# QC Review

## Organization Name

June 13, 2022

Prepared by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

QAPP version: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Data Quality Objectives

|  | Frequency % | | | | |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Field Duplicate | Lab Duplicate | Field Blank | Lab Blank | Spike/Check Accuracy | % Completeness |
| Water Temp | 10.0 | 10.0 | - | - | - | 90.0 |
| pH | 10.0 | 10.0 | - | - | 10.0 | 90.0 |
| DO | 10.0 | 10.0 | - | 10.0 | 10.0 | 90.0 |
| Conductivity | 10.0 | 10.0 | - | 10.0 | 10.0 | 90.0 |
| TSS | 10.0 | 5.0 | 10.0 | 5.0 | 5.0 | 90.0 |
| TP | 10.0 | 5.0 | 10.0 | 5.0 | 5.0 | 90.0 |
| Ortho P | 10.0 | 5.0 | 10.0 | 5.0 | 5.0 | 90.0 |
| Nitrate | 10.0 | 5.0 | 10.0 | 5.0 | 5.0 | 90.0 |
| Ammonia | 10.0 | 5.0 | 10.0 | 5.0 | 5.0 | 90.0 |
| Chloride | 10.0 | 5.0 | 10.0 | 5.0 | 5.0 | 90.0 |
| Chl a | 10.0 | 5.0 | 10.0 | 5.0 | 5.0 | 90.0 |

| Parameter | uom | MDL | UQL | Value Range | Field Duplicate | Lab Duplicate | Field Blank | Lab Blank | Spike/Check Accuracy |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Water Temp | deg C | - | - | all | <= 10% | <= 10% | - | - | - |
| pH | - | - | - | all | <= 0.5 | <= 0.5 | - | - | <= 0.2 |
| DO | mg/l | 0.1 | - | < 4 | <= 20% | <= 20% | < 0.1 | < 0.1 | <= 5% |
| DO | mg/l | 0.1 | - | >= 4 | <= 10% | <= 10% | < 0.1 | < 0.1 | <= 5% |
| Sp Conductance | uS/cm | 1.0 | - | < 250 | <= 30% | <= 20% | < 25 | < 25 | <= 50 |
| Sp Conductance | uS/cm | 1.0 | - | >= 250 | <= 20% | <= 10% | < 25 | < 25 | <= 50 |
| TSS | mg/l | 1.0 | - | < 3 | <= 1 | <= 20% | BDL | BDL | - |
| TSS | mg/l | 1.0 | - | >= 3 | <= 30% | <= 20% | BDL | BDL | - |
| TP | mg/l | 0.0 | - | < 0.05 | <= 0.02 | <= 0.01 | BDL | BDL | <= 0.01 |
| TP | mg/l | 0.0 | - | >= 0.05 | <= 30% | <= 20% | BDL | BDL | <= 15% |
| Ortho P | mg/l | 0.0 | - | < 0.05 | <= 0.01 | <= 20% | BDL | BDL | <= 0.01 |
| Ortho P | mg/l | 0.0 | - | >= 0.05 | <= 20% | <= 20% | BDL | BDL | <= 15% |
| Nitrate | mg/l | 0.0 | - | all | <= 30% | <= 20% | BDL | BDL | <= 15% |
| Ammonia | mg/l | 0.0 | - | all | <= 30% | <= 20% | BDL | BDL | <= 15% |
| Chloride | mg/l | 1.0 | - | all | <= 30% | <= 20% | BDL | BDL | <= 15% |
| Chl a | ug/l | 2.0 | - | < 15 | <= 2 | <= 20% | BDL | BDL | - |
| Chl a | ug/l | 2.0 | - | >= 15 | <= 20% | <= 20% | BDL | BDL | - |
| E.coli | cfu/100ml | 10.0 | 2,400.0 | <50 | <=log30% | <=log30% | BDL | BDL | - |
| E.coli | cfu/100ml | 10.0 | 2,400.0 | >=50 | <=log20% | <=log20% | BDL | BDL | - |
| E.coli | cfu/100ml | 10.0 | 2,400.0 | >=500 | <=log10% | <=log10% | BDL | BDL | - |
| E.coli | cfu/100ml | 10.0 | 2,400.0 | >=5000 | <=log5% | <=log5% | BDL | BDL | - |

Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### QC Frequencies for 1/14/2021 to 11/14/2021

| Type | Parameter | Number of Data Records | Number of Dups/Blanks/Spikes | Frequency % | Hit/Miss |
| --- | --- | --- | --- | --- | --- |
| Field Duplicates |  |  |  |  |  |
|  | Ammonia | 138 | 0 | 0% | MISS |
|  | Chl a | 18 | 0 | 0% | MISS |
|  | DO | 199 | 0 | 0% | MISS |
|  | Nitrate | 96 | 8 | 8% | MISS |
|  | Ortho P | 175 | 0 | 0% | MISS |
|  | pH | 199 | 0 | 0% | MISS |
|  | TP | 205 | 15 | 7% | MISS |
|  | TSS | 202 | 0 | 0% | MISS |
|  | Water Temp | 382 | 43 | 11% |  |
| Lab Duplicates |  |  |  |  |  |
|  | Ammonia | 138 | 0 | 0% | MISS |
|  | Chl a | 18 | 0 | 0% | MISS |
|  | DO | 199 | 0 | 0% | MISS |
|  | Nitrate | 96 | 11 | 11% |  |
|  | Ortho P | 175 | 0 | 0% | MISS |
|  | pH | 199 | 4 | 2% | MISS |
|  | TP | 205 | 12 | 6% |  |
|  | TSS | 202 | 0 | 0% | MISS |
|  | Water Temp | 382 | 0 | 0% | MISS |
| Field Blanks |  |  |  |  |  |
|  | Ammonia | 138 | 7 | 5% | MISS |
|  | Chl a | 18 | 0 | 0% | MISS |
|  | Nitrate | 96 | 0 | 0% | MISS |
|  | Ortho P | 175 | 0 | 0% | MISS |
|  | TP | 205 | 9 | 4% | MISS |
|  | TSS | 202 | 0 | 0% | MISS |
| Lab Blanks |  |  |  |  |  |
|  | Ammonia | 138 | 7 | 5% |  |
|  | Chl a | 18 | 0 | 0% | MISS |
|  | DO | 199 | 0 | 0% | MISS |
|  | Nitrate | 96 | 0 | 0% | MISS |
|  | Ortho P | 175 | 0 | 0% | MISS |
|  | TP | 205 | 8 | 4% | MISS |
|  | TSS | 202 | 0 | 0% | MISS |
| Lab Spikes |  |  |  |  |  |
|  | Ammonia | 138 | 0 | 0% | MISS |
|  | Chl a | 18 | 0 | 0% | MISS |
|  | Nitrate | 96 | 6 | 6% |  |
|  | Ortho P | 175 | 8 | 5% | MISS |
|  | TP | 205 | 21 | 10% |  |
|  | TSS | 202 | 0 | 0% | MISS |
| Instrument Checks |  |  |  |  |  |
|  | DO | 199 | 0 | 0% | MISS |
|  | pH | 199 | 6 | 3% | MISS |

Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

| Parameter | Field Duplicate | Lab Duplicate | Field Blank | Lab Blank | Spike/Check Accuracy |
| --- | --- | --- | --- | --- | --- |
| Ammonia | 0% | 0% | 5% | 5% | 0% |
| Chl a | 0% | 0% | 0% | 0% | 0% |
| DO | 0% | 0% | - | 0% | 0% |
| Nitrate | 8% | 11% | 0% | 0% | 6% |
| Ortho P | 0% | 0% | 0% | 0% | 5% |
| pH | 0% | 2% | - | - | 3% |
| TP | 7% | 6% | 4% | 4% | 10% |
| TSS | 0% | 0% | 0% | 0% | 0% |
| Water Temp | 11% | 0% | - | - | - |

### QC Accuracy Summary for 1/14/2021 to 11/14/2021

| Type | Parameter | Number of QC Checks | Number of Misses | % Acceptance |
| --- | --- | --- | --- | --- |
| Field Duplicates |  |  |  |  |
|  | E.coli | 22 | 8 | 64 % |
|  | Nitrate | 8 | 2 | 75 % |
|  | Sp Conductance | 4 | 1 | 75 % |
|  | TP | 15 | 6 | 60 % |
|  | Water Temp | 43 | 1 | 98 % |
| Lab Duplicates |  |  |  |  |
|  | E.coli | 6 | 3 | 50 % |
|  | Nitrate | 11 | 5 | 55 % |
|  | pH | 4 | 1 | 75 % |
|  | TP | 12 | 4 | 67 % |
| Field Blanks |  |  |  |  |
|  | Ammonia | 7 | 2 | 71 % |
|  | E.coli | 3 | 2 | 33 % |
|  | TP | 9 | 3 | 67 % |
| Lab Blanks |  |  |  |  |
|  | Ammonia | 7 | 2 | 71 % |
|  | Sp Conductance | 5 | 2 | 60 % |
|  | TP | 8 | 3 | 62 % |
| Lab Spikes |  |  |  |  |
|  | Nitrate | 6 | 2 | 67 % |
|  | Ortho P | 8 | 3 | 62 % |
|  | TP | 21 | 2 | 90 % |
| Instrument Checks |  |  |  |  |
|  | pH | 6 | 5 | 17 % |
|  | Sp Conductance | 10 | 4 | 60 % |

Notes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

| Parameter | Field Duplicate | Lab Duplicate | Field Blank | Lab Blank | Spike/Check Accuracy |
| --- | --- | --- | --- | --- | --- |
| Ammonia | - | - | 71% | 71% | - |
| E.coli | 64% | 50% | 33% | - | - |
| Nitrate | 75% | 55% | - | - | 67% |
| Ortho P | - | - | - | - | 62% |
| pH | - | 75% | - | - | 17% |
| Sp Conductance | 75% | - | - | 60% | 60% |
| TP | 60% | 67% | 67% | 62% | 90% |
| Water Temp | 98% | - | - | - | - |

### Data Completeness for 1/14/2021 to 11/14/2021