



Sacramento Regional Wastewater

Treatment Plant

January 27, 2012

8521 Laguna Station Road

Mr. Lucio Orellana

Elk Grove, CA 95758-9550

Water Resources Control Engineer

Tele: [916] 875-9000

Central Valley Regional Water Quality Control Board

Fax: [916] 875-9068

11020 Sun Center Drive, Suite 200

Website: www.srcsd.com

Rancho Cordova, CA 95670

**Subject: Sacramento Regional Wastewater Treatment Plant
Annual Progress Report Method of Compliance
Work Plan and Schedule for Ammonia Effluent Limitations
and Title 22, or Equivalent Treatment Requirements**

Board of Directors

Representing:

County of Sacramento

Dear Mr. Orellana:

County of Yolo

The submittal of this Annual Progress Report on the Method of Compliance Work Plan and Schedule for Ammonia Effluent Limitations and Title 22, or Equivalent Treatment Requirements (Work Plan) fulfills the requirements of NPDES Permit Order No. R5-2010-0014, adopted by the Central Valley Regional Water Quality Control Board (Regional Board) on December 9, 2010, for the Sacramento Regional County Sanitation District's (District) Sacramento Regional Wastewater Treatment Plant (SRWTP).

City of Citrus Heights

City of Elk Grove

City of Folsom

City of Rancho Cordova

If you have any questions regarding this Work Plan, please feel free to contact Vick Kyotani at kyotaniv@sacsewer.com or (916) 875-9001.

City of Sacramento

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designated to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

City of West Sacramento

Stan Dean
District Engineer

Ruben Robles
Director of Operations

Sincerely,

Ruben Robles
Director of SRCSD Operations

Prabhakar Somavarapu
Director of Policy & Planning

Karen Stoyanowski
Director of Internal Services

Joseph Maestretti
Chief Financial Officer

Claudia Goss
Public Affairs Manager

Attachments: Progress Report Method of Compliance Work Plan and Schedule for Ammonia Effluent Limitations and Title 22, or Equivalent Treatment Requirements

cc: James Marshall, Regional Board, Kathleen Harder, Regional Board
Stan Dean, District, Prabhakar Somavarapu, District, Glenn Bielefelt, District
Vick Kyotani, District, Mitch Maidrand, District, David Ocenosak, District,
Kurt Ohlinger, District, Robert Seyfried, District



**Sacramento Regional County Sanitation District
Sacramento Regional Wastewater Treatment Plant**

**Progress Report
Method of Compliance Work Plan and Schedule
for
Ammonia Effluent Limitations
and
Title 22 or Equivalent Treatment Requirements**

Submitted: February 1, 2012

Prepared For: Central Valley Regional Water Quality Control Board

Contents

Introduction	1
Overall Compliance Schedule	1
Progress Towards Compliance	2
Treatment Technology Identification	2
Pilot Study Implementation	3
Program Management Office	4
Design of Treatment Improvements	4
Environmental Analysis	4
Construction Phase	4
Startup and Commissioning	4
District Project Acceptance	5
Schedule	5
Appendices	5
A. Method of Compliance Workplan/Schedule Approval Letter, 8 July 2011	5
B. District and Regional Board Meeting Resolution Summaries	5
C. Workplan Schedule for Nutrient Removal and Title 22 or Equivalent Treatment	5

Sacramento Regional County Sanitation District Contact Information

For additional information on this work plan, please contact:

Vick A. Kyotani, Principal Engineer
Sacramento Regional County Sanitation District
Email: kyotaniv@sacsewer.com
Phone: 916.875.9001

Introduction

On June 9, 2011, the Sacramento Regional County Sanitation District (SRCSD) submitted a Method of Compliance Work Plan and Schedule for Ammonia Effluent Limitations and Title 22 or Equivalent Treatment Requirements (Work Plan). This submittal was required by the newly adopted wastewater discharge permit requirements NPDES No. R5-2010-0114 (NPDES Permit) and the Time Schedule Order adopted by the Central Valley Regional Water Quality Control Board (Regional Board) on December 9, 2010. The NPDES Permit allows for a period of up to ten years (December 1, 2020) to achieve compliance and further requires the submittal of annual progress reports by February 1 of each year following approval of the Work Plan. The Regional Board approved the Work Plan on July 8, 2011 (Regional Board Approval Letter, Appendix A). This report is the first annual progress report and is submitted to satisfy the reporting requirements of the NPDES Permit.

Overall Compliance Schedule

The NPDES Permit identified the following compliance schedule for Ammonia Effluent Limitations and Title 22 or Equivalent Treatment Requirements:

Table 1. Compliance Schedule for Ammonia Final Effluent Limitations

Task	Due Date
i. Submit Method of Compliance Workplan/ Schedule	9 June 2011 (submitted and approved)
ii. Submit and Implement Pollution Prevention Plan for Ammonia	9 December 2011 (submitted and waiting Regional Board review)
iii. Progress Reports, annually	First progress report due February 1, 2011 (submitted)
iv. Begin CEQA process for Compliance Project	9 December, 2014
v. Begin Construction of Compliance Project	9 December, 2017
vi. Full Compliance	1 December, 2020

Table 2. Compliance Schedule for Title 22 or Equivalent Treatment Requirements

Task	Due Date
i. Submit Method of Compliance Workplan/ Schedule	9 June 2011 (submitted and approved)
ii. Progress Reports, annually	First progress report due February 1, 2011 (submitted)
iii. Begin CEQA process for Compliance Project	9 December, 2014
iv. Begin Construction of Compliance Project	9 December, 2017
v. Full Compliance	1 December, 2020

Installation of advanced treatment technologies is needed to meet the Ammonia Effluent Limitations and Title 22 or Equivalent Treatment Requirements and the District is selecting technologies to collectively achieve both the new requirements. The major activities to achieve the new requirements are listed below:

- Treatment Technology Identification
- Pilot Study Implementation
- Design Full Scale Treatment Improvements
- Environmental Analysis
- Construction Phase
- Startup and Commissioning

Progress Towards Compliance

Treatment Technology Identification

This effort was completed in March 2011 and resulted in the identification of technologies to be pilot tested. The identified technologies are presented in Figure 1.

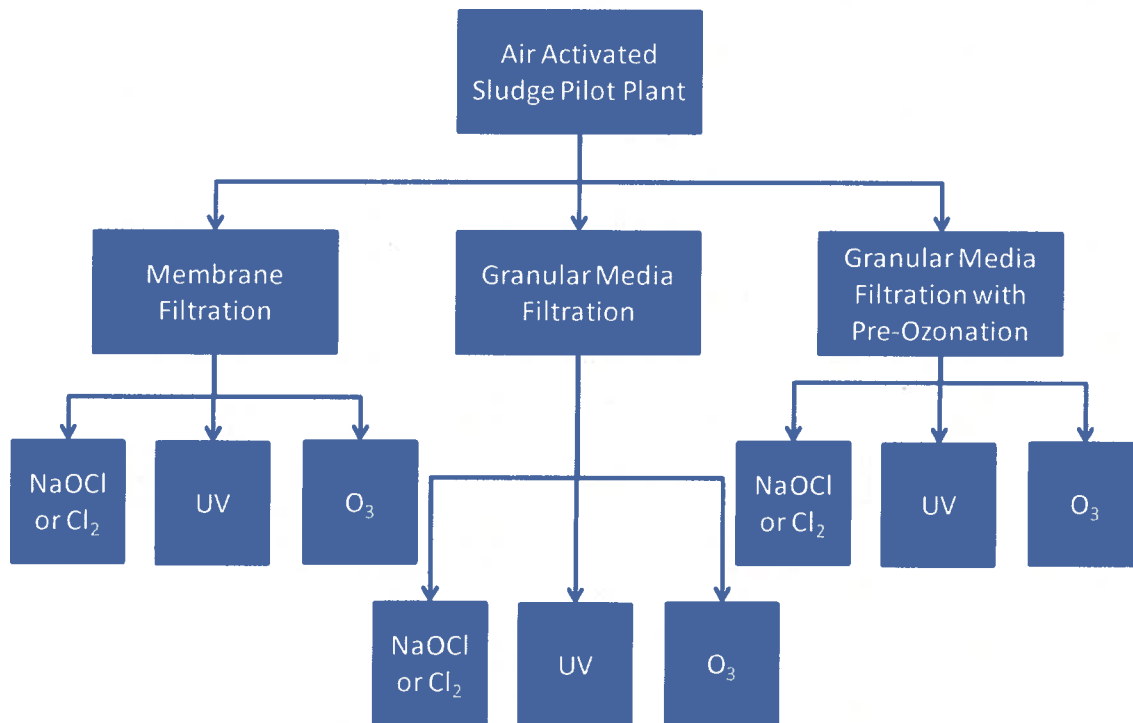


Figure 1. Identified Technologies Configuration

District staff met with Regional Board staff in early March 2011 to discuss interpretation of how equivalence to Title 22 requirements will be determined and how compliance will be demonstrated and confirmed. Concurrence of this interpretation and approach was received from

the Regional Board via a letter dated 16 March 2011. A subsequent meeting was held with Regional Board staff on October 3, 2011, to discuss pilot testing to demonstrate compliance with the Title 22 or equivalent provision for effluent quality. Concurrence of this approach was received from the Regional Board via a letter dated 13 October 2011. Both letters are attached in Appendix B.

Pilot Study Implementation

The results from the Treatment Technology Identification were used to develop site specific requirements for pilot testing of treatment processes to meet final effluent limitations for ammonia and Title 22, or equivalent treatment requirements. The Treatment Technology Identification effort identified that the processes expected to meet final ammonia effluent limitations must be tested concurrent with the various technologies expected to meet specific disinfection requirements which results in the testing of nine different treatment trains (see Figure 1).

The goal of the pilot study is to validate the identified technologies ability to reliably meet the new permit requirements and to recommend full scale treatment technologies and full scale design requirements.

Reports of site specific pilot testing demonstrating 5-log virus reduction and compliance with the operational parameters for turbidity and the effluent limit for total coliform will be submitted to the Regional Board upon completion of the Pilot Study. Written approval by the Regional Board of the submitted site specific pilot testing report will confirm conformance with the Title 22, or equivalent provision of the 2010 SRWTP NPDES permit.

Table 3 lists the milestones required to implement the Pilot Study. As of submission of this progress report, the project is on schedule. Design has been completed and construction is on schedule to be completed and operational by April 2012. The schedule allows for 10 months of operation and data collection. Following operational testing a report will be developed that evaluates the operational data and recommends the treatment technologies that should be carried forward for full scale design. The recommendations will take into account performance as well as capital and operational costs. The final recommendations report is anticipated to be completed by April 2013.

Table 3. Pilot Study Milestones

Milestones	Due Date
i. Issue Request for Proposal	3 March 2011 (completed)
ii. Issue Addendum	16 March 2011 (completed)
iii. Proposals Due	13 April 2011 (completed)
iv. Screening/Shortlist	20 April 2011 (completed)
v. Consultant Interviews	3 and 4 May 2011 (completed)
vi. Consultant Selection	6 May 2011 (completed)
vii. District Board Approval of Contract	8 June 2011 (completed)
viii. Plan, Design, and Construct Pilot	June 2011 to March 2012
ix. Pilot Project Operation	April 2012 to January 2013
x. Complete Recommendations Report	April 2013

Program Management Office

A Program Management Office (PMO) will be established to manage the complex planning, and many design and construction projects required to meet the permit requirements. A very aggressive approach to implementing the program is required to meet the schedule. A program management consultant will be contracted to provide the resources needed to manage and coordinate the many concurrent design and construction projects envisioned. Table 4 lists the milestones required to establish the PMO. The dates past contract approval are estimated dates and subject to change pending future development of the details of the planning efforts.

Table 4. Program Management Office Milestones

Milestones	Date
i. Issue Request for Proposal	17 October 2011 (completed)
ii. Proposals Due	18 November 2011 (completed)
iii. Screening/Shortlist	30 November 2011 (completed)
iv. Consultant Interviews	20 and 21 Dec 2011 (completed)
v. Consultant Selection	23 December 2011 (completed)
vi. District Board Approval of Contract	22 February 2012
vii. Establish PMO	March 2012 to March 2013
viii. Planning/Predesign	June 2012 to December 2013
ix. Ongoing Support	Through end of Program

The PMO will develop all the program control systems, design and construction standards, scheduling and cost control systems required to coordinate and manage all of the projects expected for the program. The PMO will also prepare predesign documents to initiate the CEQA process.

Design of Treatment Improvements

Based on results of the Pilot Study effort, treatment technologies will be selected and following completion of predesign work, full scale design will be initiated. Full scale design is anticipated to begin by the second quarter of 2013 and completed in 2016. Intermediate milestones are included as part of the design process. There will be many design contracts and will need to be done concurrently to meet the aggressive schedule.

Environmental Analysis

The CEQA process is expected to begin by the last quarter of 2012 and completed by 2015.

Construction Phase

Construction of the designed treatment facilities is expected to begin by the fourth quarter of 2016 and continue through mid 2020. Methods of accelerating construction activities will be evaluated and implemented if feasible.

Startup and Commissioning

Startup and commissioning will occur as major treatment processes are completed and existing processes are cut over. The District is defining full compliance as completion of this phase of the project and is anticipated to be completed by December 1, 2020.

District Project Acceptance

This milestone of the project is a contractual step to formally close out the construction project and is subject to a SRCSD Board action. Treatment facilities will have already been commissioned and fully operational. This date is subject to the nearest Board meeting after all contractual issues have been resolved and is not the measure of full compliance.

Schedule

A planning level schedule is included in Appendix C showing major activities required to comply with the final effluent limitations for ammonia and Title 22 or equivalent treatment requirements by the prescribed date. Progress to date and future major activities will be reported annually on February 1st.

Appendices

- A. Method of Compliance Workplan/Schedule Approval Letter, 8 July 2011
- B. District and Regional Board Meeting Resolution Summaries
- C. Workplan Schedule for Nutrient Removal and Title 22 or Equivalent Treatment

Appendix A.

Method of Compliance Workplan/Schedule Approval Letter, 8 July, 2011



Linda S. Adams
Acting Secretary for
Environmental Protection

**California Regional Water Quality Control Board
Central Valley Region
Katherine Hart, Chair**



Edmund G. Brown Jr.
Governor

11020 Sun Center Drive, #200, Rancho Cordova, California 95670-6114
(916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>


8 July 2011

Mr. Stanley R. Dean, District Engineer
Sacramento Regional County Sanitation District
10060 Goethe Road
Sacramento, CA 95827

**WORK PLAN: METHOD OF COMPLIANCE WORK PLAN AND SCHEDULE FOR AMMONIA
EFFLUENT LIMITATIONS AND TITLE 22 OR EQUIVALENT TREATMENT
REQUIREMENTS, 9 JUNE 2011, SACRAMENTO REGIONAL COUNTY SANITATION
DISTRICT, SACRAMENTO COUNTY**

Thank you for submitting the *Method of Compliance Work Plan and Schedule for Ammonia Effluent Limitations and Title 22 or Equivalent Treatment Requirements* dated 9 June 2011, as required in Provisions VI.C.7.a.i and b.i. of Waste Discharge Requirements Order No. R5-2010-0114 (NPDES Permit No. CA0077682). The work plan fully meets the requirements of the Order.

If you have any questions, please contact Ms. Kathy Harder of our office at (916) 464-4778 or via email at kharder@waterboards.ca.gov.


for Pamela C. Creedon
Executive Officer

cc: Robert Seyfried, Sacramento Regional County Sanitation District
Vick Kyotani, Sacramento Regional County Sanitation District

California Environmental Protection Agency



Appendix B.

District and Regional Board Meeting Resolution Summaries



Linda S. Adams
Acting Secretary for
Environmental Protection

California Regional Water Quality Control Board
Central Valley Region
Katherine Hart, Chair

11020 Sun Center Drive, #200, Rancho Cordova, California 95670-6114
(916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>



Edmund G. Brown Jr.
Governor

16 March 2011

Mr. Robert Seyfried
Sacramento Regional County Sanitation District
10060 Goethe Road
Sacramento, CA 95827

SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT; 4 MARCH 2011 MEETING SUMMARY; WASTE DISCHARGE REQUIREMENTS ORDER R5-2010-0114 (NPDES NO. CA0077682); SACRAMENTO REGIONAL WASTEWATER TREATMENT PLANT; SACRAMENTO COUNTY

On 4 March 2011 Central Valley Water Board staff met with you to discuss the interpretation Special Provisions VI.C.6.a of Order R5-2010-0114, which requires wastewater to be adequately disinfected pursuant to the Department of Public Health reclamation criteria, California Code of Regulations, Title 22, division 4, chapter 3, (Title 22) or equivalent. The purpose of the meeting was to determine how to evaluate whether treatment processes would be acceptable to the Central Valley Water Board staff as compliant with the Title 22, or equivalent provision. Thank you for providing the meeting resolution summary, which we received on 15 March 2011 via email. We have reviewed the summary and Central Valley Water Board staff concurs with the summarized meeting discussion.

If you have any questions regarding this item, please contact Ms. Kathleen Harder at (916) 464-4778 or kharder@waterboards.ca.gov or me at (916) 464-4772 or jdmarshall@waterboards.ca.gov.

Original Signed By

James Marshall
San Joaquin Delta Permitting Unit

Enclosure

**Sacramento Regional County Sanitation District
Central Valley Regional Water Quality Control Board
SRWTP NPDES Permit Interpretation
March 4, 2011 Meeting – Interpretation Summary**

Attendees

Regional Water Quality Control Board: Diana Messina, Jim Marshall, Kathy Harder

Sacramento Regional County Sanitation District: Bob Seyfried, Kurt Ohlinger, Tom Grovhoug (Larry Walker Associates)

Discussion Item

SRCSO representatives met with CVRWQCB staff to request interpretation of the Title 22, or equivalent, provision in the 2010 SRWTP NPDES permit. Specifically, SRCSD staff requested interpretation of how equivalence to Title 22 requirements will be determined, and how compliance will be demonstrated and confirmed.

Resolution

The CVRWQCB is the regulatory authority for determining compliance with Title 22 equivalent standards for SRWTP effluent discharged to the Sacramento River. The CVRWQCB will accept any processes approved by the California Department of Public Health for Title 22 conformance as compliant with Title 22, or equivalent provision for the 2010 SRWTP NPDES permit. The CVRWQCB will also accept any process as compliant with Title 22, or equivalent provision for the SRWTP NPDES permit that the SRCSD can demonstrate through site specific pilot testing is capable of 99.999% reduction of poliovirus or F-specific bacteriophage MS2 and can comply with the operational parameter for turbidity and the effluent limit for total coliform as specified in the 2010 SRWTP NPDES permit.

Plans for Title 22 equivalent compliance demonstration testing of treatment processes should be included in the compliance schedule work plan for Title 22, or equivalent, disinfection requirements, which will be submitted by SRCSD on June 9, 2011 for approval by the CVRWQCB. Reports of site specific pilot testing demonstration of Title 22 equivalent virus reduction will be submitted to the CVRWQCB as a component of a progress report on Title 22, or equivalent, disinfection requirements. Written approval by the CVRWQCB of the submitted site specific pilot testing report will confirm conformance with the Title 22, or equivalent, provision of the 2010 SRWTP NPDES permit.

Urgency

The SRCSD has selected several treatment process alternatives to meet the 2010 SRWTP NPDES permit requirements and is currently preparing to expend several million dollars for pilot testing of the selected alternatives. The selected alternatives and design of the pilot studies are based on the resolution described above. Written confirmation of the resolution is requested from the RWQCB to document the mutual understanding reached. Due to the planned eminent pilot study expenditures, receipt of the requested written confirmation is a matter of urgency for the SRCSD.



Matthew Rodriguez
Secretary for
Environmental Protection

California Regional Water Quality Control Board
Central Valley Region
Katherine Hart, Chair

11020 Sun Center Drive, #200, Rancho Cordova, California 95670-6114
(916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>



Edmund G. Brown Jr.
Governor

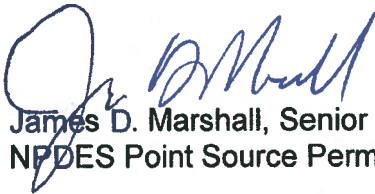
13 October 2011

Mr. Robert Seyfried
Sacramento Regional County Sanitation District
10060 Goethe Road
Sacramento, CA 95827

SACRAMENTO REGIONAL COUNTY SANITATION DISTRICT; 3 OCTOBER 2011 MEETING SUMMARY; WASTE DISCHARGE REQUIREMENTS ORDER R5-2010-0114 (NPDES NO. CA0077682); SACRAMENTO REGIONAL WASTEWATER TREATMENT PLANT; SACRAMENTO COUNTY

On 3 October 2011, Central Valley Water Board staff met with you and your consultant to discuss the interpretation of Special Provisions VI.6.a. of Order R5-2010-0114, which requires wastewater to be adequately disinfected pursuant to the Department of Public Health reclamation criteria, California Code of Regulations, Title 22, division 4, chapter 3, (Title 22) or equivalent. The purpose of the meeting was to determine how to evaluate whether the pilot project would be acceptable to Central Valley Water Board staff and compliant with the Title 22, or equivalent provision. Thank you for providing the meeting resolution summary, which we received on 7 October 2011 via email. We reviewed the summary and Central Valley Water Board staff concurs with the summarized meeting discussion.

If you have any questions, regarding this item, please contact Ms. Kathleen Harder at (916) 464-4778 or kharder@waterboards.ca.gov or me at (916) 464-4772 or jdmarschall@waterboards.ca.gov.



James D. Marshall, Senior
NPDES Point Source Permitting Section

Enclosures

cc: Vyomini Pandya, Sacramento Regional County Sanitation District
Kurt N. Ohlinger, Sacramento Regional County Sanitation District

California Environmental Protection Agency



Sacramento Regional County Sanitation District
Central Valley Regional Water Quality Control Board
SRWTP Advanced Treatment Technology Pilot Project Virus Monitoring Program
October 3, 2011 Meeting Summary

Attendees

Regional Water Quality Control Board: Diana Messina, Jim Marshall, Kathy Harder

Sacramento Regional County Sanitation District: Bob Seyfried, Kurt Ohlinger, Robert Emerick (Stantec)

Discussion Item

SRCS D representatives met with CVRWQCB staff to present the virus monitoring plan to demonstrate equivalence to Title 22 requirements.

Resolution

SRWTP and CVRWQCB staff met on October 3, 2011 to discuss and resolve a test plan to demonstrate virus reduction in site-specific pilot studies at the SRWTP. This meeting was a follow-up to a March 4, 2011 meeting where agreement was reached on compliance demonstration for the Title 22 equivalent provision for effluent quality in the 2010 SRWTP NPDES permit. From that meeting, it was resolved that the SRCS D will demonstrate 99.999% reduction (5-log) of poliovirus or F-specific bacteriophage MS2 in site-specific pilot testing of treatment process technology selected for implementation at the SRWTP. Further, compliance will be demonstrated in the commissioned process facilities by ongoing compliance with the operational parameter for turbidity and the effluent limits for total coliform as specified in the 2010 SRWTP NPDES permit.

A test plan developed to demonstrate 5-log reduction of poliovirus or F-specific bacteriophage MS2 in the SRWTP Advanced Treatment Technology Pilot (ATTP) project was presented and discussed during the meeting. The objective of the presentation and discussions was to reach agreement on the efficacy of the test plan to meet the compliance demonstration requirement for virus reduction in the pilot testing. The agreed upon test plan and supporting information follow.

Test Plan

Several process train alternatives will be assessed during the ATTP project with a goal of identifying the alternative that will most reliably and cost effectively meet all NPDES permit requirements, including demonstration of 5-log virus reduction. Virus will be injected at the tertiary influent and inactivation/removal will be determined by sampling after final disinfection. This sampling methodology assures that 5-log virus inactivation occurs during filtration and disinfection, consistent with current

State of California Department of Public Health recommendations. A schematic of the Advanced Treatment Technology Pilot Project, with virus injection locations and virus monitoring locations identified, is provided in Figure 1.

When testing treatment trains that make use of both pre-ozone and UV light, virus inactivation will first be assessed after pre-ozonation and biologically active filtration. The necessary residual UV disinfection dose to complete virus inactivation and assure compliance with the total coliform effluent limitation will then be developed by making use of a laboratory scale collimated beam disinfection reactor on the pre-ozone treated and biologically active filtered sample.

A flow-through UV disinfection system will be operated as part of the Advanced Treatment Technology Pilot Project. Its inclusion is primarily intended to assess impacts on disinfection of the effluent stream and on remaining constituents in the water. It is not expected that the flow-through UV disinfection system will have the operational range to adequately quantify the UV dose required for a specific amount of virus inactivation because of the high variability expected with UV transmittance, flowrate, and inactivation requirements. Therefore, a collimated beam device will be used for UV disinfection testing to quantify required UV dosages to achieve 5-log virus reduction. Collimated beam testing is currently used as the calibration standard when validating full-scale flow through reactors by the State of California Department of Public Health. The following references can be reviewed for a complete description of collimated beam testing:

Emerick, R.W., F. Soroushian, G. Tchobanoglous (2000) "Standardizing UV Equipment Performance Validation," Paper presented at UV2000: A Technical Symposium, held by the National Water Research Institute in Costa Mesa, California, January 27-28, 2000.

Blatchley, E. R., R. W. Emerick, T. Hargy, O. Hoyer, R. H. Hultquist, R. H. Sakaji, D. C. Schmelling, F. Soroushian, G. Tchobanoglous (2003) **Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse**, Second Edition, National Water Research Institute, Fountain Valley, California

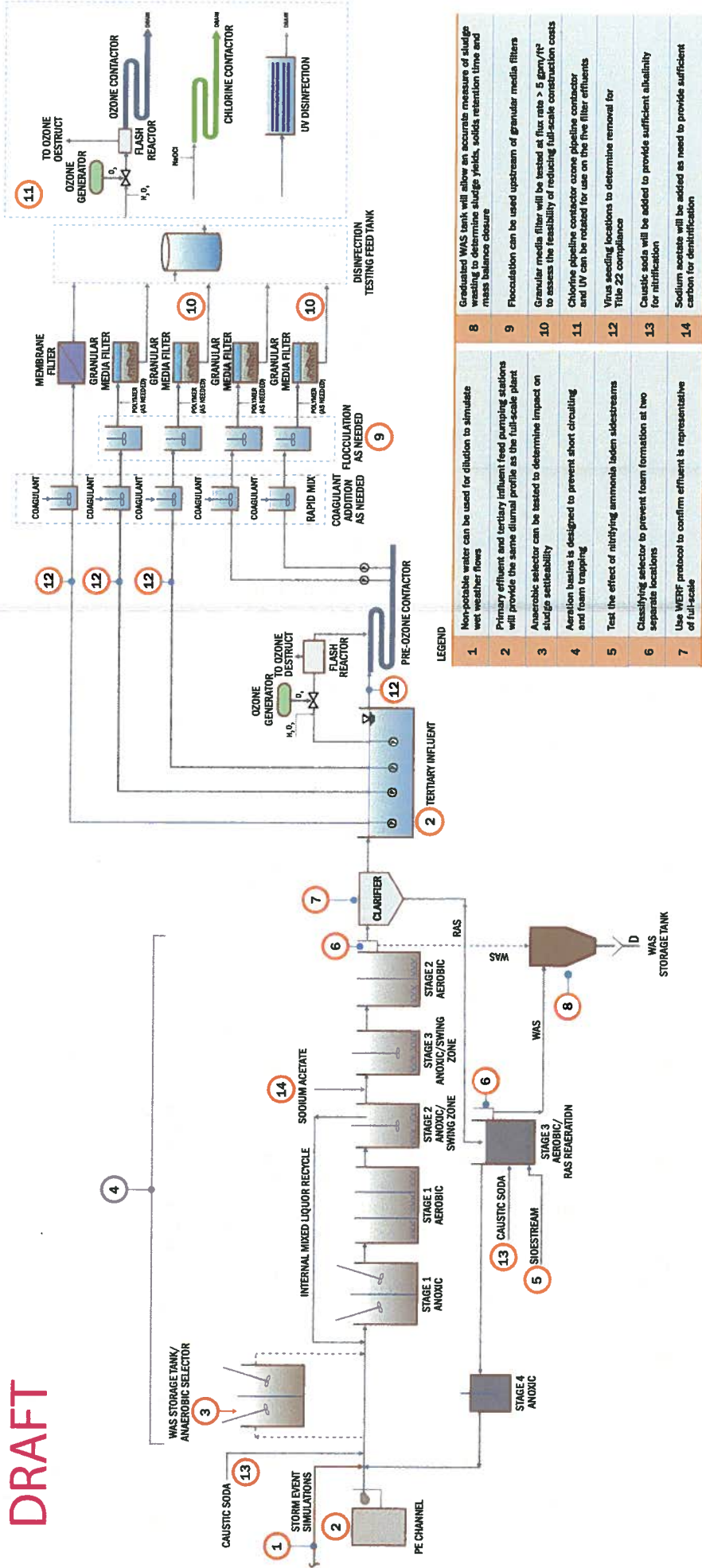
Tchobanoglous, G., F. L. Burton, H. D. Stensel (2003) **Wastewater Engineering Treatment and Reuse**, Fourth Edition, Metcalf and Eddy, McGraw Hill, New York, New York

Concurrence

Written confirmation is requested of concurrence that implementation of this written test plan for site-specific pilot testing at the SRWTP, with successful demonstration of 5-log virus reduction, satisfies the requirement for the pilot testing component of compliance with Title 22 equivalent provision for effluent quality in the 2010 SRWTP NPDES permit.

Advanced Treatment Technology Pilot Project

DRAFT



LEGEND

1	Non-potable water can be used for dilution to simulate wet weather flows
2	Primary effluent and tertiary influent feed pumping stations will provide the same diurnal profile as the full-scale plant
3	Anaerobic selector can be tested to determine impact on sludge settleability
4	Aeration basins to be designed to prevent short circuiting and foam trapping
5	Test the effect of nitrifying ammonias laden sidestreams
6	Classifying selector to prevent foam formation at two separate locations
7	Use WERF protocol to confirm effluent is representative of full-scale
8	Graduated WAS tank will allow an accurate measure of sludge wasting to determine sludge yields, solids retention time and mass balance closure
9	Flocculation can be used upstream of granular media filters
10	Granular media filter will be tested at flux rates > 5 gpm/ft ² to assess the feasibility of reducing full-scale construction costs
11	Chlorine pipeline contactor versus pipeline contactor and UV can be tested for use on the five filter effluents
12	Virus seeding locations to determine removal for Title 22 compliance
13	Caustic soda will be added to provide sufficient alkalinity for nitrification
14	Sodium acetate will be added as need to provide sufficient carbon for denitrification

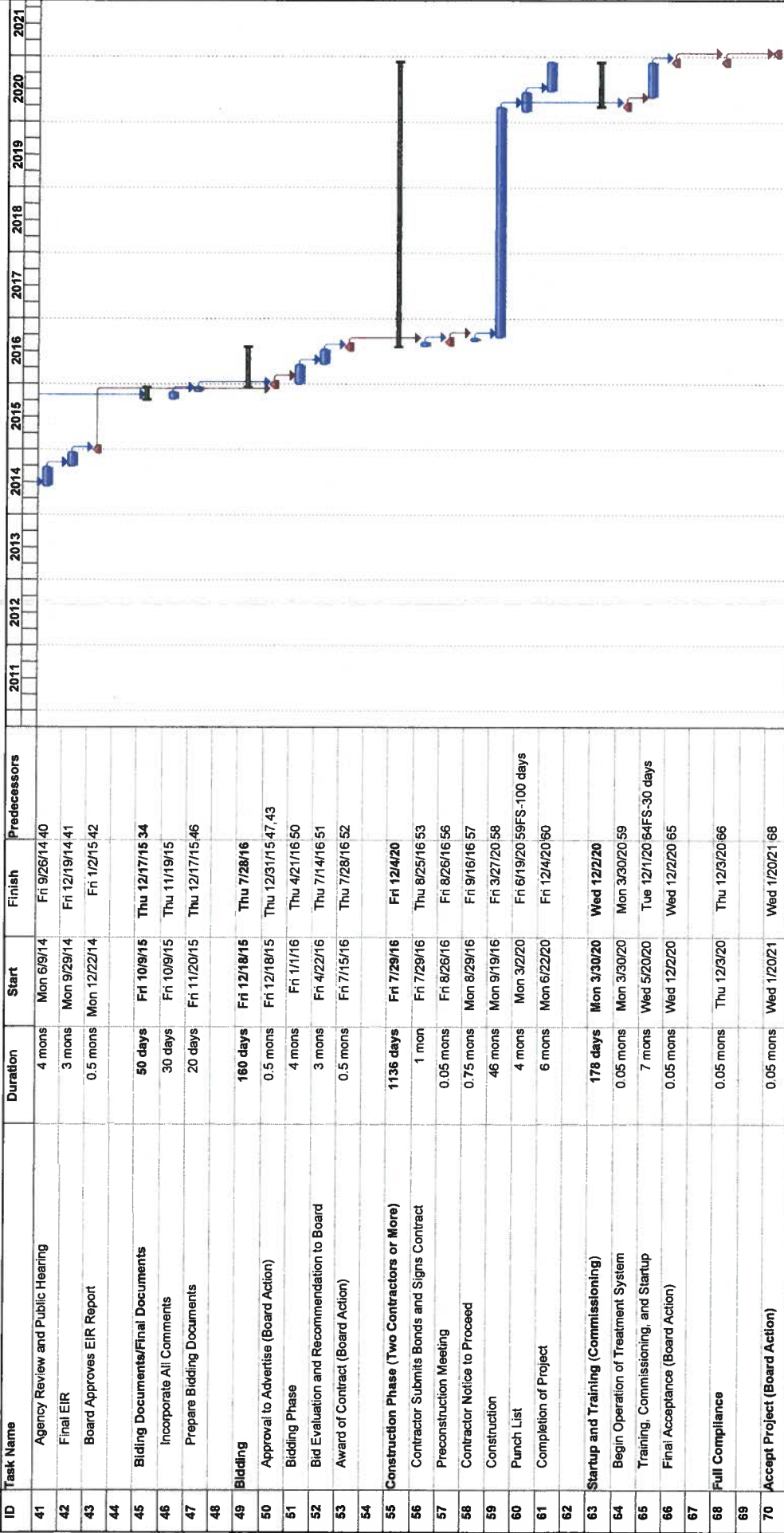
Appendix C.

Workplan Schedule for Nutrient Removal and Title 22 or Equivalent Treatment

Workplan Schedule for Nutrient Removal and Title 22 or Equivalent Treatment

ID	Task Name	Duration	Start	Finish	Predecessors
1	Project Initiation/Permit Adoption	0.05 mons	Sat 1/1/11	Sat 1/1/11	
2	Select Technologies to Pilot Test	2 mons	Mon 1/3/11	Fri 2/25/11	1
3	Select Pilot Program Consultant	70 days	Thu 3/3/11	Wed 6/8/11	
4	Issue RFP, Select Consultant, and Negotiate Contract	2.85 mons	Thu 3/3/11	Fri 5/20/11	
5	Board Approves Contract	0.05 mons	Wed 6/8/11	Wed 6/8/11	6
6	Pilot Program	480 days	Thu 6/9/11	Wed 4/10/13	
7	Design Pilot Plant	5 mons	Thu 6/9/11	Wed 10/26/11	6
8	Construct Pilot Plant	5 mons	Thu 10/27/11	Wed 3/14/12	7
9	Operate Pilot Plant & Collect Data	10 mons	Thu 3/15/12	Wed 12/19/12	8
10	Prepare Report	7 mons	Thu 9/27/12	Wed 4/10/13	9
11	Program Management Office	2522 days	Tue 11/1/11	Wed 6/30/21	
12	Issue RFP, Select Consultant, and Negotiate Contract	81 days	Tue 11/1/11	Tue 2/21/12	
13	Board Approves contract	1 day	Wed 2/22/12	Wed 2/22/12	12
14	Strategic Planning	120 days	Thu 2/23/12	Wed 8/8/12	13
15	Preliminary Design	413 days	Fri 6/1/12	Tue 12/31/13	
16	Program Management Activities	2392 days	Tue 5/1/12	Wed 6/30/21	
17	Design Treatment Improvements	839 days	Mon 10/1/12	Thu 12/17/15	
18	30% Design	221 days	Thu 4/11/13	Thu 2/13/14	
19	Prepare 30% Design Documents	181 days	Thu 4/11/13	Thu 12/19/13	18, 13
20	Consultant Internal QC	1 mon	Fri 12/20/13	Thu 1/16/14	24
21	Distinct Review	1 mon	Fri 1/17/14	Thu 2/13/14	25
22	60% Design	220 days	Fri 2/14/14	Thu 12/18/14	
23	Prepare 60% Design Documents	8.5 mons	Fri 2/14/14	Thu 10/9/14	26
24	Consultant Internal QC	1 mon	Fri 10/10/14	Thu 11/6/14	28
25	Distinct Review	1.5 mons	Fri 11/7/14	Thu 12/18/14	29
26	95% Design 100% Design	210 days	Fri 12/19/14	Thu 10/8/15	
27	Prepare 90% Design Documents	8 mons	Fri 12/19/14	Thu 7/30/15	30
28	Consultant Internal QC	1 mon	Fri 7/31/15	Thu 8/27/15	32
29	Distinct Review	1.5 mons	Fri 8/28/15	Thu 10/8/15	33
30	Environmental Analysis	590 days	Mon 10/1/12	Fri 1/2/15	
31	Issue RFP, Select Consultant, and Negotiate Contract	4 mons	Mon 10/1/12	Fri 1/18/13	
32	Prepare Draft Report	12 mons	Mon 1/21/13	Fri 12/20/13	37
33	Distinct Review and Comment	3 mons	Mon 12/23/13	Fri 3/14/14	38
34	Prepare Administrative Draft	3 mons	Mon 3/17/14	Fri 6/6/14	39

Workplan Schedule for Nutrient Removal and Title 22 or Equivalent Treatment



Summary

Milestone

Task

Sacramento Regional County Sanitation District
Wed 1/25/12