REGIONAL WATER QUALITY CONTROL BOARD,
CENTRAL VALLEY REGION

Amendments
To the
Water Quality Control Plans for the Sacramento River and San Joaquin River Basins and Tulare Lake Basin

To

Establish a Region-wide Municipal and Domestic Supply (MUN) Beneficial Use Evaluation Process in Agriculturally Dominated Surface Water Bodies and Remove the MUN Beneficial Use from 231 Constructed or Modified Ag Drains in the San Luis Canal Company District

Final Staff Report

August 2017

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

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DISCLAIMER

This publication is a report by staff of the California Regional Water Quality Control Board, Central Valley Region. This report contains the evaluation of alternatives and technical support for the adoption of amendments to the Water Quality Control Plan for the Sacramento and San Joaquin River Basin and for the Water Quality Control Plan for the Tulare Lake basin (Resolution No. R5-2017-0088). Mention of specific products does not represent endorsement of those products by the Central Valley Water Board.

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ACKNOWLEDGEMENTS:

Disclosure: Funding for this project has been provided in part through an Agreement between the State Water Resources Control Board and the Central Valley Salinity Alternatives for Long Term Sustainability (CV-SALTS) stakeholder group. This Agreement provided resources for a portion of the California Environmental Quality Act (CEQA) and economic analyses for this staff report. Additional funds and resources were provided by the San Luis Canal Company (SLCC).

EXECUTIVE SUMMARY

The purpose of this Staff Report is to provide the justification and supporting documentation for proposed amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins and for the Water Quality Control Plan for the Tulare Lake Basin (Basin Plans) to establish a Central Valley region-wide process for evaluating the municipal and domestic supply (MUN) beneficial use in agriculturally (Ag) dominated surface water bodies. The preferred project alternative would establish a water body categorization framework in the Basin Plans that the Board could utilize to determine the appropriate application of, and level of protection for, the MUN beneficial use in different types of Ag dominated surface water bodies across the Central Valley.

The Central Valley Water Board has incorporated the Sources of Drinking Water Policy, State Water Board Resolution No. 88-63 (Sources of Drinking Water Policy) into the Basin Plans, and has designated all surface and ground water bodies in the Central Valley region as supporting the MUN beneficial use unless a particular water body is specifically designated as not supporting the MUN beneficial use in the Basin Plans. The Basin Plans identify the primary and secondary Maximum Contaminant Levels (MCLs) specified in Title 22 of the California Code of Regulations, which were developed for the protection of potable water at the tap after receiving conventional treatment, as the appropriate water quality objectives to protect the MUN use. The *Sources of Drinking Water Policy* identifies exceptions to the MUN beneficial use that can apply to certain water bodies, including an exception that applies to water bodies that have been designed or modified for the primary purpose of conveying agricultural drainage ("Exception 2b"). However, these exceptions are not self-implementing – the Central Valley Water Board is required to protect the MUN beneficial use even in water bodies that meet the exception criteria in the *Sources of Drinking Water Policy* unless and until a Basin Plan amendment is adopted that specifically de-designates the MUN use in such water bodies.

In recent years, the Central Valley Water Board issued permits to facilities that discharged wastewater to agricultural drains, and set limits in these permits designed to protect the MUN beneficial use despite the fact that the agricultural drains presumptively met the exception criteria in the Sources of Drinking Water Policy. The high cost of compliance for these facilities caused the Board to focus on developing a more streamlined approach for applying the exception criteria in the Sources of Drinking Water Policy, making this issue a priority in the Board's 2011 Triennial Review (Central Valley Water Board, 2011). The Board reaffirmed this priority in the 2015 Triennial Review (Central Valley Water Board, 2015b).

Concurrently, due to fact that dischargers indicated that it would be extremely difficult to maintain agricultural operations and increase water recycling efforts while also complying with MCLs in agricultural drains that did not actually function as a source of drinking water, the Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS) initiative identified that there was a need to evaluate the way the Board regulated the MUN beneficial use in Ag dominated water bodies. CV-SALTS partnered with the Board to provide funding for water quality monitoring and environmental and economic analyses for a MUN evaluation project.

Central Valley Water Board staff initiated stakeholder meetings and CEQA scoping meetings in 2012 to solicit feedback on potential project alternatives and to develop a strategy for moving forward on related amendments to the Basin Plans. Central Valley Water Board staff coordinated with a variety of stakeholders, including representatives from USEPA, the State Water Resources Control Board (Division of Water Quality and Division of Drinking Water), the California Department of Fish and Wildlife, water supply agencies, irrigation districts, POTWs, the agricultural community, and the Delta Stewardship Council. Board staff also coordinated with other Central Valley Water Board programs, with a special focus on the Irrigated Lands Regulatory Program (ILRP), the Surface Water Ambient Monitoring Program (SWAMP), and the National Pollutant Discharge Elimination System (NPDES) program. From 2012 to 2016, Board staff kept stakeholders updated on the project via regular

meetings, an email subscription list of almost four hundred subscribers, and a publicly-available website containing meeting notes, water quality results, and other project-related documents.

During the initial planning process, stakeholders reviewed historical efforts to evaluate the appropriate beneficial uses and levels of protection in Ag dominated water bodies, including alternatives such as site-specific objectives, and agreed to build off of previously developed methodologies, which categorized water bodies based on their inherent characteristics. Board staff developed an updated water body categorization process with substantial stakeholder input – the proposed categorization process would distinguish between those surface water bodies that were constructed, modified or natural, the primary purpose of the construction or modification, and if applicable, whether the water bodies are part of a closed controlled recirculation system. The process would also consider whether the water body contained agricultural drainage, irrigation supply water, or a combination of both. The resulting water body categories served as the foundation for subsequent stakeholder meetings focused on the development of consistent and streamlined protocols for reporting information to the Central Valley Water Board, assigning the appropriate MUN beneficial use designations and water quality objectives to the affected water bodies, and ensuring that downstream beneficial uses are protected.

The proposed amendments would add a standardized region-wide process to the Basin Plans that will guide the Board's evaluation of appropriate MUN beneficial use designations and associated water quality objectives in Ag dominated surface water bodies, and will set implementation provisions related to this process. The preferred alternative is based on the water body categorization approach, which uses a flowchart developed in the stakeholder process, to distinguish between those water bodies that have been constructed or modified for the primary purpose of conveying Ag drainage (C1,M1), those water bodies that have been constructed or modified to convey Ag supply water (C2, M2), natural water bodies dominated by agricultural operations (B1, B2), and those water bodies encompassed in a permanent or seasonally closed controlled recirculating basin. The amendment proposes to utilize, where appropriate, Sources of Drinking Water Policy Exception 2b to de-designate the MUN beneficial use. For the purpose of these amendments and consistency with other regulatory programs, agricultural drainage is defined as water leaving an agricultural field either from irrigation practices or precipitation.

The Basin Plan Amendments also propose establishing a "Limited Municipal and Domestic Supply" (LMUN) beneficial use and associated narrative water quality objective for Ag dominated water bodies that do not meet the Sources of Drinking Water Policy exceptions, but that have inherent limiting conditions, such as low or intermittent flows and/or elevated natural background constituent concentrations. Table ES-1 lists the seven different Ag dominated water body categories and their proposed MUN beneficial use designations. Ag dominated water bodies that are already listed in the Basin Plan with beneficial use designations or that currently serve as a source of municipal or domestic water supply will not be eligible for the proposed MUN evaluation process and would need to be evaluated individually.

Table ES - 1 Proposed MUN Beneficial Use Designations by water body category

Water Body Category	MUN Beneficial Use
C1 (Constructed Ag Drainage/Combo)	No MUN
M1 (Modified Ag Drainage/Combo)	No MUN
C2 (Constructed Ag Supply)	LIMITED-MUN
M2 (Modified Ag Supply)	LIMITED-MUN
B1 (Natural Ag Drainage/Combo)	LIMITED-MUN
B2 (Natural Ag Supply)	LIMITED-MUN
Closed Controlled Recirculating Systems	
Year-Round Closed	No MUN
Seasonally Closed	No MUN during closure period

The implementation provisions for the preferred alternative include three distinct steps (Figure ES-1):

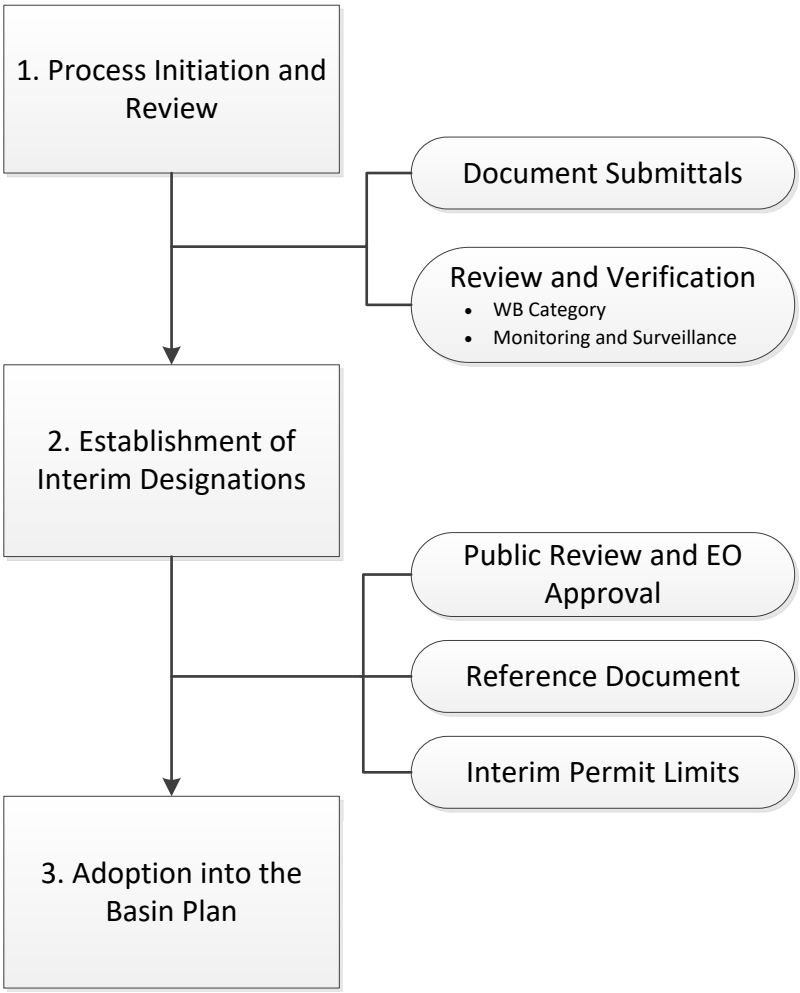
1) Process Initiation and Review
2) Establishment of Interim Designations
3) Adoption into the Basin Plan

In Step 1, the MUN evaluation process would be initiated by the applicant and include the submittal of required informational documents pertaining to the water bodies under consideration. As part of this step, Central Valley Water Board staff would review and verify the material provided by the applicant, such as information on Ag operations and water uses, construction records, maps of the water bodies, water quality reports and existing monitoring programs within and downstream of the study area. The applicant would also provide initial water body category designations using the water body categorization flowchart (Figure Y in the proposed Basin Plan Language) and Central Valley Water Board staff would verify these designations by “ground truthing” all natural and modified water bodies and a portion of the constructed water bodies under consideration.

In Step 2, Central Valley Water Board staff would develop recommendations for interim water body category and MUN beneficial use designations and applicable implementation requirements, such as additional monitoring to fill data gaps in existing monitoring and/or control program efforts to track and assess potential constituents of concern and protect downstream beneficial uses. This step would include requirements for a public review and revision period, concluding with an Executive Officer approval of the interim designations. Approved interim designations would be updated into a Reference Document that could be used to set interim permit limits.

In the third and final step, updates to the Reference Document would be bundled and prepared as a Basin Plan Amendment. The Central Valley Water Board would consider adopting these amendments approximately every three years during a Triennial Review or other Public Hearing process. Adopted water bodies and their associated water body category and MUN beneficial use designations would be listed in an appendix in the Basin Plans.

Figure ES - 1 Simplified Schematic Overview of the Proposed Implementation Program



To test the proposed MUN evaluation process, case study areas were identified in different areas of the region. These case studies represented typical agricultural operations on the Central Valley floor. Stakeholders assisted staff in gathering pertinent information such as construction history, operational activities, water quality, and flow characteristics. The proposed process was first applied in a Sacramento River Basin case study area comprised of twelve Ag dominated water bodies receiving NPDES discharges from the cities of Biggs, Colusa, Live Oak and Willows. Applying a standardized reporting and review process, these water bodies were found to be either constructed or modified to convey Ag drainage water and were not being used for municipal or domestic supply water. Through a separate Basin Plan Amendment, the Board removed the MUN beneficial use from these twelve water bodies using Exception 2b from the Sources of Drinking Water Policy (Resolution R5-2015-0022). An additional case study, San Luis Canal Company (SLCC), was identified to test the process in the San Joaquin River Basin.

Findings and recommendations from the MUN evaluation of the water bodies in SLCC's district are included as part of this Staff Report. Two hundred thirty of the two hundred thirty-one named water bodies in the SLCC case study evaluation were categorized as C1 water bodies (Constructed Ag Drainage/Combo). One water body was categorized as a M1 (Modified Ag Drainage/Combo). Information gathered during the stakeholder process and through staff surveys and monitoring efforts demonstrates that the MUN use has not occurred in the past, is not occurring presently, and is not expected to occur in the foreseeable future in all the water bodies identified by SLCC. Furthermore,

these water bodies meet the requirements of Exception 2b in the Sources of Drinking Water Policy and an evaluation of the monitoring programs downstream of SLCC concluded that there was sufficient water quality monitoring to ensure compliance with all applicable water quality objectives. In addition to establishing a MUN beneficial use evaluation process for the Central Valley's Ag dominated surface water bodies, this amendment proposes to remove the MUN beneficial use designation from the SLCC water bodies.

The case studies discussed above for the Sacramento and San Joaquin River Basins were effective in testing the proposed process on individual Ag dominated surface water bodies. Testing the MUN evaluation process on closed controlled recirculating systems was conducted using case examples in lieu of specifically identified systems. Closed controlled recirculating systems are unique in that they are designed to retain all their water within a defined management area by recirculating irrigation water and return flows, with zero discharge to surface waters outside the system during operation. There are two types of closed controlled recirculating systems identified: 1) Year-round Closed and; 2) Seasonally Closed. Year-round Closed Controlled Recirculating Systems are designed to deliver irrigation water and retain all return flows through recirculation in natural, modified or constructed conveyance facilities through an area under single or coordinated management control. The operation and management of a portion of the valley floor in the Tulare Lake Basin managed by a distinct water district was used as a case example for a Year-round Closed Controlled Recirculating System. Seasonally Closed Controlled Recirculating Systems are designed to operate like a year-round closed controlled recirculating system with the exception that their closure is only during a specific period of the irrigation season. Once the system is opened and no longer holding all of its water, surface water would discharge into receiving waters outside the designated system. The historical rice operation in the Sacramento River Basin was used as a case example for evaluating the Seasonally Closed Controlled Recirculating System. These case examples are included in this Staff Report and provided the foundation for the review and verification requirements in the proposed implementation program for closed controlled recirculating systems.

This Staff Report provides the rationale behind each part of the amendment, addressing the areas of beneficial use designation, water quality objectives, and implementation requirements. This Staff Report contains a consideration of a range of alternatives to the preferred project, as well as the specific beneficial use, water quality objective, implementation and monitoring components that are being proposed. In addition, this Staff Report evaluates the proposed Basin Plan Amendment project's consistency with existing federal and state laws, regulations and policies, contains an environmental analysis that complies with the applicable requirements of the California Environmental Quality Act (CEQA), and includes antidegradation and economic analyses that evaluate the potential impacts of this project. The Board's Basin Planning Program is considered a certified regulatory program, which means that the Board is exempt from the requirement to prepare an environmental impact report for basin planning activities under CEQA. (Pub. Res. Code, § 21080.5; Cal. Code Regs., tit. 14, § 15251(g).) The Board's environmental review of the proposed Basin Plan Amendments is instead contained in this Staff Report, which is considered to be part of the "substitute environmental documentation" or "SED".

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AMENDMENT LANGUAGE FOR THE SACRAMENTO RIVER AND SAN JOAQUIN RIVER BASIN PLAN

The proposed changes to the Basin Plan are as follows. Text additions to the existing Basin Plan language are underlined and *italicized*. Text deletions to the existing Basin Plan are in ~~strikethrough~~.

CHAPTER 2 BENEFICAL USES

Modify the Basin Plan in Chapter 2 Beneficial Uses (page II-1.00), as follows:

Limited Municipal and Domestic Supply (LMUN) – *Uses of water for municipal and domestic supply in agriculturally dominated water bodies where the use is limited by water body characteristics such as intermittent flow, management to maintain intended agricultural use and/or constituent concentrations in the water body.*

Modify the Basin Plan in Chapter 2 Beneficial Uses under the heading, "Surface Waters" (page II-2.01), as follows:

In making any exemptions to the beneficial use designation of MUN, the Regional Water Board will apply the exceptions listed in the *Sources of Drinking Water Policy* (Appendix Item 8) and the excepted water bodies will be listed in Appendix 44.

Water bodies designated with the LMUN beneficial use are listed in Appendix 45.

CHAPTER 3 WATER QUALITY OBJECTIVES

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, “Chemical Constituents” (page III-3.00), as follows and move under heading, “Municipal and Domestic Supply (MUN)”:

~~At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain lead in excess of 0.015 mg/l. The Regional Water Board acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To protect all beneficial uses the Regional Water Board may apply limits more stringent than MCLs.~~

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, “Water Quality Objectives for Inland Surface Waters” (page III-4.01), as follows and move under heading, “Municipal and Domestic Supply (MUN)”:

~~**Cryptosporidium and Giardia**~~

~~Waters shall not contain Cryptosporidium and Giardia in concentrations that adversely affect the public water system component1 of the MUN beneficial use. This narrative water quality objective for Cryptosporidium and Giardia shall be applied within the Sacramento-San Joaquin Delta and its tributaries below the first major dams (shown in Figure A44-1) and should be implemented as specified in Section IV of the Basin Plan. Compliance with this objective will be assessed at existing and new public water system intakes.~~

~~[1] Public water system as defined in Health and Safety Code, section 116275, subdivision (h)~~

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, “Pesticides” (page III-6.00), as follows and move under heading, “Municipal and Domestic Supply (MUN)”:

- ~~Waters designated of use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code or Regulations, Title 22, Division 4, Chapter 15.~~
- ~~Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of thiobencarb in excess of 1.0 µg/l.~~

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, “Radioactivity” (page III-6.01), as follows and move under heading, “Municipal and Domestic Supply (MUN)”:

~~At a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of Section 64442 and Table 64443 of Section 64443 of Title 22 of the California Code of~~

~~Regulations, which are incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.~~

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, "Water Quality Objectives for Inland Surface Waters" (page III-9.00), as follows:

Municipal and Domestic Supply (MUN)

In addition to other applicable water quality objectives including but not limited to narrative and site specific, the following sections specifically address waters designated for use as domestic or municipal supply (MUN).

Chemical Constituents

At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated for use as domestic or municipal supply (MUN) shall not contain lead in excess of 0.015 mg/l. The Regional Water Board acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To protect all beneficial uses the Regional Water Board may apply limits more stringent than MCLs.

Cryptosporidium and Giardia

Waters shall not contain Cryptosporidium and Giardia in concentrations that adversely affect the public water system component[1] of the MUN beneficial use. This narrative water quality objective for Cryptosporidium and Giardia shall be applied within the Sacramento-San Joaquin Delta and its tributaries below the first major dams (shown in Figure A44-1) and should be implemented as specified in Section IV of the Basin Plan. Compliance with this objective will be assessed at existing and new public water system intakes.

[1] Public water system as defined in Health and Safety Code, section 116275, subdivision (h)

Pesticides

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the Maximum Contaminant Levels set forth in California Code of Regulations, Title 22, Division 4, Chapter 15. Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of thiobencarb in excess of 1.0 µg/l.

Radioactivity

At a minimum, waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table

64442 of Section 64442 and Table 64443 of Section 64443 of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Limited Municipal and Domestic Supply (LMUN)

Water quality and downstream beneficial uses will be protected consistent with the state antidegradation policy.

CHAPTER 4 IMPLEMENTATION

Modify the Basin Plan in Chapter 4 Implementation under the heading, “Continuous Planning for Implementation of Water Quality Control” (page IV-30.01), as follows:

Municipal and Domestic Supply (MUN) Evaluation in Agriculturally Dominated Water Bodies
Agriculturally (Ag) dominated surface water bodies will be evaluated for the MUN beneficial use only as needed or desired by an interested party. The MUN evaluation process can be initiated by an outside party or the Regional Water Board. The Applicant submitting the evaluation must manage and/or control the water bodies under consideration or jointly submit the evaluation with such a party. Ag dominated surface water bodies that do not go through the MUN evaluation process will have no change to their MUN beneficial use designation. For the purposes of this evaluation, agricultural drainage is defined as water leaving an agricultural field either from irrigation practices or precipitation.

An Interim Ag Dominated Water Body Designation Reference Document will be used to list evaluated water bodies and their proposed water body categories and MUN designations until such a time that the list is incorporated into this Water Quality Control Plan via an amendment.

The Reference Document will be utilized to set interim water quality permit limits for a finite period, during which a public Board approval process would be used to incorporate evaluated water bodies and associated beneficial uses listed in the Reference Document into this Water Quality Control Plan. The finite period shall not exceed 5 years, with an allowance for a 3 year extension with Regional Water Board EO approval.

Using the process laid out in Figure X, Schematic Overview of Region-wide MUN Evaluation, the Applicant will utilize Figure Y, Water Body Categorization (WBC) Flowchart and Table X, Assigned MUN Beneficial Use Designations by Water Body Category to propose appropriate MUN beneficial use designations of Ag dominated water bodies.

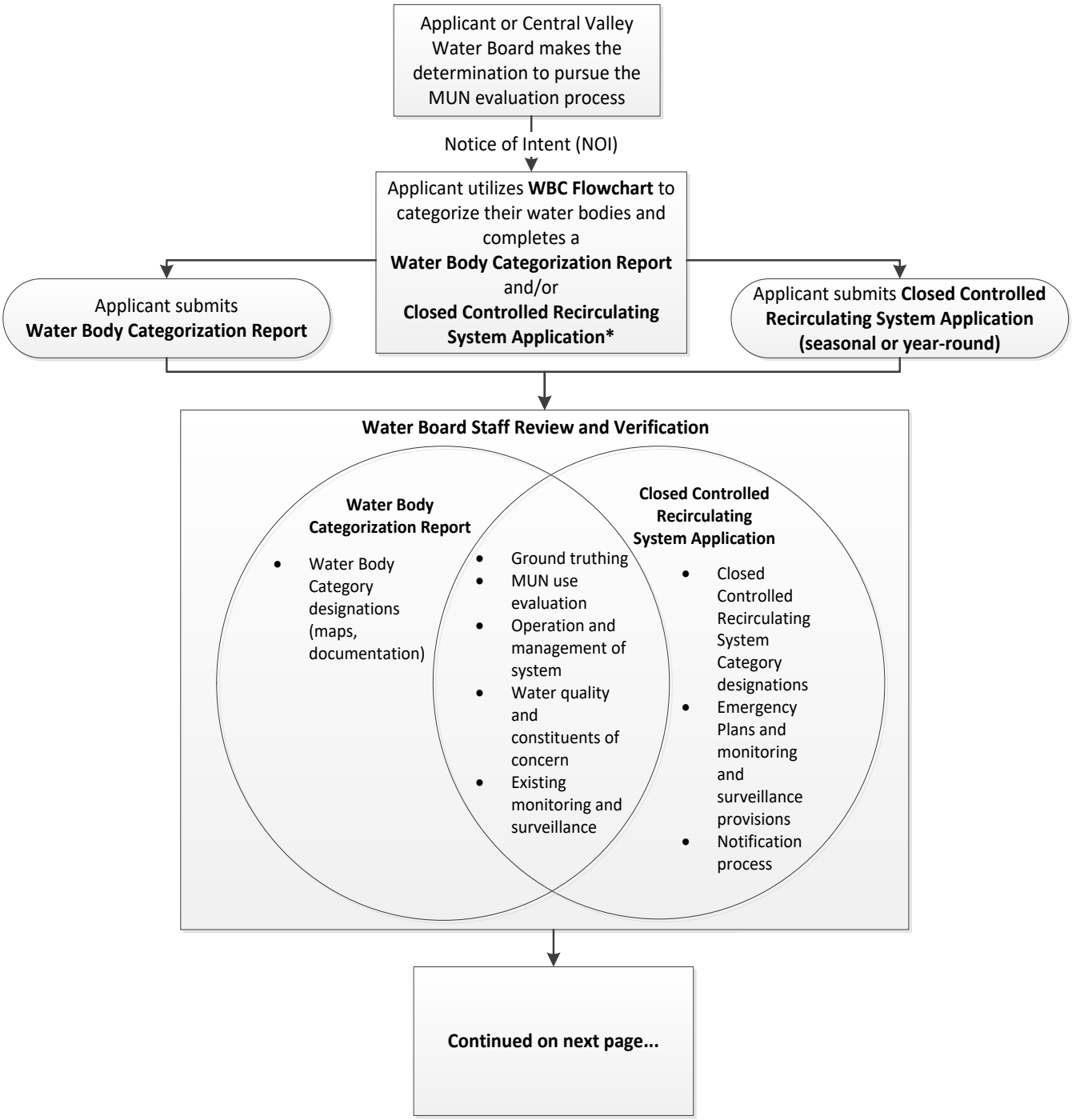
The proposed designations are subject to change based on the Regional Water Board staff and public review process outlined in Figure X,

The Region-wide MUN Evaluation process will not apply to water bodies that are already listed in Table II-1 of the Basin Plan or water bodies that are currently used for municipal or domestic water supply. Such water bodies would continue to be eligible for site specific beneficial use evaluations.

Table X Assigned MUN Beneficial Use Designations by water body category

Water Body Category	***MUN Beneficial Use***
C1 (Constructed Ag Drainage/Combo)	*No MUN*
M1 (Modified Ag Drainage/Combo)	*No MUN*
C2 (Constructed Ag Supply)	*LIMITED-MUN*
M2 (Modified Ag Supply)	*LIMITED-MUN*
B1 (Natural Ag Drainage/Combo)	*LIMITED-MUN*
B2 (Natural Ag Supply)	*LIMITED-MUN*
Closed Controlled Recirculating Systems	
Year-Round Closed	*No MUN*
Seasonally Closed	*No MUN during closure period*

Figure X. Schematic Overview of Region-wide MUN Evaluation



** There are two types of Closed Controlled Recirculating Systems: Seasonally Closed and Year-Round Closed. For Seasonally Closed Controlled Recirculating Systems, both the Water Body Categorization Report and the Closed Controlled Recirculating System Application are required for submittal. The Regional Water Board will have the discretion to ask for a full report for Closed Controlled Recirculating Systems depending on the size and complexity of the system.*

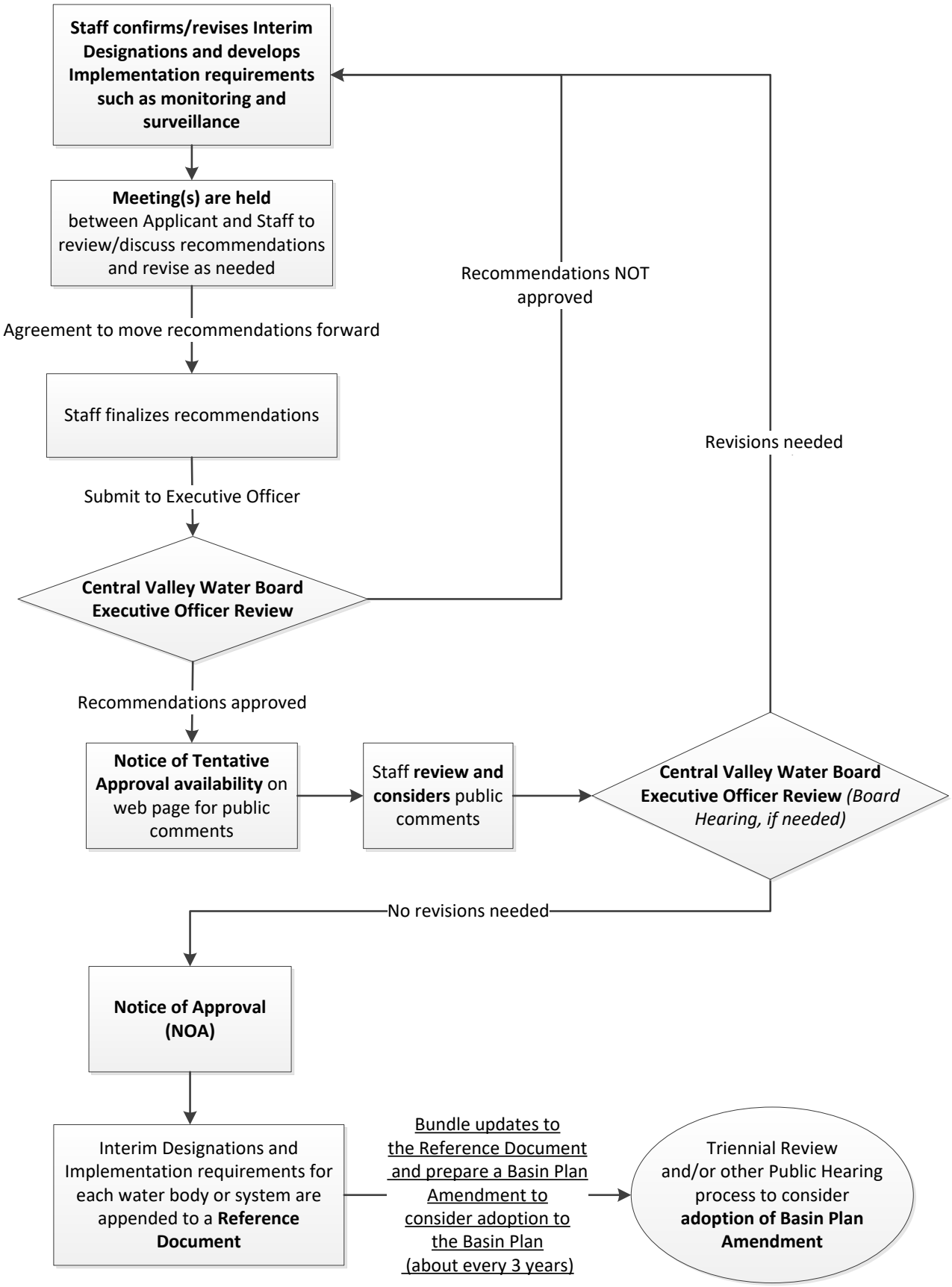
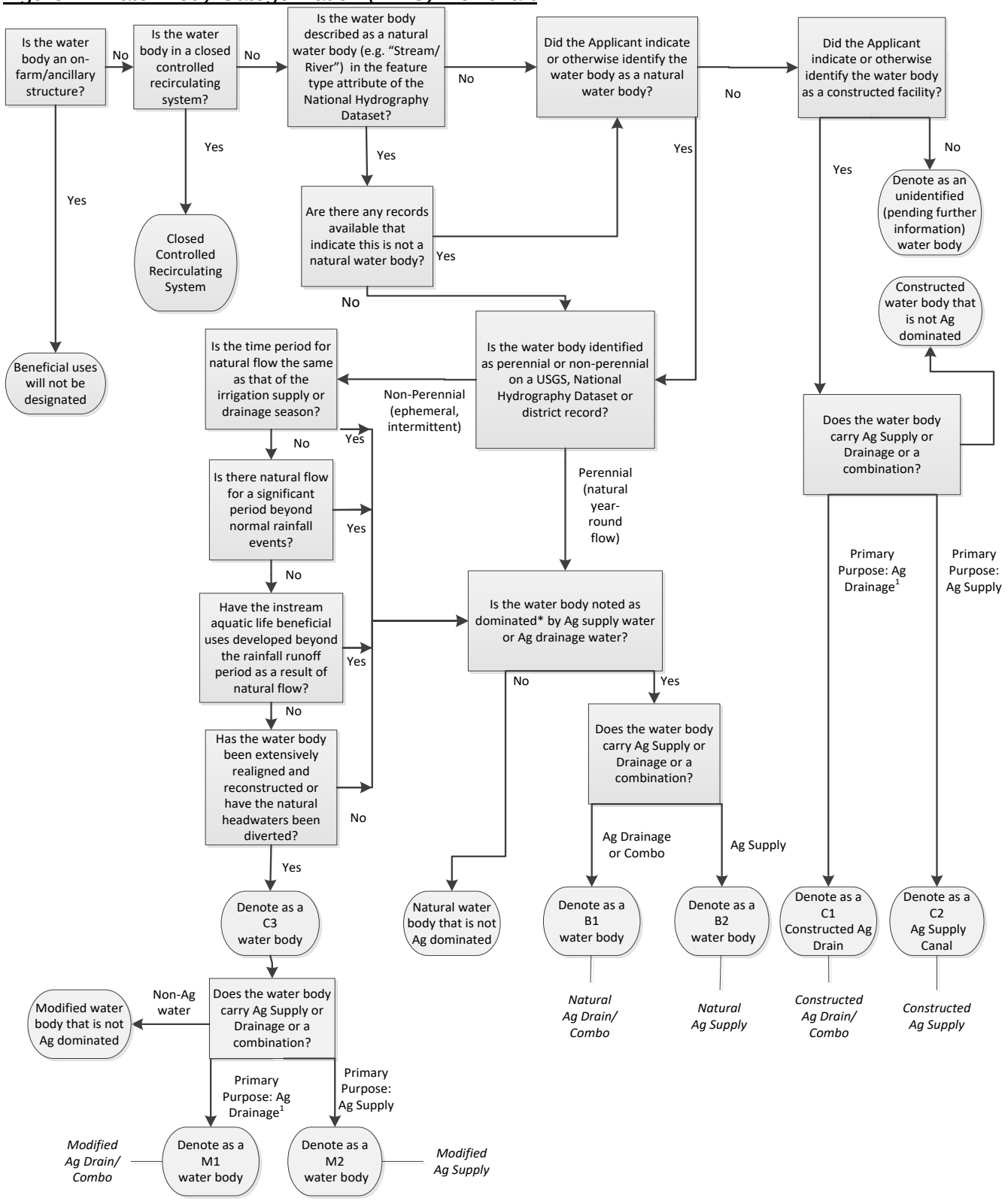

Staff confirms/revises Interim Designations and develops Implementation requirements such as monitoring and surveillance
Meeting(s) are held between Applicant and Staff to review/discuss recommendations and revise as needed
Agreement to move recommendations forward
Staff finalizes recommendations
Submit to Executive Officer
Central Valley Water Board Executive Officer Review
Recommendations NOT approved
Revisions needed
Recommendations approved
Notice of Tentative Approval availability on web page for public comments
Staff review and considers public comments
Central Valley Water Board Executive Officer Review (Board Hearing, if needed)
No revisions needed
Notice of Approval (NOA)
Interim Designations and Implementation requirements for each water body or system are appended to a Reference Document
Bundle updates to the Reference Document and prepare a Basin Plan Amendment to consider adoption to the Basin Plan (about every 3 years)
Triennial Review and/or other Public Hearing process to consider adoption of Basin Plan Amendment

Figure Y. Water Body Categorization (WBC) Flowchart



[1] *Designed or modified for the primary purpose of conveying or holding agricultural drainage waters*

* "***Ag Dominated"*** *is defined as: systems designed or modified for the primary purpose of conveying or holding waters used for or resulting from agricultural production, and/or water bodies with greater than 50 percent of the flow dependent on agricultural operations for greater than 50 percent of the irrigation season.*

Any non-listed constructed (C1 or C2) water body that is less than one mile and/or serving less than 640 irrigated acres from a study area that has been approved through the MUN Evaluation Process shall have their MUN beneficial use designation apply via the following rules:

- *A non-listed C1 water body that provides or receives flow to or from an identified C1 water body shall be assigned the same MUN designation as the identified C1 water body*

- *A non-listed C2 water body that provides or receives flow to or from an identified C2 water body shall be assigned the same MUN designation as the identified C2 water body*

CHAPTER 5 SURVEILLANCE AND MONITORING

Modify the Basin Plan in Chapter 5 Surveillance and Monitoring under the heading, "Surveillance and Monitoring" (page V-5.01), as follows:

Municipal and Domestic Supply Beneficial Use (MUN) Evaluation in Agriculturally Dominated Water Bodies

Water Bodies with MUN Beneficial Use De-designated or LMUN Beneficial Use Designated

As resources permit, Regional Water Board staff will work with other agencies and regional monitoring programs to monitor chemical constituents, pesticides, and radionuclides contained in the Title 22 of the California Code of Regulations, as well as relevant constituents associated with the narrative and site specific water quality objectives associated with MUN use, approximately every 3 to 5 years in major water bodies identified with existing or potential MUN use including but not limited to the Sacramento River, Feather River, San Joaquin River and Delta. The data gathered will support Watershed Sanitary Surveys (Cal. Code Regs, tit. 22, § 64665 et seq.) as well as the California Integrated Report (Clean Water Act Section 303(d)/305(b)).

The Regional Water Board will ensure that water quality monitoring data are sufficient to demonstrate that neither the de-designation of the MUN beneficial use nor the change of a MUN beneficial use designation to an LMUN beneficial use designation will result in unreasonable impacts to downstream water bodies designated as supporting the LMUN or MUN beneficial uses.

1. *As part of the MUN evaluation process initiated by the Applicant, the Regional Water Board will conduct an evaluation of all existing and available water quality data to determine whether the de-designation of the MUN beneficial use or the change of a MUN beneficial use designation to a LMUN beneficial use designation will result in unreasonable impacts to water quality downstream of the water body being evaluated.*
    a. *If existing and available water quality data support the conclusion that a change to a MUN beneficial use designation will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, the Regional Water Board need not require additional monitoring to comply with Exception 2b of the* Sources of Drinking Water Policy*.*
    b. *If existing and available water quality data are not sufficient to support the conclusion that the change to the MUN beneficial use designation will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, the Regional Water Board shall evaluate whether monitoring requirements imposed by existing regulatory programs, such as the Irrigated Lands Regulatory Program or the NPDES Permitting Program, are sufficient to ensure that discharges from the system will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses. If such monitoring programs provide sufficient monitoring to ensure the protection of the LMUN or MUN beneficial uses in downstream water bodies, the continued implementation of those monitoring programs shall satisfy the monitoring requirement of Exception 2b of the* Sources of Drinking Water Policy*. Such monitoring programs shall remain in effect at least until such time that water quality data demonstrate that the change to the MUN beneficial use designation has not resulted in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, at which point the monitoring requirements may be altered or reduced consistent with applicable regulatory*

requirements.

2. *If neither existing and available water quality data nor monitoring requirements imposed by existing regulatory programs are sufficient to support the conclusion that the change to the MUN beneficial use designation will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, the Regional Water Board shall either modify existing monitoring programs or issue an order pursuant to Water Code section 13267 to ensure that discharges from the system do not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses. Such modified requirements or orders shall remain in effect at least until such time that water quality data demonstrate that the change to the MUN beneficial use designation has not resulted in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses.*
3. *In water bodies where the MUN beneficial use has been changed, the burden of ensuring that neither new discharges into the waterbody nor material changes in the character, location, or volume of existing discharges will result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses shall be borne by the applicant initiating the new discharge or making the material changes to the character, location, or volume of the existing discharge.*

Water Bodies with LMUN Designated

To interpret the narrative objective and to evaluate compliance with the proposed objective for LMUN, existing Regional Water Board monitoring programs may use numeric triggers for chemical constituents, pesticides, and radionuclides concentrations in their process of issuing permits or waste discharge requirements. Exceedances of the triggers would not be violations of the proposed narrative objective nor are the triggers to be used for numeric effluent limits. Triggers may be used to evaluate conditions in the water body itself as well as potential impacts to downstream beneficial uses and ensure appropriate management and best practical treatment actions are taken to protect those uses.

APPENDIX

Modify the Basin Plan in Appendix 44, Water Bodies That Meet One or More of the Sources of Drinking Water Policy (Resolution 88-63) Exceptions (page XX), as follows:

Appendix 44
Water Bodies That Meet One or More of the Sources of Drinking Water Policy (Resolution 88-63) Exceptions

County	***Primary Water Body or Main System Name (if applicable)***	Water Body Name	Description ***(optional)***	Approximate GIS Coordinates (WGS84 Datum) ***(optional)***		***Length of Water Body Segment (miles)***	***Water Body/System Category Designation***
				Starting Location	Ending Location		
Butte		Cherokee Canal	Cherokee Canal runs southwest from the Richvale area (near Nelson Shippee Road) to Butte Creek, west of the City of Live Oak	(39.537741, -121.707079)	(39.285685, -121.921656)	*22*	*C1*
Butte		Lateral K	Lateral K is part of Reclamation District 833 and starts near 8th Street in the City of Biggs and travels southwest past the City of Bigg's Wastewater Treatment Plant to the Main Drainage Canal	(39.421894, -121.71297)	(39.406837, -121.725361)	*1.7*	*C1*
Butte		Main Drainage Canal	The Main Drainage Canal (also known as the Main Drain C) is part of Reclamation District 833 and starts on the south end of the City of Biggs near Trent Street and runs southwest to the Cherokee Canal	(39.41041, -121.704258)	39.327924, -121.882067	*13*	*C1*
Colusa		New Ditch (2011)	New Ditch (2011) starts near the south end of the Colusa Wastewater Treatment Plant and runs south, parallel to the unnamed tributary, until the two water bodies join near the effluent outfall and weir	(39.180224, -122.031358)	(39.174267, -122.031274)	*0.4*	*C1*

County	***Primary Water Body or Main System Name (if applicable)***	**Water Body Name**	**Description *(optional)***	**Approximate GIS Coordinates ~~(~~WGS84 Datum~~)~~ *(optional)***		***Length of Water Body Segment (miles)***	***Water Body/System Category Designation***
				Starting Location	**Ending Location**		
Colusa		Powell Slough	Powell Slough begins just north of Highway 20, downstream of Hopkins Slough, and runs south until its confluence with the Colusa Basin Drain	(39.211133, -122.062955)	(39.161267, -122.038445)	*5*	*M1*
Colusa		Sulphur Creek	Lower two miles from Schoolhouse Canyon to its confluence with Little Bear Creek	(39.035631, -122.437619)	(39.040144, -122.408168)		
Colusa		unnamed tributary (to Powell Slough)	unnamed tributary to Powell Slough starts near Will S. Green Avenue and runs west and southwest to Powell Slough	(39.188028, -122.02328)	(39.166857, -122.034722)	*2.1*	*C1*
Glenn		Ag Drain C	Glenn-Colusa Irrigation District's Ag Drain C (segments also known as North Fork Logan Creek and Logan Creek) runs southeast from Highway 5 near Highway 99W through the Sacramento Wildlife Refuge to the Colusa Basin Drain	(39.498519, -122.199216)	(39.356401, -122.082675)	*17*	*M1*
Sutter		East Interceptor Canal	The East Interceptor Canal starts at Pease Road and runs west until it meets the Wadsworth Canal.	(39.170745, -121.670588)	(39.171003, -121.727014)	*3*	*C1*

County	***Primary Water Body or Main System Name (if applicable)***	Water Body Name	Description ***(optional)***	Approximate GIS Coordinates ~~(~~WGS84 Datum~~)~~ ***(optional)***		***Length of Water Body Segment (miles)***	***Water Body/System Category Designation***
				Starting Location	**Ending Location**		
Sutter		Lateral 1	Lateral 1 is part of Reclamation District 777 and starts near the City of Live Oak's Wastewater Treatment Plant and runs south and west to the Western Intercepting Canal	(39.257501, -121.678718)	(39.201248, -121.696329)	*5*	*C1*
Sutter		Lateral 2	Lateral 2 is part of Reclamation District 777. It starts on the south end of the City of Live Oak near Treatment Plant Access Road and runs south and then west past the City of Live Oak's Treatment Plant outfall until it meets Lateral 1	(39.264739, -121.669314)	(39.257501, -121.678718)	*1*	*C1*
Sutter		West Intercepting Canal (*not to be confused with West Interceptor Canal*)	Western Interceptor Canal is under shared management between Reclamation District 777 and Reclamation District 2056. It starts south of Sanders Road and runs south until it meets the East Interceptor Canal	(39.201248, -121.696329)	(39.17092, -121.695374)	*2*	*C1*
Sutter		Wadsworth Canal	The Wadsworth Canal starts just north of Butte House Road and runs southwest until it meets the Sutter Bypass	(39.171003, -121.727014)	(39.113605, -121.768985)	*5*	*C1*
Merced	*Arroyo Canal System*	*Arroyo Canal*				*18*	*C1*
Merced	*Arroyo Canal System*	*Belmont Ditch*				*2*	*C1*
Merced	*Arroyo Canal System*	*Clark Ditch*				*0.3*	*C1*

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Arroyo Canal System	Cocke Ditch				0.3	C1
Merced	Arroyo Canal System	Cowden Ditch				3	C1
Merced	Arroyo Canal System	North Toscano Ditch				4	C1
Merced	Arroyo Canal System	North Toscano Ditch No. 1				1	C1
Merced	Arroyo Canal System	Schmidt Ditch				1	C1
Merced	Arroyo Canal System	West Toscano Ditch				1	C1
Merced	Arroyo Canal System	West Toscano Ditch North Ext.				2	C1
Merced	Arroyo Canal System	West Willow Ditch				0.5	C1
Merced	Arroyo Canal System	West Willow Ditch Extension				0.5	C1
Merced	Temple- Santa Rita Canal System	Bennett Ditch				0.3	C1
Merced	Temple- Santa Rita Canal System	Boundary Ditch				1	C1
Merced	Temple- Santa Rita Canal System	Cement Lined Ditch				1	C1
Merced	Temple- Santa Rita Canal System	Dairy Field Ditch No. 1				1	C1
Merced	Temple- Santa Rita Canal System	Escano Ditch Br. 1				1	C1
Merced	Temple- Santa Rita Canal System	Escano Ditch Br. 2				0.2	C1
Merced	Temple- Santa Rita Canal System	Escano Ditch North Br.				1	C1
Merced	Temple- Santa Rita Canal System	Highway Ditch				1	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Temple- Santa Rita Canal System	Orchard Ditch Extension				3	C1
Merced	Temple- Santa Rita Canal System	Orchard Ditch No.2				1	C1
Merced	Temple- Santa Rita Canal System	Red Tank Ditch				1	C1
Merced	Temple- Santa Rita Canal System	Santa Rita Orchard Ditch				4	C1
Merced	Temple- Santa Rita Canal System	Temple Santa Rita Canal Ext.				1	C1
Merced	Temple- Santa Rita Canal System	Temple-Santa Rita Canal				12	C1
Merced	Pick Anderson System	Loop Ditch				1	C1
Merced	Pick Anderson System	Loop Ditch No. 1				1	C1
Merced	Pick Anderson System	Loop Ditch No. 2				1	C1
Merced	Pick Anderson System	Middle Ditch				1	C1
Merced	Pick Anderson System	Middle Ditch No. 1				1	C1
Merced	Pick Anderson System	Middle Ditch No. 2				1	C1
Merced	Pick Anderson System	North Bypass Lift Ditch				3	C1
Merced	Pick Anderson System	P.A. # 31 Lift Ditch				0.4	C1
Merced	Pick Anderson System	River Ditch				1	C1
Merced	Pick Anderson System	South Bypass Lift Ditch				1	C1
Merced	Pick Anderson System	South Ditch				1	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Pick Anderson System	South P. A. Ditch				1	C1
Merced	San Juan Canal System	Carlucci Ditch				0.3	C1
Merced	San Juan Canal System	Cement - Lined Ditch				0.4	C1
Merced	San Juan Canal System	Coute Ditch				2	C1
Merced	San Juan Canal System	Fagundes Ditch				1	C1
Merced	San Juan Canal System	San Juan No. 1 Canal				2	C1
Merced	San Juan Canal System	San Juan Canal				6	C1
Merced	San Juan Canal System	San Juan Canal Extension				2	C1
Merced	Delta No. 1 Canal System	Delta No. 1 Canal				6	C1
Merced	Delta No. 1 Canal System	M Ditch # 1				1	C1
Merced	Delta No. 1 Canal System	M Ditch # 2				1	C1
Merced	Delta Canal System	Boundary Lift Ditch				0.2	C1
Merced	Delta Canal System	County Road Ditch				1	C1
Merced	Delta Canal System	Dambrosia Ditch				1	C1
Merced	Delta Canal System	Delta Canal				10	C1
Merced	Delta Canal System	Delta Canal Extension				0.3	C1
Merced	Delta Canal System	Duni Ditch				1	C1
Merced	Delta Canal System	Duni Ditch Branch A				1	C1
Merced	Delta Canal System	Duni Ditch Branch B				0.3	C1
Merced	Delta Canal System	East Delta Canal				3	C1
Merced	Delta Canal System	Eastside Canal				3	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Delta Canal System	Noble Ditch				1	C1
Merced	Delta Canal System	Pugliese Ditch				1	C1
Merced	Delta Canal System	West Delta Branch No. 1				1	C1
Merced	Delta Canal System	West Delta Branch No. 2				1	C1
Merced	Delta Canal System	West Delta Canal				4	C1
Merced	Island Canal System	Island "A" Canal				4	C1
Merced	Island Canal System	Island "B" Canal				1.1	C1
Merced	Island Canal System	Island "C" Canal				1.2	C1
Merced	Island Canal System	Island "D" Canal				2	C1
Merced	Midway & San Pedro Canal System	Alberti Ditch				1	C1
Merced	Midway & San Pedro Canal System	Backer Ditch				0.1	C1
Merced	Midway & San Pedro Canal System	Cipriani Concrete - Lined Ditch				0.3	C1
Merced	Midway & San Pedro Canal System	Community Ditch				2	C1
Merced	Midway & San Pedro Canal System	Guaspari - Laveglia Comm. Ditch				1	C1
Merced	Midway & San Pedro Canal System	Lone Tree Canal				8	C1
Merced	Midway & San Pedro Canal System	Lone Tree Spur				0.4	C1
Merced	Midway & San Pedro Canal System	Mackenzie Ditch				1	C1
Merced	Midway & San Pedro Canal System	Midway - Highway Ditch				0.2	C1
Merced	Midway & San Pedro Canal System	Midway - San Pedro Intertie				0.1	C1
Merced	Midway & San Pedro Canal System	Midway Canal				7	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Midway & San Pedro Canal System	Parsley Ditch				1	C1
Merced	Midway & San Pedro Canal System	San Pedro Canal				7	C1
Merced	Midway & San Pedro Canal System	Swamp Ditch				3	C1
Merced	Midway & San Pedro Canal System	Swamp Ditch Branch No. 1				1	C1
Merced	Belmont Drain	Belmont Drain				12	C1
Merced	Belmont Drain	Belmont Drain Extension North				0.3	C1
Merced	Belmont Drain	Belmont Drain No. 1				2	C1
Merced	Belmont Drain	M-20W - Delta Seep Ditch				0.7	C1
Merced	Belmont Drain	M-20W - Delta Seep Ditch Ext. # 1				0.2	C1
Merced	Belmont Drain	M-20W - Delta Seep Ditch Ext. # 2				0.3	C1
Merced	Belmont Drain	M-20W - Delta Seep Ditch Ext. # 3				0.3	C1
Merced	Belmont Drain	Miano Seep Drain				0.8	C1
Merced	Belmont Drain	Plow Camp Drain				4	C1
Merced	Belmont Drain	Raven Drain				1	C1
Merced	Belmont Drain	San Juan Seep Drain				0.4	C1
Merced	Belmont Drain	Spina S/D Br.				0.3	C1
Merced	Belmont Drain	Spina Seep Drain				1	C1
Merced	Belmont Drain	Tallant Drain				0.6	C1
Merced	Belmont Drain	Tallant Seep Drain				0.3	C1
Merced	Boundary Drain	Boundary Drain				10	C1
Merced	Boundary Drain	Derrick Drain				0.8	C1
Merced	Boundary Drain	Derrick Drain Ext.				0.8	C1
Merced	Boundary Drain	Guaspari Drain				0.8	C1
Merced	Boundary Drain	H - R Willis Drain				0.3	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Boundary Drain	Knight Drain				0.5	C1
Merced	Boundary Drain	Mc Donald Drain				0.9	C1
Merced	Boundary Drain	Parsley Ditch Spill				0.4	C1
Merced	Boundary Drain	Sirse Drain				0.9	C1
Merced	Boundary Drain	TL-6 Drain				0.8	C1
Merced	Boundary Drain	Urzanqui Drain				0.4	C1
Merced	Boundary Drain No. 1	Boundary Drain No. 1				5	C1
Merced	Boundary Drain No. 2	Boundary Drain No. 1 Br.				0.3	C1
Merced	Boundary Drain No. 3	Boxcar / Neves Drain				0.2	C1
Merced	Boundary Drain No. 4	Brista Drain				0.8	C1
Merced	Boundary Drain No. 5	Silva Drain				0.2	C1
Merced	Boundary Drain No. 5	Boundary Drain No. 5				5	C1
Merced	Boundary Drain No. 6	Boundary Drain No. 5-2				3	C1
Merced	Boundary Drain No. 7	Boundary Drain No. 5-2-2				1	C1
Merced	Boundary Drain No. 8	Cipriani Drain				1	C1
Merced	Boundary Drain No. 9	Cipriani Drain Br. # 1				0.3	C1
Merced	Boundary Drain No. 10	Gilardi - Johnson Drain				0.3	C1
Merced	Boundary Drain No. 7	Boundary Drain No. 7				2	C1
Merced	Boundary Drain No. 8	Hooper Drain				0.4	C1
Merced	Circle Island Drain	Circle Island Drain				2	C1
Merced	Devon Drain	Borba Drain				0.4	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Devon Drain	Devon Drain				6	C1
Merced	Devon Drain	Devon Drain Br. No. 1				0.7	C1
Merced	Devon Drain	Lone Tree Seep Drain				0.6	C1
Merced	Devon Drain	Panama Ditch				0.2	C1
Merced	Hereford Drain	Hereford Drain				4	C1
Merced	Hereford Drain	Hereford Drain Br. 1				0.7	C1
Merced	Hereford Drain	Hereford Drain Br. 2				0.6	C1
Merced	Hereford Drain	Hereford Drain Br. 3				0.8	C1
Merced	Hereford Drain	Hereford Drain Br. 4				2	C1
Merced	Hereford Drain	Island "A" Spill				0.3	C1
Merced	Pick Anderson By-pass Drain	Lift Pump Slough				0.3	C1
Merced	Pick Anderson By-pass Drain	Loop Drain No. 1				1	C1
Merced	Pick Anderson By-pass Drain	Middle Drain				2	C1
Merced	Pick Anderson By-pass Drain	P. A. Drain Ext., -River Br.				0.6	C1
Merced	Pick Anderson By-pass Drain	P. A. Drain No.1				0.6	C1
Merced	Pick Anderson By-pass Drain	P.A. Drain No. 3				1	C1
Merced	Pick Anderson By-pass Drain	P.A. Drain No. 4				0.8	C1
Merced	Pick Anderson By-pass Drain	P. A. Drain No. 5				0.7	C1
Merced	Pick Anderson By-pass Drain	P. A. River Drain # 1				1	C1
Merced	Pick Anderson By-pass Drain	P. A. Seep Drain No. 2				0.8	C1
Merced	Pick Anderson By-pass Drain	Pick Anderson By-pass Drain				3	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Pick Anderson By-pass Drain	Pick Anderson Drain				5	C1
Merced	Pick Anderson By-pass Drain	River Drain No. 3				1	C1
Merced	Pick Anderson By-pass Drain	South Drain No. 1				0.8	C1
Merced	Pick Anderson By-pass Drain	South Drain No. 2				0.9	C1
Merced	Pick Anderson By-pass Drain	South P.A. Drain # 3				0.0	C1
Merced	Poso Drain	Arroyo S/D				1	C1
Merced	Poso Drain	Belmont Drain Cut Off				0.3	C1
Merced	Poso Drain	Belmont Drain Extension South				0.3	C1
Merced	Poso Drain	Branco Drain				0.7	C2
Merced	Poso Drain	Branco Drain No. 1				0.3	C3
Merced	Poso Drain	Buie Drain				1	C1
Merced	Poso Drain	Buie Drain Extension				0.9	C1
Merced	Poso Drain	Poso Drain				10	C1
Merced	Poso Drain	Poso Slough				4	M1
Merced	Poso Drain	Poso Slough Drain Re-route				0.4	C1
Merced	Salt Slough	Dairy Field 10-11 Drain				0.5	C1
Merced	Salt Slough	Dairy Field Drain No. 2				2	C1
Merced	Salt Slough	Dairy Field Drain No. 3				0.8	C1
Merced	Salt Slough	East Delta Drain				0.7	C1
Merced	Salt Slough	Intake S/D				2	C1
Merced	Salt Slough	Island B Seep Drain				1	C1
Merced	Salt Slough	Levee Drain				3	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	Salt Slough	Orchard Ditch Ext. Spill				0.3	C1
Merced	Salt Slough	Salt Slough				7	M1
Merced	Salt Slough	Salt Slough Ditch				3	C1
Merced	Salt Slough	Salt Slough Drain				8	C1
Merced	Salt Slough	San Joaquin River Drain				0.7	C1
Merced	Salt Slough	South Dairy Field Drain				2	C1
Merced	San Juan Drain	Azevedo Drain				0.3	C1
Merced	San Juan Drain	Kaljian Drain				1	C1
Merced	San Juan Drain	Ledford Drain				1	C1
Merced	San Juan Drain	Ledford Drain No. 1				1	C1
Merced	San Juan Drain	Lopes Drain				0.7	C1
Merced	San Juan Drain	Lopes Drain Ext.				0.4	C1
Merced	San Juan Drain	M-22 Drain				0.8	C1
Merced	San Juan Drain	M-22 J-39, 40 & 41 Drain				0.8	C1
Merced	San Juan Drain	San Juan Drain				10	C1
Merced	San Juan Drain	San Juan Drain No. 3				2	C1
Merced	San Juan Drain	San Juan Drain No. 3 - North Br.				0.7	C1
Merced	San Juan Drain	San Juan Drain No. 3 - South Br.				0.5	C1
Merced	San Juan Drain	Sec. 14 Road Drain				0.5	C1
Merced	San Juan Drain	Temple Santa Rita S/D				0.9	C1
Merced	West Delta Drain	Baffuna Drain				1	C1
Merced	West Delta Drain	Bisignani Drain				0.8	C1
Merced	West Delta Drain	Bisignani Drain No. 2				1	C1
Merced	West Delta Drain	Bisignani Drain No.1				2	C1
Merced	West Delta Drain	Crayne Drain				2	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	West Delta Drain	D - 36 Drain				0.7	C1
Merced	West Delta Drain	Dambrosia S/D				0.2	C1
Merced	West Delta Drain	Deep Well Road Drain				0.5	C1
Merced	West Delta Drain	Gun Club Drain				0.6	C1
Merced	West Delta Drain	H - H Willis Drain				1	C1
Merced	West Delta Drain	M-2, D-6 & D-7 Drains				0.8	C1
Merced	West Delta Drain	Pedro Drain				2	C1
Merced	West Delta Drain	TL-7 Drain				0.8	C1
Merced	West Delta Drain	Vieira Drain				0.7	C1
Merced	West Delta Drain	West Delta Drain				6	C1
Merced	West Delta Drain	West Delta Drain Br. No. 1				0.3	C1
Merced	West Delta Drain	West Delta Drain Br. No. 2				1	C1
Merced	West Delta Drain	West Delta Drain Branch "A"				0.5	C1
Merced	West Delta Drain	West Delta Drain No. 2				0.6	C1
Merced	West Delta Drain	West Delta Seep Drain No. 1				0.5	C1
Merced	West San Juan Drain	Delta 1 Spill 1				0.2	C1
Merced	West San Juan Drain	M-20-W Drain No. 1				1	C1
Merced	West San Juan Drain	M-20-W Drain No. 2				1	C1
Merced	West San Juan Drain	North San Juan No. 1 S/D				1	C1
Merced	West San Juan Drain	San Juan 1 Spill				0.2	C1
Merced	West San Juan Drain	South San Juan No. 1 S/D				1	C1

County	Primary Water Body or Main System Name (if applicable)	Water Body Name	Description (optional)	Approximate GIS Coordinates (WGS84 Datum) (optional)		Length of Water Body Segment (miles)	Water Body/System Category Designation
				Starting Location	Ending Location		
Merced	West San Juan Drain	W. San Juan Silva Branch Drain				1	C1
Merced	West San Juan Drain	West San Juan Carlucci Drain				1	C1
Merced	West San Juan Drain	West San Juan Carlucci Drain No. 1				0.9	C1
Merced	West San Juan Drain	West San Juan Drain				6	C1
Merced	West San Juan Drain	West San Juan Drain Ext.				0.4	C1
Merced	West San Juan Drain	West San Juan Drain No. 1				2	C1
Merced	West San Juan Drain	West San Juan Drain No. 1-1				0.3	C1
Merced	West San Juan Drain	West San Juan Drain No. 1-2				0.4	C1
Merced	West San Juan Drain	West San Juan Drain No. 1-3				0.5	C1
Merced	West San Juan Drain	West San Juan Drain Reroute				0.8	C1
Merced	West San Juan Drain	Willis Drain				2	C1
Merced	West Santa Rita Drain	Auxiliary Drain				1	C1
Merced	West Santa Rita Drain	Christiana Drain				2	C1
Merced	West Santa Rita Drain	Elgin Co-op Drain				0.4	C1
Merced	West Santa Rita Drain	Escano Drain				2	C1
Merced	West Santa Rita Drain	Fialho Drain				0.4	C1
Merced	West Santa Rita Drain	North Escano Drain				0.4	C1

County	***Primary Water Body or Main System Name (if applicable)***	Water Body Name	Description ***(optional)***	Approximate GIS Coordinates ~~(~~WGS84 Datum~~)~~ ***(optional)***		***Length of Water Body Segment (miles)***	***Water Body/System Category Designation***
				Starting Location	Ending Location		
Merced	*West Santa Rita Drain*	*West Santa Rita Drain*				*4*	*C1*
Merced	*West Santa Rita Drain*	*West Santa Rita Drain Branch No. 1*				*0.6*	*C1*
Merced	*West Santa Rita Drain*	*West Santa Rita Drain By-pass*				*0.5*	*C1*

Modify the Basin Plan by adding Appendix 45, Water Bodies with LMUN Beneficial Use (page XX), as follows:

Appendix 45
Water Bodies with LMUN Beneficial Use

County	***Primary Water Body or Main System Name (if applicable)***	***Water Body Name***	***Description (optional)***	***Approximate GIS Coordinates (optional)***		***Length of Water Body Segment (miles)***	***Water Body/System Category Designation***
				Starting Location	***Ending Location***		

AMENDMENT LANGUAGE FOR THE TULARE LAKE BASIN PLAN

The proposed changes to the Basin Plan are as follows. Text additions to the existing Basin Plan language are underlined and *italicized*. Text deletions to the existing Basin Plan are in ~~strikethrough~~.

CHAPTER 2 BENEFICAL USES

Modify the Basin Plan in Chapter 2 Beneficial Uses (page II-1), as follows:

Limited Municipal and Domestic Supply (LMUN) – *Uses of water for municipal and domestic supply in agriculturally dominated water bodies where the use is limited by water body characteristics such as intermittent flow, management to maintain intended agricultural use and/or constituent concentrations in the water body.*

Modify the Basin Plan in Chapter 2 Beneficial Uses (page II-2), as follows:

The existing and probable future beneficial uses which currently apply to surface waters are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams. In some cases a beneficial use may not be applicable to the entire body of water. In these cases the Regional Water Board's judgement will be applied. It should be noted that it is impractical to list every surface water body in the Region. For unidentified water bodies, the beneficial uses will be evaluated on a case-by-case basis.

In making any exemptions to the beneficial use designation of MUN, the Regional Water Board will apply the exceptions listed in the Sources of Drinking Water Policy (Appendix Item 8) and the excepted water bodies will be listed in Appendix 35.

Water bodies designated with the LMUN beneficial use are listed in Appendix 36.

CHAPTER 3 WATER QUALITY OBJECTIVES

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, “Chemical Constituents” (page III-3), as follows and move under heading, “Municipal and Domestic Supply (MUN)”:

~~At a minimum, water designated MUN shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated MUN shall not contain lead in excess of 0.015 mg/l. The Regional Water Board acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses, the Regional Water Board may apply limits more stringent than MCLs~~

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, “Pesticides” (page III-4), as follows and move under heading, “Municipal and Domestic Supply (MUN)”:

~~At a minimum, waters designated MUN shall not contain concentrations of pesticide constituents in excess of the maximum contaminant levels (MCLs) specified in Table 64444-A (Organic Chemicals) of Section 64444 of Title 22 of the California Code of Regulations, which is incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. The Regional Water Board acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.~~

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, “Radioactivity” (page III-4), as follows and move under heading, “Municipal and Domestic Supply (MUN)”:

~~At a minimum, waters designated MUN shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of Section 64442 and Table 64443 of Section 64443 of Title 22, California Code of Regulations, which are incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.~~

Modify the Basin Plan in Chapter 3 Water Quality Objectives under the heading, “Water Quality Objectives for Inland Surface Waters” (page III-7), as follows:

Municipal and Domestic Supply (MUN)

In addition to other applicable water quality objectives including but not limited to narrative and site specific, the following sections specifically address waters designated for use as domestic or municipal supply (MUN).

Chemical Constituents

At a minimum, water designated MUN shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. At a minimum, water designated MUN shall not contain lead in excess of 0.015 mg/l. The Regional Water Board acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses, the Regional Water Board may apply limits more stringent than MCLs

Pesticides

At a minimum, waters designated MUN shall not contain concentrations of pesticide constituents in excess of the maximum contaminant levels (MCLs) specified in Table 64444-A (Organic Chemicals) of Section 64444 of Title 22 of the California Code of Regulations, which is incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. The Regional Water Board acknowledges that specific treatment requirements are imposed by state and federal drinking water regulations on the consumption of surface waters under specific circumstances. To ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

Radioactivity

At a minimum, waters designated MUN shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of Section 64442 and Table 64443 of Section 64443 of Title 22, California Code of Regulations, which are incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect.

Limited Municipal and Domestic Supply (LMUN)

Water quality and downstream beneficial uses will be protected consistent with the state antidegradation policy.

CHAPTER 4 IMPLEMENTATION

Modify the Basin Plan in Chapter 4 Implementation under the heading, “Continuous Planning for Implementation of Water Quality Control” (page IV-30), as follows:

Municipal and Domestic Supply (MUN) Evaluation in Agriculturally Dominated Water Bodies

Agriculturally (Ag) dominated surface water bodies will be evaluated for the MUN beneficial use only as needed or desired by an interested party. The MUN evaluation process can be initiated by an outside party or the Regional Water Board. The Applicant submitting the evaluation must manage and/or control the water bodies under consideration or jointly submit the evaluation with such a party. Ag dominated surface water bodies that do not go through the MUN evaluation process will have no change to their MUN beneficial use designation. For the purposes of this evaluation, agricultural drainage is defined as water leaving an agricultural field either from irrigation practices or precipitation.

An Interim Ag Dominated Water Body Designation Reference Document will be used to list evaluated water bodies and their proposed water body categories and MUN designations until such a time that the list is incorporated into this Water Quality Control Plan via an amendment.

The Reference Document will be utilized to set interim water quality permit limits for a finite period, during which a public Board approval process would be used to incorporate evaluated water bodies and associated beneficial uses listed in the Reference Document into this Water Quality Control Plan. The finite period shall not exceed 5 years, with an allowance for a 3 year extension with Regional Water Board EO approval.

Using the process laid out in Figure X, Schematic Overview of Region-wide MUN Evaluation, the Applicant will utilize Figure Y, Water Body Categorization (WBC) Flowchart and Table X, Assigned MUN Beneficial Use Designations by Water Body Category to propose appropriate MUN beneficial use designations of Ag dominated water bodies.

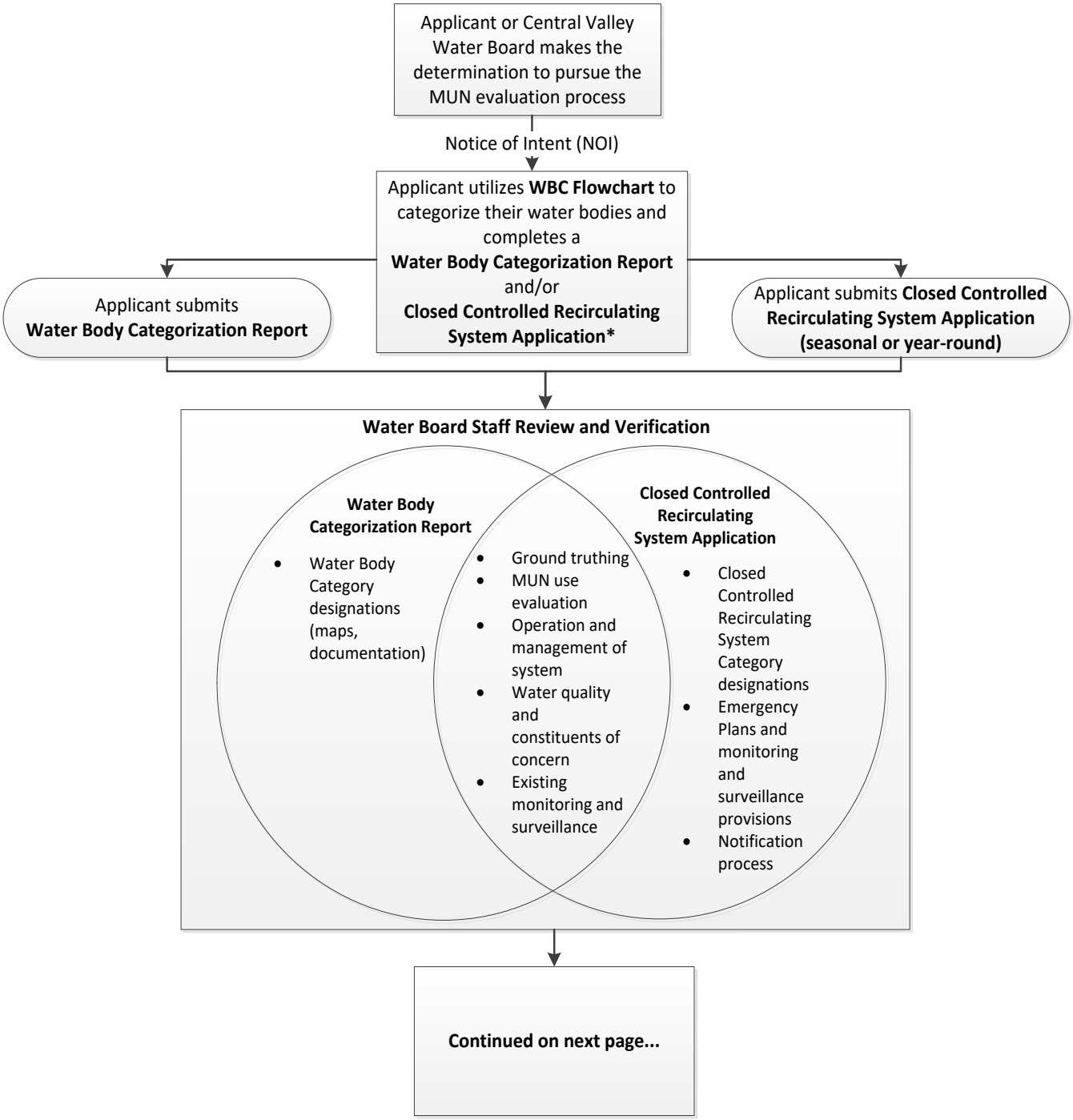
The proposed designations are subject to change based on the Regional Water Board staff and public review process outlined in Figure X,

The Region-wide MUN Evaluation process will not apply to water bodies that are already listed in Table II-1 of the Basin Plan or water bodies that are currently used for municipal or domestic water supply. Such water bodies would continue to be eligible for site specific beneficial use evaluations.

Table X Assigned MUN Beneficial Use Designations by Water Body Category

Water Body Category	***MUN Beneficial Use***
C1 (Constructed Ag Drainage/Combo)	*No MUN*
M1 (Modified Ag Drainage/Combo)	*No MUN*
C2 (Constructed Ag Supply)	*LIMITED-MUN*
M2 (Modified Ag Supply)	*LIMITED-MUN*
B1 (Natural Ag Drainage/Combo)	*LIMITED-MUN*
B2 (Natural Ag Supply)	*LIMITED-MUN*
Closed Controlled Recirculating Systems	
Year-Round Closed	*No MUN*
Seasonally Closed	*No MUN during closure period*

Figure X. Schematic Overview of Region-wide MUN Evaluation



** There are two types of Closed Controlled Recirculating Systems: Seasonally Closed and Year-Round Closed. For Seasonally Closed Controlled Recirculating Systems, both the Water Body Categorization Report and the Closed Controlled Recirculating System Application are required for submittal. The Regional Water Board will have the discretion to ask for a full report for Closed Controlled Recirculating Systems depending on the size and complexity of the system.*

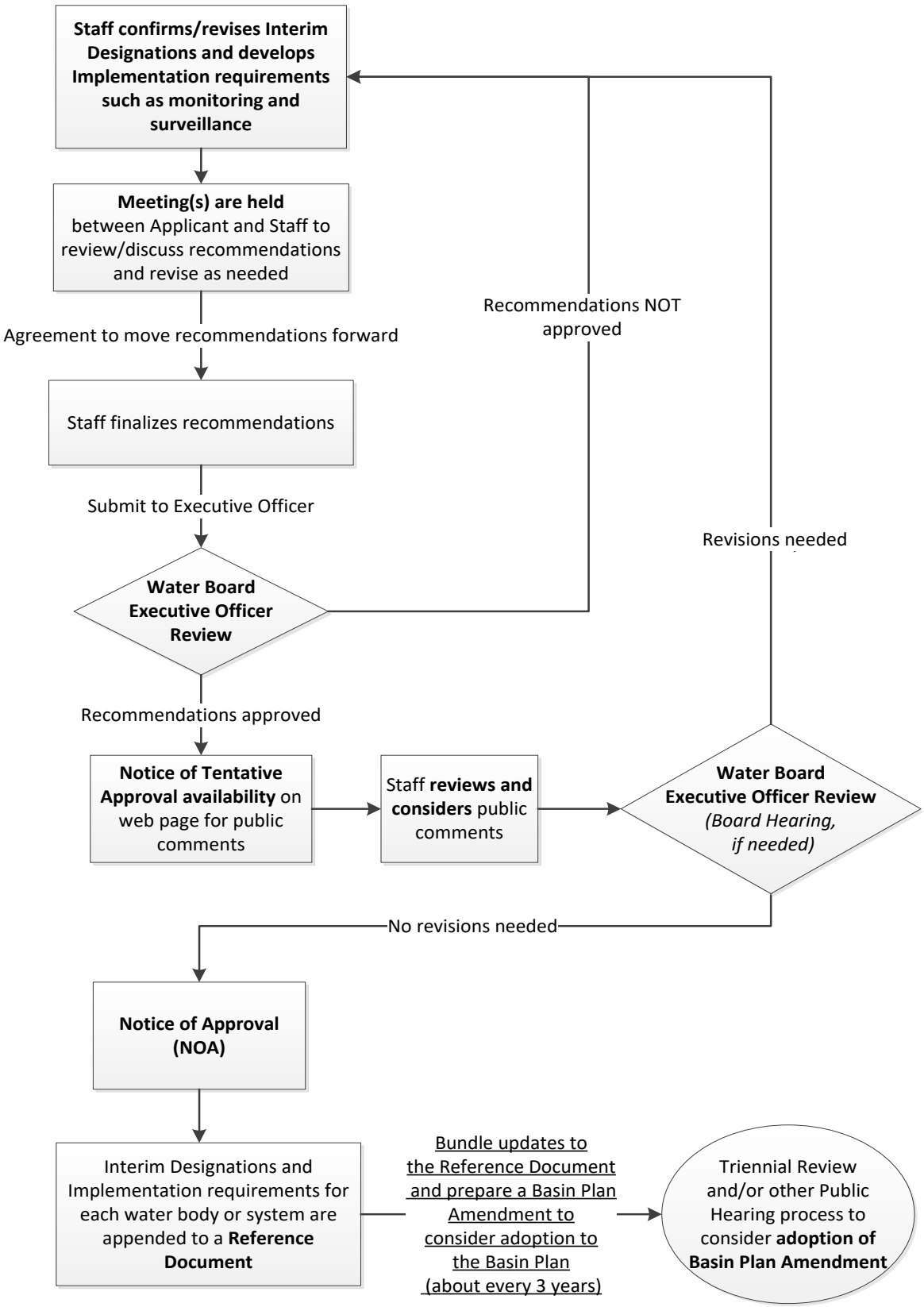
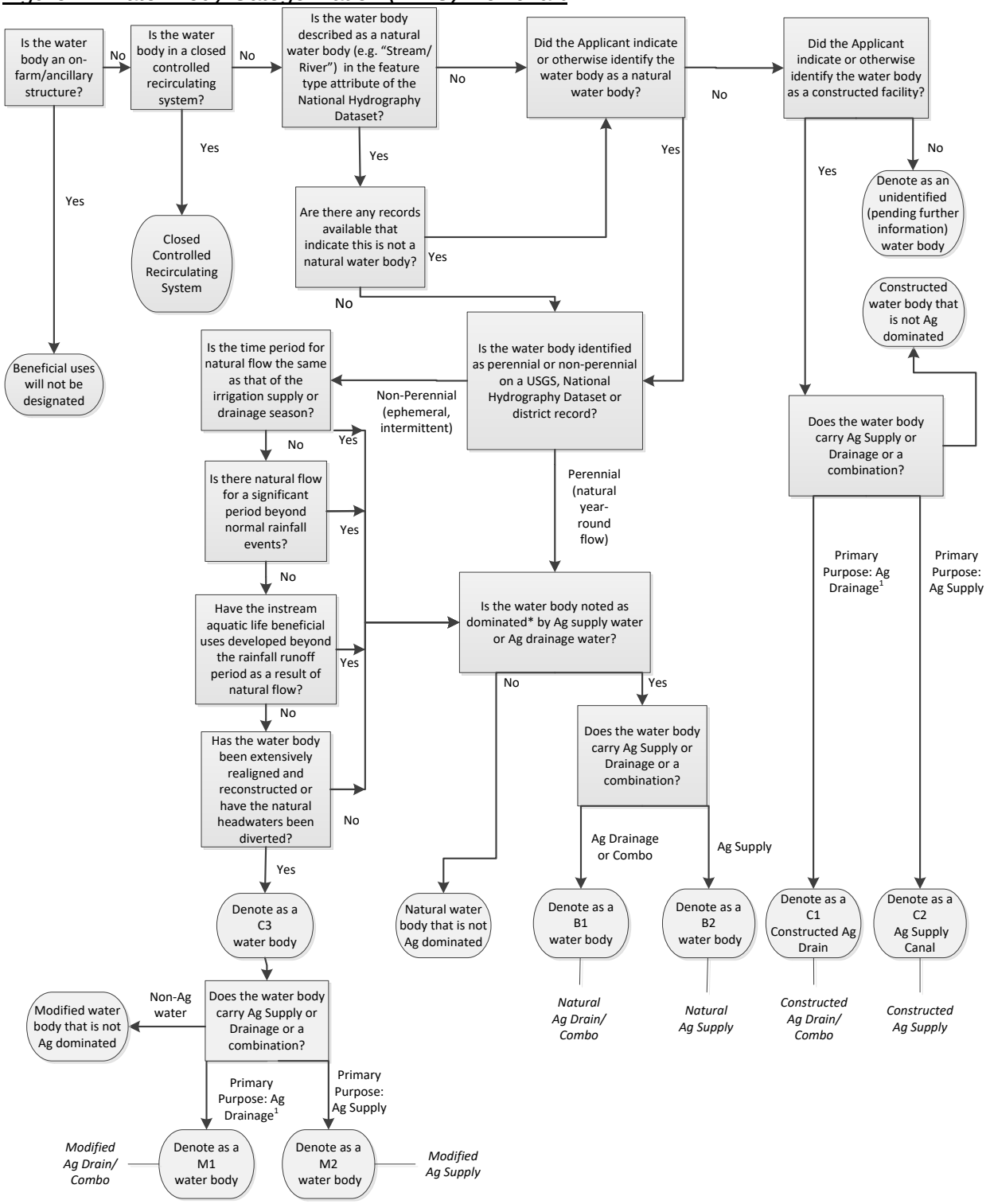

Staff confirms/revises Interim Designations and develops Implementation requirements such as monitoring and surveillance
Meeting(s) are held between Applicant and Staff to review/discuss recommendations and revise as needed
Agreement to move recommendations forward
Staff finalizes recommendations
Submit to Executive Officer
Water Board Executive Officer Review
Recommendations NOT approved
Revisions needed
Recommendations approved
Notice of Tentative Approval availability on web page for public comments
Staff reviews and considers public comments
Water Board Executive Officer Review (Board Hearing, if needed)
No revisions needed
Notice of Approval (NOA)
Interim Designations and Implementation requirements for each water body or system are appended to a Reference Document
Bundle updates to the Reference Document and prepare a Basin Plan Amendment to consider adoption to the Basin Plan (about every 3 years)
Triennial Review and/or other Public Hearing process to consider adoption of Basin Plan Amendment

Figure Y. Water Body Categorization (WBC) Flowchart



[1] *Designed or modified for the primary purpose of conveying or holding agricultural drainage waters*

* *"**Ag Dominated"** is defined as: systems designed or modified for the primary purpose of conveying or holding waters used for or resulting from agricultural production, and/or water bodies with greater than 50 percent of the flow dependent on agricultural operations for greater than 50 percent of the irrigation season.*

Any non-listed constructed (C1 or C2) water body that is less than one mile and/or serving less than 640 irrigated acres from a study area that has been approved through the MUN Evaluation Process shall have their MUN beneficial use designation apply via the following rules:

- *A non-listed C1 water body that provides or receives flow to or from an identified C1 water body shall be assigned the same MUN designation as the identified C1 water body*
- *A non-listed C2 water body that provides or receives flow to or from an identified C2 water body shall be assigned the same MUN designation as the identified C2 water body*

Municipal and Domestic Supply Beneficial Use (MUN) Evaluation in Agriculturally Dominated Water Bodies

Water Bodies with MUN Beneficial Use De-designated or LMUN Beneficial Use Designated

As resources permit, Regional Water Board staff will work with other agencies and regional monitoring programs to monitor chemical constituents, pesticides, and radionuclides contained in the Title 22 of the California Code of Regulations, as well as relevant constituents associated with the narrative and site specific water quality objectives associated with MUN use, approximately every 3 to 5 years in major water bodies identified with existing or potential MUN use. The data gathered will support Watershed Sanitary Surveys (Cal. Code Regs, tit. 22, § 64665 et seq.) as well as the California Integrated Report (Clean Water Act Section 303(d)/305(b)).

The Regional Water Board will ensure that water quality monitoring data are sufficient to demonstrate that neither the de-designation of the MUN beneficial use nor the change of a MUN beneficial use designation to an LMUN beneficial use designation will result in unreasonable impacts to downstream water bodies designated as supporting the LMUN or MUN beneficial uses.

1. *As part of the MUN evaluation process initiated by the Applicant, the Regional Water Board will conduct an evaluation of all existing and available water quality data to determine whether the de-designation of the MUN beneficial use or the change of a MUN beneficial use designation to a LMUN beneficial use designation will result in unreasonable impacts to water quality downstream of the water body being evaluated.*
    a. *If existing and available water quality data support the conclusion that a change to a MUN beneficial use designation will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, the Regional Water Board need not require additional monitoring to comply with Exception 2b of the* Sources of Drinking Water Policy.
    b. *If existing and available water quality data are not sufficient to support the conclusion that the change to the MUN beneficial use designation will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, the Regional Water Board shall evaluate whether monitoring requirements imposed by existing regulatory programs, such as the Irrigated Lands Regulatory Program or the NPDES Permitting Program, are sufficient to ensure that discharges from the system will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses. If such monitoring programs provide sufficient monitoring to ensure the protection of the LMUN or MUN beneficial uses in downstream water bodies, the continued implementation of those monitoring programs shall satisfy the monitoring requirement of Exception 2b of the* Sources of Drinking Water Policy. *Such monitoring programs shall remain in effect at least until such time that water quality data demonstrate that the change to the MUN beneficial use designation has not resulted in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, at which point the monitoring requirements may be altered or*

reduced consistent with applicable regulatory requirements.

2. *If neither existing and available water quality data nor monitoring requirements imposed by existing regulatory programs are sufficient to support the conclusion that the change to the MUN beneficial use designation will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, the Regional Water Board shall either modify existing monitoring programs or issue an order pursuant to Water Code section 13267 to ensure that discharges from the system do not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses. Such modified requirements or orders shall remain in effect at least until such time that water quality data demonstrate that the change to the MUN beneficial use designation has not resulted in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses.*
3. *In water bodies where the MUN beneficial use has been changed, the burden of ensuring that neither new discharges into the waterbody nor material changes in the character, location, or volume of existing discharges will result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses shall be borne by the applicant initiating the new discharge or making the material changes to the character, location, or volume of the existing discharge.*

Water Bodies with LMUN Designated

To interpret the narrative objective and to evaluate compliance with the proposed objective for LMUN, existing Regional Water Board monitoring programs may use numeric triggers for chemical constituents, pesticides, and radionuclides concentrations in their process of issuing permits or waste discharge requirements. Exceedances of the triggers would not be violations of the proposed narrative objective nor are the triggers to be used for numeric effluent limits. Triggers may be used to evaluate conditions in the water body itself as well as potential impacts to downstream beneficial uses and ensure appropriate management and best practical treatment actions are taken to protect those uses.

APPENDIX

Modify the Basin Plan by adding Appendix 35, Water Bodies That Meet One or More of the Sources of Drinking Water Policy (Resolution 88-63) Exceptions (page XX), as follows:

Appendix 35
Water Bodies That Meet One or More of the* Sources of Drinking Water Policy *(Resolution 88-63) Exceptions

County	***Primary Water Body or Main System Name (if applicable)***	***Water Body Name***	***Description (optional)***	***Approximate GIS Coordinates (optional)***		***Length of Water Body Segment (miles)***	***Water Body/System Category Designation***
				Starting Location	***Ending Location***		

Modify the Basin Plan by adding Appendix 36, Water Bodies with LMUN Beneficial Use (page XX), as follows:

Appendix 36
Water Bodies with LMUN Beneficial Use

County	***Primary Water Body or Main System Name (if applicable)***	***Water Body Name***	***Description (optional)***	***Approximate GIS Coordinates (optional)***		***Length of Water Body Segment (miles)***	***Water Body/System Category Designation***
				Starting Location	***Ending Location***		

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Appendix I

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LIST OF ACRONYMS

§	Section
AGR	Agricultural Supply
Ag	Agriculturally
AgWTF	Agricultural Waters Task Force
AQUA	Aquaculture
Basin Plans	Water Quality Control Plan for the Sacramento River and San Joaquin River Basins and the Water Quality Control Plan for the Tulare Lake Basin
BIOL	Preservation of Biological Habitats of Special Significance
BPTCs	Best Practical Treatment or Controls
CEDEN	California Environmental Data Exchange Network
Central Valley Water Board or Board	Central Valley Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
COMM	Commercial and Sport Fishing
COLD	Cold Freshwater Habitat
CTR	California Toxics Rule
CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
CWA	Clean Water Act
DDW	Division of Drinking Water
Delta	Sacramento-San Joaquin Delta
DWR	California Department of Water Resources
EC	Electrical Conductivity
EO	Executive Officer
eWRIMS	Electronic Water Rights Information Management System
FRSH	Freshwater Replenishment
GIS	Geographic Information System
GWR	Ground Water Recharge
IND	Industrial Service Supply
ILRP	Irrigated Lands Regulatory Program
ISWP	Inland Surface Water Plan
LMUN	Limited Municipal and Domestic Supply
MES	Mass Emissions Strategy
MCLs	Maximum Contaminant Levels
MIR	Migration of Aquatic Organisms
MUN	Municipal and Domestic Supply
MWQI	Municipal Water Quality Investigations
NAV	Navigation
NHD	National Hydrography Dataset
NMFS	National Marine Fisheries Service
NOA	Notice of Approval
NOI	Notice of Intent
NOTA	Notice of Tentative Approval
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
OAL	Office of Administrative Law
POTW	Publicly Owned Treatment Works
POW	Hydropower Generation
PPD	Pollutant Policy Document
PRO	Industrial Process Supply
REC-1	Water Contact Recreation
REC-2	Non-contact Water Recreation
Regional Water Boards	Nine Regional Water Quality Control Boards
RPA	Reasonable Potential Analysis

SED	Substitute Environmental Documentation
SFEI	San Francisco Estuary Institute
SHELL	Shellfish Harvesting
SIP	State Implementation Plan
SLCC	San Luis Canal Company
SPoT	Stream Pollution Trends Monitoring Program
SPWN	Spawning, Reproduction, and/or Early Development
SSOs	Site Specific Objectives
State Water Board	State Water Resources Control Board
SWAMP	Surface Water Ambient Monitoring Program
TBEL	Technology-based effluent limitations
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
USC	United States Code
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WARM	Warm Freshwater Habitat
WBC	Water Body Categorization
WDRs	Waste Discharge Requirements
Westside Coalition	Westside San Joaquin River Watershed Coalition
WILD	Wildlife Habitat
WQBEL	Water Quality-Based Effluent Limits
WQO	Water Quality Objective
WWTP	Wastewater Treatment Plant

DEFINITIONS DEVELOPED FOR THIS PROJECT

Ag Dominated Water Body – Systems designed or modified for the primary purpose of conveying or holding waters used for or resulting from agricultural production, and/or water bodies with greater than 50 percent of the flow dependent on agricultural operations for greater than 50 percent of the irrigation season.

Ag Drainage – Water leaving an agricultural field either from irrigation practices or precipitation.

Ag Supply – Water that is pooled or collected at or above ground level which has not been mixed with drainage water and intended for irrigation.

Applicant – Agencies managing and/or maintain the water bodies in question (irrigation, water, reclamation, or other).

Modified/Reconstructed Water Body – A water body in which the hydrology has been changed through construction and/or management and/or in which the channel has been extensively realigned and reconstructed.

Examples include any or a combination of the following:

- The natural head waters have been diverted;
- The water body contains dams, diversions or other types of hydrologic modifications that make it infeasible to restore the water body to its original condition;
- The channel has been physically altered such as deepened, straightened and/or graded;
- Portions of water body are concrete lined and/or rip-rapped;
- Portions of water body have been piped

Natural Flow – The flow of a water body without anthropogenic inputs and outside management, such as operational spills, drainage, or other diversions or inflows.

Natural Water Body (in National Hydrography Dataset) – Water body feature type attribute is described as "natural" or made up of "natural" water bodies in the Standards for National Hydrography Dataset (http://nationalmap.gov/standards/nhdstds.html). Most common example of a natural water body is a feature type of "Stream/River". Water bodies that are not considered "natural" include those with a feature type of "Canal/Ditch" and "Artificial Path".

Non-Perennial Water Body – Natural flow of water ceases for weeks or months each year including ephemeral and intermittent.

On-farm/Ancillary Structures – On-farm or ancillary structures are privately constructed water conveyances necessary to maintain agricultural operations under a single owner and/or operation. Such structures include but are not limited to on-farm irrigation systems such as furrows, beds and checks, and on-farm distribution systems (including tail-water ponds, ditches and sumps). On-farm or ancillary structures do not include facilities or improvements that may mix with natural or non-agricultural waterways (e.g. storm water drains) or are within the jurisdiction of the Federal Clean Water Act.

Perennial Water Body – Natural year-round flow of water during years or normal rainfall.

Seasonally Closed Controlled Recirculating System – Seasonally Closed Controlled Recirculating Systems are designed to deliver irrigation water and retain seasonal agricultural return flows through recirculation in natural, modified and/or constructed conveyance facilities through an area under single or coordinated management control which may or may not contain multiple individual farms. Examples include tail water recovery and irrigation systems managed to maximize water use, energy savings and/or chemical management while protecting downstream beneficial uses.

Year-Round Closed Controlled Recirculating System – Year-Round Closed Controlled Recirculating Systems are designed to deliver and recirculate irrigation water and agricultural return water in a system of modified and/or constructed conveyance facilities under a single or coordinated management system that may or may not contain multiple individual farms that retains all waters within the management area all year long.

1 INTRODUCTION

The purpose of this Staff Report is to provide the justification and supporting documentation for proposed amendments to the Water Quality Control Plans for the Sacramento River and San Joaquin River Basins and Tulare Lake Basin (Basin Plans) to establish a region-wide process for evaluating the Municipal and Domestic Supply (MUN) beneficial use in agriculturally (Ag) dominated surface water bodies.

1.1 BACKGROUND AND NEED FOR PROPOSED BASIN PLAN AMENDMENTS

1.1.1 Current Application of the MUN Beneficial Use

The Central Valley Water Board has incorporated the Sources of Drinking Water Policy, State Water Board Resolution No. 88-63 (*Sources of Drinking Water Policy*) into the Basin Plans, and has designated all surface and ground water bodies in the Central Valley region as supporting the MUN beneficial use unless a particular water body is specifically identified as not supporting the MUN beneficial use in the Basin Plans. As a result, the vast majority of water bodies throughout the Central Valley, including thousands of Ag dominated surface water bodies, are currently designated as supporting the MUN beneficial use. The Board may only exempt waterbodies from MUN beneficial use designations by amending the Basin Plans. (see *California Ass'n of Sanitation Agencies v. State Water Resources Control Bd.* (2012) 208 Cal.App.4th 1438, 1463, as modified on denial of reh'g (Sept. 27, 2012).)

In addition to incorporating the *Sources of Drinking Water Policy*, the Basin Plans also state that waters designated for MUN must not exceed Maximum Contaminant Levels (MCLs) of Title 22 of the California Code of Regulations for chemical constituents, pesticides, and radionuclides (Basin Plan, Chapter III Water Quality Objectives). While the *Sources of Drinking Water Policy* does contain exceptions for the MUN designation, to utilize the exception, the Basin Plan requires *". . . a formal Basin Plan amendment and public hearing, followed by approval of such an amendment by the State Water Board and the Office of Administrative Law*", as noted in the Basin Plan implementation chapter (Basin Plan, Chapter IV, page IV-9.00) under the discussion of Resolution No. 88-63.

1.1.2 MUN challenges in NPDES Permits

In recent years, during permit adoptions for the National Pollutant Discharge Elimination System (NPDES) program, there have been challenges to requirements based on protecting the MUN beneficial use designation in Ag drains due to the stated Exception 2b in the *Sources of Drinking Water Policy* for surface waters where the "*water is in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards*." The issues of the appropriate designation and level of protection of MUN in Ag dominated surface water bodies and utilization of the state's *Sources of Drinking Water Policy* exceptions were elevated for the following reasons:

- The MCLs currently being utilized to ensure receiving water protection were developed for the protection of potable water at the tap after receiving conventional treatment.
- Meeting the MCLs in treated wastewater prior to discharge into Ag dominated surface water bodies would require significant treatment plant upgrades and associated costs for

impacted cities with no benefit because the receiving waters are not used as a drinking water source.

- The Ag dominated receiving waters appeared to meet Exception 2b of the *Sources of Drinking Water Policy* since they were constructed or modified for the primary purpose of conveying Ag drainage.

1.1.3 Joint Initiative with CV-SALTs for the Development of a Region-wide Framework

The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative also identified the need to evaluate the level of appropriate protection of MUN beneficial uses in Ag dominated water bodies as part of its development of a Central Valley salt and nitrate management plan, due in part to the increased reuse of drainage water to maximize limited resources. CV-SALTS identified the receiving waters of four Publicly Owned Treatment Works (POTWs) with NPDES permits for the cities of Biggs, Colusa, Live Oak and Willows as potential case studies or archetypes for evaluating the appropriateness of a MUN designation and use of one or more exceptions identified in Resolution No. 88-63. The Central Valley Regional Water Quality Control Board (Central Valley Water Board) recognized the need for evaluating appropriate MUN and other beneficial uses in Ag dominated surface water bodies during its October 2011 Sacramento/San Joaquin River Basin Plan Triennial Review (Central Valley Water Board, 2011). The Board reaffirmed this priority in the 2015 Triennial Review (Central Valley Water Board, 2015b). The approved 2011 Triennial Review work plan allocated nominal staff resources to initiate the evaluation. Staff worked in conjunction with the CV-SALTS initiative on this evaluation in order to combine and leverage resources. The four POTWs served as the initial case study for the development of alternatives for a local evaluation of their receiving water bodies that could also support a region-wide framework for evaluating the appropriate beneficial use protection, water quality objectives, as well as implementation and monitoring requirements for the MUN beneficial use in Ag dominated surface water bodies throughout the Central Valley.

1.1.4 Stakeholder/Public Participation Process

A stakeholder group, including representatives from federal and state agencies, public water systems, municipalities, environmental and Ag interests, met approximately quarterly from Spring 2012 thru Fall 2013, and seven more times from 2014 thru 2015, to contribute to the development of amendments to address both the Sacramento case studies and the region-wide MUN evaluation effort. Central Valley Water Board staff conducted California Environmental Quality Act (CEQA) scoping meetings in the cities of Willows, Rancho Cordova and Fresno in October and November 2012 to discuss and solicit comments from the public regarding both the appropriate application of the MUN beneficial use and level of protection in the four Sacramento River Basin POTW receiving waters as well as a larger region-wide framework for evaluating the appropriate MUN application in Ag dominated surface water bodies. Staff kept stakeholders updated on the project via a subscription email subscription list of almost four hundred subscribers and a publicly available website containing meeting notes, water quality results, and other project-related documents.

1.2 Recent Basin Planning Efforts

1.2.1 Adoption of the Sacramento MUN POTW Basin Plan Amendments

On April 16, 2015, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted Resolution R5-2015-0022 amending the Water Quality Control Plan for

the Sacramento River and San Joaquin River Basins to remove the MUN beneficial use in twelve constructed and/or modified water bodies in the Sacramento River Basin. The amendment was approved by the State Water Board and the Office of Administrative Law (OAL) later in 2015 and the final approval was provided by U.S. Environmental Protection Agency (USEPA) on April 21, 2016.

The twelve water bodies listed in the amendment were constructed and/or modified to convey Ag drainage and also receive treated municipal wastewater effluent from the cities of Biggs, Colusa, Live Oak or Willows under NPDES permits. The amendment relied upon the Sources of Drinking Water Policy's Exception 2b criteria for water bodies designed and/or modified to convey Ag drainage to de-designate the MUN beneficial use from the twelve water bodies. The process developed and utilized for the evaluation of the MUN beneficial use in the twelve Sacramento River Basin water bodies helped to inform the decisions for this Basin Plan Amendment project, which establishes a region-wide MUN evaluation process in Ag dominated surface water bodies. The use of this case study is discussed in more detail in Section 6.0.

1.2.2 Proposed MUN Evaluation Basin Plan Amendments

This Staff Report details the development of the proposed Basin Plan Amendments to establish a region-wide MUN evaluation process in Ag dominated surface water bodies. This report includes an evaluation of project alternatives and the selection of the preferred alternative, which is based on a water body categorization approach developed in the stakeholder process. The proposed Basin Plan Amendments would add a standardized region-wide process to the Basin Plans that will guide the Board's evaluation of appropriate MUN beneficial use designations and associated water quality objectives (WQOs) in Ag dominated surface water bodies, and will set implementation provisions related to this process. The amendments propose to utilize, where appropriate, the Sources of Drinking Water Policy Exception 2b to de-designate the MUN beneficial use from water bodies that have been designed or modified for the primary purpose of conveying agricultural drainage. For the purpose of these amendments and consistency with other regulatory programs, agricultural drainage is defined as water leaving an agricultural field either from irrigation practices or precipitation. The proposed amendments would also establish a Limited Municipal and Domestic Supply (LMUN) beneficial use for Ag dominated water bodies that do not meet the Sources of Drinking Water Policy exceptions, but that have inherent limiting conditions, such as low or intermittent flows and/or elevated natural background constituent concentrations. The Board's environmental review of the proposed Basin Plan Amendments is contained in this Staff Report, in particular Section 13.1 and Appendix L, which is considered to be part of the "substitute environmental documentation" or "SED". Appendix K of this Staff Report provides justification that the proposed Basin Plan Amendments do not contain new science that would necessitate peer review required by Health and Safety Code section 57004(d).

Basin Plan amendments are not effective until they are approved by the State Water Board and the regulatory provisions are approved by the State OAL. The USEPA also must review and approve amendments that add or modify water quality standards for waters of the United States.

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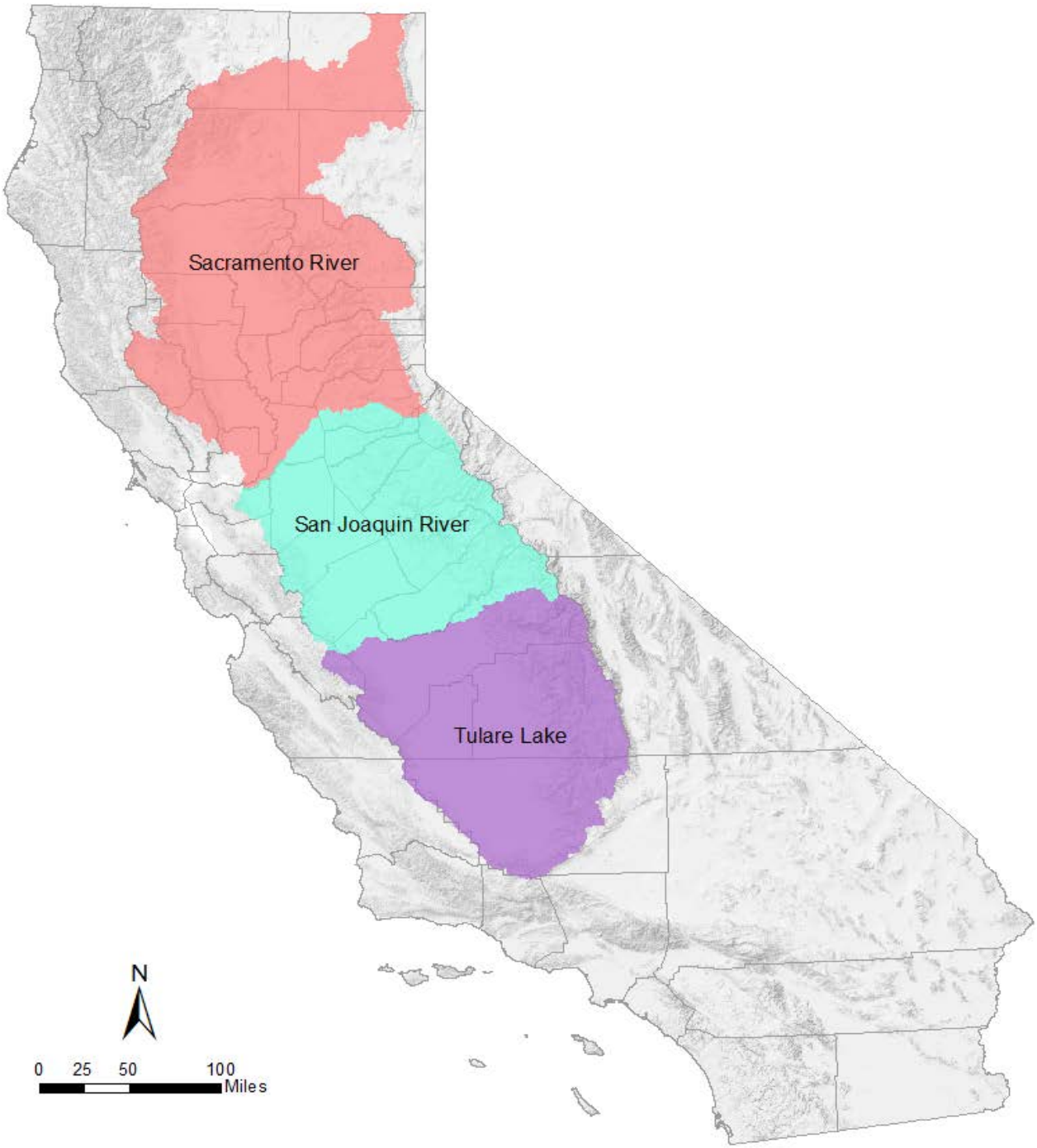
2 STUDY AREA

This project addresses the evaluation of Ag dominated water bodies in the Central Valley of California. The Central Valley Water Board is responsible for the water quality of the Central Valley of California.

The Central Valley Region (Figure 2-1) stretches from the Oregon border to the Kern County/Los Angeles County line and is bound by the Sierra Nevada Mountains on the east and the Coast Range on the west. The Region is divided into three basins: the Sacramento River Basin, the San Joaquin River Basin, and the Tulare Lake Basin, which together cover 40% of the State of California, 75% of which is irrigated agriculture and provide 51% of managed water supply. Surface water from the two drainage basins converges to flow westward, meeting at the Sacramento-San Joaquin Delta (Delta), which ultimately drains to the San Francisco Bay. The following sections provide an overview of the three Basins.

The Sacramento River and San Joaquin River Basins cover one fourth of the total area of the State and over 30% of the State's irrigable land. Irrigated agriculture is the major land use in the valley floor portions of the Sacramento, San Joaquin, and Tulare Lake Basins, where an extensive water supply and drainage network has been developed to serve the agricultural industry.

Figure 2-1 Study Area: Central Valley Region Basins



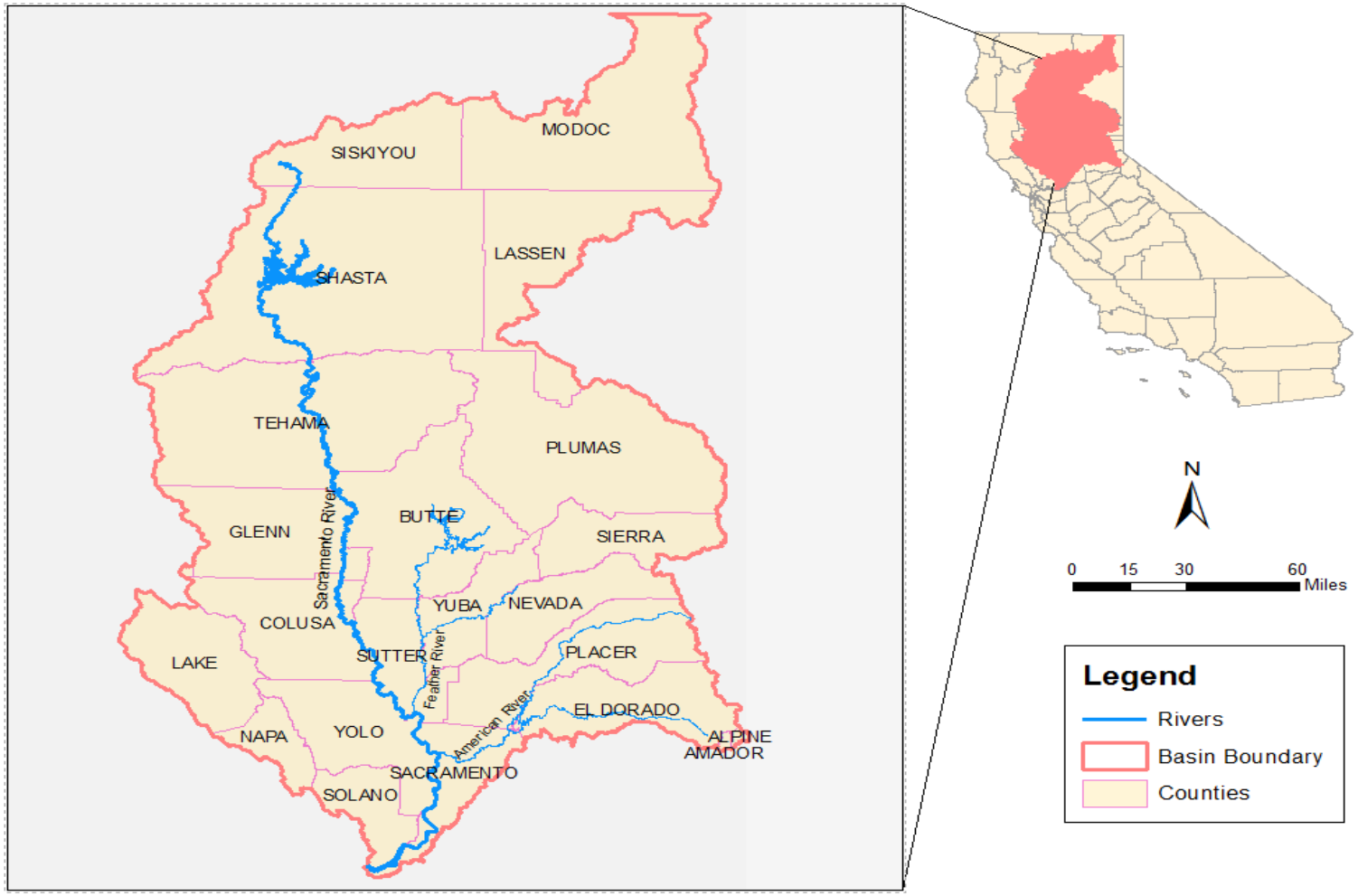
2.1 SACRAMENTO RIVER BASIN

The Sacramento River Basin (Figure 2-2) lies between the Sierra Nevada Mountains in the east and the Coast Range in the west. The basin covers 27,210 square miles and includes the entire area drained by the Sacramento River. The major tributaries are the Pit and McCloud Rivers, which join the Sacramento River from the north, and the Feather and American Rivers, which are tributaries from the east. Additional tributary streams and creeks flow into the Sacramento River from both the east and west as the river continues south, ultimately draining into the Delta.

Inflow to the Sacramento and Feather Rivers comes from a variety of sources, such as natural hydrological processes of rainfall runoff, snowmelt, groundwater discharge, reservoir releases, water diversions, and irrigation return flows. The Sacramento River is regulated by several dams on the major tributaries, including Shasta Dam on the upper Sacramento River, Oroville Dam on the Feather River, and Folsom Dam on the American River. These dams provide power generation, flood control, water supply, recreation, fisheries, and wildlife management.

The landscape in the Sacramento River Basin is unique, consisting of farmlands, wildlife refuges, managed wetlands for waterfowl habitat, spawning grounds for salmon and steelhead trout, and cities and rural communities located throughout the northern central valley. Agriculture is the dominant land use on the valley floor and often, irrigation activities dominate flow and quality of valley floor water bodies. There are approximately 2.36 million acres of agricultural land within the watershed area, with approximately 15,000 growers with waste discharges from irrigated lands. The watershed supports a diverse agricultural economy, much of which depends on the availability of irrigation water to sustain crops. Surface water is collected in reservoirs throughout the Sacramento River watershed and is released according to allocations for agricultural, urban, and energy needs.

Figure 2-2 Sacramento River Basin



2.2 SAN JOAQUIN RIVER BASIN

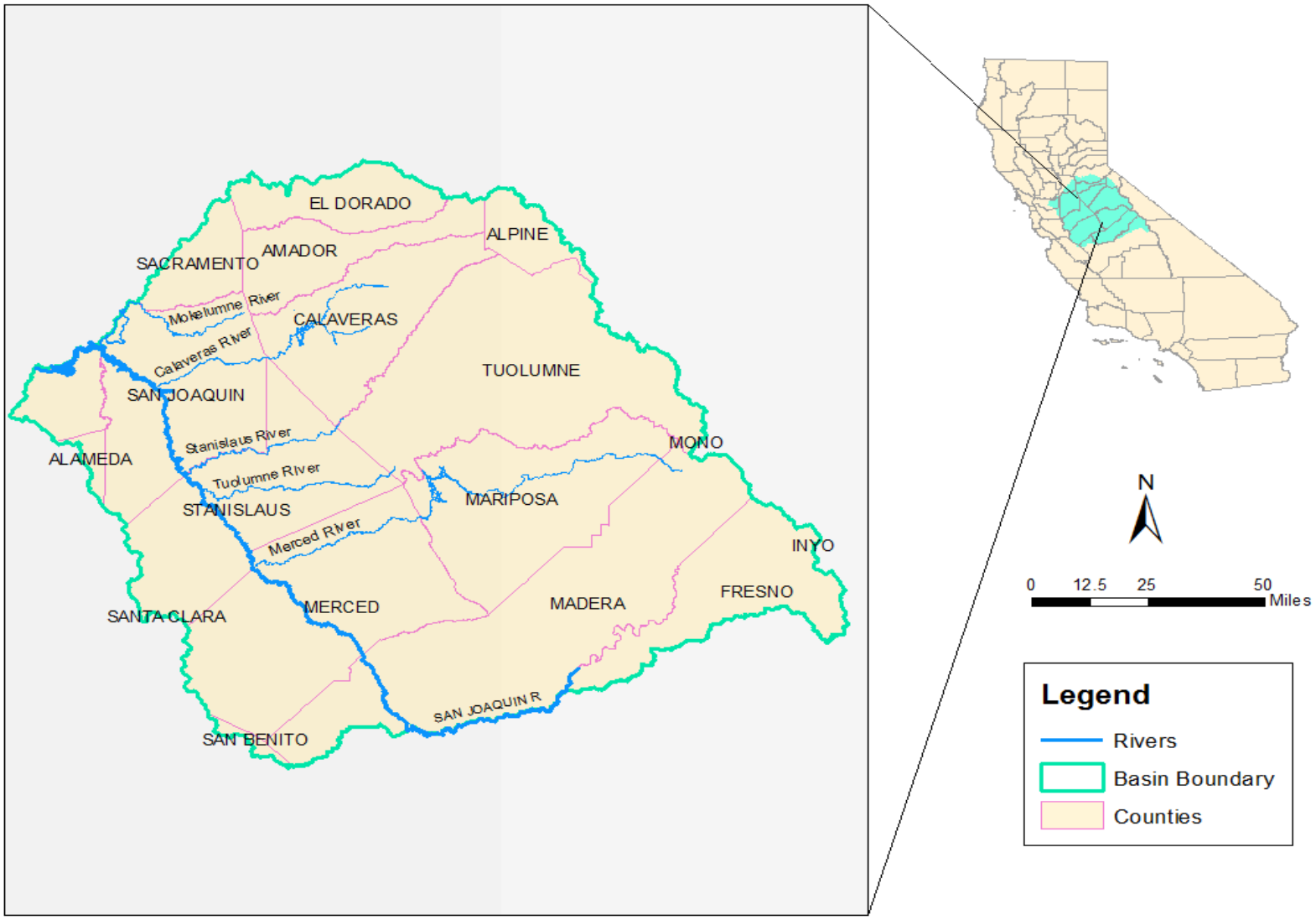
The San Joaquin River Basin (Figure 2-3) covers 15,880 square miles and drains the portion of the Central Valley south of the Delta and north of the Tulare Lake Basin. The watershed has had a highly managed hydrology since the implementation of the Central Valley Project in 1951.

The San Joaquin River flows westward from the Sierra Nevada Range and continues north at Mendota Pool near the town of Mendota, California. As the river channel continues past the Mendota Pool it turns northward to narrow by the constrictions of the Merced River and Orestimba Creek alluvial fans. From there, the river channel continues north towards the Delta and out to the Suisun Bay.

Most of the flow from the San Joaquin River is diverted into the Friant-Kern Canal, leaving the river channel upstream of the Mendota Pool dry except during periods of wet weather flow and major snow melt. The majority of water in the Mendota Pool has been transported from the Delta via the Delta Mendota Canal for irrigation use and to replace water lost through diversion of the upper San Joaquin River flows. The majority of the poorer quality water that is higher in salinity is then discharged to irrigation supply channels along the west side of the river, while some flows are released to the main river channel and continue to Sack Dam. Remaining flows not diverted for agricultural use out of the main channel are then diverted at Sack Dam, leaving flows in the lower San Joaquin River (below Sack Dam) mainly dependent on releases from upstream reservoirs, agricultural return flows, and groundwater seepage, although wetland releases and storm water run-off can have considerable impacts on the flows as well.

The principal streams in the Basin are the San Joaquin River and its larger tributaries: the Cosumnes, Mokelumne, Calaveras, Stanislaus, Tuolumne, Merced, and Fresno Rivers. The major reservoirs and lakes include Pardee, New Hogan, Millerton, McClure, Don Pedro, and New Melones. The major land use in the valley floor along the Lower San Joaquin River is agriculture, with over 2.1 million irrigated acres, representing 22% of the irrigated acreage in California.

Figure 2-3 San Joaquin River Basin



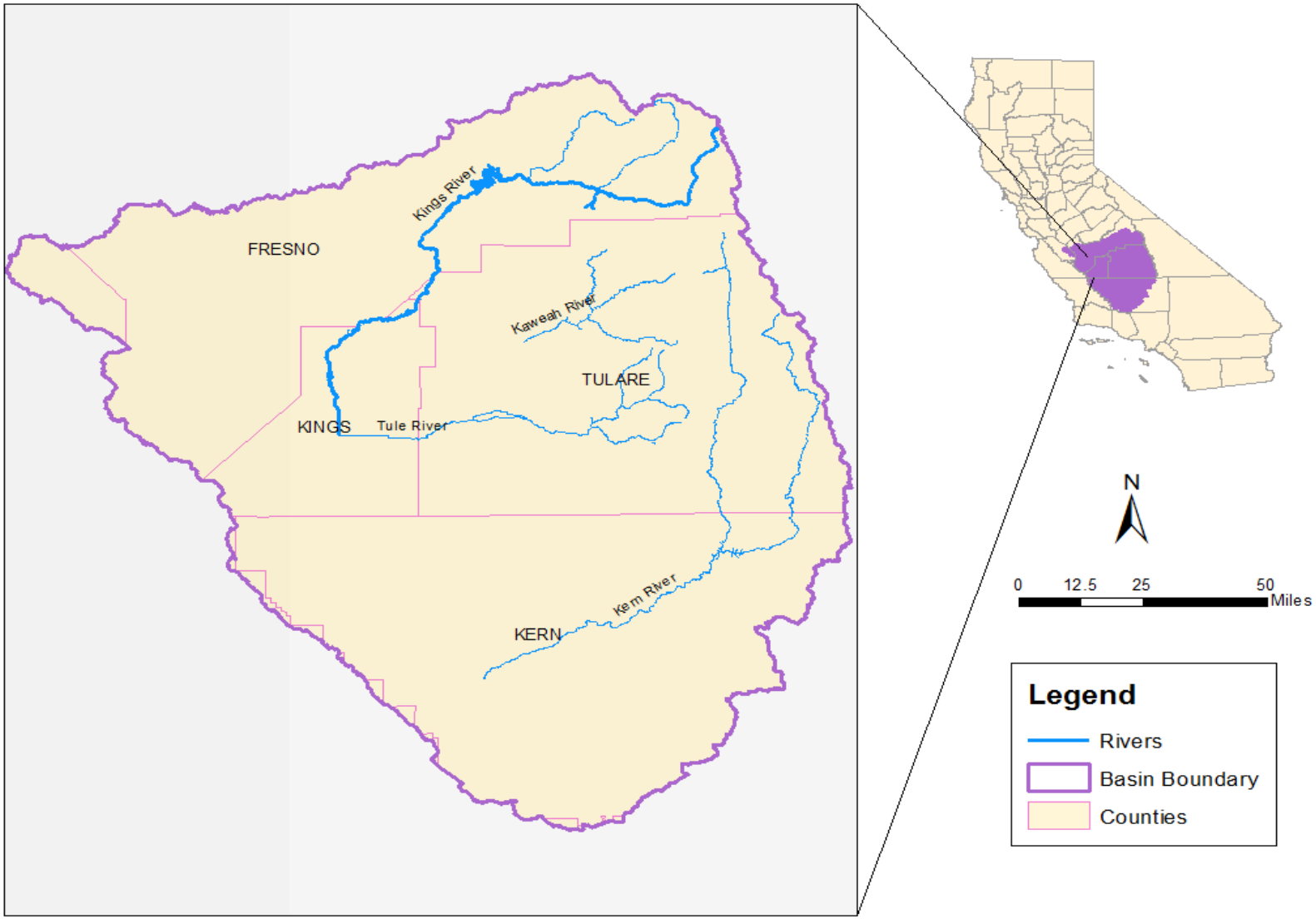
2.3 TULARE LAKE BASIN

The Tulare Lake Basin (Figure 2-4) encompasses the drainage area of the San Joaquin Valley south of the San Joaquin River and consists of approximately 10.5 million acres, including the historical lakebed. Surface water from the Tulare Lake Basin only drains north into the San Joaquin River in years of extreme rainfall. This essentially closed basin is enclosed by the Diablo and Temblor Ranges on the west, by the San Emigdio and Tehachapi Ranges on the south, and by the Sierra Nevada Mountains on the east and southeast.

The bulk of the surface water supply native to the Basin originates from the four major rivers within the Basin: the Kings River, the Kaweah River, the Tule River, and the Kern River. Each river originates in the Sierra Nevada Mountain Range, flowing southwest toward the San Joaquin Valley (except for portions of the Kern River, which flow south following geologic structures), and is joined by tributary streams. The Tulare Lake Basin is highly managed, with dams and reservoirs on each of the four main rivers to regulate river flows. Additional surface water supplies enter the Basin through the San Luis Canal/ California Aqueduct System, Friant-Kern Canal, and the Delta-Mendota Canal, which assist the movement of water across the valley floor. The surface water supplies within the Basin are inadequate to support the present level of Ag and other development. As a result, ground water is used to provide an additional source of water supply. In addition, water produced during crude oil extraction is used extensively to supplement Ag irrigation supply in the Kern River sub-basin.

There is virtually no subsurface or surface outflow due to the closed nature of the Tulare Lake Basin. Therefore, salts and nitrate accumulate within the Basin due to importation and evaporative use of the water. The accumulation of salts and nitrate is the primary water quality issue in the Basin, with elevated levels leading to nitrate impacted drinking water supplies and salinization of agricultural land. This issue is further compounded by the overdraft of ground water for municipal, agricultural, and industrial purposes.

Figure 2-4 Tulare Lake Basin



3 LAWS, REGULATIONS, AND POLICIES RELEVANT TO BASIN PLANNING

This staff report proposes amendments to the Basin Plan. There are a number of federal and state laws, regulations and policies that are specifically relevant to the Basin Planning process. This chapter summarizes these laws, regulations, and policies.

3.1 LEGAL REQUIREMENTS FOR ESTABLISHING AND AMENDING THE BASIN PLAN

In the Porter-Cologne Water Quality Control Act, the Legislature found and declared that activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.

The State Water Board and the nine Regional Water Quality Control Boards (Regional Water Boards) are the state agencies with primary responsibility for coordination and control of water quality. (Wat. Code, § 13000.) Each Regional Water Board is required to adopt a water quality control plan, or Basin Plan, which provides the basis for regulatory actions to protect water quality. (Wat. Code, § 13240 et seq.) Basin plans designate beneficial uses of water, water quality objectives to protect the uses, and a program of implementation to achieve the objectives. (Wat. Code, § 13050, subd.(j).) Basin plans, once adopted, must be periodically reviewed and may be revised. (Wat. Code, § 13240.)

Under the Federal Clean Water Act (CWA) (33 USC section 1251 et seq.), the states are required to adopt water quality standards for surface waters. (33 USC § 1313(c).) Water quality standards consist of: 1) designated uses and 2) water quality criteria necessary to protect designated uses. (33 USC § 1313 (c)(2)(A) and (c)(2)(B); Title 40 Code of Federal Regulations (CFR) §131.6.) Under the CWA, the states must review water quality standards at least every three years.

Regional Water Boards adopt and amend basin plans through a structured process involving peer review, public participation, and environmental review. Regional Water Boards must comply with the CEQA (Pub. Res. Code. § 21000 et seq.) when amending their basin plans. The Secretary of Natural Resources has certified the basin planning process as exempt from the CEQA requirement to prepare an environmental impact report or other appropriate environmental document. (Pub. Res. Code, § 21080.5; Cal. Code Regs., tit. 14, § 15251, subd. (g).) Instead, State Water Board regulations on its exempt regulatory programs require the Regional Water Boards to prepare a written report and an accompanying CEQA Environmental Checklist and Determination with respect to Significant Environmental Impacts. (CEQA Checklist) (Cal. Code Regs., tit. 23, § 3775 et seq.)

The Central Valley Water Board's environmental review of the proposed Basin Plan Amendments is contained in this Staff Report, in particular Section 13.1 and Appendix L, which is considered to be part of the SED. Appendix K of this Staff Report provides justification that the proposed Basin Plan Amendments do not contain new science that would necessitate peer review required by Health and Safety Code section 57004(d).

Basin Plan amendments are not effective until they are approved by the State Water Board and the regulatory provisions are approved by the State OAL. The USEPA also must review and approve amendments that add or modify water quality standards for waters of the United States.

The next sections detail the laws, regulations, and policies that apply to Basin Planning and are relevant to the proposed amendments.

3.2 Legal Requirements for Establishing, Designating and Modifying Beneficial Uses

3.2.1 Federal Regulations and Guidance

Federal regulations require the protection of designated uses in all waters of the United States. Federal regulations establish special protections for the uses specified in CWA section 101, subdivision (a)(2). CWA section 101, subdivision (a)(2) states that it is a national goal that wherever attainable, water quality should be sufficient "for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." These uses are also referred to as "fishable/swimmable" uses.

Under 40 CFR section 131.10, subdivision (j), a state must conduct a "use attainability analysis" (defined in 40 CFR § 131.3, subd.(g).) whenever a state wishes to remove a designated fishable/swimmable use from a waterbody that falls within the jurisdiction of the CWA. 40 CFR section 131.10, subdivision (g) defines six circumstances where it would be appropriate for a state to remove a fishable/swimmable use. However, the MUN beneficial use is not a fishable/swimmable use.

When establishing, designating, or revising beneficial uses that are not "fishable/swimmable" beneficial uses (like the MUN beneficial use) in water subject to federal jurisdiction, states must submit documentation to USEPA justifying how their consideration of the use and value of water appropriately supports the state's action. A use and value demonstration consists of, at a minimum, a showing that the state has considered:

- Relevant descriptive information about the waterbody itself;
- The use and value of the waterbody as a public water supply (40 CFR 131.10, subd. (a).);
- The impact that the change could have on the protection and propagation of fish, shellfish, and wildlife (*Id.*);
- The impact that the change could have on recreation in and on the water (*Id.*);
- The use and value of the waterbody for agricultural, industrial, and other purposes, including navigation (*Id.*);
- The impact that the change in use could have on the protection of downstream uses (40 CFR 131.10, subd. (b).);
- Whether or not the use to be changed is an existing use in the waterbody (40 CFR 131.10, subd. (h)(1).); and
- Whether or not the beneficial use could be attained in the waterbody, using the factors in 40 CFR 131.10, subd. (g) as a general guide[1].

As described below, many of these considerations are already required by state laws and regulations when the Board considers a change to a beneficial use designation in any waterbody, not just those waterbodies subject to federal jurisdiction. Therefore, the

[1] USEPA Guidance materials suggest the consideration of the 40 CFR 131.10(g) circumstances that could warrant the removal of a "fishable/swimmable" beneficial use when the state submits a "use and value" demonstration, even though "use and value" demonstrations are required when the state is providing a justification for a change in *non*-fishable/swimmable beneficial use designations.

requirements of a "use and value" demonstration are largely satisfied whenever the Board considers a change to a beneficial use designation, irrespective of whether the water body is considered a "water of the United States" within the meaning provided by the CWA.

3.2.2 State Regulations and Guidance

The Water Code includes designation of beneficial uses in both basin plans and statewide plans. (Wat. Code, §13050, subd. (j).) The Water Code defines beneficial uses of water as including, but not limited to: "domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves." (Wat. Code, §13050, subd. (f).)

Designated uses are those uses specified in the water quality standards for each water body or segment whether or not they are being attained. (40 CFR §131.3(f).) In Table II-1 of the Basin Plan, beneficial uses for listed water bodies within the Sacramento and San Joaquin River are identified as Existing, Limited, or Potential.

The beneficial uses of the Sacramento and San Joaquin River basins include: municipal and domestic supply (MUN), agricultural supply (AGR), industrial process supply (PRO), industrial service supply (IND), hydropower generation (POW), water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), migration of aquatic organisms (MIGR), spawning, reproduction, and/or early development (SPWN), wildlife habitat (WILD), navigation (NAV), commercial and sport fishing (COMM), shellfish harvesting (SHELL),and preservation of biological habitats of special significance (BIOL).

The beneficial uses of the Tulare Lake Basin include: municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), industrial process supply (PRO), hydropower generation (POW), water contact recreation (REC-1), non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), wildlife habitat (WILD), spawning, reproduction, and/or early development (SPWN), migration of aquatic organisms (MIR), ground water recharge (GWR), freshwater replenishment (FRSH), aquaculture (AQUA), preservation of biological habitats of special significance (BIOL), and navigation (NAV).

Page II-1.00 of the Basin Plan describes several points that need to be considered in setting and protecting beneficial uses:

- *"All water quality problems can be stated in terms of whether there is water of sufficient quantity or quality to protect or enhance beneficial uses".*

- *"Beneficial uses do not include all of the reasonable uses of water. For example, disposal of wastewaters is not included as a beneficial use. This is not to say that disposal of wastewaters is a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of other beneficial uses. Similarly, the use of water for the dilution of salts is not a beneficial use although it may, in some cases, be a reasonable and desirable use of water."*

- *"The protection and enhancement of beneficial uses require that certain quality and quantity objectives be met for surface and ground waters."*

- *"Fish, plants, and other wildlife, as well as humans, use water beneficially."*

Beneficial use designation (and water quality objectives, see Chapter III of the Basin Plan) must be reviewed at least once during each three-year period for the purpose of modification as appropriate (40 CFR 131.20)."

3.2.3 State Water Board Sources of Drinking Water Policy (Resolution 88-63)

The *Sources of Drinking Water Policy* establishes state policy that all waters are considered suitable or potentially suitable to support the MUN beneficial use, with certain exceptions.

The Basin Plan implements *Sources of Drinking Water Policy* by assigning the MUN beneficial use to all water bodies that do not have their individual uses specifically listed in Table II-1. Exceptions to the MUN designation through *Sources of Drinking Water Policy* are allowed in surface water for:

1. Surface and ground waters where:
    a. The TDS exceed 3,000 mg/L (5,000 uS/cm, EC) and it is not reasonably expected by Regional Boards to supply a public water system, or
    b. There is contamination, either by natural processes or by human activity (unrelated to the specific pollution incident), that cannot reasonable be treated for domestic use using either Best Management Practices or best economically achievable treatment practices, or
    c. The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.
2. Surface waters where:
    a. The water is in systems designed or modified to collect or treat municipal or industrial wastewaters, process waters, mining wastewaters, or storm water runoff, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards; or,
    b. The water is in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards.

The *Sources of Drinking Water Policy* addresses only designation of water as drinking water sources; it does not establish objectives for constituents that are protective of the designated MUN use.

A water body only needs to meet one of the exceptions to be eligible to have the MUN beneficial use removed. However, water bodies designed or modified for the primary purpose of conveying or holding agricultural drainage, as described in Exception 2b, may meet additional *Sources of Drinking Water Policy* exceptions. For example, water bodies that meet the Exception 2b criteria may also meet the Exception 1b criterion, which allows the de-designation of the MUN beneficial use in waters where there "is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either Best Management Practices or best economically achievable treatment practices."

3.3 Laws that Apply to the Establishment of Water Quality Objectives

3.3.1 Federal Regulations and Guidance

Federal regulations require States to adopt narrative or numeric water quality criteria to protect designated beneficial uses in water bodies subject to federal jurisdiction (40 CFR §131.11(a)(1).) When establishing, designating, or revising beneficial uses that are not "fishable/swimmable" beneficial uses (like the MUN beneficial use), 40 CFR section 131.10, subdivision (a) requires that states take into consideration the use and value of the water body or water bodies where the beneficial use will be modified. The considerations that must be made as part of a "use and value" determination are described in section 3.2.1 of this Staff Report.

3.3.2 State Statute, Regulations and Guidance

Water Code section 13050, subdivision (h) defines water quality objectives as "…the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." Pursuant to Water Code section 13241, when establishing WQOs, the Regional Water Board is required to consider:

(a) Past, present, and probable future beneficial uses of water;
(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto;
(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;
(d) Economic considerations;
(e) The need for developing housing within the region;
(f) The need to develop and use recycled water; and
(g) The Program of Implementation (Wat. Code, §13242)

Note that some of the above factors such as (a) through (d) have elements that overlap with the considerations that support a use and value demonstration under 40 CFR section 131.10, subdivision (a).

3.4 Laws that Apply to the Establishment of an Implementation Program in the Basin Plan

3.4.1 Federal Regulations and Guidance

Section 402 of the CWA requires a permitting system which USEPA addressed by promulgating 40 CFR, part 122, which are the regulations pertaining to the NPDES program. The State's regulations pertaining to NPDES permits must be consistent with the federal regulations.

40 CFR section 122.44, subd. (d)(1)(ii) sets forth the criteria for establishing a procedure for determining whether a discharge has a reasonable potential to cause or contribute to a violation of water quality standards. It states, "When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of

the effluent in the receiving water." While the federal regulations do not contain explicit procedures to derive effluent limitations, USEPA has provided guidance (U.S. Environmental Protection Agency, 1991) that includes explicit procedures.

3.4.2 State Statues, Regulations, and Guidance

3.4.2.1 Water Code sections 13050 and 13242

Pursuant to Water Code section 13050, subdivision (j)(3), a basin plan amendment must include an implementation program to achieve water quality objectives. Water Code section 13242 dictates that a program of implementation must include the following:

- description of the actions necessary to achieve the water quality objectives;
- a time schedule for the actions to be taken; and
- a monitoring and surveillance program.

3.4.2.2 Water Code section 106.3

In compliance with Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

3.5 ECONOMIC REVIEW

California Law requires a consideration of economics when: (i) establishing water quality objectives (Wat. Code, § 13241, subd. (d).); (ii) before implementing an agricultural water quality control program (Wat. Code, § 13141.); and (iii) when adopting an amendment that will require the installation of pollution control equipment or is a performance standard or treatment requirement (Pub. Resources Code, § 21159.).

3.5.1 Water Code section 13241

Requires economics as one of the seven factors that must be considered when developing water quality objectives (See the fourth factor (d) in Section 3.3.2).

3.5.2 Water Code section 13141

Water Code section 13141 states that, "prior to implementation of any agricultural water quality control program, an estimate of the total cost of such a program, together with an identification of potential sources of financing, shall be indicated in any regional water quality control plan." Section 1.2.1 describes the costs for implementing agricultural water quality control program in the no-action alternative. Section 1.2.1.3 describes the identification of potential sources of financing and the need to develop a comprehensive and regional financial strategy.

3.5.3 Public Resources Code section 21159

Public Resources Code section 21159 requires that an agency must perform "an environmental analysis of the reasonably foreseeable methods of compliance" for "…a rule or regulation that requires the installation of pollution control equipment or a performance standard or treatment requirement…The environmental analysis shall take into account a reasonable range of environmental, economic, and technical factors, population and geographic areas, and specific sites."

3.6 ENVIRONMENTAL REVIEW – CEQA

The Central Valley Regional Water Quality Control Board, when acting as a Lead Agency under CEQA, is responsible for evaluating all the potential environmental impacts that may occur due to changes made to the Basin Plan. The Secretary of Resources has determined that the Central Valley Water Board's basin planning process qualifies as a certified regulatory program pursuant to Public Resources Code section 21080.5 and California Code of Regulations, title 14, section 15251(g). This determination means that the Central Valley Water Board's is exempt from the requirement to prepare an environmental impact report. Instead, this Staff Report and the Environmental Checklist provided in Appendix L satisfy the requirements of State Water Board's Regulations for Implementation of CEQA, Exempt Regulatory Programs, which are found at California Code of Regulations, title 23, sections 3775 et seq.

3.7 ANTIDEGRADATION POLICIES

The USEPA has established a federal antidegradation policy applicable to water quality programs in 40 CFR section 131.12 (*Federal Antidegradation Policy*). The State Water Resources Control Board has established an antidegradation policy for the State of California by adopting State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (*State Antidegradation Policy*). The Central Valley Water Board must ensure that its basin planning actions are consistent with the *Federal Antidegradation Policy* and the *State Antidegradation Policy*.

3.7.1 Federal Antidegradation Policy

The *Federal Antidegradation Policy* states:

> (a) The State shall develop and adopt a statewide antidegradation policy and identify the methods for implementing such policy pursuant to this subpart. The antidegradation policy and implementation methods shall, at a minimum, be consistent with the following:
>
> > (1) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.
> >
> > (2) Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control.
> >
> > (3) Where high quality waters constitute an Outstanding National Resource Waters, such as waters with exceptional ecological, recreational or environmental assets, that water quality shall be maintained and protected.
> >
> > (4) In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with section 316 of the Act.

3.7.2 State Antidegradation Policy

The *State Antidegradation Policy* states, in relevant part:

> (1) Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.
>
> (2) Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

3.8 Overlap Between Federal Regulations Pertaining to the Establishment, Designation or Removal of Non-Fishable/Swimmable Uses and State Policies and Statutes Pertaining to Basin Planning Actions

In 2015, USEPA revised the regulations that govern the designation of beneficial uses in waters of the US to clarify that when 40 CFR section 131.10, subdivision (g) and 40 CFR section 131.10, subdivision (j) are read together, the six circumstances under which a state can remove a designated use (specified in subdivision (g)) are only applicable to situations where the state is removing a fishable/swimmable use. If the Board is going to establish, designate, or remove beneficial uses that are *not* considered “fishable/swimmable” uses (as defined at 33 U.S.C.A. § 1251, subd. (a)(2).), such as the MUN or LMUN beneficial uses, it must demonstrate that it has considered the “use and value” of the water for those uses.

There is, however, significant overlap between the federal regulations that require a use and value demonstration and the state laws, regulations, and policies that circumscribe how the Board may alter a designated MUN beneficial use. This significant overlap is described in the sections below.

3.8.1 Use and Value of the Waterbody as a Public Water Supply, Use and Value of the Waterbody as Supporting the Protection and Propagation of Fish, Shellfish and Wildlife, Use and Value of the Waterbody for Recreation In and On the Water and Use and Value of the Waterbody for Agricultural, Industrial, and Other Purposes and the *Sources of Drinking Water Policy*

The use and value of the waterbody as a public water supply	The *Sources of Drinking Water Policy*, by including an exception for "systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters," establishes the policy position of the State Water Board that such systems have limited utility for supporting the municipal and domestic supply beneficial use.
The impact that the change could have on the protection and propagation of fish, shellfish, and wildlife	De-designations of MUN beneficial uses pursuant to the exception contained in the *Sources of Drinking Water Policy* do <u>not</u> in any way affect beneficial uses related to the protection and propagation of fish, shellfish, and wildlife; such beneficial use designations, and the water quality objectives associated with those beneficial uses, remain intact following the de-designation of the MUN beneficial use.
The impact that the change could have on recreation in and on the water	De-designations of MUN beneficial uses pursuant to the exception contained in the *Sources of Drinking Water Policy* do <u>not</u> in any way affect beneficial uses related to recreational beneficial uses; such beneficial use designations, and the water quality objectives associated with those beneficial uses, remain intact following the de-designation of the MUN beneficial use.
The use and value of the waterbody for agricultural, industrial, and other purposes, including navigation	De-designations of MUN beneficial uses in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters enables these systems to be fully utilized for their intended purpose.

3.8.2 Downstream Uses and the *Sources of Drinking Water Policy*

Under 40 CFR 131.10, subd. (b), when a state makes a change to a non-fishable/swimmable beneficial use designation in a waterbody subject to federal jurisdiction, the state must consider the impact that the change could have on the protection of downstream uses. However, the *Sources of Drinking Water Policy* includes, as a precondition for the de-designation of the MUN beneficial use in systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters, two conditions: 1) that the change not result in non-compliance

with relevant water quality objectives in downstream water bodies (i.e., those water quality objectives necessary to protect the non-dedesignated beneficial uses in downstream waterbodies), and 2) that the Regional Boards ensure that there will not be impacts to beneficial uses in downstream waterbodies by establishing a monitoring program or by reviewing existing monitoring information to assess potential impacts to beneficial uses in downstream waterbodies.

3.8.3 Exceptions in the Sources of Drinking Water Policy and 40 CFR section 131.10(g) factors for modified natural water bodies

The *Sources of Drinking Water Policy* authorizes the Central Valley Water Board to de-designate the MUN beneficial use from Ag dominated water bodies that are designed or modified for the primary purpose of conveying or holding Ag drainage. These same water bodies also have a higher risk of having naturally and human caused conditions that are sources of pollution, thus preventing the attainment of the MUN use. (40 CFR § 131.10, subds. (g)(1) and (3).) In addition, the intermittent or low flow conditions in these water bodies are not conducive to sustaining a public or domestic water system. (40 CFR § 131.10, subd. (g)(2).) These modified water bodies also usually contain dams, diversions and other types of hydrologic modifications that were constructed specifically to support agricultural activities, not municipal or domestic supply activities. (40 CFR § 131.10, subd. (g)(4).)

3.8.4 40 CFR section 131.10(g) factors and 13241 considerations

Although the Subdivision (g) factors are for removing a designated use from a water of the United States and the review of the 13241 factors is a state requirement for establishing WQOs, there is also overlap of some elements between these two regulations. Both regulations include elements such as beneficial use and attainment, environmental condition (natural and/or anthropogenic) and economic consideration. For example, 40 CFR section 131.10, subdivisions (g)(1) and (3) consider natural and human-caused conditions or sources of pollution that prevent the attainment of the use and cannot be remedied or would cause more environmental damage to correct than to leave in place. Water Code section 13241 factors (b) and (c) also consider environmental characteristics of the hydrographic unit under consideration, including the quality of water, as well as the conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area. In addition, 40 CFR section 131.10, subd. (g)(6) considers the economic and social impact of changes to beneficial uses while Water Code section 13241 factor (d) also takes into account economic considerations.

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4 DEVELOPING PROJECT ALTERNATIVES

Project alternatives were developed with input from and vetted through an active stakeholder process that included participation from representatives from federal and state agencies, public water systems, municipalities, environmental and Ag interests during public stakeholder meetings and publicly noticed Board workshops.

4.1 HISTORICAL EFFORTS TO ADDRESS AGRICULTURAL WATERS

Evaluating the appropriate beneficial uses and associated WQOs in the California's Ag dominated water bodies is not a new endeavor. Several significant efforts occurred in the 1990s to address the implementation of water quality standards in agricultural waters. During the initial phases of this project, the general agreement from stakeholders was that past work should be utilized to the extent that such work was consistent with evolving regulatory priorities and legal determinations. This chapter describes the historical efforts to regulate water quality in agricultural water bodies and the integration of past recommendations into the development of this current basin planning project.

In 1991, the Inland Surface Water Plan (ISWP), a statewide plan to establish WQOs for all surface water bodies, was adopted by the State Water Board to fulfill the requirements of the CWA Section 303(c)(2)(B). This plan established a program of implementation for agriculture and compliance timetable to meet WQOs based on water body type, specifically effluent as well as Ag dominated natural and constructed water bodies (defined and further discussed in Section 5.3). As part of the ISWP implementation, the Central Valley Water Board approved a report in 1992, which identified and prioritized over 6,500 Ag dominated surface water bodies throughout the region (Central Valley Water Board, 1992). Although this report was sent to the State Water Board for approval, the ISWP was rescinded following a legal challenge, which stalled implementation of the 1992 report.

To address issues identified in the 1991 ISWP, the State Water Board created Public Advisory Task Forces in 1994, including the Agricultural Waters Task Force (AgWTF), which specifically addressed agricultural issues. A wide variety of stakeholders were involved with the AgWTF and a final report was generated in 1995, which included options for water body categorization, beneficial use designations, WQOs and implementation strategies for Ag dominated surface water bodies (State Water Board, 1995). However, a revised statewide ISWP was never developed. Instead, USEPA promulgated the California Toxics Rule (CTR) in May 2000, which established numeric water quality criteria for priority toxic pollutants necessary to fulfill the CWA requirements. The CTR does not recognize separate categories of water bodies, thus issues related to appropriate beneficial use designation and level of protection in Ag dominated waters were never resolved.

4.2 CONTINUED CONSENSUS RECOMMENDATIONS

In developing project alternatives, current stakeholders agreed to move forward with consideration of a number of key recommendations that originated from the ISWP and AgWTF efforts:

1 Agricultural water bodies are unique - Both the ISWP and AgWTF efforts recognized that agricultural water bodies are unique and may not support the same level of beneficial

use protection traditionally associated with perennial, natural streams.

2 Water body categorization - Both historical efforts utilized a water body categorization framework with the help of flowcharts. The flowcharts distinguished between constructed, modified and natural Ag dominated water body categories. Reliance on water management agencies to categorize the water bodies in their area was also generally supported by stakeholders.

3 Special consideration of ancillary structures and closed recirculating systems – There was general consensus that privately constructed ancillary structures (such as on-farm distribution systems) and closed recirculating systems managed to maximize water use, energy savings and/or chemical management should be considered separately from the constructed, modified and natural Ag dominated water body categories listed above.

4 Refined MUN Beneficial Use – There was general agreement amongst stakeholders for the need of a limited beneficial use for water bodies not currently utilized for MUN and with inherent characteristics that may limit future use, such as intermittent flow.

5 Protection of current MUN uses – Stakeholders agreed that water bodies currently utilized for domestic or municipal supply should continue to be protected for that use.

4.3 NON-CONSENSUS ISSUE

Some stakeholders expressed concerns that a single process to evaluate the MUN beneficial use may not be appropriate for the whole Central Valley region since there are differences in the environmental characteristics of the three basins. With this issue in mind, staff considered other project alternatives such as site-specific objectives (SSOs) and a basin-by-basin water body categorization framework process.

4.5 DEFINITION OF "AG DOMINATED"

While the term "Ag dominated" has been used and defined in previous efforts (Central Valley Water Board, 1992; State Water Board, 1995), there is no established regulatory definition. Since the purpose of this Basin Plan Amendment project is to classify Ag dominated surface water bodies, the following definition was established with stakeholder input for this evaluation process:

"Ag dominated" is defined as systems designed or modified for the primary purpose of conveying or holding waters used for or resulting from agricultural production, and/or water bodies with greater than 50 percent of the flow dependent on Ag operations for greater than 50 percent of the irrigation season.

4.6 PROPOSED PROJECT ALTERNATIVES

The historical efforts carried out in the ISWP and AgWTF provided a foundation for addressing Ag dominated water bodies. Based on information gathered from past efforts as well as the current project's stakeholder process and CEQA scoping meetings, the following project

alternatives for evaluating the MUN beneficial use and level of protection in Ag dominated surface water bodies were developed:

1. No Action
2. Region-wide Water Body Categorization Framework
3. Basin-by-Basin Water Body Categorization Framework
4. Development of Site Specific Objectives (SSOs)

Table 4-1 provides a matrix of these four alternatives with the components of the Basin Plan(s) that each could potentially impact. The next sections describe each of the alternatives in more detail.

Table 4-1 Project Alternatives Matrix

Project Alternatives	Potential Changes to:			
	Beneficial Use Designation	**Water Quality Objectives**	**Implementation Program**	**Monitoring &Surveillance Program**
1. No Action				
2. Region-wide Water Body Categorization Framework	X	X	X	X
3. Basin-by-Basin Water Body Categorization Framework	X	X	X	X
4. Site Specific Objectives		X		

4.6.1 No Action Alternative

A No Action Alternative is required by CEQA and would result in no amendments to the Basin Plans; rather the Basin Plans would continue to maintain the current MUN beneficial use designation region-wide. Accordingly, there would be no change in the current MUN-related WQOs from the Title 22 primary and secondary MCL tables. In addition, CTR human health criteria would continue to apply, where applicable, for the protection of human health from consumption of water and organisms. No new implementation provisions or monitoring and surveillance programs would be initiated.

4.6.2 Region-Wide Water Body Categorization Framework Alternative

This alternative amends the Basin Plan to add a standardized process to determine the appropriate application and levels of protection of the MUN beneficial use based on categories of Ag dominated surface water bodies across the Central Valley region.

The *Sources of Drinking Water Policy* contains an exception (2b) for water in "*systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters*". This alternative utilizes the Sources of Drinking Water Policy exceptions where appropriate to de-designate the MUN beneficial use. This alternative also establishes a LMUN beneficial use category for Ag dominated water bodies that do not meet the Sources of Drinking Water Policy

exceptions that are not currently providing MUN (described in more detail in Section 7, Beneficial Uses).

4.6.3 Basin-By-Basin Water Body Categorization Framework Alternative

This alternative mirrors that of the Region-wide Water Body Categorization Framework alternative, but with the Sacramento River, San Joaquin River, and Tulare Lake Basins each having their own separate process for evaluation the appropriate MUN beneficial use in Ag dominated surface water bodies tailored to address the different hydrology and management practices of the three basins.

4.6.4 Site Specific Objectives Alternative

This alternative uses the development of a streamlined process to establish site specific WQOs to replace or serve as alternatives to using existing Basin Plan WQOs to protect the MUN beneficial use, but does not involve a change to the beneficial use designation of MUN to the water bodies. The existing regulatory programs would be responsible to implement the monitoring and surveillance program needed to assure that waste discharges do not cause or contribute to an exceedance of the SSOs.

4.7 Development of Selection Criteria

In order to evaluate the four proposed project alternatives, stakeholders worked with Central Valley Water Board staff to develop the following list of selection criteria:

1. Maintain consistency with federal and state water quality laws and policies as applicable (e.g. *Sources of Drinking Water Policy*, *Federal Antidegradation Policy, State Antidegradation Policy*).

2. Provide the appropriate protection of MUN in Ag dominated surface water bodies with consideration given to the current and potential future use of drinking water.

3. Assure compliance with all relevant water quality objectives downstream.

4. Allow constructed Ag dominated water bodies to be utilized for their intended design and purpose.

5. Provide a solution for dischargers faced with implementing treatment measures to meet MUN use-based water quality criteria/objectives when no such use exists in their Ag dominated surface water bodies.

6. Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards.

4.8 Initial Evaluation of Project Alternatives

In an initial stakeholder evaluation, Option 1 (No Action) seemed least likely to meet the selection criteria listed above because keeping the MUN beneficial use designated in certain water bodies that are provided an exception in the Sources of Drinking Water Policy is not consistent with the intent of the policy. In addition, this option would likely result in costly measures to dischargers to assure that MUN use-based WQOs are met in water bodies that are

not providing municipal or domestic supply and negatively impact the use of such water bodies for their intended design and purpose. Option 4 (SSOs) also did not rate highly for its ability to meet the selection criteria. While Option 4 proposes to develop a streamlined process for establishing SSOs in Ag dominated water bodies, it would still be costly and resource intensive to conduct the scientific reviews and provide the necessary justification to use different WQOs in place of current objectives. Option 4 also does not utilize the Sources of Drinking Water exceptions to designate the appropriate MUN beneficial use and instead relies on a water body-by-water body approach to establishing SSOs.

The use of a water body categorization framework, as identified in Alternatives 2 and 3, was identified early in the process due to its successful implementation in past efforts like the ISWP, as well as in the more recently adopted Basin Plan Amendments removing the MUN beneficial use from 12 constructed and/or modified water bodies in the Sacramento River Basin. Stakeholders agreed that Alternatives 2 and 3 seemed more likely to meet the selection criteria listed above as compared to Alternatives 1 and 4. However, in order to understand whether a basin-by-basin approach would provide benefit over a region-wide water body categorization approach, stakeholders acknowledged that they first needed to evaluate the water body categorization method used in the Sacramento River Basin and examine its application in different case studies across the region. In addition, stakeholders needed to develop the beneficial use and WQO components of these two alternatives to see if any basin-specific elements were identified. The next four sections of this staff report walk through these steps followed by a final evaluation of all the project alternatives and the selection of the Preferred Alternative in Section 9.

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5 DEVELOPMENT OF A WATER BODY CATEGORIZATION FLOWCHART (FOR ALTERNATIVES 2 & 3)

As described in the previous section, a water body categorization approach was used to remove the MUN use from 12 constructed and/or modified Ag dominated water bodies in the Sacramento River Basin receiving POTW wastewater discharges (Central Valley Water Board, 2015a). This chapter describes the development of the water body categorization flowchart used for that Basin Plan Amendment project and describes the different types of Ag dominated water body categories found in the flowchart.

5.1 FLOWCHART DEVELOPMENT

The original water body categorization flowchart in the 1992 ISWP staff report was developed as a tool to facilitate the decision-making process in categorizing Ag dominated water bodies. Two primary categories were identified for Ag dominated water bodies: 1) B- Ag dominated natural water bodies and; 2) C- Ag dominated constructed water bodies. Category B water bodies were further broken down by whether they were dominated by Ag drainage (B1) or Ag supply (B2) water. Category C water bodies were also refined by whether the facility was designed to carry Ag drainage (C1) or irrigation water (C2). There was an additional subcategory for altered natural water bodies modified to carry Ag supply water or return flows (C3).

The AgWTF also supported a water body categorization framework similar to the concept proposed in the ISWP. Five flowchart options, with increasing complexity, were presented in the AgWTF report to assist with the categorization process and address the unique hydrologic characteristics of Ag dominated water bodies. The first identified the following three Ag dominated water body categories: 1) B - natural; 2) C - constructed Ag water bodies and; 3) R - reconstructed natural. Additional flowcharts further refined the type of water in the water bodies (drainage, irrigation or a combination of the two) and also considered ancillary structures and closed recirculating systems.

In 2012, during the initial phases of this project, stakeholders reviewed the various flowchart proposals presented in the ISWP and the AgWTF reports and discussed the merits and drawbacks of each. General consensus was met in selecting the ISWP model as the foundation for an updated water body categorization flowchart. Stakeholders felt that this was the best approach since the ISWP model had gone through a stakeholder vetting process and was successfully applied to over 6000 Ag dominated water bodies, ultimately receiving approval by the Central Valley Water Board in 1992. However, stakeholders recognized that certain concepts presented in the flowcharts from the AgWTF effort, such as the ancillary structures and closed recirculating systems, should be considered for the updated flowchart.

The preferred Water Body Categorization (WBC) Flowchart, Figure 5-1, is a modification of the water body categorization flowchart presented in the ISWP staff report and it includes some of the concepts from the AgWTF effort as well as adaptations to reflect today's technology and regulatory focus.

Similar to the ISWP framework, the WBC Flowchart includes the following Ag dominated water body types:

- Natural water body (B1) that carries Ag drainage or combination of Ag drainage and supply water
- Natural water body (B2) that carries Ag supply water
- Modified water body (M1) that carries Ag drainage or combination of Ag drainage and supply water
- Modified water body (M2) that carries Ag supply water
- Constructed water body (C1) that carries Ag drainage or combination of Ag drainage and supply water
- Constructed Ag waterway (C2) that carries Ag supply water

The WBC Flowchart also includes the AgWTF categories of:

- Ancillary Structure
- Closed Recirculating System

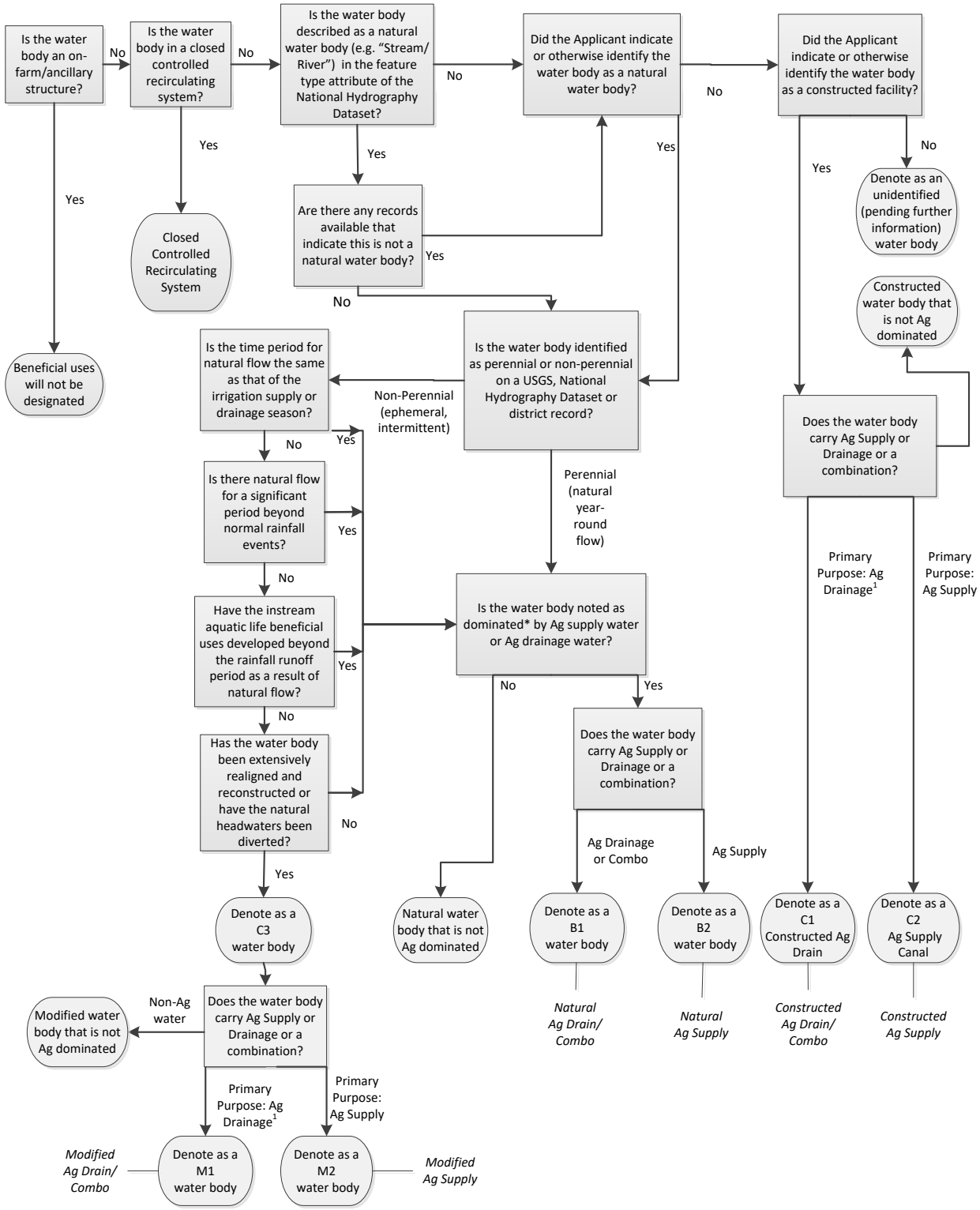
5.2 WATER BODY CATEGORIZATION FLOWCHART – KEY CONSIDERATIONS

The water body categorization framework seeks to classify Ag dominated water bodies based on their inherent characteristics. For example, flow in Ag dominated water bodies is different from natural stream flow in that it is highly managed, seasonal, and prone to large fluctuations due to irrigation practices. Water type and consideration to the construction, modification and use of a water body are also important factors, especially for the MUN beneficial use due to language in Exception 2b of the Sources of Drinking Water Policy for water bodies that are either constructed or modified for the primary purpose of conveying or holding agricultural drainage waters. Hence, the flowchart includes a number of defining questions such as:

- Is the water body an ancillary structure?
- Is the water body part of a closed controlled recirculating system?
- Is it a constructed or natural water body?
- Is the natural flow perennial (year-round flow) or ephemeral/intermittent (rain event/seasonal flows)?
- Is there natural flow during irrigation season or would it be dry without agricultural activities?
- Has the water body been extensively modified (realigned, hydromodifications, headwaters diverted etc.)?
- Does the water body carry agricultural drainage, supply or a combination of both?
- What was the primary purpose of construction or modification?

Additional questions focus on the availability of water district records and/or geographic information to support decisions. The flowchart also includes several “off-ramps” for water bodies that end up not meeting the criteria for “Ag dominated” or require additional information. A full list of definitions to accompany the terminology used in the WBC Flowchart can be found in the “Definitions Developed for this Project”, and includes examples for features like ancillary structures. Note that since ancillary structures will not have beneficial uses designated, no additional discussion will be spent on this category.

Figure 5-1 Water Body Categorization Flowchart



[1] *Designed or modified for the primary purpose of conveying or holding agricultural drainage waters*

* *"**Ag Dominated"** is defined as: systems designed or modified for the primary purpose of conveying or holding waters used for or resulting from agricultural production, and/or water bodies with greater than 50 percent of the flow dependent on agricultural operations for greater than 50 percent of the irrigation season.*

5.3 WATER BODY CATEGORIES

Ag dominated water bodies identified in the WBC Flowchart include the following: water bodies constructed for conveyance of Ag water supply and/or drainage, natural water bodies which have been modified for the purpose of Ag water management, natural water bodies dominated by Ag drainage or management, year-round closed controlled recirculating systems, and seasonally closed controlled recirculating systems. The year-round and seasonally closed controlled recirculating systems will be defined in this section and will be further discussed in Section 6.3.

5.3.1 Constructed Water Bodies

Constructed Ag water bodies are man-made facilities, lined or unlined, which have been specifically built for the purpose of conveying Ag drainage or supply water. Constructed channels may not fully support beneficial uses normally associated with perennial streams due to low and intermittent flow, lack of appropriate habitat, and water quality limitations. There are two categories for constructed Ag water bodies- C1 and C2. C1 represents constructed Ag drains and C2 represents constructed Ag supply water bodies.

5.3.2 Modified Water Bodies

Ag dominated modified water bodies are historically natural water bodies which have been modified for use as an Ag drain or supply canal, and are now operated as such. There are two categories for modified Ag water bodies- M1 and M2. M1 represents modified Ag drains and M2 represents modified Ag supply canals.

5.3.3 Natural Water Bodies

Ag dominated natural water bodies are those with greater than 50 percent of flow dependent on water used for or resulting from agricultural production for greater than 50 percent of the irrigation season and for which the following apply: have not been significantly modified (except by dams or other diversions); have or could have a natural riparian zone; generally follow in a natural course; and have or could have in-stream characteristics suitable to allow aquatic life to thrive (e.g., appropriate substrate, pools and riffles, etc.). There are two categories for natural Ag water bodies- B1 and B2. B1 represents natural Ag drains and B2 represents natural Ag supply water bodies.

5.3.4 Year-round Closed Controlled Recirculating System

Year-round Closed Controlled Recirculating Systems are designed to deliver and recirculate irrigation water and agricultural return water in a system of modified and/or constructed conveyance facilities under a single or coordinated management system that may or may not contain multiple individual farms that retains all waters within the management area all year long. Examples include tail water recovery and irrigation systems managed to maximize water use, energy savings and/or chemical management while protecting downstream beneficial uses.

5.3.5 Seasonally Closed Controlled Recirculating System

Seasonally Closed Controlled Recirculating Systems are designed to deliver irrigation water and retain seasonal Ag return flows through recirculation in natural, modified or constructed conveyance facilities through an area under single or coordinated management control which may or may not contain multiple individual farms. Examples include tail water recovery and

irrigation systems managed to maximize water use, energy savings and/or chemical management while protecting downstream beneficial uses.

6 CASE STUDIES (FOR ALTERNATIVES 2 & 3)

Once the water body categorization framework was developed using Flowchart 1, the next step in the process was to test whether it could be utilized to determine appropriate MUN use designation and the level of protection using archetype or case studies. The first case study in the Sacramento River Basin determined that the use of the framework would be an appropriate approach for one basin (Alternative 3), while testing the same approach in other basins in the Central Valley determined the viability of a region-wide framework (Alternative 2). A description of the case studies and findings are described in this section.

6.1 SACRAMENTO RIVER BASIN CASE STUDY

6.1.1 MUN POTW Amendment Overview

As mentioned in Section 1.1.2, staff collaborated with CV-SALTS and a stakeholder group in the development of a Basin Plan Amendment to remove the MUN beneficial use in twelve surface water bodies in the Sacramento River Basin based on Exception 2b in the Sources of Drinking Water Policy. These water bodies were determined to be constructed and/or modified to convey Ag drainage using the categorization process described below. Detailed information regarding the amendment can also be found in the Sacramento MUN Evaluation Staff Report (Central Valley Water Board, 2015a). The amendment was adopted by the Central Valley Water Board on April 16, 2015 (R5-2015-0022) and followed by the approval of State Water Board, OAL and USEPA by April 21, 2016.

6.1.2 Development of Water Body Categorization (WBC) Reports

In order to provide a consistent characterization of the twelve Sacramento River Basin water bodies, standardized WBC reports were utilized for each area, modeled from the district reports used by Central Valley Water Board staff in the 1990s to categorize Ag dominated water bodies for the ISWP. With the help of the WBC Flowchart, a WBC report was completed by each of four Sacramento POTWs (Biggs, Colusa, Live Oak and Willows) in partnership with Central Valley Water Board staff and the agencies primarily responsible for managing/maintaining the water bodies in question. These reports documented the characteristics of the twelve water bodies that were evaluated as part of the amendment and successfully applied the categorization framework developed in Flowchart 1. The first section of each report contains detailed information on each water body, such as name, length, flow, sources of water and construction history. Subsequent sections provide information on any MUN use within or downstream of the water bodies, as well as existing water quality issues and monitoring programs in the area.

6.1.3 Water Body Categorization Reports – Findings

The twelve water bodies named in the amendment were: Ag Drain C (Logan Creek), Cherokee Canal, East Interceptor Canal, Lateral 1, Lateral 2, Lateral K, Main Drainage Canal (C Main Drain), New Ditch (2011), Powell Slough, unnamed tributary, Wadsworth Canal, and Western Intercepting Canal. The four WBC reports found that ten of these twelve water bodies are categorized as C1 water bodies (constructed, conveying Ag drainage/combo) and two are categorized as M1 water bodies (modified, conveying Ag drainage/combo) (City of Biggs, 2014; City of Colusa, 2014; City of Live Oak, 2014; City of Willows, 2014). All twelve of the water bodies contribute discharges leading eventually to either the Colusa Basin Drain on the west side of the Sacramento River Basin or the Sutter Bypass on the east side. In addition to Ag

drainage, these ditches may at times contain other types of water like treated municipal wastewater discharges, urban and storm runoff, groundwater seepage and/or wetlands drainage. Flow patterns in these twelve water bodies are dependent on local Ag operations and can vary greatly throughout the year. These ditches would likely be dry for extended periods during the year without surrounding irrigation practices.

Site surveys, interviews and water rights reviews found that MUN use has not occurred in the past, is not occurring presently, and is not expected to occur in the foreseeable future in the twelve constructed and/or modified water bodies in the Sacramento River Basin. Urban and rural residents in the area rely primarily on groundwater for their drinking water supply (State Water Board, 2017). All diversions and water rights within the twelve water bodies are for irrigation purposes. The first drinking water diversion is located approximately 27 miles downstream in the Sacramento River near the City of Sacramento. Water quality monitoring was conducted to evaluate conditions and a review of existing monitoring programs was developed to determine potential to evaluate downstream beneficial uses protection.

6.1.4 Outcome of Sacramento Case Study Basin Plan Amendment Project

6.1.4.1 Adoption of Basin Plan Amendments

On April 16, 2015, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) adopted Resolution R5-2015-0022 amending the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins to remove the MUN beneficial use in twelve constructed and/or modified water bodies in the Sacramento River Basin. On August 18, 2015, the State Water Board adopted Resolution 2015-0055 for the amendment and it was approved later in 2015 by the OAL. Final approval was received from USEPA on April 21, 2016.

6.1.4.2 Development of a WBC Report Template for the Region-wide Project

This case study demonstrated that it was possible to utilize a water body categorization flow chart along with a standardized report to successfully characterize Ag dominated water bodies in the Sacramento River Basin and evaluate their MUN beneficial use designations. As such, an important outcome of this case study was the development of a WBC report template, based on the four Sacramento POTW categorization reports, that serves as the foundation for future evaluations. The WBC report template can be found in Appendix A and is designed to be used in conjunction with the WBC Flowchart to aid in the characterizing of Ag dominated water bodies. The report relies on the applicant for the initial categorizations of Ag dominated water bodies. More information on the proposed use of this template is discussed in Section 10, Program of Implementation.

6.2 San Joaquin River Basin Case Study

As the previous section describes, the water body categorization process was successfully applied in the Sacramento River Basin case study. However, the question remained as to whether or not it would work throughout the Central Valley region. An additional case study to test the process was identified in the San Joaquin River Basin. Located on the west side of the San Joaquin River is the San Luis Canal Company (SLCC), and the next sections describe how this district served as a case study for the San Joaquin River Basin.

6.2.1 San Luis Canal Company Overview

Located between the cities of Los Banos and Dos Palos in Merced County, SLCC services approximately 45,000 acres of productive farmland. The SLCC was established in 1913 as a private mutual water company and supports over 300 landowners. SLCC is a member of the Westside San Joaquin River Watershed Coalition (Westside Coalition) that is covered by the Central Valley Irrigated Lands Regulatory Program (ILRP). Agricultural production in the area consists of a variety of row crops including alfalfa, cotton, tomatoes, and corn. Agricultural discharges from the district enter Salt Slough upstream of the San Joaquin River. As the case study for the San Joaquin River Basin, SLCC worked with Central Valley Water Board staff to complete a water body categorization report using the report template that was developed as a result of the Sacramento River Basin case study (Appendix A). The following section summarizes findings of the water bodies described in the report (San Luis Canal Company, 2016).

6.2.2 Water Body Categorization Report Findings

SLCC identified 232 water bodies within its district boundaries. These water bodies were categorized using the WBC Flowchart as constructed and/or modified to convey Ag drainage (C1 and M1 water bodies). One of the water bodies, Salt Slough, is already listed in the Basin Plan and has no MUN beneficial use designation. Therefore, no further consideration was given to evaluating its beneficial uses for this project.

Appendix B provides a summary table of basic characteristics for each of the SLCC water bodies, including name, length, water body type (constructed or modified), construction type, year of construction, purpose of construction, water types (Ag return flows, treated wastewater, wetlands discharge, etc.) and flow information. The district receives a blend of supply, tail, and tile water from upstream districts such as Poso Canal Company and Central California Irrigation District. The water bodies may also contain groundwater especially during critically dry years. Flow patterns vary greatly during the irrigation season months of February to October.

After completion of the WBC report, Central Valley Water Board staff reviewed construction records and other reference material and surveyed over 10% of the water bodies in SLCC, including Poso Slough, the only water body categorized as a modified natural water body. Available documentation and site surveys indicated that the categorizations conducted by SLCC staff utilizing Flowchart were accurate. Site surveys, interviews and water rights reviews also indicated that the MUN use has not occurred in the past, is not occurring presently, and is not expected to occur in the foreseeable future in the 231 identified constructed and/or modified water bodies in the San Joaquin River Basin. Urban and rural residents rely primarily on ground water and alternative sources of surface water for their drinking water supply (State Water Board, 2017). The first municipal drinking water diversion is located approximately 95 miles downstream in the San Joaquin River near the City of Stockton. There are also nine water rights permits, not all in active use, for domestic water diversion located in close proximity of the City of Stockton intake, upstream in the San Joaquin River.

6.2.3 Evaluation of Water Quality in the San Joaquin River Basin Study Area

An evaluation of the water quality within SLCC and downstream (to the Municipal and Domestic intakes near the city of Stockton) of the San Joaquin River basin was conducted based on past and present water quality monitoring and/or reports. A matrix of constituents of concern and water quality monitoring activities addressing those constituents (downstream of the SLCC until

the MUN diversion) was also developed to determine whether impacts to beneficial uses could be detected. Specific details of the matrix can be found in Appendix C. The matrix was developed based on the comprehensive monitoring guide for the lower San Joaquin River Basin (Appendix D).

Findings of water quality concerns were summarized in the Staff Evaluation of SLCC Water Body Characterization Report (Appendix E) as follows:

- In the most recent Westside Coalition ILRP semi-annual report, field and general chemistry constituents such as electrical conductivity (EC), total dissolved solids (TDS), E. coli, dissolved oxygen, and boron were found at concentrations that exceeded the recommended WQOs in Salt Slough. Salt Slough also had exceedances in pesticides such as chlorpyrifos, DDE, DDT, dimethoate, and diuron.

- The California 2010 303(d) Integrated report lists portions of the Lower San Joaquin River for boron, chlorpyrifos, DDE, DDT, diazinon, diuron, EC, group A pesticides, mercury, selenium, temperature, toxaphene, unknown toxicity, and alpha-BHC/alpha-HCH. Many of these constituents are already being addressed with a Total Maximum Daily Load (TMDL) control program.

- A one-day synoptic evaluation of drinking water constituents of concern in the Lower San Joaquin River basin, conducted by Central Valley Water Board staff in June 2014, found fifteen constituents with elevated concentrations at one or more sites: pH, specific conductance (SC), turbidity, E. coli, boron, chloride, perchlorate, sodium, sulfate, TDS, total aluminum, total iron, total manganese, trihalomethanes, and bis (2-ethylhexyl) phthalate.

- The 2013/2014 San Joaquin River Watershed report that is a part of the California State Water Project Watershed Sanitary Survey found one or more exceedances of WQOs in EC, TDS, total nitrogen, turbidity, E. coli, and arsenic during a 2008-2013 sampling period. Concentrations of constituents generally decreased from upstream to downstream on the San Joaquin River with highest concentrations found in tributary water bodies containing agricultural drainage. No further actions were recommended due to current extensive monitoring efforts by Municipal Water Quality Investigations (MWQI).

The matrix summarized monitoring activities that are addressing the water quality concerns discussed. About 15 monitoring programs are conducting water quality monitoring between SLCC and to the first downstream MUN intake at the City of Stockton. More than half of those 15 monitoring programs are Water Board programs. Constituents being monitored include field, general chemistry, organic carbon, bacteria/pathogen, metals, organics, minerals, nutrients, pesticides/legacy chemicals and toxicity. Staff reviewed the information and determined that current water quality monitoring activities are sufficient to assure that all discharges meet relevant WQOs as required by the Central Valley Water Board. The specifics of the staff review process of monitoring and surveillance is found in Section 10.

6.2.4 Outcome of the San Joaquin River Basin Case Study

6.2.4.1 Results of Application of the Evaluation Process in the San Joaquin River Basin

The application of the WBC Flowchart and the WBC report template in the SLCC case study confirmed their suitability for use in a standardized process to evaluate MUN in Ag dominated surface water bodies across Central Valley basins. The 231 water bodies were categorized as C1 or M1 water bodies and meet Exception 2b in the Sources of Drinking Water Policy since they have been constructed or modified to hold or convey agricultural drainage. The San Joaquin River Basin case study demonstrated suitability of a single region-wide MUN evaluation process.

6.2.4.2 Establish a Review and Verification Process and Listing Limitations

This San Joaquin River Basin case study also helped inform decisions regarding the type of review and verification process that would be needed to establish a standardized region-wide process, such as the need for staff to conduct site surveys to “ground truth” submitted information and the review of additional reports and monitoring information from other regulatory programs to ensure the protection of applicable beneficial use within and downstream of the water bodies.

In addition, the SLCC case study identified the need to establish a way of addressing the appropriate MUN designations of smaller constructed water bodies that may not be named and identified in the initial evaluation process or may be constructed after the evaluation process is completed. When SLCC submitted information to be included in the Central Valley’s 1992 ISWP report on Ag dominated water bodies, they identified 158 water bodies within their district. With current advanced geographic information system (GIS) technology, SLCC was able to map and name their water bodies down to a length of about 1/10th of a mile, which resulted in a current listing of 232 water bodies. This raised the question as to what level of detail in the water body reporting and listing step would be required for this MUN evaluation process. Stakeholders were concerned that not every district would have the same level of GIS capabilities as SLCC. In addition, the sheer volume of constructed water bodies that would need to be named, categorized and designated down to a 1/10th of mile seemed like a resource burden, especially since it is not uncommon for water bodies of this length to be filled in and/or re-routed within a district to maximize water management. To resolve this issue, staff worked with stakeholders to establish a reasonable size and method for designating smaller constructed water bodies, based on the connection they have to a listed constructed water body that has undergone the MUN evaluation process. To provide the appropriate MUN beneficial use designation for these unlisted constructed water bodies, the following rule, nicknamed the “distributary rule”, was established for water body listings:

Within any study areas that have completed the MUN Evaluation Process, any non-listed constructed (C1 or C2) water body that is less than one mile in length and/or serving less than 640 irrigated acres shall have their MUN beneficial use designation apply via the following rules:

- A non-listed C1 water body that provides or receives flow to or from an identified C1 water body shall be assigned the same MUN designation as the identified C1 water body

- A non-listed C2 water body that provides or receives flow to or from an identified C2 water body shall be assigned the same MUN designation as the identified C2 water body

This rule does not exclude applicants from identifying and listing smaller water bodies if they choose to during the evaluation process, such as in SLCC's case. This rule does not apply to modified and natural water body categories.

6.3 Case Example for Closed Controlled Recirculating Systems

The case studies in the Sacramento and San Joaquin River Basins were effective in testing the Water Body Categorization evaluation process for individual water bodies. However, one of the initial off-ramps in the flowchart is to the category of closed controlled recirculating system. As described in Section 5.3, there are two types of closed controlled recirculating systems that are under consideration as part of these Basin Plan Amendments: 1) Year-Round Closed Controlled Recirculating System and; 2) Seasonally Closed Controlled Recirculating System. The general consensus with stakeholders was that these systems should have special consideration but would require extra reporting requirements to more holistically understand the operation and management of the system. While there were no closed controlled recirculating systems specifically used in this project to propose MUN beneficial use designation, two different case examples were used to develop the information needed to develop standardized application processes for these water body category designations. The two scenarios are described below.

6.3.1 Tulare Lake Basin Case Example – Year-Round Closed Controlled Recirculating System

A portion of the Tulare Lake Basin is utilized as a case example for the Year-Round Closed Controlled Recirculating System. The Tulare Lake Basin itself is unique in that it naturally retains virtually all of the water within its boundary, only naturally discharging surface water in extreme wet years to the north via the San Joaquin River and having virtually no subsurface outflow. The four major tributary water bodies within the Tulare Lake Basin are the Kings River, Tule River, Kaweah River, and Kern River. All four water bodies are highly managed by hydromodifications, such as dams and pumping stations, to prevent flooding and to provide irrigation and municipal water supplies for the surrounding areas.

In wet years and to prevent surface waters from reaching and flooding farmland in the Tulare Lake Basin, diversion operations are undertaken. Flood releases from Isabella Dam into the Kern River are diverted into the Kern River Intertie, where flows then travel into the California Aqueduct and onwards to southern California. In the Kaweah River and Tule River, pumping facilities pump water into the Friant-Kern Canal where flows travel into the Kern River to the Kern River Intertie. From there the flows travel into the California Aqueduct and then onwards to southern California. In the Kings River channel, flow diversion is dependent of the Army Corps of Engineers flood control criteria, where the criteria dictate whether flows are diverted either into the North Fork Kings River towards the Delta, or into the South Fork Kings River into the Tulare Lake Basin.

The highly managed hydrology in the Tulare Lake Basin manages flood flows, in addition to providing water for varying beneficial uses. During times of extreme wet conditions, floodwaters will reach the valley floor of the Tulare Lake Basin through the Kern River channel. In such a case, there are internal flood control levees located throughout the ground plains of the Tulare Lake Basin to ensure as much farmland as possible is protected from floodwaters.

Representatives from a district located on a portion of the valley floor of the Tulare Lake Basin assisted the Central Valley Water Board staff to better understand the operation and management of the area and the characteristics of a year-round closed controlled system and how they may fit into the project.

6.3.2 Historical Rice Operations Case Example – Seasonally Closed Controlled Recirculating System

The management practice of water in California rice production has changed considerably since the 1970s and early 1980s. During those years and typically through the operation of water districts, water was maintained at a set depth through the season, but was allowed to slowly flow through fields. By the early 1990s, rice growers adopted closed systems to recirculate water within basins or constructed static water basins, in which water flowed into a single basin without an outflow. Water was held in basins for up to 30 days (May to early June) after a pesticide application (Eke, et al., 2002). The holding periods were the primary means of reducing pesticide residues and were required by the California Department of Pesticide Regulation to abide by the Water Quality Control Plan for the Sacramento and San Joaquin Basins.

California experienced a long-term drought during the 1980s and early 1990s, resulting in restrictions to tail-water outflow and the implementation of a no-spill policy, prohibiting the discharge of field water from bottom basins into waterways after June 30 or July 15 (1992 to 1994) in some rice growing areas. The no spill policy was discontinued in 1995, and other less restrictive modifications have been made since (Eke, et al., 2002). However, rice growers decreased dramatically and to a point completely eliminated closed systems in the production of rice. The change in management practice occurred due to the concern of how those systems would be regulated. However, with recent drought conditions in California, there is growing interest in establishing a regulatory framework for closed recirculating systems to conserve water and maximize water reuse. Representatives from the California rice industry assisted the Central Valley Water Board staff to better understand the operation and management of a seasonally closed controlled system and how they may fit into the project.

6.3.3 Outcome of the Closed Controlled Recirculating System Case Examples

6.3.3.1 Development of Closed Controlled Recirculating System Application Templates

The case examples described above served as the foundation for the development of standardized Closed Controlled Recirculating System applications. Staff was assisted by interested parties through the stakeholder process in developing the informational requirements presented in these applications. The applications for the two systems are similar in concept to the WBC report template, but require additional information due to the unique nature of the two systems. Seasonally Closed Controlled Recirculating Systems are required to submit both a Water Body Categorization Report and Seasonally Closed Application. General and unique information requirements in the closed controlled recirculating system applications are summarized below. More details of the application templates can be found in Appendix F and G.

General

- System qualification questions
- General information/background
- Overview of system
- Water use management
- Flood control/release notification and emergency measures
- Water quality
- Future activities

Year-round

- Map of system showing no natural outlet or drainage

Seasonal

- Map of system showing seasonal closure points
- Seasonal closure plan

7 BENEFICIAL USES (FOR ALTERNATIVES 2 &3)

This chapter discusses the potential changes to beneficial uses by utilizing a water body categorization framework. Both Alternatives 2 and 3 (Region-wide and Basin-by-Basin Water Body Categorization Frameworks, respectively) would impact the MUN beneficial use designation in Ag dominated surface water bodies in a similar manner by utilizing Exception 2b in the Sources of Drinking Water Policy to de-designate MUN in certain water body categories. Both alternatives also propose to establish a new, refined MUN beneficial use class called the Limited-MUN (LMUN) beneficial use. The LMUN beneficial use would address other types Ag dominated water bodies that do not clearly meet the exceptions in the Sources of Drinking Water Policy, but may provide limited potential as a source of MUN due to inherent characteristics. The first part of this section describes the development of the LMUN beneficial use and is followed by a discussion on assigning MUN beneficial use designations based on water body category. In addition, this chapter discusses the removal of the MUN use from the 231 constructed and/or modified Ag dominated water bodies in the SLCC case study area as part of these Basin Plan Amendments.

7.1 DEVELOPMENT OF THE LMUN BENEFICIAL USE

The concept for a refined limited MUN beneficial use was brought up during the 1995 AgWTF effort. The general consensus then was that it might be more appropriate to establish refined limited beneficial use categories for Ag dominated natural water bodies and constructed water bodies than it was to use the currently recognized beneficial uses. During the initial phases of this Basin Plan Amendment project, stakeholders agreed that limited beneficial uses may be appropriate in certain cases and decided to move forward with developing a refined limited MUN beneficial use.

The LMUN beneficial use was developed to address certain water body categories of Ag dominated water bodies that do not clearly meet the exceptions of the Sources of Drinking Water Policy. While these water bodies may not qualify for MUN de-designation, they do not currently serve as a municipal or domestic supply and may be limited as a MUN source in the future due water body characteristics such as intermittent flow, management to maintain agricultural use and/or constituent concentrations. The proposed options and staff recommendations for the LMUN definition are discussed in the following sections. The options for the associated WQOs for the LMUN use are discussed in more detail in Section 8.

7.1.1 Options for a LMUN Definition

Seven options for the LMUN beneficial use definition were suggested and then evaluated through the stakeholder process. The options are:

1. Non-potable uses of water for community, military, or individual water supply systems.

2. Uses of water that are part of Ag activities and support non-potable uses of water for community, military, and or individual water supply systems.

3. Uses of water for MUN in Ag dominated surface water bodies resulting from management activities and/or water treatment beyond conventional treatment.

Management activities may include but are not limited to wheeling water year-round, blending, prohibiting Ag drainage into water body and limiting maintenance activities. Treatment beyond conventional may include but not be limited to ion exchange and reverse osmosis.

4. Uses of water for MUN in Ag dominated surface water bodies where full use is limited by physical conditions such as intermittent flow conditions and/or elevated natural background constituent concentrations.

5. Uses of water for MUN in Ag dominated surface water bodies where the use is limited by water body characteristics such as intermittent flow, management to maintain intended Ag use and/or constituent concentrations in the water body.

6. Uses of water for MUN in Ag dominated surface water bodies where the use may be limited by water body characteristics and/or constituent concentrations in the water body resulting from Ag uses.

7. Uses of water for MUN in Ag dominated surface water bodies where the use is limited by water body characteristics such as intermittent flow, management practices to maintain Ag uses and/or constituent concentrations in the water body resulting from Ag uses.

7.1.2 Recommended LMUN Definition

The evaluation of these seven options was conducted over a series of project stakeholder meetings. While initially many stakeholders preferred the use of “non-potable” in the definition, it became evident that this term did not have an established definition. A similar argument was made with the use of “conventional” for describing the type treatment a limited water body would need, since water treatment practices can vary considerable across the region. As a result of these discussions, stakeholder generally agreed that the definition should focus more on the limiting characteristics of the water bodies where the LMUN use would apply, rather than the resulting water quality or need for a certain type of treatment for potable use. As such, Central Valley Water Board staff recommends Option 5 for the definition of LMUN:

Uses of water for municipal and domestic supply in Ag dominated water bodies where the use is limited by water body characteristics such as intermittent flow, management to maintain intended Ag use and/or constituent concentrations in the water body.

Similar options such as 4, 6, and 7 were highly considered by staff and stakeholders, but the wording resulted in the following concerns:

- Option 4: Ag operations may cause spikes in constituent concentrations. This option only includes background constituent concentrations.
- Option 6: Intermittent flow is a common occurrence in Ag water bodies and has direct impact on reliability of MUN supply. There is no mention of flow in this option.
- Option 7: Some natural background constituent concentrations can be elevated. This option only includes constituents resulting from Ag uses.

Option 5’s definition provides language that is broad enough to cover the wide variety of Ag dominated water bodies across the region that provide limited potential as a source of MUN due to inherent characteristics.

7.2 ASSIGNING MUN BENEFICIAL USE DESIGNATIONS BASED ON WATER BODY CATEGORY

7.2.1 Review of Potential Options

The two water body categorization project alternatives propose assigning MUN designations based on the water body category. Five assigned MUN beneficial use designation schemes using the categories identified in the preferred WBC Flowchart were evaluated, as follows:

1. No change to the current MUN designation in any water body category
2. De-designate MUN only in C1/M1 (constructed/modified Ag drains) water bodies.
3. De-designate MUN in C1/M1 and Closed Controlled Recirculating systems.
4. De-designate MUN in C1/M1 and Closed Controlled Recirculating systems. Apply LMUN to C2/M2 (constructed/modified Ag supply) water bodies.
5. De-designate MUN in C1/M1 and approved Recirculating systems. Apply LMUN to all other Ag dominated water bodies (including B1/B2 natural Ag dominated water bodies).

The options were evaluated with the following criteria:

1. Maintain consistency with federal and state water quality laws and policies as applicable (e.g. Sources of Drinking Water Policy, Anti-degradation Policy)
2. Provide the appropriate protection of MUN in Ag dominated surface water bodies with consideration given to the current and potential future use of drinking water.
3. Assure compliance with all relevant water quality objectives downstream.
4. Allow constructed Ag dominated water bodies to be utilized for their intended design and purpose
5. Provide a solution for dischargers faced with implementing treatment measures to meet MUN use-based water quality criteria/objectives when no such use exists in their Ag dominated surface water bodies.
6. Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards.

A full description of each of the beneficial use designation schemes can be found in Appendix H, Table H-4 along with a full evaluation and results.

7.2.2 Preferred MUN Beneficial Use Designation Scheme

Option 5 above is preferred scheme for the assigned MUN beneficial use designations by water body category because it most closely met all the evaluation criteria. Option 5 de-designates the MUN beneficial use in all the categories of water bodies that have been constructed or modified for the primary purpose of conveying or holding agricultural drainage and expands the use of the LMUN beneficial use designation to natural (B1, B2) Ag dominated water bodies with limiting characteristics. No basin-specific variations were identified through the evaluation process, so

this preferred option applies to both project Alternatives 2 and 3. Table 7-1 summarizes Option 5's proposed assigned MUN beneficial use designations by water body category:

Figure 7-1 Proposed MUN Beneficial Use Designations by water body category

Water Body Category	MUN Beneficial Use
C1 (Constructed Ag Drainage/Combo)	No MUN
M1 (Modified Ag Drainage/Combo)	No MUN
C2 (Constructed Ag Supply)	LIMITED-MUN
M2 (Modified Ag Supply)	LIMITED-MUN
B1 (Natural Ag Drainage/Combo)	LIMITED-MUN
B2 (Natural Ag Supply)	LIMITED-MUN
Closed Controlled Recirculating Systems	
Year-Round Closed	No MUN
Seasonally Closed	No MUN during closure period

7.3 Removal of the MUN beneficial use From 231 Water Bodies in San Luis Canal Company Study Area

As described in Section 3.2.3, the *Sources of Drinking Water Policy* authorizes the Central Valley Water Board to de-designate the MUN beneficial use from Ag dominated water bodies that are designed or modified for the primary purpose of conveying or holding Ag drainage. As part of the SLCC case study, 231 water bodies were identified as C1 or M1 water bodies (constructed or modified to convey Ag drainage). Based on the preferred alternative for MUN designation presented in Table 7-1, all 231 water bodies are eligible for MUN de-designation consistent with the *Sources of Drinking Water Policy's* Exception 2b.

As summarized in Section 6.2.3, the MUN use in these water bodies has not occurred in the past, is not occurring presently, and is not expected to occur in the foreseeable future. MUN de-designation means that the MUN-related WQOs would no longer apply to these 231 bodies. No changes would be made to the WQOs for other applicable beneficial uses.

Ensuring that sufficient monitoring and surveillance will be conducted is an integral piece of using Exception 2b because the exception requires monitoring of discharge to *"assure compliance with all relevant water quality objectives as required by the Regional Board"*. Section 11.2 discusses the monitoring options for this proposed MUN evaluation process and how these 231 water bodies meet the requirements of Exception 2b.

Information required for the district submitted report (detailed information and photographs of these water bodies and their hydrologic modifications are available in the 2016 San Luis Conal

Company's Water Body Categorization Report (San Luis Canal Company, 2016)) provides broad information on the characteristics of each water body under consideration. This information as well as further review of the surrounding area and water management conducted by staff as part of the validation process provides sufficient information to satisfy considerations pursuant to Water Code section 13241 when establishing WQOs such as past, present, and probable future beneficial uses of water, environmental characteristics, water quality conditions that could reasonable be achieved, and economic considerations. This information also informs use and value determinations should the water body be considered a water of the US (see Section 12.2.1 of this Staff Report). The submitted report is attached as Appendix E, incorporated herein as part of this Staff report.

Irrespective of whether any of the SLCC waterbodies are considered "waters of the US," this Staff Report provides necessary information to document the Board's consideration of the use and value of all the SLCC water bodies where the MUN beneficial use may be de-designated or where the MUN beneficial use designation may be refined to an LMUN beneficial use designation pursuant to the proposed Amendments.

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8 WATER QUALITY OBJECTIVES (LMUN)

Alternatives 2 and 3 (Region-wide and Basin-by-Basin Water Body Categorization Frameworks, respectively) propose the use of a LMUN beneficial use and the previous section presented a preferred LMUN definition that could apply region-wide. This section examines the development of the WQOs associated with the LMUN beneficial use, focusing on the evaluation of the LMUN WQO options using established selection criteria and regulatory mandates to substantiate the selection of the preferred WQO. See Chapter 3 for more information on the federal and state laws and policies pertinent to the establishment of WQOs.

8.1 CONSIDERATIONS FOR ESTABLISHING A LMUN WATER QUALITY OBJECTIVE

The preferred LMUN beneficial use definition, as described in Section 7, is "*uses of water for municipal and domestic supply in Ag dominated water bodies where the use is limited by water body characteristics such as intermittent flow, management to maintain intended Ag use and/or constituent concentrations in the water body*". In evaluating potential options for a LMUN WQO, staff considered both the selection criteria developed through the stakeholder process and the Water Code section 13241 Factors, as described in the following sections.

8.1.1 Selection Criteria for LMUN WQO

To appropriately protect the LMUN beneficial use, the following list of selection criteria for evaluating LMUN WQOs was developed:

1. Maintain consistency with federal and state water quality laws and policies as applicable (e.g. *Sources of Drinking Policy, Antidegradation Policy*)
2. Provide the appropriate protection of MUN in Ag dominated surface water body with consideration given to the current and potential future uses
3. Allow constructed Ag dominated water bodies to be utilized for their intended design and purpose.
4. Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards.
5. Provide flexibility to address naturally elevated background constituents.

In addition, there was agreement that no matter which alternative WQO was selected to protect the water body designated as supporting the LMUN beneficial use, implementation components would need to ensure that downstream beneficial uses would remain protected.

8.1.2 Water Code section 13241 Factors

Water Code section 13241 requires the Central Valley Water Board to consider the following factors in establishing WQOs: (a) past, present, and probable future beneficial uses of water, (b) environmental characteristics of hydrographic unit, including quality of water available to it, (c) water quality conditions reasonably achievable through coordinated control of all factors that affect water quality in the area, (d) economic considerations, (e) the need for developing housing within the region, and (f) the need to develop and use recycled water. After considering these, and possibly other factors, the Central Valley Water Board may establish appropriate water quality criteria as WQOs. The selection criteria developed in the stakeholder process

overlap many of these factors, especially in terms of establishing a WQO that is reasonably protective of the LMUN use and achievable.

8.2 Options for a LMUN Water Quality Objective

As described in Appendix I, thirteen WQO options, both narrative and numeric, were considered and subsequently rated using the selection criteria above for the LMUN beneficial use. For the narrative WQOs, the lower scoring options have terms such as “non-potable”, “natural background concentrations”, or “accumulation”, which are all difficult to determine or define. The higher scoring options emphasize compliance with the State Antidegradation Policy, which limits the degree to which the Board would authorize degradation of high-quality waters.

For the proposed numeric WQOs, all of the options rely on the use of MCLs and scored low with selection criteria 4-6 (intended use, efficient (reasonable) use of resources and background levels). MCLs were developed to protect users at the tap and many stakeholders expressed concern that applying them to LMUN water bodies would be overly restrictive for agricultural practices and duplicative of the WQOs established for the MUN beneficial use. In addition, a numeric objective may be too restrictive in dealing with the variety of water body categories proposed for the LMUN beneficial use when combined with the diversity of natural background concentrations and operational practices throughout the region.

The general consensus from stakeholders and staff was that a narrative WQO provided more flexibility to address the different types of water body categories proposed for LMUN designation. The top scoring narrative options (#7-10) are as follows:

7. *Water quality will be protected as specified in the state antidegradation policy (SWRCB Resolution No. 68-16).*
8. *Water quality and downstream beneficial uses will be protected consistent with the state antidegradation policy.*
9. *Water quality will be protected consistent with state and federal antidegradation policy and will not create a trend of degradation that impacts any downstream beneficial uses.*
10. *Water quality of surface waters designated for use as LMUN shall be maintained to protect the other designated beneficial uses of water body, and shall not cause degradation of water quality in downstream water bodies that impairs their beneficial uses or is consistent with the state’s antidegradation policy.*

8.3 Selection of the Preferred LMUN WQO

While options 7-10 are quite similar and scored equally for their ability to meet the selection criteria, Option 8 was selected for the following reasons:

- Option 8 does not hard code the state’s Antidegradation Policy resolution number into the objective, which becomes an issue if the policy is updated and given a new resolution number in the future.
- Option 8 also does not include the federal Antidegradation Policy, which would not be applicable to LMUN water bodies that are not under federal jurisdiction.
- Lastly Option 8 is clear and concise, without extraneous language

The other options were not selected for the following reasons:

- Option 7 includes the state’s Antidegradation Policy resolution number.

- Option 9 includes the federal Antidegradation Policy.
- Option 9 uses the word “trend”, which is not clearly defined
- Option 10 uses duplicative language.

No basin-specific variations for a LMUN WQO were identified through the evaluation process.

8.3.1 Evaluation of Water Code section 13241 Factors

As stated in 8.1.2, the Board must consider Water Code section 13241 factors when establishing WQOs in the Basin Plans. The following sections discuss the factors as they relate to the preferred LMUN WQO.

8.3.1.1 Beneficial Uses

Staff considered the needs of the past, present, and probable future beneficial uses of water in the development of the LMUN beneficial use and the associated WQO. The process that would result in the designation of a waterbody as supporting the LMUN beneficial use requires the Board to consider whether the waterbody currently or historically supported the MUN beneficial use in practice. Designation of the LMUN beneficial use would only occur after a reasonable demonstration has been made that the waterbody to be so designated does not currently support the MUN beneficial use.

In addition, by referencing the *State Antidegradation Policy*, the preferred WQO ensures that the water body will be protected from future degradation consistent with that policy. As such, water bodies designated with LMUN could serve as a limited source of MUN in the future.

8.3.1.2 Environmental Characteristics of the Hydrographic Unit

Section 2 describes the physical setting of the Sacramento and San Joaquin River Basins and the Tulare Lake Basin. The environmental characteristics of these basins have been considered in the development of the LMUN WQO. In particular, the LMUN beneficial use and its associated WQO have been developed in consideration of the hydrologic characteristics of the Ag dominated water bodies that occur throughout the Sacramento and San Joaquin River Basins and the Tulare Lake Basin. The proposed narrative water quality objective provides flexibility to address the varied characteristics of water bodies across the region that would be designated with the LMUN beneficial use.

8.3.1.3 Water Quality Conditions That Could Reasonably Be Achieved

By utilizing a narrative WQO that references the *State Antidegradation Policy* instead of specific numeric WQOs, LMUN water bodies will be protected from future degradation consistent with that policy. Essentially, the *State Antidegradation Policy*, in this context, emphasizes the preservation of existing water quality in high-quality waters to the extent that is feasible to do so, but authorizes degradation where such degradation does not impact beneficial uses (in this case, those uses would be the uses downstream of the de-designated waterbody). The reference to the *State Antidegradation Policy* therefore is consistent with preserving the water quality conditions that could reasonably be achieved in the Ag dominated waters designated as supporting the LMUN use.

8.3.1.4 Economic Consideration

Section 13.2 provides a detailed Economic Analysis of the overall preferred project alternative versus the No Action Alternative. A MUN evaluation process that includes a LMUN beneficial use designation (along with the preferred WQO presented in this section) provides an economic

advantage over the No Action Alternative because it allows Ag dominated water bodies to be utilized for their intended design and purpose and does not require dischargers to meet tap water standards in water bodies that do not currently serve as a municipal or domestic supply.

8.3.1.5 Need for Housing

The preferred LMUN WQO would not restrict the development of housing.

8.3.1.6 Need to Develop and Use Recycled Water

The preferred LMUN WQO would not restrict the development or use of recycled water. In fact, as compared to numeric WQOs, this proposed narrative LMUN WQO provides the most flexibility to allow for reuse and conservation while reasonably protecting beneficial uses.

In conclusion, staff recommends the following water quality objective for the protection of the LMUN use:

Water quality and downstream beneficial uses will be protected consistent with the state antidegradation policy.

9 SELECTION OF A PREFERRED ALTERNATIVE

During the initial evaluation of project alternatives presented in Section 4.8, Alternatives 2 and 3 (Region-wide and Basin-by-Basin Water Body Categorization Frameworks, respectively) seemed better able to meet the project selection criteria as compared to Alternative 1 (No Action) or Alternative 4 (SSOs). A water body categorization framework was successfully used in the 1990s with the ISWP and more recently in the adopted Basin Plan Amendments removing the MUN beneficial use from 12 constructed and/or modified water bodies in the Sacramento River Basin. However, stakeholders were not certain that a single water body categorization process could be applied to the whole region due to inherent diversity, so, prior to conducting a final evaluation of the alternatives, various components of the water body categorization framework were further examined (see Sections 5-8) to identify any basin-specific requirements. The case studies presented in Section 6 demonstrate that a single categorization flow chart can be applied to different areas of the region. In addition, no basin-specific requirements were identified in Sections 7 and 8 with the development of the LMUN beneficial use definition and its associated WQO, and the assignment of MUN beneficial use designations by water body category. With these findings in mind, stakeholders assisted staff in conducting a final evaluation of project alternatives to select the Preferred Alternative. Below is a summary of this evaluation and the Preferred Alternative. Appendix H provides detailed description, ratings of the level of consistency with selection criteria and notes on each of the project alternatives.

9.1 EVALUATION OF PROJECT ALTERNATIVES

Selection criteria to evaluate the project alternatives were provided in Section 4.7. A rating of high, medium, or low was given for the level of consistency each project alternative had to meet the selection criteria developed to evaluate the project alternatives. Since no basin-specific requirements were identified in the components of a water body categorization framework, the highest scoring alternative is Alternative 2, a Region-wide Water Body Categorization Framework. This alternative scored of “high” for all of the selection criteria. The other alternatives did not score as well for a number of reasons, discussed below.

Implementation of Alternative 1 (No Action) would not satisfy the selection criteria, because it would not be consistent with the intent of the Sources of Drinking Water Policy Exception 2b for water bodies that are constructed or modified to hold or convey Ag drainage. Implementation of Alternative 1 would also likely result in costly facility upgrades for Ag dischargers in the future to ensure that current MUN WQOs are met.

Adoption of Alternative 3 would be consistent with the intent of the Sources of Drinking Water Policy Exception 2b for water bodies that are constructed or modified to hold or convey Ag drainage. It would also rely on a Limited-MUN beneficial use for other types of Ag dominated surface water bodies. However, it would establish different MUN evaluation requirements for each basin, which the findings in this report do not support. As such, this alternative would create a water body categorization framework that is overly complex and a less efficient use of resources.

Adoption of Alternative 4 (SSOs) would not satisfy the selection criteria because it also would not be consistent with the intent of the Sources of Drinking Water Policy Exception 2b for water bodies that are constructed or modified to hold or convey Ag drainage. Developing SSOs also requires extensive scientific review and would likely require water body-by-water body Basin Plan Amendment efforts to address constituents of concern. Unlike Alternatives 2 and 3, SSOs

do not establish the appropriate MUN beneficial use for Ag dominated surface water bodies. It is important to note that selection of Alternative 2 for establishing a region-wide MUN evaluation process does not prevent instituting SSOs in specific Ag dominated surface water bodies in the future through a different basin plan amendment project.

9.2 PREFERRED PROJECT ALTERNATIVE

Central Valley Water Board staff recommends Alternative 2, which is a Region-wide Water Body Categorization Framework. This alternative proposes to establish a streamlined and transparent process to evaluate the MUN beneficial use in Ag dominated water bodies by:

- Using a standardized water body categorization flowchart to categorize different Ag dominated water body categories and standardized report/application templates to support the category selections
- Designating the appropriate MUN beneficial use in Ag dominated surface water bodies by removing the MUN use from categories of water bodies that meet Exception 2b in the Sources of Drinking Water Policy and assigning the refined LMUN beneficial use to water body categories that do not meet the exception but have inherent characteristics that limit the potential for use as a MUN supply.
- Additionally, the monitoring requirements for de-designated water bodies utilizing Exception 2b and the implementation requirements for water bodies designated with the LMUN beneficial use provide assurance that all relevant water quality objectives will be met in and downstream of the water bodies.

Alternative 2 was rated the highest in our evaluation of selection criteria because the alternative is consistent with state and federal water quality laws and policies and provides the appropriate MUN protection to Ag dominated water bodies. This alternative also considers the operational and maintenance activities needed to utilize constructed facilities for their intended purposes and provides flexibility to dischargers faced with implementing new treatment processes to meet MUN-related discharge limitations in their permits when no such use currently exists or is anticipated to exist. Lastly, this alternative offers the most efficient use of resources because it establishes a standardized process that can be applied across the entire region. The next section proposes specific implementation requirements for this standardized water body categorization framework.

10 PROGRAM OF IMPLEMENTATION

This section describes the proposed program of implementation for the Preferred Alternative for a Region-wide Water Body Categorization framework to identify water body categorization where MUN can be de-designated and a new LMUN use may apply as summarized in Section 9.2. The Water Code requires that a Basin Plan Amendment project include an implementation program to achieve WQOs. More details about the Water Code regulations can be found in Section 3. This section includes a review of potential implementation options and addresses all elements of the preferred implementation program, with the exception of the monitoring and surveillance program, which is described in Section 11.

10.1 REVIEW OF IMPLEMENTATION OPTIONS

Two implementation options for a water body categorization framework were proposed as viable approaches to ensuring a consistent process for evaluating the MUN beneficial use in Ag dominated surface water bodies across the region. The two options are: 1) Implement the process on an as needed basis or; 2) Implement the process on a time schedule. The options are discussed in more detail below, followed by staff's recommendation in Section 10.2.

10.1.1 "As Needed Basis"

For the "As Needed Basis" option, Ag dominated surface water bodies are evaluated for the MUN beneficial use only as needed or desired by an interested party, such as a local water agency, irrigation district or the Central Valley Water Board. The Applicant submitting the evaluation, with the exception of the Central Valley Water Board, must either manage/control the water bodies under consideration or jointly submit the evaluation with such a party. Ag dominated surface water bodies that do not go through the MUN evaluation process would have no change to their current MUN beneficial use designation.

An important element of this "As Needed" option is the creation and use of a Reference Document to list evaluated water bodies that have been approved under this Basin Plan Amendment process and their proposed water body categories and MUN designations until such time that the refinements are adopted into the appropriate Central Valley Water Quality Control Plan (Basin Plan). The Reference Document could then be utilized as the basis to set interim water quality permit limits for a finite period. During this interim period, the Triennial Review process or a similar public Board approval process would be used to incorporate approved water bodies and associated beneficial uses listed in the Reference Document into the Basin Plan(s). This option provides flexibility to water districts or other stakeholders to decide whether or not they want to evaluate the MUN beneficial use designation in their area. The use of the Reference Document enables the Central Valley Water Board to set interim permit limits that appropriately protect the MUN beneficial use while efficiently processing Basin Plan Amendments.

10.1.2 Time Schedule

For the "Time Schedule" option, a schedule with specific dates would be established to have all Ag dominated surface water bodies across the region categorized and accordingly designated with the appropriate MUN beneficial use designation. Approved water bodies would be adopted into the Basin Plans with their appropriate MUN beneficial use designation according to the requirements set forth in the Time Schedule. For example, different completion dates for the

evaluation could be set for each basin in the region. This option would provide a definitive timeline for completing the MUN evaluation of all Ag dominated surface water bodies throughout the Central Valley. Water bodies not evaluated or not meeting the requirements during this process would have no change to their current beneficial use designation unless evaluated in the future under a site-specific Basin Plan Amendment project.

10.1.3 Evaluation of Implementation Options and Recommendation

The following criteria were used to evaluate the implementation options:

1) Maintain consistency with federal and state water quality laws and policies as applicable (e.g. Sources of Drinking Water Policy, Antidegradation Policy).
2) Provide the appropriate protection of MUN in Ag dominated surface water bodies with consideration given to the current and potential future use of drinking water.
3) Assure compliance with all relevant water quality objectives downstream.
4) Allow constructed Ag dominated water bodies to be utilized for their intended design and purpose.
5) Provide a solution for dischargers faced with implementing treatment measures to meet MUN use-based water quality criteria/objectives when no such use exists in their Ag dominated surface water bodies.
6) Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards.

More details of the evaluation given to the two implementation options, including the scoring each received for the relevant selection criteria, is provided in Table D.5 in Appendix H. Both implementation options scored the same for all selection criteria except for # 5 ("Provide a solution to dischargers faced with implementing treatment measures to meet MUN use-based water quality criteria/objectives when no such use exists in their Ag dominated surface water bodies") and #6 (Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards). The "As Needed Basis" option has ratings of High for both selection criteria, whereas the "Time Schedule" option has ratings of Low and Med for selection criteria #5 and #6, respectively.

The "As Needed" option provides more flexibility to dischargers by allowing them to decide whether or not they need the MUN evaluation in their area and when to start the application process. The "As Needed Basis" also provides the flexibility of allowing a Reference Document to be used for setting interim permit limits for water bodies meeting the Basin Plan Amendment process requirements and a rolling review and adoption process that ensures new and/or changed water bodies can be addressed in the future.

In terms of selection criteria # 6 ("Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards"), both options will require significant resource and time commitments by staff and stakeholders to complete the necessary submittal, review and approval steps. The "As Needed Basis" option is less of an immediate time and resource commitment, but would require ongoing Central Valley Water Board support to the process. This option also allows prioritization of areas of concern by the dischargers under regulation. Conversely, adoption of the "Time Schedule" option would require a large upfront commitment of resources from Central Valley Water Board staff and the region's Ag dischargers and associated water agencies to ensure that over six thousand Ag dominated water bodies are evaluated in a timely manner. This option also does not account for potential changes in an agricultural operation system including the development of new ditches.

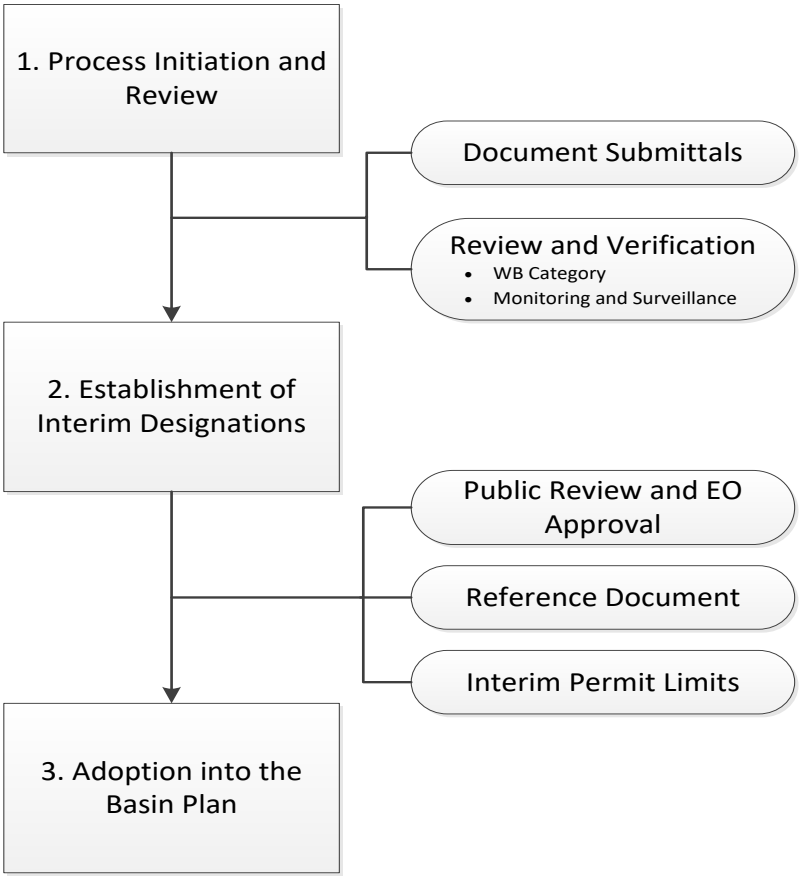
10.2 Proposed Implementation Program

10.2.1 Three Key Steps of the Implementation Program

The implementation program can be summarized in three main steps:

1) Process Initiation and Review
2) Establishment of Interim Designations
3) Adoption into the Basin Plan

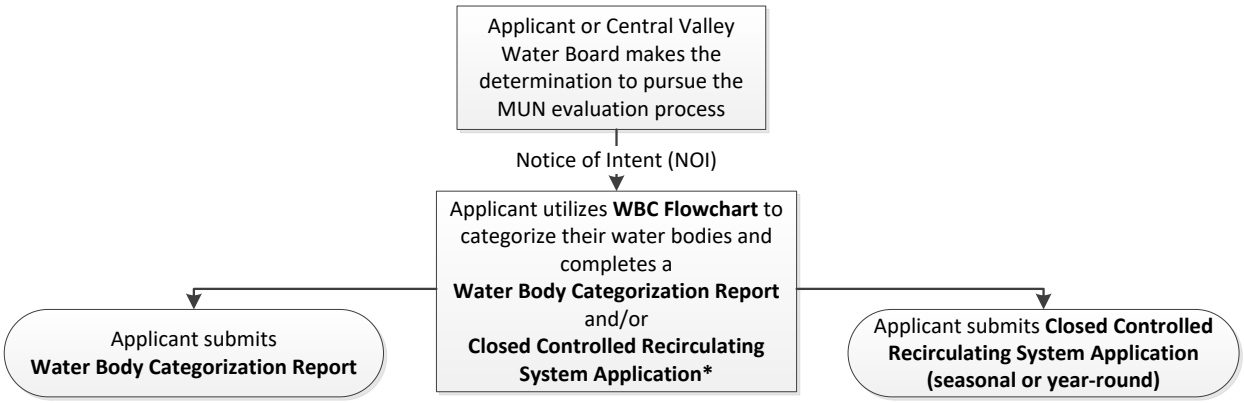
Figure 10-1 Simplified Schematic Overview of Region-wide MUN Evaluation



Each of the three steps is described in more detail in the following sections and then summarized in a schematic overview (Figure 10-2).

10.2.2 Step 1: Process Initiation and Review

10.2.2.1 Submittal of Report and/or Application



The MUN evaluation process begins when an applicant submits a Notice of Intent (NOI). The applicant must include the following items in a NOI:

- Applicant name and mailing address
- Managing/operating entity (if different from the applicant)
- Contact person (include phone and email)
- Total number of water body(ies) or approximate area under consideration
- Anticipated date of required documents submittal - must be within one year of NOI unless extension approved by the Executive Officer (EO).

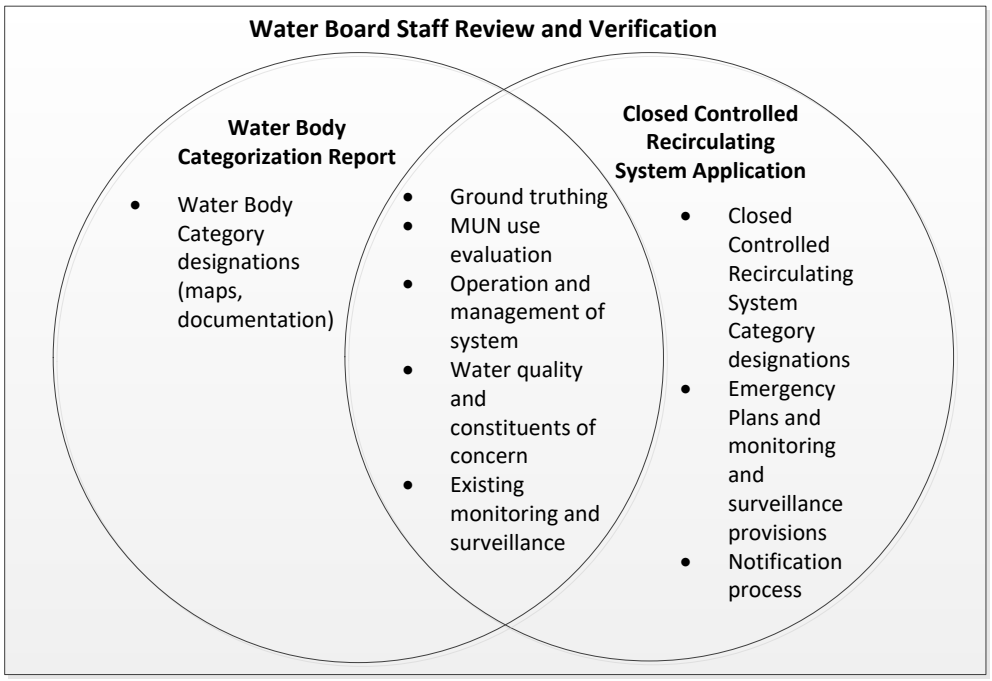
If the managing/operating entity is different from the applicant, the two entities must jointly apply for the NOI.

An email notification will be sent out to interested parties when the Central Valley Water Board receives an NOI. Staff will periodically update the Central Valley Water Board website and the EO report with submitted NOIs.

The Applicant will utilize the WBC Flowchart (Figure 5-1) to categorize their water bodies and complete either a WBC report (template is presented in Appendix A) and/or a Closed Controlled Recirculating System Application (templates are presented in Appendix F and G)[2]. Once the Applicant submits a report and/or application, Central Valley Water Board staff will start the review and verification process.

[2] There are two types of Closed Controlled Recirculating Systems: Seasonally Closed and Year-Round Closed. For Seasonally Closed Controlled Recirculating Systems, both the Water Body Categorization Report and the Closed Controlled Recirculating System Application are required for submittal. The Central Valley Water Board will have the discretion to ask for a full report for Closed Controlled Recirculating Systems depending on the size and complexity of the system.

10.2.2.2 Central Valley Water Board Staff Review and Verification



Once the applicable documents are submitted to the Central Valley Water Board, the subsequent staff review and verification process will consist of multiple key assessments as described in the steps below. An example of staff's review process for the SLCC case study is included as Appendix E—Staff review of SLCC report.

10.2.2.2.1 Water Body Categorization Report Review

1. Verification of Water Body Category Designations

    a. Review submitted documentation (including photos and construction records) that describe the purpose/operation/management of the water body and support the Applicant's water body category designations.

    b. Cross-check Applicant's water body category designations with information provided in the National Hydrography Dataset (NHD), reports submitted in 1992 as part of the ISWP (if applicable) and other publicly available information as needed.

    c. Ground-truth the area by conducting site surveys of a portion of the Applicant's water bodies. Central Valley Water Board staff will conduct a site visit to all water bodies categorized as natural or modified (B1, B2, M1, M2 water bodies). In addition, approximately 10% of constructed water bodies (C1, C2 water bodies) will be visited and verified as appropriately categorized. Additional water bodies may be visited if staff finds any discrepancies while conducting the reviews in steps 1.a and 1.b above.

   d. Confirm that all C1 and M1 (constructed and modified Ag drain/combo) water bodies are designed or modified for the primary purpose of conveying or holding agricultural drainage waters.

2. Verification of MUN diversions within and downstream of the area

   a. Verify the Applicant's identification of any diversions for municipal or domestic supply within and/or downstream of the receiving water bodies under consideration using publicly available information such as the State Water Resource Control Board's Electronic Water Rights Information Management System (eWRIMS) (State Water Board , 2014).

   b. Any Water Rights permits or filings for potential future surface water MUN diversion within or downstream of the water bodies identified in the report and prior to the first existing MUN diversion will be considered in evaluating the MUN beneficial use. *Note - any water body that is found, through this evaluation process, to be providing or wheeling municipal or domestic supply will not have its current MUN designation changed through this process.*

3. Identification of water quality constituents of concern.

   a. Highlight information on any identified water quality constituents of concern to MUN beneficial use identified by the Applicant in their report.

   b. Review relevant publicly available water quality information to identify any additional water quality constituents of concern within or downstream of the system. At a minimum, staff will review the California Integrated 303(d) and 305(b) Report. This task may also include reviewing documents such as the ILRP's Management Plans, NPDES self-monitoring reports, DDW's Watershed Sanitary Surveys and, as applicable, other outside data sources.

   c. Confirm any control programs in place (e.g. TMDLs, Management Plans) to address these constituents of concern.

4. Review of existing water quality monitoring in and downstream of the water bodies identified in the report.

   a. Review information on any water quality monitoring identified in the district's report.

   b. Evaluate additional water quality monitoring program information within and downstream of the district at a minimum to the first identified existing or petitioned future diversion for municipal or domestic supply using the Central Valley Water Board's comprehensive monitoring guides (Central Valley Water Board, 2017).

The comprehensive monitoring guides include detailed monitoring information (including site location, monitored constituents, frequency, etc.) for Central Valley Water Board's regulatory programs (e.g., DDW, NPDES, ILRP, SWAMP), as well as outside agencies and entities (e.g., California Department of Water Resources (DWR), U.S. Geological Survey (USGS), U.S. Bureau of Reclamation (USBR), San Francisco Estuary Institute (SFEI)). References are

maintained by Central Valley Water Board staff and will be updated and expanded every 3 to 5 years in conjunction with Basin Plan updates as available resources permit.

10.2.2.2.2 Closed Controlled Recirculating System Application Review

1. Verification of Closed Controlled Recirculating System designation

    a. Review submitted documentation describing the operation/management of the closed controlled recirculating system, including closure period and purpose for closure.

    b. Staff will conduct a site survey of the water bodies in the system, especially in areas with natural outlets, drainage, or seasonal closure points.

2. Verification of MUN diversions within and downstream of the system.

    a. Verify the Applicant's identification of any diversions for municipal or domestic supply within and/or downstream of the system using publicly available information like the State Water Board's eWRIMS (State Water Board , 2014) and/or site surveys.

    b. Any Water Rights permits or filings for potential future surface water MUN diversion within or downstream of the system and prior to the first MUN diversion will be considered in evaluating the MUN beneficial use. *Note – any closed controlled recirculating system that contains a water body that is providing or wheeling municipal or domestic supply will not have its application to remove MUN under the umbrella of a closed controlled recirculating system approved.*

3. Emergency Plans and Notification Process

    a. Due to the nature of closed controlled recirculating systems, water quality in the recirculating system may impact surface waters outside the system in the event of a flood or other emergency releases. Staff will review the Applicant's flood control/emergency plan. Staff will also review the monitoring activities and notification process that are in place if an emergency or scheduled release does occur. The plans will include, at a minimum, a list of water diverters downstream of the system who could be potentially impacted by an emergency or scheduled release.

4. Identification of water quality constituents of concern.

    a. Highlight information on any identified water quality constituents of concern identified by the Applicant in their application.

    b. Review relevant publicly available water quality information to identify any additional water quality constituents of concern within or downstream of the system. At a minimum, staff will review the California Integrated 303(d) and 305(b) Report. This task may also include reviewing documents such as the ILRP's Management Plans, NPDES self-monitoring reports, DDW's Watershed

Sanitary Surveys and, as applicable, other outside data sources.

c. Confirm any control programs in place (e.g. TMDLs, Management Plans) to address the concerns.

5. Review of existing water quality monitoring in and downstream of the district.

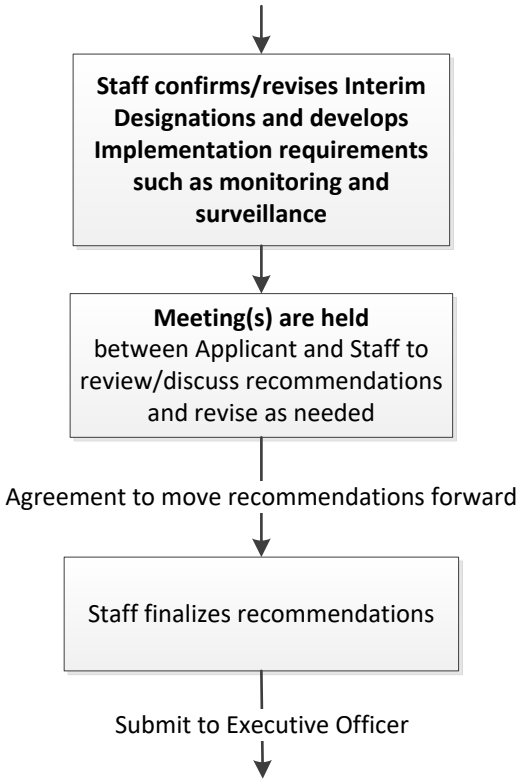
   a. Compile information on any water quality monitoring identified in the Applicant's report. For Seasonally Closed Controlled Recirculating Systems (Seasonally Closed System), monitoring conducted before and after systems are open is especially critical.

   b. Evaluate additional water quality monitoring program information within and downstream of the system to the first identified existing and petitioned future diversion for municipal or domestic supply using the Central Valley Water Board's comprehensive monitoring guides (Central Valley Water Board, 2017).

Appendix J provides a checklist template that Central Valley Water Board staff will use for each application to ensure that each step of this review process is followed.

10.2.3 Step 2: Establishment of Interim Designations

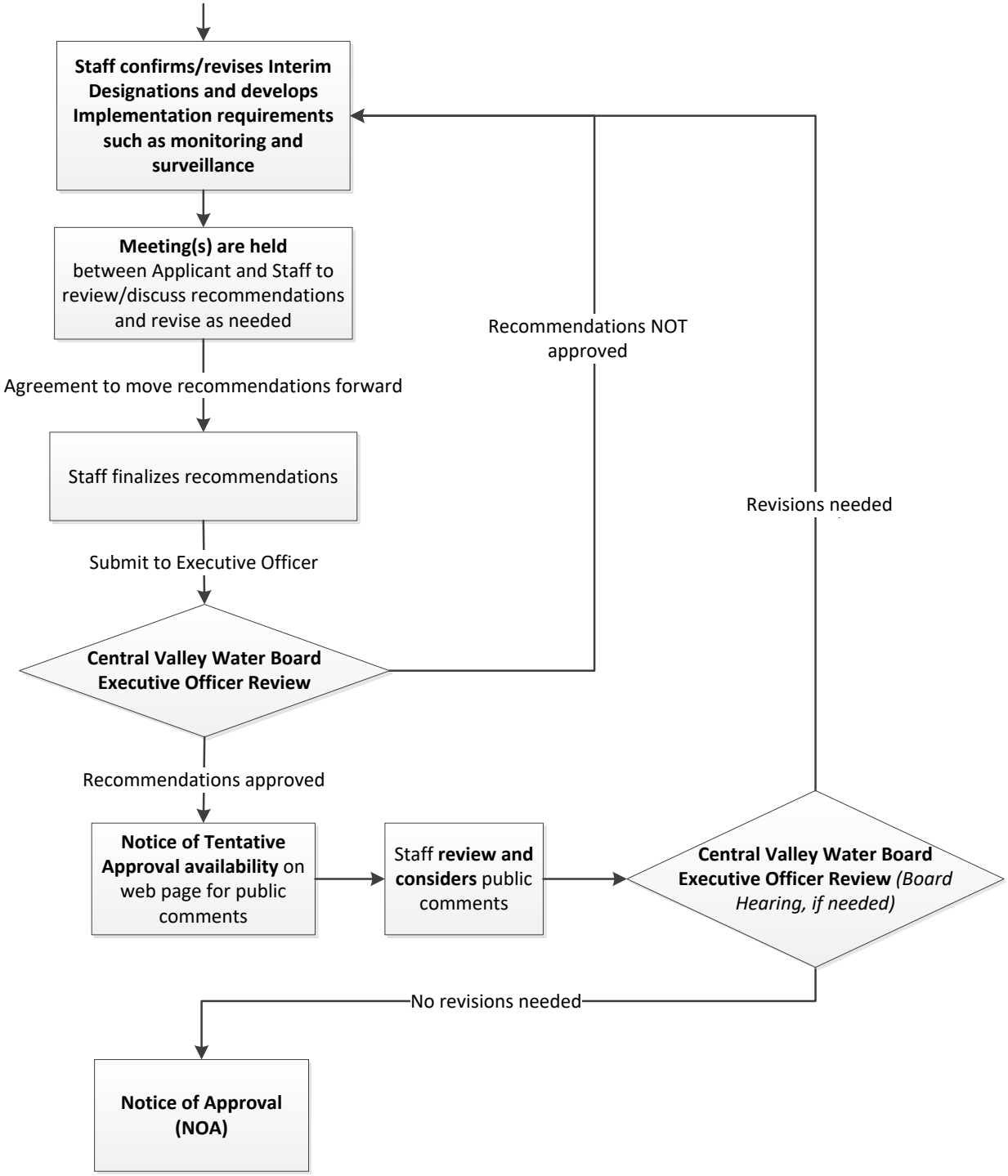
10.2.3.1 Staff Recommendations on Interim Designation and Implementation Requirement



For water bodies that are determined to warrant revisions to MUN designation under Step 1, staff will develop draft recommendations for interim designations and implementation requirements. Interim designations will be developed for each approved water body or system, including the B1, B2, M1, M2, C1, C2 and Closed Controlled Recirculating System categories. Staff will also develop recommendations for the MUN beneficial use designations (MUN, No MUN, or LMUN) for each water body or system. Water bodies in a Seasonally Closed Controlled System may have different MUN beneficial use designations, dependent on the open and closure period of the system. See Table ES-1 for the proposed assigned MUN designations by water body category.

As part of the recommendation, staff will identify any data gaps in existing monitoring and/or control program efforts to track and assess potential constituents of concern within or downstream of the water bodies being evaluated. This information will guide staff's recommendation as to whether existing monitoring and surveillance efforts are adequate to evaluate potential future impacts of refining and/or de-designating MUN in the water bodies identified including consistency with ensuring protection of downstream beneficial uses required under the Sources of Drinking Water Policy or whether changes and/or additions are needed. If significant monitoring data gaps are identified, monitoring and surveillance options may include requirements for a change in existing regulatory monitoring requirements or the issuance of separate orders requiring the submission of the necessary information. Staff will present the draft recommendations for review and discussion in meetings with the applicant to allow for revisions.

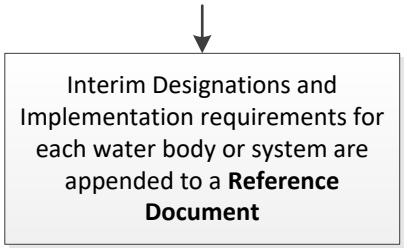
10.2.3.2 Executive Officer Approval and Public Review Process



Once Central Valley Water Board staff and the applicant reach an agreement to move forward with the recommendations, staff will finalize the recommendations and submit them to the Water Board EO for review. If the EO does not approve the recommendations, staff will resume back

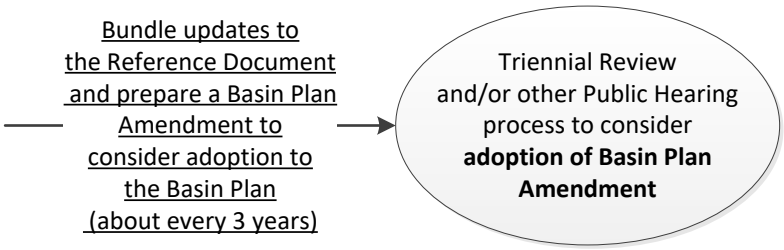
at the recommendation development phase of the process to make changes as needed. If the EO approves the recommendations, a Notice of Tentative Approval (NOTA) will be sent out to a subscription email and postal mailing list of interested parties. The NOTA and supporting documentation will also be publicly posted on the Central Valley Water Board website and will be available for public comments for a minimum of 45 days. The NOTA will include the interim water body categories and MUN beneficial use designations approved by the EO. Any monitoring and surveillance measures that the Board must impose as a condition of the approval will be included as an appendix to the NOTA. Staff will consider public comments and if revisions to the recommendations are needed, staff will resume back at the recommendation development phase of the process. If sufficient controversy exists, the EO may elect to schedule a Board Hearing to review the NOTA. If no revisions are needed on the NOTA, a Notice of Approval (NOA) will be sent out to a subscription email list, publicly posted on the Central Valley Water Board website and noted in the EO report to notify interested parties that the provisions set forth in the NOTA will be appended to the *Central Valley Agriculturally Dominated Water Bodies Evaluation Reference Document* (Reference Document).

10.2.3.3 Reference Document Updates



The *Central Valley Agriculturally Dominated Water Bodies Evaluation Document* (Reference Document) is a separate document outside of the Basin Plans and will contain a table listing evaluated water bodies and their approved interim water body categories, MUN beneficial use designations and monitoring and surveillance program. Interim permit limits may be developed based on beneficial use refinement identified in the Reference Document. The Reference Document will be available online at the Central Valley Water Board website. Interim designations in the Reference Document will be valid for 5 years. An extension, no greater than 3 years, may be granted by the EO in cases where there is reason to delay the Basin Plan Amendment approval process, such as requests from interested parties for additional time or the submittal of new information to review.

10.2.4 Step 3: Adoption into the Basin Plan



10.2.4.1 Central Valley Water Board Adoption

Updates to the Reference Document will be bundled approximately every three years and prepared for Basin Plan Amendments by Central Valley Water Board staff. The Central Valley Water Board will consider adoption of Basin Plan Amendments containing water body category and MUN beneficial use designations from the Reference Document during a Triennial Review or other Public Hearing process. In conjunction with amending the Basin Plan to incorporate revised beneficial use designations, or in conjunction with other periodic reviews of the Basin Plans, the Board may develop additional guidance, as needed, for implementing the Region-wide MUN Evaluation Process. Specific monitoring requirements for approved water bodies will be adopted in a Board-approved resolution. Adopted water bodies will be listed in an appendix in the Basin Plan(s). GIS layers of the adopted water bodies will be stored in a GIS File Geodatabase and staff will coordinate with the State Water Board's GIS unit to ensure that they are notified of any updates and/or changes to the Basin Plans.

10.2.4.2 State Board/OAL/USEPA Approval

Adoption by the Central Valley Water Board will be followed by the Basin Plan Amendment approval processes of the State Water Board, OAL and as appropriate, US EPA.

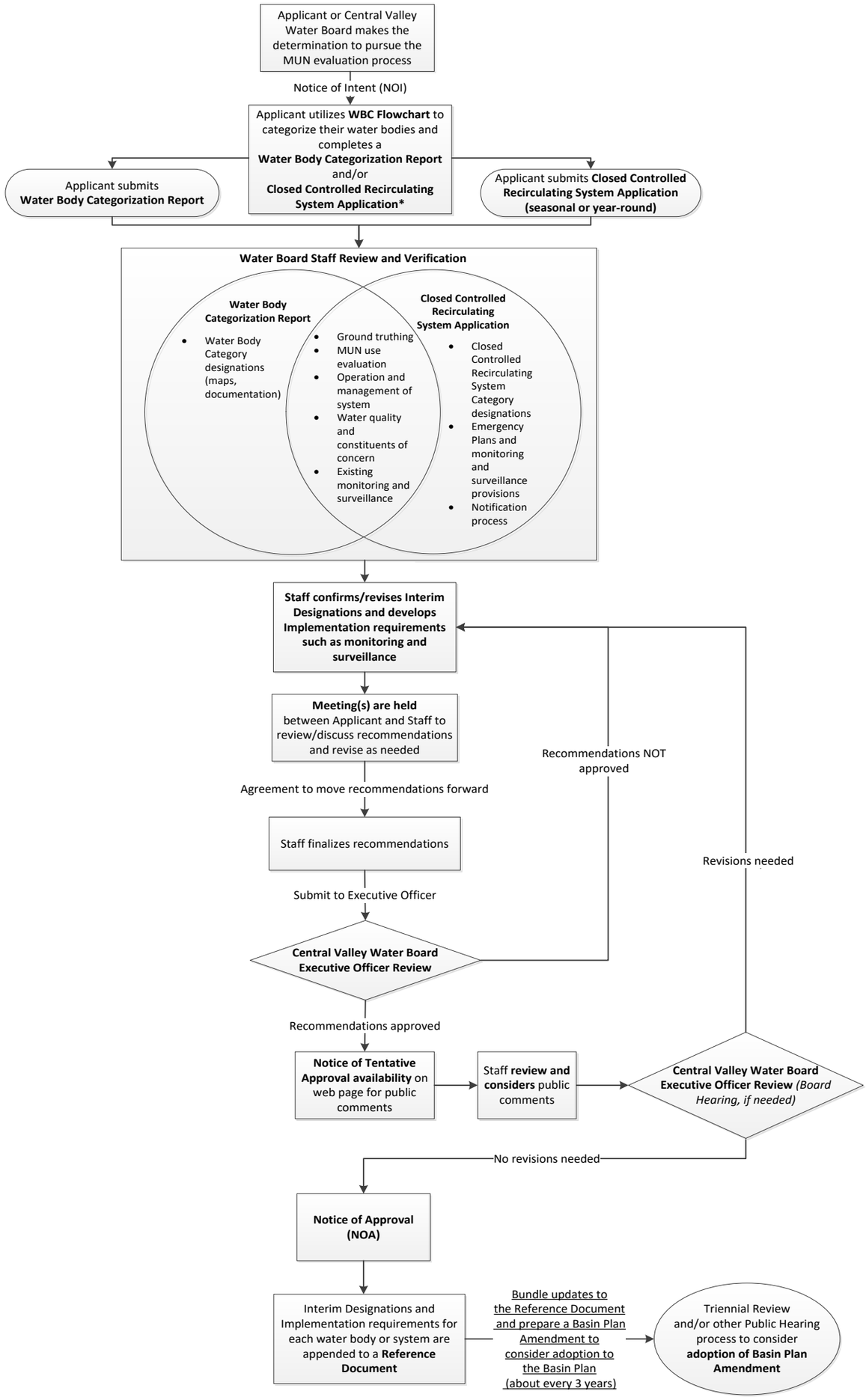
10.2.5 Time Schedule

Since the proposed Implementation Program will be carried out on a rolling and "As Needed" basis, there is no specific Time Schedule for the MUN Evaluation Process. However, Table 10-1 below provides the approximate time requirements needed to complete the tasks in each step of the process. The time estimates provided are based on the SLCC case study and may change based on the number of applicants, size and complexity of the water bodies and/or systems.

Table 10-1 Time Estimates for tasks associated with each step of the MUN Evaluation Process

Task	Approximate Time Needed
Step 1 – Process Initiation and Review	
Submittal of Documents	3 months—1 year
Staff Review/Recommendations	2 months
Step 2 – Establishment of Interim Designations	
NOTA for Public Comments	45 days
Staff Review Comments and Revise	45 days
NOA/Reference Document	8 months—1 ½ years
Step 3 – Adoption into the Basin Plan	
Central Valley Water Board Adoption	Updates Bundled every 3 years
State Water Board/OAL/USEPA Approval	1 year

Figure 10-2 Schematic Overview of Region-wide MUN Evaluation



* There are two types of Closed Controlled Recirculating Systems: Seasonally Closed and Year-Round Closed. For Seasonally Closed Controlled Recirculating Systems, both the Water Body Categorization Report and the Closed Controlled Recirculating System Application are required for submittal. The Central Valley Water Board will have the discretion to ask for a full report for Closed Controlled Recirculating Systems depending on the size and complexity of the system.

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11 MONITORING AND SURVEILLANCE PROGRAM

The Water Code requires Basin Plan amendments to describe the surveillance and monitoring that will be necessary to evaluate compliance with applicable WQOs. Specific monitoring and reporting requirements can be required through monitoring and reporting programs established for NPDES permits, waste discharge requirements (WDRs), and conditional waivers of WDRs to ensure that the necessary information is collected and available to the Central Valley Water Board to determine progress in implementing the Basin Plan requirements and in attaining water quality standards.

Water Code section 13242 requires that implementation programs designed to achieve WQOs include a description of the surveillance to be carried out in order to determine compliance with the objectives. Staff used information presented in previous chapters of this staff report to identify potential monitoring components and options needed to evaluate attainment of applicable water quality within and/or downstream of the water bodies that go through the preferred MUN evaluation process.

11.1.1 Water Bodies with MUN De-designated

Discharges from water bodies that have their MUN beneficial use de-designated through this evaluation process are required by the *Sources of Drinking Water Policy* to be monitored to "*assure compliance with relevant water quality objectives as required by Regional Boards"* (Exception 2b of the *Sources of Drinking Water Policy*).

11.1.2 Water Bodies designated with LMUN

Monitoring is required to ensure that applicable beneficial uses are protected consistent with the state's Antidegradation Policy.

11.2 PROPOSED CASE-BY-CASE MONITORING PROGRAM OPTIONS

Utilizing the proposed implementation program presented in Section 10, there are three potential monitoring and surveillance options to assure compliance with applicable WQOs. The selection process will depend on the existing monitoring conducted in and downstream of the water bodies under consideration and on the constituents of concern in the area. Section 10.2.3 details the type of information requirements and the process that will be followed to make a consistent and streamlined assessment of monitoring needs. The information collected will be evaluated on a case-by-case basis to determine which of the following monitoring options meet program requirements.

- Option A – Demonstrate that existing and available water quality data support the conclusion that the change to the MUN beneficial use designation will not result in an unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses.
- Option B – If existing and available water quality data are not sufficient to support the conclusion that the change to the MUN beneficial use designation will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, the Central Valley Water Board shall evaluate whether monitoring requirements imposed by existing regulatory programs, such as the Irrigated Lands Regulatory Program or the NPDES Permitting Program, are sufficient to ensure that discharges from the system will not result in unreasonable

impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses. Such monitoring programs shall remain in effect at least until such time that water quality data demonstrate that the change to the MUN beneficial use designation has not resulted in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, at which point the monitoring requirements may be altered or reduced consistent with applicable regulatory requirements.

- Option C – If neither existing and available water quality data nor monitoring requirements imposed by existing regulatory programs are sufficient to support the conclusion that the change to the MUN beneficial use designation will not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses, the Central Valley Water Board shall either modify existing monitoring programs or issue an order pursuant to Water Code section 13267 to ensure that discharges from the system do not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses. Such modified requirements or orders shall remain in effect at least until such time that water quality data demonstrate that the change to the MUN beneficial use designation has not resulted in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses.

For the 231 water bodies in the San Luis Canal Company case study area, staff reviewed the existing water quality data and monitoring information (see Section 6.2.3) and determined that Option B, use of current water quality monitoring activities, is sufficient to ensure that the de-designation of MUN will not result in unreasonable impacts to water quality in downstream water bodies designated with the MUN use.

11.3 Regular Updates to the Monitoring Reference Guides

Water bodies that have their MUN beneficial use de-designated or refined to the LMUN use will no longer need to meet the MUN-related WQOs. However, the selected monitoring option must ensure that changes to the MUN beneficial use designation do not result in unreasonable impacts to water quality in downstream water bodies that are designated as supporting the LMUN or MUN beneficial uses. As described in Step 1 of the Implementation Program (Section 10.2.2), the comprehensive basin monitoring reference documents (Central Valley Water Board, 2017) for areas within and downstream of Ag dominated water bodies will be updated by Central Valley Water Board staff every 3 to 5 years in conjunction with Basin Plan updates as available resources permit. These guides for the different basins will provide the information necessary to determine which monitoring option is sufficient for a given study area.

11.4 Ensuring Sufficient Compliance

Discharge from water bodies that have the MUN use removed using Exception 2b from the Sources of Drinking Water Policy must be compliant with all relevant WQOs, which includes the protection of downstream water bodies with the MUN and LMUN designations. To evaluate compliance, monitoring programs may use numeric triggers for chemical constituents, pesticides, and radionuclides concentration in their process of issuing permits or WDRs. However, exceedances of the triggers would not be violations of the proposed narrative objective nor are the triggers to be used for numeric effluent limits. Triggers would be utilized to initiate further review of the sources and potential impacts of the constituents under

consideration to determine appropriate regulatory actions. The next sections describe some of the specific actions that may occur with existing Water Boards monitoring programs.

11.4.1.1 Discharges from Agricultural Operations

Agricultural coalitions and individuals are required to comply with monitoring requirements determined through the ILRP and regulated through WDRs. Surface waters are monitored on a regional basis by the coalitions and site-specifically by growers enrolled in the individual order. The coalitions work with ILRP staff to identify representative monitoring locations for watersheds with agricultural operations. Growers enrolled in the individual order must monitor discharges leaving their properties The ILRP uses representative monitoring to assess water quality from specific drainage areas. Water quality triggers are already incorporated as part of this program to both protect the water body being monitored as well as downstream water bodies. Triggers are based in part on water quality concentration to protect instream and downstream beneficial uses. Should triggers be exceeded, responsible coalitions or individuals initiate management plans to track sources of constituents of concern, implement control practices, and monitor effectiveness.

11.4.1.2 Point-Source NPDES Discharges

If the MUN beneficial use was de-designated from a water body receiving point-source discharges, such as municipal and domestic wastewater, dischargers would still be regulated under the NPDES program to ensure antidegradation requirements are met for downstream MUN or LMUN water bodies.

Dischargers must conduct a Reasonably Potential Analysis (RPA) with consideration given to the beneficial use of the receiving water and an antidegradation analysis of any water body that the discharge may influence. The potential impacts of the discharge to downstream water bodies with different beneficial uses (e.g., MUN) must be considered during the antidegradation analysis if the discharge impacts the downstream water bodies. Therefore, even if the MUN beneficial use is removed from a water body that receives NPDES discharges, the dischargers must demonstrate that any degradation would not result in exceedance of a water quality objective and that the degradation is consistent with the maximum benefit to the people of the state. Such demonstration would assure there is no unreasonable impact to the downstream MUN or LMUN water bodies.

Once MUN is removed, the discharger no longer needs to meet the Title 22 regulations; but, federal regulations contain anti-backsliding requirements that require effluent limitations in a reissued permit must be as stringent as those in the previous permit. The CWA, however, provides several exceptions to the antibacksliding regulations under 303(d)(4) and 402(o)(2).

The NPDES program would ensure protection of a LMUN receiving water body similar to the process described above for water bodies without a MUN designation. The difference is that the water within the LMUN water body, as well as downstream, would need to be protected consistent with the *State Antidegradation Policy*.

If it is necessary for limitations more stringent than applicable federal technology-based requirements to protect beneficial uses, water quality-based effluent limits (WQBELs) can be established. In lieu of establishing effluent limits, trigger limits may be used to control discharges to ensure protection of water bodies. An example of this would be the implementation of performance-based salinity effluent triggers that could be used to ensure the discharge does not increase its salinity loading to a water body.

11.4.1.3 Municipal Storm Water

The Stormwater/Water Quality Certification Programs may regulate discharges of stormwater from urban areas or from dredge and fill project areas to Ag dominated water bodies. Potential changes to discharge volume or water quality in agricultural areas due to changes like increased urban development and future construction projects are addressed by the permits. Changes to the MUN beneficial use (removal of MUN or refinement to LMUN) in Ag dominated water bodies as a result of the region-wide MUN evaluation process will not change the way these permits are administered. The monitoring for these programs will continue to address 303(d) listed pollutants and other constituents of concern for the remaining beneficial uses designated in the Ag dominated water bodies and downstream water bodies.

11.5 PERIODIC MONITORING BY THE CENTRAL VALLEY WATER BOARD

As resources permit, Central Valley Water Board staff will work with other agencies and regional monitoring programs to monitor chemical constituents, pesticides, and radionuclides contained in the Title 22 of the California Code of Regulations, as well as relevant constituents associated with the narrative and site specific water quality objectives associated with MUN use, approximately every 3 to 5 years in major water bodies identified with existing or potential MUN use. These water bodies include, but are not limited to the Sacramento River, Feather River, San Joaquin River and Delta. The data gathered will support Watershed Sanitary Surveys (Cal. Code Regs, tit. 22, § 64665 et seq.) as well as the California Integrated Report (Clean Water Act Section 303(d)/305(b)).

12 CONSISTENCY WITH LAWS, PLANS, AND POLICIES

Proposed changes to the Board Basin Plans must be consistent with state laws and regulations, including adopted State and Regional Water Board policies, and, to the extent applicable, the federal CWA regulations implemented by the State and Regional Water Boards. This chapter summarizes existing federal and state laws and policies that are relevant to the proposed Basin Plan Amendments.

12.1 ANTIDEGRADATION POLICIES

The *Federal Antidegradation Policy* and the *State Antidegradation Policy* are described in Section 3.7. The following section evaluates whether the proposed Basin Plan Amendments are consistent with the *Federal Antidegradation Policy* and the *State Antidegradation Policy*.

12.1.1 Consistency with the *State Antidegradation Policy*

The *State Antidegradation Policy*, adopted by the State Water Board in October 1968, limits the Board's discretion to authorize the degradation of high-quality waters. This policy has been incorporated into the Basin Plans. High-quality waters are those waters where water quality is more than sufficient to support the designated beneficial uses.

The proposed Basin Plan Amendments do not themselves authorize the degradation of any high-quality waters. They instead propose that a structured process for evaluating and potentially de-designating or refining the MUN beneficial use in Ag dominated water bodies be added to the Basin Plans. Any degradation that would occur as an indirect result of the Board's adoption of the proposed Basin Plan Amendments would occur when the Board prescribed waste discharge requirements (including NPDES Permits), issued conditional waivers, or issued water quality certifications that authorized waste discharges to water bodies where the MUN use was either de-designated or refined pursuant to the process described in the proposed Basin Plan Amendments.

Those water bodies are, by definition, Ag dominated water bodies where water quality is generally limited by conditions inherent to these water bodies, such as low or intermittent flows and/or elevated natural background constituent concentrations. Nevertheless, even after the removal or alteration of the MUN beneficial use in these water bodies, the Board will continue to implement the *State Antidegradation Policy* when authorizing any discharge of waste that could result in the degradation of high-quality waters. This means that whenever the water quality in these water bodies is at least of sufficient quality to support the remaining beneficial uses, the Board will be requiring the dischargers to implement best practicable treatment or control of the wastes to minimize degradation, and would only allow the degradation of high-quality waters upon finding that the degradation is consistent with the maximum benefit to the people of the State. The Board would also require such findings when authorizing discharges that would degrade high-quality waters downstream of the water body where the MUN beneficial use was either de-designated or refined.

To further emphasize that a refinement from the MUN beneficial use designation to the LMUN beneficial use designation does not eliminate the Board's requirement to implement the *State Antidegradation Policy*, the water quality objective that will be applicable to water bodies that are designated as supporting the LMUN beneficial use will explicitly reference the applicability of the *State Antidegradation Policy*.

Lastly, the proposed Basin Plan Amendments propose to remove the MUN beneficial use designation from SLCC's water bodies based on results from the standardized review process. The removal of these MUN beneficial use designations is wholly consistent with Exception 2b

from the *Sources of Drinking Water Policy*. Because the Board will continue to implement the *State Antidegradation Policy* in these waterbodies following the de-designation of the MUN beneficial use, and because the de-designation of the MUN beneficial use in these water bodies is wholly consistent with Exception 2b from the *Sources of Drinking Water Policy*, the removal of the MUN beneficial use from these water bodies is consistent with the *State Antidegradation Policy*.

12.1.2 Consistency with the *Federal Antidegradation Policy*

The *Federal Antidegradation Policy* requires the protection of existing instream water uses and the level of water quality necessary to protect those uses, requires that where water quality exceeds levels necessary to support the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water, such water quality shall be maintained with limited exceptions, and requires that, where high quality waters constitute an outstanding National resource, water quality shall be maintained and protected. (40 C.F.R. 131.12.)

The Central Valley Region does not contain any outstanding National resource waters. Furthermore, the proposed Basin Plan Amendments do not propose to de-designate or alter beneficial use protections for any existing use; the proposed Basin Plan Amendments would only authorize changes to MUN use designations upon a showing that the MUN beneficial use was not an existing use. Lastly, discharges to the Ag dominated water bodies that could potentially be affected by the process outlined in the proposed Basin Plan Amendment fall primarily into three categories: agricultural discharges, storm water discharges and point source discharges (NPDES). All three of these classes of dischargers are regulated under Board-issued orders that are subject to stringent permitting requirements that are consistent with the *State* and *Federal Antidegradation Policies* (as applicable).

NPDES Permits are reviewed approximately every five years. At least once during these permit terms, and often more frequently, the Board requires the Dischargers to monitor effluent and upstream receiving water sites for priority pollutants and other constituents of concern. If an NPDES permittee predicts that there will be a substantial change in or expansion of its wastewater discharge, the permittee must submit a new report of waste discharge to the Board and the Board must conduct a new antidegradation analysis and potentially a new Reasonable Potential Analysis (RPA) before the Board can issue a new permit. Any new point-source discharges must also go through antidegradation and RPA analyses that are at least as stringent as those required of existing permittees.

Discharges from irrigated agriculture have occurred for over a century in the Sacramento River, San Joaquin River, and Tulare Lake Basins and are currently regulated under WDRs through the ILRP. Such discharges fall outside the purview of federal permitting requirements. However, the state's establishment and modification of water quality standards in jurisdictional waterways is subject to federal oversight. As described herein, the proposed Basin Plan Amendments are fully consistent with all applicable federal statutes and regulations that limit the Board's authority to prohibit unreasonable degradation of water quality.

12.2 Consistency with Federal and State Laws

Federal agencies have adopted regulations implementing federal laws to which Central Valley Water Board actions must conform. To maintain consistency with the NPDES program, the following Federal laws were evaluated for the proposed Basin Plan Amendments:

- Clean Water Act
- Federal & State Endangered Species Acts (16 U.S.C. § 1531 et seq., Fish and G. Code §2050-2116 et seq.)

Consistency of the proposed Basin Plan Amendments to these laws are described in the following sections in addition to state law.

12.2.1 Clean Water Act

Federal Requirements for Review of Water Quality Standards

Under section 303(c) of the CWA, water quality standards adopted by a State that affect waters of the United States are subject to USEPA approval. Water quality standards consist of the designated uses and the water quality criteria to protect these uses. (33 USC §1313, subd. (c)(2)(A) and 40 CFR § 131.3, subd. (i).) When designating new or revised uses, the State must take into consideration the use and value of water for public water supplies, protection and propagation of fish, shellfish and wildlife, recreation in and on the water, agricultural, industrial, and other purposes including navigation. (40 CFR §131.10, subd. (a).) States may adopt sub-categories of a use and set the appropriate criteria to reflect varying needs of such sub-categories of uses. (40 CFR §131.10, subd. (c).) States may remove a use that is not an existing use if it demonstrates attaining the use is not feasible because of one of the six factors listed in Section 3.2.1 (40 CFR §131.10 subd. (g).)

A state must conduct a “use attainability analysis” (defined in 40 CFR § 131.3, subd.(g).) whenever a state wishes to remove a designated fishable/swimmable use from a water of the US, as defined in the CWA. “Fishable/swimmable” uses are those beneficial uses that support, “the protection and propagation of fish, shellfish, and wildlife and provide for recreation in and on the water.” (33 U.S.C.A. § 1251, subd. (a)(2).) Federal regulations further define six circumstances where it would be appropriate for a state to remove a fishable/swimmable use. (40 CFR section 131.10, subdivision (g).) However, the MUN beneficial use is not a fishable/swimmable use. When establishing or dedesignating beneficial uses that are not “fishable/swimmable” beneficial uses (like the MUN beneficial use and the refined LMUN beneficial use), 40 CFR section 131.10, subdivision (a) requires that a state must make the considerations described in Section 3.2.1 of this Staff Report.

The following is a summary of the Board’s consideration of the use and value of the waterbodies that may be affected by the proposed Amendment, as would be required by 40 CFR § 131.10, subd. (a). for any waterbody considered a “water of the US”:

Use & Value Consideration	**Explanation of How the Proposed Process Adequately Ensures that this Consideration is Met**
Relevant descriptive information about the waterbody itself	Descriptive information about the waterbodies that are eligible for a beneficial use change (dedesignation of MUN or refinement of the MUN use to the LMUN use) is contained in this Staff Report. More particularized information in Appendix E provides a detailed description of a set of waterbodies within the jurisdiction of the SLCC that typify waterbodies eligible for a beneficial use change under the new process that would be established by the proposed Amendments.
The use and value of the waterbody as a public water supply	For waterbodies that may be eligible for MUN beneficial use dedesignation under the *Sources of Drinking Water Policy*, the exception for "systems designed or modified for the primary purpose of conveying or holding agricultural drainage waters," establishes as State Water Board policy that such systems have limited utility for supporting the municipal and domestic supply beneficial use. For waterbodies that are eligible to have their MUN use designation refined to the LMUN beneficial use designation by the process that would be established by the proposed Amendment, this Staff Report provides support for the conclusion that Ag dominated waterbodies that do not meet the *Sources of Drinking Water Policy* exceptions but that have inherent limiting conditions, such as low or intermittent flows and/or elevated natural background constituent concentrations, have limited utility for supporting the municipal and domestic supply beneficial use. For waterbodies in the SLCC where the MUN beneficial uses will dedesignated or refined pursuant to the proposed Amendments, this Staff Report, which contains an extensive description of the physical and hydrologic characteristics of these waterbodies, provides support for the conclusion that these waterbodies have limited utility for supporting the municipal and domestic supply beneficial use.
The impact that the change could have on the protection and propagation of fish, shellfish, and wildlife	Any change to a MUN beneficial use designation that could be effectuated through the process contained in the proposed Amendments would not in any way affect beneficial uses related to the protection and propagation of fish, shellfish, and wildlife.
The impact that the change could have on recreation in and on the water	Any change to a MUN beneficial use designation that could be effectuated through the process contained in the proposed Amendments would not in any way affect beneficial uses related recreational beneficial uses.
The use and value of the waterbody	De-designating MUN beneficial uses in systems designed or

for agricultural, industrial, and other purposes, including navigation	modified for the primary purpose of conveying or holding agricultural drainage waters, and refining of MUN beneficial uses to LMUN beneficial uses in waterbodies that do not meet the *Sources of Drinking Water Policy* exceptions, but that have inherent limiting conditions, such as low or intermittent flows and/or elevated natural background constituent concentrations, enables these waterbodies to be fully utilized for their intended agricultural purposes.
The impact that the change in use could have on the protection of downstream uses	The proposed Amendments contain a requirement that, "[t]he Regional Water Board will ensure that water quality monitoring data are sufficient to demonstrate that neither the de-designation of the MUN beneficial use nor the change of a MUN beneficial use designation to an LMUN beneficial use designation will result in unreasonable impacts to downstream water bodies designated as supporting the LMUN or MUN beneficial uses."
Whether or not the use to be changed is an existing use in the waterbody	The proposed Amendments would prohibit the MUN beneficial use from being dedesignated or refined to the LMUN beneficial use in any water body where the MUN beneficial use is currently being realized. Information gathered during the review and verification must demonstrate that the MUN use is not occurring presently and is not expected to occur in the foreseeable future in the water bodies under consideration.
Whether or not the beneficial use could be attained in the waterbody, using the factors in 40 CFR 131.10, subd. (g) as a general guide.	Waterbodies where the MUN beneficial use may be de-designated or where the MUN beneficial use designation may be refined to an LMUN beneficial use designation generally also have a higher risk of having naturally and human caused conditions that are sources of pollution, thus preventing the attainment of the MUN use (40 CFR § 131.10, subds. (g)(1) and (3).), generally exhibit intermittent or low flow conditions not conducive to sustaining a public or domestic water system (40 CFR § 131.10, subd. (g)(2).), and usually contain dams, diversions, and other types of hydrologic modifications constructed specifically to support agricultural activities, not municipal or domestic supply activities. (40 CFR § 131.10, subd. (g)(4).)

Irrespective of whether any of the water bodies within the scope of the proposed Basin Plan Amendment are considered "waters of the US," this Staff Report provides necessary information to demonstrate the Board's consideration of the use and value of all the water bodies where the MUN beneficial use may be de-designated or where the MUN beneficial use may be refined to a LMUN beneficial use designation pursuant to the process described by the proposed Amendments.

Federal Regulations Pertaining to NPDES Permits

Section 402 of the CWA requires a permitting system which USEPA addressed by promulgating Title 40 CFR, Part 122, which are the regulations pertaining to the NPDES program. The State's regulations pertaining to NPDES permits must be consistent with the federal regulations. Title 40 Code of Federal Regulation section 122.44(d)(1)(ii) sets forth the regulations for determining whether a discharge has a reasonable potential to cause or contribute to a violation of water quality standards. It states, "When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water."

These Basin Plan Amendments do not recommend any new or modification to federal or state NPDES permitting procedures.

Requirements for Avoiding Wetland Loss

Under CWA section 404 and the Rivers and Harbors Act of 1899 Section 10, alteration of waterways, including wetlands that affect navigable waters requires a permit from the Federal government and assurance that impacts will be avoided or mitigated. The U.S. Army Corps of Engineers operates the 404 permit program with a goal of achieving "no net loss" of wetlands. For projects proposing unavoidable impacts on wetlands, compensatory mitigation in the form of replacing the lost aquatic functions is generally required. Under authority of CWA section 401, the State also reviews federally authorized projects, including permits issued by the US Army Corps of Engineers for dredge and fill activities under CWA section 404 and construction permits issued under Section 10 of the Rivers and Harbors Act, that could have water quality impacts on jurisdictional water bodies.

The proposed Basin Plan Amendments will not authorize any activities that will result in the loss of wetlands.

12.2.2 Federal and State Endangered Species Act

The Federal Endangered Species Act of 1973 (16 U.S.C. § 1531 et seq.) was established to identify, protect and recover imperiled species and the ecosystems upon which they depend. It is administered by the Interior Department's U.S. Fish and Wildlife Service (USFWS) and the Department of Commerce's National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS). The USFWS has primary responsibility for terrestrial and freshwater organisms, while the NMFS has primary responsibility for marine species such as salmon and whales. In addition, the State of California enacted the California Endangered Species Act (Fish & G. Code, §2050-2116 *et seq*.), which is administered by the California Department of Fish and Wildlife and similarly requires that the State maintain lists of rare, threatened and endangered species.

The focus of the proposed Basin Plan Amendments is establishment of a region-wide process for evaluation of the appropriate MUN beneficial use in Ag dominated surface water bodies and establishment of the refined LMUN beneficial use. The proposed Basin Plan Amendments do not alter beneficial uses that require the protection of aquatic ecosystems, and thus are not expected to affect fish and wildlife. The proposed Basin Plan Amendments do not authorize the take of any special-status species nor the destruction of any critical habitat. Therefore, the

proposed Basin Plan Amendments are consistent with the Federal and State Endangered Species Acts.

12.2.3 Consistency with Water Code 106.3

Water Code section 106.3 states that it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. Water Code section 106.3 states, in relevant part, that:

a. It is hereby declared to be the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

b. All relevant state agencies, including the department, the state board, and the State Department of Public Health, shall consider this state policy when revising, adopting, or establishing policies, regulations, and grant criteria when those policies, regulations, and criteria are pertinent to the uses of water described in this section.

Related resolutions supporting this policy were adopted by the State Water Board (Resolution No. 2016-0010) and Central Valley Water Board (Resolution No. R5-2016-0018).

The proposed Basin Plan Amendments will not affect water bodies which are currently being used as a drinking water source. The proposed Amendments are intended to provide a process to evaluate and only remove the MUN beneficial use from Ag dominated surface water bodies that meet Exception 2B in the *Sources of Drinking Water Policy* and are not serving, or expected to serve, as a MUN source. The LMUN beneficial use is designed to protect current water quality from unreasonable degradation. The proposed Basin Plan Amendments likewise do not authorize any adverse impacts to the MUN beneficial use in downstream waterbodies, and establish a process by which the Board would ensure that either the de-designation of the MUN beneficial use or the assignment of the LMUN beneficial use would not have adverse impacts to downstream waters. Therefore, the proposed Basin Plan Amendments are consistent with Water Code section 106.3.

12.2.4 Assembly Bill 32 – California Global Warming Solutions Act

Assembly Bill (AB) 32 is a California State Law that fights global warming by establishing a comprehensive program to reduce greenhouse gas emissions. AB 32 is largely implemented by the California Air Resources Board, which has been directed by AB 32 to adopt regulations to achieve cost-effective GHG emission reductions, thereby mitigating the risks associated with climate change, while improving energy efficiency and expanding the use of renewable energy resources.

The Water Boards are committed to the adoption and implementation of effective actions to mitigate greenhouse gas emissions and adaptation of our policies and programs to the environmental conditions resulting from climate change. Future climate conditions cannot be predicted with full accuracy, but there are likely scenarios for changes in the Central Valley. Climate change may lead to more drought conditions, and more water recycling. While water recycling in drought conditions may increase concentrations of constituents of concern, water recycling also relieves stress on depleted aquifers. By allowing for greater water recycling, the proposed Basin Plan Amendments may ultimately result in the generation of less greenhouse gasses, because the energy required to pump groundwater can be a significant contributor of greenhouse gasses. However, the regulation of sources of greenhouse gas emissions lies primarily with the California Air Resources Board, and the proposed Basin Plan Amendments

themselves do not authorize any activities that will result in the production of additional greenhouse gas emissions.

Because the proposed Basin Plan Amendments do not conflict with any applicable plan, policy, or regulation related to greenhouse gas emissions implemented by the Boards or the California Air Resources Board, the proposed Basin Plan Amendments are consistent with AB 32.

12.3 CONSISTENCY WITH STATE WATER BOARD POLICIES

The State Water Board is authorized to adopt state policy for water quality control. (Wat. Code §13140.) State Water Board water quality control plans supersede any regional water quality control plans for the same waters to the extent of any conflict. (Wat. Code §13170.) The following are the State Water Board plans and policies:

- State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (*State Antidegradation Policy*)
- Water Quality Control Policy for the Enclosed Bays and Estuaries of California
- Sources of Drinking Water Policy
- Pollutant Policy Document
- Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code section 13304
- Consolidated Toxic Hot Spots Cleanup Plan
- Nonpoint Source Management Plan & the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program
- Water Quality Enforcement Policy
- Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California
- Policy for Developing California's CWA Section 303(d) list (Listing Policy)
- Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options
- Policy for Compliance Schedules in Nation Pollutant Discharge Elimination System Permits
- Policy for Water Quality Control for Recycled Water
- Human Right to Water as a Core Value and Directing its Implementation in Water Board Programs and Activities
- The Division of Drinking Water's "Extremely Impaired Sources Policy"

Resolution that was adopted by the State Water Board is listed for each policy.

12.3.1 State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California (*State Antidegradation Policy*)

- Resolution 68-16

See Section 12.1.1 for a discussion of this policy.

12.3.2 Water Quality Control Policy for the Enclosed Bays and Estuaries of California

- Resolution 74-43

- Resolution 95-84

This policy was adopted by the State Water Board in 1974 and updated in 1995. This policy provides water quality principles and guidelines for the prevention of water quality degradation in enclosed bays and estuaries to protect the beneficial uses of such waters. The Regional Water Boards must enforce the policy and take actions consistent with its provisions. For the San Francisco Bay-Delta system, the policy requires implementation of a program which controls toxic effects through a combination of source control for toxic materials, upgraded waste treatment, and improved dilution of wastewaters to provide full protection to the biota and the beneficial uses of San Francisco Bay-Delta waters.

The proposed Basin Plan Amendments do not eliminate or contradict the core requirement of the Water Quality Control Policy for the Enclosed Bays and Estuaries of California that the Central Valley Water Board ensure that persistent or cumulative toxic substances be removed from waste discharges to the maximum extent practicable through source control or adequate treatment. Therefore, the proposed Basin Plan Amendments are consistent with this policy.

12.3.3 *Sources of Drinking Water Policy*

- Resolution 88-63
- Resolution 2006-0008
- Resolution 2015-0002

The State Water Board adopted the *Sources of Drinking Water Policy* in 1988 and updated this policy in 2006 and 2015. This policy states that all waters of the state are to be considered suitable or potentially suitable for MUN unless certain exceptions are met. One such exception is Exception 2B, which applies to systems designed or modified with the primary purpose of conveying or holding Ag drainage waters.

The region-wide MUN evaluation process only removes the MUN beneficial use if Exception 2b from the *Sources of Drinking Water Policy* is met. The amendment implements the *Sources of Drinking Water Policy* as the policy intended. The region-wide process also assigns a LMUN beneficial use to water bodies that do not meet the exception so that their potential MUN use can be protected. This part of the amendment would be consistent with the *Sources of Drinking Water Policy* because the Board continues to designate the MUN use rather than removing it altogether.

Furthermore, the proposed Basin Plan Amendments include a proposal to remove the MUN use from 231 water bodies in the SLCC district. The findings in the case study discussed in Section 6.2 demonstrate that the 231 water bodies meet the Exception 2b in the *Sources of Drinking Water Policy*.

12.3.4 Pollutant Policy Document

- Resolution 90-67

This policy, adopted in 1990, requires in part, that the Central Valley and San Francisco Bay Water Boards use the Pollutant Policy Document (PPD) as a guide to update portions of their Basin Plans. The PPD requires that the Central Valley Water Board develop a Mass Emissions Strategy (MES) for limiting loads of pollutants from entering the Delta. The purpose of the MES is to control the accumulation in sediments and the bioaccumulation of pollutant substances in the tissues of aquatic organisms in accordance with the statutory requirements of the state Porter-Cologne Water Quality Act and the Federal C.

The proposed Basin Plan Amendments are not expected to increase the rate of accumulation of pollutants in sediment or bioaccumulation of pollutant substances in the tissues of aquatic organism and therefore, it would have no significant adverse effects in the Bay-Delta. Current monitoring and surveillance ensures the protection of water quality from degradation consistent with the *State Antidegradation Policy*.

12.3.5 Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code section 13304

- Resolution 92-49
- Resolution 94-49
- Resolution 96-79

The State Water Board adopted this policy in 1992 and updated this policy in 1994 and 1996. This policy contains procedures for the Central Valley Water Board to follow when issuing orders pursuant to Water Code section 13304 that require the cleanup of discharges of wastes that have impacted, or that threaten to impact, waters of the state.

The proposed Basin Plan Amendments do not change or circumvent the applicable procedures pertaining to cleanup and abatement activities. The proposed Basin Plan Amendments are consistent with this policy.

12.3.6 Consolidated Toxic Hot Spots Cleanup Plan

- Resolution 99-065
- Resolution 2004-0002

As required by Water Code section 13394, the Consolidated Toxic Hot Spots Cleanup Plan (Cleanup Plan) was adopted by the State Water Board in June 1999 and updated in 2004.

The proposed Basin Plan Amendments do not address any of the constituents needing cleanup plans. Therefore, the Cleanup Plan is not applicable.

12.3.7 Nonpoint Source Management Plan & the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program

- Resolution 99-114
- Resolution 2004-0030

In December 1999, the State Water Board adopted the Plan for California's Nonpoint Source (NPS) Pollution Control Program (NPS Program Plan) and in May 2004, the State Water Board adopted the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Policy). The NPS Policy explains how State and Regional Water Boards will use their administrative permitting authority under the Porter-Cologne Act to implement and enforce the NPS Program Plan. The NPS Policy requires all nonpoint source discharges to be regulated under WDRs, waivers of WDRs, a Basin Plan prohibition, or some combination of these administrative tools. The NPS Policy also describes the key elements that must be included in a nonpoint source implementation program.

While the proposed Basin Plan Amendments introduce a new water quality objective related to the LMUN beneficial use, the proposed Basin Plan Amendments do not change how the

management, implementation or enforcement activities of NPS pollution control programs are regulated.

12.3.8 Water Quality Enforcement Policy

- Resolution 2002-0040
- Resolution 2009-0083

The State Water Board adopted this policy in 2002 and updated in 2009. This policy ensures that enforcement actions are consistent, predictable, and fair. The policy describes tools that the State and Regional Water Boards may use to determine the following: type of enforcement order applicable, compliance with enforcement orders by applying methods consistently, and type of enforcement actions appropriate for each type of violation. The State and Regional Water Boards have authority to take a variety of enforcement actions under the Porter-Cologne Water Quality Control Act.

The proposed Basin Plan Amendments do not change how the water quality enforcement actions are taken and are therefore consistent with the policy.

12.3.9 Policy for Developing California's Clean Water Act Section 303(d) List (*Listing Policy*)

- Resolution 2004-0063
- Resolution 2015-0005

The *Listing Policy* was adopted in 2004 and updated in 2015. Pursuant to Water Code section 13191.3(a), this State policy for water quality control describes the process by which the State Water Board and the Regional Water Boards will comply with the listing requirements of CWA section 303(d). The *Listing Policy* establishes a standardized approach for developing California's section 303(d) list to achieve water quality standards and maintain beneficial uses in all of California's surface waters. The *Listing Policy* applies only to the listing process methodology used to comply with CWA section 303(d).

CWA section 303(d) requires states to identify waters that do not meet, or are not expected to meet by the next listing cycle, applicable water quality standards after the application of certain technology-based controls and schedule such waters for development of TMDLs (40 CFR §130.7(c) and (d).).

The policy requires that the listing of a water body needs to be re-evaluated if the water quality standard has been changed. The proposed Basin Plan Amendments will incorporate a structured process that the Board would follow to de-designate the MUN beneficial use where appropriate and to refine the MUN beneficial use to the LMUN beneficial use as conditions warrant.

Future 303(d) list development will consider revised MUN WQOs in the water bodies that follow the implementation process and meet the criteria in the framework to remove the MUN beneficial use or for changing the designation to LMUN.

Water bodies within the SLCC were evaluated based on the framework and MUN is recommended to be de-designated in 231 water bodies. None of the 231 water bodies submitted by SLCC and under consideration for these amendments have been listed as impaired on the 303(d) list due to MUN-related water quality objective.

12.3.10 Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California

- Resolution 2000-015
- Resolution 2000-030
- Resolution 2005-0019

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (a.k.a. State Implementation Plan or SIP) applies to discharges of toxic pollutants into the inland surface waters, enclosed bays, and estuaries of California subject to regulation under the Porter-Cologne Water Quality Control Act and the Federal CWA. Regulation of priority toxic pollutants may occur through the issuance of NPDES permits. The goal of the SIP is to establish a statewide, standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters.

The proposed Basin Plan Amendments do not make any changes to this policy. NPDES permits issued by the Board to regulate discharges into waterbodies where the MUN beneficial use has either been de-designated or where the MUN beneficial use has been refined to the LMUN beneficial use will still be required to ensure downstream protection of water quality through Reasonable Potential Analysis (RPA), CWA anti-backsliding requirements on effluent limitations, and a prohibition prohibiting the creation of nuisance conditions.

12.3.11 Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options

- Resolution 2005-0050

The State Water Board's Impaired Waters Policy incorporates the following:

- CWA section 303(d) identification of waters that do not meet applicable water quality standards and prioritization for TMDL development;
- Water Code section 13191.3(a) requirements to prepare guidelines to be used by the Regional Water Boards in listing, delisting, developing, and implementing TMDLs pursuant to CWA Section 303(d) of 33 USC Section 1313(d); and
- Water Code section 13191.3(b) requirements that State Water Board considers consensus recommendations adopted by the 2000 Public Advisory Group when preparing guidelines.

The Impaired Waters Policy includes the following statements:

A. If the water body is neither impaired nor threatened, the appropriate regulatory response is to delist the water body.

B. If the failure to attain standards is due to the fact that the applicable standards are not appropriate due to natural conditions, an appropriate regulatory response is to correct the standards.

C. The State Water Board and Regional Water Boards are responsible for the quality of all waters of the state, irrespective of the cause of the impairment. In addition, a TMDL must be calculated for impairments caused by certain EPA designated pollutants.

D. Whether or not a TMDL calculation is required as described above, impaired waters will be corrected (and implementation plans crafted) using existing regulatory tools.

D1. If the solution to an impairment will require multiple actions of the Regional Water Board that affect multiple persons, the solution must be implemented through a Basin Plan Amendment or other regulation.

D2. If the solution to an impairment can be implemented with a single vote of the Regional Water Board, it may be implemented by that vote.

D3. If a solution to an impairment is being implemented by a regulatory action of another state, regional, local, or federal agency, and the Regional Water Board finds that the solution will actually correct the impairment, the Regional Water Board may certify that the regulatory action will correct the impairment and if applicable, implement the assumptions of the TMDL, in lieu of adopting a redundant program.

D4. If a solution to an impairment is being implemented by a non-regulatory action of another entity, and the Regional Water Board finds that the solution will actually correct the impairment, the Regional Water Board may certify that the non-regulatory action will correct the impairment and if applicable, implement the assumptions of the TMDL, in lieu of adopting a redundant program."

The proposed Basin Plan Amendments do not affect the process to identify impaired water bodies and develop TMDLs.

The proposed Amendments will provide a process to evaluate and de-designate the MUN beneficial where it is appropriate in Ag dominated surface water bodies. This process will remove MUN-related WQOs for de-designated water bodies, but would still require protection of downstream beneficial uses. If these Ag dominated water bodies were listed as impaired, they can now be removed from the list for drinking water impairments.

12.3.12 Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits

- Resolution 2008-0025

The Policy authorizes the Regional Water Board to include a compliance schedule in a permit for an existing discharger to implement a new, revised, or newly interpreted water quality objective or criterion in a water quality standard that results in a permit limitation more stringent than the limitation previously imposed.

When an NPDES permit authorizing a discharge of waste to a waterbody where the MUN beneficial use has been de-designated or refined to the LMUN beneficial use is renewed, the MUN-related requirements will be evaluated. As part of this re-evaluation, a RPA will be conducted to see if there is potential for the discharge to cause or contribute to an exceedance in the receiving water and an antidegradation analysis to evaluate potential downstream impacts. If the evaluation concludes that there is no longer any potential for the constituents in the discharge to cause or contribute to an excursion above an applicable water quality objective, there will no longer be a need for a compliance schedule. For water bodies designated with the LMUN beneficial use, applicable water quality objectives may become less stringent than the MUN-related limitations that had been previously imposed, and a compliance schedule may no longer be needed. However, if dischargers regulated by NPDES permits are not able to meet LMUN-related permit limits in waterbodies designated with that use, the proposed Basin Plan Amendments would not change how the Board would impose compliance schedules.

12.3.13 Policy for Water Quality Control for Recycled Water

- Resolution 2009-0011
- Resolution 2013-0003

This Policy is intended to establish consistent and predictable requirements in order to increase the use of recycled water in California. This policy:

- Establishes mandates for the use of recycled water;
- Requires the development by stakeholders and the adoption by Regional Water Quality Control Boards of regional salt/nutrient management plans;
- Establishes requirements for regulating incidental runoff from landscape irrigation with recycled water;
- Establishes criteria and procedures for recycled water landscape irrigation projects eligible for streamlined permitting;
- Establishes procedures for permitting groundwater recharge projects;
- Establishes procedures for implementing the *State Antidegradation Policy* for recycled water projects;
- Requires the establishment of a scientific advisory panel to advise the State Water Board on regulation of constituents of emerging concern; and
- Establishes actions and incentives to promote the use of recycled water.

The proposed Basin Plan Amendments will not restrict the development or use of recycled water. The amendments increase the ability of Applicants to conserve and recycle water by ensuring appropriate designation and level of protection of MUN in water bodies. Therefore, the amendment is consistent with the policy.

12.3.14 Human Right to Water as a Core Value and Directing its Implementation in Water Board Programs and Activities

- State Water Board Resolution. 2016-0010
- Central Valley Water Board Resolution R5-2016-0018

See 12.2.3 for an evaluation of the proposed Basin Plan Amendments' consistency with Water Code section 106.3 and the Resolutions adopted to direct State and Regional Water Board staff to implement Water Code section 106.3.

12.3.15 Exception 2b and the Division of Drinking Water's "Extremely Impaired Sources Policy"

Water bodies that meet Exception 2b in the Sources of Drinking Water Policy were also recognized by the State Water Board Division of Drinking Water (DDW), which regulates public drinking water systems, when they developed a policy (when the division was part of the California Department of Health Services) on the use of "Extremely Impaired Sources" as drinking water sources. The policy listed agricultural drainage, recycled water, urban runoff and effluent dominated streams as examples of extremely impaired sources (Division of Drinking Water, 1997). While the policy does not preclude the use of impaired sources, it does state that extremely impaired sources with known or suspected contaminants "should not be considered for direct human consumption where alternatives are available".

12.4 CONSISTENCY WITH CENTRAL VALLEY REGIONAL WATER QUALITY BOARD POLICIES

The following are the Central Valley Water Board policies:

- Urban Runoff Policy
- Controllable Factors Policy
- Water Quality Limited Segment Policy
- Antidegradation Implementation Policy
- Application of Water Quality Objectives Policy
- Watershed Policy
- Drinking Water Policy

12.4.1 Urban Runoff Policy

On page IV-14.00 of the Basin Plan, the Central Valley Water Board's Urban Runoff Policy states:

> "a. Subregional municipal and industrial plans are required to assess the impact of urban runoff on receiving water quality and consider abatement measures if a problem exist.
>
> "b. Effluent limitations for storm water runoff are to be included in NPDES permits where it results in water quality problems."

Storm water dischargers to these water bodies are not required to consider abatement measures nor has there been a need to include effluent limitations for these dischargers. Because the proposed Basin Plan Amendments are to de-designate MUN or refine to LMUN, there will be less need for abatement and effluent limitations for storm water dischargers.

12.4.2 Controllable Factors Policy

On page IV-15.00 of the Basin Plan, the Central Valley Water Board's Controllable Factors Policy states:

> "Controllable water quality factors are not allowed to cause further degradation of water quality in instances where other factors have already resulted in water quality objective being exceeded. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the State, that are subject to the authority of the State Water Board or Central Valley Water Board, and that may be reasonably controlled."

There is no expected change to the existing water quality due to the proposed Basin Plan Amendments; therefore, the proposed Basin Plan Amendments are consistent with the Controllable Factors Policy

12.4.3 Water Quality Limited Segment Policy

On page IV-15.00 of the Basin Plan, the Central Valley Water Board's Water Quality Limited Segment Policy states:

> "Additional treatment beyond minimum federal requirements will be imposed on dischargers to Water Quality Limited Segments. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment."

The proposed Basin Plan Amendments de-designate the MUN beneficial use or refine to LMUN, where it is appropriate.

If the MUN-related WQOs are removed from 303(d) listed water bodies currently identified as MUN impaired, staff will need to reassess the water bodies. Future assessment of water bodies will need to account for any beneficial use or water quality objective change that may result from implementing this amendment.

The proposed Basin Plan Amendments do not change how this policy is implemented for other applicable beneficial uses.

The 2010 CWA Section 303(d) list does not identify any MUN-related constituents causing impairments to the 231 water bodies in this Basin Plan Amendment project.

12.4.4 Antidegradation Implementation Policy

Consistency of the proposed Basin Plan Amendments with the federal and state Antidegradation policies is discussed earlier in Section 12.1.

12.4.5 Application of Water Quality Objectives Policy

Excerpts from Policy for Application of Water Quality Objectives are presented below. The full text can be found on page IV-16.00 of the Basin Plan.

> "Water quality objectives are defined as 'the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water, or the prevention of nuisance within a specific area.' … Water quality objectives may be stated in either numerical or narrative form. Water quality objectives apply to all waters within a surface or ground water resource for which beneficial uses have been designated…"
>
> "The numerical and narrative water quality objectives define the least stringent standards that the Regional Water Boards will apply to regional waters in order to protect beneficial uses."

The Basin Plan Amendments propose to establish a region-wide process for evaluating the MUN beneficial use in Ag dominated surface water bodies and establishment of the refined LMUN beneficial use. Through the process, water bodies will either have the existing MUN beneficial use de-designated, or refined to the LMUN beneficial use. The Basin Plan Amendments will not modify or change how the applicable numeric or narrative WQOs are applied, so this policy is not applicable.

12.4.6 Watershed Policy

On page IV-21.00 of the Basin Plan, the Central Valley Water Board's Watershed Policy states:

> "The Regional Water Board supports implementing a watershed based approach to addressing water quality problems. The State and Regional Water Boards are in the process of developing a proposal for integrating a watershed approach into the Board's programs. The benefits to implementing a watershed based program would include gaining participation of stakeholders and focusing efforts on the most important problems and those sources contributing most significantly to those problems."

The proposed Basin Plan Amendments were developed with the assistance of a stakeholder workgroup and is consistent with taking a watershed-based approach to addressing water quality issues and concerns. Evaluations were based on groups of water bodies with similar characteristics, rather than individual water bodies and case studies were conducted in the Sacramento, San Joaquin, and Tulare Lake Basin.

12.4.7 Drinking Water Policy for Surface Waters of the Delta and its Upstream Tributaries

This Policy includes a narrative water quality objective for *Cryptosporidium* and *Giardia*, along with implementation provisions to maintain existing conditions for public water systems. Applicable provisions from this Policy include the requirements to upstream dischargers when implementation actions for *Cryptosporidium* and *Giardia* are triggered by monitoring at a public water system. In addition, the Policy recommends that the Central Valley Water Board consider the necessity of including monitoring of organic carbon, salinity and nutrients when WDRs are renewed.

The proposed Basin Plan amendments do not change implementation of the Drinking Water Policy and staff have evaluated the ongoing monitoring of these drinking water constituents.

13 ENVIRONMENTAL AND ECONOMIC ANALYSIS

13.1 ENVIRONMENTAL REVIEW

13.1.1 Background

The Central Valley Water Board, as a Lead Agency under CEQA (Pub. Res. Code, § 21000 et seq.), is responsible for evaluating all the potential environmental impacts that may occur due to changes made to the Basin Plans. The Secretary of Resources has determined that the Central Valley Water Board's basin planning process qualifies as a certified regulatory program pursuant to Public Resources Code section 21080.5 and California Code of Regulations, title 14, section 15251(g). This determination means that the Central Valley Water Board is exempt from the requirement to prepare an environmental impact report for basin planning activities. Instead, this Staff Report and the Environmental Checklist (Appendix L) satisfy the applicable CEQA requirements.

This section and the Environmental Checklist evaluate the proposed amendment to the Basin Plan discussed in this Staff Report. The proposed amendment would establish a region-wide process for evaluating the MUN beneficial use currently designated in Ag dominated surface water bodies and closed controlled recirculating systems throughout the Sacramento River, San Joaquin River and Tulare Lake basins.

As a second component of this Basin Plan Amendment project, this process has been applied to 231 Ag dominated surface water bodies within the SLCC service area, located within the San Joaquin River Basin. The outcome from the process applied to the SLCC water bodies proposed in this amendment is to de-designate the MUN use from all 231 Ag dominated surface water bodies evaluated. The proposed amendment would also establish a Program of Implementation, which includes Monitoring and Surveillance programs, to ensure that water bodies will be in compliance with all applicable WQOs.

13.1.2 Setting/Baseline

The setting is the existing physical condition (or baseline) within the affected environment against which the environmental conditions with a proposed project are assessed for determining environmental impacts. The affected environment for the proposed Basin Plan Amendments is the Central Valley Water Board's jurisdictional area. The Basin Plan Amendments address Ag dominated surface water bodies and closed controlled recirculating systems in the Central Valley region. Thus, the environmental setting against which the proposed Basin Plan Amendment is assessed includes the following characteristics:

- Existing water body quality, hydrology and operations of Ag dominated surface water bodies, closed controlled recirculating systems, and downstream water bodies.
- Existing quality and quantity of discharges to Ag dominated surface water bodies and closed controlled recirculating systems (including discharges from irrigated agriculture, POTW wastewater effluent and storm water).
- Existing regulatory programs and policies applicable to the regulation of water quality in the Central Valley Region.

Existing hydrology within the Central Valley Region is that as affected by the existing inflow and outflow regimes of federal, state, and local water project operations for hydropower, instream flow requirements, and water deliveries; existing rainfall-runoff flow patterns; and discharges to surface waters from storm water, agriculture, and POTWs. Existing water quality within the

Central Valley Region is that as represented by, and affected by, the existing hydrology and discharge operations.

Existing quality of discharges to Ag dominated surface water bodies and closed controlled recirculating systems is the quality of the discharges resulting from implementation of current treatment processes and best management practices. Existing quantity of discharges is that which occurs currently from point-source discharges from existing service areas, storm water discharges from existing land areas, and agricultural discharges from existing operations.

Existing regulatory programs and policies are those that currently regulate the point-source, agricultural and storm water discharges and receiving water operations and water quality. These programs and policies include, but are not limited to, the following.

- The NPDES program to regulate point source discharges to surface water, including municipal wastewater treatment plants (WWTP) and medium to large municipal separate storm sewer systems (MS4s) serving populations greater than 10,000.
- ILRP to ensure that agricultural discharges do not adversely affect beneficial uses.
- State Water Board Recycled Water Policy (Resolution No. 2009-0011, amended by Resolution No 2013-0003).
- Storm Water General Permit programs for construction and industrial activities.
- Water Quality Certification program for dredge and fill activities.
- The *Sources of Drinking Water Policy* which assumes that all surface and ground water has the potential to provide MUN unless specific exceptions are met.
- The State Water Board Policy with Respect to Maintaining High Quality of Waters (Resolution 68-16 or Antidegradation Policy).

13.1.3 Proposed Project Analysis

The proposed Basin Plan Amendments would incorporate a standardized process under which the Board could review and, if appropriate, remove or refine MUN designations from Ag dominated surface water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins. Under the proposed process, the MUN beneficial use designation would only be removed from a waterbody or refined to the LMUN beneficial use if the water body is not already listed in the Basin Plan with the MUN beneficial use and/or currently being utilized for the MUN beneficial use. In addition, the MUN beneficial use would only be removed consistent with Exception 2b of the Sources of Drinking Water Policy.

The rationale for removing or refining the MUN use in Ag dominated surface water bodies and closed controlled recirculating systems is that they are generally limited by one or more factors, including low/intermittent flows, hydrologic modifications, and physical conditions (e.g., they are constructed or have been modified for the purpose of conveying or holding agricultural drainage waters).

The analysis in this Staff Report and the Environmental Checklist concludes that the proposed Basin Plan Amendments would have **no impact** on the following environmental resources:

- aesthetics,
- agricultural and forestry resources,
- air quality,

- cultural resources,
- geology and soils,
- greenhouse gas emissions,
- hazards and hazardous materials,
- hydrology,
- land use planning,
- mineral resources,
- noise,
- population and housing,
- public services,
- recreation, and
- transportation/traffic.
-

Furthermore, the analysis in this Staff Report and the Environmental Checklist concludes that the proposed Basin Plan Amendments would have **a less than significant impact** on the following environmental resources:

- biological resources,
- water quality, and
- utilities and service systems..

Since the proposed Basin Plan Amendments are not expected to cause any potentially significant environmental impacts, this Staff Report does not propose any mitigation measures or alternatives to reduce or avoid significant impacts.

The proposed Basin Plan Amendments would also result in the de-designation of MUN from 231 specified water bodies within the SLCC service area. The de-designation of MUN from these water bodies is not expected to result in any environmental impacts, because there would not be any alteration of current practices or any change to existing conditions as a result of this regulatory action. The SLCC is a member of the ILRP's Westside Coalition and will continue to operate, discharge, and monitor overall water quality in accordance with the approved Westside Management Plan (October 2008) and focused management plans targeting pesticide and toxicity reductions.

13.1.4 Cumulative Impact Analysis

Cumulative impacts refer to one or more individual effects which, when taken together, are considerable or which compound or increase other environmental impacts. Cumulative impacts are the result of the incremental impact of a project when added to other closely related past, present, and reasonably foreseeable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

The Environmental Checklist and the analysis contained herein concludes that the proposed Basin Plan Amendments would have no impact on aesthetics, agricultural and forestry resources, air quality, geology and soils, greenhouse gas emissions, hazards and hazardous

materials, hydrology, land use and planning, mineral resources, noise population and housing, public services, recreation, and transportation / traffic. Thus, the proposed Basin Plan Amendments do not in any way contribute to cumulative impacts in these resource categories.

In addition, the Environmental Checklist and the analysis contained herein concludes that the proposed Basin Plan Amendments would have no impact to water quality and biological resources for the SLCC water bodies addressed. Thus, the proposed Basin Plan Amendments do not in any way contribute to cumulative impacts in these resource categories with respect to the portions of the proposed Basin Plan Amendments that relate to the SLCC water bodies.

The Environmental Checklist and the analysis contained herein concludes that the proposed Basin Plan Amendments, when addressing the MUN use in other Ag dominated surface water bodies and in closed controlled recirculating systems (other than the SLCC water bodies), would have a less than significant impact on water quality and biological resources.

13.1.4.1 Water Quality

Because the Basin Plan is not self-implementing, the Board's adoption of the proposed Basin Plan Amendments itself would not authorize any activities that would cause adverse water quality impacts. However, it is reasonably foreseeable that, following the adoption of the Basin Plan Amendments, the Board will revise permits issued to certain dischargers that discharge wastes into water bodies where the MUN beneficial use will be de-designated or refined pursuant to the process established by the proposed Basin Plan Amendments. Revised permits would no longer require compliance with WQOs or criteria developed solely for the protection of the MUN use. However, any cumulative impacts to water quality that could occur as a result of the adoption of the proposed Basin Plan Amendments are expected to be less than significant because the Board will still be obligated to protect downstream MUN uses to the extent that any discharges regulated by the Board exhibit a reasonable potential to adversely affect those uses.

This section discusses the reasonably anticipated impacts to water quality that could occur as a result of the Board's adoption of the proposed Basin Plan Amendments by evaluating the impacts that could occur as a result of the Board's revision of permits for dischargers that discharge wastes into water bodies where the MUN beneficial use would be de-designated or refined. These dischargers include:

- Agricultural operations regulated by the Board's Irrigated Lands Regulatory Program;
- NPDES permittees; and
- Municipal Separate Storm Sewer System permittees.

Since these discharger categories form the vast majority of regulated entities whose permits may be affected by permit revisions that would occur following the adoption of the proposed Basin Plan Amendments, all other past, present, and reasonably foreseeable projects/actions not associated with these entities are not expected to have any individually or cumulatively significant impacts on water quality.

Potential for Future Agricultural Discharges to Result in Cumulatively Significant Water Quality Impacts, including in Year-round Closed and Seasonally Closed Controlled Recirculating Systems, following the Adoption of the Proposed Basin Plan Amendments

Agricultural activities have been ongoing within the Central Valley for over a century and the majority of the constructed, modified and ag dominated water bodies have been an integral part of established agricultural production activities for several decades. Until 2005, dischargers and regulators operated as if exception 2b in the Sources of Drinking Water Policy was self-implementing and have not managed practices to insure that water quality within water bodies

designed or modified to convey agricultural drainage would also meet Title 22 MCLs and provide potable water supply without treatment. Therefore, water quality within the agricultural network today mirrors to a great extent anticipated water quality after utilization of the exception 2b through this project.

The Central Valley Water Board regulates agricultural discharges from irrigated lands under the Board's Irrigated Lands Regulatory Program (ILRP). The Board's ILRP regulates agricultural discharges via series of General Orders issued to third-party coalitions (representatives of agricultural growers). These General Orders require that the coalitions conduct evaluations of grower management practices to ensure they are protective of groundwater and surface water in immediate and downstream receiving waters, and require coordinated monitoring at specified monitoring points that have been determined to be representative of water quality within the watersheds. Should the coordinated monitoring efforts reveal water quality problems that are occurring as a result of discharges from irrigated agriculture, the coalitions are required to develop and implement regional water quality management plans. The ILRP is generally resulting in improved water quality throughout the Sacramento, San Joaquin and Tulare Lake basins.

The proposed Basin Plan Amendments would allow growers to propose that the MUN beneficial use be de-designated or refined to the LMUN beneficial use in certain Ag dominated water bodies in the Central Valley Region. Once the MUN beneficial use is de-designated or refined to the LMUN beneficial use in a specific water body, the ILRP General Orders would no longer require compliance with WQOs or criteria developed solely for the protection of the MUN use in that water body. This change would potentially allow agricultural dischargers to discharge wastes with higher concentrations of certain constituents related to the MUN beneficial use, which would likely result in an increase in water reuse (increased water reuse has the potential to result in increased constituent concentrations, such as for salinity-related parameters such as EC and TDS). This practice, in turn, may result in changes in agricultural diversion and return-flow discharge operations due to the increased utilization of reused water. The increased availability of reused water could also result in additional irrigated acreage, which could similarly result in increased constituent concentrations for constituents related to the MUN beneficial use.

In addition, agricultural discharges that discharge into year-round closed and seasonally closed controlled recirculating systems would also be authorized to discharge wastes with higher concentrations of certain constituents related to the MUN beneficial use after the MUN beneficial use was de-designated or refined to the LMUN beneficial use in those systems. The Board would expect to see similar increases in water reuse and changes in diversion and return-flow discharge operations in these systems.

There may be some reduction in agricultural acreage due to future urban development on lands currently used for agriculture, the effects of which are discussed in the stormwater section below. However, the amount of land converted from agricultural use would be relatively small compared to that which would remain in production, such that the overall agricultural inflow and outflows of the receiving waters would be expected to be similar to existing conditions.

The potential agriculturally-related impacts that could occur as a result of the adoption of the proposed Basin Plan Amendments are ultimately not expected to result in any cumulatively significant impacts for two primary reasons. First, baseline conditions reflect the fact that agricultural operations have historically been managed as if exception 2b of the Sources of Drinking Water Policy was self-implementing and have progressively included increased reuse of limited water supplies. Significant changes to management due to formal implementation of the exception are not anticipated. Second, the ILRP General Orders will still require that the coalitions ensure that grower practices are protective of designated beneficial uses downstream

of the water bodies where the MUN beneficial use would either be de-designated or refined to the LMUN beneficial use. The representative monitoring program established by the ILRP will remain in place even after changes are made to MUN beneficial use designations, and the coalitions will still be required to develop and implement regional water quality management plans if water quality problems are discovered.

Potential for NPDES Permit Revisions to Result in Cumulatively Significant Water Quality Impacts

Any new or expanded discharge from a POTW that discharges into an Ag dominated surface water body or closed controlled recirculating systems with the MUN use de-designated or refined to LMUN, as appropriate, will be required to comply with NPDES permit limitations developed to protect the designated beneficial uses for the water body into which the POTW discharges, as well as all of the beneficial uses designated for downstream water bodies that the discharge may influence, including the MUN use if designated for the downstream water body. When a permittee proposes a new or expanded discharge, they must submit a new report of waste discharge to the Board, and the Board will be required to conduct a new antidegradation analysis and a new RPA before the Board can issue a renewed NPDES permit. In this manner, the Board would ensure that all designated beneficial uses, both within the direct receiving water body and the downstream water bodies, would continue to be protected. Consequently, only minor degradation of water quality within the direct receiving water body and downstream water bodies that is consistent with the State antidegradation policy and approved by the Central Valley Water Board would be allowed to occur in the future. This would result in minimal changes in water quality relative to existing conditions and such changes are not expected to be cumulatively significant.

Potential for MS4 Permit Revisions to Result in Cumulatively Significant Water Quality Impacts

Similar to discharges from agricultural lands and from POTWs, the Central Valley Water Board may revise compliance requirements for MS4 permittees that discharge to Ag dominated water bodies, at least as such requirements relate to with WQOs or criteria developed solely for the protection of the MUN use. Although there is a potential for there to be increases in the volume of storm water discharged from MS4s serving communities in the Central Valley Region due to anticipated urban development, increases in pollutant loading that could occur as a cumulative effect of the additional volumes and the changes to the MS4 permit requirements are not expected to be significant. This is because small MS4s serving less than 10,000 people, qualifying industrial and commercial facilities, and construction sites disturbing one or more acres of land will still be required to implement Best Management Practices (BMPs) to control CWA Section 303(d)-listed pollutants and other pollutants of concern. In addition, the general permit for small MS4s incorporates Low Impact Development requirements to reduce urban runoff in areas of new development and redevelopment. Storm Water General Permit programs would regulate storm water discharges and future construction and industrial activities. Although urban development along Ag dominated surface water bodies and closed controlled recirculating systems could increase in the future, sufficient regulatory programs and permits are in place to ensure that water quality within the water bodies will not be significantly degraded relative to existing conditions.

Potential for Permit Revisions for Agricultural Discharges, NPDES Discharges, and MS4 Discharges to Result in Cumulatively Significant Water Quality Impacts

De-designating the MUN beneficial use or reassigning the MUN beneficial use to the LMUN beneficial use in numerous Ag dominated water bodies throughout the Central Valley Region may result in additional pollutant loading as permits are revised to account for the changes in

beneficial use designations (as explained above, permits issued to authorize discharges into such water bodies would no longer require compliance with WQOs or criteria developed solely for the protection of the MUN use in these waterbodies). However, any additional pollutant loading is expected to be quite limited, because the Board will still be required to protect the remaining beneficial uses in the water bodies whose beneficial uses have changed as well as the beneficial uses in downstream water bodies, and will still be required to comply with the *State Antidegradation Policy* when authorizing any actions that could degrade high-quality waters.

13.1.4.2 Biological Resources

Because the Basin Plan is not self-implementing, the Board's adoption of the proposed Basin Plan Amendments itself would not authorize any activities that would result in any adverse impacts to biological resources. However, as is the case with potential impacts to water quality, it is reasonably foreseeable that, following the adoption of the Basin Plan Amendments, the Board will revise permits issued to certain dischargers that discharge wastes into water bodies where the MUN beneficial use will be de-designated or refined. Revised permits would no longer require compliance with WQOs or criteria developed solely for the protection of the MUN use, and that in turn could result in increased pollutant concentrations. However, any cumulative impacts to biological resources that could occur as a result of the proposed Basin Plan Amendments are expected to be less than significant because the proposed Basin Plan Amendments will not have any impact on the beneficial use designations related to the protection of aquatic life (e.g., WARM, COLD, WILD, BIOL, RARE, MIGR, SPWN). In addition, any increased MUN-related pollutant loading is not expected to be significant in combination with any other current or reasonably foreseeable impacts that could affect biological resources within the project area.

Potential for Future Agricultural Discharges to Result in Cumulatively Significant Impacts to Biological Resources, including in Year-round Closed and Seasonally Closed Controlled Recirculating Systems, following the Adoption of the Proposed Basin Plan Amendments

As discussed above for water quality, increased reuse of water and expanded agricultural acreage have the potential to result in some modifications in the timing and quantity of discharges to receiving waters. Also, there could be some degree of reduction in agricultural acreage in local areas due to urban development may occur on lands currently used for agriculture. Reductions in agricultural return flows may be offset to some degree by increases in urban runoff discharges, and the highly managed nature of discharges from agricultural lands would continue as it does under existing conditions. As such, the amount of wetted habitat availability for biological resources is not expected to change substantially in the future compared to existing conditions.

Because agricultural practices and surrounding land uses will not change substantially, the water body substrates, temperature, and dissolved oxygen levels (i.e., key physical parameters for aquatic biological resources) are not expected to be degraded in the future, relative to existing conditions. Because no substantial reduction in wetted habitat is expected due to changes in operations or irrigated acreage, aquatic habitat availability within the water bodies as affected by agricultural operations would not change in any significant manner relative to existing conditions due to the adoption of the proposed Basin Plan Amendments.

Agricultural maintenance activities such as the treatment for aquatic vegetation or dredging of accumulated sediments are expected to continue to occur in the future in much the same manner and frequency as they currently occur. These activities must be conducted in a manner that complies with applicable permits (e.g., CWA Section 401 Water Quality Certifications, CWA

Section 404 permit, California Department of Fish and Wildlife streambed alteration agreements). As such, they are expected to occur in the water bodies that would be affected by the proposed Basin Plan Amendments under future cumulative conditions in a manner that does not result in adverse impacts to biological resources, relative to existing conditions.

Future Cumulative Physical Biological Resource Conditions of Water Bodies as Affected by POTW Discharges

As discussed above for water quality, the Central Valley Water Board, through the NPDES program, will ensure that any expanded discharge from a POTW that discharges into an Ag dominated surface water body or closed controlled recirculating system with the MUN use de-designated or refined to LMUN will be required to comply with NPDES permit limitations developed to protect both the designated beneficial uses for the water body into which the POTW discharges and the beneficial uses designated for downstream water bodies. As such, any additional POTW discharges will be of a quality that ensures the protection of biological resource-related beneficial uses as applicable (e.g., WARM, COLD, WILD, BIOL, RARE, MIGR, SPWN).

The flow added to Ag dominated surface water bodies and closed controlled recirculating systems by area population growth and an expanded POTW discharge could actually provide greater amounts of aquatic habitat, relative to existing conditions While state recycled water policies encourage reuse of treated wastewater over surface water discharges, there is the potential for at least seasonal increases in POTW discharges in the future (e.g., discharges in the winter when recycled water demand is low). Therefore, future POTW discharges to Ag dominated surface water bodies and closed controlled recirculating systems may be anticipated to result in greater amounts of wetted habitat relative to existing conditions.

Based on their continued regulation according to applicable NPDES permitting requirements, including water quality-based effluent limitations developed for the protection of aquatic life and technology-based effluent limitations for biochemical oxygen demand and total suspended solids, additional POTW discharges are not expected to adversely affect water body substrates, temperature, or dissolved oxygen by levels in a manner that would be expected to adversely affect the aquatic biological resources of either the direct receiving water body or downstream water bodies.

Future Cumulative Biological Resource Conditions of Water Bodies Affected by Storm Water Discharges

The volume of stormwater discharges to Ag dominated surface water bodies and closed controlled recirculating systems is either expected to remain similar in the future or increase (as area population increases), relative to existing conditions. Like POTWs, stormwater discharges are regulated and permitted by the Central Valley Water Board and thus the quality of these discharges will be maintained or improved over time. While the state policies encourage reuse of stormwater, there may be increases in future stormwater discharges to Ag dominated surface water bodies and closed controlled recirculating systems associated with future urban development, which would result in greater amounts of wetted habitat, relative to existing conditions. Based on their quality, any additional stormwater discharges would not be expected to adversely affect water body substrates, temperature, or dissolved oxygen by levels that would adversely affect the aquatic biological resources of the direct receiving water body, or downstream water bodies.

Future Cumulative Biological Resource Conditions of Water Bodies Affected by Habitat Restoration Actions

Lastly, removing the MUN beneficial use or refining the MUN beneficial use to the LMUN beneficial use in certain Ag dominated water bodies may encourage the development of habitat restoration projects, which would be expected to substantially improve biological resource conditions in affected bodies. It is possible that MUN-related water quality objectives in certain Ag dominated water bodies currently represent a barrier to permitting habitat restoration projects. The removal of MUN-related water quality objectives through the process described in the proposed Basin Plan Amendments would potentially facilitate additional habitat restoration projects.

Any future projects designed to restore or enhance existing aquatic biological habitats in water bodies that would be affected by the proposed Basin Plan Amendments, would, by definition, result in a beneficial impact to biological resources of the water body.

13.1.4.3 Utilities and Service Systems (Water Purveyors)

As discussed in detail under Section 13.1.4.3 related to water quality, the Basin Plan is not self-implementing. The Board's adoption of the proposed Basin Plan Amendments itself would not authorize any activities that would cause adverse water quality impacts. However, it is reasonably foreseeable that, following the adoption of the Basin Plan Amendments, the Board will revise permits issued to certain dischargers that discharge wastes into water bodies where the MUN beneficial use will be de-designated or refined pursuant to the process established by the proposed Basin Plan Amendments.

De-designating the MUN beneficial use or refining the MUN beneficial use to the LMUN beneficial use in numerous Ag dominated water bodies throughout the Central Valley Region may result in additional pollutant loading as permits are revised since discharges into select water bodies would no longer require compliance with WQOs or criteria developed solely for the protection of the MUN. However, the potential agriculturally-related impacts that could occur as a result of the adoption of the proposed Basin Plan Amendments are expected to result in less than significant cumulative impacts for two primary reasons. First, baseline conditions reflect the fact that agricultural operations have historically been managed as if exception 2b of the Sources of Drinking Water Policy was self-implementing and have progressively included increased reuse of limited water supplies. Significant changes to management due to formal implementation of the exception are not anticipated. Second, the ILRP General Orders will still require that the coalitions ensure that grower practices are protective of designated beneficial uses downstream of the water bodies where the MUN beneficial use would either be de-designated or refined to the LMUN beneficial use. The representative monitoring program established by the ILRP will remain in place even after changes are made to MUN beneficial use designations, and the coalitions will still be required to develop and implement regional water quality management plans if water quality problems are discovered. The Board will still be required to protect the remaining beneficial uses in the water bodies whose beneficial uses have changed as well as the beneficial uses in downstream water bodies, and will still be required to comply with the *State Antidegradation Policy* when authorizing any actions that could degrade high-quality waters.

Potential increased pollutant loading, though it would not adversely affect beneficial uses, may nonetheless cause increased costs to certain water purveyors. This potential increase is because water purveyors may be required to conduct additional testing when concentrations of certain chemical constituents increase, even though such increases may not result in exceedances of regulatory thresholds designed to protect beneficial uses. Increase

concentrations of certain constituents, such as turbidity, aluminum, iron and manganese may also result in increased costs to adjust treatment practices (e.g. coagulation/filtration) prior to delivery to consumers. Though certain monitoring and treatment costs may increase, the Board expects such cost increases to cause a less than significant cumulative impact, because current practices are not anticipated to change significantly and the Board will still place restrictions on pollutant increases that result from changes to and/or increases of discharges to a system as described above.

13.1.5 No Action Alternative Analysis

Because the Proposed Project Analysis concluded that the proposed Basin Plan Amendments would not cause any significant or potentially significant environmental impacts, no analysis of alternatives to determine whether an alternative could lessen or eliminate significant impacts of the proposed project is required, because there were none. However, this report includes a discussion of a No Action Alternative to provide additional context for decision-making parties.

Under the No Action Alternative, there would be no change to any existing MUN designations in in Ag dominated surface water bodies and closed controlled recirculating systems in the Sacramento River and San Joaquin River Basins, including water bodies of the SLCC. Thus, WQOs /criteria for protection of the MUN use would continue to apply to these water bodies. For a POTW discharge to an Ag dominated surface water body or closed controlled recirculating system, this may mean implementing new treatment processes to remove constituents that would cause exceedance of MUN objectives/criteria (i.e., drinking water MCLs and CTR criteria for the consumption of water and organisms), or alternative disposal methods (e.g., water recycling, disposal to land). For agricultural discharges into an Ag dominated surface water body or closed controlled recirculating system, this may mean additional implementation of BMPs, such as irrigation water management and tailwater recovery systems. For storm water discharges, this may mean implementing additional BMPs or more frequent BMP maintenance for discharges causing exceedance of MUN objectives/criteria in Ag dominated surface water bodies and closed controlled recirculating systems.

The modifications that would be required for POTWs to achieve compliance with MUN-related objectives/criteria would undergo project-specific CEQA evaluations. Environmental impacts that could occur during POTW improvement projects may include temporary impacts to air quality, noise, water quality, biological resources, traffic, and cultural resources associated with construction activities, though these can generally be mitigated to less than significant levels. Significant long-term impacts to environmental resources would generally not be expected because these projects typically involve reduction in pollutant loadings, and the new construction is typically within the existing site footprint. There may be increases in impervious areas, but because these areas would be small relative to the watersheds as a whole, this would not be expected to reduce groundwater recharge or adversely increase storm water runoff amounts or quality. Finally, modifications to POTWs to achieve compliance with MUN-related objectives/criteria may notably increase the power requirements of the POTW, relative to its existing power requirements, depending on the type and magnitude of treatment modifications required. This could also generate an increase in greenhouse gas emissions.

The implementation of additional storm water BMPs would occur as part of MS4 storm water management plans and compliance with NPDES permits. No significant environmental impacts would be expected to occur, as BMPs contribute to reduction in pollutant loadings.

The effects of agricultural dischargers having to meet MUN-related objectives/criteria would be drastic changes in the delivery, management, and discharge of irrigation and tail water. Actions

that could be considered include greater on-farm recirculation of water and ceasing of discharges. An extreme measure for compliance would be treatment of water prior to discharge into a drain. Another action would be installation of hundreds of miles of pipe to eliminate open channel drains, making the irrigation and tail conveyance systems no longer waters of the state, and discharge into a water body with a high capacity for dilution or treatment. Because of the economic infeasibility of such actions (see Section 13.2) having to meet MUN-related objectives/criteria in certain Ag dominated surface water bodies and closed controlled recirculating systems could result in a significant impact on agricultural resources, such as the conversion of farmland to a non-agricultural use.

13.2 ECONOMIC ANALYSIS

13.2.1 Background

California Law requires a consideration of economics when: (i) establishing water quality objectives (Wat. Code, § 13241); (ii) implementing an agricultural water quality control program (Wat. Code, § 13141); and (iii) when adopting an amendment that will require the installation of pollution control equipment or is a performance standard or treatment requirement (Pub. Resources Code, § 21159).

13.2.1.1 Water Code section 13241

Water Code section 13241 requires that the Central Valley Water Board consider six elements when adopting or modifying water quality objectives. The Water Code allows that the "it may be possible for the quality of water to be changed to some degree without unreasonably affecting beneficial uses." (Wat. Code, § 13241.) In potentially allowing for those changes in water quality, the Central Valley Water Board must consider:

(a) Past, present, and probable future beneficial uses;

(b) Environmental characteristics of the hydrographic unit under consideration, including the quality of water;

(c) Water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area;

(d) Economic considerations;

(e) The need for developing housing within the region;

(f) The need to develop and use recycled water.

13.2.1.2 Water Code section 13141

Water Code section 13141 states that, "prior to implementation of any agricultural water quality control program, an estimate of the total cost of such a program, together with an identification of potential sources of financing, shall be indicated in any regional water quality control plan." Section 1.2.1 describes the costs for implementing agricultural water quality control program in the no-action alternative. Section 1.2.1.3 describes the identification of potential sources of financing and the need to develop a comprehensive and regional financial strategy.

13.2.1.3 Public Resources Code section 21159

California Public Resources Code section 21159 requires that an agency must perform "an environmental analysis of the reasonably foreseeable methods of compliance" for "…a rule or regulation that requires the installation of pollution control equipment or a performance standard

or treatment requirement." The environmental analysis, contained in this Staff Report, must include a consideration of economic factors. (Pub. Resources Code, § 21159, subd. (c).)

13.2.2 Overview of the Economic Analysis

Entities potentially affected by the proposed Basin Plan Amendments, and subsequent permitting actions by the Board would include: 1) agricultural operations that utilize affected water bodies for agricultural water supply and discharge return flows into these water bodies; 2) point discharges of wastes which are regulated by the NPDES program, including POTWs, industrial dischargers, fish hatcheries, etc.; 3) Municipal Separate Storm Sewer Systems (MS4s) that discharge into these water bodies; and 4) water purveyors responsible for providing potable water to consumers.

The economic analysis for the Proposed Amendment and the No Action alternative includes two specific elements:

- *Implementation Costs* – This element addresses the direct implementation costs specific to the alternative, including capital expenditures, long term operation and maintenance (O&M) costs, including monitoring, labor costs, and Program of Implementation costs (associated with amendments to the Basin Plan). For this analysis, the costs of the Proposed Amendment are compared to the No Action alternative to determine whether the Proposed Amendment is cost effective to implement. Costs were quantified where possible. If inadequate information or uncertainty limited the ability to quantify costs, a qualitative evaluation was performed.
- *Regional Economic Effects* – A regional economic effects analysis considers the changes in local economic activity as a result of a project or action. Effects are evaluated in factors such as employment, income, economic output, and other economic parameters. Total effects include direct, indirect, and induced effects. Indirect and induced effects are the result of "multiplier effects" and account for changes in business activity of support industries and changes in household income as a result of a direct effect. Indirect economic effects can also occur as a result of environmental impacts. This analysis considers environmental impacts identified in the CEQA analysis for potential indirect economic impacts.

13.2.3 No Action Alternative Analysis

Under the No Action Alternative, there would be no change to any existing MUN designations in Ag dominated water bodies in the Sacramento River and San Joaquin River Basins. Thus, WQOs /criteria for protection of the MUN use would continue to apply to these water bodies. Under this alternative, discharges would need to comply with effluent limitations imposed to protect the MUN beneficial use, based on existing MUN WQOs.

13.2.3.1 Agricultural Discharges

13.2.3.1.1 Implementation Costs

Under the No Action Alternative, agricultural dischargers would need to comply with MUN WQOs for all discharges into an Ag dominated surface water body with a MUN designation. There are various options for complying, including eliminating agricultural discharges into MUN water bodies or treating discharges to meet MUN standards.

Eliminating discharges could be met through construction of on-farm recirculation systems for each farm within a district or through the construction of a district-wide recirculation system. General costs for an on-farm recirculation system and a regional, district-level tailwater

recirculation system were estimated and are presented below. The SLCC will also be used as a pilot area to estimate concept-level costs for modifying the irrigation and drain system to comply with MUN beneficial use requirements.

Grattan *et al.*, (Grattan, 2014), noted that the "reuse of drainage water is recognized as a viable means of reducing the amount of saline-sodic spent water that will ultimately require treatment or disposal in the western San Joaquin Valley." Recirculation and reuse requires changes in management practices, including managing salinity in the irrigation water to meet the requirements of a given crop / crop rotation, salinity control in and below the root zone, soil drainage and physical properties, trace elements, irrigation techniques, blending water supplies, cyclic use of saline and non-saline waters (timing the irrigation using lower saline water when the crops require that in their growth cycle), sequential use (irrigating more salt-tolerant crops in sequence).

Following is a discussion of the estimated costs to eliminate discharges through the implementation of an "on-farm recirculation system" or "district-wide recirculation system". These estimated costs will be developed first for a relatively small area and then cross-applied to an irrigation district to provide a case study example.

On-Farm Recirculation System

Summers Engineering (Summers Engineering, 2016) recently developed an estimate for a farm-scale recirculation system that was assumed to serve a square, ¼-section field of 160 acres. The system would include:

- A pre-cast concrete pump sump
- A 4 cubic feet per second (cfs) pump
- Approximately 1 mile of 15-inch poly vinyl chloride (PVC) pipe

The estimated cost for this system is $180,000 or approximately $1,125 per acre. Topography and field geometry could have a significant impact on the actual project cost and a 40 percent contingency was included in this estimate (Summers Engineering, 2016)

District-Level Recirculation System

A district-level recirculation system was assumed to collect tailwater from a single drainage collection point and convey that water throughout a significant portion of the district. A recently completed regional recirculation system in the Central Valley was used as a basis of cost. This system includes 3 pump stations and approximately 5 miles of pipeline and is expected to recover approximately 5,000 acre-feet per year of tailwater annually. The total cost for this project was approximately $4.0 million and it served approximately 5,000 acres, for a cost of approximately $800 per acre (Summers Engineering, 2016).

San Luis Canal Company Case Study

SLCC is used in this analysis as a representative irrigation district for the San Joaquin Valley Basin. The above cost estimates were applied to the SLCC to estimate total implementation costs to comply with MUN within the district. The following are features of the SLCC service area used to calculate implementation costs of the No Action Alternative.

- Total acres of land in the SLCC service area – 47,285 acres or 73.9 square miles
- Farmed acreage within SLCC - 40,393 acres
- Length of canals within SLCC - 169.6 miles
- Length of drains within SLCC - 460.3 miles

Table 13-1 Estimate of Pipeline Costs to Replace Canals and Drains

Flows (cfs)		Miles	Pipe Diameter (inches)	Cost ($M)
Canals				
4	6	0	12	$0.0
7	9	0	16	$0.0
10	14	5	18	$3.8
15	24	7	24	$7.1
25	35	10	30	$12.7
36	54	14	36	$21.3
55	94	36	48	$73.0
95	139	27	60	$68.4
140	199	28	72	$85.2
200	250	42	84	$149.0
Canal Totals		169		$420.5
Drains				
4	6	101	12	$51.2
7	9	78	16	$52.7
10	14	64	18	$48.7
15	24	58	24	$58.8
25	35	30	30	$38.0
36	54	35	36	$53.2
55	94	21	48	$42.6
95	139	54	60	$136.9
140	199	11	72	$33.5
200	250	8	84	$28.4
Drain Totals		460		$544.0
Totals		629		$964.5

SLCC's water supply is derived primarily from the Arroyo Canal in the southeast portion of the service area. Arroyo Canal receives its water supply from the San Joaquin River. Water generally moves from the southeast (Arroyo Canal) to the northwest (Salt Slough). The SLCC provides the following description of their water supply: "…since the 1950s, water is received from upstream districts (Poso Canal Company and Central California Irrigation District) that are already a blend of supply, tail, and tile water. Water supplies continue to be blended with agricultural drainage as they move through the district [through 231 separate water bodies] until outfall to Salt Slough. Supply water may be augmented by 42 groundwater supply wells." (San Luis Canal Company, 2016)

Flows in the canals range from 30 to 550 cfs, while flow in the drains ranges from 5 to 120 cfs (Paolini, 2016). Moving irrigation and drain water from open canals and drains into pipelines and eliminating discharge out of the SLCC service area into Salt Slough would ensure that MUN beneficial uses would not be impacted. Table 13-1 provides estimates of the miles of canals and

drains that carry ranges of flows for the SLCC service area. From this and a concept level unit cost of $8 per diameter inch per linear foot[3], estimates of the cost of replacing canals and drains with pipelines were made. The cost of conversion from canals and drains to pipelines for the SLCC would range from $723 to $1.4 billion, with a cost of $964 million for the $8 per diameter inch per linear foot unit cost.

For the purposes of understanding what these costs may be Central Valley-wide, the area of the SLCC can be compared to the area of all irrigation districts in the Central Valley Region. Irrigation districts in the Central Valley total about 4,504 square miles compared with 73.9 square miles for the SLCC. If it were assumed that the number of miles of canals and ditches per area was similar for all irrigation and canal companies than the cost of pipeline construction across the Central Valley Region would be on the order of $60 billion dollars – without removing salt out-of-the valley.

In addition to pipeline costs, additional costs would be incurred to develop and implement other necessary components to convert the SLCC irrigation and drain system under the No Project Alternative, including:

- Pump stations;
- Equalization basin near Arroyo Canal;
- Evaporation basins or other brine minimization/brine management facility. In the Phase 2 SSALTS Report (CDM Smith, September, 2014) the cost of constructing evaporation ponds was estimated to be $4,500 per acre (not including land acquisition). The estimated number of acres needed would be based on the discharge flow (currently) to Salt Slough.
- A significant portion of the O&M costs will be energy costs for the pump stations and the evaporation ponds.

Because the discharges to Salt Slough would be eliminated under the No Project Alternative, the salinity of the irrigation and drain system would increase more rapidly than under the Proposed Basin Plan Amendments, resulting in the need for a brine management system.

13.2.3.1.2 Regional Economic Impacts

Irrigation districts and canal companies would need to pass the cost of pipeline construction and maintenance to the agricultural community. Growers, in turn, would need to transfer these costs on to consumers, greatly increasing the costs of produce and other farm products to consumers, reducing discretionary income of customers and potentially affecting their spending habits within the region. Decreased spending within the regional economy would have an adverse effect in the region, affect total sales of local businesses. Another possible outcome is that some growers will not be able to continue to farm due to the costs of pipeline construction, allowing some land to be retired. This could conceivably irrevocably harm the economic viability of agriculture in the Central Valley.

Construction activities associated with pipeline construction would increase economic activity in the region due to increases in equipment rentals, purchase of supplies, and employment of engineers and construction workers. These effects would be temporary and only occur during the construction period. It is assumed that annual operations would be completed by existing employees and would not result in an increase in employment in the region.

[3] The range of pipeline unit costs is estimated to be $6 to $12 per diameter inch per linear foot.

13.2.3.1.3 Financial/ Funding Plan

Under the no-action alternative and pursuant to Water Code section 13141, a financing/funding plan would need to be developed to design and implement the mitigation measures to meet MUN beneficial uses for Ag dominated water bodies. The potential costs for implementing these agricultural water quality controls are so high, that regional, state, and federal sources of funding would need to be evaluated. The financing/funding plan would include a financial master plan to determine these potential sources of funding: including federal, state, local agencies, water purveyors, agricultural communities, grants, bonds, low- interest loans, Clean Water State Revolving Fund (CWSRF), and other strategies to support the development and implementation of the facilities.

13.2.3.2 POTW Discharges

For a POTW discharge to an Ag dominated water body, it may be necessary to upgrade the treatment process or implement new treatment processes to remove constituents that would cause exceedance of MUN objectives/criteria, or implement alternative disposal methods (*e.g.*, water recycling (indirect potable recharge [IPR] or agricultural uses of recycled water or land discharge).

13.2.3.2.1 Implementation Costs

Required facility upgrades and implementation costs would vary based on the existing treatment processes of the POTWs. For a previous Basin Plan Amendments to remove the MUN use from water bodies receiving discharges from the cities of Colusa, Live Oak, Willows, and Biggs, facility-specific costs to meet receiving water MUN WQOs were developed (Central Valley Water Board, 2015a). Based on these case studies, a common upgrade needed for each POTW was to add processes that remove nitrates in the discharge to levels that protect MUN. To meet potential salinity-related effluent limits it would be necessary to implement a reverse osmosis (RO) treatment process or some other salinity treatment technology. Construction costs for the addition of RO to the treatment train range from $1.4 to $7.7 million for effluent discharges ranging from 2 million gallons per day (MGD) to 10 MGD.[4,5]

The following paragraphs summarize POTW upgrades required for the cities of Colusa, Live Oak, Willows, and Biggs, including estimated capital expenditures and annual O&M costs for upgrades that would be required for their respective POTWs. This information was included in the Final Staff Report for the proposed amendment to the SRSJR Basin Plan to de-designate the MUN beneficial use in twelve surface water bodies in the Sacramento River Basin (Central Valley Water Board, 2015a) This same information provides the basis for this analysis to provide estimated implementation costs associated with these current Basin Plan Amendments.

Colusa POTW

The City of Colusa (Colusa) owns and operates a wastewater collection, treatment, and disposal system and provides wastewater service to residential, commercial, and industrial users within its jurisdiction. The City of Colusa has a 2018 permit deadline to reduce effluent

[4] Estimates based on effluent with a TDS concentration of 800 milligrams per liter (mg/L) and treatment of a side stream of the effluent discharge to achieve a blended discharge TDS concentration of 450 mg/L or below.

[5] For another point of comparison, the following cost was estimated for regional desalting facilities in the CV-SALTS Phase 2 SSALTS Report: "Each modular 25-MGD desalter facility is estimated to cost $150M based on high TDS and high recovery. The basis for design and the unit cost estimate for the treatment facility of $6/[gallons per day] gpd includes an assumption of 90% recovery, and the brine and product water TDS would vary depending upon the source water TDS in each subarea." (CDM Smith 2014).

nitrate nitrogen to below 10 mg/L as N. This nitrate limitation is based on the water quality objective to protect MUN. The WWTP was not designed to remove nitrates; currently, effluent nitrate concentrations are typically above 20 mg/L as N. The total cost for the planning, design, and construction upgrades to comply with effluent limitations required to protect the MUN use was estimated at $4.5 million (NEXGEN Utility Management 2014). O&M costs for the upgraded POTW would be about $50,000 per year. Based on these estimates, the present value of the No Action alternative for the Colusa POTW would be $4.8 million over a 30-year period at a 5% discount rate.

Live Oak POTW

The Live Oak POTW would need to be modified to reduce concentrations of arsenic in the discharge below 10 µg/L, whereas the current effluent concentration averages 24 µg/L. In addition, nitrate concentrations in the discharge would need to be reduced below 10 mg/L-N, whereas the existing effluent concentration averages 16 mg/L-N. A 2011 preliminary engineering cost estimate for implementation of denitrification was $4.2 million (Lewis, 2014). Costs for arsenic compliance have not been quantified, but are likely in the range of $2.0 million (Lewis, 2014). The total estimated cost for the planning, design, and construction upgrades is $6.2 million. In addition, O&M costs for the upgraded POTW would be about $50,000 per year. Accordingly, the present value of the No Action alternative for the Live Oak POTW would be $6.4 million over a 30-year period at a 5% discount rate.

Willows POTW

The City of Willows WWTP would need to be modified to reduce concentrations of nitrate to below 10mg/L-N (current effluent concentration averages 20 mg/L-N). Concentrations of the disinfection byproducts bromodichloromethane (BDCM) and dibromochloromethane (DBCM) would need to be reduced below laboratory detection levels (less than 0.5 µg/L); existing effluent concentrations average 13 µg/L for BDCM and 2.1 µg/L for DBCM. The total cost for the planning, design, and construction of all upgrades is estimated at $7.7 million. O&M costs for the upgraded POTW would be about $100,000 per year. The present value of the No Action alternative for the Live Oak POTW would be $8.2 million over a 30-year period at a 5% discount rate.

Biggs POTW

The POTW is currently unable to treat wastewater to the established final effluent limits for ammonia. This analysis assumed that the City of Biggs would upgrade the POTW with nitrification and denitrification. It is estimated that the capital cost to upgrade the POTW would be up to $2.7 million. Annual O&M costs, not including labor, would be about $25,000. Annual labor to operate and maintain the POTW is expected to be provided by existing employees; therefore, additional annual labor costs associated with the upgrades were not assumed. The present value of the No Action alternative for the City of Biggs POTW would be $2.8 million over a 30-year period at a 5% discount rate.

Table 13-2 summarizes the POTW costs discussed above. The upgrades needed for POTWs to comply with MUN are site specific and costs vary depending on the upgrades. It is not possible to identify a single cost to apply to all POTWs. Therefore, this analysis uses a median cost estimate based on the data collected for the Sacramento Basin POTWs, which is used for the economic analysis to compare costs of the No Action Alternative to the Proposed Amendment Alternative. Based on the costs in Table 2, the median construction cost is $5.4 million, the median O&M cost is $50,000 per year, and the median present value cost over 30 years at a 5% discount rate is $5.6 million.

While monitoring would be required to demonstrate compliance with permit effluent limitations, it is assumed that the monitoring costs following a facility upgrade would be the same as the monitoring costs incurred before facility upgrades are implemented. As a consequence, there would be no additional monitoring costs expected under the No Action Alternative.

Table 13-2 Estimated Costs for Treatment Plant Upgrades

POTW	Construction Cost for Upgrades	Annual O&M Cost	Present Value Costs (30 years, 5% Discount Rate)
Colusa	$4.5 million	$50,000	$4.8 million
Live Oak	$6.2 million	$50,000	$6.4 million
Willows	$7.7 million	$100,000	$8.2 million
Biggs	$2.7 million	$25,000	$2.8 million

13.2.3.2.2 Regional Economic Impacts

Cities would each need to fund the POTW upgrades required to meet effluent limitations under the No Action Alternative. The acquisition of adequate funds for these POTW upgrades would result in increased utility fees, reducing discretionary income of customers and potentially affecting their spending habits within the region. Decreased spending within the regional economy would have an adverse effect in the region and affect total sales of local businesses.

Construction activities associated with the POTW upgrades would increase economic activity in the region due to increases in equipment rentals, purchase of supplies, and employment of engineers and construction workers. These effects would be temporary and only occur during the construction period. It is assumed that annual operations would be completed by existing employees and would not result in an increase in employment in the region. This assumption would be expected if the operations and maintenance requirements associated with POTW upgrades were mostly related to changes in energy and chemical needs.

13.2.3.3 Stormwater Discharges

For MS4 agencies, retention of an MUN designation in an Ag dominated water body would require implementation of stormwater best management practices (BMPs). If an exceedance of a water quality objective occurs in the water body as a result of an urban discharge permitted under the MS4 permit, the discharger may be required to mitigate the source of pollutant(s) causing the exceedance of the objective. While source control may be an option in some cases, more often it may be necessary to construct BMPs to mitigate the pollutant(s). The effectiveness of any particular BMP in mitigating a specific pollutant can vary significantly and, if there is more than one pollutant identified as a water quality concern, an approach is needed to simultaneously address all pollutants of concern in the urban discharge. A recommended approach for dealing with multiple pollutants of concern is to identify a “limiting pollutant” that can be used to focus the treatment analysis, i.e., to estimate necessary pollutant reductions and to design the appropriate BMP treatment scenario to achieve the required reduction (Los Angeles Water Board, 2014). Implementation of this scenario is intended to result in achievement of simultaneous required reductions in other pollutants. The principle that treatment of pollutants in stormwater may rely on a limiting pollutant analysis being used as the

basis for design provides the basis for estimating the costs associated with the No Action Alternative.

13.2.3.3.1 Implementation Costs

Under the No Action Alternative, MS4 agencies would need to comply with MUN WQOs for all discharges into an Ag dominated surface water body with a MUN designation. There are various BMPs for the management of pollutants in urban discharges, including eliminating discharges to water bodies designated MUN or treating discharges to meet MUN standards. While the effectiveness of BMPs may vary, one BMP in particular, capturing and recharging stormwater, would always result in compliance for all pollutants.

The Water Environment Research Foundation (WERF) (2005 and 2009) developed spreadsheet tools for MS4 dischargers to use to estimate whole life costs for stormwater management (WERF, 2009). The WERF reports include cost spreadsheet models for the BMPs listed below. These cost models can be used to estimate capital and long-term O&M costs associated with various BMP categories.

1. Extended Detention Basin
2. Retention Pond
3. Swale
4. Permeable Pavement
5. Green Roof
6. Large Commercial Cistern
7. Residential Rain Garden
8. Curb-Contained Bioretention
9. In-Curb Planter Vault

Table 13-3 summarizes typical stormwater BMP costs for each of the nine BMP categories listed above based on default drainage areas. None of these BMP costs account for the multiple benefits associated with stormwater projects, including water supply benefits, drought resiliency, pedestrian safety, traffic calming, mitigation of heat islands, etc.

Table 13-3 Summary of Stormwater BMP Costs

BMP	Default Drainage Area		Default Water Quality Volume	Capital Costs	Present Value of Costs	
	(acres)	(square feet)	(cubic feet)	($)	($)	($ per cubic foot)
Extended Detention Basin	10	435,600	18,150	$75,000	$107,104	$5.90
Retention Pond	50	2,178,000	90,750	$266,250	$312,452	$3.44
Swales	2	87,120	3,630	$16,500	$30,949	$8.53
Permeable Pavement	0.50	21,780	2,269	$28,780	$36,386	$16.04
Green Roof	0.23	10,000	1,042	$203,500	$306,318	$294.07
Large Commercial Cistern	0.11	5,000	521	$18,719	$40,245	$77.27
Residential Rain Garden	0.02	1,000	104	$3,782	$7,533	$72.32
Curb-Contained Bioretention	1	43,560	3,630	$42,375	$67,025	$18.46
In-Curb Planter Vault	0.25	10,890	1,134	$10,000	$17,597	$15.51

Source: WERF. 2009. User's Guide to the BMP and LID Whole Life Cost Models, Version 2.0"

13.2.3.3.2 Regional Economic Impacts

Cities would each need to fund the stormwater BMPs required to meet MS4 permit requirements under the No Action alternative. The acquisition of adequate funds for the construction and maintenance of these BMPs upgrades would result in increased utility fees, reducing discretionary income of customers and potentially affecting their spending habits within the region. Decreased spending within the regional economy would have an adverse effect in the region, affecting total sales of local businesses.

Construction activities associated with the BMP construction and maintenance would increase economic activity in the region due to increases in equipment rentals, purchase of supplies, and employment of engineers and construction workers. These effects would be temporary and only occur during the construction period. It is assumed that annual operations would be completed by an existing employee and would not result in an increase in employment in the region.

13.2.3.4 Water Purveyors

Water purveyors are responsible for providing potable water (water that meets Title 22 MCLs) to consumers within their service areas. In order to meet their commitments, water purveyors in most cases monitor the quality of the supply water and then provide appropriate standard treatment (e.g. coagulation, filtration, chlorination, etc.) prior to distribution to their consumers.

13.2.3.4.1 Implementation Costs

Under the No Action Alternative, water purveyors would continue to operate as today with increases in monitoring and treatment costs subject to changes in hydrologic conditions such as increased turbidity and sediment bound constituent concentrations during storm events and decreased dilution (fresh water) with corresponding increases in dissolved constituent concentrations during extended dry periods. Should all controllable discharges into Central Valley surface water bodies be required to meet Title 22 MCLs, monitoring and treatment would still be required due to natural background conditions and variable constituent, sediment and turbidity concentrations.

13.2.3.4.2 Regional Economic Impacts

Regional economic impacts may extend past changes to implementation costs from monitoring and treatment. If return flows from agriculture and other dischargers go to zero due to an inability to meet Title 22 MCLs in receiving water bodies, surface water quantity may be reduced to the extent that water purveyors who rely on surface water as their supply source may need to augment or replace with groundwater.

13.2.4 Proposed Basin Plan Amendment Project Alternative

The proposed Basin Plan Amendments would establish a region-wide process for evaluating the MUN beneficial use currently designated in Ag dominated surface water bodies throughout the Region based on the evaluation of findings for individual or groups of water bodies. The region-wide process will not apply to water bodies that are already listed in the Basin Plan with MUN beneficial use or that currently serve as a source of municipal or domestic supply. Potential outcomes include the removal of the MUN use or refinement to the “Limited MUN” use.

13.2.4.1 Agricultural Discharges

13.2.4.1.1 Implementation Costs

The ILRP is requiring coalitions throughout the Region to engage in a process of evaluating and addressing water quality impairments, and this program is generally resulting in improved water quality. Unless water quality conditions are expected to degrade due to either significant changes in agricultural diversion and return-flow discharge operations or due to an expansion of irrigated acreage, water quality is generally expected to improve due to implementation of the ILRP General Orders. In the water bodies that would be affected by the proposed Basin Plan Amendments, neither significant changes in agricultural diversion and return-flow discharge operations nor increases in agricultural production are expected. The agricultural inflow and outflows of the receiving waters would be very similar to existing conditions. Because the ILRP General Orders are resulting in greater water quality improvements as the program matures, and because no significant water quality degradation is expected for any constituent due to changes in operations or increases in irrigated acreage, water quality within the water bodies as affected by agricultural operations would be no worse relative to existing conditions. It is not expected that there would be additional implementation costs for agricultural dischargers over those that are already being spent to implement the ILRP under the proposed Basin Plan Amendments – even if the MUN beneficial use was refined with the LMUN use rather than full de-designation of the MUN use.

13.2.4.1.2 Regional Economic Impacts

Implementation of the proposed Basin Plan Amendments is not expected to result in substantial regional economic effects. There would be no discernable change in employment rates as a result of amending the Basin Plan. Existing Central Valley Water Board staff would complete the amendment process as part of their normal job responsibilities. Canal companies and irrigation districts would not need to construct new pipelines to replace canals and ditches and there would be no discernable change in disposable income. The environmental analysis (see Appendix L) did not identify any significant environmental effects associated with the implementation of this alternative; therefore, no indirect economic effects are expected to occur.

13.2.4.2 Point-Source Discharges

13.2.4.2.1 Implementation Costs

Under the proposed Basin Plan Amendments, if MUN is removed, then point-source dischargers will not have to implement BMPs to protect this beneficial use in the immediate receiving water but will still need to make a determination and implement protections if the discharge is determined to cause or contribute to beneficial use impacts downstream. If LMUN is adopted as a refined MUN beneficial use, then existing monitoring programs may need to be modified because the Board would still be obligated to protect downstream MUN uses to the extent that a discharge has a reasonable potential to adversely affect those uses. If monitoring data indicated that the downstream MUN use might not be protected, some additional BMP costs could be incurred to comply with the discharge permit; however, the nature of these costs would be highly dependent on the water quality concern. The NPDES program for point-source discharges to surface waters already implements substantive monitoring programs and monitoring data collected for these programs is expected to meet the needs of the proposed Basin Plan Amendments and there will be no need for additional monitoring. Therefore, no new monitoring costs are expected as a result of implementation of the proposed Basin Plan Amendments.

13.2.4.2.2 Regional Economic Impacts

Implementation of the proposed Basin Plan Amendments is not expected to result in substantial regional economic effects. However, because the MUN use could be refined to LMUN (rather than de-designated) and the potential outcome of the LMUN designation could still be a requirement to implement additional treatment processes to reduce or eliminate identified impacts to downstream receiving waters, the potential exists for some regional economic impacts. If additional treatment upgrades were required, construction activities would increase economic activity in the region due to increases in equipment rentals, purchase of supplies, and employment of engineers and construction workers. These effects would be temporary and only occur during the construction period. It is assumed that annual operations would be completed by existing employees and would not result in an increase in employment in the region. No indirect economic effects would be expected to occur and there would be no discernable change in employment rates as a result of amending the Basin Plan.

Implementation of this alternative would not result in substantial regional economic effects. There would be no discernable change in employment rates as a result of amending the Basin Plan. Existing Central Valley Water Board staff would complete the amendment process as part of their normal job responsibilities. If a discharger were required to upgrade a POTW, cities would each need to fund the POTW upgrades. The need to fund the upgrades could result in increased utility fees, reducing discretionary income of customers and potentially affecting spending habits within the region. Decreased spending within the regional economy could have an adverse effect in the region and affect total sales of local businesses.

13.2.4.3 Stormwater Discharges

13.2.4.3.1 Implementation Costs

MS4 dischargers are already required to ensure that their urban discharges during dry or wet weather do not cause or contribute to an exceedance of a water quality objective in a receiving water. Exceedances are based on the WQOs applicable to the receiving water. Under the proposed Basin Plan Amendments, if MUN is removed, then MS4-permitted dischargers will not have to implement BMPs to protect this beneficial use. If LMUN is adopted as a refined MUN beneficial use, then existing monitoring programs may include the use of numeric triggers specific to this use. Triggers are not objectives, but can be used to evaluate impacts to beneficial uses within and downstream of the water body and ensure appropriate BMPs are implemented to protect those uses. Some additional BMP costs could be incurred to comply with an MS4 permit; however, the nature of these costs would be highly dependent on the use and nature of potential triggers. If a discharger is required to implement stormwater treatment BMPs, Table 3, provides the typical costs.

MS4 dischargers already implement substantive monitoring programs and monitoring data collected for these programs is expected to meet the needs of the proposed Basin Plan Amendments and there will be no need for additional monitoring. Therefore, no new monitoring costs are expected as a result of implementation of the proposed Basin Plan Amendments.

13.2.4.3.2 Regional Economic Impacts

Implementation of the proposed Basin Plan Amendments is not expected to result in substantial regional economic effects. However, because the MUN use could be refined to LMUN (rather than de-designated) and the potential outcome of the LMUN designation could still be a requirement to implement stormwater BMPs to reduce or eliminate identified impact to downstream receiving waters, the potential exists for some regional economic impacts. For example, cities may need to fund the required stormwater BMPs, increasing the cost of MS4 permit implementation. The acquisition of adequate funds for the construction and maintenance of these BMPs could be increased utility fees, which could reduce the discretionary income of customers and potentially affect spending habits within the region. Decreased spending within the regional economy could have an adverse effect in the region and affect total sales of local businesses.

Construction activities associated with the BMP construction and maintenance, where needed, would increase economic activity in the region due to increases in equipment rentals, purchase of supplies, and employment of engineers and construction workers. These effects would be temporary and only occur during the construction period. It is assumed that annual operations would be completed by an existing employee and would not result in an increase in employment in the region. No indirect economic effects would be expected to occur and there would be no discernable change in employment rates as a result of amending the Basin Plan.

13.2.4.4 Water Purveyors

Water purveyors are responsible for providing potable water (water that meets Title 22 MCLs) to consumers within their service areas. In order to meet their commitments, water purveyors in most cases monitor the quality of the supply water and then provide appropriate standard treatment (e.g. coagulation, filtration, chlorination, etc.) prior to distribution to their consumers.

13.2.4.4.1 Implementation Costs

Under the Preferred Alternative, water purveyors would continue to operate as today with increases in monitoring and treatment costs subject to changes in hydrologic conditions such as

increased turbidity and sediment bound constituent concentrations during storm events and decreased dilution (fresh water) with corresponding increases in dissolved constituent concentrations during extended dry periods. Permit conditions directly related to meeting Title 22 MCLs may be removed from select dischargers, however, any new discharges or changes to existing discharges must still comply with anti-degradation requirements. Should a finding be made that degradation is consistent with the maximum benefit to the people of the state, downstream water purveyors may need to adjust treatment processes which may in turn increase treatment costs.

13.2.4.4.2 Regional Economic Impacts

Regional economic impacts would be dependent on degradation from baseline conditions resulting from new discharges or changes to existing discharges that are found to comply with state anti-degradation requirements and be consistent with the maximum benefit to the people of the state. The proposed amendment includes provisions to assure that monitoring evaluates all relevant water quality objectives, however some adjustments may be needed in the treatment processes which may increase cost.

13.2.5 Summary

The proposed Basin Plan Amendments would allow for implementation of a process to review and, if appropriate, remove the MUN designation (or refine MUN with an LMUN designation) in Ag dominated water bodies in the Central Valley Region. The process does not apply to water bodies that are already listed in the Basin Plan with the MUN beneficial use or that currently provide municipal or domestic supply.

Until recently, waste dischargers to these water bodies were not regulated to meet effluent limits or conditions based on the MUN WQOs because the water bodies were thought to fall under one or more exceptions in the Sources of Drinking Water Policy. However, a Basin Plan Amendment is required to utilize the exceptions of that policy. Adoption of the proposed amendment would not have any significant effect on the existing physical environment because the amendment would not change any factors affecting existing hydrology or water quality in the affected Ag dominated water bodies or downstream water bodies. The amendment simply allows for a process to de-designate or refine the MUN beneficial use in Ag dominated water bodies where it is not an existing use and characteristics support the refinement.

Entities potentially affected by the proposed Basin Plan Amendments, and subsequent permitting actions by the Board would include: (1) agricultural operations that utilize affected water bodies for agricultural water supply and discharge return flows into these water bodies; (2) point-source dischargers that discharge wastes into these water bodies; (3) MS4s that discharge dry or wet weather flows into these water bodies; and (4) downstream water purveyors.

No significant water quality degradation is expected for any constituent under the Basin Plan Amendments for discharges from agriculture, point-source, and stormwater. Some implementation costs could be incurred for the Basin Plan Amendment project alternative for discharges from point-source and stormwater, where it is determined necessary to implement additional controls to protect the LMUN and MUN beneficial use. The implementation of the Basin Plan Amendment alternative is not expected to result in substantial regional economic effects, although there may be some impacts if additional controls are deemed necessary to protect the LMUN beneficial use. Even with those potential costs, the Basin Plan Amendment alternative would avoid the significant costs identified under the No Action Alternative for: (1) the

replacement of canals and ditches with pipelines to eliminate agricultural discharges, where needed because the MUN objectives are exceeded; (2) point-source upgrades required to meet effluent limitations needed to protect the MUN beneficial use; and (3) the implementation of stormwater BMPs for MS4 agencies in order to meet permit requirements. Combined, these costs would be substantial, especially for agricultural dischargers.

Should new discharges and/or changes to existing discharges result in water quality degradation that complies with the state antidegradation requirements and is found to be consistent with the maximum benefit to the people of the state, water purveyors may incur some costs if existing treatment processes need adjustment.

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15 APPENDICES

Information needed to characterize Ag Dominated Water Bodies

(to be used in conjunction with Water Body Categorization Flowchart and completed in partnership with the entity that manages/operates the Water Bodies evaluated within this document)

A. Water Body Categorization Information

I. General

1. Applicant name, mailing address, and date of establishment (include website address, if applicable):
   Managing/operating entity (if different from above):

2. Contact Person (include phone and email):

3. Total number of water bodies under consideration and approximate total length (in miles).

4. Location and total surrounding land area containing the water bodies under consideration (will be referenced as study area) in acres or square miles.

5. Complete the information needed in Table 1 as provided, with a separate record for each water body to be evaluated. Provide 1992 Inland Surface Water Plan (ISWP) information (water body name, Ag dominated water body category, and type of construction) if it is both available and reflective of current conditions and operations of the water body to be evaluated.

Table 1 Water Body Information

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flowchart)	For Constructed or Modified			Length of Water Body Segment (miles)	Primary Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	

Additional notes:

6. List sources, documents, reports or references used for making the Water Body Category Flowchart determination provided in Table 1 for the study area under consideration. *Links to websites can also be provided if applicable.*

7. Provide a map showing boundaries of the study area (USGS Quad or other map. (If Geographical Information System (GIS) shape files are available, include as an attachment)

8. List source(s) of water for the study area.

II. Inflows and Outflows to Water Bodies

1. Provide a brief general description of the overall study area management.

2. Provide a map(s) or schematic showing the key components of the surface water supply and drainage in the study area. The figure should include inflows and outflows of the district and include (if applicable) the following:

   a. Location of surface water supply (intake) points to the study area.

   b. Location of groundwater supply points in the study area (This should only include wells which pump directly into canals or drains or wells used to supply water outside the landowners' control).

   c. Location of operation spills from the study area.

3. Describe and indicate on a map the predominate direction of water flow through the study area.

B. MUN Beneficial Use Evaluation

I. Municipal and Domestic Supply (MUN) use

1. List any known State Water Rights information pertaining to the municipal and/or domestic supply use in or downstream of the study area that may be influenced by discharge, even if the right has never been exercised (if applicable).

   For more information on State Water Rights information and the use of database search and mapping tools, visit the following website: *http://www.swrcb.ca.gov/waterrights/water_issues/programs/ewrims/*

2. Describe other municipal and/or domestic supply use of the surface water system on or after November 28, 1975 *(if applicable)*.

3. Provide a map(s) showing any diversion points in or downstream of the study area where water is used for municipal and/or domestic supply.

C. Water Quality Monitoring Program

I. Irrigated Lands Regulatory Program (ILRP)

1. Is the study area covered by water quality monitoring under the Central Valley Irrigated Lands Regulatory Program or any other monitoring program?

2. If the study area is covered by the ILRP, provide information for questions 2a-c. *Website links may be provided in lieu of answering these questions.*

   a. What ILRP coalition is the Applicant a member of?

   b. List any Management Plans previously developed or currently under development.

   c. List ILRP representative monitoring sites that are located in or downstream from the study area boundary. Provide a summary of historical and current monitoring activities for each site.

3. For areas not covered by ILRP, list any known or suspected water quality concerns including elevated background concentrations in surface or groundwater supplies. *Website links may be provided in lieu of answering this question.*

II. Applicant Monitoring

If the Applicant has a water quality monitoring program (aside from ILRP), provide information for questions 1-3. *Website links may be provided in lieu of answering these questions.*

1. Summarize existing monitoring locations with identifying number or name; parameters measured; frequency period of anticipated sampling (e.g. 2014-2016; ongoing; etc.); purpose or goal of monitoring (e.g. inlets, outlets, etc.); and the location of resulting data (if available).

2. Provide a map(s) showing the monitoring locations with identifying label (number or name) of all current and proposed water quality and/or flow monitoring points.

3. Summarize available historical monitoring data including monitoring locations, parameters measured, number of analyses, inclusive dates of sampling, and location of data.

III. Cost of Drainage Water Management Programs

1. Estimates of the cost of participating in ILRP, if applicable.

2. Estimates of the cost of ongoing water quality monitoring programs.

3. Estimated cost of this report.

D. References

APPENDIX B—SUMMARY INFORMATION FOR SAN LUIS CANAL COMPANY SURFACE WATER BODIES

Table B - 1 Water Body Information (Canals)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Arroyo Canal	Arroyo Canal	Arroyo Canal	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	18	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Belmont Ditch					Constructed	C1	Concreteline d	1990s	Ag supply and drainage	2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Clark Ditch					Constructed	C1	Concreteline d	1990s	Ag supply and drainage	0.3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Cocke Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Cowden Ditch	Cowden Ditch	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	North Toscano Ditch	Toscan Ditch North	C2	Earthlined	Canal/Ditch	Constructed	C1	Concreteline d	2000s	Ag supply and drainage	4	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	North Toscano Ditch No. 1					Constructed	C1	Concreteline d	2012	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Schmidt Ditch	Schmidt Ditch	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Toscano Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Toscano Ditch North Ext.					Constructed	C1	Earthlined	unknown	Ag supply and drainage	2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Arroyo Canal	West Willow Ditch	Willow Tree Ditch West	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.5	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Willow Ditch Extension					Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.5	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Temple-Santa Rita Canal	Bennett Ditch	Bennett Ditch	C2	Earthlined		Constructed	C1	Concreteline d	1990s	Ag supply and drainage	0.3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Boundary Ditch					Constructed	C1	Concreteline d	2000s	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 1 Water Body Information (Canals)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
	Cement Lined Ditch					Constructed	C1	Concreteline d	1950s	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Dairy Field Ditch No. 1				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Escano Ditch Br. 1	Escano Ditch Branch 1	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Escano Ditch Br. 2					Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Escano Ditch North Br.					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Highway Ditch					Constructed	C1	Concreteline d	1950s	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Temple-Santa Rita Canal	Orchard Ditch Extension	Orchard Ditch Extension	C2	Earthlined	Canal/Ditch	Constructed	C1	Concreteline d	1990s	Ag supply and drainage	3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Orchard Ditch No.2	Orchard Ditch No.3	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Red Tank Ditch	Red Tank	C2	Earthlined		Constructed	C1	Earthlined	1940s	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Santa Rita Orchard Ditch				Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	4	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Temple Santa Rita Canal Ext.	Temple Santa Rita Extension	C2	Earthlined		Constructed	C1	Concreteline d	1990s	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Temple-Santa Rita Canal	Temple Santa Rita	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	12	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Pick Anderson	Loop Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Loop Ditch No. 1					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 1 Water Body Information (Canals)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
	Loop Ditch No. 2					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Middle Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Pick Anderson	Middle Ditch No. 1					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Middle Ditch No. 2					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	North Bypass Lift Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	P.A. # 31 Lift Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.4	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	River Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	South Bypass Lift Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	South Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	South P. A. Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
San Juan Canal	Carlucci Ditch				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Cement - Lined Ditch					Constructed	C1	Concretelined	2004	Ag supply and drainage	0.4	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
San Juan Canal	Coute Ditch	Coute Ditch	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Fagundes Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 1 Water Body Information (Canals)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
	San Juan No. 1 Canal	San Juan No. 1	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Juan Canal	San Juan	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	6	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Juan Canal Extension	San Juan Extension	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Delta No. 1 Canal	Delta No. 1 Canal	Delta No. 1	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	6	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M Ditch # 1					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M Ditch # 2					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Delta Canal	Boundary Lift Ditch					Constructed	C1	Concreteline d	1960s	Ag supply and drainage	0.2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	County Road Ditch	County Road Ditch	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	2012	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Delta Canal	Dambrosia Ditch	Dambrosia	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Delta Canal	Delta Canal	C2	Earthlined, Concrete Lined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	10	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Delta Canal Extension				Canal/Ditch?	Constructed	C1	Concreteline d	2012	Ag supply and drainage	0.3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Duni Ditch				Canal/Ditch	Constructed	C1	Concreteline d	1990s	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Duni Ditch Branch A				Canal/Ditch	Constructed	C1	Concreteline d	2004	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Duni Ditch Branch B					Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 1 Water Body Information (Canals)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
	East Delta Canal	East Delta Canal	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Eastside Canal					Constructed	C1	Concreteline d	2012	Ag supply and drainage	3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Noble Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Pugliese Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Delta Canal	West Delta Branch No. 1	West Delta Canal Branch 1	C2	Earthlined	Canal/Ditch	Constructed	C1	Concreteline d	1990s	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Delta Branch No. 2	West Delta Canal Branch 2	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Delta Canal	West Delta Canal	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	4	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Island Canal	Island "A" Canal	Island Canal "A"	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	4	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Island "B" Canal	Island Canal "B"	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	1.1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Island "C" Canal	Island Canal "C"	C2	Earthlined	Canal/Ditch	Constructed	C1	Concreteline d	1990s	Ag supply and drainage	1.2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Island "D" Canal	Island Canal "D"	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Midway & San Pedro Canal	Alberti Ditch				Stream/River	Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Backer Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Cipriani Concrete - Lined Ditch					Constructed	C1	Concreteline d	1960s	Ag supply and drainage	0.3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 1 Water Body Information (Canals)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Midway & San Pedro Canal	Community Ditch	Community Ditch	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Guaspari - Laveglia Comm. Ditch				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Lone Tree Canal	Lone Tree Canal	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	8	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Lone Tree Spur				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.4	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Mackenzie Ditch	Mackenzie	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Midway - Highway Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	0.2	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Midway - San Pedro Intertie					Constructed	C1	Concretelined	1990s	Ag supply and drainage	0.1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Midway Canal	Midway Canal	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	7	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Parsley Ditch					Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Pedro Canal	San Pedro Canal	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	7	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Midway & San Pedro Canal	Swamp Ditch	MidwaySwamp Ditch?	C2	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag supply and drainage	3	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Swamp Ditch Branch No. 1	Midway Swamp Ditch Branch 1?	C2	Earthlined		Constructed	C1	Earthlined	unknown	Ag supply and drainage	1	Ag supply and return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Belmont Drain	Belmont Drain	Belmont Drain	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	12	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Belmont Drain Extension North	Belmont Drain Extension	C1	Earthlined	Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Belmont Drain No. 1	Belmont Drain No.1	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-20W - Delta Seep Ditch	M-20W Delta Seep D 1, 2, 3	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-20W - Delta Seep Ditch Ext. # 1					Constructed	C1	Earthlined	unknown	Ag drainage	0.2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-20W - Delta Seep Ditch Ext. # 2					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-20W - Delta Seep Ditch Ext. # 3					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Miano Seep Drain	Miano Seep Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Plow Camp Drain	Plow Camp Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Belmont Drain	Raven Drain	Raven Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Juan Seep Drain	San Juan Seep Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Spina S/D Br.					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Spina Seep Drain	Spina Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Tallant Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Tallant Seep Drain	Tallent Seep Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Boundary Drain	Boundary Drain	Boundary Drain	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	10	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Derrick Drain	Derrick Drain	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Derrick Drain Ext.	Derrick Drain Extension	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Boundary Drain	Guaspari Drain	Guasperi Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	H - R Willis Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Knight Drain	Knight Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Mc Donald Drain	McDonald Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.9	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Parsley Ditch Spill					Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Sirse Drain	Sirsi Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.9	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	TL-6 Drain	TL-6 & TL-7 Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Urzanqui Drain	Urzonqui Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Boundary Drain No. 1	Boundary Drain No. 1	Boundary Drain 1	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Boundary Drain No. 1	Boundary Drain No. 1 Br.					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Boxcar / Neves Drain	Boxcar/ Neves Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Brista Drain	Bristo Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Silva Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Boundary Drain No. 5	Boundary Drain 5	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Boundary Drain No. 5-2	Boundary Drain 5-2	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Boundary Drain No. 5-2-2	Boundary Drain 5-2-2	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Cipriani Drain	Cipriani Drain	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Cipriani Drain Br. # 1	Cipriani Drain Br. 1	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Boundary Drain No. 1	Gilardi - Johnson Drain	Gilardi - Johnson Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Boundary Drain No. 7	Boundary Drain 7	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Hooper Drain	Hooper Drain	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Circle Island Drain	Circle Island Drain	Circle Island Drain	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Devon Drain	Borba Drain	Borba Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Devon Drain	Devon Drain	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Devon Drain Br. No. 1	Devon Drain Branch No. 1	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Lone Tree Seep Drain	Lone Tree Seep Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Panama Ditch	Panama Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Hereford Drain	Hereford Drain				Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Hereford Drain Br. 1	Hereford Drain Br. 1 & 2	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Hereford Drain Br. 2					Constructed	C1	Earthlined	unknown	Ag drainage	0.6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Hereford Drain Br. 3					Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Hereford Drain Br. 4	Hereford Drain Br. 4	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Island "A" Spill					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Pick Anderson By-pass Drain	Lift Pump Slough	Lift Pump Slough	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Loop Drain No. 1					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Middle Drain	Middle Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Pick Anderson By-pass Drain	P. A. Drain Ext., - River Br.	Pick Anderson Dr Ex. Riv B	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	P. A. Drain No.1	Pick Anderson 1, 3, 4, 5	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	P.A. Drain No. 3					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	P.A. Drain No. 4					Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	P. A. Drain No. 5					Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	P. A. River Drain # 1	Pick Anderson River Dr 1	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	P. A. Seep Drain No. 2	Pick Anderson See Dr 2	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Pick Anderson By-pass Drain	Pick Anderson By-pass Dr	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Pick Anderson Drain	Pick Anderson Drain	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Pick Anderson By-pass Drain	River Drain No. 3					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	South Drain No. 1	South Drain No. 1 &2	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	South Drain No. 2					Constructed	C1	Earthlined	unknown	Ag drainage	0.9	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	South P.A. Drain # 3					Constructed	C1	Earthlined	unknown	Ag drainage	0.0	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Poso Drain	Arroyo S/D					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Belmont Drain Cut Off				Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Belmont Drain Extension South					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Branco Drain	Branco Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Branco Drain No. 1	Branco Drain 1	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Poso Drain	Buie Drain	Buie Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Buie Drain Extension					Constructed	C1	Earthlined	unknown	Ag drainage	0.9	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Poso Drain				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	10	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Poso Slough				Stream/River	Modified	M1	Earthlined	unknown	Ag drainage	4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Poso Slough Drain Re-route					Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
Salt Slough	Dairy Field 10-11 Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Dairy Field Drain No. 2					Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Dairy Field Drain No. 3					Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	East Delta Drain				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
Salt Slough	Intake S/D					Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Island B Seep Drain	Island B Seep Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Levee Drain	Levee Drain	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Orchard Ditch Ext. Spill					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Salt Slough	Salt Slough	B1	Earthlined	Stream/River	Modified	M1	Earthlined	unknown	Ag drainage	7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Salt Slough Ditch					Constructed	C1	Earthlined	unknown	Ag drainage	3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Salt Slough Drain	Salt Slough Drain	C1	Earthlined	Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Joaquin River Drain	San Joaquin River Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	South Dairy Field Drain					Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

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		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
San Juan Drain	Azevedo Drain	Azevedo Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Kaljian Drain	Kaljian Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Ledford Drain	Ledford Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Ledford Drain No. 1	Ledford Drain 1 & 1-1	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Lopes Drain	Lopes Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Lopes Drain Ext.	Lopes Drain Ext.	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-22 Drain	M-22 Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-22 J-39, 40 & 41 Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Juan Drain				Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	10	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
San Juan Drain	San Juan Drain No. 3	San Juan Drain No. 3	C1	Earthlined	Stream/River	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Juan Drain No. 3 - North Br.	San Juan Drain 3-N & S	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Juan Drain No. 3 - South Br.					Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Sec. 14 Road Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Temple Santa Rita S/D					Constructed	C1	Earthlined	unknown	Ag drainage	0.9	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
West Delta Drain	Baffuna Drain					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Bisignani Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Bisignani Drain No. 2	Bisignani Drain 1 & 2	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Bisignani Drain No.1					Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
West Delta Drain	Crayne Drain	Crayne Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	D - 36 Drain	D-36 Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Dambrosia S/D					Constructed	C1	Earthlined	unknown	Ag drainage	0.2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Deep Well Road Drain	Deep Well Road Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Gun Club Drain	Gun Club Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	H - H Willis Drain				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-2, D-6 & D-7 Drains	M-2 Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Pedro Drain	Pedro Drain	C1	Earthlined	Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	TL-7 Drain	TL-6 & TL-7 Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
West Delta Drain	Vieira Drain	Viera Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.7	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Delta Drain	West Delta Drain	C1	Earthlined		Modified	M1	Earthlined	unknown	Ag drainage	6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Delta Drain Br. No. 1					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Delta Drain Br. No. 2					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Delta Drain Branch "A"	West Delta Drain Br. A	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Delta Drain No. 2	West Delta Drain No. 2	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Delta Seep Drain No. 1	West Delta Seep Drain 1	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
West San Juan Drain	Delta 1 Spill 1					Constructed	C1	Earthlined	unknown	Ag drainage	0.2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	M-20-W Drain No. 1	M-20 W Drain No. 1 & 2	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
West San Juan Drain	M-20-W Drain No. 2					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	North San Juan No. 1 S/D					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	San Juan 1 Spill					Constructed	C1	Earthlined	unknown	Ag drainage	0.2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	South San Juan No. 1 S/D					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	W. San Juan Silva Branch Drain				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West San Juan Carlucci Drain					Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West San Juan Carlucci Drain No. 1					Constructed	C1	Earthlined	unknown	Ag drainage	0.9	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West San Juan Drain	West San Juan Drain	C1	Earthlined	Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West San Juan Drain Ext.	West San Juan Drain Ext.	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
West San Juan Drain	West San Juan Drain No. 1	West San Juan Drain 1	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West San Juan Drain No. 1-1					Constructed	C1	Earthlined	unknown	Ag drainage	0.3	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West San Juan Drain No. 1-2					Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West San Juan Drain No. 1-3				Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West San Juan Drain Reroute					Constructed	C1	Earthlined	unknown	Ag drainage	0.8	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Willis Drain	Willis Drain	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
West Santa Rita Drain	Auxiliary Drain	Auxilary Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	1	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Christiana Drain	Christiana Drain Br. 1	C1	Earthlined	Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Elgin Co-op Drain	Elgin Co-op Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Table B - 2 Water Body Information (Drains)

Name of Primary Water Body or System	Name of All Individual Water Bodies that Make Up the Primary Water Body System	1992 Inland Surface Water Plan (ISWP)			National Hydrography Dataset (NHD) Water Body Feature Type	Type of Water Body (natural, modified or constructed)	Ag Dominated Water Body Category (from WBC Flow chart)	For constructed or modified			Length of Water Body Segment (miles)	Water Type (e.g. Supply Water only, Ag return flows, subsurface tile drainage water, municipal or industrial wastewater, stormwater)	Flow Characteristics		Water Body Maintenance Activities and Frequency
		Water Body	Ag Dominated Water Body Category	Type of Construction				Type of Construction or Modification (e.g. earthlined, concrete)	Year of Construction or Modification	Purpose(s) of Construction or Modification			Non-irrigation Season	Irrigation Season	
West Santa Rita Drain	Escano Drain	Escano Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	2	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	Fialho Drain	Fialho Drain	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	North Escano Drain					Constructed	C1	Earthlined	unknown	Ag drainage	0.4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Santa Rita Drain	West Santa Rita Drain	C1	Earthlined	Stream/River, Canal/Ditch	Constructed	C1	Earthlined	unknown	Ag drainage	4	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Santa Rita Drain Branch No. 1					Constructed	C1	Earthlined	unknown	Ag drainage	0.6	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed
	West Santa Rita Drain By-pass	West Santa Rita Dr By-Pass	C1	Earthlined		Constructed	C1	Earthlined	unknown	Ag drainage	0.5	Ag return flows	No flow	Feb. - Oct. varied flow	periodic dredging as needed

Constituent	Reference Source	BMP/Control Program	Water Boards Monitoring Program	Other Monitoring Program	Monitoring Coverage									
					SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
FIELD														
DO	ILRP annual report		ILRP, NPDES	DWR, SFEI, USGS	C	DWR	C	USGS/ DWR	C	DWR	C	DWR	M	DWR
EC	303(d) Integrated Report, ILRP annual report, Central Valley Water Board One-day Synoptic, Sanitary Survey	TMDL (2019 expected completion)	DDW, ILRP, NPDES	DWR, GBP, SFEI, USBR, USGS	C	DWR	C	USGS/ DWR	C	DWR	C	DWR	M	DWR
pH	Central Valley Water Board One-day Synoptic		DDW, ILRP, NPDES	DWR, GBP, USGS	C	DWR	C	USGS/ DWR	C	DWR	C	DWR	M	DWR
Temperature	303(d) Integrated Report	TMDL (2021 expected completion)	ILRP, NPDES	DWR, GBP, SFEI, USBR, USGS	C	DWR	C	USGS/ DWR	C	DWR	C	DWR	M	DWR
Turbidity	Central Valley Water Board One-day Synoptic, Sanitary Survey		DDW, ILRP, NPDES	DWR, USBR, USGS	C	DWR	C	USGS/ DWR	C	DWR	C	DWR	M	DWR

Constituent	Reference Source	BMP/Control Program	Water Boards Monitoring Program	Other Monitoring Program	Monitoring Coverage									
					SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
GENERAL CHEM														
Boron	303(d) Integrated Report, ILRP annual report, Central Valley Water Board One-day Synoptic	TMDL (2019 expected completion)	ILRP, NPDES	GBP, USGS	D	GBP	W	USGS			M	NPDES		
Chloride	Central Valley Water Board One-day Synoptic		DDW, NPDES	DWR			M	NPDES			C	DWR	M	DWR
Perchlorate	Central Valley Water Board One-day Synoptic		DDW										A	DDW
Sodium	Central Valley Water Board One-day Synoptic		DDW	DWR							BW	DWR	A	DDW
Sulfate	Central Valley Water Board One-day Synoptic		DDW, NPDES	DWR			M	NPDES			C	DWR	Q	NPDES
TDS	ILRP annual report, Central Valley Water Board One-day Synoptic, Sanitary		DDW, NPDES	DWR			M	NPDES			BW	DWR	M	DWR

Constituent	Reference Source	BMP/Control Program	Water Boards Monitoring Program	Other Monitoring Program	Monitoring Coverage									
					SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
	Survey													
BACTERIA														
E. coli	ILRP annual report, Central Valley Water Board One-day Synoptic, Sanitary Survey	TMDL (2021 expected completion)	ILRP, NPDES		O[A]	ILRP	O	ILRP			O	NPDES		
METALS														
Aluminum (Total)	Central Valley Water Board One-day Synoptic		DDW, NPDES, SWAMP	SFEI	O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Arsenic	Sanitary Survey	TMDL (2021 expected completion)	DDW, ILRP, NPDES, SWAMP	SFEI	O/TBD	SWAMP /ILRP	M	NPDES			M	NPDES	Q	NPDES
Iron (Total)	Central Valley Water Board One-day Synoptic		DDW, NPDES	SFEI			M	NPDES			M	NPDES	Q	NPDES
Manganese (Total)	Central Valley Water Board One-day Synoptic		DDW, NPDES, SWAMP	SFEI	O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Mercury	303(d) Integrated Report	TMDL (2021 expected completion)	DDW, NPDES, SWAMP	SFEI	O	SWAMP	M	NPDES			M	NPDES	Q	NPDES

Constituent	Reference Source	BMP/Control Program	Water Boards Monitoring Program	Other Monitoring Program	Monitoring Coverage									
					SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
Selenium	303(d) Integrated Report	TMDL	DDW, ILRP, NPDES	GBP, USGS	D	GBP	M	NPDES			M	NPDES	Q	NPDES
ORGANICS														
alpha-BHC/alpha-HCH	303(d) Integrated Report	TMDL (2022 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Bis (2-ethylhexyl) phthalate	Central Valley Water Board One-day Synoptic		NPDES				M	NPDES			M	NPDES	Q	NPDES
Trihalomethanes	Central Valley Water Board One-day Synoptic		NPDES				M	NPDES			M	NPDES	Q	NPDES
NUTRIENTS														
Total Nitrogen	Sanitary Survey		NPDES	DWR, GBP, SFEI							M	DWR	M	DWR
PESTICIDES/LEGACY CHEMICALS														
Chlorpyrifos	303(d) Integrated Report, ILRP annual report	TMDL	ILRP, SWAMP		M	ILRP	M	NPDES	O	ILRP	M	NPDES	Q	NPDES
DDE	303(d) Integrated Report, ILRP annual report		ILRP, NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
DDT	303(d) Integrated	TMDL (2011	ILRP, NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES

Constituent	Reference Source	BMP/Control Program	Water Boards Monitoring Program	Other Monitoring Program	Monitoring Coverage									
					SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
	Report, ILRP annual report	expected completion)												
Diazinon	303(d) Integrated Report	TMDL	ILRP, NPDES		M	ILRP	M	NPDES	O	ILRP	M	NPDES	Q	NPDES
Dimethoate	ILRP annual report		ILRP		O	ILRP								
Diuron	303(d) Integrated Report, ILRP annual report	TMDL (2021 expected completion)	ILRP, NPDES										Q	NPDES
Aldrin	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Dieldrin	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Chlordane	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Endrin	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Heptachlor	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Heptachlor epoxide	303(d) Integrated	TMDL (2011	NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES

Constituent	Reference Source	BMP/Control Program	Water Boards Monitoring Program	Other Monitoring Program	Monitoring Coverage									
					SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
	Report	expected completion)												
Lindane	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Endosulfan (Total)	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Toxaphene	303(d) Integrated Report	TMDL (2021 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
TOXICITY														
Unknown Toxicity	303(d) Integrated Report	TMDL (2019 expected completion)	ILRP		O	ILRP	O	SWAMP			O	NPDES	A	DDW

Monitoring Frequency Key

	Indicates no monitoring
A	Annually
BW	Every other week
C	Continuous
D	Daily
M	Monthly
O	Other
Q	Quarterly
TBD	To be determined

Agency and Program Acronyms

DDW	Division of Drinking Water
DWR	Department of Water Resources
GBP	Grassland Bypass Project
ILRP	Irrigated Lands Regulatory Program
NPDES	National Pollutant Discharge Elimination System
SFEI	San Francisco Estuary Institute
SWAMP	Surface Water Ambient Monitoring Program
TMDL	Total Maximum Daily Load
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey

APPENDIX D—LOWER SAN JOAQUIN RIVER WATER COMPREHENSIVE MONITORING GUIDE

Introduction

This appendix contains a summary of monitoring information for the Lower San Joaquin River Basin, focused primarily on downstream mainstem sites in the San Joaquin River to the Delta. Table D1 contains an overall summary of monitoring programs and agencies monitoring in this area of the basin. Table D2 contains a key to the sites indicated on the map in Figure D1, along with additional information about the sites and monitoring programs. Tables D3 through D10 contain constituent level information on general water quality parameters, pathogens, nutrients, organics, metals and trace elements, nutrients, pesticides and toxicity. A populated cell in a column representing a group of constituents (e.g. organics) means that at least one constituent in the group is monitored, but not necessarily all.

The information presented in this summary is based on data collected from best-known available resources. Since much of the information pertains to other programs and agencies, Central Valley Water Board staff does not guarantee the accuracy of the information contained in this summary. A full list of references used to create this summary is listed at the end of this appendix.

List of Acronyms for Appendix D

CV	Central Valley
CV- Water Board	Central Valley Regional Water Quality Control Board
DCRT	Data Collection and Review Team
DDW	Division of Drinking Water
Diss	Dissolved
DS	Downstream
DWR	California Department of Water Resources
E	East
EC	Electrical Conductivity
EMP	Environmental Monitoring Program
GBP	Grasslands Bypass Project
IEP	Interagency Ecological Program
ILRP	Irrigated Lands Regulatory Program
MRP	Monitoring and Reporting Program
MWQI	Municipal Water Quality Investigations
N	North
NAWQA	National Water Quality Assessment Program
NPDES SMP	National Pollutant Discharge Elimination System Self-Monitoring Program
RMP	Regional Monitoring Program
S	South
SF	San Francisco
SFEI	San Francisco Estuary Institute
SMP	Self-Monitoring Plan
SJR	San Joaquin River
SPoT	Sediment Pollution Trends
SS	Special Study
State Water Board	State Water Resources Control Board
SWAMP	Surface Water Ambient Monitoring Program
US	Upstream
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
W	West
WDR	Waste Discharge Requirements
WQCF	Water Quality Control Facility
WRF	Water Recycling Facility
WWCF	Wastewater Control Facility
WWTF	Waste Water Treatment Facility

Table D - 1 Summary of Monitoring Programs in the Lower San Joaquin River Basin

Program	Agency	Monitoring Plan	Project Term	Data Stored	Field	General Chemistry	Organic Carbon	Bacteria/ Pathogen	Metals	Organics	Minerals	Nutrients	Pesticides/ Legacy Chemicals	Toxicity
ILRP (*regulatory*)	Westside SJR Watershed Coalition	WDR	Ongoing	CEDEN	X	X	X	X	X (TBD)		X	X	X (TBD)	X
	East SJ Water Quality Coalition	WDR	Ongoing										X	
	SJ County and Delta Coalition	WDR	Ongoing										X	
San Joaquin District Surface Water Monitoring	DWR	San Joaquin River Real-time Water Quality Management Program	Ongoing	CDEC	X									
Interagency Ecological Program		EMP: Real Time Monitoring	Ongoing		X									
		EMP: Discrete Water Quality Sampling	Ongoing		X	X	X				X	X		

Table D - 1 Summary of Monitoring Programs in the Lower San Joaquin River Basin

Program	Agency	Monitoring Plan	Project Term	Data Stored	Field	General Chemistry	Organic Carbon	Bacteria/ Pathogen	Metals	Organics	Minerals	Nutrients	Pesticides/ Legacy Chemicals	Toxicity
MWQI	DWR	MWQI	Ongoing	WDL	X	X	X		X		X	X		
Continuous Recording Station		Continuous Recording Station	Ongoing		X									
SWAMP	State Water Board	Sediment Pollution Trends (SPoT)	Ongoing	CEDEN			X		X	X			X	X
GBP	DCRT	WDR/Various GBP Plans	Ongoing (some historic)	?	X	X			X			X		
Surface Water Monitoring	USGS	Surface Water Monitoring	Ongoing	NWIS	X	X			X					
NAWQA		NAWQA	Ongoing		X									
Delta Flows Network		Delta Flows Network	Ongoing		X									

Table D - 1 Summary of Monitoring Programs in the Lower San Joaquin River Basin

Program	Agency	Monitoring Plan	Project Term	Data Stored	Field	General Chemistry	Organic Carbon	Bacteria/ Pathogen	Metals	Organics	Minerals	Nutrients	Pesticides/ Legacy Chemicals	Toxicity
Surface Water Monitoring	USBR	Surface Water Monitoring	Ongoing	WDL/CDEC	X									
Continuous Recording Station		Continuous Recording Station	Ongoing		X									
NPDES (*regulatory*)	City of Turlock WWCF	NPDES SMP	Ongoing	CIWQS	X	X			X	X	X	X	X	
	City of Modesto WWCF		Ongoing		X	X		X	X	X	X	X	X	
	City of Manteca and Dutra Farms		Ongoing		X	X			X	X	X	X	X	
	City of Stockton Regional WWCF		Ongoing		X	X	X		X	X	X	X	X	
	Stockton Port District Facility		Ongoing		X	X		X	X			X	X	X

Table D - 1 Summary of Monitoring Programs in the Lower San Joaquin River Basin

Program	Agency	Monitoring Plan	Project Term	Data Stored	Field	General Chemistry	Organic Carbon	Bacteria/ Pathogen	Metals	Organics	Minerals	Nutrients	Pesticides/ Legacy Chemicals	Toxicity
NPDES (*regulatory)*	Lincoln Center Environmental Remedial Trust	NPDES SMP	Ongoing	CIWQS	X	X			X	X	X	X	X	
	Ironhouse Sanitary District WRF		Ongoing		X	X	X		X		X	X	X	
DDW Regulated Monitoring (*regulatory)*	City of Stockton	Title 22 Source Water Monitoring	Ongoing	EDT	X	X		X	X	X	X	X		
Delta RMP	CV Water Board	Delta RMP Monitoring Design	Ongoing	CEDEN	X			X	X			X	X	X
SFEI Regional Monitoring	SFEI	RMP for Water Quality in the SF Estuary	Ongoing	CD3	X	X	X		X		X	X	X	X

Figure D - 1 Monitoring Sites in the Lower San Joaquin River Basin

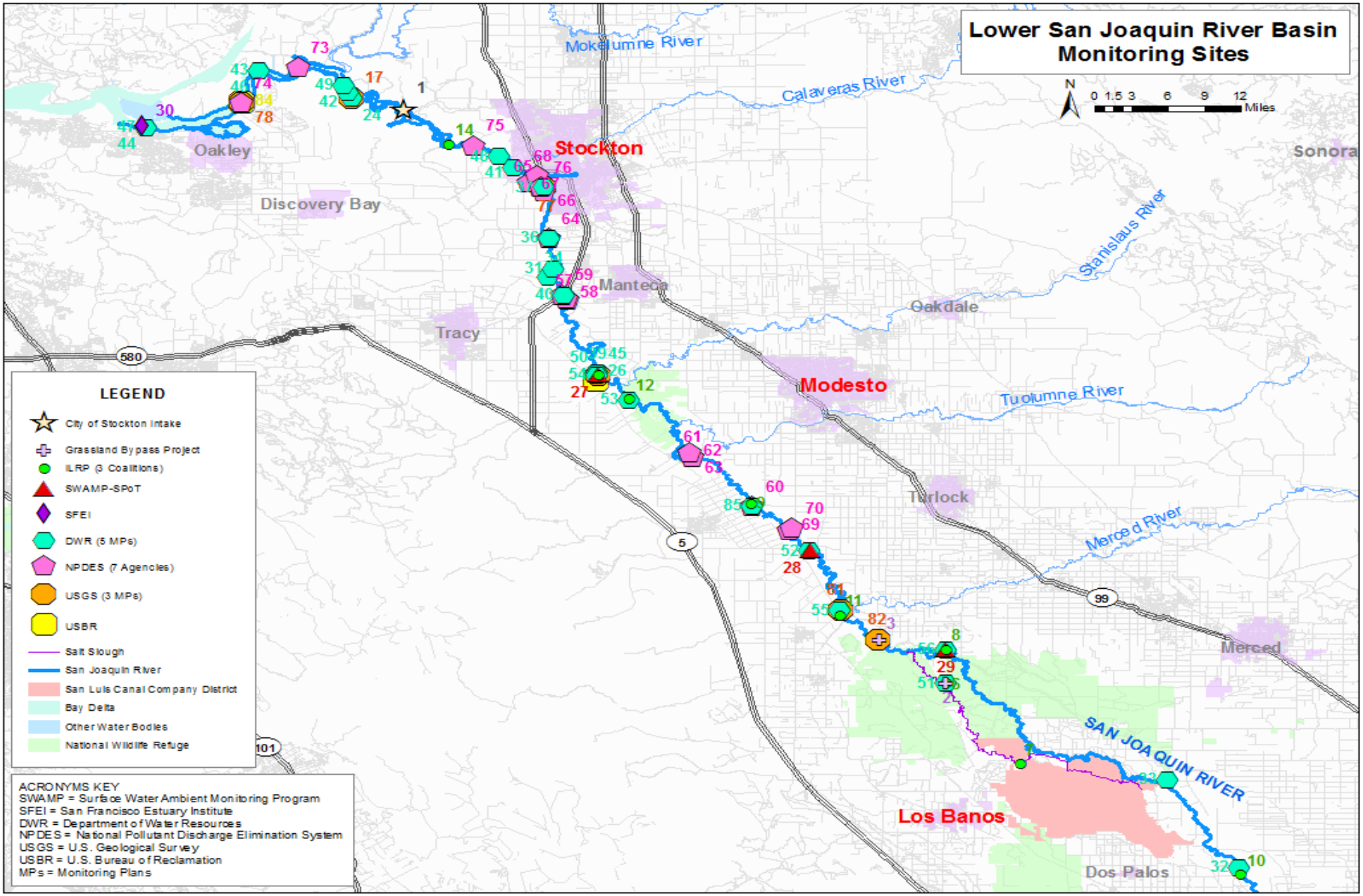

Table D - 2 Monitoring Sites

Map ID #	Site	Program	Agency	Monitoring Plan	Site Code	Latitude	Longitude	Monitoring Notes
10	SJR at Sack Dam	ILRP	Westside SJR Watershed Coalition	WDR	541XSJRSD	36.9835	-120.5005	TMDL monitoring: monthly for Chlorpyrifos and Diazinon.
32	SJR near Dos Palos	Continuous Recording Stations	DWR	Continuous Recording Stations	SDP	36.994	-120.5015	
33	SJR near Washington Road	Continuous Recording Stations	DWR	Continuous Recording Stations	SWA	37.11532	-120.587	
7	Salt Slough at Sand Dam	ILRP	Westside SJR Watershed Coalition	WDR	541XSSASD	37.1366	-120.76195	Tested during the irrigation period (Mar-Aug). The full constituent list will be tested for and evaluated twice per year on 2 separate rain events. TOC is tested in water and sediment during Assessment monitoring. Constituent and frequency varies year-to-year (refer to MRP No. R5-2014-0002 for details).
51	Salt Slough at Lander/Hwy 165	SJ District Surface Water Monitoring	DWR	SJR Real-time Water Quality Management Program	SSH	37.2486	-120.8511	
2	Salt Slough at Lander Avenue	GBP	DCRT	WDR/Various GBP Monitoring	541MER531	37.248611	-120.85111	Draft MRP is awaiting adoption. The most recent adopted MRP is MRP No. 5-01-234 from 2005. This site is a stormwater monitoring site, so the monitoring program shall be conducted at the channel immediately prior to diversion of stormwater, daily during water diversion, and for 1 week after diversion ceases.
6	Salt Slough at Lander/Hwy 165	ILRP	Westside SJR Watershed Coalition	WDR	541MER531	37.248611	-120.85111	Tested year-round, including irrigation periods, non-irrigation periods, and 2 rain events. The full constituent list will be tested for and evaluated twice per year on 2 separate rain events. TOC is tested in water and sediment during Assessment monitoring. Constituent and frequency varies year-to-year (refer to MRP No. R5-2014-0002 for details.)
56	SJR nr Stevinson	SJ District Surface Water Monitoring	DWR	SJR Real-time Water Quality Management Program	SJS	37.295	-120.851	

Table D - 2 Monitoring Sites

Map ID #	Site	Program	Agency	Monitoring Plan	Site Code	Latitude	Longitude	Monitoring Notes
8	SJR at Lander Avenue	ILRP	Westside SJR Watershed Coalition	WDR	541MER522	37.295278	-120.85028	Tested year-round, including irrigation periods, non-irrigation periods, and 2 rain events. The full constituent list will be tested for and evaluated twice per year on 2 separate rain events. TOC is tested in water and sediment during Assessment monitoring. Constituent and frequency varies year-to-year (refer to MRP No. R5-2014-0002 for details). TMDL monitoring: monthly for Chlorpyrifos and Diazinon.
29	SJR at Lander Avenue	SWAMP	State Water Board	SPoT	541MER522	37.2953	-120.8503	Monitored every other year.
3	SJR at Fremont Ford	GBP	DCRT	WDR/Various GBP Monitoring	541MER538	37.3094	-120.9292	GBP is a collaborative monitoring effort between several agencies in which responsibility for testing a given constituent is rotated between the agencies. D/W sites are tested daily with a 24-hour composite sample and weekly with a grab sample. M/BW sites are sampled monthly during the non-irrigation season (Sept-Feb) and every other week during the irrigation season (Mar-Aug). Monitoring for constituents that are required for WDR 5-01-234 did not start until June 2011.
82	SJR at Fremont Ford Bridge	Surface Water Monitoring	USGS	Surface Water Monitoring	FFB	37.30994	-120.93104	
11	SJR at Hills Ferry	ILRP	East SJ Water Quality Coalition	WDR	541STC512	37.3425	-120.97722	TMDL monitoring: 1 storm event and monthly from May-Sep for Chlorpyrifos and Diazinon.
55	SJR nr Newman	SJ District Surface Water Monitoring	DWR	SJR Real-time Water Quality Management Program	NEW	37.35	-120.977	USGS site code: 11274000; as SJ R NR NEWMAN CA
81	SJR above Merced River near Newman	Surface Water Monitoring	USGS	Surface Water Monitoring	11274000	37.35056	-120.9761	Constituents with weekly sampling frequency were monitored for the Grassland Bypass Project.
28	SJR at Crows Landing	SWAMP	State Water Board	SPoT	535STC504	37.4319	-121.0117	Monitored every other year.
52	SJR near Crows Landing	SJ District Surface Water Monitoring	DWR	SJR Real-time Water Quality Management Program	SCL	37.431881	-121.01382	

Table D - 2 Monitoring Sites

Map ID #	Site	Program	Agency	Monitoring Plan	Site Code	Latitude	Longitude	Monitoring Notes
69	SJR, 1800 ft. above discharge 001	NPDES	City of Turlock WQCF	NPDES SMP	RSW-001	37.460182	-121.03752	Constituents with weekly sampling frequency may be reduced to monthly when SJR is at "monitor stage" (river elevation is 48 ft.) and may be discontinued when SJR is at "flood stage" (river elevation is at 54.7 ft.) at the West Main Bridge near Patterson (SJP) gauging station. Discharger is allowed the choice to participate in the Delta RMP in lieu of conducting all or part of the individual receiving water monitoring. However, one representative ambient background characterization monitoring event for priority pollutants is required for permit renewal. The table currently reflects individual receiving water monitoring, not Delta RMP. Monthly (M) monitoring in 2017 is not required if Discharger participate in Delta RMP.
70	SJR, DS of discharge 001 and 50 ft. above confluence with Harding Drain	NPDES	City of Turlock WQCF	NPDES SMP	RSW-002	37.463886	-121.03321	
60	SJR, US at West Main Bridge	NPDES	City of Modesto WQCF	NPDES SMP	RSW-001	37.493888	-121.08056	Fecal coliform monitoring only required when discharging secondary treated wastewater; not required when discharging tertiary treated wastewater. Priority pollutants are monitored monthly for a one-year period during the third or fourth year of permit term. Dioxins and Furans are monitored semi-annually (one wet and one dry event). Priority Pollutants and other constituents of concern are defined with a frequency of MP.
85	SJR near Patterson	SJ District Surface Water Monitoring	DWR	SJR Real-time Water Quality Management Program	SJP	37.494	-121.081	
9	SJR at PID Pumps	ILRP	Westside SJR Watershed Coalition	WDR	541XSJRPP	37.4972	-121.0828	TMDL monitoring: monthly for Chlorpyrifos and Diazinon.

Table D - 2 Monitoring Sites

Map ID #	Site	Program	Agency	Monitoring Plan	Site Code	Latitude	Longitude	Monitoring Notes
63	SJR, DS at Laird Park	NPDES	City of Modesto WQCF	NPDES SMP	RSW-004	37.561944	-121.15222	Fecal coliform monitoring only required when discharging secondary treated wastewater; not required when discharging tertiary treated wastewater.
61	SJR, 500 ft. DS from discharge point	NPDES	City of Modesto WQCF	NPDES SMP	RSW-002	37.562336	-121.15277	Fecal coliform monitoring only required when discharging secondary treated wastewater; not required when discharging tertiary treated wastewater.
62	SJR, 1 mile DS from discharge point into	NPDES	City of Modesto WQCF	NPDES SMP	RSW-003	37.568529	-121.15455	Fecal coliform monitoring only required when discharging secondary treated wastewater; not required when discharging tertiary treated wastewater.
12	SJR above Maze Boulevard	ILRP	East SJ Water Quality Coalition	WDR	541STC510	37.64194	-121.22778	TMDL monitoring: 1 storm event and monthly from May-Sep for Chlorpyrifos and Diazinon.
53	SJR at Maze Rd Bridge	SJ District Surface Water Monitoring	DWR	SJR Real-time Water Quality Management Program	MRB	37.6414	-121.2276	
83	SJR at Vernalis	Surface Water Monitoring Sites	USBR	Surface Water Monitoring Sites	VER	37.667	-121.267	
13	SJR at Airport Way near Vernalis	ILRP	East SJ Water Quality Coalition	WDR	541SJC501	37.67556	-121.26417	TMDL monitoring: 1 storm event and monthly from May-Sep for Chlorpyrifos and Diazinon.
27	SJR at Airport Way	SWAMP	State Water Board	SPoT	541SJC501	37.675556	-121.26417	Monitored every other year.
80	SJR near Vernalis	NAWQA	USGS	NAWQA	11303500	37.67611	-121.26417	
50	SJR near Vernalis	MWQI	DWR	MWQI	VERNALIS	37.6793	-121.2651	
54	SJR near Vernalis	SJ District Surface Water Monitoring	DWR/USGS	SJR Real-time Water Quality Management Program	VNS	37.676041	-121.26633	In place of TSS, this site is tested for Suspended Sediment Concentration (SSC).
45	SJR near Vernalis at SJR Club	IEP	DWR	EMP: Discrete Water Quality Sampling	C10A	37.67929	-121.26511	
39	SJR near Vernalis at SJR Club	IEP	DWR	EMP: Real Time Monitoring	C10A	37.67929	-121.26511	

Table D - 2 Monitoring Sites

Map ID #	Site	Program	Agency	Monitoring Plan	Site Code	Latitude	Longitude	Monitoring Notes
26	SJR McCune Station nr Vernalis	Continuous Recording Stations	DWR	Continuous Recording Stations	SJR	37.67929	-121.26511	
57	SJR, mid-stream 100 ft. S of discharge 001	NPDES	City of Manteca and Dutra Farms WWTF	NPDES SMP	RSW-001	37.779107	-121.30092	Discharger is allowed the choice to participate in the Delta RMP in lieu of conducting all or part of the individual receiving water monitoring. However, one representative ambient background characterization monitoring event for priority pollutants is required for permit renewal. The table currently reflects individual receiving water monitoring, not Delta RMP. Monthly (M) monitoring in 2017 is not required if Discharger participate in Delta RMP.
58	SJR, mid-stream 500 ft. N of discharge 001	NPDES	City of Manteca and Dutra Farms WWTF	NPDES SMP	RSW-002	37.780429	-121.30172	
59	SJR, DWR's monitoring station at Mossdale Bridge	NPDES	City of Manteca and Dutra Farms WWTF	NPDES SMP	RSW-003	37.785931	-121.30725	
40	SJR at Mossdale Bridge (DWR's monitoring station)	IEP	DWR	EMP: Real Time Monitoring	C7A	37.786	-121.306	
34	SJR below O.R., near Lathrop	Continuous Recording Stations	DWR	Continuous Recording Stations	SJL	37.81111	-121.32417	
31	SJR above Dos Reis	Continuous Recording Stations	DWR	Continuous Recording Stations	SJD	37.82233	-121.31772	
64	SJR at Bowman Road, 8.0 miles S of discharge 001	NPDES	City of Stockton Regional WWCF	NPDES SMP	RSW-001	37.864516	-121.32302	Discharger is allowed the choice to participate in the Delta RMP in lieu of conducting all or part of the individual receiving water monitoring. However, one representative ambient background characterization monitoring event for priority pollutants is required for permit renewal. The table currently reflects individual receiving water monitoring, not Delta RMP. Every other month (BM) monitoring in 2017 is not required if Discharger participate in Delta RMP.

Table D - 2 Monitoring Sites

Map ID #	Site	Program	Agency	Monitoring Plan	Site Code	Latitude	Longitude	Monitoring Notes
36	SJR at Brandt Bridge	Continuous Recording Stations	DWR	Continuous Recording Stations	BDT	37.865	-121.3231	
66	SJR at Hwy 4, 0.5 miles S of discharge 001	NPDES	City of Stockton Regional WWCF	NPDES SMP	RSW-002	37.928674	-121.32812	
77	SJR at Garwood Bridge	Delta Flows Network	USGS	Delta Flows Network	SJG	37.9351	-121.32945	
37	SJR at Garwood Bridge	Continuous Recording Stations	DWR	Continuous Recording Stations	SJG	37.935	-121.329	
76	SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge	NPDES	Stockton Port District Facility	NPDES SMP	R-1	37.935678	-121.33246	Each year, samples shall be collected coinciding with the three qualifying storm events and two monitoring events during the dry season in accordance with the Port's sampling and analysis plan. Samples for chlorpyrifos and diazinon shall be collected during ONE qualifying storm event and ONE dry weather event. For toxicity testing, sampling shall occur for 3 storm events separated by 7 days of dry weather, and 2 dry weather monitoring events (if a discharge is occurring), conducted during 2 non-consecutive years.
65	SJR, flow monitoring station located approx. 500 ft. S of Discharge Point 001	NPDES	City of Stockton Regional WWCF	NPDES SMP	RSW-001A	37.9364	-121.3337	Flow information is reported to the Discharger by the USGS, collected from the flow monitoring station. Flow will be recorded in 15-minute intervals and reported within self-monitoring report as a daily net flow value in units of cfs.
67	San Joaquin River at Burns Cutoff, 0.5 miles N of Discharge Point 001	NPDES	City of Stockton Regional WWCF	NPDES SMP	RSW-002A	37.941897	-121.34615	
68	SJR at Deep Water Channel, 1.5 miles N of discharge 001	NPDES	City of Stockton Regional WWCF	NPDES SMP	RSW-003	37.950768	-121.33656	
41	SJR at Rough and Ready Island	IEP	DWR	EMP: Real Time Monitoring	P8A	37.963	-121.365	

Table D - 2 Monitoring Sites

Map ID #	Site	Program	Agency	Monitoring Plan	Site Code	Latitude	Longitude	Monitoring Notes
48	SJR at Buckley Cove	IEP	DWR	EMP: Discrete Water Quality Sampling	P8	37.97815	-121.38242	
75	SJR at Juggler's Island, approx. 6.4 miles downstream from the outfall from the storm drain system	NPDES	Lincoln Center Environmental Remedial Trust	NPDES SMP	RSW-004	37.9933	-121.4133	Discharger is allowed the choice to participate in the Delta RMP in lieu of conducting all or part of the individual receiving water monitoring. However, one representative ambient background characterization monitoring event for priority pollutants is required for permit renewal. The table currently reflects individual receiving water monitoring, not Delta RMP. Quarterly (Q) monitoring in 2019 is not required if Discharger participate in Delta RMP.
14	SJR at West Neugerbauer Rd	ILRP	SJ County and Delta Coalition	WDR	544SJCAWN	37.99493	-121.44173	TMDL monitoring: 1 storm event and monthly from May-Aug for Chlorpyrifos and Diazinon.
1	City of Stockton Intake	DDW Regulated Monitoring	City of Stockton	Title 22 Source Water Monitoring	PRI	38.043425	-121.49616	
17	SJR at Prisoner's Point near Terminous	Delta Flows Network	USGS	Delta Flows Network	PRI	38.0594	-121.5572	
24	SJR at Prisoner's Point near Terminous	Continuous Recording Stations	DWR	Continuous Recording Stations	PRI	38.0594	-121.5572	
42	SJR at Prisoner's Point	IEP	DWR	EMP: Real Time Monitoring	D29	38.066	-121.562	
49	SJR at Potato Point	IEP	DWR	EMP: Discrete Water Quality Sampling	D26	38.07664	-121.5669	
46	SJR at Twitchell Island	IEP	DWR	EMP: Discrete Water Quality Sampling	D16	38.09746	-121.66872	
43	SJR at Twitchell Island	IEP	DWR	EMP: Real Time Monitoring	D16	38.09746	-121.66872	

Table D - 2 Monitoring Sites

Map ID #	Site	Program	Agency	Monitoring Plan	Site Code	Latitude	Longitude	Monitoring Notes
73	SJR, approx. 7 miles US of Discharge Point 001	NPDES	Ironhouse Sanitary District WRF	NPDES SMP	RSW-001	38.101311	-121.62084	Discharger is allowed the choice to participate in the Delta RMP in lieu of conducting all or part of the individual receiving water monitoring. However, one representative ambient background characterization monitoring event for priority pollutants is required for permit renewal. The table currently reflects individual receiving water monitoring, not Delta RMP. Quarterly (Q) monitoring in 2017 is not required if Discharger participate in Delta RMP.
78	SJR at Jersey Point	Delta Flows Network	USGS	Delta Flows Network	SJJ	38.051983	-121.68912	
84	SJR at Jersey Point	Surface Water Monitoring Sites	USBR	Surface Water Monitoring Sites	JER	38.05199	-121.6888	
74	SJR at Jersey Point	NPDES	Ironhouse Sanitary District WRF	NPDES SMP	RSW-002	38.051991	-121.6888	
44	SJR at Antioch Water Works	IEP	DWR	EMP: Real Time Monitoring	D12A	38.01783	-121.80296	
30	SJR	RMP for Water Quality in the SF Estuary	SFEI	RMP for Water Quality in the SF Estuary	BG30	38.020541	-121.80627	Constituents monitored BE are water samples. Constituents monitored 4x are sediment samples.
47	SJR at Antioch Ship Channel	IEP	DWR	EMP: Discrete Water Quality Sampling	D12	38.01783	-121.80296	

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
SJR at Sack Dam													
Westside SJR Watershed Coalition	ILRP	WDR	SJRSD	Ongoing, SS	O	O	O	O	O	O	O		
SJR near Dos Palos													
DWR	Continuous Recording Station	Continuous Recording Station	SDP	Ongoing	C	C	C	C	C	C			
SJR near Washington Road													
DWR	Continuous Recording Station	Continuous Recording Station	SWA	Ongoing	C	C	C	C	C	C			
Salt Slough at Sand Dam													
Westside SJR Watershed Coalition	ILRP	WDR	SSASD	Ongoing, SS	O[A]	O[A]	O[A]	O[A]	O[A]	O[A]	O[A]		
Salt Slough at Lander/Hwy 165													
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SSH	Ongoing	C	C			C				
DCRT	GBP	WDR/Various GBP Plans	541MER531	Ongoing	D	D		D	D				
Westside SJR Watershed Coalition	ILRP	WDR	SSALA	Ongoing, SS	O[A]	O[A]	O[A]	O[A]	O[A]	O[A]	O[A]		

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
SJR near Stevinson													
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJS	Ongoing	C	C	C	C	C	C			
SJR at Lander Ave													
Westside SJR Watershed Coalition	ILRP	WDR	SJRLA	Ongoing, SS	O[A]	O[A]	O[A]	O[A]	O[A]	O[A]	O[A]		
State Water Resources Control Board	SWAMP	SPoT	541MER522	Ongoing									
SJR at Fremont Ford													
DCRT	GBP	GBP/Various Studies	541MER538	Ongoing	D[R]	D/W[R]		W[R]	W[R]				
USGS	Surface Water Monitoring	Surface Water Monitoring	FFB	Ongoing	C	C			C				
SJR at Hills Ferry													
East SJ Water Quality Coalition	ILRP	WDR	541STC512	Ongoing									
SJR near Newman													
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	NEW	Ongoing	C								
SJR above Merced River near Newman CA													

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
USGS	Surface Water Monitoring	Surface Water Monitoring	11274000	Ongoing	C/M	C/W	C	C	C	C			
SJR at Crows Landing													
State Water Resources Control Board	SWAMP	SPoT	535STC504	Ongoing									
SJR near Crows Landing													
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SCL	Ongoing	C	C			C				
SJR, 1800 ft. above Discharge Point 001													
City of Turlock WQCF	NPDES	NPDES SMP	RSW-001	Ongoing	W/M	W	W	W/M	W/M	W			
SJR, DS of Discharge Point 001 and 50 ft. above confluence with Harding Drain													
City of Turlock WQCF	NPDES	NPDES SMP	RSW-002	Ongoing	W	W	W	W	W	W			
SJR, US at West Main Bridge													
City of Modesto WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	C	W	W	W	W	W		M	
SJR near Patterson													
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJP	Ongoing	C	C	C	C	C	C			
SJR at PID Pumps													

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
Westside SJR Watershed Coalition	ILRP	WDR	SJRPP	Ongoing	O	O	O	O	O	O	O		
SJR, DS at Laird Park													
City of Modesto WWCF	NPDES	NPDES SMP	RSW-004	Ongoing		W	W	W	W	W		M	
SJR, 500 ft. from Discharge Point													
City of Modesto WWCF	NPDES	NPDES SMP	RSW-002	Ongoing		W	W	W	W	W		M	
SJR, 1 mile DS from Discharge Point													
City of Modesto WWCF	NPDES	NPDES SMP	RSW-003	Ongoing		W	W	W	W	W		M	
SJR above Maze Boulevard													
East SJ Water Quality Coalition	ILRP	WDR	541STC510	Ongoing									
SJR at Maze Rd Bridge													
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	MRB	Ongoing	C	C	C	C	C	C			
SJR at Vernalis													
USBR	Surface Water Monitoring	Surface Water Monitoring	VER	Ongoing		D			D				
SJR at Airport Way													
East SJ Water Quality Coalition	ILRP	WDR	541SJC501	Ongoing									

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
State Water Resources Control Board	SWAMP	SPoT	541SJC501	Ongoing									
SJR near Vernalis													
USGS	NAWQA	NAWQA	11303500	Ongoing	D	D			D				
DWR	MWQI	MWQI	VERNALIS	Ongoing		BW				BW			
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	VNS	Ongoing	C				C				
SJR near Vernalis at SJR Club													
DWR	IEP	EMP: Discrete Water Quality Sampling	C10A	Ongoing		M	M	M	M	M			
DWR	IEP	EMP: Real Time Monitoring	C10A	Ongoing	C	C	C	C	C	C			
SJR McCune Station nr Vernalis													
DWR	Continuous Recording Station	Continuous Recording Station	SJR	Ongoing	C	C	C	C	C	C			
SJR, mid-stream approx. 100 ft. S of Discharge Point 001													
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-001	Ongoing	M	BW/ M	BW	BW/ M	BW/M	BW			

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
SJR, mid-stream approx. 500 ft. N of Discharge Point 001													
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-002	Ongoing		BW	BW	BW	BW	BW			
SJR at Mossdale Bridge (DWR's monitoring station)													
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-003	Ongoing	C								
DWR	IEP	EMP: Real Time Monitoring	C7A	Ongoing	C	C	C	C	C	C			
SJR below Old River near Lathrop													
DWR	Continuous Recording Stations	Continuous Recording Stations	SJL	Ongoing		C			C				
SJR above Dos Reis													
DWR	Continuous Recording Stations	Continuous Recording Stations	SJD	Ongoing	C	C			C				
SJR at Bowman Rd., 8.0 miles S of Discharge Point 001													
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	BM	W/BM	W	W/BM	W/BM	W			
SJR at Brandt Bridge													
DWR	Continuous Recording Station	Continuous Recording Station	BDT	Ongoing	C	C	C	C	C	C			
SJR at Hwy 4, 0.5 miles S of Discharge Point 001													

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002	Ongoing		W	W	W	W	W			
SJR at Garwood Bridge													
USGS	Delta Flows Network	Delta Flows Network	11304810		C								
DWR	Continuous Recording Station	Continuous Recording Station	SJG	Ongoing	C	C			C	C			
SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge													
Stockton Port District Facility	NPDES	NPDES SMP	R-1	Ongoing		O	O	O	O	O	O	O	
SJR, Flow Monitoring Station location approx. 500 ft. S of Discharge Point 001													
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001A	Ongoing	C								
SJR at Burns Cutoff, 0.5 miles N of Discharge Point 001													
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002A	Ongoing		W	W	W	W	W			
SJR at Deep Water Channel, 1.5 miles N of Discharge Point 001													
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-003	Ongoing		W	W	W	W	W			
SJR at Rough and Ready Island													
DWR	IEP	EMP: Real Time Monitoring	P8A	Ongoing	C	C	C	C	C	C			
SJR at Buckley Cove													

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
DWR	IEP	EMP: Discrete Water Quality Sampling	P8	Ongoing		M	M	M	M	M			
SJR at Juggler's Island, approx. 6.4 miles DS from the outfall from the storm drain system													
Lincoln Center Environmental Remedial Trust	NPDES	NPDES SMP	RSW-004	Ongoing	Q	Q		Q	Q				
SJR at West Neugerbauer Rd													
SJ County and Delta Coalition	ILRP	WDR	544SJCAWN	Ongoing									
City of Stockton Intake													
City of Stockton	DDW Regulated Monitoring	Title 22 Source Water Monitoring	Intake	Ongoing		A		A		A			
SJR at Prisoner's Point near terminous													
USGS	Delta Flows Network	Delta Flows Network	PRI	Ongoing	D								
DWR	Continuous Recording Station	Continuous Recording Station	PRI	Ongoing	C	C			C	C			
SJR at Prisoner's Point													
DWR	IEP	EMP: Real Time Monitoring	D29	Ongoing		C	C	C	C	C			
SJR at Potato Point													

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
DWR	IEP	EMP: Discrete Water Quality Sampling	D26	Ongoing		M	M	M	M	M			
SJR at Twitchell Island													
DWR	IEP	EMP: Discrete Water Quality Sampling	D16	Ongoing		M	M	M	M	M			
DWR	IEP	EMP: Real Time Monitoring	D16	Ongoing		C	C	C	C	C			
SJR, approx. 7 miles US of Discharge Point 001													
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-001	Ongoing	Q	Q		Q	Q				
SJR at Jersey Point, USBR Monitoring Location													
USGS	Delta Flows Network	Delta Flows Network	SJJ	Ongoing	C	C	C		C	C			
USBR	Continuous Recording Stations	Continuous Recording Stations	JER	Ongoing		C			C	C			
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-002	Ongoing					M				
SJR at Antioch Water Works													
DWR	IEP	EMP: Real Time Monitoring	D12A	Ongoing		C	C	C	C	C			
SJR													

Table D - 3 Field & Bacteria/Pathogens

SITE INFORMATION					FIELD						BACTERIA		
Site Name			**Site ID**	**Project Term**	**Flow (cfs)**	**EC**	**DO**	**pH**	**Temp**	**Turbidity**	***E. coli***	**Total fecal coliforms**	**Bacteria (General)**
Agency	**Program**	**Monitoring Plan**											
SFEI	SFEI Regional Monitoring	RMP for Water Quality in the SF Estuary	BG30	Ongoing		M	M		M				
SJR at Antioch Ship Channel													
DWR	IEP	EMP: Discrete Water Quality Sampling	D12A	Ongoing		M	M	M	M	M			

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
SJR at Sack Dam																
Westside SJR Watershed Coalition	ILRP	WDR	SJRSD	Ongoing, SS				O		O						
SJR near Dos Palos																
DWR	Continuous Recording Station	Continuous Recording Station	SDP	Ongoing												
SJR near Washington Road																
DWR	Continuous Recording Station	Continuous Recording Station	SWA	Ongoing												
Salt Slough at Sand Dam																
Westside SJR Watershed Coalition	ILRP	WDR	SSASD	Ongoing, SS				O[A]		TBD					O[A]	
Salt Slough at Lander/Hwy 165																
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SSH	Ongoing												
DCRT	GBP	WDR/Various GBP Plans	541MER531	Ongoing						D						
Westside SJR Watershed Coalition	ILRP	WDR	SSALA	Ongoing, SS				O[A]		TBD					O[A]	
SJR near Stevinson																

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJS	Ongoing												
SJR at Lander Ave																
Westside SJR Watershed Coalition	ILRP	WDR	SJRLA	Ongoing, SS				O[A]		TBD					O[A]	
State Water Resources Control Board	SWAMP	SPoT	541MER522	Ongoing											O	
SJR at Fremont Ford																
DCRT	GBP	GBP/Various Studies	541MER538	Ongoing						D/WR						
USGS	Surface Water Monitoring	Surface Water Monitoring	FFB	Ongoing												
SJR at Hills Ferry																
East SJ Water Quality Coalition	ILRP	WDR	541STC512	Ongoing												
SJR near Newman																
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	NEW	Ongoing												
SJR above Merced River near Newman CA																

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
USGS	Surface Water Monitoring	Surface Water Monitoring	11274000	Ongoing						W						
SJR at Crows Landing																
State Water Resources Control Board	SWAMP	SPoT	535STC504	Ongoing											O	
SJR near Crows Landing																
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SCL	Ongoing												
SJR, 1800 ft. above Discharge Point 001																
City of Turlock WQCF	NPDES	NPDES SMP	RSW-001	Ongoing			M		M	M		M		M		
SJR, DS of Discharge Point 001 and 50 ft. above confluence with Harding Drain																
City of Turlock WQCF	NPDES	NPDES SMP	RSW-002	Ongoing												
SJR, US at West Main Bridge																
City of Modesto WWCF	NPDES	NPDES SMP	RSW-001	Ongoing			M		M^P			M^P		M^P		
SJR near Patterson																

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJP	Ongoing												
SJR at PID Pumps																
Westside SJR Watershed Coalition	ILRP	WDR	SJRPP	Ongoing				O		O						
SJR, DS at Laird Park																
City of Modesto WWCF	NPDES	NPDES SMP	RSW-004	Ongoing			M									
SJR, 500 ft. from Discharge Point																
City of Modesto WWCF	NPDES	NPDES SMP	RSW-002	Ongoing			M									
SJR, 1 mile DS from Discharge Point																
City of Modesto WWCF	NPDES	NPDES SMP	RSW-003	Ongoing			M									
SJR above Maze Boulevard																
East SJ Water Quality Coalition	ILRP	WDR	541STC510	Ongoing												
SJR at Maze Rd Bridge																

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	MRB	Ongoing												
SJR at Vernalis																
USBR	Surface Water Monitoring	Surface Water Monitoring	VER	Ongoing												
SJR at Airport Way																
East SJ Water Quality Coalition	ILRP	WDR	541SJC501	Ongoing												
State Water Resources Control Board	SWAMP	SPoT	541SJC501	Ongoing											O	
SJR near Vernalis																
USGS	NAWQA	NAWQA	11303500	Ongoing												
DWR	MWQI	MWQI	VERNALIS	Ongoing		BW	BW		C		BW	C		C	BW/C	BW/C
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	VNS	Ongoing												
SJR near Vernalis at SJR Club																
DWR	IEP	EMP: Discrete Water Quality Sampling	C10A	Ongoing			M	M	M						M	M

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
DWR	IEP	EMP: Real Time Monitoring	C10A	Ongoing												
SJR McCune Station nr Vernalis																
DWR	Continuous Recording Station	Continuous Recording Station	SJR	Ongoing												
SJR, mid-stream approx. 100 ft. S of Discharge Point 001																
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-001	Ongoing			Q/M		M	M				M		
SJR, mid-stream approx. 500 ft. N of Discharge Point 001																
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-002	Ongoing			Q									
SJR at Mossdale Bridge (DWR's monitoring station)																
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-003	Ongoing												
DWR	IEP	EMP: Real Time Monitoring	C7A	Ongoing												
SJR below Old River near Lathrop																
DWR	Continuous Recording Stations	Continuous Recording Stations	SJL	Ongoing												

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
SJR above Dos Reis																
DWR	Continuous Recording Stations	Continuous Recording Stations	SJD	Ongoing												
SJR at Bowman Rd., 8.0 miles S of Discharge Point 001																
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001	Ongoing			BM		BM	BM		BM		BM	BM	BM
SJR at Brandt Bridge																
DWR	Continuous Recording Station	Continuous Recording Station	BDT	Ongoing												
SJR at Hwy 4, 0.5 miles S of Discharge Point 001																
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002	Ongoing												
SJR at Garwood Bridge																
USGS	Delta Flows Network	Delta Flows Network	11304810													
DWR	Continuous Recording Station	Continuous Recording Station	SJG	Ongoing												
SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge																
Stockton Port District Facility	NPDES	NPDES SMP	R-1	Ongoing			O	O						O		
SJR, Flow Monitoring Station location approx. 500 ft. S of Discharge Point 001																
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001A	Ongoing												

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
SJR at Burns Cutoff, 0.5 miles N of Discharge Point 001																
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002A	Ongoing												
SJR at Deep Water Channel, 1.5 miles N of Discharge Point 001																
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-003	Ongoing												
SJR at Rough and Ready Island																
DWR	IEP	EMP: Real Time Monitoring	P8A	Ongoing												
SJR at Buckley Cove																
DWR	IEP	EMP: Discrete Water Quality Sampling	P8	Ongoing			M	M	M						M	M
SJR at Juggler's Island, approx. 6.4 miles DS from the outfall from the storm drain system																
Lincoln Center Environmental Remedial Trust	NPDES	NPDES SMP	RSW-004	Ongoing			Q		Q	Q		Q		Q		
SJR at West Neugerbauer Rd																
SJ County and Delta Coalition	ILRP	WDR	544SJCAWN	Ongoing												
City of Stockton Intake																
City of Stockton	DDW Regulated Monitoring	Title 22 Source Water Monitoring	Intake	Ongoing			A		A		A	A	A	A		
SJR at Prisoner's Point near terminous																

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
USGS	Delta Flows Network	Delta Flows Network	PRI	Ongoing												
DWR	Continuous Recording Station	Continuous Recording Station	PRI	Ongoing												
SJR at Prisoner's Point																
DWR	IEP	EMP: Real Time Monitoring	D29	Ongoing												
SJR at Potato Point																
DWR	IEP	EMP: Discrete Water Quality Sampling	D26	Ongoing			M	M	M						M	M
SJR at Twitchell Island																
DWR	IEP	EMP: Discrete Water Quality Sampling	D16	Ongoing												
DWR	IEP	EMP: Real Time Monitoring	D16	Ongoing												
SJR, approx. 7 miles US of Discharge Point 001																
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-001	Ongoing			Q		Q	Q		Q		Q	Q	Q
SJR at Jersey Point, USBR Monitoring Location																
USGS	Delta Flows Network	Delta Flows Network	SJJ	Ongoing												
USBR	Continuous Recording Stations	Continuous Recording Stations	JER	Ongoing												

Table D - 4 General Chemistry & Organic Carbon

SITE INFORMATION					GENERAL CHEMISTRY										ORGANIC CARBON	
Site Name			**Site ID**	**Project Term**	**Alkalinity**	**UV (ABS 254 NM)**	**TDS**	**TSS**	**Cl**	**B**	**Na**	**Fl**	**ClO 4-**	**SO4**	**TOC**	**DOC**
Agency	**Program**	**Monitoring Plan**														
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-002	Ongoing												
SJR at Antioch Water Works																
DWR	IEP	EMP: Real Time Monitoring	D12A	Ongoing												
SJR																
SFEI	SFEI Regional Monitoring	RMP for Water Quality in the SF Estuary	BG30	Ongoing				C							4X	BE
SJR at Antioch Ship Channel																
DWR	IEP	EMP: Discrete Water Quality Sampling	D12A	Ongoing												

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
SJR at Sack Dam																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRSD	Ongoing, SS																
SJR near Dos Palos																				
DWR	Continuous Recording Station	Continuous Recording Station	SDP	Ongoing																
SJR near Washington Road																				
DWR	Continuous Recording Station	Continuous Recording Station	SWA	Ongoing																
Salt Slough at Sand Dam																				
Westside SJR Watershed Coalition	ILRP	WDR	SSASD	Ongoing, SS					TBD									TBD		
Salt Slough at Lander/Hwy 165																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SSH	Ongoing																
DCRT	GBP	WDR/Various GBP Plans	541MER531	Ongoing																

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag (Total)**	**Ag (Diss)**	**Al (Total)**	**Al (Diss)**	**As (Total)**	**As (Diss)**	**Ba (Total)**	**Ba (Diss)**	**Be (Total)**	**Be (Diss)**	**Br (Total)**	**Br (Diss)**	**Cd (Total)**	**Cd (Diss)**	**Co (Total)**	**Co (Diss)**
Agency	**Program**	**Monitoring Plan**																		
Westside SJR Watershed Coalition	ILRP	WDR	SSALA	Ongoing, SS					TBD									TBD		
SJR near Stevinson																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJS	Ongoing																
SJR at Lander Ave																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRLA	Ongoing, SS					TBD									TBD		
State Water Resources Control Board	SWAMP	SPoT	541MER522	Ongoing	O		O		O								O			
SJR at Fremont Ford																				
DCRT	GBP	GBP/Various Studies	541MER538	Ongoing																
USGS	Surface Water Monitoring	Surface Water Monitoring	FFB	Ongoing																
SJR at Hills Ferry																				

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
East SJ Water Quality Coalition	ILRP	WDR	541STC512	Ongoing																
SJR near Newman																				
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	NEW	Ongoing																
SJR above Merced River near Newman CA																				
USGS	Surface Water Monitoring	Surface Water Monitoring	11274000	Ongoing																
SJR at Crows Landing																				
State Water Resources Control Board	SWAMP	SPoT	535STC504	Ongoing	O		O		O								O			
SJR near Crows Landing																				
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SCL	Ongoing																

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
SJR, 1800 ft. above Discharge Point 001																				
City of Turlock WQCF	NPDES	NPDES SMP	RSW-001	Ongoing	M		M		M		M		M				M			
SJR, DS of Discharge Point 001 and 50 ft. above confluence with Harding Drain																				
City of Turlock WQCF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR, US at West Main Bridge																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	M^P		M^P		M^P		M^P		M^P				M^P			
SJR near Patterson																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJP	Ongoing																
SJR at PID Pumps																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRPP	Ongoing																

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
SJR, DS at Laird Park																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-004	Ongoing																
SJR, 500 ft. from Discharge Point																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR, 1 mile DS from Discharge Point																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-003	Ongoing																
SJR above Maze Boulevard																				
East SJ Water Quality Coalition	ILRP	WDR	541STC510	Ongoing																
SJR at Maze Rd Bridge																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	MRB	Ongoing																
SJR at Vernalis																				

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
USBR	Surface Water Monitoring	Surface Water Monitoring	VER	Ongoing																
SJR at Airport Way																				
East SJ Water Quality Coalition	ILRP	WDR	541SJC501	Ongoing																
State Water Resources Control Board	SWAMP	SPoT	541SJC501	Ongoing	O		O		O								O			
SJR near Vernalis																				
USGS	NAWQA	NAWQA	11303500	Ongoing																
DWR	MWQI	MWQI	VERNALIS	Ongoing											BW/ C					
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	VNS	Ongoing																
SJR near Vernalis at SJR Club																				

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag (Total)**	**Ag (Diss)**	**Al (Total)**	**Al (Diss)**	**As (Total)**	**As (Diss)**	**Ba (Total)**	**Ba (Diss)**	**Be (Total)**	**Be (Diss)**	**Br (Total)**	**Br (Diss)**	**Cd (Total)**	**Cd (Diss)**	**Co (Total)**	**Co (Diss)**
Agency	**Program**	**Monitoring Plan**																		
DWR	IEP	EMP: Discrete Water Quality Sampling	C10A	Ongoing																
DWR	IEP	EMP: Real Time Monitoring	C10A	Ongoing																
SJR McCune Station nr Vernalis																				
DWR	Continuous Recording Station	Continuous Recording Station	SJR	Ongoing																
SJR, mid-stream approx. 100 ft. S of Discharge Point 001																				
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-001	Ongoing	M		M		M		M		M				M			
SJR, mid-stream approx. 500 ft. N of Discharge Point 001																				
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR at Mossdale Bridge (DWR's monitoring station)																				

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-003	Ongoing																
DWR	IEP	EMP: Real Time Monitoring	C7A	Ongoing																
SJR below Old River near Lathrop																				
DWR	Continuous Recording Stations	Continuous Recording Stations	SJL	Ongoing																
SJR above Dos Reis																				
DWR	Continuous Recording Stations	Continuous Recording Stations	SJD	Ongoing																
SJR at Bowman Rd., 8.0 miles S of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	BM		BM		BM		BM		BM				BM			
SJR at Brandt Bridge																				
DWR	Continuous Recording Station	Continuous Recording Station	BDT	Ongoing																
SJR at Hwy 4, 0.5 miles S of Discharge Point 001																				

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR at Garwood Bridge																				
USGS	Delta Flows Network	Delta Flows Network	11304810																	
DWR	Continuous Recording Station	Continuous Recording Station	SJG	Ongoing																
SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge																				
Stockton Port District Facility	NPDES	NPDES SMP	R-1	Ongoing	O		O		O		O		O				O		O	
SJR, Flow Monitoring Station location approx. 500 ft. S of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001A	Ongoing																
SJR at Burns Cutoff, 0.5 miles N of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002A	Ongoing																
SJR at Deep Water Channel, 1.5 miles N of Discharge Point 001																				

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-003	Ongoing																
SJR at Rough and Ready Island																				
DWR	IEP	EMP: Real Time Monitoring	P8A	Ongoing																
SJR at Buckley Cove																				
DWR	IEP	EMP: Discrete Water Quality Sampling	P8	Ongoing																
SJR at Juggler's Island, approx. 6.4 miles DS from the outfall from the storm drain system																				
Lincoln Center Environmental Remedial Trust	NPDES	NPDES SMP	RSW-004	Ongoing	Q		Q		Q		Q		Q				Q			
SJR at West Neugerbauer Rd																				
SJ County and Delta Coalition	ILRP	WDR	544SJCAWN	Ongoing																
City of Stockton Intake																				

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS														
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																	
City of Stockton	DDW Regulated Monitoring	Title 22 Source Water Monitoring	Intake	Ongoing	A		A		A		A		A				A			
SJR at Prisoner's Point near terminous																			
USGS	Delta Flows Network	Delta Flows Network	PRI	Ongoing																
DWR	Continuous Recording Station	Continuous Recording Station	PRI	Ongoing																
SJR at Prisoner's Point																			
DWR	IEP	EMP: Real Time Monitoring	D29	Ongoing																
SJR at Potato Point																			
DWR	IEP	EMP: Discrete Water Quality Sampling	D26	Ongoing																
SJR at Twitchell Island																			
DWR	IEP	EMP: Discrete Water Quality Sampling	D16	Ongoing																

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
DWR	IEP	EMP: Real Time Monitoring	D16	Ongoing																
SJR, approx. 7 miles US of Discharge Point 001																				
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-001	Ongoing	Q		Q		Q		Q		Q				Q			
SJR at Jersey Point, USBR Monitoring Location																				
USGS	Delta Flows Network	Delta Flows Network	SJJ	Ongoing																
USBR	Continuous Recording Stations	Continuous Recording Stations	JER	Ongoing																
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR at Antioch Water Works																				
DWR	IEP	EMP: Real Time Monitoring	D12A	Ongoing																
SJR																				

Table D - 5 Metals & Trace Elements Part I

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Ag** (Total)	**Ag** (Diss)	**Al** (Total)	**Al** (Diss)	**As** (Total)	**As** (Diss)	**Ba** (Total)	**Ba** (Diss)	**Be** (Total)	**Be** (Diss)	**Br** (Total)	**Br** (Diss)	**Cd** (Total)	**Cd** (Diss)	**Co** (Total)	**Co** (Diss)
Agency	**Program**	**Monitoring Plan**																		
SFEI	SFEI Regional Monitoring	RMP for Water Quality in the SF Estuary	BG30	Ongoing	BE/4 X		BE/4 X		BE/4 X								BE/4 X		BE	
SJR at Antioch Ship Channel																				
DWR	IEP	EMP: Discrete Water Quality Sampling	D12A	Ongoing																

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
SJR at Sack Dam																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRSD	Ongoing, SS						O										
SJR near Dos Palos																				
DWR	Continuous Recording Station	Continuous Recording Station	SDP	Ongoing																
SJR near Washington Road																				
DWR	Continuous Recording Station	Continuous Recording Station	SWA	Ongoing																
Salt Slough at Sand Dam																				
Westside SJR Watershed Coalition	ILRP	WDR	SSASD	Ongoing, SS						TBD										
Salt Slough at Lander/Hwy 165																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SSH	Ongoing																
DCRT	GBP	WDR/Various GBP Plans	541MER531	Ongoing																

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
Westside SJR Watershed Coalition	ILRP	WDR	SSALA	Ongoing, SS						TBD										
SJR near Stevinson																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJS	Ongoing																
SJR at Lander Ave																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRLA	Ongoing, SS						TBD										
State Water Resources Control Board	SWAMP	SPoT	541MER522	Ongoing		O			O					O					O	
SJR at Fremont Ford																				
DCRT	GBP	GBP/Various Studies	541MER538	Ongoing																
USGS	Surface Water Monitoring	Surface Water Monitoring	FFB	Ongoing																
SJR at Hills Ferry																				

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
East SJ Water Quality Coalition	ILRP	WDR	541STC512	Ongoing																
SJR near Newman																				
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	NEW	Ongoing																
SJR above Merced River near Newman CA																				
USGS	Surface Water Monitoring	Surface Water Monitoring	11274000	Ongoing																
SJR at Crows Landing																				
State Water Resources Control Board	SWAMP	SPoT	535STC504	Ongoing		O			O					O					O	
SJR near Crows Landing																				
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SCL	Ongoing																
SJR, 1800 ft. above Discharge Point 001																				

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
City of Turlock WQCF	NPDES	NPDES SMP	RSW-001	Ongoing	M			M	M		M		M	M					M	
SJR, DS of Discharge Point 001 and 50 ft. above confluence with Harding Drain																				
City of Turlock WQCF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR, US at West Main Bridge																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	M^P			M^P	M^P		M^P			M^P					M^P	
SJR near Patterson																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJP	Ongoing																
SJR at PID Pumps																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRPP	Ongoing						O										
SJR, DS at Laird Park																				

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
City of Modesto WWCF	NPDES	NPDES SMP	RSW-004	Ongoing																
SJR, 500 ft. from Discharge Point																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR, 1 mile DS from Discharge Point																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-003	Ongoing																
SJR above Maze Boulevard																				
East SJ Water Quality Coalition	ILRP	WDR	541STC510	Ongoing																
SJR at Maze Rd Bridge																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	MRB	Ongoing																
SJR at Vernalis																				

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
USBR	Surface Water Monitoring	Surface Water Monitoring	VER	Ongoing																
SJR at Airport Way																				
East SJ Water Quality Coalition	ILRP	WDR	541SJC501	Ongoing																
State Water Resources Control Board	SWAMP	SPoT	541SJC501	Ongoing		O			O					O					O	
SJR near Vernalis																				
USGS	NAWQA	NAWQA	11303500	Ongoing																
DWR	MWQI	MWQI	VERNALIS	Ongoing																
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	VNS	Ongoing																
SJR near Vernalis at SJR Club																				
DWR	IEP	EMP: Discrete Water Quality Sampling	C10A	Ongoing																

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
DWR	IEP	EMP: Real Time Monitoring	C10A	Ongoing																
SJR McCune Station nr Vernalis																				
DWR	Continuous Recording Station	Continuous Recording Station	SJR	Ongoing																
SJR, mid-stream approx. 100 ft. S of Discharge Point 001																				
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-001	Ongoing	M			M	M		M		M	M					M	
SJR, mid-stream approx. 500 ft. N of Discharge Point 001																				
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR at Mossdale Bridge (DWR's monitoring station)																				
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-003	Ongoing																

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
DWR	IEP	EMP: Real Time Monitoring	C7A	Ongoing																
SJR below Old River near Lathrop																				
DWR	Continuous Recording Stations	Continuous Recording Stations	SJL	Ongoing																
SJR above Dos Reis																				
DWR	Continuous Recording Stations	Continuous Recording Stations	SJD	Ongoing																
SJR at Bowman Rd., 8.0 miles S of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	BM			B M	BM		BM		BM	BM					BM	
SJR at Brandt Bridge																				
DWR	Continuous Recording Station	Continuous Recording Station	BDT	Ongoing																
SJR at Hwy 4, 0.5 miles S of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002	Ongoing																

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
SJR at Garwood Bridge																				
USGS	Delta Flows Network	Delta Flows Network	11304810																	
DWR	Continuous Recording Station	Continuous Recording Station	SJG	Ongoing																
SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge																				
Stockton Port District Facility	NPDES	NPDES SMP	R-1	Ongoing		O		O	O				O	O						
SJR, Flow Monitoring Station location approx. 500 ft. S of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001A	Ongoing																
SJR at Burns Cutoff, 0.5 miles N of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002A	Ongoing																
SJR at Deep Water Channel, 1.5 miles N of Discharge Point 001																				

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-003	Ongoing																
SJR at Rough and Ready Island																				
DWR	IEP	EMP: Real Time Monitoring	P8A	Ongoing																
SJR at Buckley Cove																				
DWR	IEP	EMP: Discrete Water Quality Sampling	P8	Ongoing																
SJR at Juggler's Island, approx. 6.4 miles DS from the outfall from the storm drain system																				
Lincoln Center Environmental Remedial Trust	NPDES	NPDES SMP	RSW-004	Ongoing	Q	Q		Q	Q		Q			Q					Q	
SJR at West Neugerbauer Rd																				
SJ County and Delta Coalition	ILRP	WDR	544SJCAWN	Ongoing																

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
City of Stockton Intake																				
City of Stockton	DDW Regulated Monitoring	Title 22 Source Water Monitoring	Intake	Ongoing		A		A	A		A			A					A	
SJR at Prisoner's Point near terminous																				
USGS	Delta Flows Network	Delta Flows Network	PRI	Ongoing																
DWR	Continuous Recording Station	Continuous Recording Station	PRI	Ongoing																
SJR at Prisoner's Point																				
DWR	IEP	EMP: Real Time Monitoring	D29	Ongoing																
SJR at Potato Point																				
DWR	IEP	EMP: Discrete Water Quality Sampling	D26	Ongoing																
SJR at Twitchell Island																				
DWR	IEP	EMP: Discrete Water Quality Sampling	D16	Ongoing																

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
DWR	IEP	EMP: Real Time Monitoring	D16	Ongoing																
SJR, approx. 7 miles US of Discharge Point 001																				
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-001	Ongoing	Q			Q	Q		Q		Q	Q					Q	
SJR at Jersey Point, USBR Monitoring Location																				
USGS	Delta Flows Network	Delta Flows Network	SJJ	Ongoing																
USBR	Continuous Recording Stations	Continuous Recording Stations	JER	Ongoing																
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR at Antioch Water Works																				
DWR	IEP	EMP: Real Time Monitoring	D12A	Ongoing																
SJR																				

Table D - 6 Metals & Trace Elements Part II

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**CN-**	**Cr (Total)**	**Cr (Diss)**	**Cr (VI)**	**Cu (Total)**	**Cu (Diss)**	**Fe (Total)**	**Fe (Diss)**	**Hg (methyl)**	**Hg (Total)**	**Hg (Diss)**	**K (Total)**	**Li (Total)**	**Li (Diss)**	**Mn (Total)**	**Mn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
SFEI	SFEI Regional Monitoring	RMP for Water Quality in the SF Estuary	BG30	Ongoing	BE				BE/4 X		BE/4 X		BE/4 X	BE/4 X					BE/4 X	
SJR at Antioch Ship Channel																				
DWR	IEP	EMP: Discrete Water Quality Sampling	D12A	Ongoing																

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo** (Total)	**Mo** (Diss)	**Ni** (Total)	**Ni** (Diss)	**Pb** (Total)	**Pb** (Diss)	**Sb** (Total)	**Sb** (Diss)	**Se** (Total)	**Se** (Diss)	**Sr** (Total)	**Sr** (Diss)	**Tl** (Total)	**Tl** (Diss)	**Zn** (Total)	**Zn** (Diss)
Agency	**Program**	**Monitoring Plan**																		
SJR at Sack Dam																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRSD	Ongoing, SS				O												O
SJR near Dos Palos																				
DWR	Continuous Recording Station	Continuous Recording Station	SDP	Ongoing																
SJR near Washington Road																				
DWR	Continuous Recording Station	Continuous Recording Station	SWA	Ongoing																
Salt Slough at Sand Dam																				
Westside SJR Watershed Coalition	ILRP	WDR	SSASD	Ongoing, SS	TBD			TBD		TBD			TBD							TBD
Salt Slough at Lander/Hwy 165																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SSH	Ongoing																
DCRT	GBP	WDR/Various GBP Plans	541MER531	Ongoing	D								D							

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo (Total)**	**Mo (Diss)**	**Ni (Total)**	**Ni (Diss)**	**Pb (Total)**	**Pb (Diss)**	**Sb (Total)**	**Sb (Diss)**	**Se (Total)**	**Se (Diss)**	**Sr (Total)**	**Sr (Diss)**	**Tl (Total)**	**Tl (Diss)**	**Zn (Total)**	**Zn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
Westside SJR Watershed Coalition	ILRP	WDR	SSALA	Ongoing, SS	TBD			TBD		TBD			TBD							TBD
SJR near Stevinson																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJS	Ongoing																
SJR at Lander Ave																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRLA	Ongoing, SS	TBD			TBD		TBD			TBD							TBD
State Water Resources Control Board	SWAMP	SPoT	541MER522	Ongoing			O		O										O	
SJR at Fremont Ford																				
DCRT	GBP	GBP/Various Studies	541MER538	Ongoing	M[R]								D/W[R]							
USGS	Surface Water Monitoring	Surface Water Monitoring	FFB	Ongoing																
SJR at Hills Ferry																				

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo** (Total)	**Mo** (Diss)	**Ni** (Total)	**Ni** (Diss)	**Pb** (Total)	**Pb** (Diss)	**Sb** (Total)	**Sb** (Diss)	**Se** (Total)	**Se** (Diss)	**Sr** (Total)	**Sr** (Diss)	**Tl** (Total)	**Tl** (Diss)	**Zn** (Total)	**Zn** (Diss)
Agency	**Program**	**Monitoring Plan**																		
East SJ Water Quality Coalition	ILRP	WDR	541STC512	Ongoing																
SJR near Newman																				
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	NEW	Ongoing																
SJR above Merced River near Newman CA																				
USGS	Surface Water Monitoring	Surface Water Monitoring	11274000	Ongoing									W							
SJR at Crows Landing																				
State Water Resources Control Board	SWAMP	SPoT	535STC504	Ongoing			O		O										O	
SJR near Crows Landing																				
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SCL	Ongoing																
SJR, 1800 ft. above Discharge Point 001																				

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo** (Total)	**Mo** (Diss)	**Ni** (Total)	**Ni** (Diss)	**Pb** (Total)	**Pb** (Diss)	**Sb** (Total)	**Sb** (Diss)	**Se** (Total)	**Se** (Diss)	**Sr** (Total)	**Sr** (Diss)	**Tl** (Total)	**Tl** (Diss)	**Zn** (Total)	**Zn** (Diss)
Agency	**Program**	**Monitoring Plan**																		
City of Turlock WQCF	NPDES	NPDES SMP	RSW-001	Ongoing	M		M		M		M		M				M		M	
SJR, DS of Discharge Point 001 and 50 ft. above confluence with Harding Drain																				
City of Turlock WQCF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR, US at West Main Bridge																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-001	Ongoing			M^P		M^P		M^P		M^P				M^P		M^P	
SJR near Patterson																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJP	Ongoing																
SJR at PID Pumps																				
Westside SJR Watershed Coalition	ILRP	WDR	SJRPP	Ongoing				O												O
SJR, DS at Laird Park																				

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo** (Total)	**Mo** (Diss)	**Ni** (Total)	**Ni** (Diss)	**Pb** (Total)	**Pb** (Diss)	**Sb** (Total)	**Sb** (Diss)	**Se** (Total)	**Se** (Diss)	**Sr** (Total)	**Sr** (Diss)	**Tl** (Total)	**Tl** (Diss)	**Zn** (Total)	**Zn** (Diss)
Agency	**Program**	**Monitoring Plan**																		
City of Modesto WWCF	NPDES	NPDES SMP	RSW-004	Ongoing																
SJR, 500 ft. from Discharge Point																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR, 1 mile DS from Discharge Point																				
City of Modesto WWCF	NPDES	NPDES SMP	RSW-003	Ongoing																
SJR above Maze Boulevard																				
East SJ Water Quality Coalition	ILRP	WDR	541STC510	Ongoing																
SJR at Maze Rd Bridge																				
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	MRB	Ongoing																
SJR at Vernalis																				
USBR	Surface Water Monitoring	Surface Water Monitoring	VER	Ongoing																

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo (Total)**	**Mo (Diss)**	**Ni (Total)**	**Ni (Diss)**	**Pb (Total)**	**Pb (Diss)**	**Sb (Total)**	**Sb (Diss)**	**Se (Total)**	**Se (Diss)**	**Sr (Total)**	**Sr (Diss)**	**Tl (Total)**	**Tl (Diss)**	**Zn (Total)**	**Zn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
SJR at Airport Way																				
East SJ Water Quality Coalition	ILRP	WDR	541SJC501	Ongoing																
State Water Resources Control Board	SWAMP	SPoT	541SJC501	Ongoing			O		O										O	
SJR near Vernalis																				
USGS	NAWQA	NAWQA	11303500	Ongoing																
DWR	MWQI	MWQI	VERNALIS	Ongoing																
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	VNS	Ongoing																
SJR near Vernalis at SJR Club																				
DWR	IEP	EMP: Discrete Water Quality Sampling	C10A	Ongoing																
DWR	IEP	EMP: Real Time Monitoring	C10A	Ongoing																

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo (Total)**	**Mo (Diss)**	**Ni (Total)**	**Ni (Diss)**	**Pb (Total)**	**Pb (Diss)**	**Sb (Total)**	**Sb (Diss)**	**Se (Total)**	**Se (Diss)**	**Sr (Total)**	**Sr (Diss)**	**Tl (Total)**	**Tl (Diss)**	**Zn (Total)**	**Zn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
SJR McCune Station nr Vernalis																				
DWR	Continuous Recording Station	Continuous Recording Station	SJR	Ongoing																
SJR, mid-stream approx. 100 ft. S of Discharge Point 001																				
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-001	Ongoing	M		M		M		M		M				M		M	
SJR, mid-stream approx. 500 ft. N of Discharge Point 001																				
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR at Mossdale Bridge (DWR's monitoring station)																				
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-003	Ongoing																
DWR	IEP	EMP: Real Time Monitoring	C7A	Ongoing																
SJR below Old River near Lathrop																				

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo** (Total)	**Mo** (Diss)	**Ni** (Total)	**Ni** (Diss)	**Pb** (Total)	**Pb** (Diss)	**Sb** (Total)	**Sb** (Diss)	**Se** (Total)	**Se** (Diss)	**Sr** (Total)	**Sr** (Diss)	**Tl** (Total)	**Tl** (Diss)	**Zn** (Total)	**Zn** (Diss)
Agency	**Program**	**Monitoring Plan**																		
DWR	Continuous Recording Stations	Continuous Recording Stations	SJL	Ongoing																
SJR above Dos Reis																				
DWR	Continuous Recording Stations	Continuous Recording Stations	SJD	Ongoing																
SJR at Bowman Rd., 8.0 miles S of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	BM		BM		BM		BM		BM				BM		BM	
SJR at Brandt Bridge																				
DWR	Continuous Recording Station	Continuous Recording Station	BDT	Ongoing																
SJR at Hwy 4, 0.5 miles S of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR at Garwood Bridge																				
USGS	Delta Flows Network	Delta Flows Network	11304810																	
DWR	Continuous Recording Station	Continuous Recording Station	SJG	Ongoing																
SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge																				

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo (Total)**	**Mo (Diss)**	**Ni (Total)**	**Ni (Diss)**	**Pb (Total)**	**Pb (Diss)**	**Sb (Total)**	**Sb (Diss)**	**Se (Total)**	**Se (Diss)**	**Sr (Total)**	**Sr (Diss)**	**Tl (Total)**	**Tl (Diss)**	**Zn (Total)**	**Zn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
Stockton Port District Facility	NPDES	NPDES SMP	R-1	Ongoing			O		O		O		O				O		O	
SJR, Flow Monitoring Station location approx. 500 ft. S of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001A	Ongoing																
SJR at Burns Cutoff, 0.5 miles N of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002A	Ongoing																
SJR at Deep Water Channel, 1.5 miles N of Discharge Point 001																				
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-003	Ongoing																
SJR at Rough and Ready Island																				
DWR	IEP	EMP: Real Time Monitoring	P8A	Ongoing																
SJR at Buckley Cove																				

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo (Total)**	**Mo (Diss)**	**Ni (Total)**	**Ni (Diss)**	**Pb (Total)**	**Pb (Diss)**	**Sb (Total)**	**Sb (Diss)**	**Se (Total)**	**Se (Diss)**	**Sr (Total)**	**Sr (Diss)**	**Tl (Total)**	**Tl (Diss)**	**Zn (Total)**	**Zn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
DWR	IEP	EMP: Discrete Water Quality Sampling	P8	Ongoing																
SJR at Juggler's Island, approx. 6.4 miles DS from the outfall from the storm drain system																				
Lincoln Center Environmental Remedial Trust	NPDES	NPDES SMP	RSW-004	Ongoing	Q		Q		Q		Q		Q				Q		Q	
SJR at West Neugerbauer Rd																				
SJ County and Delta Coalition	ILRP	WDR	544SJCAWN	Ongoing																
City of Stockton Intake																				
City of Stockton	DDW Regulated Monitoring	Title 22 Source Water Monitoring	Intake	Ongoing			A				A		A				A		A	
SJR at Prisoner's Point near terminous																				
USGS	Delta Flows Network	Delta Flows Network	PRI	Ongoing																
DWR	Continuous Recording Station	Continuous Recording Station	PRI	Ongoing																

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo (Total)**	**Mo (Diss)**	**Ni (Total)**	**Ni (Diss)**	**Pb (Total)**	**Pb (Diss)**	**Sb (Total)**	**Sb (Diss)**	**Se (Total)**	**Se (Diss)**	**Sr (Total)**	**Sr (Diss)**	**Tl (Total)**	**Tl (Diss)**	**Zn (Total)**	**Zn (Diss)**
Agency	**Program**	**Monitoring Plan**																		
SJR at Prisoner's Point																				
DWR	IEP	EMP: Real Time Monitoring	D29	Ongoing																
SJR at Potato Point																				
DWR	IEP	EMP: Discrete Water Quality Sampling	D26	Ongoing																
SJR at Twitchell Island																				
DWR	IEP	EMP: Discrete Water Quality Sampling	D16	Ongoing																
DWR	IEP	EMP: Real Time Monitoring	D16	Ongoing																
SJR, approx. 7 miles US of Discharge Point 001																				
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-001	Ongoing	Q		Q		Q		Q		Q				Q		Q	
SJR at Jersey Point, USBR Monitoring Location																				
USGS	Delta Flows Network	Delta Flows Network	SJJ	Ongoing																

Table D - 7 Metals & Trace Elements Part III

SITE INFORMATION					METALS AND TRACE ELEMENTS															
Site Name			**Site ID**	**Project Term**	**Mo** (Total)	**Mo** (Diss)	**Ni** (Total)	**Ni** (Diss)	**Pb** (Total)	**Pb** (Diss)	**Sb** (Total)	**Sb** (Diss)	**Se** (Total)	**Se** (Diss)	**Sr** (Total)	**Sr** (Diss)	**Tl** (Total)	**Tl** (Diss)	**Zn** (Total)	**Zn** (Diss)
Agency	**Program**	**Monitoring Plan**																		
USBR	Continuous Recording Stations	Continuous Recording Stations	JER	Ongoing																
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-002	Ongoing																
SJR at Antioch Water Works																				
DWR	IEP	EMP: Real Time Monitoring	D12A	Ongoing																
SJR																				
SFEI	SFEI Regional Monitoring	RMP for Water Quality in the SF Estuary	BG30	Ongoing				BE/4 X	BE/4 X					BE/4 X						BE/4 X
SJR at Antioch Ship Channel																				
DWR	IEP	EMP: Discrete Water Quality Sampling	D12A	Ongoing																

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca** (Total)	**Ca** (Diss)	**Hardness As CaCO3**	**Mg** (Total)	**Mg** (Diss)	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
SJR at Sack Dam																	
Westside SJR Watershed Coalition	ILRP	WDR	SJRSD	Ongoing, SS				O									
SJR near Dos Palos																	
DWR	Continuous Recording Station	Continuous Recording Station	SDP	Ongoing													
SJR near Washington Road																	
DWR	Continuous Recording Station	Continuous Recording Station	SWA	Ongoing													
Salt Slough at Sand Dam																	
Westside SJR Watershed Coalition	ILRP	WDR	SSASD	Ongoing, SS				O[A]			O[A]		O[A]	O[A]			O[A]
Salt Slough at Lander/Hwy 165																	
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SSH	Ongoing													
DCRT	GBP	WDR/Various GBP Plans	541MER531	Ongoing													

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca** (Total)	**Ca** (Diss)	**Hardness As CaCO3**	**Mg** (Total)	**Mg** (Diss)	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
Westside SJR Watershed Coalition	ILRP	WDR	SSALA	Ongoing, SS				O^A			O^A		O^A	O^A			O^A
SJR near Stevinson																	
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJS	Ongoing													
SJR at Lander Ave																	
Westside SJR Watershed Coalition	ILRP	WDR	SJRLA	Ongoing, SS				O^A			O^A		O^A	O^A			O^A
State Water Resources Control Board	SWAMP	SPoT	541MER522	Ongoing	O												
SJR at Fremont Ford																	
DCRT	GBP	GBP/Various Studies	541MER538	Ongoing							M^R/BW		M^R/BW		M^R/BW	M^R/BW	M^R/BW
USGS	Surface Water Monitoring	Surface Water Monitoring	FFB	Ongoing													

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca** (Total)	**Ca** (Diss)	**Hardness As CaCO3**	**Mg** (Total)	**Mg** (Diss)	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
SJR at Hills Ferry																	
East SJ Water Quality Coalition	ILRP	WDR	541STC512	Ongoing													
SJR near Newman																	
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	NEW	Ongoing													
SJR above Merced River near Newman CA																	
USGS	Surface Water Monitoring	Surface Water Monitoring	11274000	Ongoing													
SJR at Crows Landing																	
State Water Resources Control Board	SWAMP	SPoT	535STC504	Ongoing	O												
SJR near Crows Landing																	
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SCL	Ongoing													
SJR, 1800 ft. above Discharge Point 001																	

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca** (Total)	**Ca** (Diss)	**Hardness As CaCO3**	**Mg** (Total)	**Mg** (Diss)	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
City of Turlock WQCF	NPDES	NPDES SMP	RSW-001	Ongoing	M			M/Q			M		M	M		M	
SJR, DS of Discharge Point 001 and 50 ft. above confluence with Harding Drain																	
City of Turlock WQCF	NPDES	NPDES SMP	RSW-002	Ongoing				Q			M						
SJR, US at West Main Bridge																	
City of Modesto WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	M^P			M			M^P		M^P	M^P		M^P	
SJR near Patterson																	
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJP	Ongoing													
SJR at PID Pumps																	
Westside SJR Watershed Coalition	ILRP	WDR	SJRPP	Ongoing				O									
SJR, DS at Laird Park																	

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca** (Total)	**Ca** (Diss)	**Hardness As CaCO3**	**Mg** (Total)	**Mg** (Diss)	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
City of Modesto WWCF	NPDES	NPDES SMP	RSW-004	Ongoing													
SJR, 500 ft. from Discharge Point																	
City of Modesto WWCF	NPDES	NPDES SMP	RSW-002	Ongoing													
SJR, 1 mile DS from Discharge Point																	
City of Modesto WWCF	NPDES	NPDES SMP	RSW-003	Ongoing													
SJR above Maze Boulevard																	
East SJ Water Quality Coalition	ILRP	WDR	541STC510	Ongoing													
SJR at Maze Rd Bridge																	
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	MRB	Ongoing													
SJR at Vernalis																	
USBR	Surface Water Monitoring	Surface Water Monitoring	VER	Ongoing													
SJR at Airport Way																	

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca (Total)**	**Ca (Diss)**	**Hardness As CaCO3**	**Mg (Total)**	**Mg (Diss)**	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
East SJ Water Quality Coalition	ILRP	WDR	541SJC501	Ongoing													
State Water Resources Control Board	SWAMP	SPoT	541SJC501	Ongoing	O												
SJR near Vernalis																	
USGS	NAWQA	NAWQA	11303500	Ongoing													
DWR	MWQI	MWQI	VERNALIS	Ongoing		BW			BW		BW		BW/C	BW		BW/C	
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	VNS	Ongoing													
SJR near Vernalis at SJR Club																	
DWR	IEP	EMP: Discrete Water Quality Sampling	C10A	Ongoing			M				M		M	M	M	M	M
DWR	IEP	EMP: Real Time Monitoring	C10A	Ongoing													

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca (Total)**	**Ca (Diss)**	**Hardness As CaCO3**	**Mg (Total)**	**Mg (Diss)**	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
SJR McCune Station nr Vernalis																	
DWR	Continuous Recording Station	Continuous Recording Station	SJR	Ongoing													
SJR, mid-stream approx. 100 ft. S of Discharge Point 001																	
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-001	Ongoing	M			Q/M			M		M	M		M	
SJR, mid-stream approx. 500 ft. N of Discharge Point 001																	
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-002	Ongoing				Q									
SJR at Mossdale Bridge (DWR's monitoring station)																	
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-003	Ongoing													
DWR	IEP	EMP: Real Time Monitoring	C7A	Ongoing													
SJR below Old River near Lathrop																	

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca (Total)**	**Ca (Diss)**	**Hardness As CaCO3**	**Mg (Total)**	**Mg (Diss)**	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
DWR	Continuous Recording Stations	Continuous Recording Stations	SJL	Ongoing													
SJR above Dos Reis																	
DWR	Continuous Recording Stations	Continuous Recording Stations	SJD	Ongoing													
SJR at Bowman Rd., 8.0 miles S of Discharge Point 001																	
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001	Ongoing	BM			M/BM			W/BM		BM	BM	BM	B M	
SJR at Brandt Bridge																	
DWR	Continuous Recording Station	Continuous Recording Station	BDT	Ongoing													
SJR at Hwy 4, 0.5 miles S of Discharge Point 001																	
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002	Ongoing				M			W						
SJR at Garwood Bridge																	
USGS	Delta Flows Network	Delta Flows Network	11304810														
DWR	Continuous Recording Station	Continuous Recording Station	SJG	Ongoing													
SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge																	

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca** (Total)	**Ca** (Diss)	**Hardness As CaCO3**	**Mg** (Total)	**Mg** (Diss)	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phosphate**
Agency	**Program**	**Monitoring Plan**															
Stockton Port District Facility	NPDES	NPDES SMP	R-1	Ongoing							O		O	O		O	
SJR, Flow Monitoring Station location approx. 500 ft. S of Discharge Point 001																	
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001A	Ongoing													
SJR at Burns Cutoff, 0.5 miles N of Discharge Point 001																	
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002A	Ongoing				M			W						
SJR at Deep Water Channel, 1.5 miles N of Discharge Point 001																	
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-003	Ongoing				M			W						
SJR at Rough and Ready Island																	
DWR	IEP	EMP: Real Time Monitoring	P8A	Ongoing													
SJR at Buckley Cove																	

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca (Total)**	**Ca (Diss)**	**Hardness As CaCO3**	**Mg (Total)**	**Mg (Diss)**	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
DWR	IEP	EMP: Discrete Water Quality Sampling	P8	Ongoing			M				M		M	M	M	M	M
SJR at Juggler's Island, approx. 6.4 miles DS from the outfall from the storm drain system																	
Lincoln Center Environmental Remedial Trust	NPDES	NPDES SMP	RSW-004	Ongoing	Q			Q			Q		Q	Q		Q	
SJR at West Neugerbauer Rd																	
SJ County and Delta Coalition	ILRP	WDR	544SJCAWN	Ongoing													
City of Stockton Intake																	
City of Stockton	DDW Regulated Monitoring	Title 22 Source Water Monitoring	Intake	Ongoing		A		A	A				A	T			
SJR at Prisoner's Point near terminous																	
USGS	Delta Flows Network	Delta Flows Network	PRI	Ongoing													
DWR	Continuous Recording Station	Continuous Recording Station	PRI	Ongoing													
SJR at Prisoner's Point																	

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca (Total)**	**Ca (Diss)**	**Hardness As CaCO3**	**Mg (Total)**	**Mg (Diss)**	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
DWR	IEP	EMP: Real Time Monitoring	D29	Ongoing													
SJR at Potato Point																	
DWR	IEP	EMP: Discrete Water Quality Sampling	D26	Ongoing			M				M		M	M	M	M	M
SJR at Twitchell Island																	
DWR	IEP	EMP: Discrete Water Quality Sampling	D16	Ongoing													
DWR	IEP	EMP: Real Time Monitoring	D16	Ongoing													
SJR, approx. 7 miles US of Discharge Point 001																	
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-001	Ongoing	Q			Q			Q		Q	Q		Q	
SJR at Jersey Point, USBR Monitoring Location																	
USGS	Delta Flows Network	Delta Flows Network	SJJ	Ongoing													

Table D - 8 Organics, Minerals & Nutrients

SITE INFORMATION					ORGANICS	MINERALS					NUTRIENTS						
Site Name			**Site ID**	**Project Term**		**Ca (Total)**	**Ca (Diss)**	**Hardness As CaCO3**	**Mg (Total)**	**Mg (Diss)**	**Ammonia as N**	**Ammonia NH3**	**Nitrate as N**	**Nitrite as N**	**Total Nitrogen (Kjeldahl)**	**P**	**Ortho phos phate**
Agency	**Program**	**Monitoring Plan**															
USBR	Continuous Recording Stations	Continuous Recording Stations	JER	Ongoing													
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-002	Ongoing													
SJR at Antioch Water Works																	
DWR	IEP	EMP: Real Time Monitoring	D12A	Ongoing													
SJR																	
SFEI	SFEI Regional Monitoring	RMP for Water Quality in the SF Estuary	BG30	Ongoing		4X			BE				BE	BE	BE	4 X	
SJR at Antioch Ship Channel																	
DWR	IEP	EMP: Discrete Water Quality Sampling	D12A	Ongoing													

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
SJR at Sack Dam											
Westside SJR Watershed Coalition	ILRP	WDR	SJRSD	Ongoing, SS	OPTIONAL		M				
SJR near Dos Palos											
DWR	Continuous Recording Station	Continuous Recording Station	SDP	Ongoing							
SJR near Washington Road											
DWR	Continuous Recording Station	Continuous Recording Station	SWA	Ongoing							
Salt Slough at Sand Dam											
Westside SJR Watershed Coalition	ILRP	WDR	SSASD	Ongoing, SS	TBD						
Salt Slough at Lander/Hwy 165											
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SSH	Ongoing							

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
DCRT	GBP	WDR/Various GBP Plans	541MER531	Ongoing							
Westside SJR Watershed Coalition	ILRP	WDR	SSALA	Ongoing, SS	TBD						
SJR near Stevinson											
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJS	Ongoing							
SJR at Lander Ave											
Westside SJR Watershed Coalition	ILRP	WDR	SJRLA	Ongoing, SS	TBD		M				

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
State Water Resources Control Board	SWAMP	SPoT	541MER522	Ongoing	O	O	O	O	O		
SJR at Fremont Ford											
DCRT	GBP	GBP/Various Studies	541MER538	Ongoing							
USGS	Surface Water Monitoring	Surface Water Monitoring	FFB	Ongoing							
SJR at Hills Ferry											
East SJ Water Quality Coalition	ILRP	WDR	541STC512	Ongoing			O				
SJR near Newman											
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	NEW	Ongoing							
SJR above Merced River near Newman CA											

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
USGS	Surface Water Monitoring	Surface Water Monitoring	11274000	Ongoing							
SJR at Crows Landing											
State Water Resources Control Board	SWAMP	SPoT	535STC504	Ongoing	O	O	O	O	O		
SJR near Crows Landing											
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SCL	Ongoing							
SJR, 1800 ft. above Discharge Point 001											
City of Turlock WQCF	NPDES	NPDES SMP	RSW-001	Ongoing		M	M		M	M	M
SJR, DS of Discharge Point 001 and 50 ft. above confluence with Harding Drain											

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
City of Turlock WQCF	NPDES	NPDES SMP	RSW-002	Ongoing							
SJR, US at West Main Bridge											
City of Modesto WWCF	NPDES	NPDES SMP	RSW-001	Ongoing		M^P	M^P		M^P	M^P	M^P
SJR near Patterson											
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJP	Ongoing							
SJR at PID Pumps											
Westside SJR Watershed Coalition	ILRP	WDR	SJRPP	Ongoing	OPTIONAL		M				
SJR, DS at Laird Park											

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
City of Modesto WWCF	NPDES	NPDES SMP	RSW-004	Ongoing							
SJR, 500 ft. from Discharge Point											
City of Modesto WWCF	NPDES	NPDES SMP	RSW-002	Ongoing							
SJR, 1 mile DS from Discharge Point											
City of Modesto WWCF	NPDES	NPDES SMP	RSW-003	Ongoing							
SJR above Maze Boulevard											
East SJ Water Quality Coalition	ILRP	WDR	541STC510	Ongoing			O				
SJR at Maze Rd Bridge											
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	MRB	Ongoing							

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
SJR at Vernalis											
USBR	Surface Water Monitoring	Surface Water Monitoring	VER	Ongoing							
SJR at Airport Way											
East SJ Water Quality Coalition	ILRP	WDR	541SJC501	Ongoing			O				
State Water Resources Control Board	SWAMP	SPoT	541SJC501	Ongoing	O	O	O	O	O		
SJR near Vernalis											
USGS	NAWQA	NAWQA	11303500	Ongoing							
DWR	MWQI	MWQI	VERNALIS	Ongoing							
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	VNS	Ongoing							

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
SJR near Vernalis at SJR Club											
DWR	IEP	EMP: Discrete Water Quality Sampling	C10A	Ongoing							
DWR	IEP	EMP: Real Time Monitoring	C10A	Ongoing							
SJR McCune Station nr Vernalis											
DWR	Continuous Recording Station	Continuous Recording Station	SJR	Ongoing							
SJR, mid-stream approx. 100 ft. S of Discharge Point 001											
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-001	Ongoing		M	M		M	M	M
SJR, mid-stream approx. 500 ft. N of Discharge Point 001											

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-002	Ongoing							
SJR at Mossdale Bridge (DWR's monitoring station)											
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-003	Ongoing							
DWR	IEP	EMP: Real Time Monitoring	C7A	Ongoing							
SJR below Old River near Lathrop											
DWR	Continuous Recording Stations	Continuous Recording Stations	SJL	Ongoing							
SJR above Dos Reis											

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
DWR	Continuous Recording Stations	Continuous Recording Stations	SJD	Ongoing							
SJR at Bowman Rd., 8.0 miles S of Discharge Point 001											
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001	Ongoing		BM	BM		BM	BM	BM
SJR at Brandt Bridge											
DWR	Continuous Recording Station	Continuous Recording Station	BDT	Ongoing							
SJR at Hwy 4, 0.5 miles S of Discharge Point 001											
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002	Ongoing							
SJR at Garwood Bridge											
USGS	Delta Flows Network	Delta Flows Network	11304810								

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
DWR	Continuous Recording Station	Continuous Recording Station	SJG	Ongoing							
SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge											
Stockton Port District Facility	NPDES	NPDES SMP	R-1	Ongoing	O		O				
SJR, Flow Monitoring Station location approx. 500 ft. S of Discharge Point 001											
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001A	Ongoing							
SJR at Burns Cutoff, 0.5 miles N of Discharge Point 001											
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002A	Ongoing							
SJR at Deep Water Channel, 1.5 miles N of Discharge Point 001											
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-003	Ongoing							

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
SJR at Rough and Ready Island											
DWR	IEP	EMP: Real Time Monitoring	P8A	Ongoing							
SJR at Buckley Cove											
DWR	IEP	EMP: Discrete Water Quality Sampling	P8	Ongoing							
SJR at Juggler's Island, approx. 6.4 miles DS from the outfall from the storm drain system											
Lincoln Center Environmental Remedial Trust	NPDES	NPDES SMP	RSW-004	Ongoing		Q	Q		Q	Q	Q
SJR at West Neugerbauer Rd											
SJ County and Delta Coalition	ILRP	WDR	544SJCAWN	Ongoing			O				
City of Stockton Intake											

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
City of Stockton	DDW Regulated Monitoring	Title 22 Source Water Monitoring	Intake	Ongoing							
SJR at Prisoner's Point near terminous											
USGS	Delta Flows Network	Delta Flows Network	PRI	Ongoing							
DWR	Continuous Recording Station	Continuous Recording Station	PRI	Ongoing							
SJR at Prisoner's Point											
DWR	IEP	EMP: Real Time Monitoring	D29	Ongoing							
SJR at Potato Point											
DWR	IEP	EMP: Discrete Water Quality Sampling	D26	Ongoing							

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
SJR at Twitchell Island											
DWR	IEP	EMP: Discrete Water Quality Sampling	D16	Ongoing							
DWR	IEP	EMP: Real Time Monitoring	D16	Ongoing							
SJR, approx. 7 miles US of Discharge Point 001											
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-001	Ongoing		Q	Q		Q	Q	Q
SJR at Jersey Point, USBR Monitoring Location											
USGS	Delta Flows Network	Delta Flows Network	SJJ	Ongoing							

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
USBR	Continuous Recording Stations	Continuous Recording Stations	JER	Ongoing							
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-002	Ongoing							
SJR at Antioch Water Works											
DWR	IEP	EMP: Real Time Monitoring	D12A	Ongoing							
SJR											
SFEI	SFEI Regional Monitoring	RMP for Water Quality in the SF Estuary	BG30	Ongoing	BE	4X	4X		4X	4X	
SJR at Antioch Ship Channel											

Table D - 9 Pesticide

SITE INFORMATION					PESTICIDES/LEGACY CHEMICALS						
Site Name			**Site ID**	**Project Term**	**Other Pesticides/ Herbicides**	**Organo-chlorinated Pesticides**	**Organo-phosphorus Pesticides**	**Pyrethroids**	**PCBs**	**Carbamates**	**Herbicides**
Agency	**Program**	**Monitoring Plan**									
DWR	IEP	EMP: Discrete Water Quality Sampling	D12A	Ongoing							

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
SJR at Sack Dam										
Westside SJR Watershed Coalition	ILRP	WDR	SJRSD	Ongoing, SS						
SJR near Dos Palos										
DWR	Continuous Recording Station	Continuous Recording Station	SDP	Ongoing						
SJR near Washington Road										
DWR	Continuous Recording Station	Continuous Recording Station	SWA	Ongoing						
Salt Slough at Sand Dam										
Westside SJR Watershed Coalition	ILRP	WDR	SSASD	Ongoing, SS	O[A]	O[A]	O[A]	O[A]		
Salt Slough at Lander/Hwy 165										
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SSH	Ongoing						
DCRT	GBP	WDR/Various GBP Plans	541MER531	Ongoing						

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
Westside SJR Watershed Coalition	ILRP	WDR	SSALA	Ongoing, SS	O[A]	O[A]	O[A]	O[A]		
SJR near Stevinson										
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJS	Ongoing						
SJR at Lander Ave										
Westside SJR Watershed Coalition	ILRP	WDR	SJRLA	Ongoing, SS	O[A]	O[A]	O[A]	O[A]		
State Water Resources Control Board	SWAMP	SPoT	541MER522	Ongoing	O					O
SJR at Fremont Ford										
DCRT	GBP	GBP/Various Studies	541MER538	Ongoing						

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
USGS	Surface Water Monitoring	Surface Water Monitoring	FFB	Ongoing						
SJR at Hills Ferry										
East SJ Water Quality Coalition	ILRP	WDR	541STC512	Ongoing						
SJR near Newman										
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	NEW	Ongoing						
SJR above Merced River near Newman CA										
USGS	Surface Water Monitoring	Surface Water Monitoring	11274000	Ongoing						
SJR at Crows Landing										

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
State Water Resources Control Board	SWAMP	SPoT	535STC504	Ongoing	O					O
SJR near Crows Landing										
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SCL	Ongoing						
SJR, 1800 ft. above Discharge Point 001										
City of Turlock WQCF	NPDES	NPDES SMP	RSW-001	Ongoing						
SJR, DS of Discharge Point 001 and 50 ft. above confluence with Harding Drain										
City of Turlock WQCF	NPDES	NPDES SMP	RSW-002	Ongoing						
SJR, US at West Main Bridge										
City of Modesto WWCF	NPDES	NPDES SMP	RSW-001	Ongoing						

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
SJR near Patterson										
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	SJP	Ongoing						
SJR at PID Pumps										
Westside SJR Watershed Coalition	ILRP	WDR	SJRPP	Ongoing						
SJR, DS at Laird Park										
City of Modesto WWCF	NPDES	NPDES SMP	RSW-004	Ongoing						
SJR, 500 ft. from Discharge Point										
City of Modesto WWCF	NPDES	NPDES SMP	RSW-002	Ongoing						
SJR, 1 mile DS from Discharge Point										
City of Modesto WWCF	NPDES	NPDES SMP	RSW-003	Ongoing						
SJR above Maze Boulevard										

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
East SJ Water Quality Coalition	ILRP	WDR	541STC510	Ongoing						
SJR at Maze Rd Bridge										
DWR	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	MRB	Ongoing						
SJR at Vernalis										
USBR	Surface Water Monitoring	Surface Water Monitoring	VER	Ongoing						
SJR at Airport Way										
East SJ Water Quality Coalition	ILRP	WDR	541SJC501	Ongoing						
State Water Resources Control Board	SWAMP	SPoT	541SJC501	Ongoing	O					O
SJR near Vernalis										
USGS	NAWQA	NAWQA	11303500	Ongoing						
DWR	MWQI	MWQI	VERNALIS	Ongoing						

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
DWR and USGS	SJ District Surface Water Monitoring	SJR Real-time Water Quality Management Program	VNS	Ongoing						
SJR near Vernalis at SJR Club										
DWR	IEP	EMP: Discrete Water Quality Sampling	C10A	Ongoing						
DWR	IEP	EMP: Real Time Monitoring	C10A	Ongoing						
SJR McCune Station nr Vernalis										
DWR	Continuous Recording Station	Continuous Recording Station	SJR	Ongoing						
SJR, mid-stream approx. 100 ft. S of Discharge Point 001										
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-001	Ongoing						
SJR, mid-stream approx. 500 ft. N of Discharge Point 001										

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-002	Ongoing						
SJR at Mossdale Bridge (DWR's monitoring station)										
City of Manteca and Dutra Farms	NPDES	NPDES SMP	RSW-003	Ongoing						
DWR	IEP	EMP: Real Time Monitoring	C7A	Ongoing						
SJR below Old River near Lathrop										
DWR	Continuous Recording Stations	Continuous Recording Stations	SJL	Ongoing						
SJR above Dos Reis										
DWR	Continuous Recording Stations	Continuous Recording Stations	SJD	Ongoing						
SJR at Bowman Rd., 8.0 miles S of Discharge Point 001										

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001	Ongoing						
SJR at Brandt Bridge										
DWR	Continuous Recording Station	Continuous Recording Station	BDT	Ongoing						
SJR at Hwy 4, 0.5 miles S of Discharge Point 001										
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002	Ongoing						
SJR at Garwood Bridge										
USGS	Delta Flows Network	Delta Flows Network	11304810							
DWR	Continuous Recording Station	Continuous Recording Station	SJG	Ongoing						
SJR, US of the East Complex retention basin discharge, and S of the Santa Fe Railroad Bridge										

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
Stockton Port District Facility	NPDES	NPDES SMP	R-1	Ongoing			O	O	O	
SJR, Flow Monitoring Station location approx. 500 ft. S of Discharge Point 001										
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-001A	Ongoing						
SJR at Burns Cutoff, 0.5 miles N of Discharge Point 001										
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-002A	Ongoing						
SJR at Deep Water Channel, 1.5 miles N of Discharge Point 001										
City of Stockton Regional WWCF	NPDES	NPDES SMP	RSW-003	Ongoing						
SJR at Rough and Ready Island										
DWR	IEP	EMP: Real Time Monitoring	P8A	Ongoing						

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
SJR at Buckley Cove										
DWR	IEP	EMP: Discrete Water Quality Sampling	P8	Ongoing						
SJR at Juggler's Island, approx. 6.4 miles DS from the outfall from the storm drain system										
Lincoln Center Environmental Remedial Trust	NPDES	NPDES SMP	RSW-004	Ongoing						
SJR at West Neugerbauer Rd										
SJ County and Delta Coalition	ILRP	WDR	544SJCAWN	Ongoing						
City of Stockton Intake										
City of Stockton	DDW Regulated Monitoring	Title 22 Source Water Monitoring	Intake	Ongoing						
SJR at Prisoner's Point near terminous										
USGS	Delta Flows Network	Delta Flows Network	PRI	Ongoing						

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
DWR	Continuous Recording Station	Continuous Recording Station	PRI	Ongoing						
SJR at Prisoner's Point										
DWR	IEP	EMP: Real Time Monitoring	D29	Ongoing						
SJR at Potato Point										
DWR	IEP	EMP: Discrete Water Quality Sampling	D26	Ongoing						
SJR at Twitchell Island										
DWR	IEP	EMP: Discrete Water Quality Sampling	D16	Ongoing						
DWR	IEP	EMP: Real Time Monitoring	D16	Ongoing						
SJR, approx. 7 miles US of Discharge Point 001										
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-001	Ongoing						

Table D - 10 Toxicity

SITE INFORMATION					TOXICITY					
Site Name			**Site ID**	**Project Term**	***Hyalella azteca***	***Ceriodaphnia dubia***	***Selenastrum capricornutum***	***Pimephales promelas***	**Amphipod (% survival)**	**Algae Toxicity**
Agency	**Program**	**Monitoring Plan**								
SJR at Jersey Point, USBR Monitoring Location										
USGS	Delta Flows Network	Delta Flows Network	SJJ	Ongoing						
USBR	Continuous Recording Stations	Continuous Recording Stations	JER	Ongoing						
Ironhouse Sanitary District WRF	NPDES	NPDES SMP	RSW-002	Ongoing						
SJR at Antioch Water Works										
DWR	IEP	EMP: Real Time Monitoring	D12A	Ongoing						
SJR										
SFEI	SFEI Regional Monitoring	RMP for Water Quality in the SF Estuary	BG30	Ongoing		4X	4X			BE
SJR at Antioch Ship Channel										
DWR	IEP	EMP: Discrete Water Quality Sampling	D12A	Ongoing						

Monitoring Frequency Key for Tables D-3 to D-10

A	Assessment Testing
C	Core Testing
P	Monthly during the 3rd or 4th year of the permit term
R	Required for WDR 5-01-234
S	Special Study Site
A	Once a year
BA	Twice a Year
BE	Once every other year
BM	Once every other month
BW	Once every other week
C	Continuous
D	Daily
M	Monthly
OPTIONAL	
O	Other (refer to monitoring notes)
Q	Quarterly
T	Once every three years
TBD	To be determined by Water Boards staff
W	Weekly
	Sediment samples
	No monitoring

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APPENDIX E—STAFF REVIEW OF SAN LUIS CANAL COMPANY WATER BODY CATEGORIZATION REPORT

Regional Water Board Staff Evaluation of Water District

District/Agency Name: San Luis Canal Company

A. Review of submitted natural, modified, and constructed water body category designations (Table 1 in district report)

1) Provide the total numbers of water district submitted and regional board staff-surveyed water bodies for each water body category (staff will conduct a site survey of all B1/B2/M1/M2 water bodies and approximately 10% of C1/C2 water bodies)

Water Body Category	Total # of submitted water bodies	Total # of staff surveyed water bodies
B1 (Natural Ag Drain/Combo)	0	0
B2 (Natural Ag Supply)	0	0
M1 (Modified Ag Drain/Combo)	2	2
M2 (Modified Ag Supply)	0	0
C1 (Constructed Ag Drain/Combo)	230	21
C2 (Constructed Ag Supply)	0	0

2) List all water bodies surveyed by staff. Attachment A contains site survey photographs.

M1
Poso Slough
Salt Slough*

C1
Belmont Drain
Devon Drain
Boundary Drain No.1
Boundary Drain No.5
Boundary Drain No.5-2
Boundary Drain No.7
Hooper Drain
Boundary Drain
Belmont Drain Cutoff
Poso Drain
San Juan Drain No.3
West Santa Rita Drain
Santa Rita Orchard Ditch
San Juan Drain
Salt Slough Drain

West San Juan Drain
Belmont Drain Extension
Circle Island Drain
Pedro Drain
Panama Canal
Alberti Ditch

Photo documentation of the listed water bodies are provided in Attachment A.

*NOTE: Salt Slough is listed in the Sacramento and San Joaquin River Basin Plan with **no** MUN beneficial use designation. Therefore, no further beneficial use evaluation will be conducted for Salt Slough using this process.

3) Were the district's water bodies listed in a 1992 Inland Surface Water Plan (ISWP) district report? If so, how do the current listings compare to the 1992 listing? Discuss any discrepancy in current water body category designations with the 1992 Inland Surface Water Plan (ISWP).

   San Luis Canal Company submitted a report in 1992 and listed approximately 158 district water bodies. Their current listing includes 232 water bodies and many, but not all, of the original 158 water bodies. These differences are most likely due to name changes and more advanced mapping technology. Of the water bodies that match-up between both reports, there was only one under current consideration that was categorized differently – Hooper Drain was categorized in 1992 as a C1 water body (constructed Ag Supply Channel), but is now categorized as a C2 water body (constructed Ag Drain). Staff surveyed Hooper Drain and confirmed that it does currently convey agricultural drainage, and may have been categorized incorrectly in 1992, especially given its name.

4) A comparison to the National Hydrography Dataset (NHD) should be conducted on an applicant's list of water bodies as part of the Flowchart 1 process. Discuss any findings from staff's review of this comparison. Were there any significant NHD water body feature types that differed from the district's category selection (e.g., NHD layer categorizes a water body as a "Stream/River" but the district categorizes it as a constructed water body)? If so, what supporting evidence is there for the district's selection?

   A comparison was conducted between the GIS shape files submitted by San Luis Canal Company and the NHD flowline layer. Less than 30% of San Luis Canal Company's 232 water bodies could be directly compared to the NHD layer. Of these water bodies, staff confirmed a small number that were categorized as C1 (constructed Ag Drain) by the district, but assigned with a "Stream/River" water body type in the NHD layer for part or all of their extent. These water bodies were prioritized by staff when the field survey list was developed (see list of C1 water bodies provided in Question 2 above). Survey findings conducted by staff support the district categorizations.

5) Discuss other pertinent findings that support or do not support district water body category designations. Attach supporting evidence for water body category designations such as site surveys, interviews, and/or photo documentation.

All surveyed water bodies (see Question 2) were found by staff to be constructed or modified for the purpose of conveying or holding agricultural drainage water and support district categorizations. In addition, district representatives showed staff historical records (some dating back to 1930s) depicting construction records for a number of these water bodies in support of their categorizations. Attachment A contains photos of the water bodies surveyed.

6) Staff Recommendation for Water Body Categorization Designations

__X__ Accept as proposed by district

_____ Reject all proposed by district

_____ Change water body category designations as follows:

B. Evaluation of the MUN beneficial use

1) Are there any surface water MUN diversions in the district? If so, indicate the location.

   No, there are no surface water MUN diversions in the district.

2) Where is the first downstream surface water MUN diversion from the district?

   The first downstream surface water MUN diversion from the district is located at the City of Stockton on the San Joaquin River.

3) Are there any active Water Rights permits or filings for potential future surface water MUN diversions within or downstream of the district and prior to the first MUN diversion? If so, provide the location and any additional information.

   There are no active Water Rights permits or filings for future surface water MUN diversions in SLCC or upstream of the City of Stockton's MUN intake. Additional MUN intakes within the Lower San Joaquin River are unlikely to occur in the future, due to the over-allocation of available flow.

4) Are there any district water bodies that should *not* be considered in this process due to existing MUN diversion? If so, explain.

   No. SLCC's water body categorization report and the staff survey information provide evidence that the water bodies were appropriately categorized as C1 or M1 water bodies and have no current MUN diversions. Therefore, the removal of the MUN beneficial use as indicated in Table 1 (using Exception 2b of the Sources of Drinking Water Policy) is appropriate.

C. Evaluation of water quality and monitoring

1) Monitoring Evaluation:

   a. Which monitoring programs conduct water quality monitoring within and/or downstream (to the first MUN intake) of the district?

      San Luis Canal Company is the only entity monitoring within the district. A summary table of downstream monitoring programs is provided in Attachment B.

   b. Are there any findings of water quality concerns in or downstream of the district?

      In the most recent Westside San Joaquin River Watershed Coalition ILRP semi-annual report, field and general chemistry constituents such as electrical conductivity (EC), TDS, *E. coli*, dissolved oxygen, and boron were found exceeding the recommended water quality objectives in Salt Slough. Salt Slough also had exceedances in pesticides such as chlorpyrifos, DDE, DDT, dimethoate, and diuron.

      The California 2010 303(d) Integrated report lists portions of the Lower San Joaquin River for boron, chlorpyrifos, DDE, DDT, diazinon, diuron, EC, group A

pesticides, mercury, selenium, temperature, toxaphene, unknown toxicity, and alpha-BHC/alpha-HCH. Many of these constituents are already being addressed with a TMDL control program.

A one-day synoptic evaluation of drinking water constituents of concern in the Lower San Joaquin River basin, conducted by Central Valley Water Board staff in June 2014, found fifteen constituents with elevated concentrations at one or more sites: pH, specific conductance (SC), turbidity, *E. coli*, boron, chloride, perchlorate, sodium, sulfate, total dissolved solids (TDS), total aluminum, total iron, total manganese, trihalomethanes, and bis (2-ethylhexyl) phthalate.

The 2013/2014 San Joaquin River Watershed report that is a part of the California State Water Project Watershed Sanitary Survey found one or more exceedances of water quality objectives in EC, TDS, total nitrogen, turbidity, *E. coli*, and arsenic during a 2008-2013 sampling period. Concentrations of constituents generally decreased from upstream to downstream on the San Joaquin River with highest concentrations found in tributary water bodies containing agricultural drainage. No further actions were recommended due to current extensive monitoring efforts by Municipal Water Quality Investigations (MWQI).

c. Provide a summary of constituents of concern and monitoring activities (Best Management Practices or control programs, regulatory monitoring programs, and non- regulatory monitoring programs) addressing those constituents.

A summary of constituents of concern and monitoring activities addressing those constituents is provided in Attachment C.

d. What are the potential data gaps with existing monitoring programs?

Staff has determined that there are no potential data gaps and current monitoring is sufficient. As indicated in Attachment C, there are a number of existing monitoring programs in the San Joaquin River Basin to evaluate water quality trends and ensure that the San Joaquin River's beneficial uses are protected.

2) Staff Recommendation for a Monitoring and Surveillance Program

Note - monitoring and surveillance options may include requirements for a change in existing regulatory monitoring requirements or support of a regional coordinated water quality monitoring program to track constituents of concern. Other options may include additional ambient surface water monitoring by Central Valley Water Board's SWAMP program, or fate and transport data modeling of specific constituents.

Staff recommends that water quality monitoring and surveillance continued to be conducted through existing monitoring programs. Existing Water Board monitoring programs as well as monitoring conducted by outside agencies and water purveyors are sufficient to assure that discharges meet relevant water quality objectives as required by the Regional Boards. Even though staff acknowledges that any one of these programs may change, it is worth noting that many of these programs have been in place for many

years, sometimes decades, and there is no indication that any monitoring efforts will be significantly discontinued in the foreseeable future.

D. References

Central Valley Regional Water Quality Control Board (Central Valley Water Board). 2014. Technical Memorandum: Synoptic Evaluation of Drinking Water Constituents of Concern in the Sacramento and San Joaquin River Basins: June 2014.

Department of Water Resources (DWR). 2015. State Water Project Sanitary Survey, Volume 1 of 5: The San Joaquin River Watershed.
Available at:
http://www.water.ca.gov/waterquality/drinkingwater/docs/sjr_wss_final06152015.pdf

State Water Resources Control Board (State Water Board). 2010. California 2010 Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report).

Westside San Joaquin River Watershed Coalition. 2014. Semi-Annual Monitoring Report, 2014 Irrigation Season Report, Covering the period: March through August 2014.
Available at:
http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/monitoring_plans_reports_reviews/monitoring_report_reviews/coalitions/westside_sjr_watershed/2014_1130_wsjr_samr.pdf

ATTACHMENT A – STAFF FIELD SURVEY PHOTOGRAPHS OF LISTED WATER BODIES

Poso Slough and Salt Slough

Upstream	**Downstream**

Belmont Drain

Upstream	**Downstream**

Devon Drain

Upstream	**Downstream**

Boundary Drain No. 1

Upstream	**Downstream**

Boundary Drain No. 5

Upstream	**Downstream**

Boundary Drain No. 5-2

Upstream	**Downstream**

Boundary Drain No. 7

Upstream	**Downstream**

Hooper Drain

Upstream	**Downstream**

Boundary Drain

Upstream-Pipe from Central California Irrigation District

Belmont Drain Cut-off

Upstream

Downstream

Poso Drain

Upstream	**Downstream**

San Juan Drain No. 3

Upstream	**Downstream**

West Santa Rita Drain

Upstream	**Downstream**

Santa Rita Orchard Ditch

Upstream	**Downstream**

San Juan Drain

Upstream	**Downstream**

Salt Slough Drain

Upstream	**Downstream**

West San Juan Drain

Upstream	**Downstream**

Belmont Drain Extension

Upstream	**Downstream**

Circle Island Drain

Upstream	**Downstream**

Pedro Drain

Upstream	**Downstream**

Panama Canal

Upstream	**Downstream**

Alberti Ditch

Upstream	**Downstream**

ATTACHMENT B: Summary of Monitoring Programs I the Lower San Joaquin River

Program	Agency	Monitoring Plan	Project Term	Data in Ceden?	Field	General Chemistry	Organic Carbon	Bacteria/ Pathogen	Metals	Organics	Minerals	Nutrients	Pesticides/ Legacy Chemicals	Toxicity
ILRP (*regulatory*)	Westside SJR Watershed Coalition	WDR	Ongoing	Yes	X	X	X	X	X (TBD)		X	X	X (TBD)	X
			Historic (2006-Feb 2015)	Yes	X	X	X	X	X		X	X	X	X
	East SJ Water Quality Coalition	WDR	Ongoing	Yes									X	
	SJ County and Delta Coalition	WDR	Ongoing	Yes									X	
San Joaquin District Surface Water Monitoring	DWR	San Joaquin River Real-time Water Quality Management Program	Ongoing	No	X									
Interagency Ecological Program		EMP: Real Time Monitoring	Ongoing	No	X									
		EMP: Discrete Water Quality Sampling	Ongoing	No	X	X	X				X	X		
MWQI		MWQI	Ongoing	No	X	X	X		X		X	X		
Continuous Recording Station		Continuous Recording Station	Ongoing	No	X									
SWAMP	CV-Water Board	SJR Monitoring & Supplementary	Historic (1995-2011)	Yes	X	X	X	X	X		X	X		X
		Seasonal Trend Monitoring at Central Valley Integrator Sites	2017 (to be re-evaluated)	Yes	X		X	X						X
	State Water Board	Sediment Pollution Trends (SPoT)	Ongoing	Yes			X		X	X		X	X	X
GBP	DCRT	WDR/Various GBP Plans	Ongoing (some historic)	No	X	X			X			X		
Surface Water	USGS	Surface Water	Ongoing	No	X	X			X					

Program	Agency	Monitoring Plan	Project Term	Data in Ceden?	Field	General Chemistry	Organic Carbon	Bacteria/ Pathogen	Metals	Organics	Minerals	Nutrients	Pesticides/ Legacy Chemicals	Toxicity
Monitoring		Monitoring												
NAWQA		NAWQA	Ongoing	No	X									
Delta Flows Network		Delta Flows Network	Ongoing	No	X									
Surface Water Monitoring	USBR	Surface Water Monitoring	Ongoing	No	X									
Continuous Recording Station		Continuous Recording Station	Ongoing	No	X									
NPDES (*regulatory*)	City of Turlock WWCF	NPDES SMP	Ongoing	No	X	X			X	X	X	X	X	
	City of Modesto WWCF		Ongoing	No	X	X		X	X	X	X	X	X	
	City of Manteca and Dutra Farms		Ongoing	No	X	X			X	X	X	X	X	
	City of Stockton Regional WWCF		Ongoing	No	X	X	X		X	X	X	X	X	
	Stockton Port District Facility		Ongoing	No	X	X		X	X			X	X	X
	Lincoln Center Environmental Remedial Trust		Ongoing	No	X	X			X	X	X	X	X	
	Ironhouse Sanitary District WRF		Ongoing	No	X	X	X		X		X	X	X	
DDW Regulated Monitoring (*regulatory*)	City of Stockton	Title 22 Source Water Monitoring	Ongoing	No	X	X			X		X	X		X
SFEI Regional Monitoring	SFEI	RMP for Water Quality in the SF Estuary	Ongoing	No	X	X	X		X		X	X	X	X

ATTACHMENT C: SUMMARY OF CONSTITUENTS OF CONCERN AND MONITORING ACTIVITIES

Constituent	Reference Source	Water Board		Other Monitoring Program	Monitoring Coverage									
		BMP/Control Program	Monitoring Program		SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
FIELD														
DO	ILRP annual report		ILRP, NPDES	DWR, SFEI, USGS	C	DWR	C	USGS/DWR	C	DWR	C	DWR	M	DWR
EC	303(d) Integrated Report, ILRP annual report, Central Valley Water Board One-day Synoptic, Sanitary Survey	TMDL (2019 expected completion)	DDW, ILRP, NPDES	DWR, GBP, SFEI, USBR, USGS	C	DWR	C	USGS/DWR	C	DWR	C	DWR	M	DWR
pH	Central Valley Water Board One-day Synoptic		DDW, ILRP, NPDES	DWR, GBP, USGS	C	DWR	C	USGS/DWR	C	DWR	C	DWR	M	DWR
Temperature	303(d) Integrated Report	TMDL (2021 expected completion)	ILRP, NPDES	DWR, GBP, SFEI, USBR, USGS	C	DWR	C	USGS/DWR	C	DWR	C	DWR	M	DWR
Turbidity	Central Valley Water Board One-day Synoptic, Sanitary Survey		DDW, ILRP, NPDES	DWR, USBR, USGS	C	DWR	C	USGS/DWR	C	DWR	C	DWR	M	DWR
GENERAL CHEM														
Boron	303(d) Integrated Report, ILRP annual report, Central Valley Water Board One-day Synoptic	TMDL (2019 expected completion)	ILRP, NPDES	GBP, USGS	D	GBP	W	USGS			M	NPDES		
Chloride	Central Valley Water Board One-day Synoptic		DDW, NPDES	DWR			M	NPDES			C	DWR	M	DWR

Constituent	Reference Source	Water Board		Other Monitoring Program	Monitoring Coverage									
		BMP/Control Program	Monitoring Program		SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
Sodium	Central Valley Water Board One-day Synoptic		DDW	DWR							BW	DWR	A	DDW
Sulfate	Central Valley Water Board One-day Synoptic		DDW, NPDES	DWR			M	NPDES			C	DWR	Q	NPDES
TDS	ILRP annual report, Central Valley Water Board One-day Synoptic, Sanitary Survey		DDW, NPDES	DWR			M	NPDES			BW	DWR	M	DWR
BACTERIA														
E. coli	ILRP annual report, Sanitary Survey	TMDL (2021 expected completion)	ILRP, NPDES		O[A]	ILRP	O	ILRP			O	NPDES		
METALS														
Aluminum (Total)	Central Valley Water Board One-day Synoptic		DDW, NPDES, SWAMP	SFEI	O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Arsenic	Sanitary Survey	TMDL (2021 expected completion)	DDW, ILRP, NPDES, SWAMP	SFEI	O/TBD	SWAMP/ILRP	M	NPDES			M	NPDES	Q	NPDES
Iron (Total)	Central Valley Water Board One-day Synoptic		DDW, NPDES	SFEI			M	NPDES			M	NPDES	Q	NPDES
Manganese (Total)	Central Valley Water Board One-day Synoptic		DDW, NPDES, SWAMP	SFEI	O	SWAMP	M	NPDES			M	NPDES	Q	NPDES

Constituent	Reference Source	Water Board		Other Monitoring Program	Monitoring Coverage									
		BMP/Control Program	Monitoring Program		SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
Mercury	303(d) Integrated Report	TMDL (2021 expected completion)	DDW, NPDES, SWAMP	SFEI	O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Selenium	303(d) Integrated Report	TMDL	DDW, ILRP, NPDES	GBP, USGS	D	GBP	M	NPDES			M	NPDES	Q	NPDES
ORGANICS														
alpha-BHC/alpha-HCH	303(d) Integrated Report	TMDL (2022 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Bis (2-ethylhexyl) phthalate	Central Valley Water Board One-day Synoptic		NPDES				M	NPDES			M	NPDES	Q	NPDES
NUTRIENTS														
Total Nitrogen	Sanitary Survey		NPDES	DWR, GBP, SFEI							M	DWR	M	DWR
PESTICIDES/LEGACY CHEMICALS														
Chlorpyrifos	303(d) Integrated Report, ILRP annual report	TMDL	ILRP, SWAMP		M	ILRP	M	NPDES	O	ILRP	M	NPDES	Q	NPDES
DDE	303(d) Integrated Report, ILRP annual report		ILRP, NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
DDT	303(d) Integrated Report, ILRP annual report	TMDL (2011 expected completion)	ILRP, NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Diazinon	303(d) Integrated Report	TMDL	ILRP, NPDES		M	ILRP	M	NPDES	O	ILRP	M	NPDES	Q	NPDES
Dimethoate	ILRP annual report		ILRP		O	ILRP								

Constituent	Reference Source	Water Board		Other Monitoring Program	Monitoring Coverage									
		BMP/Control Program	Monitoring Program		SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
Diuron	303(d) Integrated Report, ILRP annual report	TMDL (2021 expected completion)	ILRP, NPDES										Q	NPDES
Aldrin	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Dieldrin	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Chlordane	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Endrin	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Heptachlor	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Heptachlor epoxide	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES		O	SWAMP	M	NPDES			M	NPDES	Q	NPDES
Lindane	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Endosulfan (Total)	303(d) Integrated Report	TMDL (2011 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
Toxaphene	303(d) Integrated Report	TMDL (2021 expected completion)	NPDES				M	NPDES			M	NPDES	Q	NPDES
TOXICITY														

Constituent	Reference Source	Water Board		Other Monitoring Program	Monitoring Coverage									
		BMP/Control Program	Monitoring Program		SJR @ Sack Dam to Hills Ferry		SJR @ Hills Ferry to Laird Park		SJR @ Maze		SJR @ Vernalis to Rough and Ready		SJR @ Buckley Cove to City of Stockton intake	
					Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program	Frequency	Program
Unknown Toxicity	303(d) Integrated Report	TMDL (2019 expected completion)	ILRP		O	ILRP	O	SWAMP			O	NPDES	A	DDW

Monitoring Frequency Key

	Indicates no monitoring
A	Annually
BW	Every other week
C	Continuous
D	Daily
M	Monthly
O	Other
Q	Quarterly
TBD	To be determined

Agency and Program Acronyms

DDW	Division of Drinking Water
DWR	Department of Water Resources
GBP	Grassland Bypass Project
ILRP	Irrigated Lands Regulatory Program
NPDES	National Pollutant Discharge Elimination System
SFEI	San Francisco Estuary Institute
SWAMP	Surface Water Ambient Monitoring Program
TMDL	Total Maximum Daily Load
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey

Closed Controlled Recirculating System Application

Criteria and Report Outline for

Year-Round Closed Controlled Recirculating Systems

A. In order to apply as a year-round closed recirculating system, all of the answers to the following questions 1-4 must be "Yes". If any of the answers are a "No", the water bodies in your system must be evaluated using the Ag Dominated Water Body Categorization Flow Chart 1 and Report. If all the answers are "Yes", proceed to letter B below for the Operation Plan Application reporting requirements.

Question	Yes	No
1. Are all the surface waters contained within the recirculation system boundaries year-round?		
2. Is the primary use of the system for Ag production?		
3. Is there an agency, Watermaster or other overseeing entity in charge of coordinating water management and monitoring the surface water in the system?		
4. Does the system have a flood control and/or emergency control plan?		

B. Operation Plan Application - Report Outline

1. General Information/Background
   a. Provide Contact Information (name, address, phone, email)
   b. Provide a brief history or background of the area

2. Process for notifying landowners of applicant's participation in the MUN evaluation process.

3. Overview of Controlled Recirculating System
   a. Provide a map of system (showing no natural outlet or drainage). Electronic GIS files can also be provided.
   b. Provide information on the acreage served
   c. Describe the land ownership in the area
   d. Describe access to the area
   e. List the water supply sources
   f. List the name and attributes of water bodies in the system

4. Summary of Water Use Management
   a. Describe who oversees or manages the system (e.g. Watermaster) and their associated reporting structure and decision-making authority
   b. Describe how the water is managed in the system for reuse or conservation
   c. Describe the type and frequency of maintenance activities in the system

5. Flood Control/Emergency Measures in the system
   a. Describe and/or cite the system's flood control/emergency plan

i. Include information on the mechanics and/or controls in place to address emergencies

b. Answer the following questions:
Is there potential to impact surface waters outside the recirculating system in event of a flood or other emergency release? If so, then -
    1. What are the potential water quality concerns due to an emergency release?
        a. Identify potential downstream areas that could be impacted by an emergency release
    2. What efforts are in place to minimize water quality impacts?
        a. Does the operations plan provide a timeline of pesticide us and of the crops currently in season?
    3. Who are the diverters downstream that may be impacted by an emergency release? For information pertaining to municipal and/or domestic supply diverters, use the following State Water Rights database: *http://www.swrcb.ca.gov/waterrights/water_issues/programs/ewrims/*

        a. Provide information on the proximity of the recirculating system surface water MUN diversion(s) that may be influenced by its discharge.
    4. What type of notification requirements and protocols are in place if there is an emergency release?
        a. Is the notification process via a call system or email notification?
        b. Which entities are included in the notification process?
        c. Are there time requirements stipulated in notification process (e.g. how soon after an emergency release will calls or emails be made)?
    5. Are there monitoring requirements in place if an emergency release occurs? If so, describe the location, parameters and frequency.

6. Water Quality
    a. Describe and/or cite any current monitoring program(s) in the area (e.g. Irrigated Lands Regulatory Program monitoring)
        i. Identify the regulatory program the applicant is currently under coverage
    b. List any known or suspected water quality concern(s)
    c. Describe any current measures being taken to address water quality concern(s)

7. Future Activities
    a. Describe long-term programs or approaches
    b. Describe any anticipated changes to operation of the system in the future

Closed Controlled Recirculating System Application

Criteria and Report Outline for

Seasonally Closed Controlled Recirculating System

A. In order to apply as a seasonally closed recirculating system, all of the answers to the following questions 1-4 must be "Yes". If any of the answers are a "No", the water bodies in your system must be evaluated using the Ag Dominated Water Body Categorization Flow Chart 1 and Report. If all the answers are "Yes", proceed to letter B below for the Operation Plan Application reporting requirements.

Question	Yes	No
1. Are all the surface waters contained within the recirculation system boundaries during the seasonal closure?		
2. Is the primary use of the system for Ag production?		
3. Is there an agency, Watermaster or other overseeing entity in charge of coordinating water management and monitoring the surface water in the system?		
4. Does the system have a flood control and/or emergency control plan?		

B. Operation Plan Application - Report Outline

1. General Information/Background
   a. Provide Contact Information (name, address, phone, email)
   b. Provide a brief history or background of the area

2. Process for notifying landowners of applicant's participation in the MUN evaluation process.

3. Overview of Controlled Recirculating System
   a. Provide a map of system and seasonal closure points. Electronic GIS files can also be provided.
   b. Describe seasonal closure plan
      i. Purpose of closure
      ii. Seasonal dates for closing and opening the system
      iii. Related protocols for closing and opening the system
   c. Provide information on the acreage served
   d. Describe the land ownership in the area
   e. Describe access to the area
   f. List the water supply sources
   g. List the name and attributes of water bodies in the system
   h. Provide information on distance between system and intakes

4. Summary of Water Use Management
   a. Describe who oversees or manages the system (e.g. Watermaster) and their associated reporting structure and decision-making authority.
   b. Describe how the water is managed in the system for reuse or conservation
   c. Describe the type and frequency of maintenance activities in the system

d. Is there an enforcing entity that regulates when systems are open/closed?

5. Flood Control/Emergency Measures in the system
   a. Describe and/or cite the system's flood control/emergency plan
      i. Include information on the mechanics and/or controls in place to address emergencies
   b. Answer the following questions:
      Is there potential to impact surface waters outside the recirculating system in event of a flood or other emergency release? If so, then -
         1. What are the potential water quality concerns due to an emergency release?
            a. Identify potential downstream areas that could be impacted by an emergency flood
         2. What efforts are in place to minimize water quality impacts?
            a. Does the operations plan provide a timeline of pesticide use and of the crops currently in season?
         3. Who are the diverters downstream that may be impacted by an emergency release? For information pertaining to municipal and/or domestic supply diverters, use the following State Water Rights database: *http://www.swrcb.ca.gov/waterrights/water_issues/programs/ewrims/*
            a. Provide information on the proximity of the recirculating system to surface water MUN diversion(s) that may be influenced by its discharge.
         4. What type of notification requirements and protocols are in place if there is an emergency release?
            a. Is the notification process via a call system or email notification?
            b. Which entities are included in the notification process?
            c. Are there time requirements stipulated in notification process (e.g. how soon after an emergency release will calls or emails be made)?
         5. Are there monitoring requirements in place if an emergency release occurs? If so, describe the location, parameters, and frequency.

6. Water Quality
   a. Describe and/or cite any current monitoring program(s) in the area (e.g. Irrigated Lands Regulatory Program monitoring)
      i. Identify the regulatory program the applicant is currently under coverage
   b. List any known or suspected water quality concern(s)
   c. Describe any current measures being taken to address water quality concern(s)

7. Future Activities
   a. Describe long-term programs or approaches
   b. Describe any anticipated changes to operation of the system in the future

APPENDIX H—EVALUATION OF REGION-WIDE MUN EVALUATION PROCESS PROJECT ALTERNATIVES AND OPTIONS

Project alternatives are evaluated based on their ability to meet the following selection criteria:

1. Maintain consistency with federal and state water quality laws and policies as applicable (e.g. Sources of Drinking Water Policy, Federal Antidegradation Policy, State Antidegradation Policy)

2. Provide the appropriate protection of MUN in Ag dominated surface water bodies with consideration given to the current and potential future use of drinking water.

3. Assure compliance with all relevant water quality objectives downstream.

4. Allow constructed Ag dominated water bodies to be utilized for their intended design and purpose

5. Provide a solution for dischargers faced with implementing treatment measures to meet MUN use-based water quality criteria/objectives when no such use exists in their Ag dominated surface water bodies.

6. Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards.

(Note - Project options are also evaluated using the same criteria as above, if applicable)

Table H - 1 Project Alternatives

Project Alternatives	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
1. No Action	This alternative does not amend the Basin Plan to include a framework for the Sacramento River, San Joaquin River and Tulare Lake Basins to evaluate the MUN beneficial use in agriculturally dominated surface water bodies; rather it continues to maintain the current MUN beneficial use designation in all water bodies that are not specifically listed in the Basin Plans as having no MUN beneficial use and a full Basin Plan Amendment is needed to utilize the Sources of Drinking Water exceptions.	Low	Low	High	Low	Low	Med	– Maintaining the MUN beneficial use in certain categories of water bodies does not reflect the intent of the Sources of Drinking Water Policy exceptions – Potentially costly measures to Ag dischargers in the future to ensure that current MUN water quality objectives and CTR criteria are met – Maintaining the MUN beneficial use in certain categories of water bodies is not consistent with the Department of Drinking Water's policies regarding impaired drinking water sources
2. Region-wide Water Body Categorization Framework	This alternative amends the Basin Plans to add a standardized process to determine the appropriate application and levels of protection of the MUN beneficial use based on categories of Ag dominated surface water bodies across the Central Valley region. Utilizes the Sources of Drinking Water Policy exceptions where appropriate to de-designate the MUN beneficial use. Establishes a new LMUN (LMUN) beneficial use category for Ag dominated water bodies that do not meet the Sources of Drinking Water Policy exceptions but are not currently providing municipal or domestic supply	High	High	High	High	High	Med	– Utilizes the Sources of Drinking Water Policy exceptions and ensures downstream MUN beneficial uses are protected – The MUN beneficial use application is more consistent with the Department of Drinking Water's policies regarding drinking water sources – A standardized process makes the MUN evaluation in Ag dominated surface water bodies more efficient and streamlined for Central Valley Water Board staff to implement – Considers operational/maintenance activities needed to utilize constructed facilities for their intended purpose – Implementation measures may require ongoing staff time to evaluate water body categorization reports and utilize the process for future evaluations
3. Basin-by-Basin Water Body Categorization Framework	This alternative mirrors that of Alternative 2, but with the Sacramento River, San Joaquin River and Tulare Lake Basins each having their own separate process for evaluating the appropriate MUN beneficial use in Ag dominated surface water bodies. This option takes into account the different hydrology and management practices between the three basins.	High	High	High	High	High	Low	Same comments as in #2 apply, except: – Different requirements for each basin make the overall framework more complex and less efficient – Stakeholder work in the 1990s and currently indicate that a single categorization process will work for all three basins
4. Site Specific	This alternative uses the development of Site Specific	Med	Med	Med	Med	Low	Low	– Does not utilize the Sources of Drinking Water Policy exceptions

Table H - 1 Project Alternatives

Project Alternatives	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
Objectives	Objectives (SSOs) to replace or serve as alternatives to using existing Basin Plan water quality objectives and CTR criteria to protect the MUN beneficial use.							– Expensive and time consuming to conduct the scientific reviews and justification necessary to use different water quality objectives in place of current Basin Plan objectives and CTR criteria – Developing SSOs is still an available option – a region -wide process does not take this away

Table H - 2 Flowchart Options for a Water Body Categorization Framework

WB Cat. Flowchart Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
Original 1992 ISWP Flowchart	This flowchart was developed and adopted in 1992 by the Central Valley Water Board to categorize different Ag dominated water bodies as part of the Inland Surface Water Plan. Categories included natural supply and drainage water bodies, constructed supply and drainage water bodies, and modified water bodies	Low	-	-	-	-	High	– Flowchart has already been adopted by the Central Valley Water Board and over 6000 water bodies throughout the Central Valley have been named and categorized – no starting from scratch with a new flowchart – The flowchart is over 20 years old and may not be sufficient to meet present day conditions and policies – Does not distinguish between modified water bodies that carry drainage or supply water (this is an important distinction that is needed to apply the Resolution 88-63 Exception 2b) and does not included a category for recirculating systems – Categorizes supply channels as water bodies with supply and/or drainage water. Resolution 88-63 Exception 2b focuses on water bodies that contain drainage water so additional work would be needed to parse out these differences – New/modified water bodies would still need to go through the categorization flowchart and be assigned

Table H - 2 Flowchart Options for a Water Body Categorization Framework

WB Cat. Flowchart Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
2014 WBC Flowchart (Updated ISWP Flowchart)	Developed via the 2012-2014 MUN evaluation stakeholder process, this flowchart used the original ISWP framework as a starting point. Modifications were made to distinguish different types of modified water bodies and recirculating systems. Other changes reflect the usage of GIS technology to help with the categorization process.	High	-	-	-	-	Med	– Developed with stakeholder input, including the work done as part of the Ag Water Task Force in 1995, this flowchart better reflects today's conditions and policies regarding the MUN beneficial use and recycling water. – Working definitions were developed to help clarify the terminology used in the flowchart – Distinguishes between modified water bodies that contain drainage versus supply water only, and Includes recirculating systems as a separate water body category – Opens up the use of GIS tools and other records (e.g. National Hydrography Dataset) as a step in categorization process – Categorizes water bodies with drainage or a combination of drainage and supply together to better fit with Resolution 88-63 Exception 2b – Changes to the original flowchart will require that all water bodies go through the process even if they were categorized back in 1992 with the original ISWP flowchart (increase in time and cost)
2014 WBC Flowchart (Updated ISWP Flowchart) plus an expansion to further delineate C2 constructed supply canals	This option includes the 2014 WBC Flowchart (Updated ISWP Flowchart) as a first step in identifying water body categories, but includes an additional flowchart for categorizing different types of constructed supply-only water bodies based on MUN use, operational spills and regulated monitoring.	Med	-	-	High	-	Low	- Provides more specificity as to the type and uses of a constructed supply channel (with water being so scarce, these water bodies could potentially supply MUN and must be carefully considered) - Supply water bodies may serve as multi-use facilities so consideration is given to the intended use(s). - Includes supply water bodies with a current MUN use – this is out of scope of the project. - Attempts to set the MUN beneficial use and compliance through the flowchart process instead of through a reporting process using implementation provisions - Puts a LMUN (LMUN) use on a certain types of supply only channels which may be difficult to justify – no examples provided

Table H - 3 MUN Beneficial Use Components (to be applied to different options in Table H - 4)

Beneficial Use Components	Brief Description
No change to MUN designation	No change to the current MUN beneficial use application.
De-designate MUN	Using a flowchart water body categorization framework, specified categories will have a MUN de-designation. Verification that the water body meets relevant regulatory requirements (e.g. Resolution 88-63 exception 2B) for de-designation will be made using a water body categorization report.
Apply a LMUN	Using a flowchart water body categorization framework, specified categories will have a MUN designation as “LMUN”. Verification that the water body meets relevant regulatory requirements for a reduction in beneficial use protection will be made using a water body categorization report.

Table H - 4 MUN Beneficial Use Designation Options for a Water Body Categorization Framework

Beneficial Use Designation Options	**Brief Description** *(note- Water Body Categorization Reports would be required to validate assigned designations)*	**Level of Consistency with Selection Criteria Ratings = High, Medium, or Low**						**Notes**
		1 (Laws)	**2 (Potential Use)**	**3 (Downstream Protection)**	**4 (Intended Use)**	**5 (Relief for dischargers)**	**6 (Reasonable use of resources)**	
No Change to current MUN designation	All categories assigned to the MUN beneficial use.	**Low**	**Low**	**High**	**Low**	**Low**	**Med**	– Does not reflect the intent of the Sources of Drinking Water Policy exceptions – Maintaining the MUN beneficial use in certain categories of water bodies is not consistent with the Department of Drinking Water's policies regarding impaired drinking water sources
De-designate MUN only in C1/M1 water bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN <u>No changes to the following:</u> B1 (natural Ag Drain/Combo) – MUN B2 (natural Ag Supply) – MUN C2 (Constructed Ag Supply) – MUN M2 (Modified Ag Supply) – MUN Ag Recirculating System - MUN	**High**	**Med**	**High**	**Med**	**High**	**High**	– Utilizes the Sources of Drinking Water Policy exceptions and ensures downstream MUN beneficial uses are protected – The MUN beneficial use application is more consistent with the Department of Drinking Water's policies regarding drinking water sources – Less complexity than other options – does not include a new beneficial use (LMUN) category
De-designate MUN in C1/M1 AND approved Recirculating systems	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with approved Operational Plan) <u>No changes to the following:</u> B1 (natural Ag Drain/Combo) – MUN B2 (natural Ag Supply) – MUN	**High**	**Med**	**High**	**Med**	**High**	**Med**	– Allows recirculating systems to be utilized for their intended design and purpose – Adds an additional reporting requirement to the existing water body categorization reports

Table H - 4 MUN Beneficial Use Designation Options for a Water Body Categorization Framework

Beneficial Use Designation Options	**Brief Description** *(note- Water Body Categorization Reports would be required to validate assigned designations)*	**Level of Consistency with Selection Criteria Ratings = High, Medium, or Low**						**Notes**
		1 (Laws)	**2 (Potential Use)**	**3 (Downstream Protection)**	**4 (Intended Use)**	**5 (Relief for dischargers)**	**6 (Reasonable use of resources)**	
	C2 (Constructed Ag Supply) – MUN M2 (Modified Ag Supply) – MUN							
De-designate MUN in C1/M1 AND approved Recirculating systems. Apply LMUN to C2/M2 Supply Water Bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with Regional Board approved Operational Plan) C2 (Constructed Ag Supply) – LMUN M2 (Modified Ag Supply) – LMUN <u>No changes to the following:</u> B1 (natural Ag Drain/Combo) – MUN B2 (natural Ag Supply) – MUN	**High**	**High**	**High**	**High**	**Med**	**Med**	– Establishes a new LMUN beneficial use category for Ag dominated water bodies that do not meet the Sources of Drinking Water exceptions but are not currently providing MUN, providing more flexibility to allow constructed/modified channels to be utilized for their intended design and purpose.

Table H - 4 MUN Beneficial Use Designation Options for a Water Body Categorization Framework

Beneficial Use Designation Options	**Brief Description** *(note- Water Body Categorization Reports would be required to validate assigned designations)*	**Level of Consistency with Selection Criteria Ratings = High, Medium, or Low**						**Notes**
		1 (Laws)	**2 (Potential Use)**	**3 (Downstream Protection)**	**4 (Intended Use)**	**5 (Relief for dischargers)**	**6 (Reasonable use of resources)**	
De-designate MUN in C1/M1 AND approved Recirculating systems. Apply LMUN to all other Ag dominated water bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with Regional Board approved Operational Plan) C2 (Constructed Ag Supply) – LMUN M2 (Modified Ag Supply) – LMUN B1 (natural Ag Drain/Combo) – LMUN B2 (natural Ag Supply) – LMUN	**High**	**High**	**High**	**High**	**High**	**Med**	– Expands the new LMUN beneficial use category to natural Ag dominated water bodies that are not providing the MUN use
De-designate MUN in C1/M1 AND approved Recirculating systems. Apply special consideration to supply channels based on third flowchart option Apply LMUN to all other Ag dominated water bodies	C1 (constructed Ag Drain/Combo) – No MUN M1 (modified Ag Drain/Combo) – No MUN Ag Recirculating System – No MUN (with Regional Board approved Operational Plan) C2 (Constructed Ag Supply) – dependent on supplemental flowchart M2 (Modified Ag Supply) – LMUN B1 (natural Ag Drain/Combo) – LMUN B2 (natural Ag Supply) – LMUN	**Low**	**Med**	**Med**	**High**	**High**	**Med**	- Incorporates the MUN designations proposed in the C2 supplemental flowchart - Supply-only canals do not meet the Sources of Drinking Water Policy exception 2b so removing MUN may be challenging

Table D - 5 Implementation Options for a Water Body Categorization Framework

Implementation Options	Brief Description	Level of Consistency with Selection Criteria Ratings = High, Medium, or Low						Notes
		1 (Laws)	2 (Potential Use)	3 (Downstream Protection)	4 (Intended Use)	5 (Relief for dischargers)	6 (Reasonable use of resources)	
Apply on "As Needed" Basis	Water Bodies go through the process only as needed/desired. Existing MUN designation remains on unlisted (in the Basin Plans) Ag dominated surface water bodies. A Reference Document is used to list water bodies and their MUN designation on an interim basis. The Reference Document can be utilized to set interim permit limits for a finite period. The Triennial Review process or other Board/Public approval process is used to adopt water bodies into Basin Plan on a periodic basis.	**Med**	**Med**	**-**	**-**	**High**	**Med**	– Provides flexibility to water agencies or other stakeholders to decide whether or not they want to evaluate the MUN beneficial use designation in their area – Reference Document provides a way to set interim permit limits without waiting for a Basin Plan Amendment to be done – Less of an immediate time and resource commitment – As an ongoing implementation process, evaluations can be made when hydrologic or management changes are made to a water body – MUN beneficial use will continue to be applied in water bodies where it may not be an appropriate designation – Will require an ongoing resource and time commitment by staff to evaluate reports and update the Reference Document and the Basin Plans
Establish a Time Schedule to categorize and evaluate MUN beneficial use designation in ALL Ag dominated water bodies	A Time Schedule is created to have all Ag dominated water bodies categorized and accordingly designated/de-designated for the MUN beneficial use. Water bodies are adopted into the Basin Plans (with their appropriate MUN beneficial use designation) according to the requirements set forth in the Time Schedule.	**Med**	**Med**	**-**	**-**	**Low**	**Med**	– Sets a clear timeline to evaluate all Ag dominated water bodies in the Central Valley – A greater immediate need to commit staff resources and time to the evaluations – Once the evaluations are complete and the MUN designations are adopted into the Basin Plans, there is less of an ongoing commitment of staff resources – Less flexibility to water agencies and other stakeholders – they will need to comply by a certain time frame – Does not provide a way to set interim permit limits or evaluate future changes to water bodies

APPENDIX I—EVALUATION OF LMUN WATER QUALITY OBJECTIVE OPTIONS

Water Quality Objective options are evaluated based on their ability to meet the following selection criteria:

1. Maintain consistency with federal and state water quality laws and policies as applicable (e.g. Sources of Drinking Water Policy, Federal Antidegradation Policy, State Antidegradation Policy)

2. Provide the appropriate protection of MUN in an Ag dominated surface water body with consideration given to the current and potential future uses

3. Allow constructed Ag dominated water bodies to be utilized for their intended design and purpose

   Example - Irrigation Supply Channels

4. Make efficient (reasonable) use of Central Valley Water Board and stakeholder resources to develop and implement water quality standards

5. Provide flexibility to address naturally elevated background constituents

In addition, special consideration will be given to the implementation components of any WQO to ensure that downstream beneficial uses remain protected.

Table I - 1 Water Quality Objective Options for a "LMUN" Category

Water Quality Objective Options	Brief Description	Level of Consistency with Selection Criteria Ratings = Yes/No or High/Medium/Low					Notes
		1 (Laws)	2 (Potential Use)	3 (Intended Use)	4 (Reasonable use of resources)	5 (Background levels)	
Add new NARRATIVE water quality objective	A narrative water quality objective is given in the Basin Plan for the LMUN beneficial use Proposed Options: 1. *Accumulation of constituents in the water body must not unreasonably affect non-potable water use.*	Yes	Low	Med	Med	Low	– How is accumulation determined? – "Non-potable" is a very broad term; may be difficult know whether or not the water body is protected
	2. *Accumulation of constituents in the water body must not unreasonably affect non-potable water use or degrade other in-stream or downstream beneficial uses.*	Yes	Low	Med	Med	Low	– "Non-potable" is a very broad term; may be difficult know whether or not the water body is protected - Considers in-stream and downstream beneficial uses
	3. *Accumulation of constituents in the water body must not unreasonably affect non-potable water use and cannot preclude potable use with reasonable management and/or treatment.*	Yes	Med	Med	Med	Low	- "Non-potable" is a very broad term; may be difficult know whether or not the water body is protected - "potable use" may result in the use of primary and secondary MCLs as water quality objectives - "reasonable" may require examples
	4. *Accumulation of constituents in the water body above natural background concentrations cannot preclude managed and/or treated use of the water for Municipal or Domestic Supply (MUN) use or degrade downstream beneficial uses*	Yes	Med	Med	Med	High	- Need to define "natural background concentrations" - Need examples of "managed and/or treated" and some concept of relative and acceptable economic cost.

Table I - 1 Water Quality Objective Options for a "LMUN" Category

Water Quality Objective Options	Brief Description	Level of Consistency with Selection Criteria Ratings = Yes/No or High/Medium/Low					Notes
		1 (Laws)	2 (Potential Use)	3 (Intended Use)	4 (Reasonable use of resources)	5 (Background levels)	
	5. *Accumulation of constituents in the water body must be found to provide maximum benefit to the people of the state and not unreasonably affect managed and/or treated use of the water for Municipal or Domestic Supply (MUN) use nor degrade downstream beneficial uses above natural background concentrations.*	Yes	Med	High	Med	High	− Includes reference to maximum benefit of the people of the state - Antidegradation − Need to define "natural background concentrations"
	6. *Discharge from these water bodies will not degrade downstream beneficial uses consistent with the state antidegradation policy (SWRCB Resolution No. 68-16).*	Yes	Low	High	Med	Low	− Does not protect the water body itself − Already an existing legal requirement
	7. *Water quality will be protected as specified in the state antidegradation policy (SWRCB Resolution No. 68-16).*	Yes	Med	Med	Med	Med	− Refers directly to Antidegradation policy − May be able to provide clarification in implementation section − Already an existing legal requirement
	8. *Water quality and downstream beneficial uses will be protected consistent with the state antidegradation policy.*	Yes	Med	Med	Med	Med	− Refers to Antidegradation policy but without the policy number (in case it ever changes) − May be able to provide clarification in implementation section − Already an existing legal requirement
	9. *Water quality will be protected consistent with state and federal antidegradation policy and will not create a trend of degradation that impacts any downstream beneficial uses.*	Yes	Med	Med	Med	Med	− Unnecessary to refer to federal antidegradation policy − Trend could be interpreted differently so would need clarification

Table I - 1 Water Quality Objective Options for a "LMUN" Category

Water Quality Objective Options	Brief Description	Level of Consistency with Selection Criteria Ratings = Yes/No or High/Medium/Low					Notes
		1 (Laws)	2 (Potential Use)	3 (Intended Use)	4 (Reasonable use of resources)	5 (Background levels)	
	10. *Water quality of surface waters designated for use as LMUN shall be maintained to protect the other designated beneficial uses of water body, and shall not cause degradation of water quality in downstream water bodies that impairs their beneficial uses or is consistent with the state's antidegradation policy.*	Yes	Med	Med	Med	Med	– Refers to Antidegradation policy but without the policy number – Difficult to read and follow
Add new NUMERIC water quality objective	A numeric water quality objective is given in the Basin Plan for LMUN Proposed Options: 1. *Must meet primary MCLs, but not secondary MCLs. (Narrative for nuisance objective will still apply)*	Yes	Med	Low	Low	Low	– Secondary MCLs are for taste, odor and appearance, and do not reflect a human health criteria – Water purveyors still must report exceedances to secondary MCLs in source water to the public
	2. *Must meet primary and secondary MCLs with the exception of: trihalomethanes (short half-life)*	Yes	High	Low	Low	Low	– Trihalomethanes have a short half-life and are a low human health threat in waters that are not currently being used for the MUN use. – MCLs are drinkingwater standards and these objectives are restrictive for agricultural practices – Removing trihalomethanes or other constituents would require constituent by constituent scientific justification
	3. *Must meet primary and secondary MCLs, but dissolved fractions can be used in place of total fractions*	Yes	High	Low	Low	Low	– Using dissolved fractions reflects the use of filtration in conventional water treatment – Water purveyors use total fractions for reporting secondary MCL values – May be over-restrictive for potential MUN use of the water body itself.

APPENDIX J—STAFF REVIEW PROCESS CHECKLIST

I. NOI submittal
Date Received: mm/dd/yyyy

II. Required documents submittal
Date Received: mm/dd/yyyy

Water Body Categorization Report

Verification of Water Body Category designation

- ☐ Photos
- ☐ Construction records
- ☐ Maps
- ☐ Documentation describing operation/management of receiving waters
- ☐ Cross-check water body category designations with NHD, 1992 ISWP report and other publically available information
- ☐ Conduct site survey of natural or modified water bodies (B1, B2, M1, M2) and approximately 10% of constructed water bodies (C1, C2)
    - Visit any additional water bodies if discrepancies found during review of the above items.

Date Completed: mm/dd/yyyy

- ☐ Confirm all C1 and M1 water bodies – primary purpose of conveying or holding agricultural drainage waters.

Verification of MUN diversions

- ☐ Diversions for municipal or domestic supply within and/or downstream of receiving water bodies using State Water Resources Control Board's Electronic Water Rights Information Management Systems (eWRIMS)
- ☐ Any water rights permits or filings for potential future surface water MUN diversion within or downstream of water bodies prior to first existing MUN diversion

Identification of water quality constituents of concern

- ☐ Any identified water quality constituents of concern related to the MUN beneficial use
- ☐ Review publically available water quality information to identify any additional water quality constituents of concern
    - Review California Integrated 303(d) and 305(b) report, Irrigated Lands Regulatory Program's (ILRP) Management Plan, National Pollutant Discharge Elimination System (NPDES) self-monitoring reports, Division of Drinking Water's (DDW) Watershed Sanitary Surveys
- ☐ Confirm control programs such as TMDLs or management plans

Review existing water quality monitoring

- ☐ Any identified water quality monitoring

- ☐ Evaluate additional water quality monitoring information using Central Valley Water Board's Comprehensive Monitoring Guide

Closed Controlled Recirculating System Application

Verification of Closed Controlled Recirculating System designation

- ☐ Photos
- ☐ Construction Records
- ☐ Maps
  - For year-round: map showing no natural outlet or drainage
  - For seasonal: map showing seasonal closure points
- ☐ Documentation describing operation/management of system
  - For seasonal: include seasonal closure plan that describes the purpose, seasonal dates for opening/closing seasonal and related protocols
- ☐ Conduct site survey of all water bodies in system
  - Check natural outlets, drainage or seasonal closure points

Date Completed: mm/dd/yyyy

Verification of MUN diversions

- ☐ Diversions for municipal or domestic supply within and/or downstream of system using State Water Resources Control Board's Electronic Water Rights Information Management Systems (eWRIMS)
- ☐ Any water rights permits or filings for potential future surface water MUN diversion within or downstream of system prior to first existing MUN diversion

Emergency Plans and Notification process

- ☐ Review flood control/emergency plan
- ☐ Monitoring activities during emergency release
- ☐ Notification process during emergency release
- ☐ List of water diverters downstream of system

Identification of water quality constituents of concern

- ☐ Any identified water quality constituents of concern related to the MUN beneficial use
- ☐ Review publically available water quality information to identify any additional water quality constituents of concern
  - Review California Integrated 303(d) and 305(b) report, Irrigated Lands Regulatory Program's (ILRP) Management Plan, National Pollutant Discharge Elimination System (NPDES) self-monitoring reports, Division of Drinking Water's (DDW) Watershed Sanitary Surveys
- ☐ Confirm control programs such as TMDLs or management plans

Review existing water quality monitoring

- ☐ Any identified water quality monitoring
- ☐ Evaluate additional water quality monitoring information using Central Valley Water Board's Comprehensive Monitoring Guide

Future activities

- ☐ Long-term programs or approaches

- Any anticipated changes to operation of the system in the future

Notes

APPENDIX K – NO PEER REVIEW JUSTIFICATION

Introduction

Staff of the Central Valley Regional Water Quality Control Board (Central Valley Water Board or Board) have developed a region-wide process for reassessing Municipal and Domestic Supply (MUN) beneficial use designations in agriculturally dominated (Ag dominated) surface water bodies. Board staff propose that the Board amend both the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins and the Water Quality Control Plan for the Tulare Lake Basin (Basin Plans) to incorporate this process, thereby standardizing the way in which the Board will reassess and potentially de-designate the MUN beneficial use in certain Ag dominated surface waters. Board staff also propose that the Board amend the Basin Plans to establish a Limited Municipal and Domestic Supply (LMUN) beneficial use that would apply to certain Ag dominated water bodies that do not meet the exception criteria for de-designating the MUN beneficial use in those water bodies. (The two regulatory proposals will hereafter be referred to as the "proposed Basin Plan Amendments")

Background

When the Central Valley Water Board incorporated State Water Board Resolution No. 88-63, the Sources of Drinking Water Policy (Sources of Drinking Water Policy) into the Basin Plans, the Board made a blanket designation that all surface waters, including Ag dominated surface waters, support the MUN beneficial use by default. The Board may only exempt water bodies from MUN beneficial use designations by amending the Basin Plans.

Recognizing that not all water bodies are suitable for MUN uses, the Sources of Drinking Water Policy also identifies exception criteria that the Board may use to de-designate the MUN beneficial use from water bodies that were subject to the blanket MUN designation. These criteria include an exception that applies to water bodies that have been designed or modified to convey agricultural drainage ("Exception 2b"). The Board may exempt water bodies using Exception 2b only if the discharges from such systems are monitored to ensure compliance with all relevant water quality objectives. The proposed Basin Plan Amendments would add a standardized region-wide process to the Basin Plans that will guide the Central Valley Water Board's reassessment of existing MUN beneficial use designations in Ag dominated surface water bodies.

Board staff also recognize that many Ag dominated surface water bodies have inherent limiting conditions that prevent them from being used as a source of municipal or domestic supply, such as low or intermittent flows and/or elevated natural background constituent concentrations. However, though these water bodies would not be considered a source water for municipal or domestic supply, they may not necessarily meet Exception 2b in the Sources of Drinking Water Policy. Board staff therefore propose that the Board amend the Basin Plans to establish a LMUN beneficial use designation that could apply to these water bodies in lieu of the MUN beneficial use designation. Under the proposed Basin Plan Amendments, the Board would use the same process to evaluate Ag dominated water bodies for re-designation from MUN to LMUN as it would for de-designation of the MUN beneficial use pursuant to Exception 2b.

Legal Basis for Peer Review

Certain water quality policies adopted pursuant to the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.) are subject to the peer review requirements of Health and Safety Code section 57004. (Health & Saf. Code, § 57004, subd. (a)(1)(B).) Historically, the State Water Resources Control Board (State Water Board), which must approve all revisions to water

quality control plans, has construed Section 57004 to cover Basin Plan amendments. Health and Safety Code section 57004 requires the scientific portion of Basin Plan amendments to undergo external scientific peer review before the Regional Board takes final action on the amendment. *(Id., §* 57004, subd. (d).) "Scientific portions of the Basin Plan amendments" mean those parts of the proposed Basin Plan Amendments that are premised upon, or derived from, empirical data or other scientific findings, conclusions, or assumptions and that establish a regulatory level, standard, or other requirement for the protection of public health or the environment. (*Id.,* § 57004.)

No Peer Review is required for the Proposed Basin Plan Amendments

The portions of the proposed Basin Plan Amendments that will incorporate the proposed process for assessing and potentially de-designating the MUN beneficial use from Ag dominated surface water bodies do not rely upon any empirical data, scientific findings, conclusions, or assumptions to establish a new regulatory level, standard, or other requirement. Thus, these portions of the proposed Basin Plan Amendments do not require peer review pursuant to Health and Safety Code section 57004.

The only portions of the proposed Basin Plan Amendments that could be considered to "establish a new standard" are those that will create the LMUN beneficial use designation and the water quality objective that will apply to LMUN-designated water bodies. However, these portions of the proposed Basin Plan Amendments do not rely upon empirical data or other scientific findings, conclusions, or assumptions to establish the new regulatory standards. Instead, the Board will require that water bodies designated as supporting the LMUN beneficial use comply with a narrative water quality objective that will solely reference the existing State Water Board Resolution 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California. No other new regulatory levels, standards, or other requirements will be established by the new water quality objective.

The portions of the proposed Basin Plan Amendments that will implement the new LMUN designation will also not require peer review. Under the proposed process, the Board's review of an Ag dominated water body that may result in the de-designation of the MUN beneficial use or the re-designation from the MUN beneficial use to the LMUN beneficial would be initiated by a submittal that will describe the characteristics of the surface water body. If the evidence indicates that the water body is a water body that has been constructed or modified to hold or convey agricultural drainage, the Board could de-designate the MUN beneficial use designation consistent with Exception 2b. By relying on the language within the existing Sources of Drinking Water Policy for MUN de-designations, the proposed Basin Plan Amendments do not establish a new regulatory level, standard, or other requirement.

On the other hand, if the Board receives evidence indicating that the surface waterbody is either a water body that has been constructed to provide agricultural supply water, a water body that has been modified to convey agricultural supply water, a natural water body that primarily conveys agricultural drainage waters, or a natural water body that primarily supplies agricultural supply waters and/or drains agricultural drainage waters, the Board may designate the water body as LMUN rather than MUN. The rationale underlying this decision will be entirely based on a policy determination by the Board that it is inappropriate to subject such water bodies to the regulatory standards that water providers must meet when they provide water directly to consumers (such standards are applicable to water bodies that are designated as supporting the MUN beneficial use but not to water bodies that are designated as supporting the LMUN use). No empirical data, scientific findings, conclusions, or assumptions underlie this policy

determination. Therefore, these portions of the proposed Basin Plan Amendment do not need to undergo scientific peer review.

Lastly, the proposed Basin Plan Amendments also propose to de-designate the MUN beneficial use from 231 water bodies within the jurisdiction of the San Luis Canal Company. These de-designations are based solely on a determination that these 231 water bodies meet Exception 2b criteria. No new regulatory level, standard, or other requirement is being established by the de-designation of these 231 water bodies because this de-designation is entirely consistent with the existing Sources of Drinking Water Policy.

Conclusion

The proposed Basin Plan Amendments do not establish new regulatory levels, standards, or other requirements for the protection of public health or the environment that are premised upon, or derived from, empirical data or other scientific findings, conclusions, or assumptions. Therefore, the proposed Basin Plan does not require peer review.

APPENDIX L— ENVIRONMENTAL CHECKLIST

California Environmental Quality Act Requirements

The Central Valley Water Board, as a Lead Agency under CEQA (Pub. Res. Code, § 21000 et seq.), is responsible for evaluating all the potential environmental impacts that may occur due to changes made to the Basin Plans. The Secretary of Resources has determined that the Central Valley Water Board's basin planning process qualifies as a certified regulatory program pursuant to Public Resources Code section 21080.5 and California Code of Regulations, title 14, section 15251(g). This determination means that the Central Valley Water Board is exempt from the requirement to prepare an environmental impact report for basin planning activities. Instead, this Staff Report and the Environmental Checklist (Appendix L) satisfy the applicable CEQA requirements.

1. Project title:

Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, and the Water Quality Control Plan for the Tulare Lake Basin to Establish a Region-wide Municipal and Domestic Supply (MUN) Beneficial Use Evaluation Process in Agriculturally Dominated Surface Water Bodies

2. Lead agency name and address:

California Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Drive, #200, Rancho Cordova, CA 95670

3. Contact person and phone number:

Anne Littlejohn, Senior Environmental Scientist, (916) 464-4840
Jeanne Chilcott, Environmental Program Manager, (916) 464-4788

4. Project location:

The project is located within the Sacramento River, San Joaquin River and Tulare Lake Basins, in the Central Valley.

5. Description of project:

The Central Valley Water Board is proposing amendments to the Basin Plan to: 1) establish a region-wide regulatory process for evaluating appropriate application of and level of protection for the Municipal and Domestic Supply (MUN) beneficial use in agriculturally (Ag) dominated surface water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins, and 2) apply this process and de-designate the MUN beneficial use from specified Ag dominated surface water bodies within the San Luis Canal Company (SLCC) service area, located within the San Joaquin River Basin.

The proposed Basin Plan Amendments would add a standardized region-wide process to the Basin Plans that would guide the Central Valley Water Board's evaluation of appropriate MUN beneficial use designations and associated water quality objectives in Ag dominated surface water bodies and closed controlled recirculating systems, and would set implementation provisions related to this process. The amendments are based on a water body categorization approach, which distinguishes between those water bodies that have been constructed or modified to convey Ag drainage (C1, M1), those water bodies that have been constructed or

modified to convey Ag supply water (C2, M2), natural water bodies dominated by agricultural operations (B1, B2), and those water bodies encompassed in a permanent or seasonal closed controlled recirculating system. The amendment proposes to utilize, where appropriate, Sources of Drinking Water Policy Exception 2b to de-designate the MUN beneficial use. The proposed amendments would also establish a "Limited Municipal and Domestic Supply" (LMUN) beneficial use for Ag dominated water bodies that do not meet the Sources of Drinking Water Policy exceptions, but that have inherent limiting conditions, such as low or intermittent flows and/or elevated natural background constituent concentrations. For the purposes of the proposed evaluation process, agricultural drainage is defined as water leaving an agricultural field either from irrigation practices or precipitation.

Application of the proposed Basin Plan Amendments to Ag dominated surface water bodies and closed controlled recirculating systems where MUN is currently a designated beneficial use would result in one of three outcomes for the water bodies evaluated through this process: 1) existing MUN designation remains in place; 2) existing MUN designation is de-designated; or 3) the existing MUN designation is refined with a LMUN use designation. The resulting changes in applicable water quality objectives for each scenario are described below.

1) Under Scenario #1, State water quality objectives for protection of drinking water (such as the primary and secondary maximum contaminant levels) and federal water quality criteria (defined in the California Toxics Rule [CTR]) for the protection of human health from the consumption of water and organisms would continue to apply to the evaluated Ag dominated surface water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins (where currently applicable), and, thus there would be no change relative to existing conditions.

2) Under Scenario #2, the removal of MUN as a designated beneficial use of evaluated Ag dominated surface water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins would mean that state water quality objectives for protection of drinking water and federal water quality criteria (defined in the CTR) for the protection of human health from the consumption of water and organisms (where applicable) would no longer apply to these water bodies. Thus, waste discharges from facilities such as POTWs, agricultural operations, and storm water outfalls to these water bodies would not be required to protect the MUN beneficial use in the immediate receiving water. However, discharges to the Ag dominated surface water bodies without the MUN beneficial use designation would continue to be required to meet the water quality objectives/criteria for any remaining applicable beneficial uses of the water bodies, and to not cause exceedance of applicable objectives/criteria in downstream waters, including criteria/objectives for protection of MUN where that use remains designated.

3) Under Scenario #3, the refinement of the MUN use designation to a LMUN use for evaluated Ag dominated surface water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins would mean that state water quality objectives for protection of drinking water and federal water quality criteria (defined in the CTR) for the protection of human health from the consumption of water and organisms (where currently applicable) would no longer apply to these water bodies. The numeric MUN-related objectives and criteria would be replaced with a narrative water quality objective requiring water quality within and downstream beneficial uses to be protected consistent with the state antidegradation policy. Discharges to the Ag dominated surface water bodies and closed controlled recirculating systems without the MUN beneficial use designation would continue to be required to meet the water quality objectives/criteria for any remaining applicable

beneficial uses of the water bodies, and to not cause exceedance of applicable objectives/criteria in downstream waters, including criteria/objectives for protection of MUN where that use remains designated.

The second component of the proposed Basin Plan Amendment project is to apply this MUN evaluation process to Ag dominated surface water bodies within the SLCC service area, which is located in the San Joaquin River Basin. SLCC identified 232 water bodies in its service area, comprising 391 channel miles. One of SLCC's listed water bodies, Salt Slough, is a natural, modified water body and is specifically identified in Table II-1 of the Basin Plan with no MUN designated beneficial use. Thus, Salt Slough was not subject to any further MUN evaluation as part of these Basin Plan Amendments. The remaining 231 water bodies were evaluated using the proposed MUN evaluation process and were all found to be constructed channels with the exception of Poso Slough, which is a modified natural channel. Since they all meet Exception 2B of the Sources of Drinking Water Policy, these Basin Plan Amendments proposes to remove their MUN designation. With adoption and approval of the amendment, state water quality objectives for protection of drinking water (i.e., drinking water maximum contaminant levels) and CTR criteria for the protection of human health from the consumption of water and organisms would no longer apply to the SLCC water bodies, where MUN is currently a designated use.

EVALUATION OF THE ENVIRONMENTAL IMPACTS IN THE CHECKLIST

1. The board must complete an environmental checklist prior to the adoption of plans or policies for the Basin/208 Planning program as certified by the Secretary for Natural Resources. The checklist becomes a part of the Substitute Environmental Documentation (SED).

2. For each environmental category in the checklist, the board must determine whether the project will cause any adverse impact. If there are potential impacts that are not included in the sample checklist, those impacts should be added to the checklist.

3. If the board determines that a particular adverse impact may occur as a result of the project, then the checklist boxes must indicate whether the impact is "Potentially Significant," "Less than Significant with Mitigation Incorporated," or "Less than Significant."

a. "Potentially Significant Impact" applies if there is substantial evidence that an impact may be significant. If there are one or more "Potentially Significant Impact" entries on the checklist, the SED must include an examination of feasible alternatives and mitigation measures for each such impact, similar to the requirements for preparing an environmental impact report.

b. "Less than Significant with Mitigation Incorporated" applies if the board or another agency incorporates mitigation measures into the SED that will reduce an impact that is "Potentially Significant" to a "Less than Significant Impact." If the board does not require the specific mitigation measures itself, then the board must be certain that the other agency will in fact incorporate those measures.

c. "Less than Significant" applies if the impact will not be significant, and mitigation is therefore not required.

d. If there will be no impact, check the box under "No Impact."

4. The board must provide a brief explanation for each "Potentially Significant," "Less than Significant with Mitigation Incorporated," "Less than Significant," or "No Impact" determination in the checklist. The explanation may be included in the written report described in section 3777(a)(1) or in the checklist itself. The explanation of each issue should identify: (a) the significance criteria or threshold, if any, used to evaluate each question; and (b) the specific mitigation measure(s) identified, if any, to reduce the impact to less than significant. The board

may determine the significance of the impact by considering factual evidence, agency standards, or thresholds. If the “No Impact” box is checked, the board should briefly provide the basis for that answer. If there are types of impacts that are not listed in the checklist, those impacts should be added to the checklist.

5. The board must include mandatory findings of significance if required by CEQA Guidelines section 15065.

6. The board should provide references used to identify potential impacts, including a list of information sources and individuals contacted.

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
I. AESTHETICS. Would the Project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to aesthetics from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a) The result of de-designating MUN from specified water bodies in the SLCC service area, and the refinement of MUN to LMUN or de-designation of MUN from additional Ag dominated water bodies or closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins through application of the MUN evaluation process, would be that discharges would no longer be required to reduce concentrations of constituents that may currently have the potential to exceed objectives/criteria for protection of MUN in these water bodies. Where aesthetics of natural or modified channels may be of concern to the public and affect a scenic vista, discharges would continue to be regulated to achieve water quality objectives/criteria for protection of the remaining beneficial uses of these water bodies, including biological- and recreation-related uses, as applicable. Discharges to Ag dominated water bodies and within recirculating systems also would to continue to be regulated to achieve water quality objectives/criteria for protection of beneficial uses of downstream water bodies. Further, the proposed amendment does not involve construction; thus, its adoption and implementation do not involve placement of structures or other visual obstructions in the vicinity of Ag dominated surface water bodies. Therefore, the proposed Basin Plan Amendments would have no impact on a scenic vista.

b) As described above in “a,” the proposed Basin Plan Amendments would not result in the placement of structures in the vicinity of the Ag dominated surface water bodies and closed controlled recirculating systems. Therefore, the proposed Basin Plan

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
Amendments would have no impact on scenic resources. c) As described above in "a," discharges would continue to be regulated to achieve water quality objectives/criteria for protection of all other designated uses of Ag dominated surface water bodies and closed controlled recirculating systems to which the MUN evaluation process would be applied in the future and the evaluated water bodies within the SLCC that are a component of these Basin Plan Amendments. This includes objectives for biostimulatory substances, dissolved oxygen, floating material, and suspended material, which relate to the aesthetics of a water body, as applicable. Therefore, the proposed Basin Plan Amendments would have no impact on the existing visual character or quality of Ag dominated surface water bodies or closed controlled recirculating systems and their surroundings. d) As described above in "a," the proposed Basin Plan Amendments would not result in the placement of structures in the vicinity of Ag dominated surface water bodies and closed controlled recirculating systems. Therefore, the proposed Basin Plan Amendments would have no impact on day or nighttime views in the areas affected.				
II. AGRICULTURAL AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental impacts, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forestry resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to agricultural resources from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a) With the proposed Basin Plan Amendments, there would be no change to the relevant agricultural beneficial use (AGR) designation of any water bodies to which the MUN evaluation process would be applied, including the specified water bodies within the SLCC, and water quality objectives for protection of the AGR use would continue to apply. Further, the proposed amendment is not a land use action involving the conversion of agricultural land to non-agricultural use. Therefore, the proposed Basin Plan Amendments would have no impact on farmland conversion to a non-agricultural use.

b) As described above for "a," the proposed Basin Plan Amendments would not involve the conversion of agricultural land to another use. Therefore, the proposed Basin Plan Amendments would have no impact on existing agricultural use zoning of a Williamson Act contract.

c) As described above for "a," the proposed Basin Plan Amendments would not involve the conversion of agricultural land to another use. Therefore, the proposed Basin Plan Amendments would have no impact on existing zoning of forest land or timberland.

d) As described above for "a," the proposed Basin Plan Amendments would not involve the conversion of agricultural land to another use. Therefore, the proposed Basin Plan Amendments would have no impact on forest land to a non-forest use.

e) As described above for "a," there would be no change to the relevant agricultural beneficial use (AGR) designation of any water bodies to which the MUN evaluation process would be applied and water quality objectives for protection of the AGR use would continue to apply. Therefore, the proposed Basin Plan Amendments would have

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
no impact on farmland or forest land related to changes in the existing environment.				
III. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the Project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to air quality from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a,b,c,d) The removal or refinement of the MUN use designation for Ag dominated surface water bodies and closed controlled recirculating systems would have no effect on air quality relative to existing conditions. With the exception of volatile organic compounds, which volatilize to the atmosphere, constituents in discharges remain within the water body to which they are discharged. The most common volatile organic compounds present in Central Valley discharges are trihalomethane compounds (THMs) from POTWs utilizing a chlorine disinfection treatment process. The CTR contains criteria for protection of human health from consumption of water and organisms for three THMs (bromoform, dibromochloromethane, and dichlorobromomethane). These CTR criteria would no longer apply if the MUN use is removed or refined to LMUN for certain water bodies (i.e., modified or natural water bodies). The result would be that POTWs with THMs present in the discharge would continue to do so, though concentrations would be regulated relative

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
to the CTR organisms only criteria. Those POTWs that have invested in processes to reduce THMs (e.g., through implementation of ultraviolet disinfection) would be expected to continue using such systems given the investment and infrastructure in place. In both circumstances, there would be expected to be no increase in discharge concentrations of THMs from POTWs as a result of the proposed Basin Plan Amendments, and thus no change in volatilization of compounds into the air relative to existing conditions. Storm water and agricultural discharges are not typical dischargers of volatile organic compounds, and thus there would be no changes from existing conditions relative to volatilization of organic compounds in these discharges. Further, where dischargers are contemplating future projects to come into compliance MUN-related objectives/criteria, there would be no need to construct treatment processes or implement management efforts, which may have air quality impact associated with equipment or vehicle use. Finally, the proposed Basin Plan Amendments do not permit additional capacity to dischargers that would induce population growth or would result in construction activities that could contribute air pollutants. Therefore, the proposed Basin Plan Amendments would have <u>no impact</u> on consistency with an air quality plan, attainment of air quality standards, cumulatively considerable net increases of a pollutant in a non-attainment region, or exposure of sensitive receptors to pollutants. e) With the proposed Basin Plan Amendments, water quality objectives/criteria for protection of all other designated uses of Ag dominated surface water bodies and closed controlled recirculating systems to which the MUN evaluation process would be applied in the future or the evaluated water bodies within the SLCC as part of this amendment would remain applicable. This includes objectives for biostimulatory substances, dissolved oxygen, floating material, suspended material, and odor, which relate to the potential for a water body to produce objectionable odors (e.g., through decay of organic matter). Further, as described above, the proposed amendment does not permit additional capacity to dischargers that may contribute to additional odor-producing processes beyond existing conditions. Therefore, the proposed Basin Plan Amendments would have <u>no impact</u> on the creation of objectionable odors.				
IV. BIOLOGICAL RESOURCES. Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local	☐	☐	☒	☐

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to biological resources from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations, and de-designate or refine the MUN use where appropriate, in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate the MUN use from specified water bodies within the SLCC service area.

a) Removal of the MUN beneficial use designation from the evaluated SLCC service area water bodies would not result in changes to water quality and flows of those water bodies relative to existing conditions. Through implementation of the Central Valley Water Board's Irrigated Lands Regulatory Program, MUN-based water quality objectives are currently incorporated into the waste discharge requirements (WDRs) of grower coalitions as limits that trigger development of a Surface Water Quality Management

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
Plan to address constituents with concentrations elevated relative to the limits. SLCC is a member of the Westside San Joaquin River Watershed Coalition (Coalition), which is regulated by WDRs Order R5-2014-0002. The WDRs list MUN-based limits for surface waters for: fecal coliform, electrical conductivity (EC), copper, lead, nitrate, nitrite, selenium, simazine, total dissolved solids (TDS), and zinc. Of these constituents, copper, lead, selenium, and zinc also have aquatic life toxicity-based limits; these limits are lower than the MUN-based limits. Because the biological-related beneficial use designations would be unchanged by the proposed amendment, WDRs would continue to require achieving aquatic life-based water quality objectives/criteria, where they apply. WDRs also would continue to require monitoring and address of aquatic life protection. The Coalition has developed the Central Valley Water Board-approved Westside Management Plan (October 2008) to address exceedance of the limits in the WDRs that trigger the requirement for such a plan. The Westside Management Plan addresses aquatic toxicity, sediment, salinity, *E. coli*, and dissolved oxygen, and identifies tiered priorities and schedules for addressing these constituents. The coalition has focused on Tier 1 priorities, which include aquatic toxicity, pesticides, sediment toxicity, and sediment discharge, in accordance with focused Management Plans for Ingram and Hospital Creeks (October 2008) and Poso Slough and Salt Slough (September 2011), though it continues to also address other constituents in the plan. These activities and related SLCC operations would remain unchanged with de-designation of MUN from the SLCC water bodies. Consequently, water quality and flows in SLCC service area water bodies would be unaffected by the proposed amendment and thus there would be <u>no impact</u> to candidate, sensitive, or special status species. Additional Ag dominated water bodies and closed controlled recirculating systems elsewhere in the Central Valley Region that may have the MUN use de-designated (due to the proposed amendments) similarly would retain biological resource-related beneficial uses (e.g., WARM, COLD, WILD, BIOL, RARE, MIGR, SPWN) and associated water quality objectives, where applicable. Thus, the removal of the MUN beneficial use designation would not contribute to adverse chemical conditions to aquatic life. Agricultural discharge patterns, and thus receiving water flow conditions, could potentially change somewhat, relative to existing conditions, due to de-designation of MUN. The degree of change would depend on the degree to which dischargers are currently implementing best management practices (e.g., minimizing discharges by maximizing recirculation) to meet MUN-related objectives. However, because other factors also drive agricultural operations (e.g., available water supply), the de-designation of MUN from additional Ag dominated water bodies or closed controlled recirculating systems would be expected to have little to no effect on operations (as is expected to be the case with SLCC discussed above), and thus flows in these water bodies. Regardless, the water flows in the Ag dominated surface water bodies and closed controlled recirculating systems as affected by agricultural operations would continue to be highly managed as they are under existing conditions. The rate of storm water and POTW discharges are primarily dependent on the physical area served and capacity of the systems, and thus discharge patterns to Ag dominated surface water bodies and closed controlled recirculating systems would be unaffected by the Basin Plan Amendments. As such, aquatic habitat physical and chemical conditions of				

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
importance to biological resources, including species identified as a candidate, sensitive, or special status species, would be similar to existing conditions following adoption and implementation of the proposed Basin Plan Amendments. Any minor changes that may potentially occur in the physical and chemical conditions of Ag dominated water bodies and closed controlled recirculating systems as a result of adopting and implementing the proposed Basin Plan Amendments would result in less-than-significant impacts to candidate, sensitive, or special status species. b,c,d) As described for "a" above, aquatic habitat physical (e.g., flow, temperature, dissolved oxygen) and chemical conditions (i.e., water quality conditions) of importance to biological resources, including riparian habitats, other sensitive natural communities and wetlands, would be similar to existing conditions following adoption and implementation of the proposed Basin Plan Amendments. Thus, there would be a less than significant impact to riparian habitat, other sensitive natural communities, wetlands, and the movement of native and migratory fish and wildlife. e,f) There would be no change to the existing biological resources-related beneficial use designations (e.g., WARM, COLD, WILD, BIOL, RARE, MIGR, SPWN) of Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins and water quality objectives for protection of these uses would continue to apply to protect these uses. Therefore, there would be no impact associated with local policies, ordinances, or conservation plans protecting biological resources.				
V. CULTURAL RESOURCES. Would the Project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
Discussion: Addressed below are the impacts to cultural resources from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area. a,b,c,d) The proposed Basin Plan Amendments do not permit additional capacity to dischargers that would induce population growth or would result in construction activities, or would contribute to additional flows in receiving waters. Therefore, there would be no impact to historical, archaeological and paleontological resources, geological features, and human remains.				
VI. GEOLOGY AND SOILS. Would the Project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to geology and soils from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a) The proposed Basin Plan Amendments do not directly result in physical changes to the landscape or placement of structures on soil and thus would have no impact on the exposure of people or structures to adverse effects involving fault lines, seismic-related ground shaking and failure, and landslides.

b) As described in “a” of Biological Resources, there may be some change in agricultural operations relative to reuse of water. However, the Basin Plan Amendments would not directly result in the modification of agricultural operations relative to crops grown or soil management practices. Thus, there would be a no impact to soil erosion and loss of topsoil.

c,d) The proposed Basin Plan Amendments would not directly result in physical changes to the landscape or placement of structures on soil and thus would have no impact on the potential for landslides, lateral spreading, subsidence, liquefaction, or collapse to occur, or be located on expansive soil.

e) The proposed Basin Plan Amendments would not directly result in the placement of structures requiring disposal of wastewater to land and, thus, would have no impact on soils incapable of supporting septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
VII. GREENHOUSE GAS EMISSIONS. Would the Project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒
b) Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to greenhouse gas emissions from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a) The proposed Basin Plan Amendments do not permit additional capacity to dischargers that would induce population growth or would result in construction activities that could generate greenhouse gas emissions. Therefore, the proposed Basin Plan Amendments would have no impact on consistency with an air quality plan, attainment of air quality standards, or pollutant exposure to sensitive receptors.

b) The removal of MUN as a designated beneficial use, or the refinement to LMUN, where applicable, of Ag dominated surface water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins is an action related to defining applicable water quality standards and, thus, would not conflict with any applicable plan, policy, or regulation related to greenhouse gas emissions. Therefore, the proposed Basin Plan Amendments would have no impact on greenhouse gas emissions.

VIII. HAZARDS AND HAZARDOUS MATERIALS. Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?	☐	☐	☐	☒
f) For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to hazards and hazardous materials from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a) The proposed Basin Plan Amendments do not permit additional capacity to dischargers that would induce population growth or would result in construction activities. Therefore,

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
the proposed Basin Plan Amendments would have no impact on the transport, use, or disposal of hazardous materials. b) As described above for "a," the proposed Basin Plan Amendments would not result in the increased use of hazardous materials. Discharges to the Ag dominated surface water bodies and closed controlled recirculating systems with the MUN beneficial use removed or refined with LMUN would still be regulated to achieve water quality objectives/criteria for the remaining beneficial uses of the water bodies, as well as downstream water bodies, including MUN where applicable. Therefore, the proposed Basin Plan Amendments would have no impact on the release of hazardous materials into the environment. c) The proposed Basin Plan Amendments are modification of water quality standards and does not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on the exposure of a school to hazardous materials or emissions. d) The proposed Basin Plan Amendments are modification of water quality standards and does not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on the exposure of the public or the environment to a significant hazard associated with hazardous materials located on a site. e,f) The proposed Basin Plan Amendments are modification of water quality standards and does not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on the exposure of people residing or working within two miles of a public airport or private airstrip to a safety hazard. g) The proposed Basin Plan Amendments are modification of water quality standards and does not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on an adopted emergency response plan or emergency evacuation plan. h) The proposed Basin Plan Amendments are modification of water quality standards and does not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on the exposure of people or structures to a significant risk or loss, injury or death involving wildland fires.				
IX. HYDROLOGY AND WATER QUALITY. Would the Project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
would not support existing land uses or planned uses for which permits have been granted)?				
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that results in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*

Discussion:

Addressed below are the impacts to hydrology and water quality from adoption and approval of the Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations, and de-designate or refine the MUN use where appropriate, in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate the MUN use from specified water bodies within the SLCC service area.

a) With the Basin Plan Amendments, discharges to Ag dominated surface water bodies and closed controlled recirculating systems would continue to be regulated to achieve water quality objectives/criteria for designated beneficial uses of the water bodies, and to not cause exceedance of applicable objectives/criteria in downstream waters, including criteria/objectives for protection of MUN where that use remains a designated use. Therefore, the proposed Basin Plan Amendments would have no impact on compliance with water quality standards or waste discharge requirements.

b) The proposed Basin Plan Amendments do not involve the construction of housing or other project that would rely on extraction of groundwater supplies, or would expand impervious area or otherwise cause interference of groundwater recharge. As described below for "f," an indirect result of the proposed amendment may be the ability for agricultural users to increase recycling and reuse of water within the Ag dominated surface water bodies and closed controlled recirculating systems. Improved recycling of water has the potential to reduce demand on groundwater supplies. Therefore, the Basin Plan Amendments would have no impact on groundwater supplies.

c,d) The Basin Plan Amendments would not involve construction or induce construction that would cause alterations to a site, stream or river. Therefore, the Basin Plan Amendments would have no impact on the drainage pattern or a site or area.

e) The proposed Basin Plan Amendments do not involve construction of housing or structures. Therefore, the proposed Basin Plan Amendments would not result in the generation of additional storm water runoff and would have no impact on the capacity of existing or planned storm system.

f) Removal of MUN as a designated use of Ag dominated surface water bodies and closed controlled recirculating systems, or refinement to LMUN where applicable, would result in modifications to waste discharge requirements (WDRs) for POTW, agricultural, and storm water discharges to these water bodies, because these water bodies would no longer have to comply with drinking water MCLs or CTR criteria for the protection of human health for the consumption of drinking water and organisms (where applicable). Discharges to the Ag dominated surface water bodies and closed controlled recirculating systems would continue to be regulated to achieve water quality objectives/criteria for the remaining designated beneficial uses of the water bodies, and to not cause exceedance of applicable objectives/criteria in downstream waters, including criteria/objectives for protection of MUN where that use remains a designated use. The resulting change in WDRs for POTWs is not expected to result in significant degradation to water quality. POTWs have fixed processes that provide a certain level of treatment and effluent quality based on those processes. As such, treatment at POTWs would not be reduced following

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
MUN de-designation. Rather, POTWs that may have been investigating the need to construct additional treatment technologies to achieve MUN-based criteria/objectives would no longer pursue those investigations/upgrade projects. Storm water discharges also would be similar to existing conditions, as they are a function of BMPs, which provide overall control and treatment of storm water for a number of constituents of concern to all beneficial uses, including MUN, recreation, and biological uses (e.g., sediment, metals, bacteria), which would continue to be implemented according to approved storm water management plans. Thus, water quality degradation, as affected by POTW and storm water discharges, is not expected to occur with the proposed amendment. However, as further explained below, there could potentially be some water quality degradation associated with changes in agricultural discharges that would no longer have to meet MUN-based water quality objectives/criteria. As discussed above in “a” under Biological Resources, removal of the MUN beneficial use designation from the evaluated SLCC service area water bodies would not result in changes to flows of those water bodies relative to existing conditions because current agricultural operations are not anticipated to change with adoption of the Basin Plan Amendments. Further, the discharges would still be regulated to achieve water quality objectives for protection of aquatic life. However, SLCC water bodies would no longer have to meet MUN-based limits for fecal coliform, EC, nitrate, nitrite, and TDS, though discharges would have to address protection of MUN in downstream waters where MUN would remain a designated beneficial use. As discussed above in “a” of Biological Resources, through implementation of the Westside Management Plan and focused management, the focus of water quality management efforts has been addressing aquatic toxicity, pesticides, sediment toxicity, and sediment discharge. To address salinity, a MUN constituent of concern, the Westside Management Plan strategy is to support and participate in related Central Valley Water Board programs, including the TMDL for salinity and boron for the San Joaquin River and the CV-SALTS initiative. These activities and related SLCC operations would remain unchanged with de-designation of MUN from the SLCC water bodies. Consequently, water quality and flows in SLCC service area water bodies would be unaffected by the proposed amendment and thus there would be <u>no impact</u> with regard to water quality degradation in SLCC water bodies. Additional Ag dominated water bodies and closed controlled recirculating systems that may have the MUN use de-designated through application of the MUN evaluation process portion of the Basin Plan Amendments similarly would no longer be required to achieve objectives/criteria for protection of MUN in these water bodies. However, discharges to water bodies with MUN de-designated would still not be permitted to cause exceedance of water quality objectives/criteria in downstream waters where MUN would remain a designated beneficial use and objectives/criteria for other designated uses (e.g., biological resources-related uses). In establishing WDRs for these discharges, the Central Valley Water Board would continue to consider the degree to which any water quality degradation should be allowed relative to effects on these downstream beneficial uses, and water body specific uses, by making findings regarding the consistency of the issued WDRs with the state’s Antidegradation Policy (SWRCB Resolution No. 68-16).				

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
In summary, while there could be some water quality degradation in Ag dominated surface water bodies and closed controlled recirculating systems where the MUN use is de-designated or refined to LMUN, particularly associated with salinity-related parameters, WDRs regulating these discharges would contain requirements that would not permit degradation that would allow exceedance of water quality objectives/criteria applicable to the water body itself or any constituents, including MUN-related constituents, in downstream waters where MUN remains a designated beneficial use. Therefore, the proposed Basin Plan Amendments would have a <u>less than significant impact</u> with regard to water quality degradation. g,h) The proposed Basin Plan Amendments do not involve construction of housing or structures. Therefore, the proposed Basin Plan Amendments would have <u>no impact</u> on the placement of housing or structures in a 100-year flood hazard area. i) The proposed Basin Plan Amendments do not involve the modification of the construction of levees or dams or involve construction of facilities within a floodplain. Therefore, the proposed Basin Plan Amendments would have <u>no impact</u> on the exposure of people or structures to a significant risk of loss, injury, or death involving flooding. j) The proposed Basin Plan Amendments do not involve construction of housing or structures. Therefore, the proposed Basin Plan Amendments would have <u>no impact</u> on the inundation of areas by seiche, tsunami, or mudflow.				
X. LAND USE AND PLANNING. Would the Project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable Habitat Conservation Plan or Natural Community Conservation Plan?	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
Discussion: Addressed below are the impacts to land use and planning from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area. a,b,c) The proposed Basin Plan Amendments do not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on dividing an established community; an applicable land use plan, policy or regulation; or conservation plan.				
XI. MINERAL RESOURCES. Would the Project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒
Discussion: Addressed below are the impacts to mineral resources from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area. a,b) The proposed Basin Plan Amendments do not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on the availability of mineral resources.				
XII. NOISE. Would the Project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒
b) Exposure of persons to or generation	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
of excessive groundborne vibration or groundborne noise levels?				
c) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	☐	☒
d) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	☐	☐	☐	☒
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒
f) For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?	☐	☐	☐	☒
Discussion: Addressed below are the impacts to noise from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area. a–f) The proposed Basin Plan Amendments do not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on the exposure of persons to noise levels in excess of standards; excessive groundborne vibration or noise levels; a permanent or temporary increase in ambient noise levels; excessive noise levels.				
XIII. POPULATION AND HOUSING. Would the Project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
or other infrastructure)?				
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to population and housing from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a) The proposed Basin Plan Amendments do not involve the construction of new housing or businesses, and does not permit additional capacity to POTW dischargers. Therefore, the proposed Basin Plan Amendments would have no impact on inducement of population growth in an area.

b,c) The proposed Basin Plan Amendments do not involve construction of a project. Therefore, the proposed Basin Plan Amendments would have no impact on the displacement of housing or people.

XIV. PUBLIC SERVICES.				
a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to public services from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a) The proposed Basin Plan Amendments do not involve the construction of housing or need to construct or modify any governmental facilities in order to provide continued, suitable public services. Thus, the proposed Basin Plan Amendments would have no impact on provision of or need for governmental facilities to maintain acceptable service ratios, response times, or other performance objective for any public services.

XV. RECREATION.				
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to recreation from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a,b) The proposed Basin Plan Amendments do not permit POTWs additional discharge capacity. Thus, the proposed Basin Plan Amendments does not, in any way, affect population or housing, and thus would not increase the use of recreational facilities or require construction or expansion of recreational facilities. Thus, the proposed Basin Plan Amendments would have no impact on recreation.

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
XVI. TRANSPORTATION / TRAFFIC. Would the Project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☐	☒
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance of safety of such facilities?	☐	☐	☐	☒
Discussion: Addressed below are the impacts to transportation/traffic from adoption and approval of the Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use				

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area. a-f) The proposed Basin Plan Amendments do not permit POTWs additional discharge capacity that would induce growth nor would the amendment result in changes to agricultural operations, as related to transportation/traffic generation. Adoption of the proposed Basin Plan Amendments would not: a) conflict with an applicable transportation plan, ordinance or policy; b) conflict with a congestion management plan; c) affect air traffic patterns; d) modify roadways, resulting in increased hazards due to design features; e) affect emergency access to any area; or f) conflict with adopted policies, Thus, the proposed Basin Plan Amendments would have <u>no impact</u> on transportation/traffic.				
XVII. UTILITIES AND SERVICE SYSTEMS. Would the Project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider, which serves or may serve the Project, that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion:

Addressed below are the impacts to utilities and service systems from adoption and approval of the proposed Basin Plan Amendments that would: 1) define a regulatory process to evaluate MUN beneficial use designations in Ag dominated water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins; and 2) de-designate MUN from specified water bodies within the SLCC service area.

a) With the proposed Basin Plan Amendments, POTW, agricultural, and storm water discharges would continue to be regulated to achieve water quality standards for the remaining designated beneficial uses of the affected water bodies, and would not be permitted to cause exceedance of water quality standards in downstream water bodies. Thus, the proposed Basin Plan Amendments would not cause exceedance of waste discharge requirements specified by the Central Valley Water Board. Therefore, the proposed Basin Plan Amendments would have no impact on exceeding wastewater treatment requirements.

b, e) The proposed Basin Plan Amendments do not in themselves permit additional POTW discharge capacity or additional wastewater treatment facilities. Although treatment processes may need to be adjusted by water purveyors should new or changes in existing discharges degrade water quality compliant with state antidegradation requirements, no new construction is required. Therefore, the proposed Basin Plan Amendments would have a less than significant impact on the need for water or wastewater facilities.

c,) As a regulatory action, the proposed Basin Plan Amendments themselves result in no new storm water drainage needs, as it does not involve construction of new housing. Therefore, the proposed Basin Plan Amendments would have no impact on the need for storm water facilities.

d,f,g) As a regulatory action, the proposed Basin Plan Amendments do not involve construction of new housing. Therefore, the proposed Basin Plan Amendments would have no impact on the need for water supplies or solid waste disposal needs.

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE.				
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
b) Does the Project have impacts that are individually limited but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion:

a) As discussed above for "a" in Biological Resources, with the proposed Basin Plan Amendments, there would be no change to the biological resources-related beneficial use designations (e.g., WARM, COLD, WILD, BIOL, RARE, MIGR, SPWN) of the affected water bodies and water quality objectives for protection of these uses would continue to apply. Further, aquatic habitat physical and chemical conditions of importance to biological resources would be similar to existing conditions. Thus, the proposed Basin Plan Amendments would not reduce the quality or quantity of habitat for any fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

b) The proposed Basin Plan Amendments would cause less than significant cumulatively

ISSUES	*POTENTIALLY SIGNIFICANT IMPACT*	*LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED*	*LESS THAN SIGNIFICANT IMPACT*	*NO IMPACT*
considerable impacts. Future discharges to the water bodies no longer designated with the MUN beneficial use as a result of the proposed Basin Plan Amendments would be required to comply with State water quality objectives and federal water quality criteria for protection of all applicable designated beneficial uses. Dischargers requiring an increased discharge capacity in the future to accommodate planned and approved growth in the region will need to prepare an antidegradation analysis for the Central Valley Water Board, and receive approval from the Central Valley Water Board, through an NPDES permit renewal process, for any future expanded discharge capacity. Through the Central Valley Water Board's Irrigated Lands Regulatory Program, agricultural discharges would continue to be regulated to improve water quality and meet the water quality objectives/criteria for protection of beneficial uses. Similarly, through the Central Valley Water Board's Storm Water Program, storm water discharges would continue to be regulated to address constituents of concern through development of storm water management plans and implementation of BMPs. Discharges that result in degradation to baseline water quality would need to comply with the state anti-degradation policy and found to be consistent with the maximum benefit to the people of the state. Should such degradation be approved, downstream water purveyors may be required to adjust their treatment process. Potential increased costs for such an adjustment would be evaluated as part of the antidegradation analysis. Thus, the proposed Basin Plan Amendments themselves would cause less than significant cumulatively considerable impacts in the receiving waters or downstream waters of the Sacramento River, San Joaquin River and Tulare Lake basins. c) No longer having MUN as a designated beneficial use of applicable Ag dominated surface water bodies and closed controlled recirculating systems in the Sacramento River, San Joaquin River and Tulare Lake basins would not cause substantial adverse effects on humans directly or indirectly. Prior to modifying the MUN beneficial use designations, investigations would be conducted to confirm the water body type and whether the MUN use is an existing or attainable use in each water body under consideration. Criteria for protection of other beneficial uses of these water bodies, as well as downstream water bodies where MUN is and would remain a designated use, would continue to apply, including criteria for protection of humans from consumption of water and organisms and organisms only. Additional discussion of the proposed Basin Plan Amendments relative to the cumulative condition and protection of downstream beneficial uses, including downstream MUN uses not affected by the proposed Basin Plan Amendments, is provided in Section 7.1.4 of the Staff Report.				

Preliminary Staff Determination

On the basis of this evaluation and staff report, which collectively provide the required information:

- ☒ The proposed project COULD NOT have a significant effect on the environment, and, therefore, no alternatives or mitigation measures are proposed.

- ☐ The proposed project MAY have a significant or potentially significant effect on the environment, and therefore alternatives and mitigation measures have been evaluated.

Note: Authority cited: Section 21082, Public Resources Code. Reference: Sections 21080(c), 21080.1, 21080.3, 21080.5, 21082.1, 21083, 21083.05, 21083.3, 21093, 21094, 21151, Public Resources Code; *Sundstrom v. County of Mendocino*, 202 Cal.App.3d 296 (1988); and *Leonoff v. Monterey Board of Supervisors*, 222 Cal.App.3d 1337 (1990).