Manganese , Other (4%)                   | 0027     | 4.461    | 0.2710 | 4.194         | 0.2004 | 0.0773 | 7       | 1.25                | 3%             | 0    |
| 271.00      | Water Soluble Manganese , AA (%)                      | 0356     | 2.025    | 0.0900 |               |        |        | 2       |                     |                | 0    |
| 271.00      | Water Soluble Manganese , AA (%)                      | 0027     | 2.088    | 0.0240 |               |        |        | 2       |                     |                | 0    |
| 271.30      | Water Soluble Manganese , ICP, Ext. 972.03 (%)        | 0368     | 2.053    | 0.0257 | 2.253         | 0.2388 | 0.0611 | 5       | -0.76               | 4%             | 0    |
| 271.30      | Water Soluble Manganese , ICP, Ext. 972.03 (%)        | 0444     | 2.075    | 0.0300 | 2.253         | 0.2388 | 0.0611 | 5       | -0.68               | 4%             | 0    |

| Method Code | Analyte Name and Method (Units)                        | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|--------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                        |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 271.30      | Water Soluble Manganese , ICP, Ext. 972.03 (%)         | 0231     | 2.210    | 0.1000 | 2.253         | 0.2388 | 0.0611 | 5       | -0.16               | 1%             | 0    |
| 271.30      | Water Soluble Manganese , ICP, Ext. 972.03 (%)         | 0211     | 2.280    | 0.0400 | 2.253         | 0.2388 | 0.0611 | 5       | 0.11                | 1%             | 0    |
| 271.30      | Water Soluble Manganese , ICP, Ext. 972.03 (%)         | 0230     | 2.645    | 0.1100 | 2.253         | 0.2388 | 0.0611 | 5       | 1.50                | 9%             | 0    |
| 271.30      | Water Soluble Manganese , ICP, Ext. 972.03 (%)         | 0220     | 2.065    | 0.6300 | 2.253         | 0.2388 | 0.0611 | 5       | -0.72               | 4%             | 1    |
| 281.30      | Acid Soluble Mercury , ICP (ppm)                       | 0519     | 0.0650   | 0.0100 |               |        |        | 1       |                     |                | 0    |
| 281.99      | Acid Soluble Mercury , Other (ppm)                     | 0042     | 0.5550   | 0.0100 |               |        |        | 1       |                     |                | 0    |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                    | 0433     | 4.189    | 0.0521 | 7.685         | 2.838  | 3.744  | 7       | -1.15               | 23%            | 0    |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                    | 0519     | 5.850    | 0.0600 | 7.685         | 2.838  | 3.744  | 7       | -0.60               | 12%            | 0    |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                    | 0368     | 6.550    | 10.10  | 7.685         | 2.838  | 3.744  | 7       | -0.37               | 7%             | 0    |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                    | 0452     | 7.800    | 0.0400 | 7.685         | 2.838  | 3.744  | 7       | 0.04                | 1%             | 0    |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                    | 0096     | 8.300    | 0.2000 | 7.685         | 2.838  | 3.744  | 7       | 0.20                | 4%             | 0    |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                    | 0102     | 9.165    | 0.5190 | 7.685         | 2.838  | 3.744  | 7       | 0.49                | 10%            | 0    |
| 289.30      | Acid Soluble Molybdenum , ICP (ppm)                    | 0035     | 14.58    | 15.24  | 7.685         | 2.838  | 3.744  | 7       | 2.27                | 45%            | 0    |
| 289.33      | Acid Soluble Molybdenum , ICP, 2006.03 modifi... (ppm) | 0117     | 11.23    | 0.7400 |               |        |        | 2       |                     |                | 0    |
| 289.33      | Acid Soluble Molybdenum , ICP, 2006.03 modifi... (ppm) | 0037     | 13.22    | 0.1300 |               |        |        | 2       |                     |                | 0    |
| 289.34      | Acid Soluble Molybdenum , ICP, EPA 3050B/6010... (ppm) | 0230     | 11.35    | 0.1000 |               |        |        | 1       |                     |                | 0    |
| 289.99      | Acid Soluble Molybdenum , Other (ppm)                  | 0042     | 4.700    | 0.7800 |               |        |        | 2       |                     |                | 0    |
| 289.99      | Acid Soluble Molybdenum , Other (ppm)                  | 0481     | 62.00    | 0.0000 |               |        |        | 2       |                     |                | 0    |
| 291.00      | Acid Soluble Nickel , AA, test portion as in ... (ppm) | 0498     | 156.1    | 2.000  |               |        |        | 2       |                     |                | 0    |
| 291.00      | Acid Soluble Nickel , AA, test portion as in ... (ppm) | 0136     | 375.0    | 10.00  |               |        |        | 2       |                     |                | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0482     | 310.0    | 10.00  | 355.6         | 38.42  | 11.26  | 9       | -1.13               | 6%             | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0035     | 314.5    | 37.00  | 355.6         | 38.42  | 11.26  | 9       | -1.01               | 6%             | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0519     | 330.1    | 0.1100 | 355.6         | 38.42  | 11.26  | 9       | -0.63               | 4%             | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0095     | 348.0    | 6.000  | 355.6         | 38.42  | 11.26  | 9       | -0.19               | 1%             | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0368     | 354.0    | 4.000  | 355.6         | 38.42  | 11.26  | 9       | -0.04               | 0%             | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0452     | 373.0    | 1.600  | 355.6         | 38.42  | 11.26  | 9       | 0.43                | 2%             | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0096     | 378.6    | 23.20  | 355.6         | 38.42  | 11.26  | 9       | 0.57                | 3%             | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0444     | 379.0    | 16.00  | 355.6         | 38.42  | 11.26  | 9       | 0.58                | 3%             | 0    |
| 291.30      | Acid Soluble Nickel , ICP (ppm)                        | 0102     | 420.8    | 3.455  | 355.6         | 38.42  | 11.26  | 9       | 1.61                | 9%             | 0    |
| 291.33      | Acid Soluble Nickel , ICP, 2006.03 modified w... (ppm) | 0117     | 370.7    | 9.600  |               |        |        | 2       |                     |                | 0    |
| 291.33      | Acid Soluble Nickel , ICP, 2006.03 modified w... (ppm) | 0037     | 378.9    | 33.13  |               |        |        | 2       |                     |                | 0    |
| 291.34      | Acid Soluble Nickel , ICP, EPA 3050B/6010C (ppm)       | 0230     | 357.5    | 21.00  |               |        |        | 1       |                     |                | 0    |
| 291.99      | Acid Soluble Nickel , Other (ppm)                      | 0042     | 113.2    | 3.840  | 317.4         | 137.1  | 18.61  | 4       | -1.49               | 32%            | 0    |
| 291.99      | Acid Soluble Nickel , Other (ppm)                      | 0027     | 363.8    | 5.619  | 317.4         | 137.1  | 18.61  | 4       | 0.34                | 7%             | 0    |
| 291.99      | Acid Soluble Nickel , Other (ppm)                      | 0506     | 390.0    | 40.00  | 317.4         | 137.1  | 18.61  | 4       | 0.53                | 11%            | 0    |
| 291.99      | Acid Soluble Nickel , Other (ppm)                      | 0481     | 402.5    | 25.00  | 317.4         | 137.1  | 18.61  | 4       | 0.62                | 13%            | 0    |
| 301.30      | Acid Soluble Selenium , ICP (ppm)                      | 0519     | 1.225    | 0.0900 |               |        |        | 2       |                     |                | 0    |
| 301.30      | Acid Soluble Selenium , ICP (ppm)                      | 0368     | 8.250    | 2.300  |               |        |        | 2       |                     |                | 0    |
| 301.33      | Acid Soluble Selenium , ICP, 2006.03 modified... (ppm) | 0037     | 21.84    | 1.210  |               |        |        | 1       |                     |                | 0    |
| 301.99      | Acid Soluble Selenium , Other (ppm)                    | 0042     | 3.330    | 0.2400 |               |        |        | 1       |                     |                | 0    |
| 311.32      | Sodium, ICP, 2006.03 test portion (%)                  | 0025     | 0.7226   | 0.0060 |               |        |        | 1       |                     |                | 0    |
| 311.33      | Sodium, ICP, 2006.03 modified w/9:3 HNO3:HCl ... (%)   | 0035     | 0.7210   | 0.0240 |               |        |        | 2       |                     |                | 0    |
| 311.33      | Sodium, ICP, 2006.03 modified w/9:3 HNO3:HCl ... (%)   | 0102     | 0.7690   | 0.0120 |               |        |        | 2       |                     |                | 0    |

| Method Code | Analyte Name and Method (Units)                        | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|--------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                        |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 311.99      | Sodium, Other (%)                                      | 0354     | 0.6710   | 0.0200 | 0.7303        | 0.0516 | 0.0133 | 3       | -1.15               | 4%             | 0    |
| 311.99      | Sodium, Other (%)                                      | 0482     | 0.7550   | 0.0100 | 0.7303        | 0.0516 | 0.0133 | 3       | 0.48                | 2%             | 0    |
| 311.99      | Sodium, Other (%)                                      | 0096     | 0.7650   | 0.0100 | 0.7303        | 0.0516 | 0.0133 | 3       | 0.67                | 2%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0428     | 17.96*   | 2.109  | 19.68         | 0.7152 | 0.4323 | 13      | -2.41               | 4%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0457     | 18.85*   | 0.7800 | 19.68         | 0.7152 | 0.4323 | 13      | -1.16               | 2%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0029     | 18.88*   | 0.2300 | 19.68         | 0.7152 | 0.4323 | 13      | -1.13               | 2%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0513     | 19.27    | 0.0600 | 19.68         | 0.7152 | 0.4323 | 13      | -0.58               | 1%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0200     | 19.50    | 0.6000 | 19.68         | 0.7152 | 0.4323 | 13      | -0.25               | 0%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0043     | 19.53    | 0.0500 | 19.68         | 0.7152 | 0.4323 | 13      | -0.22               | 0%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0356     | 19.86    | 0.0000 | 19.68         | 0.7152 | 0.4323 | 13      | 0.25                | 0%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0040     | 19.94    | 0.3290 | 19.68         | 0.7152 | 0.4323 | 13      | 0.36                | 1%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0105     | 20.15    | 0.0100 | 19.68         | 0.7152 | 0.4323 | 13      | 0.65                | 1%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0481     | 20.15    | 0.4600 | 19.68         | 0.7152 | 0.4323 | 13      | 0.66                | 1%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0028     | 20.25    | 0.3000 | 19.68         | 0.7152 | 0.4323 | 13      | 0.80                | 1%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0498     | 20.30    | 0.6000 | 19.68         | 0.7152 | 0.4323 | 13      | 0.87                | 2%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0169     | 20.58    | 0.0920 | 19.68         | 0.7152 | 0.4323 | 13      | 1.26                | 2%             | 0    |
| 321.00      | Acid Soluble Zinc , AA, inorganic 965.09 (20%)         | 0516     | 21.57    | 2.730  | 19.68         | 0.7152 | 0.4323 | 13      | 2.63                | 5%             | 1    |
| 321.01      | Acid Soluble Zinc , AA, organic 965.09 (20%)           | 0211     | 16.99*   | 0.1800 |               |        |        | 1       |                     |                | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0402     | 14.61*   | 0.5500 | 20.13         | 1.535  | 0.3543 | 30      | -3.60               | 14%            | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0292     | 14.91*   | 0.0100 | 20.13         | 1.535  | 0.3543 | 30      | -3.40               | 13%            | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0483     | 16.85*   | 0.9000 | 20.13         | 1.535  | 0.3543 | 30      | -2.13               | 8%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0360     | 17.92*   | 0.6300 | 20.13         | 1.535  | 0.3543 | 30      | -1.44               | 5%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0433     | 18.16*   | 0.1160 | 20.13         | 1.535  | 0.3543 | 30      | -1.28               | 5%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0230     | 18.60*   | 0.0000 | 20.13         | 1.535  | 0.3543 | 30      | -0.99               | 4%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0482     | 18.75*   | 0.7000 | 20.13         | 1.535  | 0.3543 | 30      | -0.90               | 3%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0072     | 19.27    | 0.6300 | 20.13         | 1.535  | 0.3543 | 30      | -0.56               | 2%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0371     | 19.60    | 0.0300 | 20.13         | 1.535  | 0.3543 | 30      | -0.35               | 1%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0444     | 19.68    | 0.2000 | 20.13         | 1.535  | 0.3543 | 30      | -0.29               | 1%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0354     | 19.75    | 0.0280 | 20.13         | 1.535  | 0.3543 | 30      | -0.25               | 1%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0095     | 19.94    | 0.3200 | 20.13         | 1.535  | 0.3543 | 30      | -0.12               | 0%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0324     | 20.05    | 0.7000 | 20.13         | 1.535  | 0.3543 | 30      | -0.05               | 0%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0519     | 20.18    | 0.0400 | 20.13         | 1.535  | 0.3543 | 30      | 0.04                | 0%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0157     | 20.30    | 0.2000 | 20.13         | 1.535  | 0.3543 | 30      | 0.11                | 0%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0368     | 20.35    | 0.0440 | 20.13         | 1.535  | 0.3543 | 30      | 0.14                | 1%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0233     | 20.52    | 0.7400 | 20.13         | 1.535  | 0.3543 | 30      | 0.26                | 1%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0291     | 20.55    | 0.0400 | 20.13         | 1.535  | 0.3543 | 30      | 0.28                | 1%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0377     | 20.88    | 0.1180 | 20.13         | 1.535  | 0.3543 | 30      | 0.49                | 2%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0096     | 20.89    | 1.020  | 20.13         | 1.535  | 0.3543 | 30      | 0.50                | 2%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0055     | 21.03    | 0.2600 | 20.13         | 1.535  | 0.3543 | 30      | 0.59                | 2%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0102     | 21.06    | 0.9430 | 20.13         | 1.535  | 0.3543 | 30      | 0.61                | 2%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0035     | 21.10    | 0.2000 | 20.13         | 1.535  | 0.3543 | 30      | 0.64                | 2%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0073     | 21.11    | 0.6400 | 20.13         | 1.535  | 0.3543 | 30      | 0.64                | 2%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0420     | 21.24    | 0.1800 | 20.13         | 1.535  | 0.3543 | 30      | 0.73                | 3%             | 0    |



| Method Code | Analyte Name and Method (Units)                        | Lab Code | Lab Data |        | Method Values |        |        | # Tests | Magruder CS Z Score | Threshold %RSD | Flag |
|-------------|--------------------------------------------------------|----------|----------|--------|---------------|--------|--------|---------|---------------------|----------------|------|
|             |                                                        |          | Value    | Range  | Rob Mean      | Rob SD | R-bar  |         |                     |                |      |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0231     | 21.33    | 0.0100 | 20.13         | 1.535  | 0.3543 | 30      | 0.78                | 3%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0472     | 21.44    | 0.0700 | 20.13         | 1.535  | 0.3543 | 30      | 0.85                | 3%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0114     | 21.77    | 0.0300 | 20.13         | 1.535  | 0.3543 | 30      | 1.07                | 4%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0090     | 22.47    | 1.270  | 20.13         | 1.535  | 0.3543 | 30      | 1.52                | 6%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0452     | 23.03    | 0.0100 | 20.13         | 1.535  | 0.3543 | 30      | 1.89                | 7%             | 0    |
| 321.30      | Acid Soluble Zinc , ICP, test portion inorgan... (20%) | 0307     | 20.40    | 1.895  | 20.13         | 1.535  | 0.3543 | 30      | 0.18                | 1%             | 1    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0034     | 18.97*   | 0.1800 | 20.21         | 0.9837 | 0.3589 | 10      | -1.20               | 3%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0117     | 19.18    | 0.1600 | 20.21         | 0.9837 | 0.3589 | 10      | -1.00               | 3%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0220     | 19.39    | 0.1700 | 20.21         | 0.9837 | 0.3589 | 10      | -0.80               | 2%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0037     | 19.95    | 0.1900 | 20.21         | 0.9837 | 0.3589 | 10      | -0.25               | 1%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0136     | 20.10    | 0.4000 | 20.21         | 0.9837 | 0.3589 | 10      | -0.10               | 0%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0486     | 20.25    | 0.2200 | 20.21         | 0.9837 | 0.3589 | 10      | 0.04                | 0%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0023     | 20.78    | 0.9400 | 20.21         | 0.9837 | 0.3589 | 10      | 0.56                | 1%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0177     | 20.87    | 0.1829 | 20.21         | 0.9837 | 0.3589 | 10      | 0.64                | 2%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0025     | 20.90    | 0.9661 | 20.21         | 0.9837 | 0.3589 | 10      | 0.68                | 2%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0397     | 21.68    | 0.1800 | 20.21         | 0.9837 | 0.3589 | 10      | 1.43                | 4%             | 0    |
| 321.33      | Acid Soluble Zinc , ICP, test portion 2006.03... (20%) | 0325     | 19.60    | 2.600  | 20.21         | 0.9837 | 0.3589 | 10      | -0.59               | 2%             | 1    |
| 321.99      | Acid Soluble Zinc , Other (20%)                        | 0042     | 19.60    | 0.0200 | 20.29         | 0.5491 | 0.2320 | 5       | -1.26               | 2%             | 0    |
| 321.99      | Acid Soluble Zinc , Other (20%)                        | 0389     | 20.10    | 0.2000 | 20.29         | 0.5491 | 0.2320 | 5       | -0.35               | 0%             | 0    |
| 321.99      | Acid Soluble Zinc , Other (20%)                        | 0506     | 20.15    | 0.3000 | 20.29         | 0.5491 | 0.2320 | 5       | -0.26               | 0%             | 0    |
| 321.99      | Acid Soluble Zinc , Other (20%)                        | 0508     | 20.55    | 0.5800 | 20.29         | 0.5491 | 0.2320 | 5       | 0.47                | 1%             | 0    |
| 321.99      | Acid Soluble Zinc , Other (20%)                        | 0027     | 21.07    | 0.0600 | 20.29         | 0.5491 | 0.2320 | 5       | 1.41                | 2%             | 0    |
| 325.00      | Water Soluble Zinc , AA (%)                            | 0200     | 10.00    | 0.2000 | 12.25         | 2.226  | 0.6547 | 3       | -1.01               | 9%             | 0    |
| 325.00      | Water Soluble Zinc , AA (%)                            | 0356     | 12.30    | 0.9800 | 12.25         | 2.226  | 0.6547 | 3       | 0.02                | 0%             | 0    |
| 325.00      | Water Soluble Zinc , AA (%)                            | 0027     | 14.45    | 0.7840 | 12.25         | 2.226  | 0.6547 | 3       | 0.99                | 9%             | 0    |
| 325.30      | Water Soluble Zinc , ICP (%)                           | 0474     | 9.115    | 0.0300 | 13.10         | 3.703  | 0.3148 | 7       | -1.01               | 15%            | 0    |
| 325.30      | Water Soluble Zinc , ICP (%)                           | 0220     | 10.06    | 0.0400 | 13.10         | 3.703  | 0.3148 | 7       | -0.77               | 12%            | 0    |
| 325.30      | Water Soluble Zinc , ICP (%)                           | 0368     | 12.32    | 0.1739 | 13.10         | 3.703  | 0.3148 | 7       | -0.20               | 3%             | 0    |
| 325.30      | Water Soluble Zinc , ICP (%)                           | 0231     | 12.75    | 0.0800 | 13.10         | 3.703  | 0.3148 | 7       | -0.09               | 1%             | 0    |
| 325.30      | Water Soluble Zinc , ICP (%)                           | 0444     | 12.99    | 0.0700 | 13.10         | 3.703  | 0.3148 | 7       | -0.03               | 0%             | 0    |
| 325.30      | Water Soluble Zinc , ICP (%)                           | 0230     | 15.80    | 0.8000 | 13.10         | 3.703  | 0.3148 | 7       | 0.68                | 10%            | 0    |
| 325.30      | Water Soluble Zinc , ICP (%)                           | 0406     | 19.48    | 1.010  | 13.10         | 3.703  | 0.3148 | 7       | 1.61                | 24%            | 0    |
| 325.30      | Water Soluble Zinc , ICP (%)                           | 0211     | 17.15    | 9.160  | 13.10         | 3.703  | 0.3148 | 7       | 1.02                | 15%            | 1    |

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier and a 4 flag indicates rejected due to 0 value submitted. Robust statistics not used if < 6 labs used in calculations, in this case the Z Scores are included for information only (Grey). An offset lab value with an astrix indicates that the value is lower than the Analyte value less the IA. Method or Analyte codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.