Amendment to the Water Quality Control Plan for the Colorado River Basin Region to Establish a Conditional Prohibition and Implementation Plan for Agricultural Wastewater Discharges Originating within the Palo Verde Valley and the Palo Verde Mesa,
Riverside and Imperial Counties, California

June 30, 2010

California Regional Water Quality Control Board
Colorado River Basin Region
Palm Desert, California

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LIST OF ABBREVIATIONS

AMR	Annual Monitoring Report
Basin Plan	Water Quality Control Plan, Colorado River Basin – Region 7
40 CFR	Title 40 Code of Federal Regulations
CWA	Federal Clean Water Act
CWC	California Water Code
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
DDT	Dichloro-Diphenyl-Trichloroethane
DMRP	Drain Monitoring and Reporting Program
DWQP	Drain Water Quality Plan
FRSH	Freshwater Replenishment
MOS	Margin of Safety
MSL	Mean Sea Level
MP	Management Practice
MPN	Most Probable Number
MRP	Monitoring and Reporting Program
NPS	Nonpoint Source Pollution
NPS Program Plan	Nonpoint Source Program Strategy and Implementation Plan, 1998-2013
OAL	Office of Administrative Law
OEHHA	Office of Environmental Health Hazard Assessment
O&M	Operation and Maintenance
NPS Policy	Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program
Porter-Cologne	Porter-Cologne Water Quality Control Act
Program(s)	Non Point Source Pollution Control Program(s)
PVID	Palo Verde Irrigation District
PVOD	Palo Verde Outfall Drain
Valley	Palo Verde Valley
QAPP	Quality Assurance Project Plan
RARE	Preservation of Rare, Threatened, or Endangered Species
REC I	Water Contact Recreation
REC II	Water Non-Contact Recreation
Regional Water Board	Colorado River Basin Regional Water Quality Control Board
RWQCB	Regional Water Quality Control Board
State Water Board	State Water Resources Control Board
TMDL	Total Maximum Daily Load
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency

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USGS	United States Geological Survey
WARM	Warm Freshwater Habitat
WILD	Wildlife Habitat
WDRs	Waste Discharge Requirements
WQMP	Water Quality Management Plan
WQSs	Water Quality Standards

DEFINITIONS

Agricultural Wastewater Discharges: For purposes of this conditional prohibition, "agricultural wastewater discharges" means: discharges of wastewater from *irrigated lands*, specifically: 1) storm water runoff from irrigated lands; and 2) irrigation return water, which includes surface discharges (also known as "tailwater") and subsurface discharges (known as "tile water" in tiled areas, and groundwater or "seepage" in areas not tiled). These discharges may contain pollutants in amounts or at concentrations that adversely impact the waters of the state.

Annual Monitoring Report (AMR): A monitoring report that is submitted annually by designated management entities of Compliance Programs. The AMR describes the monitoring program, the results of the data collected, and data evaluation of those results. See Attachment III for a description of the required contents of an AMR.

Annual Report: A report that is submitted annually by designated management entities of Compliance Programs, which describes the Compliance Program's progress for the year and includes an updated Group/Individual Water Quality Management Plan (WQMP), technical assistance workshops planned, conducted and/or attended, monitoring results, any proposed changes that need to be made to the Compliance Program Plan, and similar pertinent information.

Basin Plan: A regional water quality control plan formulated and adopted by each Regional Water Quality Control Board pursuant to the requirements specified in Article 3, Chapter 4, Division 7 of the Water Code (commencing with Section 13240). Basin plans identify surface water and groundwater bodies within each Regional Water Board's boundaries and establish, for each region, their respective beneficial uses and water quality objectives.

Chain of Custody (COC): Refers to the chronological documentation, and/or paper trail, showing the custody, control, transfer, analysis, and disposition of samples

Compliance Program: "A nonpoint source pollution control program, as defined in the "State Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program," that specifies Management Practices, and monitoring and reporting requirements to ensure compliance with a Basin Plan Prohibition. A compliance program may be a Group Compliance Program or an Individual Compliance Program. A Group Compliance Program is one that has been developed by Responsible Parties that have formed their own compliance group for self-management or have joined the compliance group to be organized and managed by PVID. An Individual Compliance Program is one that has been developed by an individual Responsible Party who chooses not to join a group."

Drain Water Quality Plan: A self-determined plan to control water quality impacts caused by agricultural drain maintenance operations. See Attachment III for a description of the required contents of a DWQP.

Drain Monitoring and Reporting Program (Drain MRP): A program that specifies monitoring and reporting requirements designed to evaluate the water quality impacts caused by drain cleaning and maintenance operations in the agricultural drains.

Drain Discharge: The flow of water in a drain consisting of rain, storm water, desert runoff, canal operational spill, groundwater, and irrigation runoff,

Drain Maintenance Discharges: These are discharges associated with cleaning and maintenance operations in agricultural drains, which may contain pollutants in amounts or concentrations that could affect the quality of waters of the State.

Impaired Water Bodies: Surface water bodies or segments thereof that have been identified on a list as not meeting current water quality standards. The list of such impaired water bodies is developed and approved by the State Water Resources Control Board and the U.S. Environmental Protection Agency in accordance with the requirements of Section 303(d) of the federal Clean Water Act.

Irrigated Lands: Farm lands where water is applied to produce crops, including, but not limited to, land planted in row, vineyard, pasture, field and tree crops.

Leaching requirement: That portion of the irrigation water applied to a crop which is required to pass through the root zone to control soluble salt levels around the crop's root zone at a desired level.

Monitoring and Reporting Program (MRP): A program containing monitoring and reporting requirements that is developed pursuant to a Group or Individual Compliance Program. Monitoring requirements of specified constituents of concern are established in a manner that would allow for a determination to be made whether (1) Management Practices are properly designed and implemented, (2) Water Quality Objectives are being met, and (3) Responsible Parties are in compliance with the terms and conditions of the exemption provided in this agricultural discharge prohibition Basin Plan Amendment. See Attachment III for a description of the required contents of an MRP.

Pollutant: The term "pollutant" has the same meaning as defined in the federal Clean Water Act, Section 502(6) (33 U.S.C. § 1362(6)); i.e., dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Quality Assurance Project Plan (QAPP): A plan that identifies the Quality Assurance (QA) and Quality Control (QC) procedures to be followed to ensure that a Monitoring and Reporting Program meets its stated objectives, including obtaining data of known quality. See Attachment III for a description of the required contents of a QAPP.

Total Maximum Daily Load (TMDL): The calculated amount of pollutant a receiving water body can receive from point sources and non-point sources of pollution without causing that water body to exceed applicable Water Quality Standards. Section 303(d)(1) of the Clean Water Act requires each State to establish a TMDL for each impaired water body to address the pollutant(s) causing the impairment. In California, TMDLs are adopted as Basin Plan amendments.

Water Quality Management Plan (WQMP): A self-determined plan for controlling agricultural wastewater discharges. See Attachment III for a description of the required contents of a WQMP.

Waste Discharge Requirements (WDR): Requirements that are prescribed in a permit, issued pursuant to Water Code Sections 13260 and 13263 for a discharge of waste that could affect the quality of waters of the State. WDRs specify effluent limitations, monitoring and reporting requirements, and other requirements that the discharger must satisfy in order to be permitted to discharge.

I. INTRODUCTION

This staff report describes a proposed amendment to the Water Quality Control Plan for the Colorado River Basin Region (Basin Plan). The intent of the amendment is to ensure agricultural wastewater discharges and drain maintenance discharges, occur in a manner that does not adversely affect the beneficial uses defined in the Basin Plan for the Palo Verde Valley Drains, and the Palo Verde Valley Lagoon and Outfall Drain.

Accordingly, the amendment establishes a conditional prohibition for agricultural wastewater discharges originating within the Palo Verde Valley and Palo Verde Mesa (hereafter jointly referred to as “area”), and incorporates an Implementation Plan. The amendment also establishes a conditional prohibition for drain maintenance discharges that occur as a result of drain operation and maintenance (O&M) activities.

Agricultural wastewater discharges addressed in this prohibition include: (1) storm water runoff from irrigated lands; and (2) irrigation return water, which includes surface discharges (also known as "tailwater"), and subsurface discharges (known as "tile water" in tiled areas, and groundwater or "seepage" in areas not tiled). Most agricultural wastewater discharges in the Palo Verde Valley and the Palo Verde Mesa are collected in open drains dug at least one foot below groundwater levels of adjacent fields. These drains are tributary to the Palo Verde Outfall Drain (PVOD), which discharges into an old channel of the Colorado River. This old channel flows for eight miles before joining the active River channel in the Cibola National Wildlife Refuge, about one mile above Cibola Lake.

Pursuant to the conditions of this prohibition, Responsible Parties as defined in Section II.B below will be required to implement management practices that address their agricultural wastewater and drain maintenance discharges. As such, the amendment will establish:

- Conditions/requirements for any entity with an existing or potential agricultural wastewater discharge in the area,
- Conditions/requirements for Palo Verde Irrigation District (PVID) and any individual who operates and maintains drains that cause a discharge of wastewater or wastes, or both, and
- Designated requirements for Compliance Programs.

The conditional prohibition will not prohibit drain O&M activities, or limit the quantity of agricultural wastewater discharges released into drains (and ultimately into the Colorado River). Likewise, the conditional prohibition will not regulate or restrict the amount of water applied to private lands for agricultural purposes, such as to furrows, beds, and other ancillary structures. The regulatory framework, hydrogeologic setting,

and rationale for the provisions of this conditional prohibition and amendment are discussed in this report.

Administrative procedure requires that the amendment be reviewed and approved by the Regional Water Board, the State Water Resources Control Board (State Water Board), the Office of Administrative Law (OAL), and finally, the United States Environmental Protection Agency (USEPA) before legally effective and enforceable. In accordance with state and federal laws, duly noticed public comment periods and public hearings were provided by the State Water Board and Regional Water Board.

II. REGULATORY BACKGROUND AND OVERVIEW

A. WATER QUALITY LAWS

Division 7 of the California Water Code, the Porter-Cologne Water Quality Control Act (Porter-Cologne) (California Water Code (CWC) § 13000 et seq.), is the main law governing water quality in California. The CWC designates the State Water Board and nine Regional Water Quality Control Boards (Regional Water Boards) as the state agencies with the primary responsibility for ground and surface water quality control in California. The Regional Water Boards are responsible for protection of water quality within their statutorily designated jurisdictional boundaries (CWC § 13225(a)). The State Water Board is responsible for statewide water quality control policy (e.g., the Water Quality Enforcement Policy) and oversees all Regional Water Boards. The CWC requires that activities and factors that may affect the quality of the waters of the state be regulated to attain the highest water quality which is reasonable (CWC § 13000).

The Federal Water Pollution Control Act (33 U.S.C. § 1251 et seq.), as amended, is the governing law for protecting the quality of surface waters of the United States. The USEPA has primary responsibility for discharging the provisions of the Federal Water Pollution Control Act (also referred to as the Clean Water Act). Pursuant to authority delegated by the USEPA, however, California implements Clean Water Act (CWA) requirements through the provisions set forth in Porter-Cologne. In addition, California's regulatory authority under Porter-Cologne for protecting waters goes beyond the USEPA's in that it regulates all "waters of the state," which are defined as "any surface water or groundwater, including saline waters, within the boundary of the state" (CWC § 13050(e)). One of the CWA surface water requirements that California implements is CWA Section 303(d)(1)(A). This statutory provision requires each State to:

- Identify those waters within its boundaries that do not comply with water quality standards applicable to such waters after the application of CWA-required technology-based effluent limitations;
- List those impaired water bodies (referred to as the "Section 303(d) List");
- Rank the impaired water bodies, taking into account factors such as the severity of pollution and the uses made of such waters; and
- Establish Total Maximum Daily Loads (TMDLs) for those pollutants causing the impairments to ensure that the impaired waters attain the water quality standards applicable to such waters.

As set forth in the CWA and its implementing regulations in Title 40 Code of Federal Regulations (40 CFR), a Water Quality Standard (WQS) defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the

water and by setting criteria necessary to protect those uses (CWA § 303; 40 CFR 130.3, 131.2, 131.10). The CWA also requires each State to establish and implement an anti-degradation policy (40 CFR 131.12). In the CWC, the terms of "beneficial uses" and "water quality objectives", are equivalent to the CWA's terms of "designated uses" and "water quality criteria," respectively.

The State Water Board also promulgates through rulemaking statewide policies for protecting water quality and for implementing CWA requirements. One of the policies promulgated by the State Water Board that is relevant to this proposed amendment is the "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List" (State Water Board, 2004). This policy, which was adopted in September 2004, provides guidance for listing and delisting impaired surface waters throughout the State.

B. RESPONSIBLE PARTIES

For the purposes of this amendment, the term "Responsible Parties" means the entities specified below who are subject to the requirements of this Basin Plan Amendment:

(1) farmland owners, renters/lessees, and operators/growers in the Palo Verde area who discharge or may discharge agricultural wastewater that could affect the quality of waters of the State; and

(2) the PVID and individuals who conduct drain operation and maintenance (O&M) activities that could affect the quality of waters of the State.

The amendment establishes separate and distinct requirements for each of these two types of Responsible Parties.

Most Responsible Parties regulated by this amendment fall under the first category; Farm land Owners, Renters/Lessees, and Growers. Farm land owners have discretionary control of their land, and therefore are responsible for activities occurring on their property that threaten the quality of State waters. Similarly, farm land owners are ultimately responsible for addressing the impacts to water quality caused by renters/lessees of their property. Renters/lessees have day-to-day control of farming operations, and are responsible for pollution control as well.

PVID is the main entity in the second "Responsible Party" category because PVID is the drain management agency for the area. Although a few individuals maintain their own drains, such individual maintenance activities are uncommon. Drain O&M activities (by PVID and individuals) are being regulated in this amendment because these activities may impact drain water quality.

C. BENEFICIAL USES OF WATERS IN THE PALO VERDE VALLEY AND PALO VERDE MESA

Pursuant to CWC Sections 13240 and 13241, Regional Water Boards are required to adopt basin plans and establish water quality objectives to protect beneficial uses designated for waters within each Regional Water Board's jurisdictional boundaries. The State Water Board formulates and adopts statewide policy for water quality control, and reviews decisions made by the Regional Water Boards, either on its own motion or pursuant to administrative appeal procedures set forth in Porter-Cologne (CWC § 13320).

The purpose of the Basin Plan is to provide guidelines and direction on the full scope of Regional Water Board activities that optimize the beneficial uses of state waters by preserving and protecting the quality of these waters. CWC Section 13241 requires each Regional Water Board to establish water quality objectives in its Basin Plan. CWC Section 13050(h) defines "water quality objectives" as follows:

> *"Water quality objectives" means the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.*

Past, as well as present, and probable future, beneficial uses are statutorily required to be considered by the Regional Water Board when establishing water quality objectives (CWC § 13241(a)).

CWC Section 13050(f) defines "beneficial uses" as follows:

> *"Beneficial uses" of the waters of the state that may be protected against quality degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.*

Beneficial uses of Palo Verde Valley Drains, Palo Verde Lagoon and Outfall Drain, as identified in the Basin Plan, are provided in Table 1 below.

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Table 1: Beneficial Uses	
Beneficial Use	**Description**
Water Contact Recreation (REC I)	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs. However, the only REC I usage known to occur is from fishing activity.
Water Non-Contact Recreation (REC II)	Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Warm Freshwater Habitat (WARM)	Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Wildlife Habitat (WILD)	Uses of water that support terrestrial ecosystems including but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Preservation of Rare, Threatened, or Endangered Species (RARE) (Applies to Lagoon and Outfall Drain only)	Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered. (Applies to Lagoon and Outfall Drain only)

Source: California Regional Water Quality Control Plan (Basin Plan) for the Colorado River Basin Region, as amended to date.
(http://www.waterboards.ca.gov/coloradoriver/publications_forms/publications/docs/basinplan_2006.pdf)

D. THE HISTORY OF NONPOINT SOURCE POLLUTION REGULATION

Historically, agricultural wastewater discharges were unregulated, even though pollutants from agricultural practices are the cause of most impairment to surface waters in the State. (2006 Staff Report for State's 303(d) List, available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/swrcb/staffreport/v1sr_final.pdf). In 1983, the Regional Water Boards began regulating agricultural wastewater discharges along with twelve (12) other types of discharges, by issuing waivers pursuant to their waiver authority under CWC Section 13269. Regional Water Board practice was to routinely renew these waivers when their terms expired.

This practice of routinely renewing waivers ended in 1999, when Senate Bill 390 (Alpert) was signed into law. This bill amended CWC Sections 13269 and 13350. The amendment caused all waivers of waste discharge requirements (WDRs) existing on January 1, 2000, to expire on January 1, 2003, unless reviewed and renewed, if appropriate. At that time, the Regional Water Board reviewed its thirteen (13) categories of waivers and determined that it was appropriate to renew waivers for nine (9) categories. The waiver for agricultural discharges was allowed to expire, however, along with three (3) other waivers. Since then, agricultural discharges in the Palo Verde Valley and Palo Verde Mesa, among other areas in the Colorado River Basin Region, have been unregulated, even though CWC Section 13269 requires the Regional Water Board to regulate such discharges.

Pursuant to the requirements of CWC Section 13369(a)(2), the State Water Board adopted in 2000 a "Nonpoint Source Program Strategy and Implementation Plan, 1998-2013" (NPS Program Plan) to update the previous plan adopted in 1988, and to bring the State into compliance with the requirements of Section 319 of the CWA and Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA). This guidance document provides a single, unified, and coordinated approach for managing NPS pollution statewide that is flexible and adaptable over time. In 2004, the State Water Board adopted a "Policy for the Implementation and Enforcement of the Nonpoint Source Pollution Control Program" (NPS Policy). The NPS Policy describes how the NPS Program Plan will be implemented and enforced.

E. REGULATORY ALTERNATIVES

There are several regulatory alternatives the Regional Water Boards may use to comply with Porter-Cologne and the change in law affected by the Alpert Bill that amended the waiver provisions of CWC Section 13269. One alternative, authorized by CWC Section 13260, is to issue WDRs. A second alternative, authorized by CWC Section 13269, is to waive WDRs for specific discharges, or specific types of discharges, if waiving discharge requirements is not against the public interest and satisfies certain statutory conditions. A third alternative, authorized by CWC Section 13243, is to amend the

Basin Plan to prohibit a particular discharge or a particular type of discharge, or to conditionally prohibit a discharge.

The NPS Policy requires dischargers to comply with WDRs, waivers, and prohibitions established by Regional Water Boards by participating in the development and implementation of NPS Pollution Control Programs (Compliance Programs), either individually or collectively as participants in discharger coalitions. Compliance Programs may be developed by a Regional Water Board, an individual discharger, or a discharger coalition in cooperation with a third-party representative, organization, or government agency. The NPS Policy identifies five (5) key elements required for all Compliance Programs:

Element 1: Statement of Goals/Purpose
Element 2: Identification of Management Practices (MPs)
Element 3: Time schedule for Compliance
Element 4: Surveillance Program
Element 5: Consequences for failure

Each of these elements is described in the Implementation Section of this report.

III. PROJECT AREA

Palo Verde Valley (Valley), California, straddles southern Riverside County and northern Imperial County. The Valley is bounded to the north by the Big Maria Mountains, to the west by Palo Verde Mesa (Mesa), and to the south and east by the Colorado River. The Valley is relatively flat, nine (9) miles wide and thirty (30) miles long, and ranges from 290 feet above mean sea level (MSL) in the north, to 220 feet above MSL in the south. Soils are well-drained, fine-grained sand and loam alluvial deposits from the Colorado River. A topographic map of the Palo Verde Valley and Mesa areas is provided in Figure 1.

The Mesa is divided into the upper and lower terraces that formed by flooding of the Colorado River. Soils comprise older alluvial deposits derived from adjacent mountains (Big Maria, McCoy, Mule, and Palo Verde Mountains), consisting of excessively drained to well-drained fine to gravelly sand, and loam (USDA1974). Aerial photographs (http://www.flashearth.com) show farming outside the Valley largely limited to the Mesa's lower terrace.

Mean summer temperatures range from 85° to 110° Fahrenheit. Precipitation typically averages four (4) or less inches per year, and evapotranspiration about 72 inches per year (USDA, 1974). Table 3 shows monthly rainfall totals measured at the Blythe Airport from 2000 to 2005, with a six (6) year average of 2.97 inches per year.

Table 2: Monthly Rainfall Totals (inches) at Blythe Airport

MONTH	Year 2000	Year 2001	Year 2002	Year 2003	Year 2004	Year 2005
January	-0	0.81	-	0.11	0.02	1.55
February	0.08	0.67	0	1.08	0.57	2.83
March	0.38	1.55	0.04	0.28	0.81	0.21
April	-0	0.01	-0	0.08	0.06	0
May	-0	-0	-0	0	0	0
June	0.01	-0	-0	0	0	0
July	-0	-0	-0	0.06	0	0
August	1.03	-0	-0	0	0.02	1.35
September	-0	0	0.75	0.07	0.12	0
October	-0	-	0.04	0	1.02	0.85
November	-0	0.11	0.03	0.33	0.31	0
December	-0	0.03	-	0	0.57	0
Total	1.50	3.18	0.86	2.01	3.50	6.79

The Valley has a canal delivery system and an agricultural drainage system administered by PVID, that services approximately 189 square miles (roughly 131,000

acres) in Riverside and Imperial Counties. Water from the Colorado River is diverted at Palo Verde Diversion Dam into 244.23 miles of open canals for crop irrigation. Canal operational spills, field runoff, and groundwater collect in 142 miles of open drains dug to a depth at least one (1) foot below the groundwater table, to prevent rising groundwater from interfering with or preventing cultivation. Most drains discharge into the Palo Verde Outfall Drain (PVOD) (see Attachment II for names and lengths of this drainage system). PVOD then discharges into a historic channel of the Colorado River two (2) miles south of the northern boundary of the Cibola National Wildlife Refuge before flowing another eight (8) miles to join the present river channel. A map of Palo Verde Valley showing the locations of canals and agricultural drains is provided in Figure 2, PVID Acreage Map 2009.

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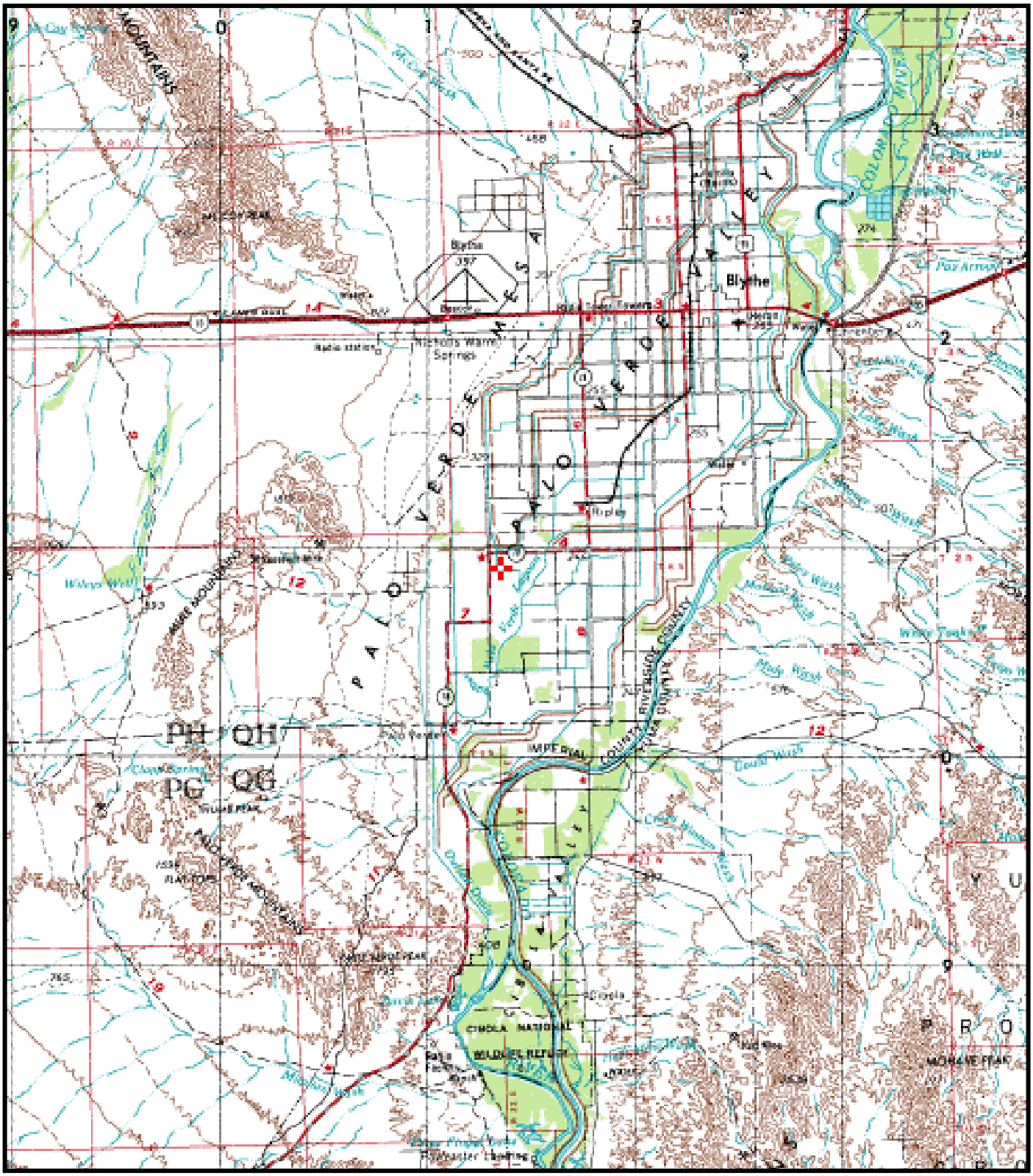
Figure 1: Topographic Map



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IV. IRRIGATION AND DRAIN OPERATION AND MAINTENANCE PRACTICES

PVID manages 244.23 miles of canals (56 miles of which are concrete lined), used to transport water from the Colorado River to farm ditches for crop irrigation. About 315 miles (or 72 percent) of privately owned ditches are concrete lined. Farmers in the Valley divert water from a canal through a gate operated by PVID onto fields for mostly gravity flood irrigation. PVID's gates are calibrated using a submerged orifice technique to determine the volume of water delivered at each location. When uniform germination is desired, sprinkler irrigation is used on crops such as lettuce, onions, and garlic, and in the late summer on alfalfa. Drip irrigation is used for citrus plantings in the Mesa area, and for other field crops in the Valley (PVID, 2005). Because water from the Colorado River contains soluble salts, the amount of water applied to fields must be sufficient to flush salts accumulating in the root zone, as well as supply water for crop growth. This additional water is termed the 'leaching requirement'. Water needed to flush salts varies with soil type and the crop's stage of growth, but generally averages 15% of the amount required for crop evapotranspiration. Leaching salts from the root zone is necessary to maintain soils for cultivation. The excess irrigation water (i.e., 'leaching requirement') carries the soluble salts to groundwater which eventually flows into the drains and/or the Colorado River. As saline soils in the Valley and Mesa are reclaimed through salt leaching, more profitable crops are grown.

Landowners sometimes install field spill pipes into drains adjacent to fields to remove excess irrigation water from crops. Spill pipes are maintained by PVID. To control flow, PVID restricts pipe size to six inches in diameter, and the outfall slope to one foot of drop per 20 lineal feet. Generally, this limits the flow to about 2.3 cubic feet per second. However, in some cases, PVID has approved the installation of eight-inch diameter pipes. PVID requires spill pipes to be spaced at least 0.25 miles apart. Presently, about 300 active field spill pipes covering around 21,682 acres have been installed in the Valley. Not all spill pipes are used year-round. Generally, the only spill pipes used are those located on alfalfa fields to prevent scalding by standing water in the summer. Spill pipes are seldom used on other crop types unless the end of the field becomes submerged due to irrigator error (PVID, 2005).

In the 1950's, when groundwater elevations were higher, some farmers installed tile systems beneath their fields that discharged into agricultural drains. Most of these systems were abandoned when the drains were deepened to lower the groundwater table; a process that began in 1962, when drain depths were extended at least one (1) foot below the water table to prevent rising groundwater from interfering with farming. As a result, groundwater in the Valley currently occurs around 9.5 feet below the ground surface. The only tile systems operative today occur in the extreme southern end of the Valley, south of the town of Palo Verde (PVID, 2005).

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Canal spillage, and ground and surface water draining from fields after irrigation and storms (i.e., agricultural wastewater discharges), collect into 142 miles of open channels (see Attachment II), most of which discharge into the Palo Verde Outfall Drain, ultimately returning to the Colorado River at the lower end of the Valley. Although some drains are privately owned and maintained, most are owned and maintained by PVID. However, PVID does not have ownership of the property on which most of their drains are located. Rather, these drains are operated under a blanket easement, or by prescriptive rights (PVID, 2005).

In essence, methods for maintaining drains have not changed since the 1970's. PVID uses long-reach excavators to remove mud, placing the excavated material on the drain bank behind the excavator as the equipment moves downstream. If the excavator can not reach the base of the drain, a dragline is used to open the area for flow. PVID's drain maintenance activities are authorized via the "Lower Colorado River Multi-Species Conservation Program" (LCR MSCP) of 2005 and its related environmental documents.

Drain channel maintenance is done on an as-needed basis per the LCR MSCP permit. Tules growing in drains are removed to restore flow, weeds on drain slopes are crushed, and large trees removed. From March 15th to August 1st, the breeding season for the Yuma Clapper Rail, Western Least Bittern, and California Black Rail, drain maintenance activities are suspended or minimized to the extent practicable. For some drains, maintenance is only required once every ten to fifteen years (PVID, 2005) due to landowner maintenance.

The 2004, 2005, and 2006 crop reports prepared by PVID (see Table 3 below) show a net cultivated acreage of 93,505, 93,547, and 93,702 acres respectively. Due to the year-round growing season and multi-cropping practices (i.e., the same acre of land producing two or more crops in one year), 119,737 acres of crops were grown. Crops grown and acreage used are given below.

Table 3: Crops Grown within PVID (2004-2006)

PALO VERDE IRRIGATION DISTRICT CROP REPORT			
FIELD CROPS	**CALENDAR YEAR 2006**	**CALENDAR YEAR 2005**	**CALENDAR YEAR 2004**
Alfalfa	52811	47458	50376
Barley	220	27	333
Bermuda Grass	1704	1592	1963
Citrus	2000	2136	2137
Corn	672	429	334
Cotton-Short	13889	15087	22122
Grapes	61	0	0
Kanaf	0	0	10
Klein Grass	3456	2167	2645
Milo	399	0	0
MSCP	23	0	0
Oats	1485	680	1056
Orchard	52	15	15
Palm Trees	94	39	34
Rye	30	433	972
Sudan	2751	1198	3912
Timothy Grass	117	91	719
Wheat	1145	2820	8390
SUBTOTAL	**80,909**	**74,172**	**95,018**
VEGETABLES			
Broccoli	1833	1143	1274
Cabbage	207	52	186
Cauliflower	0	35	17
Garlic	0	147	140
Lettuce-Spring	451	414	381
Lettuce-Fall	720	872	972
Mixed Vegetables	7	33	2
Okra	0	8	46

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Onions	0	108	188
Onions-Seed	0	10	13
Squash	87	122	169
SUBTOTAL	**3,305**	**2,944**	**3,388**
MELONS			
Cantaloupes	1158	1113	2309
Honeydews	439	579	637
Watermelons	271	234	359
Mixed Melons	1687	1186	2096
SUBTOTAL	3,555	3,112	5,401
Fish Ponds	79	79	79
Fallow	29870	29208	2676
Idle or Diverted	2019	1869	1883
SUBTOTAL	**31,968**	**31,156**	**4,638**
GROSS ACRES	**119,737**	**111,384**	**108,445**
LESS SECOND CROP ACREAGE			
Alfalfa	12500	6345	8168
Bermuda	159	173	18
Broccoli	1377	944	1274
Cabbage	149	52	103
Cauliflower	0	0	17
Cantaloupes	89	0	289
Corn	179	166	162
Cotton-Short	358	417	843
Fallow	5043	7897	0
Klein	1289	0	0
Milo	365	0	0
MSCP	23	0	0
Oats	1098	87	11
Onions	0	0	118
Rye	5	0	443
Squash	0	0	37
Sudan	2091	640	2232
Timothy Grass	0	71	18
Lettuce-Fall	720	800	972

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Honeydews	141	69	114
Mixed Melons	405	139	35
Wheat	44	37	86
TOTAL SECOND CROP	**26,035**	**17,837**	**14,940**
NET ACREAGE	**93,702**	**93,547**	**93,505**

A Fallowing program between PVID and The Metropolitan Water District of Southern California was initiated on January 1, 2005. The Program Contract Year extended from August 1st to July 31st. The calendar year average of monthly program values does not reflect if fields remained fallow after August 1st.

Fallowed	19970	22774	5526

Source: Palo Verde Irrigation District, July 2007
(http://www.pvid.org/CropReport/tabid/55/Default.aspx)

V. AREAL WATER QUALITY

A. BASELINE WATER QUALITY

The Basin Plan identifies the following numeric objectives for the Palo Verde Valley Drains and Palo Verde Outfall Drain:

Table 4: Numeric Water Quality Objectives for PVID Drains

Constituent	WQO (units)
pH	6.0 - 9.0 (pH units)
Dissolved Oxygen	5.0 (mg/L)
Total Dissolved Solids	2000 annual average, 2500 maximum (mg/L)
E. coli	Based on a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period), the geometric mean of the indicated bacterial densities should not exceed a log mean of 126 MPN per 100 ml, nor shall any sample exceed 400 MPN per 100 ml.
Enterococci	Based on a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period), the geometric mean of the indicated bacterial densities should not exceed 33 MPN per 100 ml, nor shall any sample exceed 100 MPN per 100 ml.
fecal coliforms	Based on a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period), the geometric mean of the indicated bacterial densities should not exceed 200 MPN per 100 ml, nor shall nor shall any sample exceed 400 MPN per 100 ml.

From 2000 to 2003, the Regional Water Board conducted studies at key locations in the area to determine baseline water quality. The studies indicate turbidity, total suspended solids, pH and specific conductance do not exceed the numeric WQOs shown in Table 4, above. Further, water quality monitoring data collected by PVID in May 2005 at three locations (Attachment I, PVID's MRP Appendix I sites 1, 2, and 3), also shows no exceedance in WQOs. Table 5 summarizes the PVID data.

Based on the 2005 pesticide use data report (California Department of Pesticide Regulation, December 19, 2007), the following insecticides are used in the Palo Verde area: Chlorpyrifos, Malathion, Dimethoate, and Endosulfan. Individually or synergistically, these constituents can cause chronic or acute toxicity in aquatic organisms. Therefore, they are constituents of concern with the potential to impact receiving waters.

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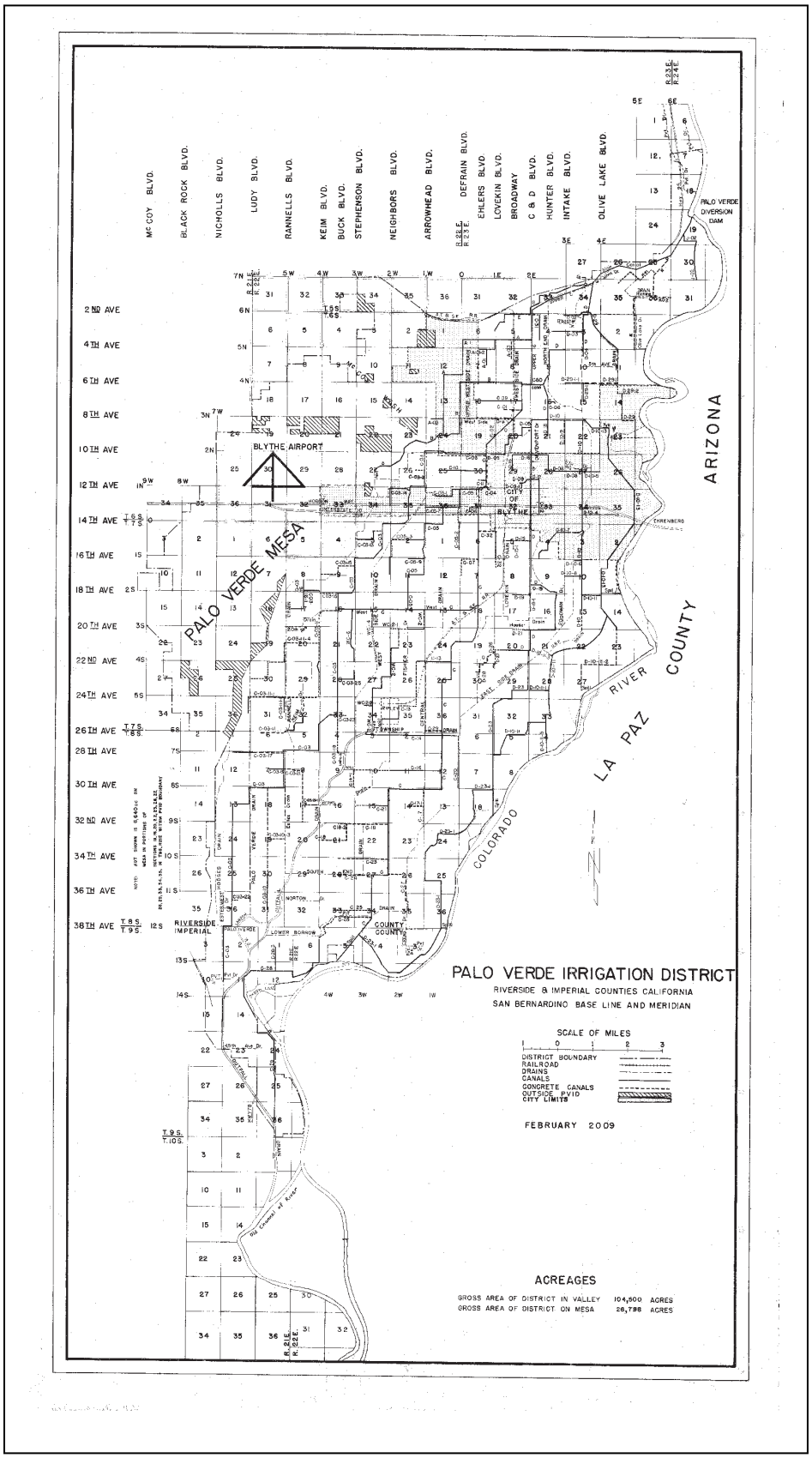
Figure 2 PVID Acreage Map 2009



Source: PVID Drain Map, 2009

Table 5: PVID Sampling Data May 2005

Locations and Constituent Results	Intake Colorado River/Main Canal Sample #3	Eastside Drain @ Lovekin Blvd. Sample #2	Outfall Drain @ 35th Avenue Sample #1
pH (pH units)	8.0	7.6	7.8
Specific Cond. (umhos/cm)	1000	1600	2000
TSS (mg/L)	6	54	36
Nitrate as N (mg/L)	0.29	0.29	0.25
Nitrite as N (mg/L)	ND	ND	ND
Kjeldahl N (mg/L)	0.19	0.63	0.44
Total N (mg/L)	0.48	0.92	0.69
Ortho Phosphate (mg/L)	ND	0.11	ND
Total P (mg/L)	ND	0.17	0.11

Source: Palo Verde Irrigation District, May 2005

B. WATER QUALITY IMPAIRMENTS

As shown in Table 4 above, the Basin Plan establishes pathogen WQOs for surface waters using three bacteria indicator organisms: fecal coliforms, E. coli, and enterococci. These pathogen WQOs are mainly for the protection of water contact (REC-I) and water non-contact (REC-II) recreation. The Basin Plan also establishes a narrative WQO for chemicals, which states, in relevant part:

> "No individual chemical Water Quality Criterion or combination of chemicals shall be present in concentrations that adversely affect beneficial uses...." (Basin Plan - Colorado River Basin Regional Board, page 3-4, N. Chemical Constituents).

The Palo Verde Outfall Drain is listed as "impaired" on the 2006 CWA Section 303(d) List because pathogen indicator bacteria (enterococci), and Dichloro-Diphenyl-Trichloroethane (DDT) violate WQOs that protect the following beneficial uses:

1. contact and non-contact water recreation (REC I and REC II);
2. warm freshwater habitat (WARM);
3. wildlife habitat (WILD); and
4. preservation of rare, threatened, or endangered species (RARE).

Regional Water Board staff collected water samples at different locations in PVOD from 2000 to 2003 for pathogen indicator bacteria analysis. Data indicated no impaired for E.

coli, but impairment for enterococci (Regional Water Board, 2005). To comply with Section 303(d) of the Clean Water Act, the Regional Water Board listed the PVOD as "impaired by bacteria" and developed a Draft Total Maximum Daily Load (TMDL) and Implementation Plan to address this impairment.

USEPA guidance indicates that only one bacteria indicator organism (E. coli, or enterococci) needs to be designated as a pathogen indicator for fresh water bodies like PVOD (USEPA, 1986). The Regional Water Board's 2007 Triennial Review (Regional Water Board, 2008), proposes to amend the Basin Plan to reduce pathogen WQOs for surface waters from three indicators to one indicator for fresh waters (E. coli), and one indicator for saline waters (enterococci). The Draft TMDL and Implementation Plan for PVOD are suspended until this pathogen Basin Plan amendment is completed. As a result, PVOD remains listed as impaired for pathogens, given the noncompliance with the delisting criteria for fecal coliforms and enterococci.

In regard to the DDT impairment, the 2006 CWA Section 303(d) List Staff Report (State Water Board, 2006), indicates four (4) of eleven (11) fish tissue samples from PVOD exceed the California Office of Environmental Health Hazard Assessment (OEHHA) Screening Value for DDT. Based on the 2004 303(d) Listing Policy, (State Water Board, 2004), this exceedance rate is sufficient to list for DDT impairment. Accordingly, the Regional Water Board will develop a TMDL and implementation plan to address DDT impairment in the PVOD.

VI. CONDITIONAL PROHIBITION

As previously mentioned, the purpose of this amendment is to conditionally prohibit agricultural wastewater discharges and drain maintenance discharges, to ensure compliance with water quality objectives and protection of beneficial uses of State waters in the Palo Verde Valley and Palo Verde Mesa. The agricultural wastewater discharges subject to this conditional prohibition include:

1. storm water runoff from irrigated lands; and
2. irrigation return water, which includes:
    a. surface discharges (also known as "tailwater"), and
    b. subsurface discharges, known as:
        i. "tile water" in tiled areas, and
        ii. groundwater or "seepage" in areas not tiled.

Drain maintenance discharges subject to this conditional prohibition are those that remove material (plant or soil) from the drain, to clean, deepen, or widen the waterway. Control of these discharges is necessary because they may contain pollutants that adversely affect the quality of State waters.

This proposed Basin Plan amendment prohibits agricultural wastewater and drain maintenance discharges, in Palo Verde Valley and Palo Verde Mesa into waters of the State, unless a Responsible Party complies with one of the following conditions:

1. Is enrolled in a Group Compliance Program, approved by the Executive Officer, and is in compliance with the group's requirements; or
2. Submits directly to the Regional Water Board an individual water quality management plan (WQMP) and, if applicable, a drain water quality plan (DWQP) for approval by the Executive Officer, and implements the approved WQMP/DWQP; or
3. Submits a Report of Waste Discharge for general or individual Waste Discharge Requirements.

The amendment also requires PVID and individuals who conduct drain O&M activities to address potential water quality impacts from these activities. The amendment becomes effective three (3) months after USEPA approval.

VII. IMPLEMENTATION

A. OVERVIEW

Consistent with the NPS Program Plan and NPS Policy, this proposed conditional prohibition requires *controlling* agricultural and drain maintenance wastewater discharges in the Palo Verde Valley and Palo Verde Mesa. This control is accomplished through the development and implementation of a NPS pollution control program (hereafter referred to as a Compliance Program). The "Implementation" chapter of this Staff Report describes the general Compliance Program for agricultural and drain maintenance wastewater discharges in Palo Verde Valley and Mesa, as well as management requirements and practices to comply with the conditional prohibition.

As previously mentioned, a compliance program may be a Group Compliance Program or an Individual Compliance Program. Group Compliance Programs are developed by Responsible Parties that either form their own compliance group for self-management, or join the compliance group to be organized and managed by PVID. In contrast, Individual Compliance Programs are developed by individual Responsible Parties who choose not to join a group. Both the Group Compliance Programs and Individual Compliance Programs are tailored to meet the needs of the Responsible Parties involved, and ensure compliance with all requirements and elements of the general Compliance Program described below.

In lieu of joining a Group Compliance Program or developing and implementing an Individual Compliance Program, Responsible Parties may elect to have their discharges regulated through individual Waste Discharge Requirements (WDRs). In this event, the Responsible Parties would need to submit an individual Report of Waste Discharge pursuant to CWC Section 13260. The Regional Water Board would then prescribe WDRs pursuant to CWC Section 13263 for those discharges. If this alternative is chosen, the Responsible Parties must file their individual Reports of Waste Discharge within **three (3) months following USEPA approval of this amendment.**

To be consistent with the NPS Policy, the Compliance Program must address the following five key elements:

Element 1. **Statement of Goals/Purposes** — The Compliance Program must specifically address NPS water quality problems and threats in a manner that achieves and maintains compliance with the Basin Plan's water quality objectives and beneficial uses, including the State Water Board's antidegradation requirements.

Element 2. **Identification of Management Practices (MPs)** — The Compliance Program must describe the MPs and other program elements to be

implemented to ensure attainment of the implementation program's goals and purposes. The Compliance Program must also describe the processes used to: (1) select or develop MPs, and to (2) ensure and verify proper MP implementation.

Element 3. **Time Schedule for Compliance** — The Compliance Program must include a specific time schedule and quantifiable milestones to measure progress toward reaching the specified requirements.

Element 4. **Surveillance Program** — The Compliance Program must include a compliance monitoring and reporting program (MRP) so that the Regional Water Board, Dischargers/Responsible Parties, and the public can determine whether the Compliance Program is achieving its stated goals and purposes, or if additional or different MPs, or other actions, are required. Regional Water Board oversight provided will track and monitor compliance.

Element 5. **Consequences for Failure** — The Regional Water Board must specify in advance potential consequences for implementing inadequate or ineffective programs that fail to achieve their goals and purposes. Consequences for failure are described in detail in Section VII.E, "Regional Water Board Compliance Assurance and Enforcement," and may include revising the program, or taking enforcement action.

B. HOW THE ELEMENTS ARE ADDRESSED IN THE COMPLIANCE PROGRAM

The five key elements are addressed in the Compliance Programs through the development and implementation of Individual or Group Compliance Programs. These Compliance Programs must include the following components:

- Water Quality Management Plans (WQMPs),
- Monitoring and Reporting Programs (MRPs),
- Drain Water Quality Plans (DWQPs), if applicable,
- Drain Monitoring and Reporting Programs (DMRPs), if applicable,
- Compliance with Designated Management Requirements, and
- Compliance assurance and enforcement policies specified by the Regional Water Board.

How these five elements are incorporated into the Individual and Group Compliance Programs is described below.

Element 1: Statement of Goals/Purposes

The goals and purposes of this Compliance Program are to ensure that water quality problems, and threats to water quality, are fully and timely addressed. This ensures agricultural wastewater and drain maintenance discharges achieve and maintain compliance with the Basin Plan's water quality objectives and beneficial uses. The Compliance Program also includes compliance requirements that ensure the State Water Board's antidegradation requirements are satisfied.

Individual Compliance Programs must submit a WQMP and, if applicable, a DWQP.

Group Compliance Programs must submit a report that includes:

(1) Suggested format(s) to prepare Individual WQMPs, and deadlines for submitting Individual WQMPs;
(2) A proposal to establish and maintain membership requirements, including membership enlistment protocols;
(3) Outreach and educational activities; and
(4) Workshops to coordinate with local technical assistance agencies.

Element 2: Identification of MPs

Responsible Parties must identify and implement MPs that effectively manage nutrients and pesticides, and improve irrigation efficiency and sediment control. A non-exclusive list of MPs is provided in Section D, "Management Practices." WQMPs and DWQPs (if applicable) must identify practices currently implemented, and practices planned for implementation. In addition, managing entities of Group Compliance Programs must include recommended MPs, and cooperate with Regional Water Board staff to track and report MP effectiveness.

Element 3: Time Schedule for Compliance

Milestones with time schedules are specified in this Compliance Program for Individual and Group Compliance Programs. Regional Water Board staff will develop a database to compare water account users to program enrollees to identify Responsible Parties not enrolled in either an Individual or Group Compliance Program.

Element 4: Surveillance Program

The surveillance program consists of Responsible Party reporting requirements, and Regional Water Board staff oversight. Reporting requirements include: submission of updated annual WQMPs/DWQPs, Annual Reports, and Annual Monitoring Reports (AMRs). Water Board staff oversight includes: review and approval of Compliance Programs, Compliance Program revisions, Annual Reports, AMRs, and periodic field verification.

Element 5: Consequences for Failure

Consequences for failing to achieve milestones may include reevaluation of a Group or Individual Compliance Program's structure, and/or initiating enforcement action against a specific member, or members of a Group Compliance Program or against the individual enrolled in an Individual Compliance Program. Programmatic structural changes may include increased monitoring parameters and/or monitoring frequency, and implementation of more stringent MPs and other requirements.

C. CONDITIONS TO BE IMPLEMENTED TO COMPLY WITH THE PROPOSED PROHIBITION

As previously discussed, the Basin Plan amendment prohibits agricultural wastewater discharges and drain maintenance discharges unless they comply with conditions specified in this Compliance Program. Two separate categories of Responsible Parties are subject to the requirements of this Compliance Program:

1. Farmers - This category includes farmland owners, renters/lessees, and growers with discharges of agricultural wastewater in the Palo Verde Valley and/or Palo Verde Mesa, and

2. Drain Maintenance Entities – This category includes PVID, and other individuals who conduct drain O&M activities.

Both categories of Responsible Parties must comply with an Individual or Group Compliance Program in accordance with the programmatic steps described below, unless they elect to have their discharges subject to individual WDRs. In addition, each category has exclusive requirements. Some Responsible Parties fall under both categories; that is, they are both "Farmers" and "Drain Maintenance Entities." For example, a farmland owner who maintains his own private drains is subject to both categories of Responsible Parties.

Attachment IV, illustrates the programmatic steps that Responsible Parties must follow if they choose to join a Group Compliance Program, or develop and implement an Individual Compliance Program. Responsible Parties who choose not to participate in either a Group or Individual Compliance Program must submit a Report of Waste Discharge to have their discharges regulated pursuant to WDRs issued by the Regional Water Board.

STEP 1: APPLICABLE TO BOTH FARMERS AND DRAIN MAINTENANCE ENTITIES

A Responsible Party may choose to comply with this Compliance Program by:

(1) joining the Group Compliance Program PVID has agreed to manage,
(2) joining another Group Compliance Program (with other Responsible Parties), or
(3) developing an Individual Compliance Program.

STEP 2: RESPONSIBLE PARTY REQUIREMENTS

a. <u>Requirements applicable to Farmers</u>:

(1) Farmers who join the Group Compliance Program PVID has agreed to manage must:

Submit Individual WQMPs to PVID on an annual basis, and comply with all requirements imposed by PVID.

(2) Farmers who join a Group Compliance Program managed by an entity other than PVID must:

Submit Individual WQMPs to the managing entity on an annual basis, and comply with all requirements imposed by the managing entity.

Responsible Parties electing to implement either of these Group Compliance Programs have no further responsibilities under this Compliance Program.

(3) Farmers electing to implement their own Individual Compliance Programs must:

Submit Individual WQMPs, Individual MRPs, Annual Reports and AMRs to the Regional Water Board, and comply with all Designated Management Requirements described in STEP 3 below.

b. <u>Requirements applicable to Drain Maintenance Entities:</u>

(1) Drain Maintenance Entities who join the Group Compliance Program PVID has agreed to manage must:

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Submit Individual DWQPs to PVID on an annual basis, and comply with all requirements imposed by PVID.

(2) Drain Maintenance Entities who join a Group Compliance Program managed by an entity other than PVID must:

Submit Individual DWQPs to the managing entity on an annual basis, and comply with all requirements imposed by the managing entity.

Drain Maintenance Entities electing either of the above Group Compliance Programs have no further responsibilities under this Compliance Program.

(3) Drain Maintenance Entities who elect to implement their own Individual Compliance Program must:

Submit Individual DWQPs, Individual Drain MRPs, Annual Reports, and Drain AMRs to the Regional Water Board, and comply with all Designated Management Requirements described in STEP 3 below.

STEP 3: DESIGNATED MANAGEMENT REQUIREMENTS

a. <u>Designated Management Requirements for PVID</u>

PVID has committed to manage a Group Compliance Program. The scope of this management includes: developing program elements; outreach programs, and mechanisms to encourage and foster an effective self-determined approach to attain water quality objectives. To implement this program, PVID has committed to provide every **Farmer and Drain Maintenance Entity** information necessary to comply with this Compliance Program. Specific goals of the Group Compliance Program to be managed by PVID include:

(1) coordinating an educational program to educate farmers on how to reduce pollutants leaving their fields,
(2) coordinating workshops with local technical assistance agencies, and
(3) cooperating with Regional Water Board staff to track and report MP effectiveness.

PVID, together with Regional Water Board staff, has developed an MRP titled "Palo Verde Water Quality Monitoring Plan; August 2005, **Revised by PVID September 14, 2005**" to assist farmers and the Regional Water Board to implement this Basin Plan amendment. PVID's MRP addresses the first four (4) of the five (5) key elements previously described (see Attachment I). Advantages for enrolling into PVID's Group Compliance Program include: group monitoring

and reporting, and the opportunity to participate in outreach and education events sponsored by PVID.

In order for PVID to manage its Group Compliance Program in full compliance with the NPS Policy, PVID must complete the following:

1. **Three (3) months following USEPA approval of this amendment:**

   Submit a Group Compliance Program Plan that includes:

   (1) the name of the Group Compliance Program;
   (2) suggested format(s) to prepare Individual WQMPs and DWQPs, including deadlines for submittal;
   (3) a proposal to establish and maintain membership requirements, including protocols to enlist;
   (4) outreach and education activities, and
   (5) scheduled workshops to coordinate with technical assistance agencies.

   In addition, PVID's DWQP and DMRP must be submitted with the Group Compliance Program Plan, for review and approval by the Executive Officer. Following approval, the Group Compliance Program Plan becomes a component of the Group Compliance Program.

2. **One (1) month following Executive Officer approval of Group Compliance Program Plan:**

   Begin implementation of the approved Group Compliance Program and issue letters to all potential participants within Palo Verde Valley and Palo Verde Mesa. Prepare and submit a QAPP for approval.

3. **One (1) month following approval of the QAPP:**

   Begin implementing the Group's MRP (see Section F, below and Attachment I).

4. **Two (2) months following Executive Officer approval of the Group Compliance Program Plan:**

   Submit a letter to the Regional Water Board certifying the Group has begun implementing the Group Compliance Program.

5. **Six (6) months following Executive Officer approval:**

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Submit to the Regional Water Board a Group WQMP/DWQP in electronic and tabular format. The Group WQMP/DWQP must include a copy of all the Individual WQMPs/DWQPs. Subsequent annual group WQMPs/DWQPs must be included in the Annual Report submitted to the Regional Water Board by February 20th.

6. **By February 20th of every year:**

   Submit to the Executive Officer an Annual Report and an AMR.

7. **All documents and reports:**

   Shall contain a penalty of perjury statement, and must be signed and dated by a duly authorized PVID representative. The penalty of perjury statement shall be formatted as follows:

   CONDITIONAL PROHIBITION FOR AGRICULTURAL DISCHARGES ORIGINATING WITHIN THE PALO VERDE VALLEY AND THE PALO VERDE MESA

   RESOLUTION NO. R7-2010 0033
   (Insert Name of Report/Document) for (Insert Name of Group Compliance Program):

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

   Signature:_____
   Date:_____
   Printed Name:_____
   Title:_____

b. <u>Designated Management Requirements for Group Compliance Programs Managed by Entities Other Than PVID</u>

As indicated previously, Responsible Parties may join the Group Compliance Program managed by PVID, or join a Group Compliance Program managed by

another entity. Responsible Parties electing to join another Group Compliance Program must comply with the following:

1. **Three (3) months following USEPA approval of this basin plan amendment:**

   Submit a Group Compliance Program Plan that includes:

   (1) name of the Group Compliance Program;
   (2) names and business addresses of group participants;
   (3) names, addresses, and phone numbers of group's primary contact(s)/representative(s);
   (4) suggested format(s) to prepare Individual WQMPs and DWQPs, including deadlines for submittal;
   (5) a proposal to establish and maintain group membership requirements, including protocols to enlist;
   (6) outreach and education activities; and
   (7) scheduled workshops to coordinate with technical assistance agencies.

   In addition, a Group MRP (including DMRP if applicable) must be submitted to the Executive Officer for review and approval, along with the Group Compliance Program Plan. Once approved, the Group Compliance Program Plan and Group MRP comprise the Group Compliance Program.

2. **One (1) month following Executive Officer approval of the Group Compliance Program:**

   Begin implementation of Group Compliance Program.
   Prepare and submit a QAPP for approval.

3. **One (1) month following approval of the QAPP:**

   Begin implementing the Group's MRP.

4. **Two (2) months following Executive Officer approval of the Group Compliance Program:**

   Submit a letter to the Regional Water Board certifying the Group has begun implementing the Group Compliance Program.

5. **Six (6) months following Executive Officer approval of the Group Compliance Program:**

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Submit to the Regional Water Board a Group WQMP/DWQP in electronic and tabular format. The Group WQMP/DWQP shall include a copy of all Individual WQMPs/DWQPs. Subsequent annual group WQMPs/DWQPs must be included in the Annual Report submitted to the Regional Water Board by February 20th.

6. **By February 20th of every year:**

   Submit to the Executive Officer an Annual Report and an AMR.

7. **All documents and reports:**

   Must contain a penalty of perjury statement, and must be signed and dated by a duly authorized group representative. The penalty of perjury statement shall be formatted as follows:

   CONDITIONAL PROHIBITION FOR AGRICULTURAL DISCHARGES ORIGINATING WITHIN THE PALO VERDE VALLEY AND THE PALO VERDE MESA

   RESOLUTION NO. R7-2010 0033
   (Insert Name of Report/Document) for (Insert Name of Group Compliance Program):

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

   Signature:_____
   Date:_____
   Printed Name:_____
   Title:_____

c. <u>Designated Management Requirements for Responsible Parties Who Elect to Develop Individual Compliance Programs</u>

Responsible Parties who elect to develop and implement Individual Compliance Programs rather than participate in the Group Compliance Program PVID is managing, or in a Group Compliance Program managed by other entities, must comply with the following Individual Compliance Program requirements:

1. **Three (3) months following USEPA approval of this amendment:**

   Submit a proposed Individual WQMP (including DWQP if applicable) and Individual MRP (including DMRP if applicable) for review and approval by the Executive Officer. Following approval, the Individual WQMP and Individual MRP comprise the Individual Compliance Program Plan.

2. **One (1) month following Executive Officer approval of the Individual Compliance Program:**

   Prepare and submit a QAPP.

3. **One (1) month following approval of QAPP:**

   Begin implementing the Individual MRP (including DMRP if applicable).

4. **By February 20th of every year:**

   Submit to the Executive Officer an Annual Report and an AMR.

5. **All documents and reports:**

   Must contain a penalty of perjury statement and must be signed and dated by a duly authorized representative. The penalty of perjury statement shall be formatted as follows:

   CONDITIONAL PROHIBITION FOR AGRICULTURAL DISCHARGES ORIGINATING WITHIN THE PALO VERDE VALLEY AND THE PALO VERDE MESA

   RESOLUTION NO. R7-2010 0033
   (Insert Name of Report/Document) for (Insert Name of Individual Compliance Program):

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the

information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature:_____
Date:_____
Printed Name:_____
Title:_____

D. MANAGEMENT PRACTICES (MPS)

This section describes the MPs Responsible Parties may select to comply with this Compliance Program. Growers may choose from a number of MPs from the categories shown in Table 6 below. The list is not exclusive; Responsible Parties can determine what MP or combination of MPs is appropriate for their farm operations, regardless of whether the MP is listed.

Proper selection and implementation of MPs is fundamental to water quality protection and enhancement. Currently, farmers are implementing MPs that effectively manage nutrients and pesticides, and improve irrigation efficiency and erosion control.

Table 6: PVID Recommended Management Practices

Erosion and Sediment Control
Nutrient Management
Pesticide Management
Grazing Management
Irrigation Water Management
Education/Outreach

See PVID's Monitoring Plan (Attachment I), for full descriptions.

The following tables contain MPs Responsible Parties may use to address potential water quality impacts caused by sediment, nutrients, and pesticides in agricultural discharges.

Table 7: Sediment Management Practices
Tailwater Ditch Checks or Check Dams: Tailwater Ditch Checks 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

Table 7: Sediment Management Practices
suitable material. If plastic sheets are used, care must be taken to ensure plastic is not dislodged and carried downstream. To be effective, this MP 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 (Jones & Stokes Associates 1996), this MP should reduce sediment transport at relatively low cost.
Filter Strips: This practice eliminates borders on the last 20 to 200 feet of the field. The planted crop is maintained to the end of the field, and tailwater from upper lands is used to irrigate the crop at the ends of adjacent lower lands. The main slope on the field's lower end should be no greater than that on the balance of the field. A reduced slope may be better. With no tailwater ditch, very little erosion occurs as water slowly moves across a wide area of the field to the tailwater box. Sediment may settle as the crop baffles the water as it moves across the field.
Irrigation Water Management: This practice determines and controls irrigation rate, amount, and timing. Effective implementation minimizes erosion and subsequent sediment transport into receiving waters. Irrigation management methods include: surge irrigation, tailwater cutback, irrigation scheduling, and runoff reduction. Irrigation management may include an additional irrigator to better monitor and manage irrigation and potential erosion.
Irrigation Land Leveling: This practice involves maintaining or adjusting field slope to avoid excessive slopes or low spots at the tail end of the field. Maintaining a reduced main or cross slope facilitates uniform distribution of irrigation water, reducing salt build-up in soil, increased production, reduced tailwater, and decreased erosion. Jones & Stokes (Jones & Stokes Associates 1996) rate the sediment reduction efficiency of this MP 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 MP 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

Table 7: Sediment Management Practices
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.
Dainage 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 prevented.

Table 8: Nutrient Management Practices
Nutrient and Irrigation Water Management Plan (NIWMP): This plan documents practices and strategies to address natural resource concerns due to excess nutrients. An NIWMP provides procedures used to select and apply crop nutrients (manure and commercial fertilizers) and water, to cropland and pastures. Processes to determine the amount of manure and commercial fertilizer needed for crops is included and a description of when and how nutrients and irrigation water (including reclaimed treated wastewater) are applied.
Tailwater Ditch Checks or Check Dams: Same as described in Table 7. The checks act as nutrient MPs by reducing and preventing erosion of soil containing nutrients.
Field to Tailditch Transition: Same as described in Table 7. The spillways act as nutrient MPs by reducing and preventing erosion of nutrient-laden soils from the tailwater ditch.
Furrow Dikes (also known as "C-Taps"): Same as described in Table 7. The C-Taps act as nutrient MPs by reducing and preventing erosion of nutrient-laden soils from the tailwater ditch.
Filter Strips: Same as described in Table 7. The filter strips act as nutrient MPs by reducing and preventing erosion of nutrient-laden soils from the tailwater ditch.
Irrigation Water Management: Same as described in Table 7. 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 7. 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 7. 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 7. 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 7. 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 7. This practice

Table 8: Nutrient Management Practices
reduces erosion of nutrient laden soils, and sedimentation.
Drainage channels: Same as described in Table 7. This practice reduces erosion of nutrient laden soils, and sedimentation in the irrigation drainage channels.

Table 9: Pesticide Management Practices
Pesticide Training and Certification: Obtain appropriate certification (through training), prior to pesticide use. Use a Qualified Pest Control Advisor to make recommendations.
Pesticide Recording Keeping: Requires maintaining a precise pest and pesticide record, and reading pesticide labels before purchase, use, or disposal; following label directions as required by law, and checking 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. Pesticides are the last line of defense, and used only when pests cause sufficient damage to offset the expense of application.
Prevent backsiphoning and spills: Never allow a hose used to fill a spray tank to extend below the level of the water in the tank. Always haul water to the field to fill spray tanks, and mix and dilute pesticides. Contain pesticide spills as quickly as possible, and handle according to label directions. Use anti-siphon devices (inexpensive and effective) at water line.
Consider weather and irrigation plans: Never start pesticide applications if a weather event (rainfall for instance) is forecast that could cause drift or soil runoff at the application site. Application just before rainfall or irrigation may result in reduced efficacy if the pesticide is washed off the target crop, resulting in the need to reapply the pesticide.
Pesticide use: Use pesticides only when economic thresholds are reached, and purchase only what is needed
Leave buffer zones around sensitive areas: Read the pesticide label for guidance on required buffer zones around surface waters, buildings, wetlands, wildlife habitats, and other sensitive areas where applications are prohibited.
Reduce off-target drift: Never begin an application if wind or temperature facilitates pesticide drift to a non-target area. Use appropriate spray pressure and nozzle selection to minimize drift.

Table 9: Pesticide Management Practices
Application equipment: Maintain application equipment in good working order, and calibrate 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 ft) 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.

E. REGIONAL WATER BOARD COMPLIANCE ASSURANCE AND ENFORCEMENT

A regulatory system of checks and balances is necessary to ensure all Responsible Parties comply with their requirements and designated management practices. Additionally, the proposed amendment will be periodically reviewed by the Regional Water Board to determine its effectiveness, and whether additional requirements may be necessary to protect water quality.

1. Compliance Assurance:

Regional Water Board staff is proposing that the Regional Water Board hold public hearings at least once every three (3) years to review the effectiveness of Group and Individual Compliance Programs and MP implementation, and compliance with applicable water quality objectives. The first public hearing will be held within **three (3) years from the date of USEPA approval of this amendment**. Hearings shall address the following:

- Monitoring results;
- Progress attaining milestones;
- Trends in implementation of MPs
- Modification/addition of MPs to control constituents of concern and baseline constituents;
- Possible development of site-specific water quality objectives and/or subcategories of water quality standards provided that Responsible Parties demonstrate full implementation of Compliance Programs and document MPs are properly implemented and maintained, and that additional controls will result in substantial and widespread economic harm or detrimental social impacts; and
- Enforcement actions taken or proposed to ensure compliance with the prohibition.

2. Enforcement:

Consequences of noncompliance for Responsible Parties with approved Compliance Programs (other than PVID or other designated management entities) may be significant. Initially, enforcement efforts will focus on Responsible Parties who fail to enroll in a program, or fail to make an adequate attempt to meet their Compliance Plan development and reporting responsibilities, even though informed of the conditional prohibition's requirements. Responsible Parties, who choose not to participate in an Individual or Group Compliance Program, and do not file a Report of Waste Discharge to obtain individual Waste Discharge Requirements, will be in potential violation of the law.

Enforcement options available to the Regional Water Board are clearly defined in the State Water Board's Water Quality Enforcement Policy. The Executive Officer may use any combination of the following actions to ensure water quality impacts identified by Compliance Programs or Regional Water Board staff are promptly and effectively corrected:

- Implement and enforce Sections 13225, 13267, and 13268 of the California Water Code to ensure Responsible Parties submit in a prompt and complete manner the required documents prescribed in Section VII.C, or a Report of Waste Discharge in lieu of these documents.
- Require submission of a Report of Waste Discharge pursuant to CWC Section 13260 so that the Regional Water Board may consider prescribing Waste Discharge Requirements pursuant to CWC Section 13263, to Responsible Parties failing to comply with the requirements of an Individual or Group Compliance Program.
- Issue cleanup and abatement enforcement orders pursuant to CWC Section 13304 to Responsible Parties failing to comply with Individual or Group Compliance Programs, or violating Regional Water Board Waste Discharge Requirements.
- Prepare for Regional Water Board consideration of adoption cease and desist enforcement orders pursuant to CWC Section 13301 to Responsible Parties violating Regional Water Board Waste Discharge Requirements, or this conditional prohibition.
- Issue Administrative Civil Liability Complaints (ACLs), pursuant to CWC Sections 13261, 13264, or 13268, against Responsible Parties failing to comply with Regional Water Board orders, prohibitions, and/or requests.
- Refer recalcitrant violators of Regional Water Board orders and prohibitions to the District Attorney or Attorney General for criminal prosecution or civil enforcement.

Similar enforcement options are available to the Regional Water Board for PVID and other management entities failing to comply with the designated management entity requirements prescribed in Step 3 of Section VII.C, above. For example, grounds for formal enforcement action may include the management entity's failure to submit and implement a report addressing potential impacts from maintenance operations, or failing to achieve the goals and milestones specified in Section VII.C. This may cause the Regional Water Board to rescind the Group Compliance Program, requiring every Responsible Party enrolled in the rescinded Group Compliance Program to:

(a) enroll in another approved Group Compliance Program and comply with the requirements specified in Step 3.b of Section VII.C for that group (i.e., "Designated Management Requirements for Group Compliance Programs Managed by Entities Other Than PVID"); or

(b) deal directly with the Regional Water Board and comply with the requirements specified in Step 3.c of Section VII.C (i.e., "Designated Management Requirements for Responsible Parties Who Do Not Join Any Group Compliance Programs").

F. MONITORING AND REPORTING PROGRAM (MRP)

The purpose of Group MRPs and Individual MRPs is three-fold:

(1) to assess water quality and the effectiveness of MPs;
(2) to track improvements in water quality; and
(3) to identify areas needing further work.

This conditional prohibition will ensure water quality objectives are achieved, and that agricultural wastewater and drain maintenance discharges do not impair water quality.

Described below is the MRP PVID has prepared for the *Group Compliance Program* they will be managing. To characterize water quality for both agricultural discharges and drain maintenance activities, PVID has proposed performing flow monitoring and sampling for conventional water quality parameters identified in Table 10 (listed below).

<u>Conventional Water Quality and Flow Monitoring</u>

Conventional water quality monitoring will assess concentrations, loads, and sources of nutrients and sedimentation in agricultural areas, and evaluate impacts on beneficial uses in agricultural drains, including the Palo Verde Outfall Drain. Monitoring data will also be used to evaluate drain maintenance and MP performance.

Monitoring sites will be sampled monthly for nitrate, total nitrogen, phosphate, total phosphorus, dissolved oxygen, temperature, pH, total dissolved solids, turbidity, and volumetric flow rate; and quarterly for Dichloro-Diphenyl-Trichloroethane (DDT), Endosulfan, Chlorpyrifos, Malathion, Phorate, and Dimethoate.

Table 10: Monitoring Constituents/Parameters and Frequency

Constituent	Monitoring Frequency **Initial** Year	Monitoring Frequency* **Subsequent** Years
pH	Monthly	Quarterly
Nitrates (NO3) and Total Nitrogen	Monthly	Quarterly
Phosphates (PO4) and Total Phosphorus	Monthly	Quarterly
Total Dissolved Solids (TDS)	Monthly	Quarterly
Total Suspended Solids (TSS)	Monthly	Quarterly
Turbidity	Monthly	Quarterly
Biological Oxygen Demand (BOD)	Monthly	Quarterly
Dissolved Oxygen	Monthly	Quarterly/semiannually
Conductance	Monthly	Quarterly/semiannually
Temperature	Monthly	Quarterly/semiannually
Volumetric Flow Rate	Monthly	Quarterly/semiannually
Chlorpyrifos (insecticide)	Quarterly	Quarterly/semiannually
Malathion (insecticide)	Quarterly	Quarterly/semiannually
Dimethoate (insecticide)	Quarterly	Quarterly/semiannually
Phorate (insecticide)	Quarterly	Quarterly/semiannually
Endosulfan (insecticide)	Quarterly	Quarterly/semiannually
DDT (insecticide)	Quarterly	Quarterly/semiannually

* Sampling frequency may be changed to quarterly, and or semiannually, after the first year of monitoring, if approved by the Regional Water Board Executive Officer.

G. FINANCIAL ASSISTANCE

The Division of Financial Assistance (DFA) at the State Water Board, in coordination with the Regional Water Board, awards and manages grants for projects to improve

water quality through the federal CWA Section 319(h) program, and State grant propositions (e.g., Proposition 84). Regional Water Board staff will assist authorities in the PVID Watershed to obtain funding (grants) to implement the conditional prohibition, if necessary.

VIII. ECONOMIC ASSESSMENT

A. INTRODUCTION

California Water Code Section 13141 requires that prior to implementation of any agricultural water quality control program, an estimate of the total cost of such program and identification of sources of funding be indicated in the Basin Plan. The requirements of CWC Section 13141 apply to this Basin Plan amendment because the conditional prohibition and implementation plan evaluate potential impacts and source controls for agricultural discharges and drain maintenance in the Palo Verde area. Section 13141 does not specify the weight that must be given to economic considerations, nor does it require that a formal cost-benefit analysis be performed. Also, there are no requirements to speculate on potential costs as part of this assessment. This economic assessment provides Regional Water Board staff's estimate of costs associated with this amendment.

The Implementation chapter of this Staff Report describes the key elements of the Compliance Program and how those elements are addressed. This Economic Assessment provides cost estimates of the tasks associated with those key elements.[1] Significant uncertainties in several key areas of the program prevent the precise estimation of program costs, including: the number of discharger groups formed, the total number of monitoring sites required to evaluate exceedances of water quality objectives, the nature and extent of MPs required to address those exceedances, and the availability of federal, state, and local funding to offset monitoring and MP implementation costs.

B. TASK COST ESTIMATES

1. **Program Management:**
   Regional Water Board staff estimates that program management will require 200 person-hours per year at $75 per hour. Therefore, the total annual cost for program management is $15,000.

2. **Write and develop a Group Compliance Program Plan:**
   Regional Water Board staff estimates that each Group Compliance Program Plan will require 80 person-hours at $75 per hour. Each Group Compliance Program will be required to submit one Group Compliance Program Plan. Therefore, the total program cost for the Plan is $6,000.

3. **Conduct Outreach and Education:**
   Regional Water Board staff estimates the outreach and education program will require 80 person-hours at $75 per hour per year. Therefore, the total annual cost for the outreach and education program is $6,000.

4. **Write and develop a Drain Water Quality Plan (DWQP):**
   Regional Water Board staff estimates that each Individual DWQP will require 30 person-hours at $75 per hour for the first year for a total of $2,250. Annual revisions will require 10 person-hours at $75 per hour for a total of $750 per year after the first year.

5. **Write and develop a Water Quality Management Plan (WQMP):**
   Regional Water Board staff estimates that each Individual WQMP will require 30 person-hours at $75 per hour for the first year for a total of $2,250. Annual revisions will require 10 person-hours at $75 per hour at $750 per year after the first year.

6. **Submit a group WQMP and DWQP:**
   Regional Water Board staff estimates that each Group WQMP/DWQP will require 20 person-hours at $75 per hour for the first year for a total of $1500. Annual revisions will require 15 person hours at $75 per hour for a total of $1,125 per year after the first year.

7. **Submit an Annual Report:**
   Regional Water Board staff estimates that each Annual Report will require 40 person-hours at $75 per hour. Each Group and Individual Compliance Program will be required to submit one report annually. Therefore, the total annual cost for the Annual Report is $3,000.

8. **Write and develop a Monitoring and Reporting Program (MRP):**
   Regional Water Board staff estimates that each MRP Plan will require 80 person-hours at $75 per hour. Each Group and Individual Compliance Program will be required to submit one MRP Plan. Therefore, the total program cost for the MRP Plan is $6,000.

9. **Write and develop a Drain Monitoring and Reporting Program (DMRP):**
   Regional Water Board staff estimates that each DMRP Plan will require 40 person-hours at $75 per hour. Each Group and Individual Compliance Program will be required to submit one MRP Plan. Therefore, the total program cost for the MRP Plan is $3,000.

10. **Write and develop a Quality Assurance Program Plan (QAPP):**
    Regional Water Board staff estimates that each QAPP will require 80 person-hours at $75 per hour. Each Group and Individual Compliance Program will be

required to submit one QAPP. Therefore, the total program cost for the QAPP is $6,000.

11. **Sampling:**
Regional Water Board staff estimate monthly and quarterly sampling costs at 12 person-hours per sampling event, and $25 per person per hour. Therefore, the estimated staff cost per sampling event is $300. Regional Water Board staff estimates mileage for field sampling and delivery to the lab to be 430 miles at $0.55 per mile. Therefore, the estimated mileage cost per sampling event is $236.50 and the total cost for both mileage and staff is $536.50 per sampling event. The total annual sampling cost for twelve (12) required sampling events is $6,438.00

12. **Analysis:**
The cost estimate for analytical testing is based on information from commercial laboratory rates for testing constituents of concern included in PVID's MRP. Regional Water Board staff estimates the cost of analysis per monthly sampling event at $1,420 and quarterly sampling event at $2,520.00. The total annual analysis cost for required sampling is $21440.00

13. **Submit and Annual Monitoring Report (AMR):**
Regional Water Board staff estimates that each AMR will require 40 person-hours at $75 per hour. Each Group and Individual Compliance Program is required to submit one AMR annually. Therefore, the total annual cost for the AMR is $3,000.

C. ESTIMATED COST FOR COMPLIANCE PROGRAMS

Regional Water Board staff analyzed costs for Compliance Program requirements for agricultural wastewater and drain maintenance discharges for both Individual, and Group Compliance Programs.

Table 11: Cost Estimates for Group Compliance Program Managed by PVID

PVID Task	Estimated Annual Costs	
	First Year	Subsequent Years
Program Management	$15000	$15,000
Write and develop a Group Compliance Program Plan	$6,000	N/A
Conduct outreach and education	$6,000	$6,000
Write and develop a DWQP	$2,250	$750

Write and develop a DMRP as an addendum to the MRP titled "Palo Verde Water Quality Monitoring Plan"	$3,000	N/A
Write and develop a QAPP	$6,000	N/A
Conduct monthly and quarterly monitoring	$27,878	$27878
Submit a group WQMP and DWQP	$1,500	$1,125
Submit an Annual Report	$3,000	$3,000
Submit an AMR	$3,000	$3,000
Total estimated costs	**$73,628.00**	**$35,003.00**

Table 12: Cost Estimates for Individual Responsible Parties

Individual Responsible Party Task	**Estimated Annual Costs**	
	First Year	**Subsequent Years**
Write and develop a WQMP	$2,250	$750
*Write and develop a DWQP	$2,250	$750
*Write and develop a DMRP	$3,000	N/A
Total estimated costs	**$7500.00**	**$1500.00**

*These costs apply only to Responsible Parties that maintain their own private drains, and are in a Group Compliance Program managed by PVID.

Table 13: Cost Estimates for Group Compliance Programs Managed by Entities other than PVID

Management Entity Task	**Estimated Annual Cost**	
	First Year	**Subsequent Years**
Program Management	$15,000	$15,000
Write and develop a Group Compliance Program Plan	$6,000	N/A
Conduct outreach and education	$6,000	$6,000
Write and develop a MRP	$6,000	N/A
Write and develop a QAPP	$6,000	N/A
Conduct monthly and quarterly monitoring	$27,878	$27,878
Submit a group WQMP and DWQP	$1,500	$1,125
Submit an Annual Report	$3,000	$3,000
Submit an AMR	$3,000	$3,000
Total cost estimate	**$74,378.00**	**$35,003.00**

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Table 14: Cost Estimates for Individual Responsible Parties Managed by Entities other than PVID

Individual Responsible Party Task	Estimated Annual Cost	
	First Year	Subsequent Years
Write and develop and a WQMP	$2,250	$750
*Write and develop and a DWQP	$2,250	$750
*Write and develop a DMRP)	$3,000	N/A
Total cost estimate	**$7,500.00**	**$1500.00**

*These costs apply only to Responsible Parties that maintain their own private drains, and are in a Group Compliance Program managed by entities other than PVID.

Table 15: Cost Estimates for Individual Compliance Programs (i.e., Responsible Parties who chose not join a group compliance program)

Individual Responsible Party Task	Estimated Annual Cost	
	First Year	Subsequent Years
Program Management	$15,000	$15,000
Write and develop a WQMP	$2,250	$750
*Write and develop and a DWQP	$2,250	$750
Write and develop a MRP	$6,000	N/A
Write and develop a QAPP	$6,000	N/A
Conduct monthly and quarterly monitoring	$27,878	$27,878
Submit an Annual Report	$3,000	$3,000
Submit an AMR	$3,000	$3,000
Total cost estimate	**$65,378.00**	**$33,878.00**

*These costs apply only to Responsible Parties that maintain their own private drains, and chose not to join a Group Compliance Program.

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