CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ORDER R7-2019-0053-03

GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF WASTE FROM IRRIGATED AGRICULTURAL LANDS FOR DISCHARGERS THAT ARE MEMBERS OF A COALITION GROUP IN BARD VALLEY IMPERIAL COUNTY

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. There are approximately 14,676 acres of irrigated agricultural lands in Bard Valley in Imperial County. Of those, approximately 7,120 acres are located on non-tribal land (in an area known as the "Bard Unit"), and approximately 7,556 acres are located on reservation land of the Fort Yuma Quechan Indian Tribe. The location of the Bard Unit is depicted in **Figure 1**.

3. Waters of the state are or may be affected by waste discharges from irrigated agricultural lands in the Bard Unit, including surface water and groundwater. Affected surface waters include the Bard Valley Drains, all of which are tributary to the Colorado River; affected groundwaters include the Yuma Valley Groundwater Basin in the Yuma Hydrologic Unit.

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 the Bard Unit to prevent and address water quality impacts to waters of the state. These General WDRs regulate owners/operators of irrigated agricultural lands (collectively, 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 R7-2013-0002, a *Conditional Waiver of Waste Discharge Requirements for Agricultural Wastewater Discharges and Discharges of Waste from Drain Operations and Maintenance Activities Originating within the Bard Unit of*

the Reservation Division (2013 Conditional Waiver), which expired on January 17, 2018. This Order supersedes the 2013 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 Bard Unit area, depicted in **Figure 1** and further described in Findings 28 through 31.

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 operators[1] 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 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 <u>not</u> 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

[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.

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.

20. 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. This action resulted in the Colorado River Basin Water Board’s subsequent adoption of a waiver of waste discharge requirements for agricultural discharges in the Palo Verde Valley and Palo Verde Mesa, and directed the Board’s approach to regulating the Irrigated Agricultural Lands program in the Colorado River Basin Region.

21. On January 17, 2013, the Colorado River Basin Water Board adopted the 2013 Conditional Waiver, which regulated discharges from irrigated agricultural lands in the Bard Unit and included a requirement to pay state fees.

22. Bard Water District created and manages a Coalition Group, the Bard Unit Coalition Group

(Bard Coalition), to assist Dischargers who were members of the Coalition Group in complying with the 2013 Conditional Waiver. The district also obtained approval from the State Water Board to manage fee collection and payment on behalf of Bard Coalition members. All Dischargers that enrolled under the 2013 Conditional Waiver enrolled as members of the Bard Coalition.

23. To comply with the 2013 Conditional Waiver and ensure attainment of water quality objectives, the Bard 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 trainings hosted by the Bard Coalition; and

    f. Pay coalition dues to the Bard Coalition to cover state fees and coalition costs.

24. The Bard 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 Bard Coalition monitored water quality and reported on behalf of the members of the Coalition Group.

25. The 2013 Conditional Waiver expired on January 17, 2018. On January 22, 2018, the Colorado River Basin Water Board's Executive Officer sent a letter to the Bard 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 Bard Coalition continued implementing the compliance program developed under the 2013 Conditional Waiver during the transition period.

26. 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 agriculture around the state. The Eastern San Joaquin Order directs all regional water boards to revise the permits in 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.

27. Upon adoption of these General WDRs, Bard Water District has agreed to continue managing the Bard Coalition and to implement a Compliance Program in accordance with this Order.

Bard Unit Background

28. The Bard Unit is part of the United States Department of the Interior, Bureau of Reclamation's (USBRs) Yuma Project, which began in the early 1900s. The Yuma Project provides water to irrigate 68,091 acres of Irrigated Agricultural Lands in the vicinity of the towns of Yuma, Somerton, and Gadsden in Arizona, and Bard and Winterhaven in California.

29. The Yuma Project is divided into two divisions: the Valley Division, consisting of 53,415 acres in Arizona (located in Yuma Valley), and the Reservation Division, consisting of 14,676 acres (roughly 23 square miles) in California (located in Bard Valley). The Reservation Division is further subdivided into the 7,120-acre Bard Unit, and the 7,556-acre Indian Unit.

30. The land in the Indian Unit is part of the Fort Yuma Indian Reservation, which is held in trust by the federal government for the Fort Yuma Quechan Indian Tribe and owned by tribal allottees. The land that is irrigated is leased to various operations and is administered by the United States Department of the Interior, Bureau of Indian Affairs.

31. The Bard Unit of the Reservation Division is on private land, which was first deeded to settlers in 1910. Bard Water District was organized in 1927 to represent private land owners in the Bard Unit. As specified in Finding 8, this Order only regulates Irrigated Agricultural Lands that are located in the Bard Unit of the Reservation Division.

Hydrological Setting

32. The Bard Unit is located in what is commonly known as the "Bard Valley," which is flat, floodplain land on the California side of the Colorado River that stretches from just a few miles below Imperial Dam to north and west of the City of Yuma, Arizona. The All-American Canal flows along the northwestern edge of the valley and delivers water to the various smaller canals and laterals of the Reservation Division. (USBR, Sept. 2018.[2])

33. Mean summer temperatures in Bard Valley range from 85° to 110° Fahrenheit. Annual average precipitation typically ranges from about 1 to 3 inches.

34. Soils in the valley consist of alluvium, which includes unconsolidated younger Quaternary alluvial deposits overlying unconsolidated to semi-consolidated older Tertiary to Quaternary alluvial deposits. Maximum depth of the material is at least 200 feet.

35. The groundwater basin that underlies Bard Valley is known as the Yuma Valley Groundwater Basin. The basin is bounded by nonwater-bearing rocks of the Cargo Muchacho Mountains on the west and by the Chocolate and Picacho Mountains on the north and northeast. Low-lying alluvial drainage divides form boundaries on the northwest and southwest, and the Colorado River bounds the basin on the south and east. Elevation in the mountains range from about 1,300 feet in the Cargo Muchacho Mountains and about 2,000 feet in the Picacho Mountains.

[2] U.S. Department of the Interior, Bureau of Reclamation. September 2018. *2017 Groundwater Status Report: Yuma Area, Arizona and California*. Reclamation: Managing Water in the West. p. 13-14.

36. Water levels have remained largely unchanged in those areas within the Colorado River floodplain south and east of the All-American Canal. Depth to groundwater remains shallow and ranges from about 6 to 18 feet below ground surface, according to the most recent reports from the Bureau of Reclamation. (USBR, Sept. 2018.) There are localized areas where the depth to groundwater is closer to the ground surface. In the eastern portion of the basin along the Colorado River, high groundwater levels and fluctuations in the elevation of the water table are in direct response to various stages of the Colorado River. (Cal Dep't Water Resources, 2004.[3])

37. In the few wells that exist north or west of the canal, records show water levels have also remained mostly unchanged or have increased slightly over the period of record. Depth to groundwater in these areas varies greatly, but generally range from about 40 to 240 feet below the surface. (Cal Dep't Water Resources, 2004.)

38. Natural recharge to the basin is mainly from subsurface inflow from the Ogilby Valley Basin on the west, and infiltration of surface runoff from the bordering mountains. Additional recharge comes from seepage loss from unlined canals and from the percolation of irrigation return flows. There are no known barriers to the movement of groundwater except localized clay layers, which may obstruct the downward percolation of water. Groundwater generally moves in a southern direction towards the Colorado River. (Cal Dep't Water Resources, 2004; Dickensen et al. 2006.[4])

39. Surface waters in Bard Valley consist of irrigation canals and surface drains.

40. The District operates a 68-mile network of irrigation canals and laterals that service farmland in the Reservation District. Approximately 37 miles of the distribution system are located in the Bard Unit. Water for irrigation in the Bard Unit is diverted from the Colorado River into the All-American Canal into the Siphon Drop Power Plant, Reservation Main, Titsink, and Yaqui Turnouts. Some Reservation Division lands are served directly from turnouts on the All-American Canal above the Siphon Drop Power Plant.

41. The drainage system consists of about 15 miles of open drains that ultimately discharge back to the Colorado River. Approximately 12.3 miles of open drains are located in the Bard Unit. Of these 12.3 miles, 4.66 miles are shared drains that contain comingled water from tribal lands and Imperial Irrigation District.

42. Recent surface water quality data for the Bard Unit is detailed in the Information Sheet, **Attachment A**.

43. All drinking water in Bard Unit is sourced from groundwater. Based on the locations of public-supply wells reported in the statewide database maintained by the State Water Board, Division of Drinking Water (DDW), there are approximately 16 domestic wells, 1 public supply well, and 2 production wells which may provide drinking water in the Bard Unit. The depths of these wells vary from 40 to 200 feet below ground surface, sometimes much lower than the first encountered groundwater.

44. A groundwater quality study of wells sampled in the Yuma Valley Groundwater Basin by the

[3] California Department of Water Resources. February 27, 2004. *Hydrologic Region Colorado River: Yuma Valley Groundwater Basin*. Bulletin No. 118.

[4] Dickinson, J.E. et al. 2006. *Hydrogeologic Framework Refinement, Ground-Water Flow and Storage, Water-Chemistry Analyses, and Water-Budget Components of the Yuma area, Southwestern Arizona and Southeastern California*. U.S. Geological Survey, Scientific Investigations Report 2006–5135. 90 p.

U.S. Geological Survey (Dawson and Belitz, 2012[5]) indicates that most constituents detected were below the Primary and Secondary Maximum Contaminant Levels (MCLs) found in California Code of Regulations, title 22, section 64421 et seq. Total dissolved solids, chloride, iron, manganese, and sulfate were measured above the Secondary MCLs. The predominant cation present in groundwater was sodium, and the predominant anions were chloride and sulfate. TDS concentrations ranged between 1,380 and 1,970 milligrams per liter (mg/L). Available groundwater quality data for the area is detailed in the Information Sheet, **Attachment A**.

Discharge Characteristics

45. Agriculture is the predominant land use in the Bard Unit. The main crops grown in the Bard Unit are winter vegetables, citrus, and dates.

46. Farmers in the Bard Unit divert water from a canal through a gate operated by the Bard Water District onto Irrigated Agricultural Lands. The method of irrigation is mostly gravity flood irrigation. When uniform germination is desired, sprinkler irrigation is used. Drip irrigation is used for date trees and other orchard crops, and some field crops in the Bard Unit.

47. Discharges from Irrigated Agricultural Lands in Bard Valley (tailwater, seepage, and surface water draining from fields after irrigation and storms events) either percolate to the underlying aquifer or are collected into open and unlined drains that ultimately discharge to Bard Valley Drains and the Colorado River.

48. Discharges from Irrigated Agricultural Lands in Bard Valley may contain high levels of salts, nutrients, pathogens, sediments, and pesticides that can adversely impact receiving water beneficial uses.

Basin Plan and Related Regulatory Requirements

49. 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.

50. The Basin Plan specifies the following beneficial uses for Bard Valley Drains:

    a. Water Contact Recreation (REC I),[6]

    b. Water Non-Contact Recreation (REC II),

    c. Warm Freshwater Habitat (WARM), and

[5] Dawson, B.J.M., and Belitz, K. 2012. *Status of Groundwater Quality in the California Desert Region, 2006–2008: California GAMA Priority Basin Project*. U.S. Geological Survey, Scientific Investigations Report 2012–5040. 110 p.
[6] The only REC I usage known to occur is from fishing activity.

d. Preservation of Rare, Threatened, or Endangered Species (RARE).

51. The Basin Plan's water quality objectives for the Bard Valley Drains are summarized in the Information Sheet, **Attachment A**.

52. 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. Wildlife Habitat (WILD),

    k. Hydropower Generation (POW), and

    l. RARE.

53. The Basin Plan's water quality objective for salinity (TDS) for the Colorado River in the Bard Unit area is summarized in the Information Sheet, **Attachment A**.

54. The Bard Unit is part of the Yuma Hydrologic Unit, and the Basin Plan designates the following beneficial uses for area groundwater:

    a. MUN, and

    b. AGR.

55. The Basin Plan's water quality objectives for groundwater in the Bard area are summarized in the Information Sheet, **Attachment A**.

56. 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 General 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.

57. 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.

58. 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.

59. 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.

60. Average annual compliance cost estimates for the Bard Coalition are $59,291-120,939 for the first year and $54,291-110,939 for subsequent years. Expressed on a per-acre basis, the estimated costs amount to $9.19-18.75 per acre for the first year, and $8.41-17.20 in subsequent years. Average annual cost estimates of compliance with this Order for individual Dischargers who are members of a Coalition Group range from $5,800 to $7,800, plus state fees (currently $100 per Group, plus $0.95 per acre of land enrolled). The cost per acre will depend on the amount of acres the member enrolls, and cost savings may be realized in subsequent years as the program matures.

61. Significant uncertainties prevent the precise estimation of program costs, including: the total number of monitoring sites required to evaluate water quality conditions, the nature and extent of management practices required to address exceedances of water quality objectives, labor rates, contracting fees, and efficiencies as the program matures. 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.

62. 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.

63. 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 B**, for the Bard 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.

64. 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

65. 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.

66. 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.)

67. On July 30, 2015, USEPA gave final approval to California's 2012 303(d) List. The Bard Valley Drains and the lower section of the Colorado River are not currently listed as "impaired" for any pollutants on that list.

68. To date, no TMDLs have been developed or are scheduled to be developed.

69. In the future, this Order may serve as the first phase of data collection for a TMDL, or serve as an alternative, non-TMDL solution to address impairments should they occur.

Antidegradation Analysis

70. 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.

71. 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.

72. 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.

73. 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

74. 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.

75. On January 17, 2013, the Colorado River Basin Water Board adopted the 2013 Conditional Waiver, waiving WDRs for discharges of waste from Irrigated Agricultural Lands in the Bard Unit and adopted a programmatic Negative Declaration under CEQA (2013 Negative Declaration) under Resolution R7-2013-0002.

76. The 2013 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 2013 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 2013 Negative Declaration or significant new information, as that term is used in CEQA. Therefore, the 2013 Negative Declaration for the 2013 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

77. On May 15, 2019, the Colorado River Basin Water Board conducted a public workshop on these General WDRs.

78. 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.

79. On July 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 the Bard Unit of the Reservation Division, as described in Findings 7 through 11 and 28 through 31. 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 Bard Coalition shall submit a completed e-NOI **within 150 days of adoption of this Order**.

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 Limitations[7]

1. Surface Receiving Water Limitations

a. Wastes discharged from Irrigated Agricultural Lands in the Bard Unit shall not cause or contribute to an exceedance of applicable water quality objectives for surface waters, unreasonably affect applicable beneficial uses, or cause or contribute to a condition of pollution or nuisance.

2. Groundwater Receiving Water Limitations

a. Wastes discharged from Irrigated Agricultural Lands in the Bard Unit 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

[7] 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.

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 March 1, 2021** and by **March 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 field[8,9] and submit the INMP Summary Report for the previous crop year.[10]

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 B** 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. Total Nitrogen Removed shall be determined, in part, by multiplying a Member's crop yield by a crop-specific nitrogen coefficient, CN, provided by the Coalition, which

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

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

[8] 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.

[9] The Regional Water Board's Executive Officer may also approve alternative reporting areas for Dischargers in areas with highly intensive cropping practices, including multiple rotations of different crops in the same location within a single year, unpredictable crop types and harvesting based on rapidly-shifting market demand, and variable management practices adjusting to weather and field conditions. The alternative reporting area must provide meaningful data and balance the level of detail with the reporting burden similar to the field approach. 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, to allow for evaluation of the effectiveness of management practices with regard to each individual crop type grown.

[10] 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.

represents the amount of nitrogen in the harvested crop. For some crops, the data needed to develop the CN coefficient may not yet be available. The Coalition is directed in Section VI.D of the MRP, **Attachment B** to determine, through nitrogen removed testing and research, the most appropriate CN coefficients for converting crop yield to nitrogen removed.

Nitrogen Removed (lbs / acre) = Crop Yield (units / acres) X CN (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:

   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 2017[11] 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, 2022** 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 annually. As provided in the MRP, **Attachment B**, 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;

[11] Food & Agr. Code, § 512, subd. (b).

xii. Nitrogen Applied (lbs/acre); and
    1. Irrigation Water
    2. Synthetic Fertilizers
    3. Organic Amendments
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' property[12] in accordance with the schedule in the MRP, **Attachment B**.

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 the

[12] 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.

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 Bard Coalition is currently the only approved Coalition Group in the Bard Unit of the Reservation Division, 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 **October 30, 2019** and by **April 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 B**.

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 B**.

iii. Drinking Water Notification Template. Requirements for the Drinking Water Notification Template are described above in Section D.5 and the MRP, **Attachment B**.

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 B**, 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 B**.

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 B**.

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 B**.

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.5 and the MRP, **Attachment B**.

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 B**.
b. The Colorado River Basin Water Board shall require Coalition Groups to prepare a Water Quality Restoration Plan (WQRP) if (a) there is a water quality exceedance 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 B** 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.

iii. 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 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 interim annual 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 as 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. **Claims for Exemption from Public Disclosure.** If the Coalition Group and/or a Discharger asserts that all or a portion of a report submitted pursuant to this Order is subject to an exemption from public disclosure (e.g., due to proprietary or trade secret information), the Coalition Group and/or Discharger must provide an explanation of how those portions of the reports are exempt from public disclosure. The Coalition Group and/or Discharger must clearly indicate on the cover of the report (typically an electronic submittal) that all or a portion of the report is exempt from public disclosure, submit a complete report with those portions that are asserted to be exempt in redacted form, submit separately (in a separate electronic file) unredacted pages (to be maintained separately by staff). Regional Water Board staff will determine whether any such report or portion of a report qualifies for an exemption from public disclosure. If staff disagrees with the asserted exemption from public disclosure, staff will notify the Discharger prior to making such report or portions of such report available for public inspection.

11. **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 Bard Valley Ag Dischargers."

12. **Violation of Law.** This Order does not authorize violation of any federal, state, or local laws or regulations.

13. **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.

14. **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.

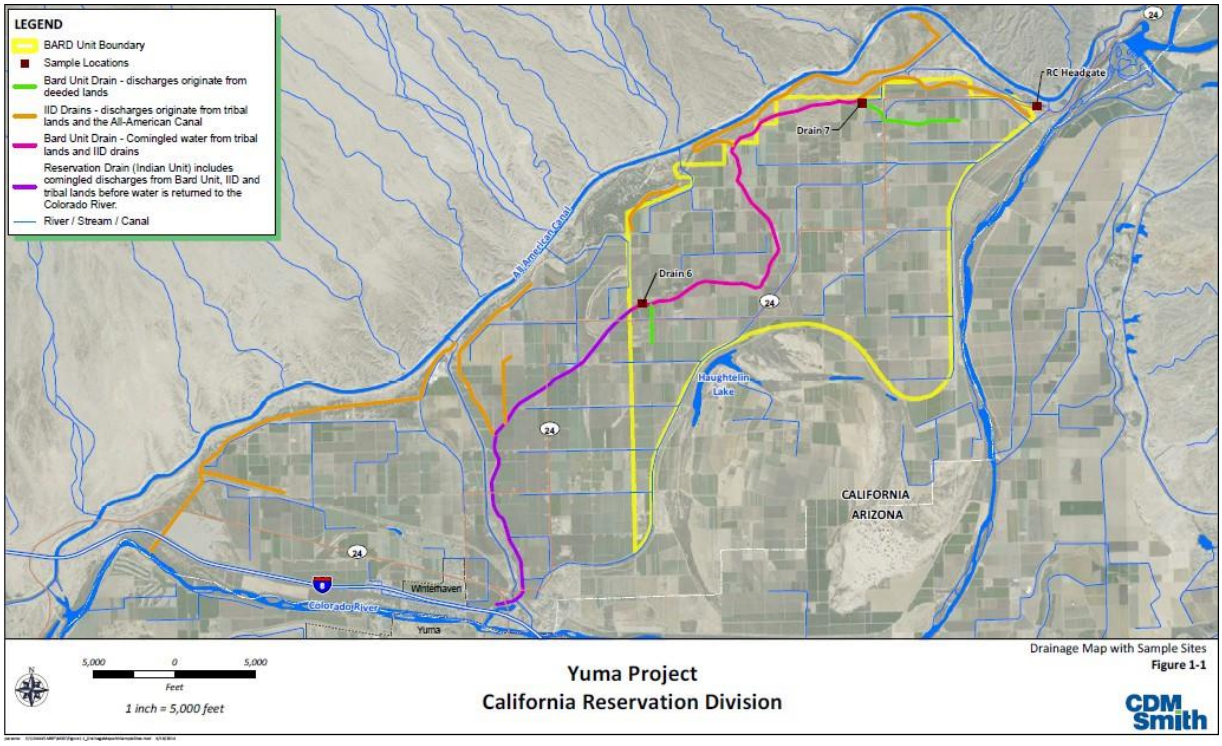
I, Paula Rasmussen, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Colorado River Basin Region on July 11, 2019, and revised on October 2, 2019, and June 24, 2020.

Original signed by
PAULA RASMUSSEN
Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

FIGURE 1: IN ORDER R7-2019-0053
BARD UNIT AREA MAP

GENERAL WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES OF WASTE FROM IRRIGATED AGRICULTURAL LANDS FOR
DISCHARGERS THAT ARE MEMBERS OF A COALITION GROUP IN
BARD VALLEY
IMPERIAL COUNTY



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT A TO ORDER R7-2019-0053
INFORMATION SHEET

GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF WASTE FROM IRRIGATED AGRICULTURAL LANDS FOR DISCHARGERS THAT ARE MEMBERS OF A COALITION GROUP IN BARD VALLEY IMPERIAL COUNTY

Contents

Tables

BARD UNIT 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 waters 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 waters 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 current and relevant water quality objectives for surface waters.[1]

Table 1.1 – Bard Unit Area Surface Water Quality Objectives in the Basin Plan

Discharges of wastes from Irrigated Agricultural Lands into the Bard Valley Drains, 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	Result in the geometric mean of the indicator bacteria *E. coli* 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: *E. coli* …….. 126 per 100 milliliters (mL) Enterococci…….. 33 per 100 mL Nor shall any single sample exceed the maximum allowable bacterial density of: *E. coli* ……. 400 per 100 mL Enterococci…… 100 per 100 mL Nor shall any single sample for the Colorado River exceed the maximum allowable bacterial density of: *E. coli* ……. 235 per 100 mL Enterococci…… 61 per 100 mL

[1] Applicable water quality objectives may be subject to change based on new state or federal regulations.

Objective	Description
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 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
Below Imperial Dam, the Colorado River's salinity will be controlled to meet the terms of the agreement with Mexico on salinity in Minute No. 242 of the International Boundary and Water Commission, entitled “Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River.”
This agreement states that measures will be taken to ensure that the waters delivered to Mexico upstream from Morelos Dam will have annual average salinity concentration of no more than 115 ppm (+30 ppm) total dissolved solids greater than the annual average salinity concentration of Colorado River water arriving at Imperial Dam.
Title I of Public Law 93-320 is the legislation which implements the provisions of Minute No. 242. Minute No. 242 and Title I constitute a federal numeric criterion and plan of implementation

Objective
for the River below Imperial Dam.

Water quality objectives that apply to groundwaters are also described in the Basin Plan, as well as in other applicable state laws and policies, and are summarized in Table 1.3 below.[2] The Basin Plan contains numeric and narrative water quality objectives for groundwaters.

Table 1.3 – Bard Unit Area Groundwater Quality Objectives in the Basin Plan

Objective	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

[2] Applicable water quality objectives may be subject to change based on new state or federal regulations.

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 BARD UNIT AREA WATER QUALITY DATA

Available Bard Unit Area Surface Water Quality Data

Surface water quality in the Bard area was assessed by reviewing data collected through the Bard Coalition's previous Monitoring and Reporting Program. The Coalition's Monitoring and Reporting Program was a requirement of the 2013 Conditional Waiver to develop a baseline of surface water quality and to identify impacts of Irrigated Agricultural Lands discharges on water quality. Sampling locations are identified below in Figures 2.1 and 2.2.

Figure 2.1 – Bard Unit Area

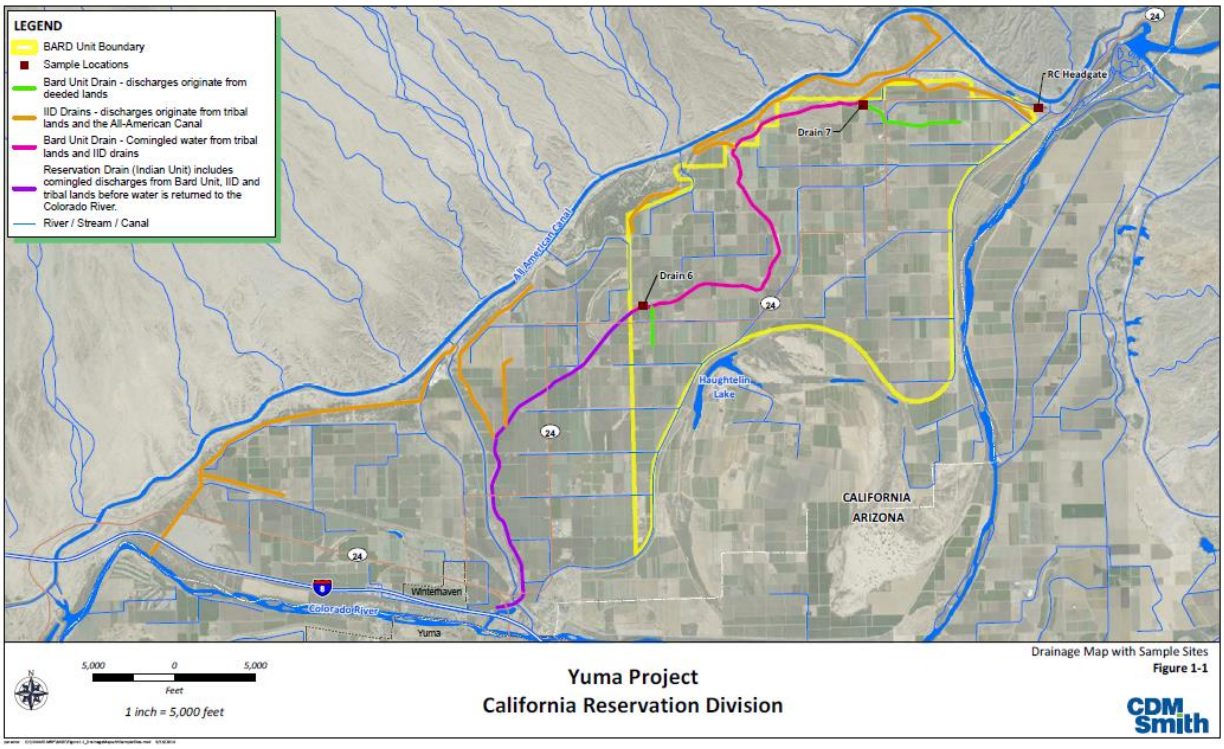
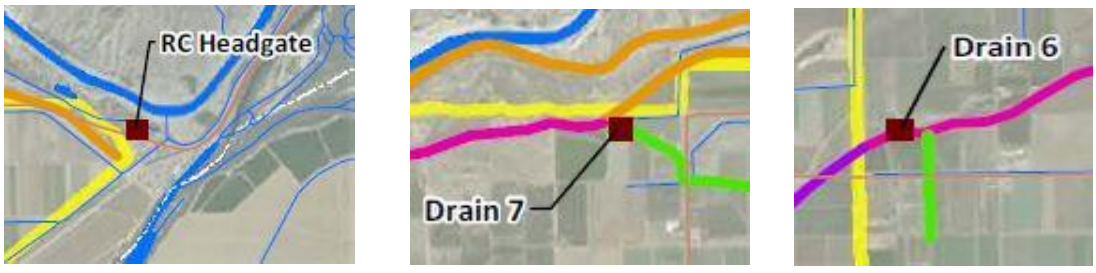


Figure 2.2 – Sampling Locations Arranged Upstream to Downstream



Below in Table 2.1 is a summary of the annual average of monthly and quarterly surface water quality data at three locations from June 2015 to December 2017 (Source: Bard Coalition):

Table 2.1 – Bard Unit Area Surface Water Quality Data

Analyte	Units	RC Head Gate AAC	DRAIN #7	DRAIN #6

pH	pH Units	8.2	7.5	7.8
Temperature	Celsius	21	23	24
Dissolved Oxygen	mg/L[3]	9.1	4.6	7.8
Specific Conductivity	uS/cm[4]	1118	2188	1788
Total Dissolved Solids	mg/L	744	1543	1236
Total Suspended Solids	mg/L	5	16	30
Total Nitrogen	mg/L	0.5	4.6	1.9
Nitrate + Nitrite (N)	mg/L	0.3	4.0	1.5
Total Phosphorus	mg/L	0.05	0.12	0.06

Regional Water Board staff's review of the surface water quality monitoring data collected by the Bard Coalition at the three locations indicate that most constituents in Table 2.1 do not exceed the numeric water quality objectives of the Basin Plan. One location regularly reports dissolved oxygen concentration below 5 mg/L; however, it was determined that Drain #7 is experiencing an infestation by the invasive plant, Giant Salvinia.

Based upon pesticide use data reports, the herbicides glyphosate (Roundup) and pendimethalin, among others, are currently used in the Bard Unit. The Bard Coalition monitored the concentrations of these herbicides in surface water. Glyphosate has not been detected. Pendimethalin was detected in four samples in 2016-2017, three times in the upstream All-American Canal, and once in Drain # 7. Concentrations found were relatively low (3.4 ng/L for the All-American Canal and 2.0 ng/L for Drain #7).

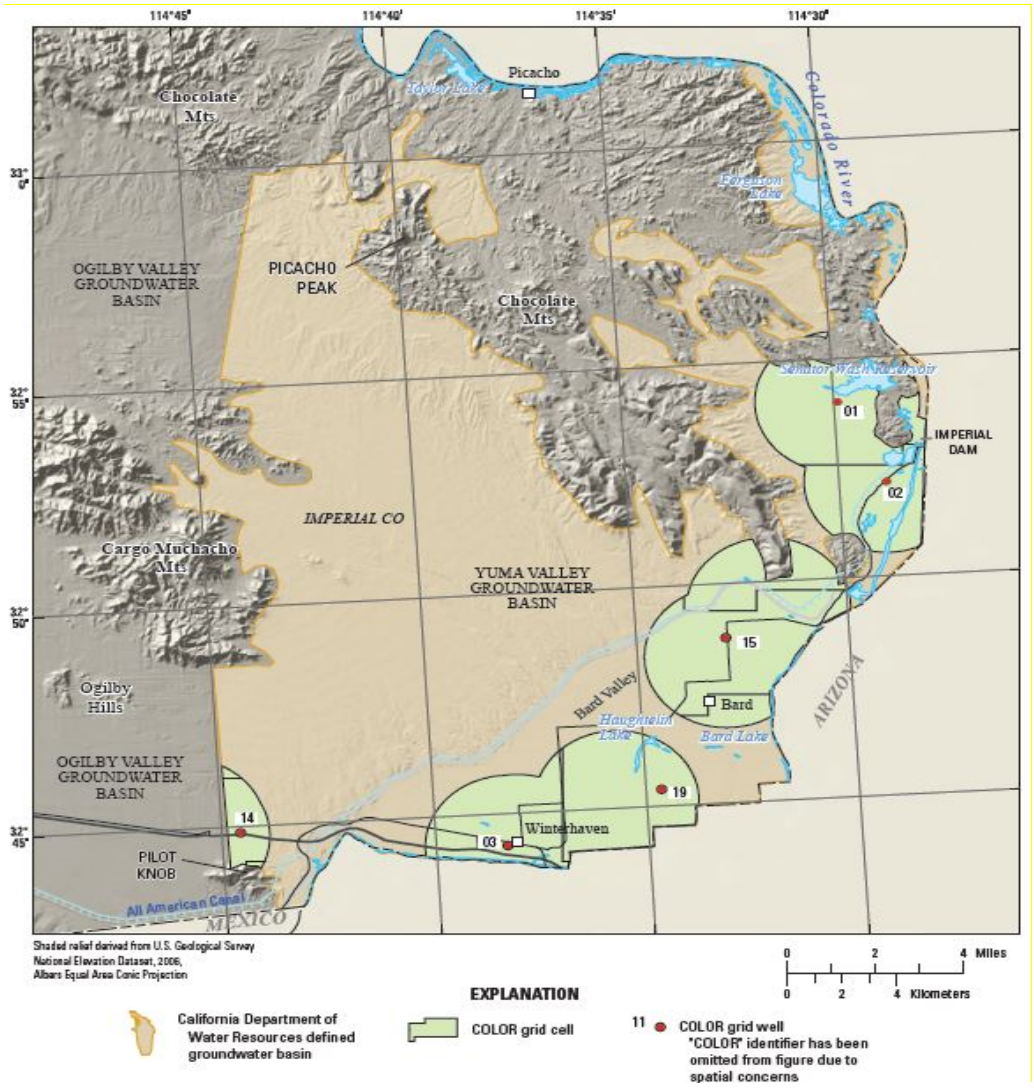
Available Bard Unit Area Groundwater Water Quality Data

Regional Water Board staff assessed groundwater quality in the Bard area by reviewing data collected through the Groundwater Ambient Monitoring and Assessment (GAMA) Program Priority Basins Project. The project is jointly administered by the State Water Board and the United States Geological Survey. The objectives of the project are to develop a broader understanding of groundwater composition, provide an early indication of changes in water quality and identify natural and human factors affecting water quality.

Sampling locations are identified in Figure 2.2. Sampling locations COLOR01, COLOR02, and COLOR 14 are considered outside of Bard Valley and may be unaffected by Irrigated Agricultural Lands discharges as they are located north of the All-American Canal. Sampling locations COLOR03, COLOR15, and COLOR19 are considered inside of Bard Valley and may be affected by Irrigated Agricultural Lands discharges. By comparing sampling locations inside of Bard Valley to those outside of the valley, this shows how Irrigated Agricultural Lands discharges are affecting groundwater quality.

[3] mg/L equals milligrams per liter.
[4] uS/cm equals microsiemens per centimeter.

Figure 2.3 – Bard Unit Area Groundwater Water Quality Monitoring Locations



Below in Table 2.2 is a summary of groundwater quality data taken from the Yuma Valley Groundwater Basin for the Colorado River Groundwater Ambient Monitoring and Assessment (GAMA) study conducted in 2007. (Goldrath et al., 2010.[5])

[5] Goldrath, D.A., Wright, M.T., and Belitz, K. 2010. *Groundwater-Quality Data in the Colorado River Study Unit, 2007: Results from the California GAMA Program*. U.S. Geological Survey, Data Series 474. 66 p.

Table 2.2 – Bard Unit Area Groundwater Water Quality Data[6]

GAMA Well Identification Number	Dissolved Oxygen (mg/L)[7]	Specific Conductance (µS/cm[8] at 25°C)	Total Dissolved Solids (mg/L)	Chloride	Sulfate	Iron (µg/L)[9]	Manganese (µg/L)
Threshold type	**N/A**	**SMCL-CA[10]**	**SMCL-CA**	**SMCL-CA**	**SMCL-CA**	**SMCL-CA**	**SMCL-CA**
Threshold level	**N/A**	**900 (1,600)**	**500 (1,000)**	**2S50 (500)**	**250 (500)**	**300**	**50**
[LRL][11]	**[0.2]**	**[5]**	**[10]**	**[0.12]**	**[0.18]**	**[8]**	**[0.2]**
COLOR-01	6.8	*[12] 1,190	* 776	112	* 294	—	0.3
COLOR-02	4.2	* 1,260	* 794	120	* 285	≤8	E0.4
COLOR-14	0.2	* 926	*533	137	87.9	—	3.6
COLOR-03	0.2	**[13] 2,180	** 1,380	* 333	* 336	197	* 1,110
COLOR-15	<0.2	** 2,660	** 1,970	235	** 820	* 1,080	* 898
COLOR-19	1.8	** 2,890	** 1,950	* 492	** 523	* 863	* 1,150

The pH is slightly basic (7.4), specific conductivity is 2600 us/cm, and alkalinity is 280 mg/L (as CaCO3). Dissolved oxygen is low. The predominant cation is sodium, and the predominant anions are chloride and sulfate.

The concentrations of most constituents detected in groundwater samples from the 5 grid wells were below drinking-water thresholds, but some constituents exceeded those standards. Total dissolved solids, chloride, iron, manganese, and sulfate were measured above the lower and upper ranges of the Secondary Maximum Contaminant Level (MCL) thresholds in most wells (Table 2.2).

The specific conductance is relatively high in the Bard Valley (COLOR-03, -15, and -19) when compared to groundwater in wells outside of the Bard Valley (COLOR-01, -02, and -14). Specific conductance was above the recommended and upper Secondary MCL thresholds in most wells (Table 2.2). High conductivity is reflected in Total Dissolved Solids (TDS) values. Bard Valley groundwater TDS concentrations range from 1380 to 1970 mg/L.

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[6] Land-surface datum (LSD) is a datum plane that is approximately at land surface at each well. The elevation of the LSD is described in feet above the North American Vertical Datum 1988. Threshold type and threshold levels as of the date of adoption of this Order.
[7] "mg/L" means milligrams per liter
[8] "µS/cm" means microsiemens per centimeter
[9] "µg/L" means micrograms per liter
[10] "SMCL-CA" is the Secondary Maximum Contaminant Level under California law. (Cal. Code Regs., tit. 22, § 64449.)
[11] "LRL" means laboratory reporting level.
[12] "*" means value above threshold value or outside threshold range
[13] "**" means value above upper threshold value.

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 (3.1-3.3) contain a non-exhaustive list of management 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.[14]

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,[15] 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.

[14] Available at NPS Management Measures Encyclopedia or type the address https://www.waterboards.ca.gov/water_issues/programs/nps/encyclopedia/.
[15] Jones & Stokes Associates. 1996. List of Agricultural Best Management Practices for the Imperial Irrigation District. Jones & Stokes Associates, Sacramento, CA.

Management Practice	Description
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.
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	Obtain appropriate certification (through training) prior to pesticide use.

Management Practice	Description
and Certification	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 back siphoning 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	Store pesticides on farm for a short time, and in a locked weather-tight enclosure downstream and a reasonable distance (greater than 100

Management Practice	Description
storage	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. The cost estimates are for tasks associated with the key elements of the Compliance Program, as well as the state annual fees for Irrigated Agricultural Lands. Significant uncertainties 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 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 Bard Coalition

The following estimates apply to key tasks completed by the Bard Coalition (Table 4.1).

Administration:
Regional Water Board staff estimates that administration of the Compliance Program may require 100-300 person-hours per year at $100 per hour. Therefore, the total annual cost for program management is estimated to be $10,000-30,000.

Update the Existing Coalition Group Compliance Program:
Regional Water Board staff estimates that to update the existing compliance program may require 270-540 person-hours per year at $100 per hour. Therefore, the total annual cost for program management is estimated to be $27,000-54,000. Items considered include:

Outreach and Education:
Regional Water Board staff estimates the outreach and education components of the Coalition's Compliance Program may require 100-200 person-hours per year at $100 per hour, for a total annual cost of $10,000-20,000.

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 may require 40-80 person-hours per year at $100 per hour, for a total annual cost of $4,000-8,000.

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 may require 120-240 person-hours per year at $100 per hour, for a total annual cost of $12,000-24,000.

Private Drinking Water Wells Monitoring Program:
Regional Water Board staff estimates that to plan and organize the sampling of drinking water wells, the Coalition may require 10-20 person-hours per year at $100 per hour, for a total annual cost of $1,000-2,000.

Revise Existing Surface Monitoring Plan and Develop Groundwater Monitoring Plan:
Regional Water Board staff estimates that revising the existing Surface Monitoring Plan and developing a new Groundwater Monitoring Plan (i.e., drafting a Surface and Groundwater Monitoring Program Plan and Quality Control Plan as described in **Attachment B** of the Order) and submitting the plan may require 50-100 person-hours at $100 per hour, for a total estimate of $5,000-10,000.

Sampling:
Regional Water Board staff estimates the total annual cost for surface water sampling to be $4,811-9,627. This estimate is for sampling (including quarterly and semi-annual) three surface water sampling sites which may require 4-8 person-hours per sampling event at $100 per hour, and mileage estimates of 20-50 miles at $0.55 per mile.

Regional Water Board staff estimates the total annual cost for groundwater sampling to be $411- 827. This estimate is for sampling three groundwater sampling sites once a year which may require 4-8 person-hours per sampling event at $100 per hour, and mileage estimates of 20-50 miles at $0.55 per mile.

Regional Water Board staff estimates the total annual cost for private drinking water well sampling to be similar to groundwater sampling at an estimated $411-827.

The total annual sampling costs for all sampling required by the Order is an estimated $5,633-11,281.

Lab Analyses:
The cost estimate for analytical testing is based on information from commercial laboratory rates for testing constituents of concern included in the Coalition's MRP. Regional Water Board staff estimates the annual cost of analysis of three surface water sampling sites will be $5,790. The annual costs of analysis of 3 groundwater sampling sites will be $1,703. The annual costs of analysis of 3 private drinking water wells for nitrate will be $165. The total annual lab analysis cost estimates for the required three surface water sampling sites and 3 groundwater sampling sites is $7,658.

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 may require 80 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 $8,000.

Table 4.1 - Cost Estimates for Bard Coalition Compliance Program

Tasks	First Year Estimated Costs	Subsequent Years Estimated Costs
Administration	$10,000-30,000	$10,000-30,000
Conduct Outreach and Education	$10,000- 20,000	$10,000- 20,000
Review, Compile, and Submit Farm Plan Data	$4,000-8,000	$4,000-8,000
Review, Compile, and Submit INMP Summary Report Data	$12,000-24,000	$12,000-24,000
Plan and Organize Private Drinking Water Wells Monitoring	$1,000-2,000	$1,000-2,000
Revise Existing Surface and Groundwater Monitoring Program Plan, and Submit	$5,000-10,000	N/A
Sampling	$5,633-11,281	$5,633-11,281
Lab Analyses	$7,658	$7,658
Write and Submit Annual Monitoring Report (AMR)	$8,000	$8,000

Tasks	First Year Estimated Costs	Subsequent Years Estimated Costs
Total Estimated Costs	$59,291-120,939	$54,291-110,939
Cost per Acre (6450 acres)	$9.19-18.75	$8.41-17.20

Task Cost Estimates for Members of Bard Coalition

The following estimates apply to key tasks of Dischargers who are Members of the Bard Coalition (Table 4.2).

Write and Develop a Farm Plan:
Regional Water Board staff estimates that each Member writing and developing an individual Farm Plan and submitting it to the Bard Coalition may require 30 person-hours at $100 per hour for a total of $3,000 for the first year and 20 person-hours at $100 per hour for a total of $2,000 for each subsequent year.

Write and Develop an INMP and Yearly INMP Summary Reports:
Regional Water Board staff estimates that each Member writing and developing an INMP and annual INMP Summary Reports, and submitting the INMP Summary Reports to the Coalition, may require 40 person-hours at $100 per hour for a total estimate of $4,000 for the first year and 30 person-hours at $100 per hour for a total estimate of $3,000 for each subsequent year.

Attend Annual Education Events:
Regional Water Board staff estimates that each Member attending an annual education event may require 8 person-hours at $100 per hour for a total of $800 per year.

Table 4.2 - Cost Estimates for Each Discharger Who Is a Member of Bard Coalition

Individual Responsible Party Task	First Year Estimated Costs	Subsequent Years Estimated Costs
Write, Develop, and Submit Farm Plan	$3,000	$2,000
Write, Develop, and Submit INMP and INMP Summary Report	$4,000	$3,000
Attend Annual Education Event	$800	$800
Total Estimated Costs	$7,800	$5,800

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

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. Additional information can be found at the EQIP Program webpage.

- *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. There is an NRCS Service Center in the City of Yuma at 2197 South 4th Avenue, Suite 104, Yuma, AZ 85364-6433 with a telephone number of (928) 782-0860. There is a Blythe Service Center at 200 East Murphy Street, Room 102, Blythe, CA 92225-9998, with a telephone number of (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. Additional information can be found at the 319(h) Grant Program webpage.

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. Additional information can be found at the CWSRF Program webpage.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
COLORADO RIVER BASIN REGION

ATTACHMENT B TO ORDER R7-2019-0053

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 BARD VALLEY IMPERIAL COUNTY

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 Bard Unit Coalition Group (Bard 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 Bard Valley*, Order R7-2019-0053 (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 Bard 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 Bard Unit 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 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). Information on certified laboratories can be found on the ELAP webpage.

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 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 Bard 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 July 11, 2019. The Executive Officer may revise this MRP as necessary. Upon the effective date of this MRP, the Bard 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 Bard Unit. This MRP designates the following three (3) sites as representative of the Bard Unit:

- Monitoring Site # 1 RC Head Gate Turnout on the All-American Canal - This site is outside the Bard Unit boundaries and representative of water quality before entering the Bard Unit. This site represents an upstream control for comparison to samples from other monitoring sites.
- Monitoring Site # 2 Drain #7 - Located in the northern area of the Bard Unit. Drainage, flows move westward for approximately 1.5 miles until intercepting with Imperial Irrigation District (IID) Drain #6A. Although this site monitors a small portion of acreage, discharges represent crops typical of the whole area and the typical agriculture land uses for the entire Bard Unit.
- Monitoring Site # 3 Drain #6 - Located near the boundary of the Bard Unit, this drain receives the majority of discharges (via seepage) from irrigated agricultural lands within the Bard Unit. This drain also receives discharges from Drain #10 and IID Drain #6A. Samples collected from this site represent irrigated agricultural lands uses in the entire Bard Unit and represent the crops of the whole area.

These 3 sites will provide surface water quality information on Irrigated Agricultural Lands discharging to state waters. By comparing the upstream water quality at Site #1 with the downstream water quality at Sites #2, and #3, impacts for various time periods can be evaluated for the different drainage areas. The comparison of the upstream Site #1 water quality to the downstream Site #3 will help to determine the magnitude of constituents discharging from Irrigated Agricultural Lands 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 or structure could be contaminated by their presence, so samples should be taken upstream when possible. The sampling locations are shown in the appended map. Table 1 below has the geographic coordinates for the Bard Coalition's surface water quality monitoring sites.

Table 1. Bard Coalition Surface Water Quality Monitoring Sites Geographic Coordinates*

Monitoring Site	Station Code	Latitude	Longitude
1	RC HGT @ AAC	32.816567º N	114.514539º W
2	Drain No. 7	32.818422º N	114.553189º W
3	Drain No. 6	32.783489º N	114.599144º W

*Monitoring sites listed in the table are not an exclusive list; the Executive Officer may require the

Coalition to add monitoring sites as necessary to meet the requirements of the Order.

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 Bard Unit 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.

Table 2: Surface Water Quality Monitoring Parameters, Frequency, and Aquatic Life and Consumption Numeric Water Quality Objectives or Criteria at all 3 sites[1, 2]

Parameter	Field or Laboratory Analysis	Frequency	Numeric Water Quality Objectives or Criteria
pH	Field	Quarterly	6.0 to 9.0
Temperature	Field	Quarterly	
Specific Conductivity	Field	Quarterly	
Dissolved Oxygen (DO)	Field	Quarterly	5.0 mg/L[3]
Total Dissolved Solids (TDS)	Laboratory	Quarterly	
Nitrate+Nitrite (as N)	Laboratory	Quarterly	
Total Nitrogen	Laboratory (calculated)	Quarterly	
Total Suspended Solids (TSS)	Laboratory	Quarterly	200 mg/L
Bensulide	Laboratory	Semiannually	

[1] SM = Standard Method; EPA = Environmental Protection Agency Method

[2] 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.

[3] mg/L = milligrams per liter

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 3 below:

Table 3: Groundwater Monitoring Constituents, Methods, Frequency, and Drinking WQOs

Parameter	Field or Laboratory Analysis	Frequency	Numeric Water Quality Objectives or Criteria
Dissolved Oxygen (DO)	Field	Annually	
pH	Field	Annually	
Nitrate+Nitrite (as N)	Laboratory	Annually	10 mg/L
Total Dissolved Solids (TDS)	Laboratory	Annually	
Temperature	Field	Annually	
Anions (carbonate, bicarbonate, chloride, and sulfate)	Laboratory	Annually initially and once every five years	
Cations (boron, calcium, sodium, magnesium, and potassium)	Laboratory	Annually initially and once every five years	
Imidacloprid	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.

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 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 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 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 Assessor's Parcel Number (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. A QAPP template is available at the SWAMP website.

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. The list shall include, but need not be limited to, the parameters listed in Tables 2, and 3 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, and 3 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 control spikes, 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 **January 1, 2024**, 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., $tomato_1$, $tomato_2$)
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 Applied (A) and Removed (R) Data by Anonymous Member ID Table beginning **January 1, 2024** and **annually** thereafter. The Coalition shall submit Individual Field AR Data by Anonymous APN ID Table beginning **January 1, 2024** and **annually** thereafter. The Coalition shall submit Township AR Data Table information beginning **January 1, 2024** and **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 **November 1, 2024**. By **November 1, 2025**, 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. 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)

A/R Ratio = Nitrogen Applied (from any source, including fertilizers, irrigation) / Nitrogen Removed (via harvest, etc.)

A-R Difference = Nitrogen Applied – Nitrogen Removed

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 ($A/R_{1\ year}$ and $A\text{-}R_{1\ year}$). 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 ($A/R_{3\ year}$ and $A\text{-}R_{3\ year}$). The formulas for the A/R ratios and A-R differences are shown in the equations above.

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

Individual Field-Level AR Data by Anonymous Member ID Table: One entry is made for each field or management unit reported.

1. Anonymous Member ID: Each Anonymous Member ID may be associated with more than one field;
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. $tomato_1$, $tomato_2$)[1];
3. Nitrogen applied via fertilizers (lbs/acre);
4. Nitrogen applied via organics and compost (lbs/acre);
5. Nitrogen applied via irrigation water (lbs/acre);
6. Total Nitrogen applied (lbs/acre) [sum of nitrogen from fertilizer, organics/compost, and irrigation water];
7. Nitrogen removed per acre (lbs/acre);
8. A/R ratio;
9. A-R difference (lbs/acre); and
10. 3-year A/R ratio, if available.

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.

1. Anonymous APN ID: List on a separate line each Anonymous APN ID assigned to parcels the field overlays completely or partially;
2. Associated groundwater basin or subbasin;
3. 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);
4. Nitrogen applied via fertilizers (lbs/acre);
5. Nitrogen applied via organics and compost (lbs/acre);
6. Nitrogen applied via irrigation water (lbs/acre);
7. Total Nitrogen applied (lbs/acre) [sum of nitrogen from fertilizer, organics/compost, and irrigation water];
8. Nitrogen removed per acre (lbs/acre);
9. A/R ratio;
10. A-R difference (lbs/acre); and

[1] 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.

11. 3-year A/R ratio, if available.

Township-Level Aggregated AR Data Table:

1. Township and range;
2. Crop;
3. Total acreage: sum for all the acreage for each unique crop within the township (acres);
4. Total nitrogen applied via fertilizer: sum for all acreage for each unique crop (total lbs);
5. Total nitrogen applied via organics and compost: sum for compost for each unique crop (total lbs);
6. Total nitrogen applied via irrigation water: sum for all acreage for each unique crop (total lbs);
7. Total nitrogen applied for each unique crop (total lbs) [sum of nitrogen from fertilizer, organics/compost, and irrigation water];
8. Total nitrogen removed for each unique crop (total lbs);
9. A/R ratio for each unique crop; and
10. A-R difference for each unique crop (total lbs).

E. Annual Monitoring Report (AMR)

The Annual Monitoring Report (AMR) shall be submitted by **January 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 Applied[2] 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 $A/R_{1\ year}$ and $A/R_{3\ year}$ 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 shall be developed. The Coalition shall evaluate the corresponding $A\text{-}R_{1\ year}$ and $A\text{-}R_{3\ year}$ 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 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 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.

[2] 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.