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

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I. 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

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

Objective	Description
	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
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

Objective	Description
	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 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.

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

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

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

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

- There is contamination, either by natural processes or by human activity (unrelated to a specific pollution incident), that cannot reasonably be treated for domestic use using either management practices or best economically achievable treatment practices, or
- The water source does not provide sufficient water to supply a single well capable of producing an average, sustained yield of 200 gallons per day.

II. AVAILABLE BARD UNIT AREA WATER QUALITY DATA

A. 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

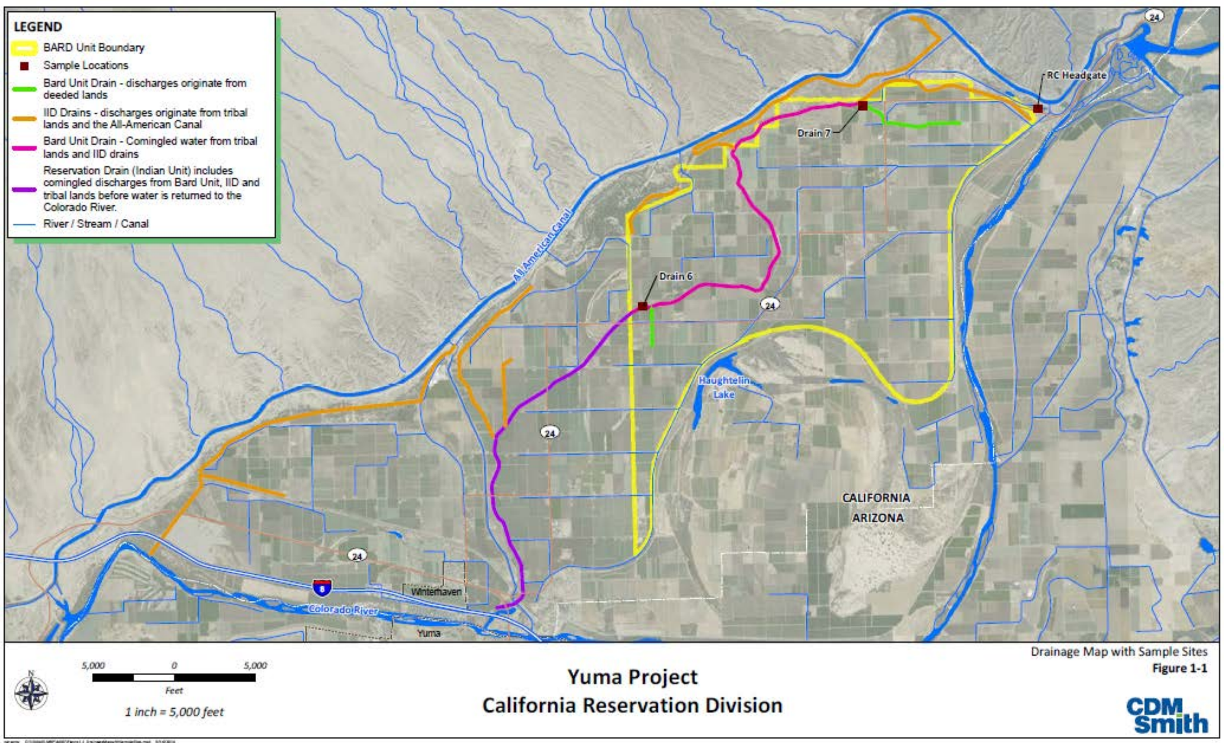
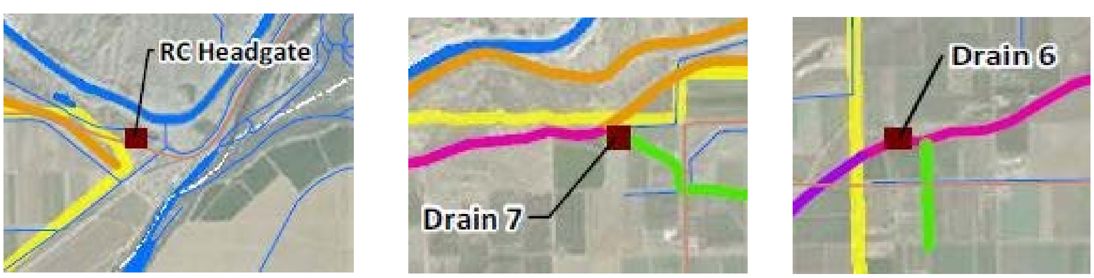


Figure 2.2 – Sampling Locations Arranged Upstream to Downstream



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).

B. Available Bard Unit Area Groundwater Water Quality Data

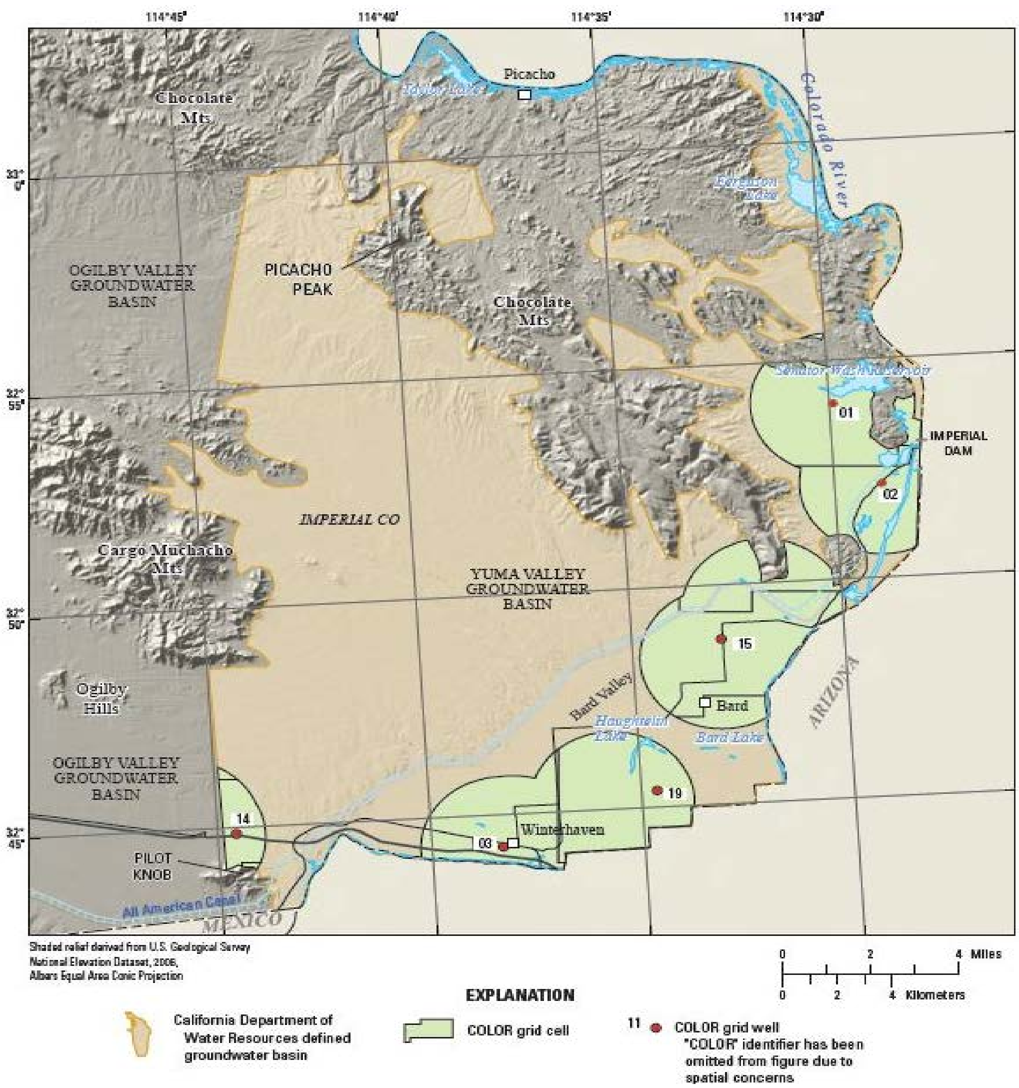
Regional Water Board staff assessed groundwater quality in the Bard area by reviewing data collected through the Groundwater Ambient Monitoring and Assessment (GAMA) Program Priority Basins Project. The project is jointly administered by the State Water Board and the United States Geological Survey. The objectives of the project are to

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

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.

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])

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)**	**250 (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 $CaCO_3$). 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

[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.
[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.

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.

III. 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.

[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

Management Practice	**Description**
Filter Strips	This practice eliminates borders on the last 20 to 200 feet of the field. The planted crop is maintained to the end of the field, and tailwater from upper lands is used to irrigate the crop at the ends of adjacent lower lands. The main slope on the field's lower end should be no greater than that on the balance of the field. A reduced slope may be better. With no tailwater ditch, very little erosion occurs as water slowly moves across a wide area of the field to the tailwater box. Sediment may settle as the crop baffles the water as it moves across the field.
Irrigation Water Management	This practice determines and controls irrigation rate, amount, and timing. Effective implementation minimizes erosion and subsequent sediment transport into receiving waters. Irrigation management methods include: surge irrigation, tailwater cutback, irrigation scheduling, and runoff reduction. Irrigation management may include an additional irrigator to better monitor and manage irrigation and potential erosion.
Irrigation Land Leveling	This practice involves maintaining or adjusting field slope to avoid excessive slopes or low spots at the tail end of the field. Maintaining a reduced main or cross slope facilitates uniform distribution of irrigation water, reducing salt build-up in soil, increasing production, reducing tailwater, and decreasing erosion. Jones & Stokes (Jones & Stokes Associates 1996) rate the sediment reduction efficiency of this practice at 10% to 50%, with a medium to high cost.
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.

Imperial Irrigation District. Jones & Stokes Associates, Sacramento, CA.

Management Practice	Description
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.

Management Practice	Description
Sprinkler Irrigation	Same as described in Table 3.1. The objective is to apply irrigation water efficiently and uniformly to maintain adequate soil moisture for optimum plant growth, without causing excessive erosion of nutrient laden soils.
Drip Irrigation	Same as described in Table 3.1. The objective is to apply irrigation water efficiently and uniformly to maintain adequate soil moisture for optimum plant growth, without causing excessive erosion of nutrient laden soils.
Reduced Tillage	Same as described in Table 3.1. This practice eliminates one or more cultivation per crop, minimizing erosion of nutrient laden soils, and sedimentation that may occur in the furrow.
Channel Vegetation/ Grassed Waterway	Same as described in Table 3.1. This practice reduces erosion of nutrient-laden soils and sedimentation.
Drainage channels	Same as described in Table 3.1. This practice reduces erosion of nutrient-laden soils and sedimentation in the irrigation drainage channels.

Table 3.3 - Pesticide Management Practices

Management Practice	Description
Pesticide Training and Certification	Obtain appropriate certification (through training) prior to pesticide use. Use a qualified Agricultural Pest Control Advisor (PCA) to make recommendations.
Pesticide Recording Keeping	Maintain a precise pest and pesticide record, and read pesticide labels before purchase, use, or disposal; follow label directions as required by law, and check for groundwater advisories, or other water protection guidelines, so pesticide handling and application practices are known, and water quality impacts prevented.
Evaluate the Pesticide	Select pesticides less likely to leach to groundwater. Avoid pesticides that are highly water soluble, persistent, and do not adsorb to soil. The UC Extension Service and the Natural Resources Conservation Service are available to assist the public

Management Practice	Description
	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 storage	Store pesticides on farm for a short time, and in a locked weather-tight enclosure downstream and a reasonable distance (greater than 100 feet) from wells or surface waters. Use appropriate protective equipment and clothing according to label instructions.

Management Practice	**Description**
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.

IV. 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.

A. 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
Total Estimated Costs	**$59,291-120,939**	**$54,291-110,939**
Cost per Acre (6450 acres)	**$9.19-18.75**	**$8.41-17.20**

B. 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**

C. 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

D. 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.