

TOTAL DISSOLVED SOLIDS, CHLORIDES, AND SULFATE SCREENING AND EFFLUENT LIMITATION CALCULATIONS

Lakes (Classified/Unclassified)

The following procedures are used to evaluate total dissolved solids, chloride, and sulfate loadings in discharges to lakes. Screening procedures and effluent limitations are calculated using the methodology in the document "Procedures to Implement The Texas Surface Water Quality Standards" (Junean 2010) and criteria in the Texas Surface Water Quality Standards (30 TAC §307)

Effluent concentrations are screened using the following formula:

$$C_C \geq (E_F)(C_{E1}) + (1-E_F)(C_A)$$

- Where:
- C_C = Segment Criteria
 - E_F = Effluent fraction at the edge of the human health mixing zone.
 - C_A = Ambient concentration
 - C_{E1} = Effluent concentration
 - C_{E2} = Waste Load Allocation

If the C_C is greater than or equal to the results of the equation, no further action is required. If the C_C is less than the result of the equation, effluent limits are calculated and the effluent concentration is compared to the calculated daily average permit limitation.

Total Dissolved Solids:		
C_C =	300	mg/L
E_F =	0.02292	
C_A =	212	mg/L
C_{E1} =	1801.25	mg/L
C_{E2} =	4051.442	mg/L
Q_E =	0.06909	cfs

TDS Screening Calculation:		
Is the C_C ≥		248.4256

Chloride:		
C_C =	75	mg/L
E_F =	0.02292	
C_A =	28	mg/L
C_{E1} =	298.21	mg/L
C_{E2} =	2078.611	mg/L
Q_E =	0.06909	cfs

Chloride Screening Calculation:		
Is the C_C ≥		34.19321

Sulfate:

$C_C = 75$ mg/L
 $E_F = 0.02292$
 $C_A = 20$ mg/L
 $C_{E1} = 415.148$ mg/L
 $C_{E2} = 2419.651$ mg/L
 $Q_E = 0.06909$ cfs

Sulfate Screening Calculation:

Is the $C_C \geq 29.05679$

