| Caveats and Assumptions |
| --- |
| WLA ≤ 0. When the ambient concentration exceeds or nearly exceeds the criterion (C), the WLA would be less than or equal to 0. Many states use an approach that when WLA ≤ 0, then the WLA = C. The RPA submitted today uses this assumption. |
| Calculation of Average Monthly Limits (AMLs). By calculating the LTAc at the 95th Percentile and calculating an AML at the 95th Percentile (with 4 samples per month), the AML is equal to the WLA. |
| Summary. Because cases exist where the WLA ≤ 0, the breakdown of effluent limits also includes a category for facilities that fall into this scenario. |
| Roundup WWTP (MT0030295): The RPA was performed for the two outfalls listed in Roundup WWTP's permit. Both outfalls discharge the same treated effluent from the facility, but Outfall 001 discharges to the Musselshell River, whereas Outfall 002 discharges to impoundments/wetlands. While Outfall 002 doesn't discharge to a surface water, a RPA was done for this outfall because its effluent is the same as what is discharged to the Musselshell River at Outfall 001. |
| Color coding of tabs. Each facility's tab is color-coded in Red, Yellow, or Green: red is for discharges with RP for TN and/or TP; yellow is for discharges that have assumptions made for the critical ambient flow, regardless of the RP result; and green is for discharges with no RP for TN and TP. |
| **TN_CALC.** This field was calculated by summing NO2/NO3 and TKN for observations when TN was not present. |

## Distribution of Total Nitrogen Effluent Limitations

| | |
|---|---|
| **No RP for TN** | MT0020001, MT0020044, MT0020303, MT0020354, MT0020478, MT0020656, MT0020753, MT0028665, MT0030732, MT0021440 |
| **AML < 2.5 mg/L** | MT0020052, MT0021750, MT0022713 |
| **AML 2.5-4.9 mg/L** | MT0020028, MT0020125 |
| **AML 5-6.9 mg/L** | MT0022535, MT0030309 |
| **AML ≥ 7 mg/L** | MT0030295 (Outfalls 001 & 002) |
| **$C_s$ > Criteria** | MT0021211, MT0021857, MT0023566 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020001

Miles City WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) [MGD]

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 4,193 | 4,193 | 4,193 |
| 100% | 100% | 100% |
| 2709.9359 | 2709.9359 | 2709.9359 |
| 0.4595 | 0.4595 | 0.04755 |
| 1.98 | 1.98 | 1.98 |
| 36.6 | 36.6 | 3.68 |
| 12 | 15 | 15 |
| 0.27457 | 0.25800 | 0.17715 |
| 0.77908 | 0.81896 | 0.81896 |
| 0.76908 | 0.91142 | 0.91142 |
| 1.26260 | 1.20133 | 1.13544 |
| 46.21131 | 43.96875 | 4.17841 |
| 2711.9159 | 2711.9159 | 2711.9159 |
| | | |

| | | |
|---|---|---|
| 0.493 | 0.491 | 0.051 |
| 0.655 | 0.655 | 0.055 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020028

Hamilton WWTP, City of

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) [MGD]

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 243.7 | | 243.7 |
| 100% | | 100% |
| 157.50331 | 0 | 157.50331 |
| 0.1625 | | 0.009 |
| 1.984 | | 1.984 |
| 11 | | 8.3 |
| 10 | | 10 |
| 0.61520 | | 0.26025 |
| 0.74113 | | 0.74113 |
| 0.64685 | | 0.64685 |
| 1.74939 | | 1.28751 |
| 19.24328 | | 10.68637 |
| 159.48731 | 0 | 159.48731 |
| | | |

| | | |
|---|---|---|
| 0.400 | | 0.142 |
| 0.3 | | 0.03 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 4.15572 | | 1.30611 |
| 2.65138 | | 1.06427 |
| 4 | 4 | 4 |
| 4.15572 | | 1.30611 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020044

Lewistown WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 83 | 83 | 83 |
| 100% | 100% | 100% |
| 53.6429 | 53.6429 | 53.6429 |
| 0.6 | 0.6 | 0.01825 |
| 2.5 | 2.5 | 2.5 |
| 6.45 | 7.94 | 0.97 |
| 7 | 7 | 15 |
| 0.6 | 0.6 | 0.51355 |
| 0.65184 | 0.65184 | 0.81896 |
| 0.39028 | 0.39028 | 0.91142 |
| 1.99303 | 1.99303 | 1.41848 |
| 12.85506 | 15.82468 | 1.37593 |
| 56.1429 | 56.1429 | 56.1429 |
| | | |

| | | |
|---|---|---|
| 1.146 | 1.278 | 0.079 |
| 1.3 | 1.3 | 0.15 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020052

Choteau Sewage Treatment Ponds

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 0.27851 | | 0.27851 |
| 100% | | 100% |
| 0.18 | 0 | 0.18 |
| 0.26 | | 0.012 |
| 0.3 | | 0.3 |
| 20.27 | | 2.7 |
| 11 | | 11 |
| 0.75435 | | 0.83699 |
| 0.76160 | | 0.76160 |
| 0.71145 | | 0.71145 |
| 1.85742 | | 1.95861 |
| 37.64981 | | 5.28824 |
| 0.48 | 0 | 0.48 |
| | | |

| | | |
|---|---|---|
| 23.629 | | 3.310 |
| 1.3 | | 0.11 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 1.83863 | | 0.16486 |
| 1.07852 | | 0.09229 |
| 4 | 4 | 4 |
| 1.83863 | | 0.16486 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020125

Chinook WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 6.4 | | 6.4 |
| 100% | | 100% |
| 4.13632 | 0 | 4.13632 |
| 0.6725 | | 0.06725 |
| 0.5 | | 0.5 |
| 28.4 | | 3.12 |
| 22 | | 22 |
| 0.77514 | | 0.34450 |
| 0.87269 | | 0.87269 |
| 1.13922 | | 1.13922 |
| 1.40410 | | 1.18021 |
| 39.87640 | | 3.68226 |
| 4.63632 | 0 | 4.63632 |
| | | |

| | | |
|---|---|---|
| 4.900 | | 0.457 |
| 1.3 | | 0.11 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 3.44643 | | 0.15919 |
| 1.99756 | | 0.12193 |
| 4 | 4 | 4 |
| 3.44643 | | 0.15919 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020303

Bridger WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 169 | | 169 |
| 100% | | 100% |
| 109.2247 | 0 | 109.2247 |
| 0.76 | | 0.009 |
| 0.124 | | 0.124 |
| 15.3 | | 3.25 |
| 11 | | 11 |
| 0.50764 | | 0.51828 |
| 0.76160 | | 0.76160 |
| 0.71145 | | 0.71145 |
| 1.55543 | | 1.56831 |
| 23.79804 | | 5.09700 |
| 109.3487 | 0 | 109.3487 |
| | | |

| | | |
|---|---|---|
| 0.786 | | 0.015 |
| 1.3 | | 0.15 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020354

Harlowton WWTF, City of

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) [MGD]

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| | 15.5 | 15.5 |
| | 100% | 100% |
| 0 | 10.01765 | 10.01765 |
| | 0.25 | 0.022 |
| | 0.22 | 0.22 |
| | 12.68 | 4.07 |
| | 16 | 16 |
| | 0.25393 | 0.32384 |
| | 0.82925 | 0.82925 |
| | 0.95121 | 0.95121 |
| | 1.18611 | 1.24064 |
| | 15.03991 | 5.04941 |
| 0 | 10.23765 | 10.23765 |
| | | |

| | | |
|---|---|---|
| | 0.56782 | 0.13004 |
| | 1.3 | 0.15 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020478

Red Lodge WWTF

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 57.8 | | 57.8 |
| 100% | | 100% |
| 37.35614 | 0 | 37.35614 |
| 0.212 | | 0.003 |
| 1.2 | | 1.2 |
| 21 | | 3.19 |
| 16 | | 16 |
| 0.23882 | | 0.23267 |
| 0.82925 | | 0.82925 |
| 0.95121 | | 0.95121 |
| 1.17446 | | 1.16973 |
| 24.66364 | | 3.73144 |
| 38.55614 | 0 | 38.55614 |
| | | |

| | | |
|---|---|---|
| 0.97302 | | 0.11904 |
| 1.3 | | 0.15 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020656

Hinsdale County Water and Sewer District WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 36.4 | | 36.4 |
| 100% | | 100% |
| 23.52532 | 0 | 23.52532 |
| 1.08 | | 0.0495 |
| 0.03 | | 0.03 |
| 31.2 | | 5.9 |
| 21 | | 21 |
| 0.50294 | | 0.87957 |
| 0.86705 | | 0.86705 |
| 1.11257 | | 1.11257 |
| 1.28096 | | 1.48396 |
| 39.96598 | | 8.75537 |
| 23.55532 | 0 | 23.55532 |
| | | |

| | | |
|---|---|---|
| 1.12953 | | 0.06059 |
| 1.3 | | 0.11 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0020753

Big Timber WWTF, City of

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 60.3 | | 60.3 |
| 100% | | 100% |
| 38.97189 | 0 | 38.97189 |
| 0.145 | | 0.0055 |
| 0.39 | | 0.39 |
| 44.4 | | 8.8 |
| 15 | | 15 |
| 0.16020 | | 0.09825 |
| 0.81896 | | 0.81896 |
| 0.91142 | | 0.91142 |
| 1.12190 | | 1.07339 |
| 49.81223 | | 9.44585 |
| 39.36189 | 0 | 39.36189 |
| | | |

| | | |
|---|---|---|
| 0.63711 | | 0.09904 |
| 1.3 | | 0.15 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0021211

Glasgow WWTF, City of

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 36.4 | | 36.4 |
| 100% | | 100% |
| 23.52532 | 0 | 23.52532 |
| 1.2 | | 0.095 |
| 0.5 | | 0.5 |
| 28.7 | | 3.24 |
| 7 | | 7 |
| 0.6 | | 0.6 |
| 0.65184 | | 0.65184 |
| 0.39028 | | 0.39028 |
| 1.99303 | | 1.99303 |
| 57.20003 | | 6.45742 |
| 24.02532 | 0 | 24.02532 |
| | | |

| | | |
|---|---|---|
| 2.36544 | | 0.22741 |
| 1.3 | | 0.11 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 1.3 | | 0.11 |
| 0.83740 | | 0.07086 |
| 4 | 4 | 4 |
| 1.3 | | 0.11 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0021440

Vaughn WWTF

002

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 171.3 | | 171.3 |
| 100% | | 100% |
| 110.71119 | 0 | 110.71119 |
| 0.88 | | 0.085 |
| 0.0894 | | 0.0894 |
| 33.1 | | 7.8 |
| 9 | | 12 |
| 0.6 | | 0.20835 |
| 0.71687 | | 0.77908 |
| 0.57357 | | 0.76908 |
| 1.80042 | | 1.19518 |
| 59.59398 | | 9.32240 |
| 110.80059 | 0 | 110.80059 |
| | | |

| | | |
|---|---|---|
| 0.92737 | | 0.09245 |
| 1.3 | | 0.11 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0021750

Absarokee Sewer District WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| | 0.77363 | 0.77363 |
| | 100% | 100% |
| 0 | 0.5 | 0.5 |
| | 0.046 | 0.00375 |
| | 0.35 | 0.35 |
| | 7.03 | 0.925 |
| | 5 | 5 |
| | 0.6 | 0.6 |
| | 0.54928 | 0.54928 |
| | 0.12384 | 0.12384 |
| | 2.31036 | 2.31036 |
| | 16.24180 | 2.13708 |
| 0 | 0.85 | 0.85 |
| | | |

| | | |
|---|---|---|
| | 6.71486 | 0.88218 |
| | 0.44 | 0.033 |

| | | |
|---|---|---|
| no | yes | yes |

| | | |
|---|---|---|
| | 0.96689 | 0.07185 |
| | 0.62283 | 0.04628 |
| 4 | 4 | 4 |
| | 0.96689 | 0.07185 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0021857

Manhattan WWTF

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 1 | | 1 |
| 100% | | 100% |
| 0.6463 | 0 | 0.6463 |
| 0.365 | | 0.011 |
| 0.4 | | 0.4 |
| 11.9 | | 0.72 |
| 4 | | 4 |
| 0.6 | | 0.6 |
| 0.47287 | | 0.47287 |
| -0.06806 | | -0.06806 |
| 2.56976 | | 2.56976 |
| 30.58012 | | 1.85023 |
| 1.0463 | 0 | 1.0463 |
| | | |

| | | |
|---|---|---|
| 11.91623 | | 0.71414 |
| 0.3 | | 0.03 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 0.3 | | 0.05097 |
| 0.19325 | | 0.03283 |
| 4 | 4 | 4 |
| 0.3 | | 0.05097 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0022535

Havre WWTP, City of

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 40.2 | | 40.2 |
| 100% | | 100% |
| 25.98126 | 0 | 25.98126 |
| 0.6 | | 0.027 |
| 1.8 | | 1.8 |
| 25.2 | | 3.2 |
| 18 | | 18 |
| 0.16088 | | 0.23100 |
| 0.84668 | | 0.84668 |
| 1.02231 | | 1.02231 |
| 1.10272 | | 1.14966 |
| 27.78853 | | 3.67892 |
| 27.78126 | 0 | 27.78126 |
| | | |

| | | |
|---|---|---|
| 2.362 | | 0.264 |
| 1.3 | | 0.11 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 6.66424 | | 1.09474 |
| 5.85838 | | 0.91190 |
| 4 | 4 | 4 |
| 6.66424 | | 1.09474 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0022713

Stevensville WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 15.1 | | 15.1 |
| 100% | | 100% |
| 9.75913 | 0 | 9.75913 |
| 0.1775 | | 0.012 |
| 0.3 | | 0.3 |
| 21.31 | | 4.55 |
| 9 | | 9 |
| 0.6 | | 0.6 |
| 0.71687 | | 0.71687 |
| 0.57357 | | 0.57357 |
| 1.80042 | | 1.80042 |
| 38.36700 | | 8.19192 |
| 10.05913 | 0 | 10.05913 |
| | | |

| | | |
|---|---|---|
| 1.316 | | 0.256 |
| 0.3 | | 0.03 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 1.12496 | | 0.40191 |
| 0.72465 | | 0.25889 |
| 4 | 4 | 4 |
| 1.12496 | | 0.40191 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0023566

Elkhorn Health Care WWTF

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 11.8 | | 11.8 |
| 100% | | 100% |
| 7.62634 | 0 | 7.62634 |
| 5.54 | | 0.01 |
| 0.015 | | 0.015 |
| 29 | | 8.13 |
| 15 | | 15 |
| 0.34596 | | 0.41228 |
| 0.81896 | | 0.81896 |
| 0.91142 | | 0.91142 |
| 1.27500 | | 1.33148 |
| 36.97511 | | 10.82492 |
| 7.64134 | 0 | 7.64134 |
| | | |

| | | |
|---|---|---|
| 5.602 | | 0.0312 |
| 0.3 | | 0.03 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 0.3 | | 7.41601 |
| 0.22954 | | 5.41338 |
| 4 | 4 | 4 |
| 0.3 | | 7.41601 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0028665

Sun Prairie Village WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 229 | | 229 |
| 100% | | 100% |
| 148.0027 | 0 | 148.0027 |
| 0.88 | | 0.085 |
| 0.189 | | 0.189 |
| 19.4 | | 5.16 |
| 8 | | 20 |
| 0.6 | | 0.20236 |
| 0.68766 | | 0.86089 |
| 0.48922 | | 1.08433 |
| 1.88664 | | 1.11641 |
| 36.60080 | | 5.76067 |
| 148.1917 | 0 | 148.1917 |
| | | |

| | | |
|---|---|---|
| 0.926 | | 0.092 |
| 1.3 | | 0.11 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0030295

Roundup WWTP, City of

001 (Facility Discharge - Musselshell River)

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 12 | | 12 |
| 100% | | 100% |
| 7.7556 | 0 | 7.7556 |
| 0.35 | | 0.277 |
| 0.32 | | 0.32 |
| 10.17 | | 2.8 |
| 1 | | 1 |
| 0.6 | | 0.6 |
| 0.05 | | 0.05 |
| -1.64485 | | -1.64485 |
| 6.16056 | | 6.16056 |
| 62.65286 | | 17.24956 |
| 8.0756 | 0 | 8.0756 |
| | | |

| | | |
|---|---|---|
| 2.819 | | 0.950 |
| 1.3 | | 0.15 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 19.68213 | | 0.15 |
| 12.67831 | | 0.09662 |
| 4 | 4 | 4 |
| 19.68213 | | 0.15 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0030295

Roundup WWTP, City of

002 (Facility Discharge - Impoundment/Wetlands)

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 12 | | 12 |
| 100% | | 100% |
| 7.7556 | 0 | 7.7556 |
| 0.35 | | 0.277 |
| 0.32 | | 0.32 |
| 15.1 | | 4.8 |
| 5 | | 5 |
| 0.6 | | 0.6 |
| 0.54928 | | 0.54928 |
| 0.12384 | | 0.12384 |
| 2.31036 | | 2.31036 |
| 34.88638 | | 11.08971 |
| 8.0756 | 0 | 8.0756 |
| | | |

| | | |
|---|---|---|
| 1.719 | | 0.705 |
| 1.3 | | 0.15 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 19.68213 | | 0.15 |
| 12.67831 | | 0.09662 |
| 4 | 4 | 4 |
| 19.68213 | | 0.15 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0030309

Grass Range WWTP, Town of

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 0.5 | | 0.5 |
| 100% | | 100% |
| 0.32315 | 0 | 0.32315 |
| 0.51 | | 0.085 |
| 0.038 | | 0.038 |
| 7.3 | | 2.07 |
| 1 | | 1 |
| 0.6 | | 0.6 |
| 0.05 | | 0.05 |
| -1.64485 | | -1.64485 |
| 6.16056 | | 6.16056 |
| 44.97206 | | 12.75235 |
| 0.36115 | 0 | 0.36115 |
| | | |

| | | |
|---|---|---|
| 5.188 | | 1.418 |
| 1.3 | | 0.15 |

| | | |
|---|---|---|
| yes | no | yes |

| | | |
|---|---|---|
| 5.64461 | | 0.30717 |
| 3.63599 | | 0.19787 |
| 4 | 4 | 4 |
| 5.64461 | | 0.30717 |

**MPDES ID**

**Facility**

**Outfall**

**Term**

$Qs^1$

% Qs

$Qs^2$

Cs or B

Qd

Cmax

n

CV

Pn

$Z_{Pn}$

TSD

Cd or E

Qr

D

Cr or C

WQS

WLAc

LTAc

$n_{AML}$

AML

MT0030732

Ennis WWTP

001

**Description**

critical stream flow (7Q10) **[cfs]**

% of Qs being provided (as decimal, e.g. - .10 for 10%)

resulting critical stream flow ($Qs^1$ * %Qs) **[converted to MGD]**

critical instream concentration (75%tile if n<=30, 95% UCL if n>30)

critical effluent flow (design flow, units must match Qs) **[MGD]**

maximum effluent concentration for POR (from application or DMR data)

number of samples in effluent data set

coefficient of variation for effluent data (if n<10, use 0.6)

%tile for n samples at 95% confidence level

Z-score for Pn

calculated TSD multiplier (should be close to Table 3-2 value)

critical effluent concentration - 95%tile (max. effluent concentration for POR * TSD multiplier)

downstream flow (Qs + Qd)

dilution ratio ($Qs^2$/Qd, may be entered instead of Qs and Qd)

resulting or downstream pollutant concentration (term to solve for)

water quality standard (from DEQ-7 or rule)

RP?

Wasteload Allocation (Chronic)

Long-Term Average (Chronic, 95th Percentile)

Number of Samples (for AML calculation)

Average Monthly Effluent Limitation (95th Percentile)

| TN | TN_calc | TP |
|---|---|---|
| 1052 | | 1052 |
| 100% | | 100% |
| 679.9076 | 0 | 679.9076 |
| 0.17 | | 0.026 |
| 0.24 | | 0.24 |
| 13.1 | | 4.3 |
| 4 | | 4 |
| 0.6 | | 0.6 |
| 0.47287 | | 0.47287 |
| -0.06806 | | -0.06806 |
| 2.56976 | | 2.56976 |
| 33.66383 | | 11.04996 |
| 680.1476 | 0 | 680.1476 |
| | | |

| | | |
|---|---|---|
| 0.182 | | 0.02989 |
| 0.3 | | 0.03 |

| | | |
|---|---|---|
| no | no | no |

| | | |
|---|---|---|
| | | |
| | | |
| 4 | 4 | 4 |
| | | |