2005 TCEQ Trade Fair

Disinfectant Residual Reporting

Presented by
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TCEQ
Public Drinking Water Section
May 4, 2005



Presentation Goals

- Know reasons for minimum and maximum chlorine residual requirements
- Know how to choose monitoring sites and how often to take residual samples
- Know how chlorine residual monitoring data can help find system problems
- Know how to fill out the DLQOR form

Chlorine Residual Monitoring: Why?

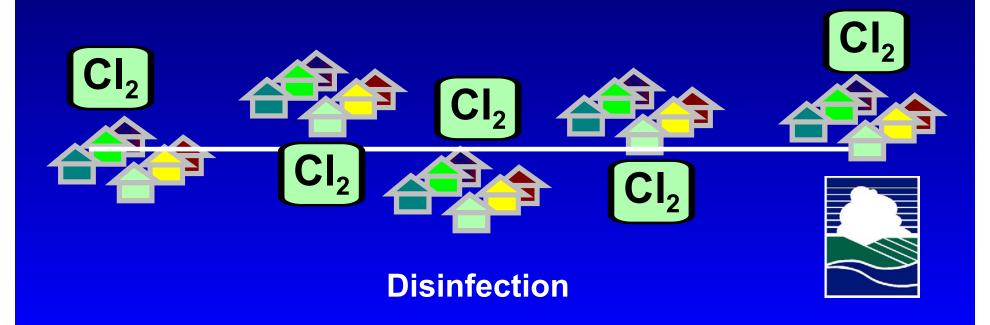
Chlorine is a powerful oxidizer

- •GOOD:
 - Chlorine kills microbes
- BAD:
 - Chlorine has long-term health effects at high concentrations
 - May form disinfection byproducts

Chlorine Residual Rules

30 TAC Chapter 290 Subchapter F 290.110(a) & (b)

Maintain a residual concentration no less than the minimum throughout your entire distribution system.



Minimum Residual Rules

- Minimum Levels:
 - ▶ Free chlorine 0.2 mg/L
 - Combined chlorine 0.5 mg/L (chloramines)
- Compliance Determination:
 - No more than 5% of residuals taken may be below minimum

Maximum Residuals (MRDLs)

- Maximum Residual Disinfectant Level
 - ▶ 4.0 mg/L
 - Applies to free chlorine and chloramines
- Calculated as a Running Annual Average
 - Average of all sample sites
 - Most recent 4 quarters



Residual sample sites

Must be representative of distribution system

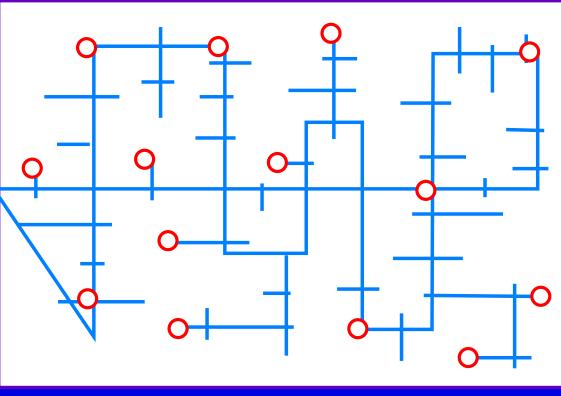
- ► Residual sites = Coliform sample sites
- ► Minimum = five sites
- Maximum = 1/2 your coliform samples
- Must rotate site each sample collection



Sample Sites

30TAC 290 Subchapter F 290.110(f)(5)(C)

Represent the entire distribution system

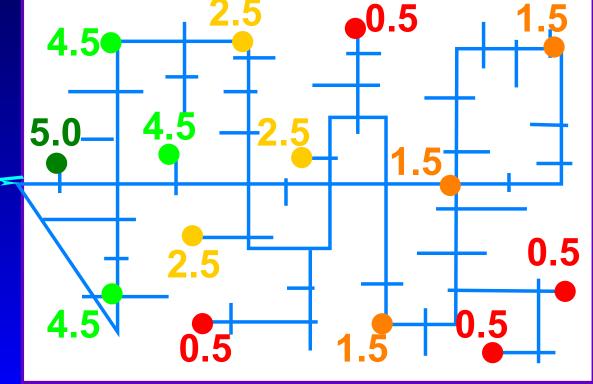




MRDL Compliance

Based on the Running Annual Average of all distribution system samples

average < 4.0





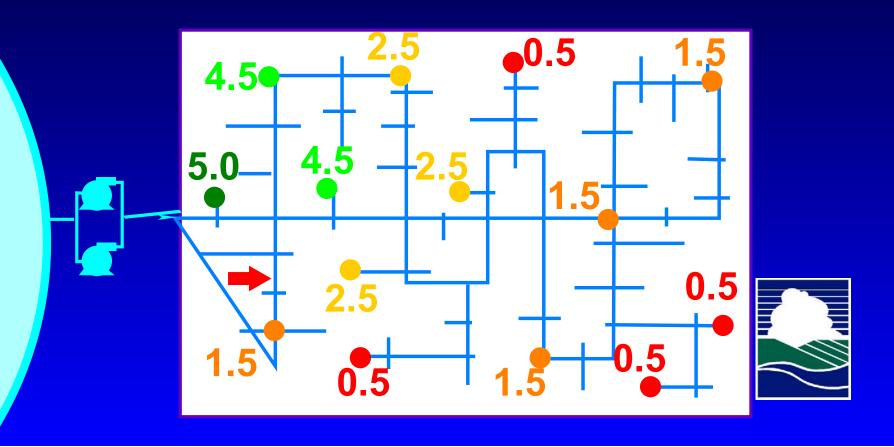
Chlorine Residual Monitoring Frequency

- Based on Population
 - ▶ Weekly samples if Population < 751
 - Daily samples if Population > 750
- ► Total Sampling Required
 - Use residuals taken with coliform samples
 - > Still need Fri., Sat., Sun. Residuals
 - TCEQ requirements are minimums



Benefits of Disinfectant Monitoring

Monitoring residuals at a variety of sites reveals potential problems in your distribution system



DISINFECTANT LEVEL QUARTERLY OPERATING REPORT (DL QOR) FOR GROUND WATER OR PURCHASED WATER PUBLIC WATER SYSTEMS - ANY SIZE Please Print or Typle. Forms that are not readable will not be processed. PWS **PWS** Name: ID: Type of Disinfectant Used in Distribution System: 🗖 Free Chlorine 🗖 Chloramine MIN⊨ 0.2 mg/L MIN = 0.5 mgAFirst Month of Quarter: Monthly Summary Month: Year: Active? (Y/N): Average % Below MN % with NO residual of all disinfectant residuals for month. for morth for month Second Month of Quarter: Monthly Summary Month: Year: Active? (Y/N): Average % Below MN % with NO residual dialidisinfectant residuals for month for morth for month Third Month of Quarter: Monthly Summary Month: Year: Active? (Y/N): Average of all disinfectant residuals for month % Below MN % with NO residual for morth. for month Quarterly Summary Average dial disinfectant residual sfor quanta Highest Reading Lowest Reading

I certify that I am familiar with the information contained in this report and that, to the best knowledge, the information is true, complete, and accurate.

for quater

Operator's Signature:

for quester

Date:



DISINFECTANT LEVEL QUARTERLY OPERATING REPORT

DISINFECTANT LEVEL & J. RTEI LY J. EF A. ! GREPORT (DL QOR)

FOR GROUND WATER C.R.F.J.K.C.H.A.S.E.D.W.A.T.E.R.F.U.B.L.C.W.A.T.F.R.S.Y.S.T.E.M.S.-A.N.Y.S.I.Z.E. Please Print or Type. Forms that are not readable will not be processed.

PWS Name:	PWS ID:
Type of Disinfectant Used in Distribution System:	□Free Chlorine □Chloramine
	(MIN=0.2 mg/L) $(MIN=0.5 mg/L)$

DISINFECTANT

First North of Quarter: Movithly Summary Second Month of Quarter: Movithly Summary

Third Month of Quarter: Monthly Summary

Munin:	ે ∍ar	A tive' (Y/, I):
Average of all disinfectant residua's for month	% Below MIN for nonti	% with NO residual for month

DISINFECTANT LEVEL QUARTERLY OPERATING REPORT (DLOOR)

Quarterly Summary

Highest Reading for quarter	Lowest Reading for quarter	Average of all deinfectant residuals for quarter



DISINFECTANT LEVEL QUARTERLY OPERATING REPORT

licertify that I amifamiliar with the information contains thin his proor and that, to the best of my knowledge, the information is true, complete and accurate.

Operator's		
Signature:	Date:	
License No. and Class:		

Send DL-QORto: TCEQ/ PDW MC-155, Attn: DL QOR, PO Box 13087, Austin, TX 78711-3087. Due by the 10th day of the month following the end of the quarter (Apr., Jul., Oct., Jan.)

Recap

- Why does TCEQ require minimum and maximum residuals?
- How do you pick your residual sites and how often should you sample?
- What can residual monitoring tell you about your water system?
- Do you have any more questions about the DLQOR?



Questions?



(512) 239-4691

http://www.tceq.state.tx.us



Definitions

Chlorine- Cl2

