CHLORINE RESIDUAL BASIN PLAN AMENDMENT TECHNICAL ASSISTANCE SCOPE OF WORK (REVISED DRAFT 11/10/2017)

CHLORINE RESIDUAL PROBLEM DEFINITION

Task 1. Compile Recent POTW Chlorine Residual Excursion Information

Review CIWQS records from 1/1/2010 through 12/31/2017 and compile table of chlorine residual excursions reported with assessed minimum mandatory penalties (MMPs) in Region 2. Review excursion associated monthly self-monitoring report (SMR) transmittal letters in CIWQS records and summarize available information on chlorine residual event durations, causes, and actions taken to prevent similar events from reoccurring. Prepare summary statistics and graphical summaries of events from that period including frequency, magnitude and duration. Provide narrative summary and interpretation of causes of most frequent events and corrective actions required. Prepare estimates of recent total annual Bay area POTW dechlorination chemical usage from pooled chemical purchase program and estimates of ranges of excess chemicals added by POTWs to maintain consistent compliance with the 0.0 mg/L effluent limit. Prepare summary tables showing the reduction in dechlorination chemicals and costs that could occur if dosages were able to be reduced by 0.5 mg/L, 1.0 mg/L, or 2.0 mg/L, respectively.

Estimated Hours: 50

POTW WATER QUALITY BASED EFFLUENT LIMIT APPROACH

Task 2. Evaluate Alternative Approaches for Replacing the Basin Plan Table 4-2 Chlorine Residual Technology Based Effluent Limit with WQBELs Based on USEPA Ambient Water Quality Criteria for Chlorine (1984)

Conduct two meetings with RWB staff to evaluate alternative approaches for replacing the Table 4-2 Chlorine Residual instantaneous maximum technology based effluent limit water quality based effluent limits (WQBEL). Options include adding the saltwater and freshwater UPEPA 1-hour average and 4-day average chlorine WQC (below) as WQBELs to Table 4-2, including the EPA WQC elsewhere in the Basin Plan Implementation Plan (Chapter 4), or adopting the 1-hour average and 4-day average chlorine WQC as Water Quality Objectives in Basin Plan Chapter 3.

- 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

Based on the results of the two RWB meetings prepare summary of recommended approach for Basin Plan modifications and any additional guidance deemed necessary for calculation of WQBELs such as on use of deepwater and shallow-water discharge dilution credits. Prepare technical and regulatory rationale for why WQBELs should be expressed on a 1-hour basis instead of average weekly and average monthly, as is otherwise required by NPDES regulations for POTWs unless deemed impractical. Rationale should address the impracticality of adequately protecting aquatic life with weekly or monthly average limits based on the short-term exposure toxicity of chlorine.

Estimated Hours: 60

Task 3. Evaluate Approaches for Determining Compliance with a 1-Hour Average Limit Using Continuous Monitoring Data

Compliance with the current 0.0 mg/L instantaneous maximum effluent limit, for purposes of CIWQS reporting and MMP assessment, is determined based on 24-daily every hour on the hour readings per an agreement developed between the RWB and BACWA in 2004. The USEPA chlorine WQC is expressed as a 1-hour average value. The WQC needs to be translated into an NPDES permit effluent limit using SIP procedures, including dilution where applicable. The Basin Plan is silent on how to use continuous monitoring data for compliance determination (Section 4.7.3). The SWB draft Total Residual Chlorine (TRC) policy (June 2006) proposed an approach averaging 60 one minute readings every hour for compliance determination. The POTW community and instrumentation professionals deemed this to be infeasible given on-line monitoring system limitations.

The SWB April 2008 on-line field monitoring system report recommended a reporting frequency of every 5-minutes (averaging 12 readings per your). The Santa Ana RWB uses a compliance determination protocol based magnitude and duration of individual excursions and receiving water dilution. Evaluate alternative compliance determination protocols and develop draft potential language for inclusion in Basin Plan Section 4.7 Implementation of Effluent Limits.

Provide an analysis of implementing a potential 1-hour WQBEL as an instantaneous not-to-exceed value for compliance purposes in addition to evaluating alternative averaging period approaches. Evaluate how to address averaging values below a potential Reporting Level (DNQs) if one were to be established. Summarize pros and cons of the options and rationale for the apparent best alternative to implement.

Estimated Hours: 80

Task 4. Conduct Electronic Research for Examples of Minimum (Reporting) Levels Developed for On-Line Continuous Monitoring Chlorine Residual Systems

The SIP establishes MLs for evaluating compliance with priority pollutant based effluent limits. TRC is not a priority pollutant but is a toxic pollutant. MLs (RLs) have not been established for TRC measured by continuous on-line monitoring systems by the SIP or by this RWB. SIP section 2.4.3 provides general guidance for establishing an ML not contained in SIP Appendix 4. TRC WQBELs calculated using actual dilution credit, as is now done for total ammonia WQBELs, are unlikely to result in compliance problems for deep water dischargers. However, WQBELs calculated for shallow-water dischargers using zero dilution credit or limited dilution credit (e.g., Basin Plan Table 4-6 cyanide WQBEL allowed dilution credit) would likely result in widespread non-compliance in the absence of a technically defensible reporting level (RL) set at a level above the WQBEL. Conduct electronic literature search for examples of chlorine residual MLs/RLs established for on-line continuous monitoring systems, as distinguished from laboratory discrete sample analyses. Evaluate potential applicability of on-line continuous analyzer RL recommended in SWB April 2008 study. Summarize pros and cons of the options and rationale for the apparent best RL alternative to implement, or existing data gaps and recommended approach for additional data collection needed to develop a defensible RL.

Estimated Hours: 30

BASIN PLAN AMENDMENT PREPARATION TECHNICAL ASSISTANCE

Task 5. Summarize Technical and Regulatory Analyses from Task 1 – 4 in Suitable Format for Development of Draft Basin Plan Amendment Documents

Compile technical and regulatory analysis information developed in Tasks 1 – 4 and organize it in a manner and format consistent for use as supporting text in a BPA example to be selected by RWB staff. Existing background information and language developed by SWB staff as part of their Draft 2006 *Total Residual Chlorine and Chlorine-Produced Oxidants Policy of California* used to the extent applicable to this TRC BPA. Draft BPA language will be developed based on close consultation with RWB staff.

Estimated Hours: 110

Task 6. Provide Technical Support for Completing CEQA Checklist and Related Portions of the Substitute Environmental Document (SED)

Coordinate with RWB staff to summarize the results of Tasks 1 – 4 in a format suitable for a CEQA project alternatives analysis, including the no project (no action) alternative and a draft economic assessment. Coordinate with RWB staff to determine if additional third party (CEQA consultant) assistance will be needed to complete portions of the CEQA checklist and SED. If needed, coordinate with RWB and BACWA to develop draft scope of work for CEQA consultant assistance to be funded separately by BACWA.

Estimated Hours: 30

Task 7. Water Board Coordination, Meetings, Document Reviews

Coordinate with RWB staff during the BPA technical support process to ensure staff remain apprised of project status and progress via phone, email, and in-person meetings. Help set-up and facilitate approximately quarterly coordination meetings. Provide drafts of work products to staff with sufficient advance notice to allow for their timely review and comment. Assumes project will be conducted over approximately an 18-month period from notice to proceed.

Estimated hours: 30

OPTIONAL FUTURE TASKS

Task 8. Coordinate Additional Studies to Develop Reasonable RL for POTWs

The intent of Task 4 is to identify from literature reviews and consultation with RWB staff a reasonable RL that could be applied to continuous on-line TRC monitoring systems for compliance reporting purposes. Adoption of a reasonable RL is essential for compliance by shallow-water discharges with TRC WQBELs. If Task 4 finds that insufficient information exists to select a reasonable RL, work would be initiated under this Task 8 to produce a workplan to develop the additional information stakeholders believe necessary to develop a reasonable RL. It is assumed that the focus of the workplan would be on coordinating additional field studies at representative POTWs to update and augment the work coordinated by SWB staff and reported

in the SWB 2008 Study "Investigation of Continuous Online Measurement of Chlorine and Sulfite in Wastewaters."

Coordinate with BACWA to identify POTW's with continuous monitoring chlorination and dechlorination systems to participate in the study and potentially contribute additional funding to support full implementation of this Task 8. Assumes that there would be a lead BACWA POTW to oversee the actual field study portion of the project at the volunteer POTWs. Coordinate with BACWA to develop a scope of work for a control system technology firm with expertise in chlorination and dechlorination control systems to assist in developing the workplan for this study and to provide as-needed technical support during the study. Goals of the study would be to collect sufficient on-line and ancillary bench-top data to support development of a reasonable RLs and associated data reporting frequencies for continuous on-line monitoring TRC compliance evaluation and reporting.

Estimated Hours: 100

Task 9. Supplemental RWB BPA Technical Assistance

The intent of Tasks 1 – 7 is to develop and then package the information needed to support the RWB staff in preparing a complete draft BPA package suitable for submittal to their Board for consideration of approval. There are multiple steps in the BPA development and approval process and there may be unexpected data collection or analysis requirements identified during the conduct of Tasks 1 – 7. This Task 9 would provide additional as-needed BPA technical assistance to RWB staff to help complete the TRC BPA process.

Estimated Hours: 100

CHLORINE RESIDUAL BASIN PLAN AMENDMENT TECHNICAL ASSISTANCE BUDGET SUMMARY TABLE / ESTIMATED TIMING

Task Descriptions	Hours	Budget ($)	Comments
Chlorine Residual Problem Definition			
Task 1. Chlorine Excursions and Bisulfite Use	50	13,000	
POTW WQBEL Approach			
Task 2. Basin Plan WQBEL Approaches	60	15,000	
Task 3. Compliance Determination Approaches	80	20,000	
Task 4. Reporting Limit (RL) Approaches	30	8,000	
BPA Preparation Technical Assistance			
Task 5. BPA Technical/Regulatory Sections	110	28,500	
Task 6. SED Technical/Regulatory Sections	30	7,500	
Task 7. RWB Coordination	30	7,500	
Cumulative Total	390	99,500	
Optional Future Tasks			
Task 8. Reasonable RL Additional Studies	100	25,000	
Task 9. Supplemental RWB BPA Assistance	100	25,000	