

Calculation Definitions

Limit type	Abbreviation	Calculation
12 Month Moving Average	12MoMovAve	Add all of the monthly average values during the last 12 months and divide by 12. The 12 month period is defined as the current month and the previous 11 months.
12 Month Moving Average Intervention	12MoAveInt	Add all of the monthly average values during the last 12 months and divide by 12. The 12 month period is defined as the current month and the previous 11 months. Exceedance does not trigger violation.
12 Month Moving Total	12MoTotal	First calculate the monthly total kg/mo loading by multiplying the total effluent flow x monthly average concentration x 3.785 for the current month and previous 11 months. Add all results to get the 12 month moving total value.
5 Day Geometric Mean Intervention	5DayGeoInt	<p>Multiply all values measured during a five-day period and calculate the nth root of the product $(a_1 \times a_2 \dots a_n)^{1/n}$ where n is the number of entries.</p> <p>Or determine the logarithm of each data point, add all the logarithms together and divide by the number of data points to get a log average value. Then convert this log average back to a base 10 number by finding the antilog of this number (calculate $10^{\log \text{ average value}}$).</p> <p>Report the highest 5 Day Geometric Mean.</p>
Annual Median	AnnMedian	List all samples from lowest value to highest value and pick the middle one. If there is an even number of observations, then there is no single middle value; in that case, report the mean of the two middle values.
Calendar Month Average	CalMoAvg	Add all daily values measured during a calendar month and divide by the number of daily values measured.
Calendar Month Average Intervention	CalMoAvInt	Add all daily values measured during a calendar month and divide by the number of daily values measured. Exceedance does not trigger violation.
Calendar Month Flow-Weighted Mean	CalMoFWMn	Multiply each individual sample taken during the calendar month by its respective individual flow, add these calculations together, and divide by the sum of the flows.
Calendar Month Geometric Mean	CalMoGeoMn	<p>Multiply all values measured during a calendar month and calculate the nth root of the product $(a_1 \times a_2 \dots a_n)^{1/n}$ where n is the number of entries.</p> <p>Or determine the logarithm of each sample, add all the logarithms together and divide by the number of data points to get a log average value. Then convert this log average back to a base 10 number by finding the antilog of this number (calculate $10^{\log \text{ average value}}$).</p>
Calendar Month Max Intervention	CalMoMxInt	Highest sample value taken during a calendar month. Exceedance does not trigger violation.

Limit type	Abbreviation	Calculation
Calendar Month Maximum	CalMoMax	Highest sample value taken during a calendar month.
Calendar Month Max of Daily Average	CI MoMxDavg	The highest daily average value in a calendar month.
Calendar Month Minimum	CalMoMin	Lowest sample value taken during a calendar month.
Calendar Month Total	CalMoTot	Sum of all daily values measured during a calendar month.
Calendar Month Total Intervention	CalMoToInt	Sum of all daily values measured during a calendar month. Exceedance does not trigger a violation.
Calendar Quarter Average	CalQtrAve	Add all daily values taken during a calendar quarter and divide by the number of daily values measured during the quarter.
Calendar Quarter Maximum	CalQtrMax	Highest sample value taken during a calendar quarter.
Calendar Quarter Maximum Intervention	CalQtrMxIn	Highest sample value taken during a calendar quarter. Exceedance does not trigger a violation.
Calendar Quarter Minimum	CalQtrMin	Lowest sample value taken during a calendar quarter.
Calendar Quarter Total	CalQtrTot	Sum of all daily values measured during a calendar quarter.
Calendar Week Geometric Mean	CalWkGeoMn	<p>Please refer to the definition of 'Calendar Week' below.</p> <p>Multiply all values measured during a calendar week and calculate the nth root of the product $(a_1 \times a_2 \dots a_n)^{1/n}$ where n is the number of entries.</p> <p>Or determine the logarithm of each sample, add all the logarithms together and divide by the number of data points to get a log average value. Then convert this log average back to a base 10 number by finding the antilog of this number (calculate $10^{\text{log average value}}$).</p> <p>Report the highest calendar week geometric mean.</p>
Calendar Year Average	CalYrAvg	Add all daily values taken during a calendar year and divide by the number of daily values measured during the year.
Calendar Year Average Intervention	CalYrAvInt	Add all daily values taken during a calendar year and divide by the number of daily values measured during the year. Exceedance does not trigger a violation.
Calendar Year Average Intervention-Quarter	CalYrAvI-Q	<p>Add all sample values measured during each calendar quarter and divide by the number of samples to obtain four calendar quarter averages.</p> <p>Add the four calendar quarter averages and divide by the number of calculated calendar quarter averages. Exceedance is not reported as a violation.</p>
Calendar Year Average-Quarter	CalYrAvg-Q	<p>Add all sample values measured during each calendar quarter and divide by the number of samples to obtain four calendar quarter averages.</p> <p>Add the four calendar quarter averages and divide by the number of calculated calendar quarter averages.</p>
Calendar Year Maximum	CalYrMax	Highest sample value taken during a calendar year.

Limit type	Abbreviation	Calculation
Calendar Year Maximum Intervention-Quarter	CalYrMxl-Q	Calendar Year Maximum Intervention Quarter is the highest value of four quarterly samples reported once a year. Exceedances do not trigger a violation. Used for Stormwater in wastewater permits.
Calendar Year Minimum	CalYrMin	Lowest sample value taken during a calendar year.
Calendar Year Minimum Intervention-Quarter	CalYrMnl-Q	Calendar Year Minimum Intervention Quarter is the lowest value of four quarterly samples reported once a year. Exceedances do not trigger a violation. Used for Stormwater in wastewater permits.
Calendar Year to Date Total	CalYTDTot	Sum all values measured from the first of the calendar year to the end date of the current reporting period. When used for loading values (kg/yr), first calculate the monthly total kg/mo loading by multiplying the total effluent flow x monthly average concentration x 3.785, then sum all loading values from the first of the calendar year to the end date of the current reporting period. Use the flow from the SD station, or if there is no SD value, then use the flow from the WS station.
Calendar Year to Date Total Intervention	CalYTDTotI	Sum all values measured from the first of the calendar year to the end date of the current reporting period. When used for loading values (kg/yr), first calculate the monthly total kg/mo loading by multiplying the total effluent flow x monthly average concentration x 3.785, then sum all loading values from the first of the calendar year to the end date of the current reporting period. Use the flow from the SD station, or if there is no SD value, then use the flow from the WS station. Exceedance does not trigger a violation.
Calendar Year to Date Total-Phosphorus	CalYTDTot-P	Sum all values measured from the first of the calendar year to the end date of the current reporting period. When used for loading values (kg/yr), first calculate the monthly total kg/mo loading by multiplying the total effluent flow x monthly average concentration x 3.785, then sum all loading values from the first of the calendar year to the end date of the current reporting period. Use the flow from the SD station, or if there is no SD value, then use the flow from the WS station.
Calendar Year Total	CalYrTot	Sum of all daily values measured during a calendar year.
Calendar Year Total Intervention	CalYrTtInt	Sum of all daily values measured during a calendar year. Exceedance is not reported as a violation.
Daily Average	DailyAve	Calculated by adding all sample values measured during a 24-hour period and dividing by the number of samples measured that 24-hour period.
Daily Average Intervention	DailyAvInt	Calculated by adding all sample values measured during a 24-hour period and dividing by the number of samples measured that 24-hour period. Exceedance is not reported as a violation.
Daily Maximum	DailyMax	Highest 24-hour sample result obtained in a calendar month.
Daily Minimum	DailyMin	Lowest 24-hour sample result obtained in a calendar month.
Four Day Average	4DayAvg	Sum all sample values taken during four consecutive calendar days or four 24-hour periods and divide by the number of samples taken during those same times. Report the maximum 4 day average for the month.

Limit type	Abbreviation	Calculation
Four Day Average-Pretreatment	4DayAvPtmt	Sum all samples taken during four consecutive monitoring days and divide by the number of samples taken.
Hydrologic Year Average	HydroYrAve	Sum all samples taken during a hydrologic year and divide by the number of samples taken during that year.
Hydrologic Year to Date Total	HydrYTDTot	Sum of all values measured from the beginning of the hydrologic year (October 1 st) through last month of reporting period.
Hydrologic Year Total	HydroYrTot	Sum of all values measured during a hydrologic year.
Instantaneous Maximum	InstantMax	Highest value recorded during time-unit.
Instantaneous Maximum Intervention	InstMaxInt	Highest value recorded during time-unit. Exceedance is not reported as a violation.
Instantaneous Minimum	InstantMin	Lowest value recorded during time-unit.
Instantaneous Minimum Intervention	InstMinInt	Lowest value recorded during time-unit. Exceedance is not reported as a violation.
Maximum Calendar Week Average	MxCaWkAvg	Calendar weeks and months generally do not line up perfectly. For this calculation, include the entire week in the reporting month in which the calendar week ends. Sum all values taken in each calendar week and divide by number of values reported in that calendar week. Report the highest calculated weekly average.
Minimum Calendar Month Average	MnCaMoAvg	Sum all daily values reported during a calendar month and divide by the number of daily values reported. The Minimum Calendar Month Average limit is a lower limit. An example of this would be percent removal: if the average percent removed is below the limit, then that would be a violation.
Minimum Calendar Week Average	MinCaWkAv	Calendar weeks and months generally do not line up perfectly. For this calculation, include the entire week in the reporting in which the calendar week ends. Sum all values taken in each calendar week and divide by number of values reported in that calendar week. Report the lowest calculated weekly average.
Monthly Average of Daily Maximum	MonAvDayMx	Sum all daily maximum values in a calendar month and divide by number of values reported.
Season to Date Total	SeasTDTot	Add all results during specified season and report the sum. Calculate the monthly total kg/mo loading by multiplying the total effluent flow x monthly average concentration x 3.785, then sum all loading values from the beginning of the season to the end of the season. Use the flow from the SD station, or if there is no SD value, then use the flow from the WS station.
Single Value	SingleVal	Single reported value. If multiple samples are taken, the calculation to be done varies by permit.

Other calculations	Calculation
Loading/Quantity	<p>For all loading/quantity calculations: Calculate loading for each day that you have concentration and flow data, by multiplying daily concentration x daily flow x 3.785. Use the flow from the SD station, or if there is no SD flow value, then use the flow from the WS station.</p> <p>For average loading (e.g. CalMoAvg or CalQtrAve), add together all of these daily value loading values and divide by the number of daily loading values in the reporting period.</p> <p>For maximum weekly averages (MaxCalWkAvg) sum all values taken in a calendar week and divide by the number of values in that week then report the highest weekly average.</p> <p>For values reported in kg/yr, first calculate the monthly total kg/mo loading by multiplying the total effluent flow x average concentration x 3.785, then add all those values together based on the Limit Type (CalYTDTot, 12MoTotal, SeasTDTot) to get your kg/yr.</p>
Percent Removal	Subtract the concentration for the effluent value from the concentration for the influent value. Divide the resulting number by the concentration for the influent value and multiply by 100.

General Definitions

Time terms	Definition
Day	24 hour period associated with a calendar date OR 24 hour period that begins with the date and time of the FIRST reported sample result associated with a "day".
Calendar Week	Sunday through Saturday, inclusive. If a Calendar Week covers part of two different months, include the data for the entire Calendar Week in the month in which the calendar week ends.
Week Period within a Calendar Month	Calendar weeks and months generally do not line up perfectly. For calculations like Maximum Calendar Week Average, Minimum Calendar Week Average and Calendar Week Geometric Mean, include the entire week in the reporting month in which the calendar week ends.
Calendar Month	First day through last day of a given month, inclusive.
Calendar Quarter	One of: January 1st - March 31st; April 1st - June 30th; July 1st - September 30th, or October 1st - December 31st - inclusive
Season (Cropping Season)	September 1st - August 31st, inclusive
Calendar Year	January 1st - December 31st, inclusive
Calendar Year to Date	January 1st to an end of Reporting Period date that is before December 31st of same year and includes no partial months.
Hydrologic Year	October 1st - September 30th, inclusive
12 Months	Calendar Months, beginning with the "current" month (most recently reported month, or selected month) and including the previous 11 months.

Other terms	Definition
Average	Sum of all reported sample values, divided by the number of values.
Flow-weighted Mean	Multiply each individual concentration reported sample value by its respective individual reported flow, then add each result to all the others, and divide the total by the sum of the respectively reported flows.
Geometric Mean	Multiply all reported values and calculate the nth root of the product ($a_1 \times a_2 \dots a_n$) $1/n$ where n is the number of entries.
Loading/Quantity	Concentration Value multiplied by Flow Value multiplied by 3.785 conversion factor.
Maximum	Highest reported sample value.
Mean	This is the same as Average. Sum of all reported sample values, divided by the number of values.
Median	The middle reported value from all reported sample values, sorted from lowest value to highest value. If there is an even number of reported values, then there is no single middle value; the median is then defined to be the mean of the two middle values.
Minimum	Lowest reported sample value.
Reported Value	Single value obtained from single or composite sample.
To Date Total	Sum of all reported sample values beginning with the current Period of monitoring and going back to the beginning of the Reporting Period.
Total	Sum of all reported sample values.