

```
Public Sub CT_Update() ' Used to update Detention Times and CT Ratios.
```

```
Dim PlantFlow As Double
Dim pH As Double
Dim Temp As Double
Dim Cl2 As Double
Dim Selection As Integer
Dim NumberInlet As Integer
Dim NumberBasins As Integer
Dim NumberFilters As Integer
Dim DetentionTime As Double
Dim ResultCxT As Double
Dim Ratio As Double
Dim RatioTotal As Double
```

```
' All Sequences
```

```
PlantFlow = ReadValue("Fix32.FIX.RAW_WATER_WITH_REC.F_CV")
pH = ReadValue("Fix32.FIX.UV4PH.F_CV")
Temp = ReadValue("Fix32.FIX.UV4WT_INC.F_CV")
RatioTotal = 0
```

```
' Sequence 1
```

```
' Calculate Detention Time
```

```
Selection = ReadValue("Fix32.FIX.CT_Selection1.F_CV")
NumberInlet = ReadValue("Fix32.FIX.CT_Numberof_Inlets.F_CV")
NumberBasins = ReadValue("Fix32.FIX.CT_Numberof_Basins.F_CV")
NumberFilters = ReadValue("Fix32.FIX.CT_Numberof_Filters.F_CV")
DetentionTime = Sequence1(Selection, NumberInlet, NumberBasins, NumberFilters, Plant
```

```
Flow)
```

```
WriteValue Str(DetentionTime), "Fix32.FIX.CT_SEQ1_Detention_Time.F_CV"
```

```
' Calculate CxT
```

```
Cl2 = ReadValue("Fix32.FIX.CT_Chlorine_Residual.F_CV")
ResultCxT = CT_Calc(Temp, pH, Cl2)
```

```
' Calculate CT_Ratio
```

```
Ratio = CT_Ratio(DetentionTime, Cl2, ResultCxT)
WriteValue Str(Ratio), "Fix32.FIX.CT_Ratio1.F_CV"
If ReadValue("Fix32.FIX.CT_SEQ1_Selection.F_CV") Then
    RatioTotal = RatioTotal + Ratio
End If
```

```
' Sequence 2
```

```
' Calculate Detention Time
```

```
Selection = ReadValue("Fix32.FIX.CT_Selection2.F_CV")
DetentionTime = Sequence2(Selection, PlantFlow)
WriteValue Str(DetentionTime), "Fix32.FIX.CT_SEQ2_Detention_Time.F_CV"
```

```
' Calculate CxT
```

```
Cl2 = ReadValue("Fix32.FIX.AIT-822.F_CV")
ResultCxT = CT_Calc(Temp, pH, Cl2)
```

```
' Calculate CT_Ratio
```

```
Ratio = CT_Ratio(DetentionTime, Cl2, ResultCxT)
WriteValue Str(Ratio), "Fix32.FIX.CT_Ratio2.F_CV"
If ReadValue("Fix32.FIX.CT_SEQ2_Selection.F_CV") Then
    RatioTotal = RatioTotal + Ratio
End If
```

```
' Sequence 3
```

```
' Calculate Detention Time
  Selection = ReadValue("Fix32.FIX.CT_Selection3.F_CV")
  DetentionTime = Sequence3(Selection, PlantFlow)
  WriteValue Str(DetentionTime), "Fix32.FIX.CT_SEQ3_Detention_Time.F_CV"

' Calculate CxT
  Cl2 = ReadValue("Fix32.FIX.UV4CL2RES.F_CV")
  ResultCxT = CT_Calc(Temp, pH, Cl2)

' Calculate CT_Ratio
  Ratio = CT_Ratio(DetentionTime, Cl2, ResultCxT)
  WriteValue Str(Ratio), "Fix32.FIX.CT_Ratio3.F_CV"
  If ReadValue("Fix32.FIX.CT_SEQ3_Selection.F_CV") Then
    RatioTotal = RatioTotal + Ratio
  End If

' CT Total
  WriteValue Str(RatioTotal), "Fix32.FIX.CT_Ratio_Total.F_CV"
```

End Sub

Public Function CT_Ratio(DetentionTime As Double, ChlorineResidual As Double, CxT As Double)

```
Const FilterCredit As Double = 2#
```

```
Dim Ratio As Double
Dim CT_Provided As Double
Dim CT_Required As Double
```

```
CT_Provided = DetentionTime * ChlorineResidual
CT_Required = CxT * ((3 - FilterCredit) / 3)
```

```
If CT_Required <> 0 Then
  Ratio = CT_Provided / CT_Required
Else
  Ratio = 0
End If
CT_Ratio = Ratio
```

End Function