

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

Attachment E: Monitoring and Reporting Program R7-2014-0046

**CONDITIONAL WAIVER OF WASTE DISCHARGE REQUIREMENTS
FOR AGRICULTURAL WASTEWATER DISCHARGES AND DISCHARGES OF WASTE
FROM DRAIN OPERATION AND MAINTENANCE ACTIVITIES ORIGINATING WITHIN
THE COACHELLA VALLEY**

**Coachella Valley Irrigated Lands Coalition
WATER QUALITY MONITORING PLAN**

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1.0 Background

The Colorado River Basin Regional Water Quality Control Board (Colorado River Basin Water Board, or Board) is developing a Conditional Waiver of Waste Discharge Requirements for Agriculture Wastewater Discharges (Conditional Waiver) within the Coachella Valley, Riverside County, California. This Conditional Waiver has evolved from earlier work performed by the Board's Conditional Prohibition for Coachella Valley Agricultural Discharges Technical Advisory Committee (TAC). Coachella Valley agriculture representatives participated on this TAC which included an Implementation Workgroup. This workgroup identified the need to develop a monitoring program that could be incorporated into the Conditional Prohibition. The Coachella Valley Irrigated Lands Coalition (CVILC) has been created to facilitate input from Coachella Valley agricultural representatives during the development of the Conditional Waiver and provide an effective coalition for implementing the Conditional Waiver when approved. CVILC developed this monitoring plan based on the core monitoring concepts developed by the TAC for incorporation into the Conditional Waiver.

This Monitoring and Reporting Program (MRP) describes requirements for monitoring and reporting by the CVILC and is issued pursuant to California Water Code (Water Code) section 13267. As specified in the Conditional Waiver, the CVILC may not make and implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. This MRP is subject to periodic revision and modification by the Colorado River Basin Water Board's Executive Officer.

2.0 Purpose

CVILC understands that a key element of the Conditional Waiver is to have a monitoring program that will comprehensively assess water quality from all of the nonpoint source discharges from agricultural lands in the Coachella Valley. Developing a representative monitoring plan allows Agricultural and Drain Maintenance Dischargers to pool their resources to assess water quality conditions for the Conditional Waiver. This type of representative monitoring is the preferred approach used throughout the state of California for the regulation of irrigated lands.

3.0 Project Area Description

The Coachella Valley is located in eastern Riverside County, California. Construction of the Coachella Valley subsurface drainage system began during the 1940's as a way to

reclaim land that was too saline to use beneficially. As a result of this drainage system, what was mostly unused land is now some of the most productive agricultural land in the country. Irrigation water applied to these lands is collected by the subsurface drainage system that discharges to open drainage channels, “drains”, which flow to the Salton Sea. The Salton Sea acts as an agricultural sump for the Coachella Valley.

The Coachella Valley Stormwater Channel (CVSC), the largest of the Coachella Valley’s open drains, bisects the valley. Lands west and south of the CVSC drain from west to east to the CVSC, whereas lands north and east of the CVSC drain from east to west to the CVSC. Besides the CVSC, there are 21 additional drains that convey drainage from irrigated agricultural lands to the Salton Sea.

Coachella Valley Water District (CVWD) operates and maintains about 166 miles of subsurface drain collectors and 21 miles of open drains. These drains are typically composed of concrete, clay, or polyethylene pipe segments, ranging from 8 to 30 inches in diameter, constructed by butting the pipe together about 7 to 15 feet below ground surface. The pipe perforations and unsealed gap between the pipe segments allows rising groundwater to flow into the pipe as needed in response to pressure differentials.

The subsurface drain collectors are designed to connect to the low point of the on-farm subsurface drainage system serving each 80 acre parcel. Since the subsurface drainage system is not designed to receive any surface flows, land owners are prohibited from allowing surface water to enter the subsurface drainage system. This prohibition is enforced as a condition of the water service agreement between the property owner and CVWD, which requires the property owner to use all delivered water beneficially on their property. Rising groundwater and water that percolates into the ground and enters the subsurface drainage system acts in a beneficial way to reclaim land that would otherwise be unproductive due to naturally occurring salinity.

On-farm drainage systems are owned, operated, and maintained by each property owner and consist of 4 to 8 inch diameter perforated pipe buried 4 to 7 feet below ground surface. These pipes intercept, collect, and convey groundwater, either percolating down from the surface or rising up from below, to the CVWD subsurface drain collectors.

4.0 Monitoring Plan

This monitoring plan provides sampling locations, constituents to be analyzed, sampling schedule, training personnel, sampling procedures, sample analysis, and record keeping. This plan was developed based on work completed during the TAC meetings held by Colorado River Basin Water Board staff.

4.1 Monitoring Sites

Agricultural land uses within this area include perennial crops that include citrus, dates, and grape vineyards. Other perennial activities in this drainage area include fish farming, nurseries, pasture, polo fields, and turf grass farms. Seasonal agricultural practices include various types of row crops (vegetables), alfalfa, climate modification, and leaching activities.

Factors considered when selecting monitoring sites that would best represent the range of agricultural activities within the drainage area included relative drainage area, land uses, and accessibility.

The following sample locations are representative of discharges from irrigated agricultural lands in the Coachella Valley:

- Monitoring Site #1 - subsurface drain collector inspection port located on the southwest corner of Avenue 56 and Fillmore Street (33°38.533 N, 116° 07.763 W). This sample represents irrigation drainage from 2,080 acres that includes vegetable, date, citrus, vineyard, and nursery crops as well as livestock grazing. Drainage is collected in the Avenue 56 East Drain, flows to the CVSC, and out to the Salton Sea.
- Monitoring Site #2 - outlet of the subsurface drain collector into the Johnson Street Drain located on the south side of Highway 111 (33° 33.183 N, 116° 03.627 W). This sample represents irrigation drainage from 1,280 acres of vegetable, date, citrus, and nursery crops. Drainage is collected in the Johnson Street Drain and flows directly to the Salton Sea.
- Monitoring Site #3 - outlet of the subsurface drain collector into the Avenue 76 Drain located on the southwest corner of Avenue 76 and Pierce Street (33° 29.939 N, 116° 06.751 W), . This sample represents irrigation drainage from 320 acres of vegetable, date, and citrus crops. Drainage is collected in the Avenue 76 Drain and flows directly to the Salton Sea.
- Monitoring Site #4 – the CVSC at Lincoln Street monitoring site is located downstream of all flows entering the CVSC including agriculture irrigation drainage, stormwater runoff, rising groundwater, and waste water treatment plant effluent (33° 31.490 N, 116° 04.735 W). This site has been used since 1996 for the downstream monitoring location for the Whitewater River Watershed Municipal Separate Storm Sewer System (MS4) NPDES permit.

The Monitoring sites are shown on the Water Quality Monitoring Locations map in Appendix 1.

4.2 Analytical Constituents

The TAC evaluated many constituent candidates for monitoring, taking into account impaired water listings, agricultural practices, pesticide use and regional water quality objectives, to identify the following list of constituents for this monitoring plan:

- Phosphorus (as Total Phosphorous)
- Nitrogen (as Ammonia)
- Dissolved Oxygen
- Esfenvalerate
- Atrazine
- Chlorpyrifos
- Diazinon
- Malathion
- pH

4.3 Monitoring Schedule

Agriculture in the Coachella Valley is unique among desert valleys. Irrigation water is applied to crop lands in the Coachella Valley during three growing seasons and one climate modification period. Due to the Coachella Valley's unique growing seasons and irrigation practices, water quality samples will be collected and analyzed for pesticides at the specified locations four times per year during the initial year of the monitoring program, and monthly for the remaining parameters. See Table 1 below. Monitoring results in the first year will determine applicable monitoring frequencies during subsequent years.

The Coachella Valley's spring season begins in January and continues through April harvest. Water is applied and percolated during all spring season months. Water quality samples shall be collected during March to obtain a representative sample to be analyzed for pesticides in the spring season.

Agriculture slows down in the Coachella Valley during the summer season. Row crops are not grown at all, but permanent crops such as date trees and citrus trees continue to be irrigated during the summer season. In addition, water is applied to fields to leach naturally occurring salts during the summer season. Water quality samples shall be collected in May to obtain a representative sample to be analyzed for pesticides in the summer season.

The winter season begins in September with winter plantings and ends in November. Water is applied for climate modification to grape vineyards during November and December. Collecting water quality samples during September and November will provide representative pesticide monitoring during the winter season and months when climate modification occurs.

Sample collection should be avoided while non-routine events are occurring in the drainage area that could misrepresent the drain water quality, such as during or shortly after a storm event. Samples must be collected at safely accessible times and from safely accessible locations. Safety of personnel shall be a primary concern.

Table 1 provides a monitoring schedule for the constituents of concern identified for irrigated agricultural lands in the Coachella Valley.

Table 1: Coachella Valley Irrigated Lands Coalition Monitoring Schedule

| Parameter | Initial Year Monitoring Frequency | Subsequent Years Monitoring Frequency ¹ |
|-----------------------------------|-----------------------------------|--|
| Phosphorus (as Total Phosphorous) | Monthly | Quarterly |
| Nitrogen (as ammonia) | Monthly | Quarterly |
| Total Nitrogen | Monthly | Quarterly |
| Specific Conductivity | Monthly | Quarterly |
| Temperature | Monthly | Quarterly |
| pH | Monthly | Quarterly |
| Dissolved Oxygen | Monthly | Quarterly |
| Esfenvalerate | Quarterly | Quarterly |
| Atrazine | Quarterly | Quarterly |
| Chlorpyrifos | Quarterly | Quarterly |
| Diazinon | Quarterly | Quarterly |
| Malathion | Quarterly | Quarterly |
| | | |

4.4 Training Personnel

Only personnel trained by a laboratory that is certified by the California Department of Health Services Environmental Laboratory Accreditation Program (ELAP) shall collect water quality samples. Sampling personnel should be identified prior to beginning this monitoring program and clearly understand the sampling procedures.

4.5 Sampling Procedures

The collection and handling of water quality samples requires care to ensure integrity and validity. Samples will be collected in accordance with an approved Quality Assurance Project Plan (QAPP). A Chain of Custody (COC) form must follow the sample through the analysis process. A copy of this form may be obtained from the laboratory. Additional documentation to track other information, such as field conditions or field measurements, may also be used.

¹ Reduced monitoring may be allowed after 12 consecutive months of baseline monitoring and reporting if monitoring results support such reduced monitoring.

Laboratory analyses must be conducted by a lab that is currently accredited by ELAP. A lab will be contacted prior to initiation of this monitoring program. The lab will provide a sampling kit that contains the required sample bottles, COC forms, and any other necessary information.

Sampling personnel will collect manual grab samples. To collect the sample, the sample container will be placed with open-end facing upstream directly into the stream of water, generally avoiding collection from ponded, sluggish, or stagnant water. The inside of the container should not be contaminated. This procedure will be repeated for each container in the kit. Sampling personnel will complete the COC form for all samples collected. Names and signatures of the sampling personnel, dates, times, and sample locations are all required information on the COC. Sampling personnel will deliver samples and COC promptly to the lab to meet all holding times.

4.6 Sampling Analysis

For accredited laboratory analysis, all sampling methods, sample preservation, and analyses must be conducted according to test procedures in 40 CFR Part 136. Field samples shall be collected and analyzed according to the specifications of the manufacturer of the sampling devices used.

4.7 Records and Maintenance

All laboratory analyses, field measurements, COC forms, and any other documentation related to this monitoring program should be kept together in a file accessible to CVILC. This file may be subject to review by the Colorado River Basin Water Board.

Appendix I
Coachella Valley Irrigated Lands Coalition
Water Quality Monitoring Locations

