

Chlorine Residual Basin Plan Amendment Scope

BACWA Pardee Planning Meeting
9/15/2017

Chlorine Residual Compliance Approach History

- 1986 RWB Enforcement Guidelines for Chlorine Residual Violations
- SB709 - MMPs effective January 1, 2000
- 2002-2003 BACWA funded Cl₂ investigations (EOA)
- 2004 RWB EO letter approved on-the-hour compliance reporting
- 2006 SWB total residual chlorine (TRC) draft policy (not finalized)
- 2008 SWB online measurement of TRC report (unpublished)

SWB 2008 Report on Continuous Online Measurement of TRC in Wastewater

- 2007 investigations at six POTWs (DSRSD, EBDA, EBMUD, Napa, SRCSD, SBSA)
- Recommended **0.3 mg/L reporting limit**
- Recommended 5 minute reporting frequency
- Draft Report – Do not cite or quote; never released

Current Status

- Basin Plan 0.0 mg/L instantaneous maximum limit
- **24-hourly readings** reported for compliance (MMP) purposes (per RWB 2004 letter)
- Off hour excursions reported in transmittal letter; RWB discretionary enforcement
- CIWQS query 01/01/2010 – 06/30/2017; (7.5 years)
 - **30 POTW Cl2 excursions** (w/MMPs)
 - 7 POTWs w/1 each; 2 w/2; 2 w/3; 2 w/6
- No CIWQS duration or off-hour excursion data
- Need SMR transmittal letters and 5-day reports

REGION 2 POTW CHLORINE RESIDUAL VIOLATIONS - 01/01/2010 - 06/30/2017

Data from CIWQS MMP Report Query

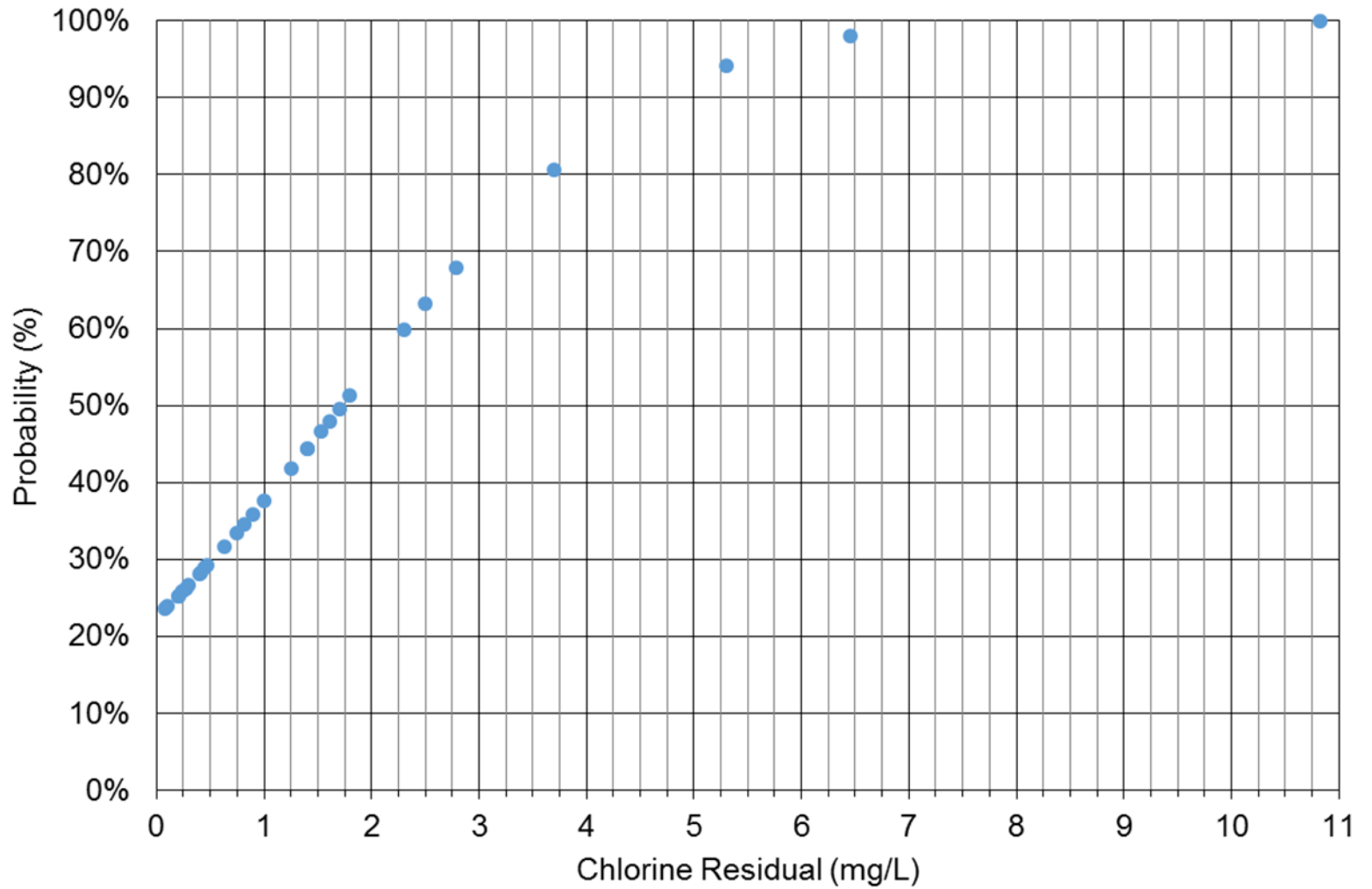
Facility	Date	Chlorine Residual (mg/L)
American Canyon WWTP	1/27/2011	1.00
Benicia WWTP	5/17/2012	10.82
Las Gallinas WWTP	2/14/2016	1.61
City of Pinole WWTP	7/1/2014	0.10
San Jose/Santa Clara WPCP	12/19/2011	0.47
San Mateo WWTP	8/21/2015	0.90
	12/20/2013	6.45
	12/23/2012	1.25
Sausalito Marin City STP	11/20/2010	5.30
SVCW WWTP	12/7/2012	0.27
	11/20/2012	0.20
	6/27/2012	3.70
	6/26/2012	2.50
	6/14/2012	0.20
	8/17/2010	0.30
Sonoma Valley County SD WWTP	11/13/2014	1.80
St. Helena City WWTP	12/27/2012	0.08
	12/26/2012	0.41
Sunnyvale WPCP	3/5/2013	1.40
	3/1/2011	1.53
	5/2/2010	0.82
Vallejo SFCD WWTP	1/10/2017	1.40
	12/15/2016	0.24
	11/14/2014	0.40
West County Agency Outfall	11/27/2014	0.45
	3/8/2014	2.30
	12/9/2013	2.79
	10/15/2013	1.70
	11/29/2010	0.75
	11/28/2010	0.63
		Number
		30
Event duration and flow data not provided in CIWQS MMP reports.		Minimum
		0.08
Have to download each SMR cover letter.		Maximum
		10.82
		Average
		1.73
		Median
		0.95
8/16/2017		Standard Dev
		2.29



01/01/10 – 6/30/17	Chlorine Residual Excursions
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Number	30
Minimum	0.08 mg/L
Maximum	10.82 mg/L
Average	1.73 mg/L
Median	0.95 mg/L
Standard Dev	2.29 mg/L

Chlorine Residual Exceedances - Probability



Excess Dechlorination

- Dechlorination chemical added to quench Cl₂ residual
- Excess chemical required for reliable compliance
- Excess bisulfite creates oxygen demand in RW
- Bay-wide about 3 MG of sodium bisulfite used annually
- Bay-wide annual (2017) bisulfite costs about \$3.5 M

Key Basin Plan Amendment Issues

- Delete 0.0 mg/L instantaneous maximum limit in Basin Plan Table 4-2
- Replace with 1985 EPA Ambient Water Quality Criteria for Chlorine
 - Saltwater: **13 ug/L 1-hour average**; 7.5 ug/L 4-day average
 - Freshwater: **19 ug/L 1-hour average**; 11 ug/L 4-day average
 - Need rationale for no 4-day average or instantaneous maximum limits
- Use dilution credit to calculate water quality based effluent limits (WQBEL)
 - Deepwater – actual dilution credit (NH₃) with RWB discretion to reduce
 - Shallow water – actual dilution credit (~3:1 not sufficient)
- Develop new Reporting Limit(s) (RL) (e.g., 0.04, 0.1, 0.2, 0.3 mg/L)
- Develop new RLs using updated protocols from SWB 2008 study

Provide Technical Support to RWB to Complete BPA

- Technical and data analysis, BPA staff report, SED (CEQA), draft BPA language
- Clarify RWQCB versus BACWA responsibilities
- Full BPA schedule includes RWB, SWB, OAL, and EPA approvals (~24+ months)
- BACWA to develop detailed scope of work for BPA
- Step-wise approach identified

Step 1. Current Conditions

Task Description	Hours	Budget (\$)	Timing
Compliance Problem and Dechlorination Chemical Usage Assessment			3 months
Task 1. Compile Chlorine Excursions	60		
Task 2. Survey POTW Equipment/Controls	60		
Task 3. Chemical Reductions if Dilution Based Bacteriological Effluent Limits	30		
Subtotal	150	38,500	

Step 2. Deepwater POTW Approach – Develop WQBELs

Task Description	Hours	Budget (\$)	Timing
Effluent Limit Alternatives Analysis			3 Months
Task 4. Evaluate Alternative Approaches to Basin Plan 0.0 mg/L Technology Limit	80		
Task 5. Evaluate Alternative Approaches for Compliance Determination	100		
Task 6. Research Alternative ML/RL Derivation Approaches	40		
Subtotal	220	56,500	

Step 3. Shallow Water POTW Approach – Develop RLs

Task Description	Hours	Budget (\$)	Timing
Field and Laboratory Studies			6 Months
Task 7. Develop/Coordinate POTW On-line Analyzer Field Studies Based on SWB 2008	180		
Task 8. Coordinate Lab/Field Cl2 Decay Studies to Support RLs	50		
Subtotal	230	59,000	

Step 4. BPA Preparation Assistance

Task Description	Hours	Budget (\$)	Timing
Impact Analysis and Documentation			9 Months
Task 9. Evaluate Compliance Impacts of Alternative Effluent Limit Approaches on Shallow/Deep POTW	40		
Task 10. Summarize Results of Tasks 1-9 Technical/Regulatory Analyses for BPA	120		
Task 11. Support CEQA/SED Preparation	40		
Task 12. Support WB Stakeholder Outreach	40		
Subtotal	240	61,500	

Project Management Services

Task Description	Hours	Budget (\$)	Timing
Project Management Services			
Task 13. RWB Coordination, Meetings, Response to Document Reviews	54		On-going (18 months)
Task 14. Project Administration	36		On-going (18 months)
Task 15. Supplemental Services	80		As Needed, As Approved
Subtotal	170	43,000	

Scope of Work Summary

Task Description	Hours	Budget (\$)	Timing
Step 1. Current Conditions	150	38,500	3 months
Step 2. Deepwater POTWs – WQBELs	220	56,600	3 months
Step 3. Shallow Water POTWs – RLs	230	59,000	6 months
Step 4. BPA Preparation Assistance	240	61,500	9 months
Project Management and Supplemental	170	43,000	On-going
Cumulative Total	1,010	258,500	18-24 months

Questions

- Next Steps