



STANISLAUS COUNTY DEPARTMENT OF PUBLIC WORKS

Stanislaus Multi-Agency Regional Storm Water Resource Plan

Section 3. Water Quality Compliance

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Section 3. Water Quality Compliance

This section addresses the water quality conditions in the County, beginning with the sources and activities associated with pollution of stormwater and/or dry weather runoff. Following identification of these sources, the section discusses applicable regulations and consistency of the SWRP with these regulations. Finally, a detailed description of the SWRP's support of TMDLs and NPDES permits is provided. Due to the similarity of water quality issues across the planning area, water quality will be discussed at the County level rather than the watershed level.

3.1 Pollutant-Generating Activities

In Stanislaus County, pollutants are primarily generated by agricultural, resource extraction, and municipal/industrial activities. These major pollutant-generating activities are discussed in the following subsections.

3.1.1 Agriculture

Agriculture is the main component of Stanislaus County's economy, with a value of approximate \$4 billion in 2015 (Stanislaus County Agricultural Commissioner's Office, 2015). Due to the extent of agricultural lands, stormwater and dry weather runoff from these areas is a significant contributor to pollutant loading of water bodies in the County. Agricultural practices involve a high volume of water use and diffused discharges. Agricultural runoff contributes salts, nutrients, pesticides, trace elements, and sediments to the watershed (CVRWQCB, 2016). Both legacy pesticides (DDE, DDT, dieldrin) and currently-used pesticides (pyrethroids; organophosphate pesticides such as chlorpyrifos, diazinon, and dimethoate) impair water bodies in Stanislaus County. Fertilizer use can also result in high nitrate concentrations, which lead to low dissolved oxygen levels. Pesticide toxicity and low dissolved oxygen levels both contribute to fish and aquatic wildlife deaths. In addition, sediment discharge from agricultural areas can impair fisheries. Sediment also serves as a transport mechanism for compounds that are bound to soil particles, such as mercury and other heavy metals. Agricultural support activities associated with applying pesticides, disposing of pesticide rinse waters, and formulation of pesticides and fertilizers also contribute to the overall agricultural pollutant load.

Animal confinement operations (such as dairy and egg production) are another important component of Stanislaus County's agricultural economy. Confined animal facilities such as these contribute significant nutrient and bacterial loads to the surrounding water bodies due to animal waste. Ammonia, nitrate, TDS, and coliform bacteria can all be attributed to animal confinement operations.

3.1.2 Municipalities and Industries

Municipal and industrial activities introduce a variety of pollutants into stormwater. Urban stormwater runoff picks up a variety of pollutants from impermeable surfaces, including petroleum products from cars and roads, bacteria from pet waste, solvents and wood preservatives, heavy metals, and sewage from areas that experience sewer backups during storms (CVRWQCB, 2016). The 2015 Modesto Stormwater Program Annual Report also notes that a large transient population on the Tuolumne River and Dry Creek may be contributing to fecal coliform and E. coli loading in those locations. Due to the climate in Stanislaus County, such contaminants tend to accumulate for months at a time during the dry summers; this results in a high pollutant load during the first storm. Trash is also a common impairment in urban areas.

3.1.3 Mineral Extraction

Mineral extraction in the Region has increased in recent years due to technological advances which use cyanide and other reagents to cost-effectively extract gold from large volumes of ore. When improperly managed, mining materials such as ore, reagents, and tailings have the potential to leach toxic materials,

such as mercury and arsenic, into surface water bodies and groundwater (CVRWQCB, 2016). Contaminated runoff also occurs at old mining sites.

3.2 Applicable Permits and Regulations

3.2.1 Discharge Permits

The National Pollutant Discharge Elimination System (NPDES) permit program regulates point source pollutant discharges to waters of the United States. The program includes several types of permits that regulate stormwater, including permits for Municipal Separate Storm Sewer Systems (MS4), construction activities, and industrial activities. MS4 permitting includes two types of MS4s: Phase I and Phase II. Phase I MS4s cover medium and large cities, or certain counties with populations exceeding 100,000 persons. Phase II MS4s, or small MS4s, apply to municipalities that serve populations of fewer than 100,000 persons.

In Stanislaus County, unincorporated urban areas, towns and cities (except Modesto) are regulated under the statewide general Phase II MS4 Permit (State Water Resources Control Board (SWRCB) Water Quality Order No. 2013-0001-DWQ NPDES General Permit No. CAS000004), issued in 2013. Stanislaus County developed a Storm Water Management Program (SWMP) to meet the terms of the MS4 General Permit. The SWMP was first developed in 2004, but is intended to be a living document that evolves based on new management practices and knowledge.

The Stanislaus County SWMP contains six specific control measures which were established by the SWRCB for Phase II stormwater discharges. Each control measure contains best management practices (BMPs) for stormwater management. An overview of each control measure is provided below.

- **Public Education and Outreach:** This measure is intended to raise public awareness of the impact that citizens' actions have on stormwater quality in the County. Through education, this measure aims to develop public support for the funding necessary to implement stormwater management projects. This measure includes general public outreach and focused outreach to specific community groups, such as light industrial businesses.
- **Public Participation and Involvement:** The goal of this measure is to educate the public about sources of runoff pollution and to encourage participation in community projects to prevent pollution (for example, storm drain marking and community cleanups). The Stanislaus County Storm Water Management and Discharge Control Ordinance was also developed in accordance with this measure.
- **Illicit Discharge Detection and Elimination:** This measure aims to control illicit discharges, such as the dumping of pollutants on rural roadsides and streambanks. Control methods include conducting pilot surveillance, coordinating with landowners to achieve voluntary compliance, and legal action if necessary. Minimizing these discharges helps prevent large inputs of pollutants into County waterways.
- **Construction Site Stormwater Runoff Control:** The purpose of this measure is to minimize polluted runoff from construction activities, including sediment. This measure is achieved through the use of Storm Water Pollution Prevention Plans (SWPPPs). In addition, this measure includes plans for educating developers and construction forms about the required controls.
- **Post-Construction Stormwater Management in New Development and Redevelopment:** This measure is intended to reduce pollutant discharge from newly developed areas. As with the previous measure, education and outreach to developers and building staff is a component of this measure. Enforcement at problem sites occurs under the Stanislaus County Storm Water Management and Discharge Control Ordinance.

- **Pollution Prevention/Good Housekeeping for Municipal Operations Program:** Finally, the SWMP contains provisions for reducing the level of stormwater pollutants generated by operation and maintenance of municipal facilities. Implementation practices for this measure include inspection of municipal activities, development of training programs, and updates to standard operating procedures as necessary.

Stormwater discharge in the City of Modesto is regulated under a Region-wide MS4 Permit (CVRWQCB Order No. R5-2016-0040). The CVRWQCB adopted this Region-wide MS4 Permit in June 2016. Phase I MS4 Permittees must enroll in the Region-wide permit as their current individual permits expire. In October 2016, the CVRWQCB issued a Notice of Applicability (NOA) for Modesto to obtain coverage under the Region-wide Permit; this action also rescinded Modesto's previous Waste Discharge Requirement (Order No. R5-2015-025). Phase II MS4 Permittees may also choose to enroll in the Region-wide Permit. As an example of the programs being implemented under these permits, the City of Modesto's stormwater BMP program includes a major program to remove sediments from detention basins; outreach to minimize waste disposal into storm drains from a variety of sources; and a prevention program to minimize the use and disposal of pesticides that appear in runoff (diazinon and chlorpyrifos). In addition, Modesto developed a Stormwater Management Plan, last updated in 2009, with the goal of identifying and controlling pollutants in urban runoff, protecting groundwater and surface water resources. This Plan also includes a Monitoring Program Element, which includes monitoring for a range of constituents, including nitrogen, TDS, lead, mercury, and pesticides.

Stormwater regulation for construction activities occurs under a Construction General Permit (CGP) administered by the SWRCB (Order No. 2009-0009-DWQ). Dischargers whose projects disturb one or more acres of soil are required to obtain coverage under the CGP. Compliance with the CGP requires the development of a SWPPP which includes BMPs for reducing pollution risk during construction.

The NPDES program regulates industrial stormwater discharges through the Industrial General Permit (IGP) administered by the SWRCB (Order 2014-0057-DWQ). The IGP covers industrial stormwater discharges and authorized non-stormwater discharges by industrial facilities throughout the state; permittees then comply with the IGP at their individual facilities. Facilities covered by this permit include manufacturing facilities, mining facilities, feedlots, and wastewater treatment facilities.

3.2.2 Total Maximum Daily Loads

TMDLs are established to control pollutant loading in water bodies where point source controls have not been sufficient to bring the water body into compliance with water quality standards. A TMDL determines the pollutant load that a water body can accept while still meeting water quality standards, and TMDLs must account for all sources of the pollutants that caused the water body to be listed. TMDLs serve as a guide for implementing water quality control measures; in Stanislaus County TMDLs are established by the CVRWQCB. TMDLs relevant to Stanislaus County are listed in Table 1 and discussed in the following sections.

Table 1. TMDLs Relevant to Stanislaus County

TMDL Short Name	Resolution Number	Effective Date	Pollutants	Water Bodies
Sacramento-San Joaquin Delta Mercury TMDL	R5-2010-0043	2011	Mercury, methylmercury	Sacramento-San Joaquin Delta
San Joaquin River Dissolved Oxygen TMDL	R5-2005-0005	2006	Oxygen demanding substances	San Joaquin River Watershed downstream of Friant Dam, downstream of major Eastside reservoirs
Lower San Joaquin River Salt and Boron	R5-2004-0108	2006	Salt, boron	Lower San Joaquin River at Vernalis
Lower San Joaquin River Diazinon and Chlorpyrifos TMDL	R5-2005-0138	2006	Diazinon, chlorpyrifos	San Joaquin River from Mendota Dam to Vernalis
Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL	R5-2006-0061	2007	Diazinon, chlorpyrifos	Sacramento-San Joaquin Delta
Central Valley Pesticide TMDL	R5-2014-0041	2017	Diazinon, chlorpyrifos	San Joaquin River Watershed between Mendota Dam and Vernalis, downstream of major Eastside reservoirs

Sacramento-San Joaquin Delta Mercury TMDL

Resolution No. R5-2010-0043, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin Delta Estuary* (Sacramento-San Joaquin Delta Mercury TMDL), came into effect in 2011. This TMDL addresses the elevated levels of mercury in fish in the Sacramento-San Joaquin Delta Estuary (the Delta). The purpose of this TMDL is to lower fish mercury levels in the Delta so that beneficial uses of fishing and wildlife habitat are attained.

This TMDL applies to all water bodies within the legal boundaries of the Delta, which abuts the border of Stanislaus County, but does not extend into the County. Therefore, the County is not directly subject to the Sacramento-San Joaquin Delta Methylmercury TMDL. However, due to the presence of mercury pollutants in Stanislaus County and the County’s location immediately upstream of the Delta, this TMDL is relevant to stormwater planning in the County.

The Sacramento-San Joaquin Delta Methylmercury TMDL is proceeding in two phases. In Phase 1 (2011-2020), activities include studies to develop and evaluate methylmercury control measures as well as mercury pollution prevention by municipal wastewater and stormwater permittees. Following Phase 1, the SWRCB will review the TMDL and adjust based on methylmercury control studies. During Phase 2 (2020-2030), dischargers must meet waste load allocations (WLAs) and load allocations (LAs).

Lower San Joaquin River Salt and Boron

Resolution No. R5-2004-0108, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Salt and Boron Discharges into the Lower San Joaquin River* (LSJR Salt and Boron), was approved by the U.S. EPA in 2006 to address salt and boron in the Lower San Joaquin River (LSJR). This TMDL focuses on achieving existing salinity and boron water quality objectives for the San Joaquin River at Vernalis.

The WLAs established by the LSJR Salt and Boron TMDL are concentration-based, and set equal to existing salinity water quality objectives for the LSJR near Vernalis. Nonpoint source dischargers may comply by ceasing discharge to surface waters, meeting a conductivity threshold, operating under WDRs that include effluent limits for salt, or operating under a waiver for salt and boron discharges to the LSJR. The CVRWQCB, United States Bureau of Reclamation (USBR), and local water districts are responsible for implementing salinity controls.

Lower San Joaquin River Diazinon and Chlorpyrifos TMDL

Pesticide runoff into the LSJR was first addressed through Resolution No. R5-2005-0138, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Lower San Joaquin River* (LSJR Diazinon and Chlorpyrifos TMDL), effective 2006. This TMDL established new numeric water quality objectives and TMDLs for diazinon and chlorpyrifos.

Maximum concentrations for both pesticides were applied to the San Joaquin River from the Mendota Dam to Vernalis, which includes the portion of the River within Stanislaus County. The CVRWQCB is responsible for developing management practices to reduce pesticide runoff under this TMDL. The LAs for this TMDL are apportioned between five subareas along the LSJR. The discharge from each of these subareas must be below the concentration-based LA, which is equal to the loading capacity of the SJR. The Irrigated Lands Regulatory Program (ILRP) regulates WDRs for discharges from irrigated lands throughout the Central Valley. The ILRP is working with dischargers to address these exceedances.

Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL

Building on the Lower San Joaquin River Diazinon and Chlorpyrifos TMDL, the CVRWQCB implemented Resolution No. R5-2006-0061, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Runoff into the Sacramento-San Joaquin Delta* (Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL), which took effect in 2007.

This TMDL extended the water quality objectives set by the LSJR Diazinon and Chlorpyrifos TMDL to the Delta Waterways. The CVRWQCB is responsible for development and implementation of management practices to reduce diazinon and chlorpyrifos runoff. The ILRP is working with dischargers to address these exceedances, as well as potential impacts of replacement products.

Central Valley Pesticide TMDL

Effective August 2017, the CVRWQCB and United States Environmental Protection Agency (USEPA) approved Resolution No. R5-2014-0041, *Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Diazinon and Chlorpyrifos Discharges* (Central Valley Pesticide TMDL). The Central Valley Pesticide TMDL applies the same maximum chlorpyrifos and diazinon concentrations established by the LSJR Diazinon and Chlorpyrifos TMDL to additional water bodies in the Central Valley.

Many water bodies in Stanislaus County are identified, including Del Puerto Creek, Dry Creek, Orestimba Creek, Stanislaus River, Tuolumne River, and Westley Wasteway. The TMDL specifies that the diazinon

and chlorpyrifos discharge program shall ensure compliance with water quality standards through management practices, and that measures should be implemented to ensure that reductions in discharges of diazinon and chlorpyrifos do not result in increased discharges of other pesticides.

3.2.3 Local Regulations

Prior to the preparation of the SWRP, Stanislaus County and the other entities collaborating on the SWRP, reviewed their local codes and ordinances related to stormwater management to determine if there are any potential conflicts between existing laws, ordinances, regulations and standards and the types of projects proposed to be implemented, which will need to be addressed during preparation of the SWRP. At this time, no conflicts with existing laws, ordinances or regulations have been identified. Project definition and preparation of the SWRP will be coordinated in consultation with local public work departments and the Mosquito Abatement Districts to assure that required and recommended design standards are identified and addressed.

In addition, projects included in the SWRP that undergo implementation will comply with the Stanislaus County Storm Water Management and Discharge Control Ordinance (Stanislaus County Code, Chapter 14.14). This Ordinance, adopted in 2008, governs discharges in Stanislaus County that are not regulated under a NPDES permit. The Ordinance allows for certain types of discharges, provided that they do not violate any NPDES permit, including potable water line flushing, incidental runoff from landscaping, flows from fire suppression, and diverted streamflows. The Ordinance also determines inspection frequency at construction sites and determines procedures that must be followed in the event of pollution or non-stormwater releases.

3.2.4 Other Regulations

The SWRP will be implemented in accordance with the additional regulations listed below.

- California Environmental Quality Act (CEQA) (Public Resources Code § 2100 et seq.).
- Clean Water Act and Safe Drinking Water Act
- Water rights permits and licenses
- State Water Board plans and policies
- State and Regional Water Board water quality control plans and policies, including TMDLs adopted by the CVRWQCB (Water Code § 10562, subd. (b)(5))
- Any other federal and /or state laws, regulations, and permits.

The SWRP was written in accordance with the existing permits; projects that could pose a waste discharge risk were not included in the SWRP. The SWRP supports these regulations by providing a process through which beneficial projects may be funded and implemented. The SWRP project review process reflects the value of multiple benefits, including water quality, water supply, flood management, environmental benefits, and community benefits. Any SWRP project implemented will provide at least one of these benefits, thus furthering the goals of the listed regulations. SWRP projects will abide by all applicable regulations, including water rights determinations. Projects submitted to the SWRP, when implemented, will comply with all required environmental documentation under CEQA. Also of note is the fact that no Areas of Special Biological Significance are present in Stanislaus County, and therefore ASBS compliance is not required.

3.3 NPDES and TMDL Compliance and Support

The SWRP assists in compliance with the NPDES permits described in Section 4.2.1 by supporting the elements of Public Education & Outreach, Public Participation, Water Quality and Habitat Enhancement in Flood Control Facilities, Post-Construction Low-Impact Development (LID) Stormwater Management, Water Quality Monitoring and TMDL Compliance.

The SWRP provides watershed-based planning to address challenges and opportunities for managing stormwater and dry weather runoff. During the creation of the SWRP, region-specific issues were identified via examination of existing data, planning documents, TMDLs, and NPDES permits. Based on this research, the SWRP identified pollutants of concern; the SWRP also includes discussion of methods that are currently being used to reduce pollutant loading and additional strategies that may be implemented in the future. Because the SWRP is based on documents specific to the Stanislaus County area, the SWRP's approach to pollution reduction is tailored to the watersheds within the County. The SWRP supports TMDL and NPDES compliance by drawing on these documents as a key source of data, and by ensuring that the plan contains policies and procedures that promote compliance, including the project review process.

As part of SWRP preparation, criteria were developed for assessing the benefits of each project submitted to the SWRP. Stormwater and dry weather runoff projects submitted to the SWRP are evaluated based on their benefits during the project review process. Benefit criteria and benefit metrics were developed based on an initial characterization of the planning area; criteria then were further refined using region-specific studies and other documents, including TMDLs and NPDES permits. The SWRP Technical Advisory Committee (TAC) provided input, and the TAC approved the final benefit criteria and metrics. This approach resulted in a prioritization methodology whose benefits and metrics are targeted to the watersheds in the SWRP planning area. Thus, the prioritization of projects will reflect the regional priorities established in the SWRP, and the projects implemented will provide multiple benefits to help achieve watershed and regional planning goals in support of NPDES and TMDL compliance.

The SWRP also supports TMDL implementation and NPDES compliance through the project review process. The project review process was structured so that project proponents would have the opportunity to earn higher scores for reducing pollutant discharge and supporting TMDLs. Project proponents are given the option to state whether their project supports one or more of the following TMDLs, and are awarded points for support of a TMDL:

- Sacramento-San Joaquin Delta Methylmercury TMDL
- Sacramento-San Joaquin Delta Diazinon and Chlorpyrifos TMDL
- Central Valley Pesticide TMDL

Additionally, project proponents are given the opportunity to state whether their project reduces discharges into a 303(d)-listed impaired water body, thereby prioritizing projects that support water quality improvements in these water bodies.

Finally, project proponents are able to input water quality benefit information. Proponents have the option to state that the project would increase filtration and/or treatment of runoff, and can note the specific pollutant(s) addressed. Proponents may also provide quantitative metrics for the reduction in pollutant loading that would result from the project. Pollutants include:

- Total suspended solids (TSS)
- Mercury
- Diazinon
- Chlorpyrifos
- Selenium
- Diuron
- Bacteria (fecal coliform/E. coli)
- Pyrethroids
- Total Nitrogen

These pollutants were identified using the 303(d) list and TMDLs applicable to Stanislaus County. The most frequently occurring pollutants were evaluated in the context of stormwater planning; those deemed most significant were designated as priority pollutants. County staff provided input throughout this process.

The nine priority pollutants and their sources are listed in Table 2. The SWRP promotes reduction in these pollutant loads through the project review process. Project proponents have the opportunity to achieve a higher score by addressing one or more of these nine priority pollutants and receive additional points for providing a quantitative metric of load reduction.

The established project review and prioritization processes allow projects that provide water quality benefits the opportunity to earn points based on these benefits. Thus, projects that improve water quality are more likely to be ranked highly and be implemented in the future. Although project ranking does not directly determine projects that are included in a future funding application, it nonetheless helps applicants identify projects that stand out and provide the most benefit in terms of water quality.

Table 2. Priority Pollutants and Source

Priority Pollutant	Pollutant Source	Data Source
Total Suspended Solids (TSS)	Agriculture	Basin Plan
Mercury	Resource extraction	303(d) list
Diazinon	Agriculture	303(d) list
Chlorpyrifos	Agriculture	303(d) list
Selenium	Agriculture	Basin Plan, San Joaquin River Selenium TMDL progress report
Diuron	Agriculture	Diuron in San Joaquin Valley Water Bodies TMDL progress report
Bacteria (Fecal coliform and E. coli)	Animal confinement operations, transient populations in urban areas	Basin Plan
Pyrethroids	Agriculture	Basin Plan
Total Nitrogen	Agriculture, animal confinement operations	Basin Plan

3.4 References

Central Valley Regional Water Quality Control Board (CVRWQCB). 2016. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region, Fourth Edition, for the Sacramento River Basin and San Joaquin River Basin*. Revised July 2016 (with Approved Amendments).

Modesto, City of. 2015. *Municipal Stormwater Program Annual Progress Report 2014-2015*. September 2015.

Stanislaus County Agricultural Commissioner’s Office. 2015. *2015 Annual Crop Report*.