



Water Quality Permitting Program Reporting Matrix

Monitoring Frequency	Parameters	Type of Limit or Monitoring Requirement	What to Report	Summary Statistics Needed for ICIS
Continuous	Effluent Flow	<i>Flow limits are rare. They are sometimes used in the case of a release to a drain field, or to reduce impacts to a river with low flows.</i>	Daily totals Monthly max Monthly average Monthly min Monthly total ¹ <i>Other statistics may be needed if there is a flow limit, and would be based on the need for a limit.</i>	<i>Statistics needed for ICIS will vary depending on the need for the limit. The following are provided as examples.</i> Monthly max Monthly average Monthly total
	pH	May not be outside the range of XX to XX for more than a total of 7 hours and 26 ² minutes in any calendar month, and no individual excursion from this range may exceed 60 minutes. <i>Note: though continuous monitoring may be required, compliance can still be established with respect to grab samples. If it is, the permit limits and reporting should correspond to the grab sample frequency.</i>	Daily Max Daily Min Monthly Max Monthly Min Number of excursions longer than 60 minutes Sum of all excursion(s)	Number of excursions longer than 60 minutes Sum of all excursion(s)

¹ The monthly total is used to calculate seasonal average flows, and these in turn are used to evaluate I/I problems.

² This is equivalent to 1% of a 31 day month.

Monitoring Frequency	Parameters	Type of Limit or Monitoring Requirement	What to Report	Summary Statistics Needed for ICIS
	Temperature expressed as °F or °C (no limit)	Max daily value	Daily max Monthly max Monthly average	Monthly max Monthly average
	Temperature (°F or °C), for limit or when used to calculate ETL (Excess Thermal Load)	Max 7 day rolling average ETL and/or Daily Max ETL <i>Note that the permit limit may actually be a formula from a TMDL report that takes into account river flow and temperature and varies over the year.</i>	<i>Base statistics on the need for the temperature limit or ETL limit (such as TMDL). Willamette TMDL is used as example.</i> Daily max Average of daily maximums as a rolling seven-day average Monthly max Monthly average	<i>Statistics will vary based on the need for the temperature limit or ETL limit (such as TMDL). Willamette TMDL is used as example.</i> Average of daily maximums as a rolling seven-day average Monthly max Monthly average
	ETL (Excess Thermal Load)	Max 7 day rolling average ETL and/or Daily Max ETL <i>Note that the permit limit may actually be a formula from a TMDL report that takes into account river flow and temperature and varies over the year.</i>	<i>Base statistics on the need for the ETL limit. Willamette TMDL is used as example.</i> Daily values as a rolling seven-day average ETL limit, daily when using ETL Limit Option B or C Stream Flow, daily average when using ETL Limit Option B or C Stream Flow, 7-day rolling average of daily averages when using ETL Limit Option B or C Stream temperature average, daily when using ETL Limit Option C Stream temperature max, daily when using ETL Limit Option C Count of days over calculated limit	<i>Base statistics on the need for the ETL limit. Willamette TMDL is used as example.</i> Count of days over calculated limit

Monitoring Frequency	Parameters	Type of Limit or Monitoring Requirement	What to Report	Summary Statistics Needed for ICIS
	Total Chlorine Residual ³	Monthly average Daily max	Daily values (these are averages calculated for each day of the month) Max daily value Monthly average	Max daily value Monthly average
Daily <i>(This monitoring frequency is not recommended for Temperature and Excess Thermal Load)</i>	Flow	<i>Flow limits are rare. If established, The type of monitoring would be determined by the need for the limit.</i>	See above under Continuous.	See above under Continuous.
	pH	May not be outside the range of XX to XX	Daily values Max daily value Monthly min	Max daily value Monthly min
	Total Chlorine Residual	Monthly average Daily	Daily values Max daily value Monthly average	Max daily value Monthly average
	Quantity Chlorine Used	Quantity Used (lbs)	Quantity used	Quantity used
	UV dose, intensity, percent UV transmittance	Monitoring only	Daily average Monthly min Monthly average Max daily value	Daily average Monthly min Monthly average Max daily value

³ For the purposes of establishing compliance, grab samples are preferable to continuous monitoring results. Continuous monitoring of chlorine is primarily useful for process control.

Monitoring Frequency	Parameters	Type of Limit or Monitoring Requirement	What to Report	Summary Statistics Needed for ICIS
2/week Or 3/week	BOD, TSS	Concentration: <ul style="list-style-type: none"> Max daily value Weekly average 	Daily values Monthly average Weekly averages Max weekly average Max daily value	Monthly average Weekly averages Max weekly average Max daily value
		Mass load: <ul style="list-style-type: none"> Max daily value Weekly average Daily max 	Daily values Monthly average Weekly averages Max weekly average Max daily value	Monthly average Weekly averages Max weekly average Max daily value
		% Removal <ul style="list-style-type: none"> Monthly average <i>Note: though BOD is measured more than once a month, calc. is performed only once a month.</i>	Monthly average percent calculated as follows: $100 * (BOD_{in} - BOD_{out}) / BOD_{in}$ where BOD_{in} and BOD_{out} are monthly averages.	Monthly average percent calculated as shown at left
	pH	May not be outside the range of XX to XX	Daily values Max daily value Min daily value	Max daily value Min daily value
	<i>E. coli</i> Bacteria (for freshwater)	Max geometric mean Max single sample Max geometric mean of re-samples	Daily values Max daily value Monthly geometric mean Geometric mean of re-samples	Max daily value Monthly geometric mean
	Fecal coliform Bacteria (for shellfishing areas)	Monthly median Percent samples exceeding 43 organisms	Daily values Monthly median Percent samples exceeding 43 organisms	Monthly median Percent samples exceeding 43 organisms
	Enterococcus (for coastal recreation areas)	Monthly geometric mean	Daily values Monthly geometric mean	Monthly geometric mean
	Temperature	See above under Continuous	See above under Continuous	See above under Continuous
Excess Thermal Load	See above under Continuous	See above under Continuous	See above under Continuous	

Monitoring Frequency	Parameters	Type of Limit or Monitoring Requirement	What to Report	Summary Statistics Needed for ICIS
1/week to once a month	Bacteria	See above	See above	See above
	Nutrients incl. ammonia	Concentration: Max daily value, weekly max	Daily values Monthly average Max daily value	Monthly average Max daily value
	Table 40 Toxics incl. ammonia	Concentration: daily average, monthly average	Daily values Monthly average Max daily value	Monthly average Max daily value
Quarterly, Semi-annually, and Annually	Flow meter calibration	None	Completed or not completed	Completed or not completed
	Pretreatment monitoring	None	N/A	N/A