

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER R7-2019-0030-04

GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF WASTE FROM IRRIGATED AGRICULTURAL LANDS
FOR DISCHARGERS THAT ARE MEMBERS OF A COALITION GROUP
IN PALO VERDE VALLEY AND PALO VERDE MESA
IMPERIAL AND RIVERSIDE COUNTIES

**The California Regional Water Quality Control Board, Colorado River Basin Region
(Colorado River Basin Water Board) finds that:**

1. Discharges from irrigated agricultural lands, including leaching or runoff of irrigation water and/or stormwater, may carry wastes, including but not limited to salts, nutrients, pathogens, sediments, and pesticides that can affect the quality of waters of the state.
2. Palo Verde Valley and Palo Verde Mesa, located in Imperial and Riverside Counties, have approximately 131,000 acres of irrigated agricultural lands. (**Figure 1.**) Additionally, Palo Verde Valley and Palo Verde Mesa contain approximately 142 miles of open agricultural drains.
3. Waters of the state are or may be affected by waste discharges from irrigated agricultural lands in the Palo Verde Valley and Mesa, including the following surface waters: Palo Verde Valley Drains, Palo Verde Mesa Drains, Palo Verde Lagoon, and Palo Verde Outfall Drain, all of which are tributary to the Colorado River. Additionally, groundwaters are or may be affected by these waste discharges, including the Palo Verde Valley Groundwater Basin and Palo Verde Mesa Groundwater Basin.
4. Water Code section 13260, subdivision (a)(1), requires that any person discharging wastes or proposing to discharge wastes (other than into a community sewer system), which could affect the quality of the waters of the state, must file a report of waste discharge (ROWD). The appropriate regional water board then prescribes requirements for the discharge or proposed discharge of wastes pursuant to Water Code section 13263. General waste discharge requirements may be prescribed for discharges produced by the same or similar operations, involving the same or similar types of wastes, and requiring the same or similar treatment standards. (Wat. Code, § 13263, subd. (i).)
5. This Order consists of general waste discharge requirements (General WDRs) regulating discharges of wastes from commercial irrigated agricultural lands in Palo Verde Valley and Palo Verde Mesa to prevent and address water quality impacts to waters of the state. These General WDRs regulate owners/operators of irrigated agricultural lands (Dischargers) with the potential to discharge waste that may impact the quality of the waters of the state. This Order also establishes substantive and procedural requirements for third-party representatives formed to comply with this

Order (Coalition Groups), and only regulates Dischargers who are also members of a Coalition Group.

6. Dischargers were previously regulated under Order R7-2012-0047, a Conditional Waiver of Waste Discharge Requirements for Agricultural Wastewater Discharges and Discharges of Waste from Drain Operations and Maintenance Activities Originating within the Palo Verde Valley and Palo Verde Mesa (2012 Conditional Waiver), which expired on September 20, 2017. This Order supersedes the 2012 Conditional Waiver, except for enforcement purposes.

Scope and Applicability

7. This Order regulates discharges, potential discharges, or proposed discharges of waste from “**Irrigated Agricultural Lands**,” which means lands irrigated to produce crops or pasture for commercial purposes, and includes, but is not limited to, lands planted for row, vineyard, pasture, field and tree crops, and nurseries. This includes land for which:
 - a. The landowner or operator holds a current Operator Identification Number/Permit Number for pesticide use reporting.
 - b. The landowner or operator files federal taxes using federal Department of Treasury Internal Revenue Service Form 1040, Schedule F “Profit or Loss from Farming.”
 - c. The crop is sold, including but not limited to (1) an industry cooperative, (2) harvest crew/company, or (3) a direct marketing location, such as Certified Farmers Markets.
8. This Order only regulates discharges from Irrigated Agricultural Lands in the Palo Verde Area, depicted in **Figure 1**, and defined to include the following two geographic areas:
 - a. Palo Verde Valley; and
 - b. Palo Verde Mesa.
9. Discharges regulated under this Order include surface water discharges (e.g., stormwater runoff, irrigation return water, tailwater) and subsurface discharges (e.g., tile water and groundwater seepage).
10. This Order only regulates landowners or operators¹ who are members of a Coalition Group. In order to be covered by this Order, the landowners or operators must be members of a Coalition Group. Dischargers not represented by a Coalition Group must

¹ Because this Order regulates both landowners and operators, but does not require enrollment of both parties, the provisions of this Order require that the Coalition Group member provide notification to the non-member responsible party of enrollment under this Order.

submit an ROWD to the Colorado River Basin Water Board and obtain individual WDRs from the Colorado River Basin Water Board.

11. This Order does not apply to the following:

- a. Discharges from Irrigated Agricultural Lands that are adequately regulated under other Colorado River Basin Water Board regulatory programs/permits, including, but not limited to, concentrated animal feeding operations (CAFOs), cannabis cultivation, parks, golf courses, and cemeteries.
- b. Discharges from agricultural activities not engaged in for profit, such as hobby growing or gardening.
- c. Discharges from Irrigated Agricultural Lands where all growing operations are conducted within buildings or in completely enclosed areas with no potential to discharge waste to waters of the state.
- d. Discharges regulated under National Pollutant Discharge Elimination System (NPDES) permits, pursuant to Clean Water Act section 402.
- e. Discharges of dredged or fill material regulated under Clean Water Act sections 401 and 404.

Definitions

12. "Irrigated Agricultural Lands" has the meaning set forth in Finding 7.
13. "Waste" means sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with the human habitation, or of human or animal origin, or from producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. (Wat. Code, § 13050, subd. (d).)
14. "Waters of the state" means any surface water or groundwater, including saline waters, within the boundaries of the state. (Wat. Code, § 13050, subd. (e).)
15. "Discharger(s)" means the owner(s) or operator(s) of Irrigated Agricultural Lands who discharge, have the potential to discharge, or propose to discharge waste, which could directly or indirectly affect the quality of waters of the state.
16. "Coalition Group" means any third-party entity (e.g., group of Dischargers, nonprofit organization, government agency, etc.) that is formed to comply with this Order. Coalition Groups can be formed based on a defined geographical area, watershed, or other appropriate grouping, such as growing similar types of crops.
17. "Compliance Program" means a nonpoint source pollution control program that specifies the management practices and monitoring and reporting requirements that will be implemented to ensure compliance with this Order.

18. Unless otherwise specified, all terms used in this Order shall have the same definition as those set forth in division 7 of the Water Code.

Program Background

19. On January 20, 2011, the Colorado River Basin Water Board adopted Resolution R7-2011-0014 to amend the Water Quality Control Plan for the Colorado River Basin Region (Basin Plan). The proposed amendment would have established a conditional discharge prohibition regulating agricultural discharges in the Palo Verde Valley and Palo Verde Mesa. Basin Plan amendments must be approved by the State Water Resources Control Board (State Water Board) before they become effective. On January 10, 2012, the State Water Board disapproved the proposed Basin Plan amendment, in part because there were no fees associated with the discharge prohibition and the amendment would have resulted in a disparate fee structure for discharges from irrigated agricultural lands across the state.
20. On September 20, 2012, the Colorado River Basin Water Board adopted the 2012 Conditional Waiver, which regulated discharges from irrigated agricultural lands in Palo Verde Valley and Palo Verde Mesa and included a requirement to pay state fees.
21. Palo Verde Irrigation District (the District) created and manages a Coalition Group, the Palo Verde Outfall Coalition (Outfall Coalition), to assist Dischargers who were members of the Coalition Group in complying with the 2012 Conditional Waiver. The District also obtained approval from the State Water Board to manage fee collection and payment on behalf of the Outfall Coalition members. All Dischargers that enrolled under the 2012 Conditional Waiver enrolled as members of the Outfall Coalition.
22. To comply with the 2012 Conditional Waiver and ensure attainment of water quality objectives, the Outfall Coalition developed a compliance program in which members were required to:
 - a. Complete an individual Water Quality Management Plan (Farm Plan);
 - b. If applicable, complete an individual Drain Water Quality Management Plan (Drain Plan);
 - c. Install, implement, and maintain management practices that protect water quality from agricultural activities on every parcel of Irrigated Agricultural Lands;
 - d. Update parcel information as often as necessary (i.e., when leases or crops change, management practices are changed, etc.). At a minimum, parcel information was required to be reviewed and updated annually;
 - e. Attend outreach and education training hosted by the Outfall Coalition; and
 - f. Pay coalition dues to the Outfall Coalition to cover state fees and coalition costs.
23. The Outfall Coalition also developed a Monitoring and Reporting Program and a Quality Assurance Project Plan, both of which were approved by the Colorado River Basin Water Board's Executive Officer, and pursuant to which the Outfall Coalition monitored water quality and reported on behalf of the members of the Coalition Group.
24. The 2012 Conditional Waiver expired on September 20, 2017. On August 2, 2017, the

Colorado River Basin Water Board's Executive Officer sent a letter to the Outfall Coalition indicating that staff was still in the process of drafting this Order, and that the Colorado River Basin Water Board would not take any enforcement action against Dischargers for failure to submit a Report of Waste Discharge (ROWD), provided that the Outfall Coalition continued implementing the compliance program developed under the 2012 Conditional Waiver during the transition period.

25. On February 7, 2018, following a lengthy public hearing, the State Water Board adopted revisions to the Central Valley Regional Water Quality Control Board's (Central Valley Water Board) *Waste Discharge Requirements General Order for Growers Within the Eastern San Joaquin River Watershed that are Members of the Third-Party Group* in Order WQ 2018-0002 (Eastern San Joaquin Order). The State Water Board's order establishes a model for all regional water boards to follow in their subsequent orders to reduce pollutants from irrigated lands around the state. The Eastern San Joaquin Order directs all regional water boards to revise the permits for their irrigated lands regulatory programs within the next five years to be consistent with certain precedential requirements in the State Water Board order. This Order complies with the State Water Board's directive.
26. Upon adoption of these General WDRs, the District has agreed to continue managing the Outfall Coalition and to implement a Compliance Program in accordance with this Order.

Hydrological Setting

27. Palo Verde Valley and Palo Verde Mesa occupy about 189 square miles of territory in Riverside and Imperial Counties. (**Figure 1.**)
28. Palo Verde Valley straddles southern Riverside County and northern Imperial County. The valley is bounded to the north by the Big Maria Mountains, to the west by Palo Verde Mesa, and to the south and east by the Colorado River. The valley is relatively flat, nine (9) miles wide and thirty (30) miles long, and ranges from 290 feet above mean sea level (MSL) in the north to 220 feet above MSL in the south.
29. Palo Verde Mesa, formed by flooding of the Colorado River, is divided into the upper and lower terrace. Most farming occurs west of the lower terrace, which is one (1) mile wide and sixty (60) feet higher in elevation than the valley.
30. Mean summer temperatures in Palo Verde Valley and Palo Verde Mesa range from 85° to 110° Fahrenheit. Precipitation typically averages four (4) or less inches per year, and evapotranspiration about 72 inches per year. (U.S. Department of Agriculture, 1974.)
31. Soils in Palo Verde Valley are well-drained, fine-grained sand and loam alluvial deposits from the Colorado River. Soils in Palo Verde Mesa are comprised of older alluvial deposits derived from adjacent mountains (Big Maria, McCoy, Mule, and Palo Verde Mountains), consisting of excessively-drained to well-drained fine to gravelly sand, and loam.

32. Within Palo Verde Valley and Palo Verde Mesa, there are two distinct groundwater basins: (1) Palo Verde Valley Groundwater Basin and (2) Palo Verde Mesa Groundwater Basin.
33. The Palo Verde Valley Groundwater Basin is bounded on the east by the Colorado River, on the north by the Palo Verde Dam and the Big Maria Mountains, on the west by Palo Verde Mesa, and on the south by the Palo Verde Mountains. The principal water-bearing deposits in this basin are alluvial, the Bouse Formation, and fanglomerate deposits.
34. The Palo Verde Mesa Groundwater Basin is bounded by the Big Maria and Little Maria Mountains on the north, the McCoy and Mule Mountains on the west, the Palo Verde Mesa on the east, and the Palo Verde Mountains on the south. The northwest boundary and parts of the western boundary are drainage divides.
35. Depth to groundwater in the two groundwater basins varies from one foot to greater than 150 feet below ground surface. The groundwater is generally unconfined. In the Palo Verde Mesa Groundwater Basin, the main water-bearing unit consists of alluvial deposits, Quaternary in age, approximately 600 feet thick (Metzger et al., 1973) and is composed of lenticular beds of sand, gravel, silt, and clay in the basin and coarse-grained angular rock detritus near the mountains (Cal. Dep't of Water Resources, 1961, 1979). In the Palo Verde Valley Groundwater Basin, the main water-bearing units include the alluvium deposits, ranging from 130 to 600 feet thick, and the upper Bouse Formation. (Metzger et al., 1973.)
36. In the 1950s, the elevations of first-encountered groundwater, formed by Colorado River leakage and stormwater and irrigation water that percolated below the root zone, were higher than they are currently. To drain off excess water and lower the water table, some farmers installed tile systems beneath their fields that discharged into agricultural drains. Most of these systems were abandoned when the drains were deepened almost seven feet below the groundwater table. As the water table dropped, the depth to water in the drains increased. As a result, first-encountered groundwater in the Palo Verde Valley currently occurs at an average of 10 feet below the ground surface. The only tile systems that remain operational today occur in the extreme southern end of the valley, south of the unincorporated community of Palo Verde, and are managed by the District.
37. Surface waters in the Palo Verde Valley and Palo Verde Mesa consist of irrigation canals, surface drains, and tile drains.
38. The District diverts and distributes irrigation water from the Colorado River for farmland in Palo Verde Valley and Palo Verde Mesa. The District operates a 244.23-mile network of irrigation canals and laterals that service farmland in Palo Verde Valley and Palo Verde Mesa. The main canals at the north end of the District handle up to 2,100 cubic feet per second (cfs), while the smaller laterals handle up to 25 cfs. Farmers in Palo Verde Valley divert water from a canal through a gate operated by the District onto their agricultural fields. Farmers in Palo Verde Mesa, which is 80 to 130 feet higher than the valley, use canal water lifted by private pumps and supplement irrigation with water from deep wells developed by the landowners.

39. The District also operates and maintains 142 miles of open agricultural drains dug to a depth of at least one (1) foot below the groundwater table to prevent rising groundwater from impacting or reducing crop productivity. The drainage system services about 22,000 acres of farmland with field spill pipes that remove excess irrigation water from crops. The drainage system also includes about 300 siphons or submerged culverts.
40. Most of the drains discharge into the Palo Verde Outfall Drain, a portion of which is known as the Palo Verde Lagoon. The Palo Verde Outfall Drain ultimately discharges to the Colorado River via an old channel of the Colorado River before joining the active channel of the river in the Cibola National Wildlife Refuge. The Shaws Drain and the Olive Lake Drain discharge directly into the Colorado River.
41. From 2006 through 2016, the Palo Verde Outfall Drain flows leaving the District averaged 365,676 acre-feet per year. For 2016, flows averaged 402.7 cubic feet per second and totaled 291,700 acre-feet for the year. Recent surface water quality data for the area is detailed in the Information Sheet, **Attachment A**.
42. All the drinking water in Palo Verde Valley and Palo Verde Mesa is sourced from groundwater. The City of Blythe Water Department supplies water to city residents in Riverside County from 17 public supply wells. The Palo Verde County Water District (PVCWD) supplies water to residents of the community of Palo Verde in Imperial County for domestic purposes from two production wells. The drinking water in the rural areas is sourced from around 162 domestic wells.
43. A groundwater quality study from deep wells sampled by U.S. Geological Survey (Dawson and Belitz, 2012) indicates that most constituents detected were in concentrations below the Primary and Secondary Maximum Contaminant Levels (MCLs) found in California Code of Regulations, title 22, section 64421 et seq. in both Palo Verde area groundwater basins. Only specific conductance, total dissolved solids (TDS), and sulfate concentrations were consistently measured above the Secondary MCLs. TDS values ranged between 637 and 2,890 mg/L. All concentrations of volatile organic compounds (VOCs), pesticides, perchlorate, 1, 2, 3-TCP, and nitrate were below established health-based thresholds. Available groundwater quality data for the area is detailed in the Information Sheet, **Attachment A**.

Discharge Characteristics

44. The predominant crop in Palo Verde Valley and Palo Verde Mesa is alfalfa. Other crops in Palo Verde area include wheat and other field crops, broccoli and other vegetables, melons, cotton, and citrus orchards.
45. Discharges from Irrigated Agricultural Lands (including tailwater, tilewater, seepage, and surface water draining from fields after irrigation and storm events) either percolate to the underlying aquifer or are collected into 142 miles of open and unlined drains that ultimately discharge to the Palo Verde Outfall Drain and the Colorado River.
46. Discharges from Irrigated Agricultural Lands may contain high levels of sediment,

pesticides (including DDT, Toxaphene, Chlorpyrifos, Malathion, Dimethoate, and Endosulfan), nutrients, salts, and bacteria that can adversely impact receiving water beneficial uses.

Basin Plan and Related Regulatory Requirements

47. The Basin Plan, which was adopted on November 17, 1993 and amended on January 8, 2019, designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. Pursuant to Water Code section 13263, subdivision (a), waste discharge requirements must implement the Basin Plan and take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Water Code section 13241.
48. The Basin Plan specifies the following beneficial uses for the Palo Verde Valley Drains, the Palo Verde Valley Lagoon, and Palo Verde Outfall Drain:
 - a. Water Contact Recreation (REC I),
 - b. Water Non-Contact Recreation (REC II),
 - c. Warm Freshwater Habitat (WARM),
 - d. Wildlife Habitat (WILD), and
 - e. Preservation of Rare, Threatened, or Endangered Species (RARE).²
49. The Basin Plan's water quality objectives for the Palo Verde Valley Drains, the Palo Verde Valley Lagoon, and Palo Verde Outfall Drain are summarized in the Information Sheet, **Attachment A**.
50. The Basin Plan specifies the following beneficial uses for the Colorado River:
 - a. Municipal and Domestic Supply (MUN),
 - b. Agriculture Supply (AGR),
 - c. Aquaculture (AQUA),
 - d. Industrial Service Supply (IND),
 - e. Ground Water Recharge (GWR),
 - f. REC I,
 - g. REC II,
 - h. WARM,
 - i. Cold Freshwater Habitat (COLD),
 - j. WILD,
 - k. Hydropower Generation (POW), and
 - l. RARE.
51. The Basin Plan's water quality objective for salinity (TDS) for the Colorado River in the Palo Verde area is summarized in the Information Sheet, **Attachment A**.

² Only applies to the Palo Verde Valley Lagoon and Palo Verde Outfall Drain.

52. Palo Verde Valley and Palo Verde Mesa are part of the Colorado Hydrologic Unit, and the Basin Plan designates the following beneficial uses for area groundwater:
- a. MUN,
 - b. AGR, and
 - c. IND.
53. The Basin Plan's water quality objectives for groundwater in the Palo Verde area are summarized in the Information Sheet, **Attachment A**.
54. This Order establishes WDRs pursuant to division 7, chapter 4, article 4 of the Water Code for discharges that are not subject to regulation under Clean Water Act section 402 (33 U.S.C. § 1342). These WDRs implement narrative and numeric water quality objectives for groundwater and surface waters established by the Basin Plan and other applicable state and federal laws and policies.
55. These General WDRs constitute a Nonpoint Source Implementation Program consistent with the requirements of State Water Board's *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program* (State NPS Policy). The State NPS Policy recognizes that nonpoint source pollution typically occurs from diffuse sources such as runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrologic modification, and that prevention and minimization of pollution from these sources is the most successful form of control. The purpose of these General WDRs is to minimize or eliminate waste discharges from Irrigated Agricultural Lands to waters of the state that may be causing or contributing to exceedances of applicable federal or state water quality objectives.
56. Consistent with the State NPS Policy, Dischargers comply with these General WDRs by implementing and improving management practices and complying with the other conditions, including monitoring and reporting requirements. This Order requires Dischargers to address impacts to water quality by evaluating the effectiveness of management practices (e.g., waste discharge treatment and control measures) and take action to improve management practices to reduce discharges. However, implementation of management practices is not a substitute for meeting water quality objectives. If a Discharger fails to address impacts to water quality by taking the actions required by this Order, including evaluating the effectiveness of their management practices and improving as needed, the Discharger may then be subject to progressive enforcement and possible monetary liability.
57. The Colorado River Basin Water Board has considered the factors found in Water Code section 13241 in establishing these General WDRs, including:
- 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; and
 - f. The need to develop and use recycled water.
58. Average annual compliance cost estimates for the Outfall Coalition are \$197,177 for the first year and \$187,177 for subsequent years. Average annual cost estimates of compliance with this Order for individual Dischargers who are members of a Coalition Group ranges from \$6,000 to \$8,000, plus state fees (currently, \$100 per group plus \$0.95 per acre of land enrolled). The Information Sheet, **Attachment A** of this Order, contains further discussion of estimates of the total costs and an identification of potential sources of financing to comply with this Order.
59. 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. This Order requires Dischargers to implement management practices to meet water quality objectives intended to protect water for municipal and domestic uses and to monitor and report on the effectiveness of the management practices.
60. Water Code section 13267 authorizes the Colorado River Basin Water Board to require technical and monitoring reports. Regional Water Board staff have developed the Monitoring and Reporting Program (MRP), **Attachment C**, for the Outfall Coalition and its members. The technical reports required by the MRP are necessary to evaluate compliance with the terms and conditions of this Order and to ensure protection of waters of the state. The burden, including costs, of this MRP bears a reasonable relationship to the need for that information and the benefits to be obtained from that information.
61. Pursuant to Water Code section 13263, subdivision (g), the discharge of waste is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

303(d) Listed Impairments

62. Section 303(d) of the federal Clean Water Act requires states to identify waterbodies that do not meet water quality objectives. Each state must submit an updated list of impaired waterbodies every two years to the U.S. Environmental Protection Agency (USEPA) (303(d) List), as well as establish priority rankings for waters on the list and develop Total Maximum Daily Loads (TMDLs) for these waters. A TMDL is a pollutant and surface waterbody specific control plan that must account for all sources of the pollutant that caused the waterbody to be listed.
63. In some cases, alternative pollution control requirements can be used to address waterbody impairments in lieu of a formal TMDL. Regional water boards have wide latitude in determining how to address impaired waters, within certain legal parameters. Impaired waters may be addressed through existing regulatory tools and mechanisms, known as “TMDL alternatives,” such as individual or general WDRs, enforcement actions, and interagency agreements. Federal regulations specifically recognize that “other required control measures” may obviate the need for a TMDL when such requirements are expected to result in the attainment of the applicable

water quality standard in a reasonable period of time. (40 C.F.R. § 130.7, subd. (b)(1)(iii).) USEPA often refers to such a TMDL alternative as a “4b alternative.” (USEPA *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act*, dated July 29, 2005, at pp. 53-56.)

64. On July 30, 2015, USEPA gave final approval to California’s 2012 303(d) List. The 303(d) List classifies the Palo Verde Outfall Drain and Palo Verde Valley Lagoon as impaired by chloride, legacy organochlorine pesticides dichloro-diphenyl-trichloroethane (DDT) and toxaphene, and pathogen-indicator bacteria.
65. To address the 303(d) List impairments of the Palo Verde Outfall Drain and Palo Verde Lagoon, this Order serves as either the first phase of data collection for future TMDLs or as an alternative, non-TMDL solution, as described below:
 - a. **Chloride.** Data and information reviewed by Regional Water Board staff indicate that agricultural activities in the watershed of Palo Verde Outfall Drain and Lagoon may be a source of the chloride impairment. The available chloride data is not sufficient to proceed with either delisting the impairment or developing a TMDL. As a result, this Order establishes monitoring requirements for chloride in the Palo Verde Outfall Drain and Lagoon to assess the current impairment and its sources, and to facilitate development of appropriate controls for the impairment.
 - b. **DDT and Toxaphene.** Data and information reviewed by Regional Water Board staff indicate that agricultural activities in the watershed of Palo Verde Outfall Drain and Lagoon are the source for these impairments. This Order incorporates impairment control requirements for DDT and toxaphene and serves as a TMDL alternative, the rationale for which is explained in **Attachment B, Palo Verde Outfall Drain and Lagoon DDT and Toxaphene Impairment Control Plan**. As described in **Attachment B** of this Order, Regional Water Board staff estimates that the water quality objectives for DDT and toxaphene will be attained in 2036 through the implementation of the management practices required by this Order. (See Figure 1 of **Attachment B**.)
 - c. **Pathogen-indicator bacteria.** Data collected by Regional Water Board staff does not indicate an impairment for the pathogen indicator *Escherichia coli* (*E. coli*), but does show impairments for fecal coliform and enterococci indicators. USEPA’s 2012 Recreational Water Quality Criteria recommends that either one bacterium indicator organism (*E. coli* or enterococci) be designated as a pathogen indicator for fresh water bodies like Palo Verde Outfall Drain and Lagoon. Effective March 22, 2019, USEPA approved the State Water Board’s amendment to the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, which specifies *E. coli* is the single pathogen indicator in water quality objectives for fresh waters, as recommended by USEPA. As a result, this Order establishes monitoring requirements for *E. coli* in the Palo Verde Outfall Drain and Lagoon to assess the current status of the impairment and to develop appropriate controls for the impairment or delist based on this single pathogen indicator.

Antidegradation Analysis

66. State Water Board Resolution 68-16, entitled *Statement of Policy with Respect to Maintaining High Quality Waters in California* (Resolution 68-16), generally prohibits the Colorado River Basin Water Board from authorizing discharges that will result in the degradation of high quality waters, unless it is demonstrated that any change in water quality will (a) be consistent with maximum benefit to the people of the state, (b) not unreasonably affect beneficial uses, and (c) not result in water quality less than that prescribed in state and regional policies (e.g., the violation of one or more water quality objectives). The Discharger must also employ best practicable treatment or control (BPTC) to minimize the degradation of high quality waters. High quality waters are surface waters or areas of groundwater that have a baseline water quality better than required by water quality control plans and policies.
67. These General WDRs include conditions and performance standards that will minimize any degradation to waters of the state. Some limited degradation to high quality waters may occur as a result of discharges from Irrigated Agricultural Lands subject to this permit. Such limited degradation is consistent with maximum benefit to the people of the state. Agriculture is a significant generator of economic activity and employment in the area and provides food for the region and beyond. These General WDRs address the health, environmental, and social costs associated with agricultural discharges by prohibiting discharges that will cause or contribute to exceedances of water quality objectives, unreasonably affect applicable beneficial uses, or cause or contribute to a condition of pollution or nuisance. The General WDRs also require sampling of on-farm drinking water wells to ensure that users of the wells are not drinking water exceeding nitrate contamination health levels.
68. The BPTC requirements of Resolution 68-16 are met through a combination of upfront planning and implementation at the farm level; regional monitoring and assessments to determine whether trends in degradation are occurring; and regional planning and on-farm implementation when trends in degradation are identified. Initially, Dischargers need to conduct an on-farm evaluation to determine whether their management practices are protective of water quality. Dischargers must also prepare and implement a farm-specific irrigation and nitrogen management plan. Through the process of learning about effective management practices, evaluating their own practices, and implementing improved practices, Dischargers are expected to achieve BPTC, where applicable. The State Water Board determined in the Eastern San Joaquin Order that the types of requirements that have been incorporated into this Order constitute BPTC.
69. This Order also requires Dischargers to implement monitoring and assessment programs for both surface water and groundwater. These monitoring and assessment programs are required to determine compliance with water quality objectives and whether any trends in water quality improvement or degradation are occurring. If trends in such degradation are identified that could result in impacts to beneficial uses, a water quality restoration plan is prepared by the Coalition Group. The plan must identify management practices that will be implemented to address exceedances of water quality objectives or trends in degradation, and include an evaluation of the effectiveness of those practices in addressing the degradation. Failure to implement

practices or address the exceedances or degradation in accordance with the schedule proposed in the approved plan may result in further direct regulation by the Colorado River Basin Water Board, including, but not limited to, regulating the individual Discharger directly through WDRs for individual discharges or taking other progressive enforcement actions.

California Environmental Quality Act

70. Adoption of these General WDRs constitutes a “project” pursuant to the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq. The Colorado River Basin Water Board is the lead agency for this project under CEQA.
71. On September 20, 2012, the Colorado River Basin Water Board adopted the 2012 Conditional Waiver, waiving WDRs for discharges of waste from Irrigated Agricultural Lands in Palo Verde Valley and Palo Verde Mesa, and adopted a programmatic Negative Declaration under CEQA (2012 Negative Declaration) under Resolution R7-2012-0046.
72. The 2012 Negative Declaration describes the potential environmental impacts associated with implementation of water quality management practices, construction of monitoring wells, and impacts to agricultural resources (e.g., loss of production of prime farmland). This Order is substantially similar to the 2012 Conditional Waiver and continues the program, with the only difference being the addition of new or revised monitoring and reporting requirements. These new or revised monitoring and reporting requirements will not result in an adverse physical change to the environment. Nor are there substantial changes in the surrounding circumstances which would require major revisions to the 2012 Negative Declaration or significant new information, as that term is used in CEQA. Therefore, the 2012 Negative Declaration for the 2012 Conditional Waiver constitutes the environmental analysis under CEQA for this Order and no subsequent environmental document is required pursuant to California Code of Regulations, title 14, section 15162.

Public Participation

73. On March 7, 2019, the Colorado River Basin Water Board conducted a public workshop on these General WDRs.
74. The Colorado River Basin Water Board has notified interested agencies and persons of its intent to adopt this Order and provided them with an opportunity for a public hearing and to submit comments.
75. On April 11, 2019, the Colorado River Basin Water Board, in a public meeting, heard and considered all comments pertaining to this Order.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13260, 13263, and 13267, and in order to meet the provisions contained in division 7 of the Water Code and regulations and plans and policies adopted thereunder, Dischargers and Coalition Groups shall comply with the following terms and conditions:

A. Coverage Requirements

1. **Duty to Apply.** These General WDRs apply to discharges or potential discharges of waste from Irrigated Agricultural Lands in Palo Verde Valley and Palo Verde Mesa, as described in Findings 7 through 11. Dischargers who are members of a Coalition Group are required to apply for enrollment under this Order. Dischargers who are not members of a Coalition Group must submit an ROWD and apply for individual WDRs.
2. **Type of Enrollment.** A Discharger obtains coverage under this Order as a member of an approved Coalition Group. By joining a Coalition Group, the Discharger agrees to be represented by the Coalition Group. Any Order requirements not fulfilled by the Coalition Group are the responsibility of the member.
3. **Electronic Notice of Intent / Application.** To obtain coverage under these General WDRs, Dischargers must complete an electronic Notice of Intent (e-NOI) on GeoTracker, print a copy of it, sign it, and submit a paper or electronic copy to the Colorado River Basin Water Board as follows:
 - a. New Dischargers shall submit a completed e-NOI within **at least 90 days before the discharge is to commence**, unless permission for a later date has been granted by the Colorado River Basin Water Board's Executive Officer.
 - b. Existing Dischargers who are members of the Outfall Coalition shall submit a completed e-NOI **by January 1, 2021**.
 - c. In the case where an operator will be operating for a period of less than 12 months, the landowner must complete an e-NOI.
 - d. Within 60 days of a change in operations, Dischargers must update their e-NOI to reflect the changes to their operation and/or ranch/farm information.
4. **Transferability.** Coverage under this Order is not transferable to any person except after the completion and submittal of a new e-NOI to the Colorado River Basin Water Board, and written approval by the Colorado River Basin Water Board's Executive Officer.
5. **Notice of Applicability.** If the Colorado River Basin Water Board's Executive Officer determines that coverage under this Order is appropriate, the Executive Officer shall issue a Notice of Applicability (NOA) to the Discharger. The Discharger shall comply with this Order upon receipt of the NOA. If coverage under this Order is not appropriate, the Executive Officer will inform the Discharger in writing and may request that the Discharger submit an ROWD to obtain an individual permit for the discharge of waste.
6. **Notice to Non-Member Landowner/Operator.** Following issuance of the NOA, the Discharger must provide written notice of the Discharger's enrollment to any landowner whose parcel has been enrolled by an operator under this Order or to an operator who farms a parcel that has been enrolled by a landowner.

Confirmation that the Discharger provided this notice must be submitted to the Coalition Group.

7. **Confirmation of Membership.** For members of a Coalition Group, coverage under this Order is automatically terminated if confirmation of membership in the Coalition Group is not received from the Coalition Group during the annual membership update provided in Section E.3 below.
8. **Termination of Coverage.** Dischargers may terminate coverage under this Order by providing a 30-day written notice to the Colorado River Basin Water Board's Executive Officer and, if applicable, notice to the Coalition Group. At a minimum, the written notice must include the reason for terminating coverage (e.g., transfer of ownership, Discharger applied for and obtained individual WDRs, discharge was discontinued, etc.). The Discharger shall continue to comply with this Order until the Colorado River Basin Water Board notifies the Discharger in writing that coverage has been terminated.

B. Prohibitions

1. The discharge of waste to waters of the state, other than from Irrigated Agricultural Lands as defined in Findings 7 through 11 of this Order, is prohibited.
2. The discharge of hazardous waste, as defined in California Code of Regulations, title 23 section 2521, subdivision (a), is prohibited.
3. The discharge of waste (e.g., fertilizers, fumigants, pesticides) into groundwater via backflow through a water supply well is prohibited.
4. The discharge of waste (e.g., fertilizers, fumigants, pesticides) down a groundwater well casing is prohibited.
5. The discharge of waste shall not cause a condition of pollution or nuisance, as defined in Water Code section 13050, subdivisions (l) and (m).

C. Receiving Water Limitations³

1. Surface Receiving Water Limitations

- e. Wastes discharged from Irrigated Agricultural Lands in Palo Verde Valley and Palo Verde Mesa shall not cause or contribute to an exceedance of applicable water quality objectives, including the load allocations and numeric targets for DDT and toxaphene specified in **Attachment B**, unreasonably affect applicable beneficial uses, or cause or contribute to a condition of pollution or nuisance.

³ These limitations are effective immediately except where Coalition Group members are implementing an approved Water Quality Restoration Plan (WQRP) for a specified waste parameter in accordance with an approved time schedule authorized pursuant to Section E.6 of this Order.

2. Groundwater Receiving Water Limitations

- f. Wastes discharged from Irrigated Agricultural Lands in Palo Verde Valley and Palo Verde Mesa shall not cause or contribute to an exceedance of applicable water quality objectives in the underlying groundwater, unreasonably affect applicable beneficial uses, or cause or contribute to a condition of pollution or nuisance.

D. Requirements - Members of a Coalition Group

This subdivision applies to Dischargers who are members of an approved Coalition Group (Members), who shall comply with all of the following:

1. Management Practices

- a. Members must (1) implement management practices that prevent or control discharges of waste that are causing or contributing to exceedances of water quality objectives; and (2) when effectiveness evaluation or reporting, monitoring data, or inspections indicate that the implemented management practices have not been effective in preventing the discharges from causing or contributing to exceedances of water quality objectives, Members must implement improved management practices.
- b. Pursuant to Water Code section 13360, this Order does not specify the design, location, type of construction, or particular manner of management practices compliance, and Members can use any appropriate management practice to comply with the requirements of this Order. A non-exhaustive list of example management practices is found in Section III of the Information Sheet, **Attachment A**. Members are also encouraged to consult the State Water Board's Nonpoint Source Management Measures Encyclopedia as well as Management Practices Miner Tool.

2. Water Quality Management Plan (Farm Plan)

- a. Members shall develop and implement an individual Water Quality Management Plan (Farm Plan) to identify the type and location of management practices currently used on their Irrigated Agricultural Lands and additional management practices based on current conditions needed to minimize or prevent the discharge of waste to waters of the state through irrigation water runoff and infiltration, non-stormwater runoff, and stormwater runoff.
- b. Members with the potential to cause erosion and discharge sediment that may degrade surface waters shall implement sediment and erosion control practices. Members must indicate whether they are implementing sediment and erosion control practices in their Farm Plan.
- c. Members must use the Farm Plan Template approved by the Executive Officer. At a minimum, the Farm Plan must include the following:

- i. The name, business address, mailing address, email address, phone number of the farmland owner;
 - ii. The name, business address, mailing address, email address, phone number of the farm grower/operator (if different from above);
 - iii. Information regarding the location of farm, including: (1) the address, (2) the Assessor Parcel Numbers (APNs) and the county in which each parcel is located, (3) the San Bernardino Baseline and Meridian System coordinates, and (4) applicable canal and gate number(s);
 - iv. The total acreage under cultivation;
 - v. A list of crop(s) grown and the acres dedicated for each type of crop;
 - vi. A description of the irrigation methods used for each crop;
 - vii. A list of agricultural chemicals typically applied to crops at the operation, including, but not limited to, fertilizers and organic amendments, pesticides, and fumigants;
 - viii. A list of the management practices used on each crop for the annual cycle and an indication whether sediment and erosion control practices are being implemented;
 - ix. A description of any subsurface drainage collection system;
 - x. The location of discharge point(s) and type of discharge(s) (surface and/or subsurface discharges); and
 - xi. The name of the receiving surface waters (if known) to which irrigation runoff, stormwater runoff, and non-stormwater runoff from the operation is discharged.
- d. Members shall submit the individual Farm Plan to the Coalition Group. An updated Farm Plan must be prepared and submitted to the Coalition Group by **February 1, 2021** and by **February 1 annually** thereafter.
- e. A copy of the Farm Plan shall be maintained at the Member's farming headquarters or primary place of business.
- f. Members shall ensure that all management practices identified in the Farm Plan are properly operated and maintained. Members shall periodically evaluate the effectiveness of the management practices and shall make modifications to the Farm Plan as necessary when visual observation monitoring indicates waste discharges have not been adequately addressed in the Farm Plan.

3. Irrigation and Nitrogen Management Plan (INMP) and Summary Report

- a. Members shall implement management practices that minimize excess nitrogen application relative to crop need. Proper nutrient management will work to reduce excess plant nutrients, such as nitrogen, from reaching state waters. Nitrogen management must take site-specific conditions into consideration in identifying steps that will be taken and practices that will be implemented to minimize nitrate movement through surface runoff and leaching past the root zone. The Information Sheet, **Attachment A** of this Order, lists example management practices to manage irrigation and control the discharge of nutrients, including nitrogen.

- b. Members must prepare and implement an Irrigation and Nitrogen Management Plan (INMP) for each field⁴ and submit the INMP Summary Report for the previous crop year.⁵
- c. Members must use the INMP Template approved by the Executive Officer. The Executive Officer may approve the use of multi-year INMPs for categories of crops that have consistent irrigation and nitrogen planning from year to year. Multi-year plans cannot exceed three years in length.
- d. The INMP must include the information identified in the MRP, **Attachment C**, for use by the Coalition Group in calculating an Applied/Removed (A/R) ratio for nitrogen, and an Applied-Removed (AR) difference for nitrogen, as defined in the equations below. The A/R ratio is the ratio of total Nitrogen Applied (from sources including, but not limited to, organic amendments, synthetic fertilizers, manure, and irrigation water) to the total Nitrogen Removed (including all harvested materials and nitrogen annually sequestered in permanent wood for perennial crops). The A-R difference is the difference of total Nitrogen Applied and the total Nitrogen Removed.

$$\text{A/R Ratio} = \frac{\text{Nitrogen Applied (from any source, including fertilizers, irrigation)}}{\text{Nitrogen Removed (via harvest, etc.)}}$$

$$\text{A-R Difference} = \text{Nitrogen Applied} - \text{Nitrogen Removed}$$

Total Nitrogen Removed shall be determined, in part, by multiplying a Member's crop yield by a crop-specific nitrogen coefficient, C_N , provided by the Coalition, which represents the amount of nitrogen in the harvested crop. For some crops, the data needed to develop the C_N coefficient may not yet be available. The Coalition is directed in Section IV.C of the MRP, **Attachment C**, to determine, through nitrogen removed testing and research, the most appropriate C_N coefficients for converting crop yield to nitrogen removed.

$$\text{Nitrogen Removed (lbs/acre)} = \text{Crop Yield (units/acre)} \times C_N \text{ (lbs/unit)}$$

- e. Notwithstanding the provisions above, with the approval of the Executive Officer, the following Members may initially report the A value only in the INMP:

⁴ Where this Order requires reporting by field, Members may report data for a portion of a field or for multiple fields provided that the reported area has (1) the same crop type, (2) the same fertilizer inputs, (3) the same irrigation management, and (4) the same management practices. In no case should a reported area exceed a total size of 640 acres, and different crop types must always be reported separately even if they are within the same reporting area.

⁵ Pursuant to the Eastern San Joaquin Order, this requirement does not apply to Members where applied nitrogen is not expected to seep below the root zone in amounts that could impact groundwater and is further not expected to discharge to surface water. Any category of Members (such as growers of a particular crop or growers in a particular area) must receive approval of the Executive Officer for this exception to apply.

- i. Growers that operate in areas with (1) evidence of no or very limited nitrogen impacts to surface or groundwater, (2) have minimal nitrogen inputs, and (3) have difficulty measuring yield. (E.g., irrigated pastures.)
 - ii. Diversified socially disadvantaged growers, as defined by the Farmer Equity Act of 2017⁶ with (1) a maximum total acreage of 45 acres, (2) gross annual sales of less than \$350,000, and (3) a crop diversity greater than 0.5 crops per acre (one crop for every two acres).
 - iii. Growers with (1) a maximum total acreage of 20 acres, and (2) a crop diversity greater than 0.5 crops per acre (one crop for every two acres). (E.g., small growers with multiple crops that sell at farmers' markets.)
- f. Based on currently-available data for groundwater conditions, the Colorado River Basin Water Board is not requiring that each Discharger's INMP be certified at this time. However, the Executive Officer has discretion to require certification at a future date. The INMP shall be maintained at the Member's farming operations headquarters or primary place of business.
- g. Members shall prepare an INMP by **March 1, 2023** and by **March 1 annually** thereafter, unless using a multi-year INMP. All Members must submit INMP Summary Reports to the Coalition Group for the prior year by **March 1, 2024 and by March 1 annually thereafter**. As provided in the MRP, **Attachment C**, the Coalition Group will provide certain INMP Summary Report data to the Executive Officer.
- h. At a minimum, the INMP Summary Report Template must collect the following information:
- i. Crop Year
 - ii. Owner/Manager name
 - iii. Assessor Parcel Number (APN)
 - iv. Field identifier
 - v. Acreage for each field identified
 - vi. Crop type
 - vii. Crop age (permanent crops)
 - viii. Irrigation method
 - ix. Irrigation management practices implemented
 - x. Nitrogen management practices implemented
 - xi. Total Acreage
 - xii. Nitrogen Applied (lbs/acre)
 - 1. Irrigation Water
 - 2. Synthetic Fertilizers
 - 3. Organic Amendments

⁶ Food & Agr. Code, § 512, subd. (b).

xiii. Crop Yield (units specified by Coalition Group)

4. Education

- a. Members shall participate in Coalition Group outreach and education events, **at least annually**. Members shall review outreach materials to become informed of any water quality problems to address and the management practices that are available to address those problems.
- b. Members shall provide **annual** confirmation to the Coalition Group that the Member has attended and participated in an outreach and education event activity during the previous year and reviewed the applicable event materials.

5. On-Farm Drinking Water Testing

- a. Due to the potential severity and urgency of health issues associated with drinking groundwater with high concentrations of nitrates, Members shall conduct testing and monitoring of all drinking water supply wells present on the Members' property⁷ in accordance with the schedule in the MRP, **Attachment C**.
- b. The Coalition Group, on behalf of its Members, may conduct testing and monitoring of all drinking water supply wells present on the Members' property. If a well is identified as exceeding the MCL for nitrate, the Member must notify the Colorado River Basin Water Board and users of the well in a timely fashion in accordance with the procedures described in MRP.
 - i. Members must use the Drinking Water Notification Template approved by the Executive Officer. At a minimum, the template must contain the following:
 - ii. A statement notifying users of the exceedance;
 - iii. Material regarding the potential health risks associated with consuming nitrate-contaminated drinking water and steps that should be taken for protection; and
 - iv. A signature block, to be signed by the Member or landowner, certifying that a copy of the Drinking Water Notification Template has been provided to affected users.

The template shall be made available in an appropriate set of languages and designed to be understood by low-literacy populations.

6. Fees

- a. Members shall pay an annual fee to the State Water Board in compliance with

⁷ Where a portion of the parcel is leased to a party other than a Member and the terms of the lease give the Member no control over the drinking water supply wells on that parcel, the owner of the parcel is responsible for sampling of those drinking water supply wells.

the WDRs fee schedule set forth in California Code of Regulations, title 23, section 2200.6. The Coalition Group is responsible for collecting these fees from Members and submitting them to the State Water Board on behalf of Members.

E. Requirements - Coalition Groups

This subdivision applies to Coalition Groups that serve as third-party representatives of Members for purposes of this Order, which shall comply with all of the following:

1. Coverage

- a. The Outfall Coalition is currently the only approved Coalition Group in Palo Verde Valley and Palo Verde Mesa, and is automatically covered under this Order. Other potential Coalition Groups wishing to act as third-party representatives must follow the procedures outlined below in Section E.11.
- b. A Coalition Group covered under this Order is responsible for managing fee collection and payment, managing communications between Members and the Colorado River Basin Water Board, and for fulfilling monitoring and reporting requirements on behalf of its Members, including, but not limited to, conducting surface water and groundwater monitoring, conducting regional monitoring, and preparing and implementing Water Quality Restoration Plans (required in Section E.6).

2. Organizational Reporting

- a. **Within 90 days** of approval of this Order, the Coalition Group shall provide the Colorado River Basin Water Board documentation of its organizational or management structure. The documentation shall identify persons responsible for ensuring that program requirements are fulfilled and shall be made readily available to Members.
- b. The Coalition Group shall prepare **annual** summaries of expenditures of fees and revenue used to comply with this Order. The summaries shall be provided to or made readily available to Members.

3. Membership Reporting

- a. By **July 31, 2019** and by **March 1 annually thereafter**, the Coalition Group shall submit to the Colorado River Basin Water Board a list of all its current Members. The list shall specifically identify any new Members or any Members terminated since the last reporting period.
- b. As part of the membership list submittal, the Coalition Group shall identify Members who have: (1) failed to implement improved water quality management practices; (2) failed to respond to an information request associated with any applicable provisions of this Order; (3) failed to participate in studies for which the Coalition Group is the lead; (4) failed to provide

confirmation of participation in an outreach activity; or (5) failed to submit required fees to the Coalition Group.

4. Templates for Members

- a. The Colorado River Basin Water Board intends to provide templates developed in coordination with the Coalition Group and agricultural groups/experts to all Members that must be used to comply with the requirements of this Order.
- b. The Coalition Group may work with Colorado River Basin Water Board staff in the development of the templates below, and shall make those templates available to its Members within 30 days of receiving final approval of the templates from the Colorado River Basin Water Board's Executive Officer:
 - i. Farm Plan Template. Requirements for the Farm Plan Template are described above in Section D.2 and the MRP, **Attachment C**.
 - ii. INMP and INMP Summary Report Template. Requirements for the INMP and INMP Summary Report Template are described above in Section D.3 and the MRP, **Attachment C**.
 - iii. Drinking Water Notification Template. Requirements for the Drinking Water Notification Template are described above in Section D.6 and the MRP, **Attachment C**.

If desirable, differing templates may be created for different agricultural commodity groups.

5. Monitoring and Reporting Program

- a. The Coalition Group shall conduct required water quality monitoring and assessments in conformance with quality assurance/quality control requirements in this Order and the MRP, **Attachment C**, and provide timely and complete submittal of any reports required.
- b. Surface and Groundwater Monitoring Program Plan
 - i. Within **90 days of adoption** of this Order, the Coalition Group shall submit for review and approval to the Colorado River Basin Water Board's Executive Officer a Surface and Groundwater Monitoring Program Plan (Monitoring Program Plan) as described in Section V of the MRP, **Attachment C**.
 - ii. Annual groundwater monitoring at representative locations is required in the Monitoring Program Plan. The goal is to determine current water quality conditions of groundwater relevant to irrigated agriculture and develop long-term groundwater quality information that can be used to evaluate the regional effects of Irrigated Agricultural Lands practices.

iii. Quality Assurance Project Plan (QAPP)

1. As part of the Monitoring Program Plan, the Coalition Group shall submit a Quality Assurance Project Plan (QAPP) to the Colorado River Basin Water Board's Executive Officer for review and approval that meets in the requirements in the MRP, **Attachment C**.

c. Compliance Program Reporting

- i. The Coalition Group shall submit its Members' INMP data and Farm Plan data to the Colorado River Basin Water Board in compliance with the schedule identified in the MRP, **Attachment C**.

ii. Confidentiality

1. The Coalition Group shall develop: (1) Anonymous Member Identification Numbers and (2) Anonymous Assessor's Parcel Number (APN) Identification Numbers for the reporting of Members' data. The Coalition Group shall maintain and track the IDs from year to year.
2. The Coalition Group shall submit Farm Plan data by Anonymous Member ID.
3. The Coalition Group shall submit INMP Summary Report data by Anonymous Member ID, anonymous APN ID, and by township.
4. The Colorado River Basin Water Board's Executive Officer may require that the Coalition Group directly provide data for individual Dischargers (without anonymous identifiers) in connection with the implementation of a Water Quality Restoration Plan, as described in Section E.6 below, particularly where the data suggests that the Discharger(s) are not improving their management practices.

d. On-Farm Drinking Water Monitoring

- i. The Coalition Group, on behalf of Members, may conduct testing and monitoring of drinking water supply wells present on Members' property in compliance with the requirements in Section D.6 and the MRP, **Attachment C**.

6. Water Quality Restoration Plan (WQRP)

- a. The Coalition Group shall provide surface water and groundwater exceedance reports if monitoring results show exceedances of applicable numeric water quality objectives or water quality benchmarks, as specified in the MRP, **Attachment C**.

- b. The Coalition Group shall prepare a Water Quality Restoration Plan (WQRP) if (a) there is a Water Quality Triggering Event or (b) a trend of degradation of water quality is identified that threatens a beneficial use in receiving waters affected by its Members' activities on Irrigated Agricultural Lands.
 - i. For purposes of this Section (§ E.6), a "Water Quality Triggering Event" occurs when (a) a sampling result for a parameter at a single surface water monitoring location exceeds a water quality objective or benchmark limit specified in the MRP, [attachment designation] three or more times for the same constituent during a rolling period of four regular monitoring events, or (b) a single groundwater sampling result exceeds a water quality objective.
 - ii. With regard to surface water exceedances, additional monitoring activities that are subsequently conducted within the same prescribed monitoring period as an exceedance will not be considered "regular monitoring events" and therefore shall not be considered as part of the rolling period.
 - iii. Notwithstanding any contrary provision in the operative MRP, an Exceedance Report Submitted per the MRP shall indicate (a) the number of surface water exceedances within the previous four regular monitoring events, and (b) whether the current exceedance constitutes a Water Quality Triggering Event.
- c. The WQRP shall contain the following information:
 - i. For each constituent that indicates an exceedance or a trend of water quality degradation that threatens a beneficial use, the WQRP shall include a graph showing the concentrations over time (from available data) and a trend analysis for the constituent.
 - ii. The WQRP shall include a description of the actual or suspected waste sources that may be causing or contributing to the exceedance or trend of water quality degradation that threatens a beneficial use(s). The WQRP shall also include a list and map location of Members in the geographic area addressed in the WQRP, and other potential sources as applicable.
 - iii. If the WQRP finds that the actual or suspected waste sources are from irrigated agriculture subject to this Order, the WQRP shall identify management practices currently being implemented and additional or improved management practices that will be implemented by designated Members to prevent or minimize the discharge of any waste subject to this Order that is causing or contributing to the exceedance or

trend of water quality degradation. The WQRP shall also include a brief justification for selecting specific management practices.

- iv. The WQRP shall include a schedule for the implementation and completion of all tasks described in the WQRP. The schedule shall reflect the shortest practicable time required to perform each task, given the type of management practices planned or program being implemented, and the experience of commercial agriculture with the time required to implement similar management practices or programs. The schedule may not be longer than that which is reasonably necessary to achieve the receiving water limitations in Section C of these General WDRs. If the schedule exceeds one year, the schedule must include quantifiable, interim milestones that demonstrate progress towards completion of the WQRP tasks and compliance with the applicable receiving water limitations of these General WDRs.
 - v. The WQRP shall include a monitoring and reporting plan to provide feedback on WQRP progress and its effectiveness in achieving compliance with the applicable receiving water limitations of these General WDRs.
-
- d. The WQRP must be approved by the Colorado River Basin Water Board's Executive Offer prior to implementation. The Coalition Group may propose changes and revisions to the WQRP as necessary, subject to approval by the Executive Offer prior to implementation.
 - e. The Coalition Group shall work cooperatively with the Colorado River Basin Water Board to ensure all Members are taking necessary steps to address exceedances or degradation identified by the Coalition Group or the Colorado River Basin Water Board.

7. Education and Outreach

- a. The Coalition Group shall conduct education and outreach activities to inform Members of program requirements and water quality problems identified by the Coalition Group or Colorado River Basin Water Board.
- b. Outreach events and materials shall include information on nitrogen application practices and the potential impact of nitrates on groundwater and, as appropriate depending on the anticipated Discharger audience, shall be provided in multiple languages. The Coalition Group shall:
 - i. Provide Members with information on water quality management practices that will address water quality problems and minimize the discharge of wastes from Irrigated Agricultural Lands, and provide informational materials on potential environmental impacts of water quality management practices.
 - ii. Provide an **annual** summary of education and outreach activities to the Colorado River Basin Water Board. The annual summary shall include copies of the educational and management practices information provided to the growers. The annual summary must report the total number of growers who attended the outreach events and describe how growers could obtain copies of the materials presented at these events.

8. Notice of Violation (NOV) Reporting

- a. If the Coalition Group receives a Notice of Violation (NOV) from the Colorado River Basin Water Board, the Coalition Group must provide a copy of the NOV to Members in the area addressed by the NOV and appropriate information regarding the reason(s) for the violation. The notification must be provided within thirty (30) days of receiving the NOV from the Board. The Coalition Group must provide confirmation to the Colorado River Basin Water Board of the notification.
- b. A summary of all notices of violation received by the Coalition Group must be provided to all Members **annually**.

9. Fees

- a. The Coalition Group shall collect the fees from Members required by the State Water Board pursuant to the fee schedule contained in California Code of Regulations, title 23, section 2200.6. The Coalition Group is responsible for

submitting all fees collected directly to the State Water Board on behalf of its Members.

10. Termination of Representation

- a. If a Coalition Group wishes to terminate its role as a third-party representative, the Coalition Group shall submit a notice of termination letter to the Colorado River Basin Water Board and all of the Coalition Group's Members. Termination of the Coalition Group will occur no earlier than 30 days from submittal of the notice of termination letter.
- b. The notice of termination shall inform Members of their obligation to find a new, approved Coalition Group representative or obtain coverage under individual WDRs for their discharges. At a minimum, the written notice must include:
 - i. The proposed termination date;
 - ii. The reason for termination (e.g. dissolution, merger, etc.);
 - iii. Evidence that written notice was provided to all Members of the Coalition Group of the proposed termination; and
 - iv. Any successor and assign(s) seeking to assume responsibility under this Order;
- c. The Coalition Group shall continue to comply with this Order until the Colorado River Basin Water Board notifies it in writing that coverage has been terminated.

11. New Coalitions

- a. New Coalition Group(s) shall obtain written approval from the Colorado River Basin Water Board's Executive Officer prior to assisting Dischargers with compliance with this Order.
- b. In evaluating whether to approve a new Coalition Group, the Executive Officer will consider the following factors:
 - i. The ability of the third party to carry out the identified Coalition Group responsibilities.
 - ii. Whether the third party is a legally defined entity (i.e., non-profit corporation; local or state government; Joint Powers Authority) or has a binding agreement among multiple entities that clearly describes the mechanisms in place to ensure accountability to its members.
 - iii. Whether the third party has binding agreements with any subsidiary group (e.g., subwatershed group) to ensure any third-party responsibilities carried out by the subsidiary group, including the collection of fees, are done transparently and with accountability to the third party.

- iv. Whether the third party has a governance structure that includes a governing board of directors composed in whole or in part of Members, or otherwise provides Members with a mechanism to direct or influence the governance of the third party through appropriate by-laws.
- c. If the Executive Officer determines that the Coalition Group applicant has the capacity to satisfactorily carry out the Coalition Group responsibilities, the Colorado River Basin Water Board's Executive Officer will issue an NOA. The new Coalition Group shall comply with the relevant terms and conditions of this Order upon receipt of the NOA.

F. General Provisions

1. **Noncompliance.** Dischargers and Coalition Group(s) shall comply with all of the conditions of this Order. Noncompliance is a violation of the Porter-Cologne Water Quality Control Act (Water Code, § 13000 et seq.) and grounds for: (1) an enforcement action; (2) termination, revocation and reissuance, or modification of these waste discharge requirements; or (3) denial of an Order renewal application, or a combination thereof.
2. **Enforcement – Members.** Under these General WDRs, Coalition Group(s) are tasked with assisting Members in carrying out certain terms and conditions of this Order. However, Members, and any non-Member owner or operator, continue to bear ultimate responsibility for complying with these General WDRs. The Colorado River Basin Water Board reserves the right to take any enforcement action authorized by law. Accordingly, failure to timely comply with any provisions of this Order may subject Dischargers to enforcement action. Such actions include, but are not limited to, the assessment of administrative civil liability pursuant to Water Code sections 13323, 13268, and 13350, a Time Schedule Order (TSO) issued pursuant to Water Code section 13308, or referral to the California Attorney General for recovery of judicial civil liability.
3. **Enforcement – Coalition Group(s).** Failure to comply with the applicable terms and conditions of this Order may result in revocation of approval to act as a Coalition Group. Affected Dischargers would be required to join an approved Coalition Group or obtain coverage under other applicable general or individual WDRs. In the event of any violation or threatened violation of the conditions of these General WDRs applicable to Coalition Group(s), the violation or threatened violation shall be subject to any remedies, penalties, process, or sanctions provided for under state law.
4. **Reporting of Noncompliance.** Dischargers shall report any noncompliance that may endanger human health or the environment. Information shall be provided orally to the Colorado River Basin Water Board office and the Office of Emergency Services within twenty-four (24) hours of when the Discharger becomes aware of the incident. If noncompliance occurs outside of business hours, the Discharger shall leave a message on the Colorado River Basin Water Board's office voicemail. A written report shall also be provided within five (5) business days of the time that the Discharger becomes aware of the incident. The written report shall contain a description of the noncompliance and its cause, the period of noncompliance, the anticipated time to

achieve full compliance, and the steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

5. **Duty to Mitigate.** Dischargers shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment.
6. **Proper Operation and Maintenance.** Dischargers shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by Coalition Groups or Dischargers to achieve compliance with the conditions of these General WDRs.
7. **Inspection and Entry.** Consistent with Water Code section 13267, subdivision (c), Dischargers and Coalition Group(s) shall allow the Colorado River Basin Water Board, or an authorized representative, upon presentation of credentials and other documents as may be required by law, to:
 - a. Enter the premises regulated by this Order, or the place where records are kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, records kept under the conditions of this Order;
 - c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor at reasonable times, for the purpose of ensuring compliance with this Order or as otherwise authorized by the Water Code, any substances or parameters at this location.
8. **Records Retention.** Dischargers and Coalition Group(s), as appropriate, shall retain copies of all reports required by this Order and the associated MRP. Records shall be maintained for a minimum of **ten years** from the date of the sample, measurement, report, or application. Records may be maintained electronically, and the Coalition Group must store back up files in a secure, offsite location managed by an independent entity. This period may be extended during the course of any unresolved litigation or when requested by the Colorado River Basin Water Board's Executive Officer.
9. **Electronic Reporting.** Dischargers and Coalition Group(s), as appropriate, shall submit reports and information required under this Order in an electronic format specified by the Colorado River Basin Water Board's Executive Officer via email to RB7-coloradoriver@waterboards.ca.gov.
10. **Signature and Certification.** All documents and reports requested herein shall be signed and dated by a duly-authorized representative and shall contain a statement by the Discharger, or as appropriate by an authorized representative of the Discharger (e.g., Coalition Group representative), certifying under penalty of perjury under the

laws of the State of California, that the report is true, complete, and accurate. The document and/or report shall be submitted under the title: "General Order for Palo Verde and Palo Verde Mesa Ag Dischargers."

- 11. Violation of Law.** This Order does not authorize violation of any federal, state, or local laws or regulations.
- 12. Property Rights.** This Order does not convey property rights of any sort, or exclusive privileges, nor does it authorize injury to private property or invasion of personal rights.
- 13. Modification, Revocation, Termination.** This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by a Discharger for an Order modification, rescission, or reissuance, or a Discharger's notification of planned changes or anticipated noncompliance, does not stay any Order condition. Causes for modification include, but are not limited to, the violation of any term or condition contained in this Order, a material change in the character, location, or volume of discharge, a change in land application plans, or the adoption of new regulations by the State Water Board, Colorado River Basin Water Board (including revisions to the Basin Plan), or federal government.

I, Paula Rasmussen, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region on May 15, 2019, and revised on June 24, 2020.

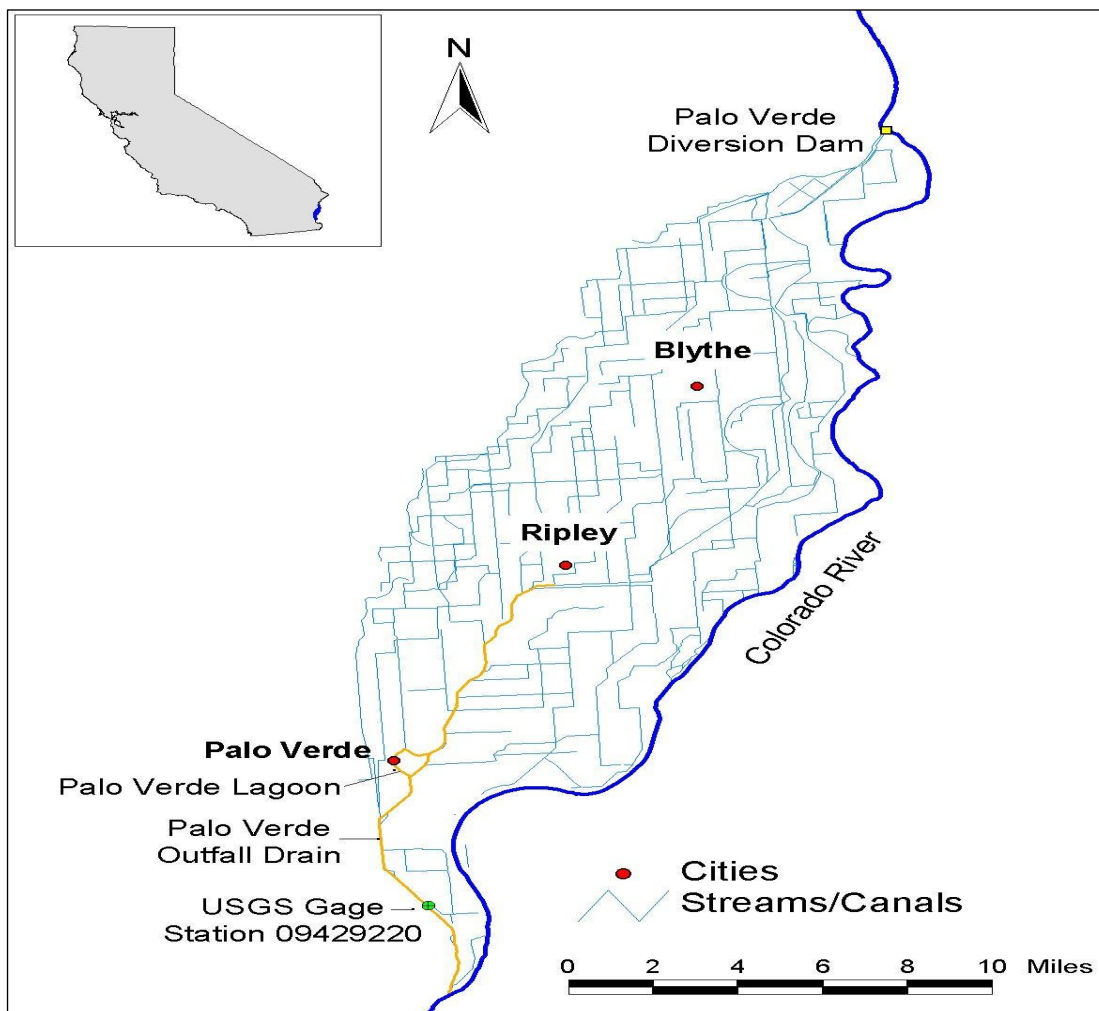
Original Signed by

Paula Rasmussen
Executive Officer

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**

FIGURE 1 in Order R7-2019-0030
PALO VERDE AREA MAP

GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF WASTE FROM IRRIGATED AGRICULTURAL LANDS
FOR DISCHARGERS THAT ARE MEMBERS OF A COALITION GROUP
IN PALO VERDE VALLEY AND PALO VERDE MESA
IMPERIAL AND RIVERSIDE COUNTIES



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**

**ATTACHMENT A TO ORDER R7-2019-0030
INFORMATION SHEET**

**GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF WASTE FROM IRRIGATED AGRICULTURAL LANDS
FOR DISCHARGERS THAT ARE MEMBERS OF A COALITION GROUP
IN PALO VERDE VALLEY AND PALO VERDE MESA
IMPERIAL AND RIVERSIDE COUNTIES**

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PALO VERDE AREA WATER QUALITY OBJECTIVES

Surface water and groundwater receiving water limitations in Section C of the Order specify that waste discharges from Irrigated Agricultural Lands may not cause or contribute to an exceedance of water quality objectives in surface water or underlying groundwater, unreasonably affect beneficial uses, or cause a condition of pollution or nuisance.

Water quality objectives that apply to surface water are described in the Water Quality Control Plan for the Colorado River Basin Region (Basin Plan), as well as in other applicable state and federal laws and policies. The Basin Plan contains numeric water quality objectives that apply to specifically identified water bodies as well as narrative objectives. Federal water quality criteria that apply to surface water are contained in federal regulations referred to as the California Toxics Rule and the National Toxics Rule. (See 40 C.F.R. §§ 131.36, 131.38.)

Below in Tables 1.1 and 1.2 are summaries of relevant water quality objectives for surface waters.

Table 1.1 - Palo Verde Area Surface Water Quality Objectives in the Basin Plan

Discharges of wastes from Irrigated Agricultural Lands into the Palo Verde Valley and Palo Verde Mesa Drains, Palo Verde Lagoon, and Palo Verde Outfall Drain, all of which are tributary to the Colorado River, shall not:

Objective	Description
1	Result in the presence of oil, grease, floating material (liquids, solids, foam and scum) or suspended material in amounts that create a nuisance or produce objectionable color, odor, taste, or turbidity, or otherwise adversely affect beneficial uses.
2	Result in unnatural materials, which individually or in combination, produce undesirable flavors in edible portions of aquatic organisms.
3	Alter the suspended sediment load and suspended sediment discharge rate to receiving waters in a manner that causes nuisance or adversely affects beneficial uses.
4	Result in an increase of turbidity and/or total suspended solids (TSS) that adversely affects beneficial uses.
5	Result in the dissolved oxygen concentration to decrease below 5.0 mg/l at any time.
6	<p>Result in the geometric mean of the indicator bacteria <i>E. coli</i> and enterococci in the receiving waters (based on a minimum of not less than five samples equally spaced over a 30-day period) to exceed a Most Probable Number (MPN) of the values as measured by the following bacterial indicators:</p> <p><i>E. coli</i> 126 per 100 milliliters (mL) Enterococci..... 33 per 100 mL</p> <p>Nor shall any single sample exceed the maximum allowable bacterial density of:</p> <p><i>E. coli</i> 400 per 100 mL Enterococci..... 100 per 100 mL</p> <p>Nor shall any single sample for the Colorado River exceed the maximum allowable bacterial density of:</p> <p><i>E. coli</i> 235 per 100 mL Enterococci..... 61 per 100 mL</p>
7	Result in the normal ambient pH of the receiving water to fall below 6.0 or exceed 9.0 units.
8	Result in the discharge of biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
9	Result in an increase of total dissolved solids (TDS) that adversely affects beneficial uses of any receiving water.
10	Result in an alteration in the natural receiving water temperature that adversely affects beneficial uses.
11	Result in the discharge of an individual chemical or combination of chemicals in concentrations that adversely affect beneficial uses, nor result in an increase in hazardous chemical concentrations in bottom sediments or aquatic life.

12	Result in toxic pollutants present in the water column, sediments or biota in concentrations that adversely affect beneficial uses, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective shall be determined by the use of indicator organisms, analyses of species diversity, population density, growth anomalies, or toxicity tests of appropriate duration or other appropriate methods as specified by the Colorado River Basin Regional Water Board.
13	Result in a violation of any applicable water quality standard for receiving waters adopted by the Colorado River Basin Water Board or the State Water Board as required by the federal Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Clean Water Act section 303 or amendments thereto, the Colorado River Basin Water Board will revise and modify this Order in accordance with the more stringent standard.

Table 1.2 - Specific Surface Water Objective for Salinity (Total Dissolved Solids) for the Colorado River in the Basin Plan

Objective
California along with several other states adopted the Seven States Colorado River Salinity Control Forum's recommended water quality standards for the Colorado River, which were subsequently approved by the U.S. Environmental Protection Agency (USEPA).
Flow-weighted average annual numeric criteria for salinity in the form of Total Dissolved Solids (TDS) were established at three locations on the lower Colorado River.
Of relevance here, the Basin Plan prescribes a flow-weighted annual average of 747 mg/L TDS in the Colorado River reach below Parker Dam and above Imperial Dam.
The plan of implementation consists of a number of federal and non-federal measures throughout the Colorado River system to maintain the adopted numeric criteria while the various states continue to develop their apportioned waters. There are four areas of the implementation plan that have direct applicability to California. The first is the control of the discharge of TDS from point sources through the NPDES permit program regulating industrial and municipal discharges. The plan has as its primary objective no-salt return from industrial sources wherever practicable. Reasonable incremental increases of salinity from municipal sources are permitted so long as they do not exceed 400 mg/L above the flow-weighted average salinity of the supply water. The second area of implementation recommends that each state encourage and promote the use of brackish and/or saline waters for industrial purposes. The third area of implementation deals with an improved water delivery system and on-farm water management system. The fourth area of implementation involves the adoption and implementation of Clean Water Act section 208 Water Quality Management Plans dealing with salinity control, as applicable.

Water quality objectives that apply to groundwater are also described in the Basin Plan and are summarized in Table 1.3 below. The Basin Plan contains numeric as well as narrative water quality objectives for groundwater.

Table 1.3 - Palo Verde Area Groundwater Quality Objectives in the Basin Plan

Objectives	Description
Taste and Odors	Groundwaters for use as domestic or municipal supply shall not contain taste or odor-producing substances in concentrations that adversely affect beneficial uses as a result of human activity.
Bacteriological Quality	In groundwaters designated for use as domestic or municipal supply (MUN), the concentration of coliform organisms shall not exceed the limits specified in section 64426.1 of title 22 of the California Code of Regulations.
Chemical and Physical Quality	Groundwaters 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 the Basin Plan: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64444-A of section 64444 (Organic Chemicals), and Table 64678-A of section 64678 (Determination of Exceedances of Lead and Copper Action Levels). To protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.
Brines	Discharges of water softener regeneration brines, other mineralized wastes, and toxic wastes to disposal facilities which ultimately discharge in areas where such wastes can percolate to groundwaters usable for domestic and municipal purposes are prohibited.
Radioactivity	Groundwaters designated for use as domestic or municipal supply (MUN) shall not contain radioactive material in excess of the maximum contaminant levels (MCLs) specified in Tables 64442 and 64443 of sections 64442 and 64443, respectively, of title 22 of the California Code of Regulations, which are incorporated by reference into the Basin Plan. This incorporation by reference is prospective, including future revisions to the incorporated provisions as the revisions take effect.

The water quality objectives for groundwater designated for municipal or domestic supply (MUN) are also informed by the State Water Resources Control Board's (State Water Board) Resolution No. 88-63, Adoption of Policy Entitled "Sources of Drinking Water" adopted on May 19, 1988. In relevant part, Resolution 88-63 provides that all surface waters and groundwaters of the state are considered to be suitable, or potentially suitable, for municipal or domestic water supply, with the exception of where:

- The total dissolved solids (TDS) exceed 3,000 mg/l (5,000 us/cm, electrical conductivity), and it is not reasonably expected by the Regional Water Board to supply a public water system, or
- 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 management practices or best economically achievable treatment practices, or
- 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.

AVAILABLE PALO VERDE AREA WATER QUALITY DATA

Available Palo Verde Area Surface Water Quality Data

Below in Table 2.1 is a summary of the annual average of monthly and quarterly surface water quality data at four locations from November 2013 to December 2017 (Source: Outfall Coalition):

Table 2.1 – Outfall Coalition Surface Water Quality Data

Analyte	Palo Verde Canal Station 5+80	East Side Drain Station 110+62	Outfall Drain Station 567+99	Outfall Drain Station 148+00
pH	8.23	7.7	7.83	7.92
Temperature (°Celsius)	19.2	20.02	19.87	20.42
DO (mg/ L) ¹	9.4	5.8	6.8	6.7
Total Dissolved Solids (TDS) (mg/ L)	640	1092	1263	1353
Conductance (uS/cm) ²	978	1750	2067	2128
Total Suspended Solids (TSS)* (mg/ L)	6.75	15.45	17.6	17
Turbidity (NTU) ³	7.8	10.54	13.8	16.2
Nitrates (as N) (N mg/ L)	0.2	0.4	0.4	0.3
Total Nitrogen (N mg/L)	0.5	0.6	0.8	0.6
Total Phosphorus (P mg/ L)	0.09	0.06	0.11	0.1
Biochemical Oxygen Demand (BOD) (mg/ L)	ND ⁴	ND	ND	ND
Chlorpyrifos (µg/ L) ⁵	ND	ND	ND	ND
Malathion (µg/ L)	ND	ND	ND	ND
Dimethoate (µg/)	ND	ND	ND	ND
4,4-DDT (µg/ L)	ND	ND	ND	ND
Endosulfan I (µg/ L)	ND	ND	ND	ND
Endosulfan II (µg/ L)	ND	ND	ND	ND

Available Palo Verde Area Groundwater Water Quality Data

Below in Table 2.2 is a summary of groundwater quality data taken from the Palo Verde Mesa and Valley Groundwater Basins for the Colorado River Groundwater Ambient Monitoring and Assessment (GAMA) study conducted in 2007. (Goldrath et al., 2010.)

¹ mg/L – milligrams per liter

² uS/cm – microsiemens per centimeter

³ NTU – Nephelometric Turbidity Units

⁴ ND – Non Detect or Below Method Detection Limit

⁵ µg/L – micrograms per liter

Table 2.2 – GAMA Groundwater Study

GAMA well identification number: Those wells designated “COLOR” are Colorado River study unit grid wells; those wells designated “COLORU” are Colorado River study understanding wells.

Threshold type: “SMCL-CA” is the Secondary Maximum Contaminant Levels under California law (Cal. Code Regs., tit. 22, § 64449); “MCL-US” is the U.S. Environmental Protection Agency’s Maximum Contaminant Levels.

Other abbreviations: “µS/cm” means microsiemens per centimeter; “mg/L” means milligram per liter; “na” means not available; “*” indicates that the value is above the threshold value or outside threshold range; “**” indicates that the value above upper threshold value; “—” means not detected.

GAMA well identification Number	Well depth (ft below land surface)	Specific conductance, field (µS/cm at 25°C) SMCL-CA ⁶ 900 (1,600) ^{7 8}	Total dissolved solids (TDS) (mg/L) SMCL-CA 6 500 (1,000) ^{7 8}	Sulfate (mg/L) SMCL-CA6 250 (500) ^{7 8}	Nitrite plus nitrate, as nitrogen (mg/L) MCL-US6 107
COLOR-04	90	* 1,560	*989	* 331	—
COLOR-05	610	* 1,580	** 1,100	* 366	—
COLOR-06	505	* 1,400	*926	* 298	—
COLOR-07	438	** 1,950	** 1,370	* 471	—
COLOR-08	500	** 2,020	** 1,210	* 349	1.36
COLOR-09	na	** 1,880	** 1,110	* 265	—
COLOR-10	1000	** 2,360	** 1,600	** 517	—
COLOR-11	na	** 4,000	** 2,780	** 908	0.91
COLOR-16	600	** 2,080	** 1,490	** 550	—
COLOR-18	600	** 1,770	** 1,050	* 281	1.26
COLORU-01	492	* 1,110	* 715	* 253	—
COLORU-02	454	* 1,400	* 927	* 300	—
COLORU-03	335	*1,040	* 637	187	—
COLORU-06	500	* 1,400	* 844	* 844	0.61
COLORU-07	130	** 4,780	** 2,890	** 753	0.09
COLORU-08	na	** 2,150	** 1,550	** 573	—

MANAGEMENT PRACTICES

Pursuant to Water Code section 13360, the Colorado River Basin Water Board does not specify the design, location, type of construction, or particular manner of management practices compliance, and Dischargers can use any appropriate management practice to comply with the requirements of this Order. The following tables contain a non-exhaustive list of management

⁶ Threshold level

⁷ Threshold type

⁸ The Secondary MCLs for specific conductance, total dissolved solids, and sulfate have recommended and upper threshold values. The upper value is shown in parentheses.

practices that Dischargers may use to address potential water quality impacts caused by sediment, nutrients, and pesticides in Irrigated Agricultural Lands discharges. Dischargers are also encouraged to consult the State Water Board's Nonpoint Source Management Measures Encyclopedia as well as Management Practices Miner Tool.

Table 3.1 - Sediment Management Practices

Management Practice	Description
Tailwater Ditch Checks or Check Dams:	Tailwater Ditch Checks or Check Dams are temporary or permanent dams to hold back water that are placed at intervals in tailwater ditches, especially those with steeper slopes. They increase the cross-section of the stream, decrease water velocity, and reduce erosion, allowing suspended sediment to settle out. Tailwater Ditch Checks may be constructed of plastic, concrete, fiber, metal, or other suitable material. If plastic sheets are used, care must be taken to ensure plastic is not dislodged and carried downstream. To be effective, this practice should be used where water velocity will not wash out check dams, or slopes of the tailwater ditch at dams.
Field to Tailditch Transition	This practice controls flow from the field into the tailwater ditch through spillways or pipes, without eroding soil. Spillways may be constructed of plastic, concrete, metal, or other suitable material. If plastic sheets are used, care must be taken to ensure plastic is not dislodged and carried downstream. This practice may be useful on fields irrigated in border strips and furrows.
Furrow Dikes (C-Taps)	Furrow dikes are small dikes constructed in furrows that manage water velocity. They may be constructed of earth with an attachment to tillage equipment, pre-manufactured “C-Taps,” or other material, such as rolled fiber mat, plastic, etc. According to Jones & Stokes, ⁹ this practice should reduce sediment transport at relatively low cost.
Filter Strips	This practice eliminates borders on the last 20 to 200 feet of the field. The planted crop is maintained to the end of the field, and tailwater from upper lands is used to irrigate the crop at the ends of adjacent lower lands. The main slope on the field’s lower end should be no greater than that on the balance of the field. A reduced slope may be better. With no tailwater ditch, very little erosion occurs as water slowly moves across a wide area of the field to the tailwater box. Sediment may settle as the crop baffles the water as it moves across the field.
Irrigation Water Management	This practice determines and controls irrigation rate, amount, and timing. Effective implementation minimizes erosion and subsequent sediment transport into receiving waters. Irrigation management methods include: surge irrigation, tailwater cutback, irrigation scheduling, and runoff reduction. Irrigation management may include an additional irrigator to better monitor and manage irrigation and potential erosion.
Irrigation Land Leveling	This practice involves maintaining or adjusting field slope to avoid excessive slopes or low spots at the tail end of the field. Maintaining a reduced main or cross slope facilitates uniform distribution of irrigation water, reducing salt build-up in soil, increasing production, reducing tailwater, and decreasing erosion. Jones & Stokes (Jones & Stokes Associates 1996) rate the sediment reduction efficiency of this practice at 10% to 50%, with a medium to high cost.

⁹ Jones & Stokes Associates. 1996. List of Agricultural Best Management Practices for the Imperial Irrigation District. Jones & Stokes Associates, Sacramento, CA.

Sprinkler Irrigation	Sprinkler irrigation involves water distribution by means of sprinklers or spray nozzles. The objective is to irrigate efficiently and uniformly to maintain adequate soil moisture for optimum plant growth, without excessive water loss, erosion, or reduced water quality. According to Jones & Stokes (Jones & Stokes Associates 1996) this practice has a positive sediment transport reduction effect (sediment reduction efficiency of 25% to 35% if used during germination, and 90% to 95% for established crops), and a relatively high cost.
Drip Irrigation	Drip irrigation consists of a network of pipes and emitters that apply water to the soil surface or subsurface, in the form of spray or small stream.
Channel Vegetation/Grassed Waterway	This practice involves establishing and maintaining adequate plant cover on channel banks to stabilize banks and adjacent areas, and to establish maximum side slopes. This practice reduces erosion and sedimentation, and the potential for bank failure.
Drainage channels	For this practice, irrigation drainage channels are constructed with flat slopes so water velocities are non-erosive, and water quality degradation due to suspended sediment is prevented.
Reduced Tillage	This practice eliminates one or more cultivation per crop, minimizing erosion of nutrient laden soils, and sedimentation that may occur in the furrow.

Table 3.2 - Nutrient Management Practices

Management Practice	Description
Tailwater Ditch Checks or Check Dams	Same as described in Table 3.1. The checks reduce and prevent erosion of soil containing nutrients.
Field to Tailditch Transition	Same as described in Table 3.1. The spillways act reduce and prevent erosion of nutrient-laden soils from the tailwater ditch.
Furrow Dikes (C-Taps)	Same as described in Table 3.1. The C-Taps act reduce and prevent erosion of nutrient-laden soils from the tailwater ditch.
Filter Strips:	Same as described in Table 3.1. The filter strips reduce and prevent erosion of nutrient-laden soils from the tailwater ditch.
Irrigation Water Management	Same as described in Table 3.1. The objective is to apply irrigation water efficiently and uniformly to maintain adequate soil moisture for optimum plant growth, without causing excessive erosion of nutrient laden soils.
Irrigation Land Leveling	Same as described in Table 3.1. The objective is to apply irrigation water efficiently and uniformly to maintain adequate soil moisture for optimum plant growth, without causing excessive erosion of nutrient-laden soils.
Sprinkler Irrigation	Same as described in Table 3.1. The objective is to apply irrigation water efficiently and uniformly to maintain adequate soil moisture for optimum plant growth, without causing excessive erosion of nutrient laden soils.
Drip Irrigation	Same as described in Table 3.1. The objective is to apply irrigation water efficiently and uniformly to maintain adequate soil moisture for optimum plant growth, without causing excessive erosion of nutrient laden soils.
Reduced Tillage	Same as described in Table 3.1. This practice eliminates one or more cultivation per crop, minimizing erosion of nutrient laden soils, and sedimentation that may occur in the furrow.
Channel Vegetation/Grassed Waterway	Same as described in Table 3.1. This practice reduces erosion of nutrient-laden soils and sedimentation.
Drainage channels	Same as described in Table 3.1. This practice reduces erosion of nutrient-laden soils and sedimentation in the irrigation drainage channels.

Table 3.3 - Pesticide Management Practices

Management Practice	Description
Pesticide Training and Certification	Obtain appropriate certification (through training) prior to pesticide use. Use a qualified Agricultural Pest Control Advisor (PCA) to make recommendations.
Pesticide Recording Keeping:	Maintain a precise pest and pesticide record, and read pesticide labels before purchase, use, or disposal; follow label directions as required by law, and check for groundwater advisories, or other water protection guidelines, so pesticide handling and application practices are known, and water quality impacts prevented.
Evaluate the Pesticide	Select pesticides less likely to leach to groundwater. Avoid pesticides that are highly water soluble, persistent, and do not adsorb to soil. The UC Extension Service and the Natural Resources Conservation Service are available to assist the public in selecting the appropriate pesticide.
Pesticide Selection	Select the least toxic and less persistent pesticide when feasible.
Site-specific Pesticide	Avoid overuse of preventive pesticide treatments. Base pesticide application on site-specific pest scouting, and economic return indicators.
Integrated Pest Management	Integrated pest management (IPM) utilizes all means of pest control (chemical and nonchemical) in a compatible fashion to reduce crop loss.
Prevent backsiphoning and spills	Never allow a hose used to fill a spray tank to extend below the level of the water in the tank. Always haul water to the field to fill spray tanks, and mix and dilute pesticides. Contain pesticide spills as quickly as possible, and handle according to label directions. Use anti-siphon devices (inexpensive and effective) at water line.
Consider weather and irrigation plans	Never start pesticide applications if a weather event (rainfall for instance) is forecast that could cause drift or soil runoff at the application site. Application just before rainfall or irrigation may result in reduced efficacy if the pesticide is washed off the target crop, resulting in the need to reapply the pesticide.
Pesticide use	Use pesticides only when economic thresholds are reached, and purchase only what is needed
Leave buffer zones around sensitive areas	Read the pesticide label for guidance on required buffer zones around surface waters, buildings, wetlands, wildlife habitats, and other sensitive areas where applications are prohibited.
Reduce off-target drift	Never begin an application if wind or temperature facilitates pesticide drift to a non-target area. Use appropriate spray pressure and nozzle selection to minimize drift.
Application equipment	Maintain application equipment in good working order, and calibrate equipment regularly.
Pesticide use and storage	Store pesticides on farm for a short time, and in a locked weather-tight enclosure downstream and a reasonable distance (greater than 100 feet) from wells or surface waters. Use appropriate protective equipment and clothing according to label instructions.
Dispose of pesticide and chemical wastes safely	Use pesticides and other agricultural chemicals only when necessary. Transport water to field in a nurse tank to mix and measure on site. Prepare only what is needed. Dispose of excess chemicals and containers according to label directions.

ECONOMIC CONSIDERATIONS

Under Water Code sections 13263 and 13241, “economic considerations” is one of the factors a regional water board must take into account in issuing waste discharge requirements. The following section provides cost estimates and identifies potential sources of financial assistance to comply with this Order. This includes cost estimates for tasks associated with the key elements of the Compliance Program as well as the state annual fees for Irrigated Agricultural Lands. Significant uncertainties in several key areas of the program prevent the precise estimation of program costs, including, but not limited to: the number of private drinking water wells and whether individual Dischargers or the Coalition Group will conduct monitoring of those wells, the total number of monitoring sites required to evaluate water quality conditions, the nature and extent of management practices required to address any exceedances of water quality objectives, and the availability of federal, state, and local funding to offset monitoring and management practices implementation costs.

Task Cost Estimates for Palo Verde Outfall Coalition

The following estimates apply to key tasks of the Palo Verde Outfall Coalition (Coalition) that is organized by Palo Verde Irrigation District.

Administration:

Regional Water Board staff estimates that administration of the Compliance Program will require 400 person-hours per year at \$100 per hour. Therefore, the total annual cost for program management is approximately \$40,000.

Update the Existing Coalition Group Compliance Program:

Outreach and Education:

Regional Water Board staff estimates the outreach and education components of the Coalition’s Compliance Program will require 480 person-hours at \$100 per hour per year. Therefore, the total annual cost for the outreach and education tasks is \$48,000.

Water Quality Management Plans (Farm Plan):

Regional Water Board staff estimates that to review, compile, and submit the Farm Plan data from Dischargers, the Coalition will require 40 person-hours at \$100 per hour at \$4,000 per year.

Irrigation and Nitrogen Management Plans (INMP) Summary Reports:

Regional Water Board staff estimates that to review, compile, and submit the INMP Summary Report data from Dischargers, the Coalition will require 120 person-hours at \$100 per hour at \$12,000 per year.

Private drinking water wells monitoring program:

Regional Water Board staff estimates that to plan and organize the sampling of drinking water wells, the Coalition will require 80 person-hours at \$100 per hour at \$8,000 per year.

Revise Existing Surface Monitoring Plan and Develop Groundwater Monitoring Plan:

Regional Water Board staff estimates that revising the existing Surface Monitoring Program and developing the new Groundwater Monitoring Program, i.e., drafting the Surface and Groundwater Monitoring Program Plan required in the MRP, Attachment C (which includes a Quality Assurance Program Plan (QAPP)) and submitting the plan will require 100 person-hours at \$100 per hour for a total of \$10,000 per year.

Sampling:

Regional Water Board staff estimates monthly (including quarterly and semi-annually) surface water sampling costs at 16 person-hours per sampling event at \$100 per person per hour to be \$1600 for the four surface water sampling sites per event. Regional Water Board staff estimates mileage for field sampling to be 100 miles for the monthly and delivery to the lab to be 400 miles for the quarterly and semi-annually sampling at \$0.55 per mile. Therefore, the estimated mileage cost per monthly sampling event is \$55.00 and estimated mileage cost per quarterly and semi-annually sampling event is \$220.00. The total cost for both mileage and staff is \$1,655 per monthly sampling event and \$1,820 per quarterly and biannually sampling event and is 20,520 annually. The estimation for the annual toxicity sampling event (fish tissue) is \$4,900 per sampling event, including personnel and mileage according to Moss Landing Marine Laboratories estimations (2018). The estimation for both mileage and staff for the annual groundwater sampling event for the 20 wells is \$1,820 per sampling event, including personnel and mileage. The estimation for both mileage (800 miles) and staff (32 person-hours) for the annual private drinking water well sampling event for the 160 wells is \$3,640 per sampling event, including personnel and mileage. The total annual sampling costs for all sampling required by the MRP is an estimated \$25,980.

Lab Analyses:

The cost estimate for analytical testing is based on information from commercial laboratory rate for testing constituents of concern included in Coalition’s MRP. Regional Water Board staff estimates the annual costs of analysis for one surface water sampling site will be \$1,926. The annual cost of analysis of four surface water sampling sites will be \$7,704. The annual costs of analysis of one sampling site for one annual fish sampling event will be \$5,343.00. The annual costs of analysis of 20 groundwater sampling sites will be \$11,350. The annual costs of analysis of 160 private drinking water wells for nitrate will be \$8,800. The total annual lab analysis cost estimates for the required six surface water sampling sites, one fish tissue sampling site, and 20 groundwater sampling sites is \$33,197.

Write and Submit an Annual Monitoring Report (AMR) and Monthly Surface Water Report:

Regional Water Board staff estimates that the AMR and monthly surface water reports will require 160 person-hours at \$100 per hour. The Coalition is required to submit one AMR annually and the surface water reports monthly. Therefore, the total annual cost is an estimated \$16,000

Table 4.1: Cost Estimates for Palo Verde Outfall Coalition Compliance Program

Tasks	First Year Estimated Costs	Subsequent Years Estimated Costs
Administration	\$40,000	\$40,000
Conduct Outreach and Education	\$48,000	\$48,000
Review, Compile, and Submit the Farm Plan Data	\$4,000	\$4,000

Tasks	First Year Estimated Costs	Subsequent Years Estimated Costs
Review, Compile, and Submit the INMP Summary Report Data	\$12,000	\$12,000
Plan and Organize Private Drinking Water Wells Monitoring	\$8,000	\$8,000
Revise the Existing Surface and Groundwater Monitoring Program Plan, and Submit	\$10,000	N/A
Sampling	\$25,980	\$25,980
Lab Analyses	\$33,197	\$33,197
Write and Submit Annual Monitoring Report (AMR)	\$16,000	\$16,000
Total Estimated Costs	\$197,177	\$187,177

Task Cost Estimates for Members of Palo Verde Outfall Coalition

The following estimates apply to key tasks of Dischargers who are members of Palo Verde Outfall Coalition (Members).

Write and Develop a Farm Plan:

Each Member writing and developing an individual Farm Plan and submitting it to the Coalition will require 40 person-hours at \$100 per hour for a total of \$4,000 for the first year and 30 person-hours at \$100 per hour for a total of \$3,000 for each subsequent year.

Write and Develop an INMP and Yearly INMP Summary Reports:

Each Member writing and developing an INMP and annual INMP Summary Reports, and submitting the INMP Summary Reports to the Coalition, will require 40 person-hours at \$100 per hour for a total of \$4,000 for the first year and 30 person-hours at \$100 per hour for a total of \$3,000 for each subsequent year.

Table 4.2: Cost Estimates for Each Discharger / Member of Palo Verde Outfall Coalition

Individual Responsible Party Task	First Year Estimated Costs	Subsequent Years Estimated Costs
Write, Develop, and Submit Farm Plan	\$4,000	\$3,000
Write, Develop, and Submit INMP and INMP Summary Report	\$4,000	\$3,000
Total Estimated Costs	\$8,000.00	\$6,000

State Annual Fees for Waste Discharge Requirements for Irrigated Agricultural Lands

The proposed General WDRs require each Discharger who participates in a Coalition Group, or the Coalition Group itself on behalf of its members, to pay an annual fee to the State Water Board in accordance with the fee schedule specified in California Code of Regulations, title 23, section 2200.6. The acreage on which the fee is based refers to the area that has been irrigated by the grower or Discharger at any time in the previous five years. As of the date that this Order is adopted, the above-mentioned fees are as follows:

Tier I: Dischargers who are members of an approved Coalition Group that has State Water Board approval to collect fees. The annual fee for the Coalition Group is \$100 plus \$0.95/acre of land. These fees would apply to the Coalition.

Tier II: Dischargers who are members of an approved Coalition Group, but the Coalition Group does not have State Water Board approval to collect the fees. The annual fee for the Coalition Group is \$100/farm plus \$1.47/acre of land.

Tier III: Dischargers who are not members of an approved Coalition Group and instead file for coverage under individual waste discharge requirements. The following annual fees apply to each of these Dischargers:

Acreage	Fee Rate	Minimum Fee	Maximum Fee
0-10	\$511 + \$17.05/Acre	\$511	\$682
11-100	\$1,277 + \$8.53/Acre	\$1,371	\$2,130
101-500	\$3,192 + \$4.26/Acre	\$3,622	\$5,322
501 or More	\$6,384 + \$3.41/Acre	\$8,092	No Max Fee

Sources of Financial Assistance

1. Federal

U.S. Department of Agriculture’s Natural Resources Programs

The U.S. Department of Agriculture’s (USDA) Natural Resources Conservation Service (NRCS) offers landowners financial, technical, and educational assistance to implement the conservation practices on privately-owned land. These programs include the following:

- [Environmental Quality Incentives Program \(EQIP\)](#) offers financial, educational, and technical help to install or implement best management practices such as manure management systems, pest management, and erosion control to improve the health of the environment. Cost-sharing may pay up to 50% of the costs of certain conservation practices.
- National Conservation Buffer Initiative was created to help landowners establish conservation buffers, which can include riparian areas along rivers, streams, and wetlands. NRCS is the lead agency in cooperation with other agencies. NRCS and Conservation District Blythe Service Center service the Palo Verde Valley and Mesa at 200 East Murphy Street, Room 102, Blythe, CA 92225-9998, telephone number: (760) 922-3446.

Clean Water Act Section 319(h)

[Federal nonpoint source water quality implementation grants](#) are offered each year on a competitive basis. These grants can range from \$250,000 to \$800,000 and must include a funding match, unless a waiver of match is approved. The grants are administered through the Regional Water Board.

2. State

[The Clean Water State Revolving Fund \(CWSRF\) program](#) offers low-cost financing for a wide variety of water quality projects. The program has significant financial assets and is capable of financing projects from <\$1 million to >\$100 million.

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**

**ATTACHMENT B TO ORDER R7-2019-0030
PALO VERDE OUTFALL DRAIN AND LAGOON DDT AND TOXAPHENE IMPAIRMENT
CONTROL PLAN**

**GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF WASTE FROM IRRIGATED AGRICULTURAL LANDS
FOR DISCHARGERS THAT ARE MEMBERS OF A COALITION GROUP
IN THE PALO VERDE VALLEY AND PALO VERDE MESA
IMPERIAL AND RIVERSIDE COUNTIES**

Problem Statement

Palo Verde Outfall Drain and Palo Verde Lagoon are listed according to federal Clean Water Act section 303(d) as impaired by pesticides dichloro-diphenyl-trichloroethane (DDT) and toxaphene, because concentrations of these pollutants in the waterbodies violate water quality standards. Pursuant to section 303(d), the state is required to develop pollutant Total Maximum Daily Loads (TMDLs) for surface waterbodies that are impaired and submit the TMDLs to the U.S. Environmental Protection Agency (USEPA) for approval. In lieu of a TMDL, staff of the California Regional Water Quality Control Board, Colorado River Basin Region (Colorado River Basin Water Board) have developed an impairment control plan through these General WDRs as an alternative to address the impairments of Palo Verde Outfall Drain and Lagoon by DDT and toxaphene (Impairment Control Plan).

DDT and toxaphene are man-made, legacy organochlorine pesticides. These pesticides were historically used extensively in the United States for agricultural and domestic pest control purposes, but are no longer legally sold in the United States and have not been used in the United States since the 1990s. In the environment, organochlorine pesticides such as DDT and toxaphene are slow to degrade. These pesticides have a tendency to attach to soil particles and are transported from point of application into receiving waters, mainly by hydrologic processes. They can and do bioaccumulate in aquatic life, including fish.

Extensive environmental monitoring indicates that DDT and toxaphene exceed the water quality objective for toxicity contained in the Water Quality Control Plan for the Colorado River Basin Water Board (Basin Plan). The most likely source for these organochlorine pesticides is from nonpoint source runoff from areas with high residual concentrations of these pesticides in soil. In Palo Verde Valley and Mesa, the main source is nonpoint source runoff from Irrigated Agricultural Lands.

Water Quality Standards

In California, "water quality standards," as that term is defined in 40 Code of Federal Regulations section 131.2 consist of: (1) the designated beneficial uses for waters, and (2) narrative and/or numeric water quality objectives or criteria to protect those designated beneficial uses.

Surface waters in the watershed of Palo Verde Valley and Mesa include the Palo Verde Valley Drains, the Palo Verde Lagoon, and Palo Verde Outfall Drain. The beneficial uses for the surface waters include:

1. Water Contact Recreation (REC I);
2. Water Non-Contact Recreation (REC II);
3. Warm Freshwater Habitat (WARM);
4. Wildlife Habitat (WILD); and
5. Preservation of Rare, Threatened, or Endangered Species (RARE).¹

Water quality objectives are limits or levels of water quality constituents or characteristics that are established for the reasonable protection of beneficial uses of water or prevention of nuisance within a specific area specified in the Basin Plan. Water quality objectives can be either numeric or narrative. Numeric water quality objectives set quantitative limits to the amount of a chemical that may be present in the environment without adversely affecting beneficial uses. Usually this type of limit is a maximum (not to exceed) concentration. Narrative water quality objectives set a desired or qualitative condition, and are interpreted using widely accepted criteria such as the California Toxics Rule (CTR) criterion (USEPA, 2000), the California Office of Environmental Health Hazard Assessment's (OEHHA) Public Health Goals (OEHHA, 2008), or other scientifically-defensible criteria or goals.

The Basin Plan for Colorado River Basin Water Board does not set numeric water quality objectives for DDT or toxaphene. Instead, the Basin Plan sets a narrative water quality objective for toxicity that states, "All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in human, plant, animal, or indigenous aquatic life" and "No individual chemical or combination of chemicals shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in hazardous chemical concentrations found in bottom sediments or aquatic life."

To interpret the narrative toxicity water quality objective for the protection of aquatic life beneficial uses (WARM, WILD, and RARE) and human health beneficial uses (REC I) from the adverse effects of DDT or toxaphene in water, staff selected: (1) the CTR criterion for human health protection when consuming organisms of 0.00059 ug/L for DDT's breakdown product, known as 4,4'-DDE, and (2) the CTR criterion for continuous concentration of 0.0002 ug/L for toxaphene. (USEPA, 2000.) Staff selected CTR criteria that are the most protective to ensure that all beneficial uses are supported.

To interpret the narrative toxicity water quality objective for the protection of human health (REC I) from the adverse effects of DDT or toxaphene for consumption of fish, staff selected the modified OEHHA Fish Contaminant Goals of 15 ug/Kg for total DDT and 4.3 ug/Kg for toxaphene. (OEHHA, 2008.) These fish consumption goals assume that the person or persons consuming the fish have an average body weight of 70 kilograms and consume 32 grams of fish per day over a 30-year time period over a 70-year lifetime. DDT and toxaphene are considered carcinogens; therefore, their risk level is set at one in a million.

To interpret the narrative toxicity water quality objective for the protection of aquatic life uses (WARM, WILD, and RARE) from the adverse effects of DDT in sediment, staff selected the freshwater sediment Probable Effects Concentrations of 31.3 ug/Kg for 4,4'-DDE and 572 ug/Kg for total DDT from USEPA's *Prediction of sediment toxicity using consensus-based freshwater sediment quality guidelines*, EPA 905/R-00/007. (McDonald et al., 2000.) Staff could not identify

¹ Only applies to the Palo Verde Valley Lagoon and Palo Verde Outfall Drain.

appropriate toxaphene evaluation guidelines to interpret the narrative toxicity water quality objective for aquatic life beneficial use protection in freshwater sediment.

Data Analysis

Available data for DDT and toxaphene concentrations in fish tissue, sediment, and water are displayed in Tables 1 to 4, except that no water concentration data is available for toxaphene.

Water concentration data (Table 1) shows that DDT is not usually found in Palo Verde Outfall Drain and Lagoon. When DDT is found in these waters, its concentrations are at or below analytical Reporting Limits (RLs). Because the RLs are above the selected CTR criterion, the data is inconclusive in confirming that DDT concentrations in water are below levels that produce adverse effects.

Table 1. DDT in Water (ug/L) in Palo Verde Outfall Drain (PVOD) and Lagoon (LG1) (Criteria is 0.00059 ug/L).

Date	p,p-DDT PVOD	p,p-DDE PVOD	p,p-DDE LG1	MDL ²	RL ³
11/3/2003		0.002	0.002	0.001	0.002
5/4/2010	0.01			0.002	0.005

Fish tissue data (Table 2) shows that concentrations of DDT and toxaphene in Palo Verde Outfall Drain and Lagoon fish have reduced significantly from peak concentrations in the 1980s. Data collected since 2000 shows that DDT concentrations in fish are still above the OEHHA Fish Contaminant Goals. Data collected since 2000 also shows that toxaphene concentrations in fish are below the Reporting limits (RLs). Because the RLs are above the OEHHA Fish Contaminant Goals, Colorado River Basin Water Board staff cannot determine the full extent of the toxaphene impairment in fish tissue.

Table 2. DDT and Toxaphene in Fish Tissues (ug/Kg) Data in Palo Verde Outfall (PVOD) and Lagoon (LG1).

² MDL = Method Detection Limit

³ RL = Reporting Limit

Date	DDT (Criteria is 15 ug/Kg) PVOD	DDT (Criteria is 15 ug/Kg) LG1	Toxaphene (Criteria is 4.3 ug/Kg) PVOD	Toxaphene (Criteria is 4.3 ug/Kg) LG1
4/14/1986	1,475		1,200	
4/14/1986	421		<100 ⁴	
9/9/1987	30		<1004	
9/9/1987	186		<1004	
8/19/1991	226		130	
9/22/1992	207		<1004	
9/22/1992	416		<1004	
10/25/1995	387		140	
10/25/1995	182		<1004	
10/25/1995	46			
11/2/1996	24		<1004	
11/12/1998	25.3		<204	
12/7/1999	33.2		<204	
11/10/2000	12.6		<204	
12/8/2004	11.4	9.42	<7.884	<7.884
2/10/2011	149.5			
2/10/2011	186.5		<404	
4/19/2011	96.9		<404	
4/19/2011	96.23			
11/15/2011	39.9		<404	
3/27/2012	5.39		<18.44	
11/17/2015	118.11			
3/1/2016	218			
3/1/2016	25.03			

Available sediment data (Table 3) shows that concentrations of 4,4'-DDE are present in Palo Verde Outfall Drain and Lagoon sediment, but their concentrations are below the USEPA's freshwater sediment Probable Effects Concentrations.

Table 3. DDT Data in Sediment (ug/Kg) in Palo Verde Outfall Drain (PVOD) and Lagoon (LG1).

⁴ Detected not quantified, concentrations are below the reporting limits.

Date	4,4'-DDE (Criteria is 31.3 ug/Kg) PVOD	4,4'-DDE (Criteria is 31.3 ug/Kg) LG1
5/8/2002		3.76
10/1/2002		2.74
4/8/2003	13	5.69
5/4/2004	2.82	
10/5/2004	11.7	
5/10/2005	4.5	3.06
10/25/2005	7.04	
5/2/2006	2.55	6.69
10/23/2007	8.96	9.6
4/22/2008		3.61
4/29/2009	4.23	2.21
10/20/2009	4.1	8.41
5/4/2010	5.26	5.35
10/5/2010		3.78
5/9/2011	7.72	
10/10/2011		2.94
5/8/2002		3.76

Numeric Targets

Numeric targets to attain the applicable water quality standards for DDT and toxaphene in Palo Verde Outfall Drain and Lagoon are displayed in Table 4. These numeric targets are set equal to OEHHA Fish Contaminant Goals, USEPA's freshwater sediment Probable Effects Concentrations, and the CTR water criterion described previously, with a three-year averaging period to account for short-term variations.

Table 4. DDT and Toxaphene Fish Tissues, Sediment, and Water Numeric Targets for PVOD

Constituent	Water (ug/L)	Fish Tissues (ug/Kg)	Sediment (ug/Kg)
4,4'-DDE	0.00059 ⁵		31.3 ⁶
Total DDT		15 ⁷	5726
Toxaphene	0.00025	4.37	

The numeric targets in Table 4 are the most stringent of the guidelines or targets that have been recommended by the State Water Resources Control Board (State Water Board) during the 2012 303(d) List cycle and used in the USEPA-approved 2012 303(d) List.

DDT and toxaphene values in fish tissue in Table 4 assume an average body weight of 70 kilograms and a consumption rate of 32 grams per day (8-ounce serving per week) for a 30-year exposure over a 70-year lifetime. These constituents are carcinogens; therefore, the risk level is set at one in a million.

The estimated percent reduction needed to achieve the water and fish tissue numeric targets is displayed in Table 5. Percent reduction in water and fish tissue is calculated by dividing the

⁵ USEPA, 2000

⁶ McDonald et al., 2000

⁷ OEHHA, 2008

required change in concentration (difference between the current concentration and the numeric target) by the current concentration, and then multiplying by 100.

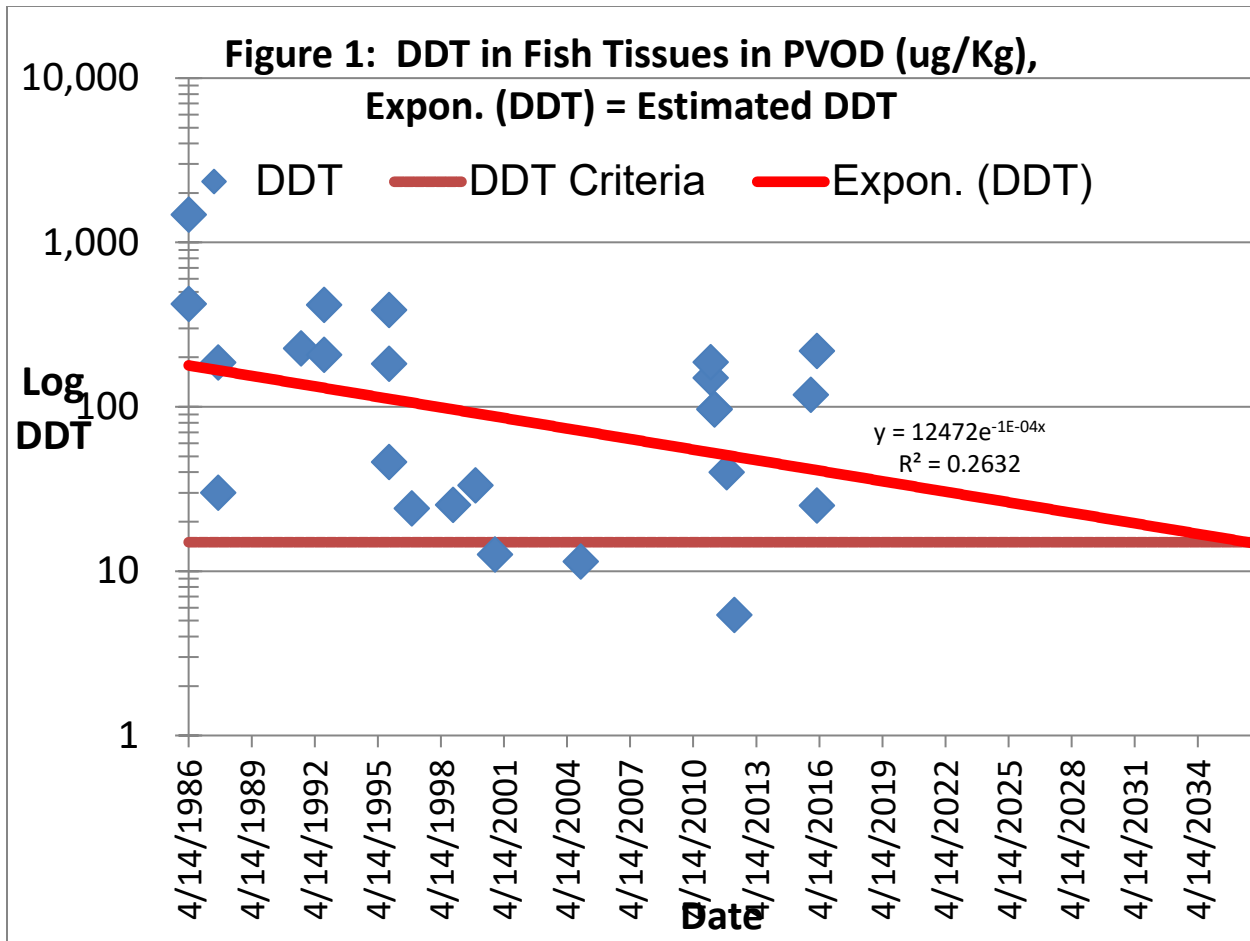
Table 5. Estimated percent (%) reduction needed for sources to meet DDT and Toxaphene water and fish tissue numeric targets in PVOD

Constituent	Water % Reduction	Fish Tissue % Reduction
4,4'-DDE	71	
Total DDT		88
Toxaphene		88

For DDT concentrations in water, data from November 3, 2003 for 4,4'-DDE (0.002 ug/L) (Table 1) was used to calculate the percent reduction. For DDT in fish tissues, the average of 2015 and 2016 data for Total DDT (118.11 ug/Kg in November 17, 2015, and 218 and 25.03 ug/Kg in March 1, 2016) (Table 2) was used to calculate the percent reduction of Total DDT in fish tissues. There is no estimated percent reduction needed for DDT in sediment because no sediment data was collected for Total DDT, and no sediment data violated the 4,4'-DDE numeric target in Table 5.

For toxaphene in fish tissues, the average detection limits from 2011 and 2012 data (40 ug/Kg in February 10, April 19, and November 15, 2011, and 18.4 ug/Kg in March 27, 2012) (Table 2) was used to calculate the percent reduction. There is no estimated percent reduction needed for toxaphene in sediment or in water, because no sediment evaluation guidelines were available and no water concentration data was collected to calculate the percent reduction.

Based on the DDT trend analysis (Figure 1), the estimated date to achieve the fish tissue numeric targets in Table 4 is December 2036.



Source Analysis

The main source of DDT and toxaphene in Palo Verde Outfall Drain and Lagoon is nonpoint source runoff from areas with high residual concentrations of these pesticides in soil. Nonpoint source runoff in the Palo Verde Valley and Mesa watersheds is predominantly from Irrigated Agricultural Lands. Nonpoint source inputs include the load from atmospheric deposition directly onto the waterbody, although this is a much smaller contribution compared to the load from agricultural runoff. There is no point source, National Pollutant Discharge Elimination System (NPDES)-permitted industrial facilities or publicly-owned treatment works (POTWs) that discharge to Palo Verde Outfall Drain and Lagoon.

The sources of DDT and toxaphene were investigated using several methods, including historical research as well as analysis of past pesticide use data and watershed land use. DDT and toxaphene possess similar chemical and physical characteristics. Like DDT, toxaphene binds to sediments in the environment. Both pesticides are carried by water flow from upstream locations to new downstream locations, where they settle and accumulate in the bottom sediments of waterbodies. Both pesticides accumulate in fish. Similar control measures that reduce the concentration of DDT in water, sediments, and fish to allowable concentrations will reduce the concentration of toxaphene in the environment.

As legacy pesticides, DDT and toxaphene have not been applied in the United States for many years, and there is no detailed historic use reporting data. Beginning in the late 1930s, DDT was

widely used to control insects in agriculture and insects that carry diseases such as malaria. At its peak in 1962, DDT was used on over 300 agricultural commodities. It was also used in residences as a mothproofing agent and to control lice. All registered uses of DDT have been banned in the United States since 1972. In emergency situations, DDT may still be used to control public health problems. (ATSDR, 2002.)

In California, the uses of DDT varied from the control of agricultural pests to the control of cockroaches in residences and mosquito abatement in neighborhoods. (CDFA, 1985.) Data documenting discrete DDT use is not available, since widespread reporting of pesticide use in California did not begin until 1974. DDT and its degradates are bound to sediment particles in the environment, and agricultural activities are the primary source of these pollutants in the Palo Verde Outfall Drain and Lagoon.

Toxaphene was first used in the 1940s. After the 1972 ban on DDT, toxaphene became the most heavily used pesticide in the United States. It was used primarily in the southern United States to control insect pests on cotton and other crops. It was also used to control insect pests on livestock and to kill unwanted fish in lakes. (ATSDR, 1996.) USEPA canceled the registration of toxaphene for most uses as a pesticide or pesticide ingredient in 1982. All registered uses were banned in 1990, and existing stocks were not allowed to be sold or used in the United States.

The applicable water quality standards for DDT and toxaphene are expected to be attained through continued implementation and improvement of sediment and pesticide management practices by Palo Verde Valley and Mesa farmers/growers.

Linkage Analysis

Palo Verde Outfall Drain and Lagoon are impaired by DDT and toxaphene, which has resulted in the presence of these pesticides in sediment and the tissue of fish. Organisms tend to accumulate these pesticides from their environment and to some extent through the consumption of organisms from lower trophic levels in the food-web that have also accumulated the pesticides. (Davis et al., 2007.) The concentrations of these pesticides in fish tissue have been previously associated with their concentrations in sediment. (CRWQCBCVR, 2010; CRWQCBSAR, 2006.) Since organochlorine pesticides have a strong tendency to bind to sediments, the transport of sediment is the primary pathway of pesticide from land use to the receiving waterbody.

A reduction of DDT and toxaphene loading into surface waters requires minimizing the sediment loading from areas where sediment is contaminated with organochlorine pesticides. As discussed in the source analysis, these pesticides are present as a result of various uses, mainly from historical Irrigated Agricultural Lands applications in Palo Verde Valley and Mesa watershed. Sediment loading from Irrigated Agricultural Lands in this watershed must be minimized to the maximum extent practical to achieve the numeric targets in Table 4, and therefore the water quality standards.

Allocations

The sediment and water load allocations for DDT and toxaphene are displayed in Table 6. These nonpoint source load allocations are set equal to USEPA's freshwater sediment Probable Effects Concentrations and the CTR water criterion described previously, with a three-year averaging period to account for short-term variations.

Table 6. DDT and Toxaphene Water Allocations and DDT Sediment Allocations for PVOD.

Constituent	Water (ug/L)	Sediment (ug/Kg)
4,4'-DDE	0.00059	31.3
Total DDT		572
Toxaphene	0.0002	

The water and sediment load allocations in Table 6 are assigned on a concentration basis, with the goal of attaining the numeric targets identified herein for water and sediment, as well as for fish tissue. The load allocations apply to water and sediment entering Palo Verde Outfall Drain and Lagoon. Compliance will be measured according to achievement of all numeric targets (including fish tissue concentration). Allocations are assigned by requiring equal concentrations from all sources.

The allocations in Table 6 are applicable throughout Palo Verde Outfall Drain and Lagoon, and during all seasons of the year. Discharges from Irrigated Agricultural Lands shall not cause or contribute to exceedances of the DDT and toxaphene allocations in Table 6.

The natural source and wasteload allocations are set equal to zero, because there are no natural sources or known point sources of DDT and toxaphene in the watershed of Palo Verde Outfall Drain and Lagoon.

Margin of Safety

The margin of safety is incorporated into this Impairment Control Plan implicitly through the conservative approach employed by setting the numeric targets and load allocations equal to the desired water quality. If, during the implementation of this Impairment Control Plan, more stringent water quality objectives are adopted by the Colorado River Basin Water Board for DDT or toxaphene, staff will revise the numeric targets to better reflect the desired water quality, and the load allocations will also be set equal to these revised targets.

Critical Conditions

This Impairment Control Plan protects beneficial uses by reducing the concentration of DDT and toxaphene in fish tissue, sediment, and the water column to levels that are safe for aquatic life and human health-related beneficial uses. Because fish bioaccumulate DDT and toxaphene, concentrations in edible-sized, game fish will integrate their exposure over many years. As a result, overall average loading is more important for the attainment of water quality standards than instantaneous or daily concentrations of DDT or toxaphene. Load allocations in this Impairment Control Plan are assigned as three-year average concentrations and are protective during all seasons in both high and low flow conditions. This plan therefore protects critical conditions.

Implementation and Monitoring

This Impairment Control Plan is implemented by these General WDRs. The parties responsible for implementing the General WDRs are Irrigated Agricultural Lands Dischargers in Palo Verde Valley and Palo Verde Mesa. The General WDRs require these parties to continue implementing effective sediment management practices to achieve the load allocations for DDT and toxaphene in Table 6 by December 2036. The Order also requires the parties to monitor Palo Verde Outfall Drain and Lagoon for DDT and toxaphene in fish tissues once a year for three years using

methods with analytical RLs below the numeric target values, if available. Monitoring data will be used to identify and implement management practices that effectively control DDT and toxaphene and achieve compliance with the load allocations. Colorado River Basin Water Board staff will assess all available monitoring data to determine the achievement of water quality standards, the effectiveness of management practices, and the necessity of any revisions to this Impairment Control Plan.

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**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION**

ATTACHMENT C TO ORDER R7-2019-0030-04

**MONITORING AND REPORTING PROGRAM
GENERAL WASTE DISCHARGE
REQUIREMENTS FOR
DISCHARGES OF WASTE FROM IRRIGATED AGRICULTURAL LANDS
FOR DISCHARGERS THAT ARE MEMBERS OF A COALITION GROUP
IN THE PALO VERDE VALLEY AND PALO VERDE MESA**

IMPERIAL AND RIVERSIDE COUNTIES

I. Introduction

This Monitoring and Reporting Program (MRP) is required pursuant to Water Code section 13267, which authorizes the California Regional Water Quality Control Board, Colorado River Basin Region (Colorado River Basin Water Board) to require preparation and submittal of technical and monitoring reports. This MRP includes requirements for the Palo Verde Outfall Coalition (Outfall Coalition or Coalition), a third-party representative entity assisting individual Irrigated Agricultural Lands operators and owners that are members of the Coalition (Members) and enrolled under the *General Waste Discharge Requirements for Discharges of Waste from Irrigated Agricultural Lands for Dischargers that Are Members of a Coalition Group in the Palo Verde Valley and Palo Verde Mesa, Order R7-2019-0030 (Order)*. It also contains monitoring and reporting requirements for Members with respect to on-farm drinking water well testing. The requirements of this MRP are necessary to monitor Member compliance with the provisions of the Order and determine whether state waters receiving discharges from Members are meeting water quality objectives.

This MRP establishes specific surface water and groundwater monitoring, reporting, and electronic data deliverable requirements for the Outfall Coalition. Due to the variable nature of Irrigated Agricultural Lands operations, monitoring requirements for surface waters and groundwaters will be periodically reassessed to determine if changes should be made to better represent Irrigated Agricultural Lands discharges to state waters. The monitoring schedule will also be periodically reassessed so that constituents are monitored during application and/or release timeframes, when constituents of concern are most likely to affect water quality. The Coalition must not implement any changes to this MRP unless the Colorado River Basin Water Board or its Executive Officer issues a revised MRP.

This MRP conforms to the goals of the Nonpoint Source (NPS) Program as outlined in the *Plan for California's nonpoint source pollution control program* by:

1. tracking, monitoring, assessing, and reporting program activities;
2. ensuring consistent and accurate reporting of monitoring activities;
3. targeting NPS Program activities at the watershed level;
4. coordinating with public and private partners; and
5. tracking implementation of management practices to improve water quality and protect existing beneficial uses.

Surface water and groundwater monitoring must provide sufficient data to describe Irrigated Agricultural Lands' impacts on surface water and groundwater quality and to determine whether

existing or newly implemented management practices comply with the receiving water limitations of the Order. Surface water and groundwater monitoring shall include a comprehensive suite of constituents (also referred to as “parameters”) monitored periodically in a manner that allows for an evaluation of the condition of a water body and determination whether Irrigated Agricultural Lands operations in the Palo Verde Valley and Palo Verde Mesa watersheds are causing or contributing to any surface water or groundwater quality problems.

II. General Monitoring and Reporting Provisions

1. Samples and measurements taken for the purpose of monitoring shall be representative of the volume and nature of the discharge sampled and shall be collected at monitoring points approved by the Colorado River Basin Water Board’s Executive Officer.
2. All monitoring instruments and devices shall be properly maintained and calibrated as necessary to ensure their continued accuracy. Any flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.
3. Monitoring shall be conducted according to the U.S. Environmental Protection Agency (USEPA) test procedures approved under title 40 of the Code of Federal Regulations (40 CFR) part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act*, as amended, for the analyses of pollutants, unless another method is specified in this MRP. The Colorado River Basin Water Board’s Executive Officer may approve equivalent test procedures at her or his discretion.
4. Groundwater monitoring, sample preservation, and analyses shall be performed in accordance with the latest edition of USEPA’s *Test Methods for Evaluating Solid Waste*, SW-846, unless another method is specified in this MRP. The Colorado River Basin Water Board’s Executive Officer may approve equivalent test procedures at her or his discretion.
5. Laboratory data must quantify each constituent down to the approved reporting levels for specific constituents. All analytical data shall be reported with method detection limits (MDLs) and with either the reporting level or limits of quantitation (LOQs) according to 40 Code of Federal Regulations part 136, Appendix B.
6. All analyses shall be conducted by a laboratory certified to perform such analyses by the State Water Resources Control Board (State Water Board), Division of Drinking Water’s Environmental Laboratory Accreditation Program (ELAP).
7. Monitoring data collected to meet the requirements of the Order must be collected and analyzed in a manner that ensures the quality of the data. The Coalition must follow sampling and analytical procedures as specified in the approved Monitoring Program Quality Assurance Project Plan (QAPP).
8. The Coalition shall retain records of all monitoring information, copies of all reports required by the Order, and records of all data used to complete the application for the Order, for a period of at least **10 years** from the date of the sample, measurement, report or application. Records may be maintained electronically, and back up files must be stored in a secure, offsite location managed by an independent entity.
9. Records of monitoring information shall include:
 - a. The date, time, and location that the sample was taken.

- b. The individual(s) who performed the sampling or measurements.
 - c. The date(s) analyses were performed.
 - d. The individual(s) who performed the analyses.
 - e. The analytical techniques or methods used; and
 - f. The results of such analyses.
10. To the extent feasible, all technical reports, information, and data required by this MRP must be submitted electronically in a format specified by the Colorado River Basin Water Board's Executive Officer.
 11. This MRP requires the Outfall Coalition to collect information from its Members and allows the Coalition to report the information to the Board in a summary format. The Coalition must submit specific Member information collected as part of the Order and this MRP when requested by the Executive Officer or as specified in the Order.
 12. This MRP becomes effective May 15, 2019. The Executive Officer may revise this MRP as necessary. Upon the effective date of this MRP, the Outfall Coalition, on behalf of the individual Members, shall implement the monitoring and reporting below.

III. Surface Water Quality Monitoring Requirements

A. Surface Water Monitoring Sites

Surface water monitoring shall be performed at sites which are representative of the greater watershed for Palo Verde Valley and Palo Verde Mesa. This MRP designates the following four (4) sites as representative of the Palo Verde Valley and Palo Verde Mesa:

- Monitoring Site # 1 is in the Colorado River at the Palo Verde Diversion Dam. Samples from this location serve as an upstream control for comparison with the other monitoring sites.
- Monitoring Site # 2 is upstream of the siphon where the Eastside Drain crosses Lovekin Boulevard.
- Monitoring Site # 3 is in the Outfall Drain between 35th Avenue and the line between Imperial and Riverside Counties.
- Monitoring Site # 4 is at the Outfall Drain metering station 148+00 about 0.8 miles above the Township line, which is the southern boundary line for Palo Verde Irrigation District (PVID).

The Coalition shall propose these locations in its Surface and Groundwater Monitoring Program Plan, subject to approval of the Executive Officer. These 4 sites will provide surface water quality information on the Irrigated Agricultural Lands discharge to the drain system. By comparing the upstream water quality at Site #1 with the downstream water quality at Sites #2, 3, or 4, maintenance impacts for various time periods can be evaluated for the different stretches of drainage areas. Also, for the Outfall Drain, by comparing the upstream water quality at Site #2 to the downstream Site #3 and additionally by comparing the upstream water quality at Site #3 to the downstream Site #4, maintenance impacts for various time periods can be evaluated for the different stretches of the drain system. The comparison of the upstream Site #1 water quality to the downstream Site #4 will help to determine the magnitude of constituents discharging to the Colorado River.

Samples are to be taken within the actual flow area of the water. Sampling should be avoided from ponded, sluggish, or stagnant water. Note that samples taken downstream of a bridge could be

contaminated from the bridge structure or runoff from the road surface, so samples should be taken upstream when possible.

Table 1. Outfall Coalition Surface Water Quality Monitoring Sites Geographic Coordinates¹

Monitoring Site	Station Code	Latitude	Longitude
1	PVC Sta. 5+80	33.730679	-114.512032
2	Eastside Drain Sta. 110+62	33.537615	-114.599387
3	Outfall Drain Sta. 567+99	33.455931	-114.705504
4	Outfall Drain Sta. 148+00	33.455931	-114.718484

B. Monitoring Schedule, Frequency, and Parameters

Monitoring must be conducted when the pollutant is most likely to be present. If there is a temporal or seasonal component to a beneficial use of the water body, monitoring must also be conducted when beneficial use impacts could occur. The frequency of data collection must be sufficient to allow determination of compliance with the relevant numeric water quality objective(s) or water quality guideline triggers.

The major pollutants of concern within the Palo Verde region from Irrigated Agricultural Lands discharges include nutrients, pesticides, salts, and sediments. Water quality monitoring shall be used to assess the wastes in discharges from Irrigated Agricultural Lands to state waters and to evaluate the effectiveness of management practices implementation. Water quality shall be evaluated with both field-measured parameters and laboratory analytical testing as listed on Table 2. Water quality shall also be evaluated with fish tissue laboratory analytical testing as listed in Table 3.

¹ Monitoring sites listed in the table are not an exclusive list; the Executive Officer may require that the Coalition add monitoring sites as necessary to meet the requirements of the Order.

Table 2: Surface Water Quality Monitoring Parameters, Frequency, and Aquatic Life and Consumption Numeric Water Quality Objectives or Criteria at all 4 sites **2 3**

Parameter	Field or Laboratory Analysis	Frequency	Numeric Water Quality Objectives or Criteria
pH	Field	Monthly	6.0 to 9.0
Temperature	Field	Monthly	
Total Dissolved Solids (TDS)	Field	Monthly	
Total Dissolved Solids (TDS)	Laboratory	Quarterly	
Dissolved Oxygen (DO)	Field	Monthly	5.0 mg/L ⁴
Chloride	Laboratory	Quarterly	230 mg/L
Nitrate (as N)	Laboratory	Quarterly	
Total Nitrogen	Laboratory	Quarterly	
Total Suspended Solids (TSS)	Laboratory	Quarterly	200 mg/L
Total Phosphorus	Laboratory	Semi-annual (March and October)	
Escherichia coli ⁵	Laboratory	Quarterly	6-week GM ⁶ (100 cfu/100 ml ⁷); or STV ⁸ (320 cfu/100 ml)
Chlorpyrifos	Laboratory	Semi-annual (March and October)	0.020 µg/l ⁹ (1-hour average), 0.014 µg/l (4-day average).
Malathion	Laboratory	Semi-annual (March and October)	0.170 µg/l (Max 1-hour average), 0.028 µg/l (4-day average)
Dimethoate	Laboratory	Semi-annual (March and October)	43 µg/l

Annual (once yearly) fish tissue sampling will be conducted in late October/early November. The following table lists the constituents that are to be analyzed on trophic level 4 fish tissue samples from the selected sample site on an annual basis:

Table 3: Fish Tissue Monitoring Parameters, Frequency, and Water Quality Objectives at Monitoring Site # 31011

2 SM = Standard Method; EPA = Environmental Protection Agency Method

3 Laboratory analyses should have the detection limit and reportable detection limit lower than corresponding numeric water quality objectives or water quality guidelines. Change of laboratory method with approval of Regional Water Board may be required to meet the reporting limits requirement.

4 mg/L = milligrams per liter

5 The new E. coli numeric water quality objective was recently adopted by the State Water Board and approved by OAL and USEPA.

6 GM = geometric mean

7 100 cfu/100 ml = 100 colony-forming units per 100 milliliters

8 STV = statistical threshold value

9 µg/l = micrograms per liter

Fish Tissue Measured Parameters	Field or Laboratory Analysis	Frequency	Numeric Water Quality Objectives or Criteria
DDT	Laboratory	Annual	15 ug/kg
Toxaphene	Laboratory	Annual	4.3 ug/kg

C. Surface Water Data Management Requirements

Data should be provided in a form compatible with the Surface Water Ambient Monitoring Program (SWAMP). The results of monitoring are to be included in the monthly and annual monitoring reports described below, and shall include a map of the sampled locations, tabulation of the analytical data, and time concentration charts.

IV. Groundwater Quality Monitoring Requirements

The Coalition must collect sufficient data to describe Irrigated Agricultural Lands impacts on groundwater quality and to determine whether existing or newly-implemented management practices comply with the groundwater receiving water limitations of the Order. The evaluation of groundwater quality required by this MRP focuses on two primary areas: (1) groundwater trend monitoring and (2) drinking water supply well monitoring.

The purpose of the groundwater quality trend monitoring program is to determine current water quality conditions of groundwater relevant to Irrigated Agricultural Lands and develop long-term groundwater quality information that can be used to evaluate the regional effects of Irrigated Agricultural Lands practices. The purpose of the drinking water supply well program is to identify drinking water wells that have nitrate concentrations that threaten to exceed the maximum contaminant level (MCL) of 10 mg/L of nitrate + nitrite as N and notify any well users of the potential for human health impacts.

A. Groundwater Quality Trend Monitoring

The Coalition shall develop a groundwater monitoring network of wells that will (1) be representative of the Coalition’s geographic area and (2) employ shallow wells (though not necessarily wells completed in the uppermost zone of first encountered groundwater). The Coalition shall propose the locations of the sampling wells in its Surface and Groundwater Monitoring Program Plan, subject to approval of the Executive Officer. The rationale for the distribution of trend monitoring wells shall be included in the workplan.

Details for wells proposed for groundwater monitoring shall include:

1. GPS coordinates;
2. Physical address of the property on which the well is situated (if available);
3. California state well number (if known);
4. Well depth;
5. Top and bottom perforation depths;
6. A copy of the water well drillers log, if available;
7. Depth of standing water (static water level), if available (this may be obtained after implementing the program); and
8. Well seal information (type of material, length of seal).

Monitoring wells shall be sampled, at a minimum, annually at the same time of the year and analyzed at least for the indicator parameters identified in Table 4 below:

Table 4: Groundwater Monitoring Constituents, Methods, Frequency, and Drinking WQOs^{10 11}

Surface Water Measured Parameters	Field or Laboratory Analysis	Frequency	Numeric Water Quality Objectives or Criteria
Dissolved Oxygen (DO)	Field	Annually	
pH	Field	Annually	
Nitrate (as N)	Laboratory	Annually	10 mg/L
Total Dissolved Solids (TDS)	Laboratory	Annually	
Temperature	Field	Annually	
Anions (carbonate, bicarbonate, chloride, and sulfate)	Laboratory	Initially and once every five years	
Cations (boron, calcium, sodium, magnesium, and potassium)	Laboratory	Initially and once every five years	
Malathion	Laboratory	Annually	
Dimethoate	Laboratory	Annually	

The results of trend monitoring shall be included in the Coalition’s annual monitoring reports and shall include a map of the sampled wells, tabulation of the analytical data, and time concentration charts.

B. Drinking Water Supply Well Monitoring

By **March 1, 2020**, Members must initiate sampling of drinking water supply wells located on their property, as described below:

- 1. Initial Testing.** Initially, Members must conduct annual drinking water supply well sampling for nitrates for three years. In lieu of one or more of these three annual tests, Members may submit one or more annual drinking water supply well sampling results from one or more of the five prior years, provided sampling and testing for nitrates was completed using EPA-approved methods and by an ELAP-certified laboratory.
- 2. Continued Testing.** Members must continue conducting annual drinking water supply well sampling for nitrates, unless the nitrate concentration is below 8 mg/L nitrate+nitrite as N in three consecutive annual samples, in which case Members may conduct sampling every five years going forward. An alternative sampling schedule based on trending data for the well may be required by the Executive Officer at any time.
- 3. Ceasing Sampling.** Sampling may cease if a drinking water well is taken out of service or no longer provides drinking water, including where the well is taken out of service because sufficient replacement water is being supplied. Members must keep any records (e.g. photos, bottled water receipts) establishing that the well is not used for drinking water.

10 SM = Standard Method; EPA = Environmental Protection Agency Method

11 Laboratory analyses should have the detection limit and reportable detection limit lower than corresponding numeric water quality objectives or water quality guidelines. Change of laboratory method with approval of Regional Water Board may be required to meet the reporting limits requirement

4. **Exceedances.** If groundwater monitoring determines that water in any well that is used for drinking water exceeds 10 mg/L of nitrate+nitrite as N, the Member must provide notice to the users within 10 days of learning of the exceedance and send a copy of the notice to the Colorado River Basin Region Water Board. If the Member is not the owner of the Irrigated Agricultural Lands, the Member may provide notice instead to the owner within 24 hours of learning of the exceedance, and the owner must provide notice to the users within nine days and send a copy of the notice to the Colorado River Basin Region Water Board.
5. **Form of Notice.** At a minimum, notice shall be given to users by providing them a copy of a Drinking Water Notification Template approved by the Executive Officer. The template shall be signed by the Member (or landowner if the Member is not the owner) certifying notice has been provided to the users. A copy of the signed template shall be sent to the Colorado River Basin Region Water Board and retained by the Member or non-Member owner.

Groundwater samples must be collected using proper sampling methods, chain-of-custody, and quality assurance/quality control protocols. Groundwater samples must be collected at or near the well head before the pressure tank and prior to any well head treatment. In cases where this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment systems.

All drinking water supply well monitoring data, including any existing data, is to be submitted electronically to the State Water Board's GeoTracker database by the testing laboratory. The data submitted shall include the APN where the drinking water supply well is located.

V. Surface and Groundwater Monitoring Program Plan

The Coalition shall prepare and submit a detailed Surface and Groundwater Monitoring Program Plan (Monitoring Program Plan) to implement the surface water and groundwater monitoring requirements specified in this MRP. The Monitoring Program Plan is required under Section E.5.b of the General WDRs and shall be submitted **within 90 days** of adoption of the Order.

At a minimum the Monitoring Program Plan shall contain the following:

1. Monitoring Event Preparation and Protocols

The Monitoring Program Plan shall include a description of monitoring event preparation and field protocols for sample collection and sample handling (including chain of custody requirements). The Monitoring Program Plan shall also describe protocols for ensuring that all monitoring instruments and devices used by the Coalition for the prescribed monitoring and sample collection are properly maintained and calibrated to ensure proper working condition and continued accuracy.

2. Quality Assurance Project Plan (QAPP)

The Monitoring Program Plan shall include a QAPP describing the objectives and organization of the proposed surface water and groundwater monitoring, and quality assurance/quality control to be conducted. The purpose of the QAPP is to ensure that the data collection and analysis is consistent with the type and quality of data needed to meet the Colorado River Basin Water Board's monitoring goals and objectives. The QAPP shall meet the State Water Board's SWAMP requirements and shall include at least the following four sections: (1) Project Management, (2) Data Generation and Acquisition, (3) Assessment and Oversight, and (4) Data Validation and Usability. Laboratory analytical methods shall be included as an appendix of the QAPP. The Executive Officer must

approve the QAPP prior to implementation. The Water Board website contains a QAPP template.

3. Monitoring Locations

The Monitoring Program Plan shall include a list of the monitoring locations. The monitoring locations shall meet the monitoring location requirements listed in Sections III.A and IV.A of this MRP. The Monitoring Program Plan shall describe the characteristics of each sampling site, including nearby crop type and cultivation practices, and shall provide an appropriately scaled map of the monitoring locations and GPS coordinates for each monitoring location. The Monitoring Program Plan shall also provide the supporting scientific rationale for the selection of each surface water monitoring location including a demonstration that the proposed locations are appropriate for evaluating the effects of irrigation runoff, stormwater, and non-stormwater discharges from Irrigated Agricultural Lands, and for evaluating the success of management practices.

4. Monitoring Constituents

The Monitoring Program Plan shall include a list of the constituents to be monitored at each monitoring location shall be provided. The list shall include, but need not be limited to, the parameters listed in Tables 2, 3, and 4 and Sections III.B, IV.A, and IV.B of this MRP.

5. Monitoring Frequency

The Monitoring Program Plan shall include the frequency and approximate dates of monitoring. Surface water monitoring shall be conducted during the dry season and wet season and at the frequency specified in in Tables 2, 3, and 4 and Section III.B, IV.A, and IV.B of this MRP.

6. Monitoring Team

A description of the monitoring team and analytical laboratories, including names, titles, qualifications, and contact information of key personnel. Changes to the monitoring team should be included in the Annual Monitoring Report (Section VI.E of this MRP).

VI. Reporting Requirements

Reports and notices shall be submitted in accordance with Section F of the Order, General Provisions.

A. Monthly Submittals of Surface Water Monitoring Results

Each month, the Coalition shall submit surface water field measurements and laboratory analysis results as they are available in an electronic format. The monthly surface water monitoring data results shall include the following for the required reporting period:

1. An Excel workbook containing all data records (surface water data). The workbook shall contain, at a minimum, those items detailed in the most recent version of the Coalition's approved Monitoring Program Plan and QAPP.
2. Electronic copies of all field sheets.
3. Electronic copies of photos obtained from all surface water monitoring sites, clearly labeled with station code and date.
4. Electronic copies of all applicable laboratory analytical reports on a CD.
5. For chemistry data, analytical reports must include, at a minimum, the following:
 - a. A lab narrative describing quality control failures;
 - b. Analytical problems and anomalous occurrence;

- c. Chain of custody and sample receipt documentation;
- d. All sample results for contract and subcontract laboratories with units, Reporting Limits and Method Detection Limits;
- e. Sample preparation, extraction, and analysis dates; and
- f. Results for all quality control samples including all field and laboratory blanks, lab control spikes, matrix spikes, field and laboratory duplicates, and surrogate recoveries.

If any data is missing from the monthly report, the submittal must include a description of what data is missing and when it will be submitted to the Colorado River Basin Water Board.

B. Annual Submittal of Groundwater Monitoring Results

Each year, the Coalition shall submit groundwater field measurements and laboratory analysis results as they are available in an electronic format. The annual groundwater monitoring data results shall include the following for the required reporting period:

1. An Excel workbook containing all data records (groundwater data). The workbook shall contain, at a minimum, those items detailed in the most recent version of the Coalition's approved Monitoring Program Plan and QAPP.
2. Electronic copies of all field sheets.
3. Electronic copies of photos obtained from all surface water monitoring sites, clearly labeled with station code and date.
4. Electronic copies of all applicable laboratory analytical reports on a CD.
5. For chemistry data, analytical reports must include, at a minimum, the following:
 - a. A lab narrative describing quality control failures;
 - b. Analytical problems and anomalous occurrence;
 - c. Chain of custody and sample receipt documentation;
 - d. All sample results for contract and subcontract laboratories with units, Reporting Limits and Method Detection Limits;
 - e. Sample preparation, extraction and analysis dates; and
 - f. Results for all quality control samples including all field and laboratory blanks, lab controlspikes, matrix spikes, field and laboratory duplicates, and surrogate recoveries.
 - g. If any data is missing from the annual data report, the submittal must include a description of the missing data and the date it will be submitted to the Colorado River Basin Water Board.

C. Annual Management Practice Data

By **March 1, 2021**, and **annually** thereafter, the Coalition shall submit to the Colorado River Basin Water Board management practice implementation data from the most recently submitted Farm Plans.

The following data shall be reported to the Colorado River Basin Water Board for each field:

1. Anonymous Member ID
2. Crop: If the Member has more than one field of a given crop, these may be identified by crop plus a number (e.g., tomato₁, tomato₂)
3. Irrigation method
4. Irrigation practices

5. Pest management practices
6. Sediment and erosion management practices
7. Whether there are irrigation wells
8. Whether there are abandoned wells

D. Annual Irrigation and Nitrogen Management Summary Data

The Coalition shall submit certain data from the prior year's Irrigation and Nitrogen Management Plan (INMP) Summary Reports and certain additional calculations in three tables in Excel workbook format.

The Coalition shall submit the Individual Field AR Data by Anonymous Member ID Table beginning **August 1, 2024** and June 1 **annually** thereafter. The Coalition shall submit Individual Field AR Data by Anonymous APN ID Table beginning **August 1, 2024** and June 1 **annually** thereafter. The Coalition shall submit Township AR Data Table information beginning **August 1, 2024** and June 1 **annually** thereafter.

The Coalition shall calculate the following values and convert them to per acre values as indicated:

Total Nitrogen Removed

The Total Nitrogen Removed shall be calculated from the total amount of material removed (harvested/sequestered) and multiplied by a crop-specific coefficient, C_N . The Coalition shall determine, through literature review, nitrogen removed testing, and research, the most appropriate C_N coefficients for converting crop yield to Nitrogen Removed. The Coalition shall publish C_N coefficients for crops that cover 95% of acreage within the Coalition's boundaries in time to calculate Total Nitrogen Removed values based on yield values reported in the INMP Summary Reports due **June 1, 2025**. By **June 1, 2026**, the Coalition shall publish C_N coefficients for crops that cover 99% of acreage within the Coalition's boundaries. For the crops that cover the remaining 1% of acreage within the Coalition's boundaries, it is acceptable to use estimated C_N coefficients based on similar crop types. The methods used to establish C_N coefficients must be approved by the Executive Officer. The Coalition shall submit the methods used to establish C_N coefficients to RWB for EO review for approval on January 1, 2025 and January 1, 2026. Until C_N coefficients have been established for a particular crop, the Member will only report the crop yield in the INMP. Nitrogen Removed includes nitrogen removal via harvest and nitrogen sequestered in permanent wood of perennial crops.

Nitrogen Applied/Nitrogen Removed Ratio (A/R Ratio)

The A/R ratio shall be reported as the ratio of Total Nitrogen Applied to Total Nitrogen Removed.

Multi-Year Applied/Nitrogen Removed Ratio (A/R Ratio)

For each field for which three consecutive years of A/R ratio is available, the multi-year A/R ratio shall be reported as the ratio of Total Nitrogen Applied to Total Nitrogen Removed for the three prior consecutive years.

Nitrogen Applied – Nitrogen Removed Difference (A-R Difference)

The A-R difference shall be reported as the numerical difference between Total Nitrogen Applied and Total Nitrogen Removed. The Coalition shall review each Member's INMP Summary Reports and independently calculate and report both the A/R ratio and the A-R difference for the current reporting cycle ($A/R_{1\text{ year}}$ and $A-R_{1\text{ year}}$). Beginning the third year of reporting, for those locations with data available for three years, the Coalition shall

calculate and report a three-year running total for both the A/R ratio and the A-R difference ($A/R_{3\text{ year}}$ and $A-R_{3\text{ year}}$). The formulas for the A/R ratios and A-R differences are shown in the equations below.

$$\text{A/R Ratio} = \frac{\text{Nitrogen Applied (from any source, including fertilizers, irrigation)}}{\text{Nitrogen Removed (via harvest, etc.)}}$$

$$\text{A-R Difference} = \text{Nitrogen Applied} - \text{Nitrogen Removed}$$

The following data shall be reported to the Colorado River Basin Water Board in three tables:

1. Individual Field-Level AR Data by Anonymous Member ID Table:

One entry is made for each field or management unit reported.

- a. Anonymous Member ID: Each Anonymous Member ID may be associated with more than one field
- b. Crop: If the Member has more than one field of a given crop, these may be identified by crop plus a number (e.g. tomato₁, tomato₂)¹²
- c. Nitrogen applied via fertilizers (lbs/acre)
- d. Nitrogen applied via organics and compost (lbs/acre)
- e. Nitrogen applied via irrigation water (lbs/acre)
- f. Total Nitrogen applied (lbs/acre) [sum of nitrogen from fertilizer, organics/compost, and irrigation water]
- g. Nitrogen removed per acre (lbs/acre)
- h. A/R ratio
- i. A-R difference (lbs/acre)
- j. 3-year A/R ratio, if available

2. Individual Field-Level AR Data by Anonymous APN ID Table:

An entry for a field or management unit may be repeated if there is more than one Anonymous APN ID associated with the field or management unit.

- a. Anonymous APN ID: List on a separate line each Anonymous APN ID assigned to parcels the field overlays completely or partially
- b. Associated groundwater basin or sub basin
- c. Crop: If there is more than one field of a given crop in the APN, these may be identified by crop plus a number (e.g. tomato₁, tomato₂)
- d. Nitrogen applied via fertilizers (lbs/acre)
- e. Nitrogen applied via organics and compost (lbs/acre)
- f. Nitrogen applied via irrigation water (lbs/acre)
- g. Total Nitrogen applied (lbs/acre) [sum of nitrogen from fertilizer, organics/compost, and irrigation water]

¹² The Colorado River Basin Water Board recognizes that, if multiple crop types are grown in the same field over the course of a year or over several years, variations on field nomenclature and crop reporting will be necessary. For example, the field could be identified as the same field in an extra column and an extra row could be added for each crop. In addition, the three-year A/R target range would likely need to be expressed as a weighted average of the crops grown during the three years.

- h. Nitrogen removed per acre (lbs/acre)
 - i. A/R ratio
 - j. A-R difference (lbs/acre)
 - k. 3-year A/R ratio, if available
3. Township-Level Aggregated AR Data Table:
- a. Township and range
 - b. Crop
 - c. Total acreage: sum for all the acreage for each unique crop within the township (acres)
 - d. Total nitrogen applied via fertilizer: sum for all acreage for each unique crop (total lbs)
 - e. Total nitrogen applied via organics and compost: sum for compost for each unique crop (total lbs)
 - f. Total nitrogen applied via irrigation water: sum for all acreage for each unique crop (total lbs)
 - g. Total nitrogen applied for each unique crop (total lbs) [sum of nitrogen from fertilizer, organics/compost, and irrigation water]
 - h. Total nitrogen removed for each unique crop (total lbs)
 - i. A/R ratio for each unique crop
 - j. A-R difference for each unique crop (total lbs)

E. Annual Monitoring Report (AMR)

The Annual Monitoring Report (AMR) shall be submitted by **March 1** every year. The AMR shall cover the monitoring periods from the previous calendar year. The AMR shall include the following components:

1. Signed transmittal letter;
2. Title page;
3. Table of contents;
4. Executive summary;
5. Description of the Coalition's covered geographical area;
6. Monitoring objectives and design;
7. Sampling site/monitoring well descriptions and rainfall records for the time period covered under the AMR;
8. Location map(s) of sampling sites/monitoring wells, crops, and land uses;
9. Results of all surface water and groundwater analyses arranged in tabular form so that the required information is readily discernible;
10. Discussion of data relative to water quality objectives, and where applicable, Water Quality Restoration Plan milestones;
11. Sampling and analytical methods used;
12. Summary of Quality Assurance Evaluation results (as identified in the most recent version of the Coalition's approved QAPP);
13. Specification of the method(s) used to obtain estimated flow at each surface water monitoring site during each monitoring event;
14. Summary of exceedances of water quality objectives/trigger limits occurring during the reporting period and for surface water-related pesticide use information;
15. Actions taken to address water quality exceedances that have occurred, including but not limited to, revised or additional management practices implemented;
16. Evaluation of monitoring data to identify spatial trends and patterns;
17. Summary of management practice information collected as part of the Farm Plans;
18. Summary of INMP Summary Report data;

19. Summary of education and outreach activities; and
20. Conclusions and recommendations.

Additional clarifications necessary for some of the above report components are described below:

Report Component (1) —Signed Transmittal Letter

A transmittal letter shall accompany each report. The transmittal letter shall be submitted and signed in accordance with the requirements of Section F of the Order, General Provisions.

Report Component (8) — Location Maps

Location map(s) showing the sampling sites/monitoring wells, crops, and land uses within the Coalition's geographic area must be included in the AMR. An accompanying GIS shapefile or geodatabase of monitoring site and monitoring well information must include site code and name (surface water only) and Global Positioning System (GPS) coordinates (surface water sites and wells used for monitoring). The map(s) must contain a level of detail that ensures they are informative and useful. GPS coordinates must be provided as latitude and longitude in the decimal degree coordinate system (at a minimum of five decimal places). The datum must be either WGS 1984 or NAD83, and clearly identified on the map. The source and date of all data layers must be identified on the map(s). All data layers/shapefiles/geodatabases included in the map shall be submitted with the AMR.

Report Component (9) – Tabulated Results

In reporting monitoring data, the Coalition shall arrange the data in tabular form so that the required information is readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with the data collection requirements of the MRP.

Report Component (10) — Data Discussion to Illustrate Compliance

The report shall include a discussion of the Coalition's compliance with the data collection requirements of the MRP. If a required component was not met, an explanation for the missing data must be included. Results must also be compared to water quality objectives and trigger limits.

Report Component (12) — Quality Assurance Evaluation (Precision, Accuracy and Completeness)

A summary of precision and accuracy results (both laboratory and field) is required in the report. Acceptance criteria for all measurements of precision and accuracy must be identified. The Coalition must review all quality assurance/quality control (QA/QC) results to verify that protocols were followed and identify any results that did not meet acceptance criteria. A summary table or narrative description of all QA/QC results that did not meet water quality objectives must be included. Additionally, the report must include a discussion of how the failed QA/QC results affect the validity of the reported data and the corrective actions to be implemented.

In addition to precision and accuracy, the Coalition must also calculate and report completeness. Completeness includes the percentage of all quality control results that meet acceptance criteria, as well as a determination of project completeness. The Coalition may ask the laboratory to provide assistance with evaluation of their QA/QC data, provided that the Coalition prepares the summary table or narrative description of the results for the AMR.

Report Component (14) — Summary of Exceedances

A summary of the exceedances of water quality objectives or triggers that have occurred during the monitoring period is required in the AMR. In the event of exceedances for pesticides or in surface water, local pesticide use data must be included in the AMR. Pesticide use information may be acquired from the agricultural commissioner. This requirement is described further in Section F below on Surface and Groundwater Exceedance Reports.

Report Component (16) — Evaluation of Monitoring Data

The Coalition must evaluate its monitoring data in the AMR in order to identify potential trends and patterns in surface water and groundwater quality that may be associated with waste discharge from Irrigated Agricultural Lands. As part of this evaluation, the Coalition must analyze all readily available monitoring data that meet program quality assurance requirements to determine deficiencies in monitoring for discharges from Irrigated Agricultural Lands and whether additional sampling locations are needed. If deficiencies are identified, the Coalition must propose a schedule for additional monitoring or source studies. Upon notification from the Executive Officer, the Coalition must monitor any parameter in a watershed that lacks sufficient monitoring data (i.e., a data gap should be filled to assess the effects of discharges from Irrigated Agricultural Lands on water quality).

The Coalition should incorporate pesticide use information, as needed, to assist in its data evaluation. Wherever possible, the Coalition should utilize tables or graphs that illustrate and summarize the data evaluation.

Report Component (17) – Summary of Management Practice Information

The Coalition will aggregate and summarize information collected from management practices implementation. The summary of management practice data must include a quality assessment of the collected information by township (e.g. missing data, potentially incorrect/inaccurate reporting), and a description of corrective actions to be taken regarding any deficiencies in the quality of data submitted, if such deficiencies were identified.

Report Component (18) – INMP Summary Report Evaluation

In addition to submitting the INMP Summary Report data, the Coalition shall submit an evaluation comparing individual field data collected from the Members' INMP Summary Reports. These comparisons shall include the ratio of Nitrogen Applied¹³ to Nitrogen Removed and the difference between Nitrogen Applied and Nitrogen Removed for crops in the watershed. Nitrogen Applied includes nitrogen from any sources, including, but not limited to, organic amendments, synthetic fertilizers, and irrigation water.

The Coalition's evaluation of both the $A/R_{1\text{ year}}$ and $A/R_{3\text{ year}}$ ratios must include, at a minimum, a comparison of A/R ratios by crop type. As directed by the Executive Officer, initial further evaluations within each crop type comparing the irrigation method, the soil conditions, and the farming operation size may be developed. The Coalition shall evaluate the corresponding $A-R_{1\text{ year}}$ and $A-R_{3\text{ year}}$ differences by crop type. The Coalition shall also evaluate any other A/R ratio or $A-R$ difference comparisons as directed by the Executive Officer. For each comparison, the Coalition must identify the mean and the standard deviation as well as develop a histogram plot of the data. A box and whisker plot

¹³ For some crops, the information needed to determine nitrogen removed may not be readily available. This will be determined through N removed research and crop yield will serve as a placeholder until nitrogen removed data is made available.

comparing the A/R ratio and A-R difference for each comparison, or equivalent tabular or graphical presentation of the data approved by the Executive Officer, may also be used. The summary of nitrogen management data must include a quality assessment of the collected information (e.g. missing data, potentially incorrect/inaccurate reporting).

Spreadsheets showing the calculations used for data evaluation must also be submitted to the Executive Officer. The Coalition may include any recommendations regarding future A/R ratio target values.

F. Surface and Groundwater Exceedance Reports

The Outfall Coalition shall provide surface and groundwater exceedance reports if monitoring results show exceedances of applicable numeric water quality objectives and/or water quality benchmarks. For each surface or groundwater quality objective exceeded at a monitoring location, the Coalition shall submit an Exceedance Report to the Colorado River Basin Water Board. The Coalition shall evaluate all of its monitoring data and determine exceedances no later than 14 business days after receiving the laboratory analytical reports for an event. Upon determining an exceedance, the Coalition shall send the Exceedance Report by email to the Coalition's designated Colorado River Basin Water Board staff contact by the next business day.

The Exceedance Report shall indicate (a) the number of surface water exceedances within the previous four regular monitoring events, and (b) whether the current exceedance constitutes a Water Quality Triggering Event.