Ventura Countywide Stormwater Quality Management Program

2021-2022
Permit Year

Ventura Countywide Stormwater Quality Management Program Annual Report

Attachment D Monitoring Appendices J - M

December 15, 2022

Camarillo
County of Ventura
Fillmore
Moorpark
Ojai
Oxnard
Port Hueneme
Santa Paula
Simi Valley
Thousand Oaks
Ventura
Ventura County Watershed Protection District

Appendix J. Dry-Weather Analytical Monitoring Results

Site ID	Port Hueneme-3	Unincorporated-4	Camarillo-1	Fillmore-1
	DRY-HUE3	DRY-UNI4	MO-CAM	MO-FIL
At Major Outfall?	No	No	Yes	Yes
Site Description — **Location**	Bubbling Springs @ RR xing	Arroyo Santa Rosa at Box Canyon confluence	Camarillo Hills Drain	North Fillmore Drain
Date	08/02/22	08/10/22	08/03/22	08/02/22
Time	1250	835	0735	1020
Conveyence Type	Natural channel	Box culvert	Box culvert	Box culvert
Dimensions	N/A	N/A	8' x 24'	N/A
Dominant Land Use	Commercial & residential	Residential & rural	Commercial & residential	Residential
Site Elevation	0	257	104	430
Weather — **Weather**	Partly cloudy	Clear	Partly cloudy	Clear
Wind Condtion	Slight breeze	Slight breeze	Calm	Slight breeze
Air Temp. (ºC)	27.5	24.5	18.5	26.3
Trash — **Trash (general area)**	Light	Light	Light	Light
Trash (stream banks)	Light	Light	Light	Light
Observations — **Water Clarity**	Muddy	Clear	Clear	Clear
Water Color	Gray	Clear	Clear	Clear
Odors	Other	None	None	None
Floatables	None	None	None	None
Foam	None	None	None	None
Stains/ deposits	None	None	None	None
Structural condition	Natural channel	Concrete channel	Concrete channel	Rip rap with concrete bottom
Vegetation Condition	None	None	None	Aquatic plants 50% of channel
Biology	>100 small fish ~ 1 in., ducks	None	None	Snails
Algae (suspended)	None	None	None	None
Algae (substrate)	None	None	Brown 80%	Green 60%
Water Chemistry (Field) — **Dissolved Oxygen (%)**	35.8	Flow too low	90.1	164.0
Dissolved Oxygen (mg/L)	2.94	Flow too low	7.72	13.95
Conductivity (µS)	2090	644	343.1	1692
Specific Conductance (µS)	2158	697	370.2	1662
Salinity (ppt)	1.1	0.3	0.2	0.8
Water Temp. (ºC)	23.8	21.0	21.7	26.2
Water Temp. (ºF)	74.8	69.8	71.1	79.2
pH	7.30	8.45	8.64	8.41
Turbidity (NTU)	14.7	1.36	1.99	5.31
Water Chemistry (Lab) — **Total Organic Carbon (mg/L)**	4.1	10	4.6	4.0
Total Hardness as CaCO$_3$ (mg/L)	646	468	221	683
Total Calcium (mg/L)	158	71.4	60.1	182
Total Magnesium (mg/L)	60.9	70.4	17.3	55.8
Dissolved Copper (µg/L)	0.31 (DNQ)	3.5	3.6	3.7
Dissolved Lead (µg/L)	<0.083	<0.083	<0.083	<0.083
Dissolved Zinc (µg/L)	2.3 (DNQ)	1.6 (DNQ)	2.6 (DNQ)	8.9 (DNQ)
Total Coliform (MPN/100 mL)	120,330	241,960	241,960	24,196
***E. coli* (MPN/100 mL)**	48,840	960	464	290
Estimated Flow — **Flow Status**	Flowing	Flowing	Flowing	Flowing
Water Width (ft.)	10.0	2.0	2.0	2.0
Water Depth (ft.)	1.00	0.005	0.01	0.05
Flow Velocity (ft/s)	0.30	1.00	0.50	0.50
Flow Rate (ft^3/s)	0.30	0.01	0.01	0.05
Comments	Asphalt smell	O&M scraping channel 8/3/22 so sampled 8/10/22. Flow too small for DO meter protocol	pH avg (8.62, 8.65)	

Site ID	Moorpark	Ojai	Oxnard-2	Santa Paula-2
	Moorpark	Ojai	DRY-OXN2	DRY-SPA2
At Major Outfall?			No	No
Location	All sites	All sites	Stroube Drain	Fagan Canyon
Date	08/03/22	08/02/22	08/02/22	08/02/22
Time	No flow at all sites	No flow at all sites	0830	930
Site Description — **Conveyence Type**	No flow at all sites	No flow at all sites	Natural channel	Box culvert
Dimensions	No flow at all sites	No flow at all sites	N/A	6.5' x 20'
Dominant Land Use	No flow at all sites	No flow at all sites	Commercial & residential	Commercial & residential
Site Elevation	No flow at all sites	No flow at all sites	70	240
Weather — **Weather**	No flow at all sites	No flow at all sites	Partly cloudy	Clear
Wind Condtion	No flow at all sites	No flow at all sites	Calm	Calm
Air Temp. (ºC)	No flow at all sites	No flow at all sites	22.5	24.5
Trash — **Trash (general area)**	No flow at all sites	No flow at all sites	Moderate	Light
Trash (stream banks)	No flow at all sites	No flow at all sites	Moderate	Light
Observations — **Water Clarity**	No flow at all sites	No flow at all sites	Clear	Clear
Water Color	No flow at all sites	No flow at all sites	Clear	Clear
Odors	No flow at all sites	No flow at all sites	None	None
Floatables	No flow at all sites	No flow at all sites	None	None
Foam	No flow at all sites	No flow at all sites	None	None
Stains/ deposits	No flow at all sites	No flow at all sites	Sloughed/scraped algae	None
Structural condition	No flow at all sites	No flow at all sites	Concrete channel to rip rap	Concrete channel
Vegetation Condition	No flow at all sites	No flow at all sites	Watercress	N/A
Biology	No flow at all sites	No flow at all sites	Snails	None
Algae (suspended)	No flow at all sites	No flow at all sites	Green 5%	None
Algae (substrate)	No flow at all sites	No flow at all sites	Green 60%	Brown 80%
Water Chemistry (Field) — **Dissolved Oxygen (%)**	No flow at all sites	No flow at all sites	206.8	Flow too low
Dissolved Oxygen (mg/L)	No flow at all sites	No flow at all sites	18.50	Flow too low
Conductivity (µS)	No flow at all sites	No flow at all sites	1016	1031
Specific Conductance (µS)	No flow at all sites	No flow at all sites	1078	971
Salinity (ppt)	No flow at all sites	No flow at all sites	0.5	0.4
Water Temp. (ºC)	No flow at all sites	No flow at all sites	21.7	27.1
Water Temp. (ºF)	No flow at all sites	No flow at all sites	71.1	80.8
pH	No flow at all sites	No flow at all sites	8.73	8.89
Turbidity (NTU)	No flow at all sites	No flow at all sites	3.76	2.35
Water Chemistry (Lab) — **Total Organic Carbon (mg/L)**	No flow at all sites	No flow at all sites	8.1	5.2
Total Hardness as CaCO$_3$ (mg/L)	No flow at all sites	No flow at all sites	358	465
Total Calcium (mg/L)	No flow at all sites	No flow at all sites	96.9	118
Total Magnesium (mg/L)	No flow at all sites	No flow at all sites	28.3	41.6
Dissolved Copper (µg/L)	No flow at all sites	No flow at all sites	4.3	2.4
Dissolved Lead (µg/L)	No flow at all sites	No flow at all sites	<0.083	<0.083
Dissolved Zinc (µg/L)	No flow at all sites	No flow at all sites	8.6 (DNQ)	3.5 (DNQ)
Total Coliform (MPN/100 mL)	No flow at all sites	No flow at all sites	98,040	24,196
E. coli **(MPN/100 mL)**	No flow at all sites	No flow at all sites	9,804	2,382
Estimated Flow — **Flow Status**	No flow at all sites	No flow at all sites	Flowing	Flowing
Water Width (ft.)	No flow at all sites	No flow at all sites	4.0	3.00
Water Depth (ft.)	No flow at all sites	No flow at all sites	0.01	0.01
Flow Velocity (ft/s)	No flow at all sites	No flow at all sites	0.50	0.50
Flow Rate (ft^3/s)	No flow at all sites	No flow at all sites	0.02	0.01
Comments	No flow at all sites	No flow at all sites	pH avg (8.70, 8.76)	pH avg (8.86, 8.92). Flow too small for DO meter protocol

Site ID	Simi Valley-1	Thousand Oaks-1	Ventura-5
	MO-SIM	**MO-THO**	**DRY-VEN5**

		Simi Valley-1 MO-SIM	Thousand Oaks-1 MO-THO	Ventura-5 DRY-VEN5
Site Description	At Major Outfall?	Yes	Yes	No
	Location	Bus Canyon Drain	North Fork Arroyo Conejo at Hill Canyon WWTP	Dent Drain
	Date	08/03/22	08/03/22	08/02/22
	Time	900	1020	1210
	Conveyence Type	Box culvert	Natural channel	Natural channel
	Dimensions	7' x 16'	N/A	7.5' x 20'(toe) x 35'(top)
	Dominant Land Use	Commercial & residential	Commercial, residential & rural	Residential & rural
	Site Elevation	757	283	66
Weather	Weather	Clear	Clear	Clear
	Wind Condtion	Slight breeze	Calm	Calm
	Air Temp. (ºC)	22.5	27	32
Trash	Trash (general area)	Light	None	Light
	Trash (stream banks)	Moderate	Light	Light
Observations	Water Clarity	Clear	Clear	Cloudy
	Water Color	Clear	Clear	Brown
	Odors	None	None	Sulfur
	Floatables	None	None	None
	Foam	None	None	None
	Stains/ deposits	None	None	None
	Structural condition	Concrete channel	Rip-rap with natural bottom	Flap gate RCP to natural channel
	Vegetation Condition	N/A	Reeds and Grasses at banks	Abundant river primrose and cattails
	Biology	None	None	None
	Algae (suspended)	None	None	None
	Algae (substrate)	Brown 70%, Green 30%	Brown 70%	None
Water Chemistry (Field)	Dissolved Oxygen (%)	100.4	88.7	32.2
	Dissolved Oxygen (mg/L)	8.91	7.86	1.43
	Conductivity (µS)	2865	1926	955
	Specific Conductance (µS)	3108	2079	1089
	Salinity (ppt)	1.6	1.1	0.5
	Water Temp. (ºC)	20.9	21.1	20.0
	Water Temp. (ºF)	69.6	70.0	68.0
	pH	7.95	8.25	7.1
	Turbidity (NTU)	1.16	1.57	63.2
Water Chemistry (Lab)	Total Organic Carbon (mg/L)	2.3	3.0	15
	Total Hardness as $CaCO_3$ (mg/L)	1,270	736	405
	Total Calcium (mg/L)	315	108	102
	Total Magnesium (mg/L)	116	113	36.8
	Dissolved Copper (µg/L)	0.71	0.42 (DNQ)	0.81
	Dissolved Lead (µg/L)	<0.083	<0.083	<0.083
	Dissolved Zinc (µg/L)	3.0 (DNQ)	1.7 (DNQ)	6.1 (DNQ)
	Total Coliform (MPN/100 mL)	77,010	68,670	129,970
	E. coli (MPN/100 mL)	296	70	6,488
Estimated Flow	Flow Status	Flowing	Flowing	Flowing
	Water Width (ft.)	10.0	8.0	15.0
	Water Depth (ft.)	0.05	0.05	1.00
	Flow Velocity (ft/s)	2.0	1.5	<0.01
	Flow Rate (ft^3/s)	1.00	0.60	<0.01
	Comments			

# Appendix K. Formulas for WQO determination

BASIN PLAN and CALIFORNIA TOXICS RULE OBJECTIVES: FORMULAS

AMMONIA (BASIN PLAN)

Basin Plan Ammonia Objective formula selection is based on wet or dry event, COLD/MIGR designation status, early life stages (ELS) status, and salinity.

See the flow charts below to determine which formula to use:

Basin Plan Ammonia Objectives for Wet Weather
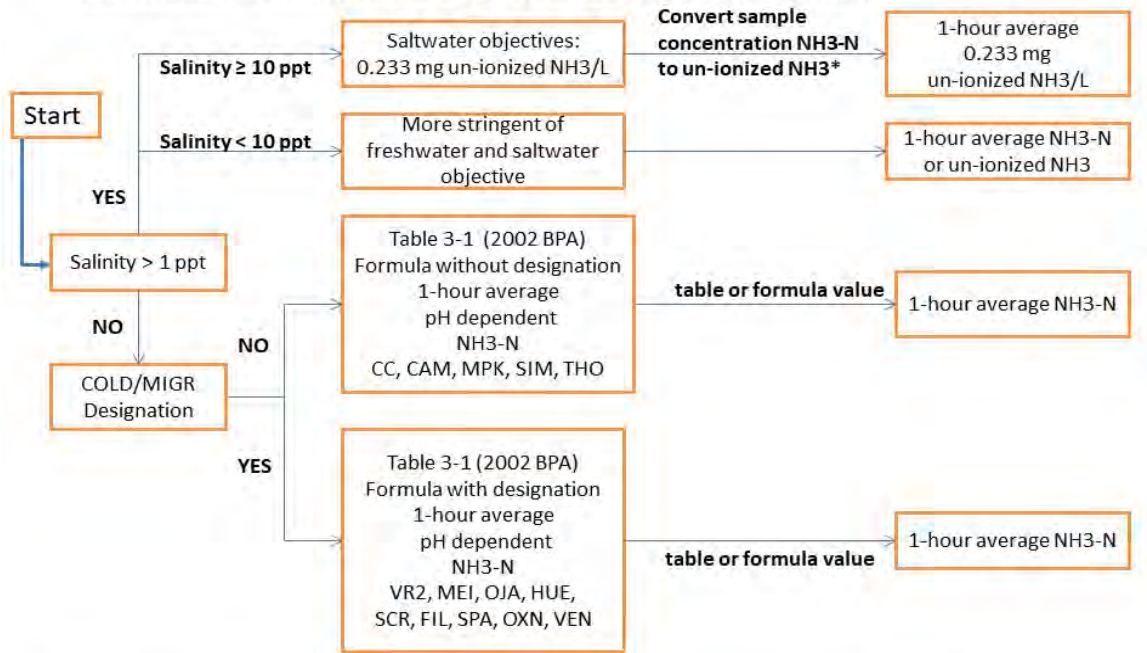
BPA 2005 p15-11 "Implementation actions to achieve applicable ammonia objectives must implement downstream objectives."
*See NH3-N to un-ionized NH3 conversion equation for saltwater objective

Table 3-1: One hour Average Objective for Total Ammonia-N for Freshwaters (mg N/L)

COLD and/or MIGR:

$$= \frac{0.275}{1 + 10^{7.204-pH}} + \frac{39.0}{1 + 10^{pH-7.204}}$$

NOT COLD and/or MIGR:

$$= \frac{0.411}{1 + 10^{7.204-pH}} + \frac{58.4}{1 + 10^{pH-7.204}}$$

*NH3-N to un-ionized NH3 Conversion Equation for Saltwater Objective

$$= Sample\ Result\ (in\ NH3 - N)\ * 1/(1 + 10^{\left[\left(9.245+0.116*\frac{19.9273*S}{1000-1.005109*S}\right)+0.0324(298-T)+\frac{(0.0415)P}{T}-pH\right]})$$

Where T= temperature expressed in °K (Note: Kelvin = Celsius + 273)

S = salinity (ppt)

P = pressure (assumed to be 1 atm)

Basin Plan Ammonia Objectives for Dry Weather

BPA 2005 p15-11 "Implementation actions to achieve applicable ammonia objectives must implement downstream objectives."
*See NH3-N to un-ionized NH3 conversion equation for saltwater objective.   4-day average objective = 2.5 x 30-day average objective

Table 3-2: 30-Day Average Objective for Total Ammonia-N for Freshwaters Applicable to Waters Subject to the "Early Life Stage Present" Condition (mg N/L)

$$= \left(\frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \right) * MIN\left(2.85, 1.45 * 10^{0.028*(25-T)}\right)$$

Where T= temperature expressed in °C.

Highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective as calculated above.

Table 3-3: 30-Day Average Objective for Total Ammonia-N for Freshwaters Applicable to Waters Subject to the "Early Life Stage Absent" Condition (mg N/L)

$$= \left(\frac{0.0577}{1 + 10^{7.688-pH}} + \frac{2.487}{1 + 10^{pH-7.688}} \right) * 1.45 * 10^{0.028*(25-MAX(T,7))}$$

Where T= temperature expressed in °C.

Highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective as calculated above.

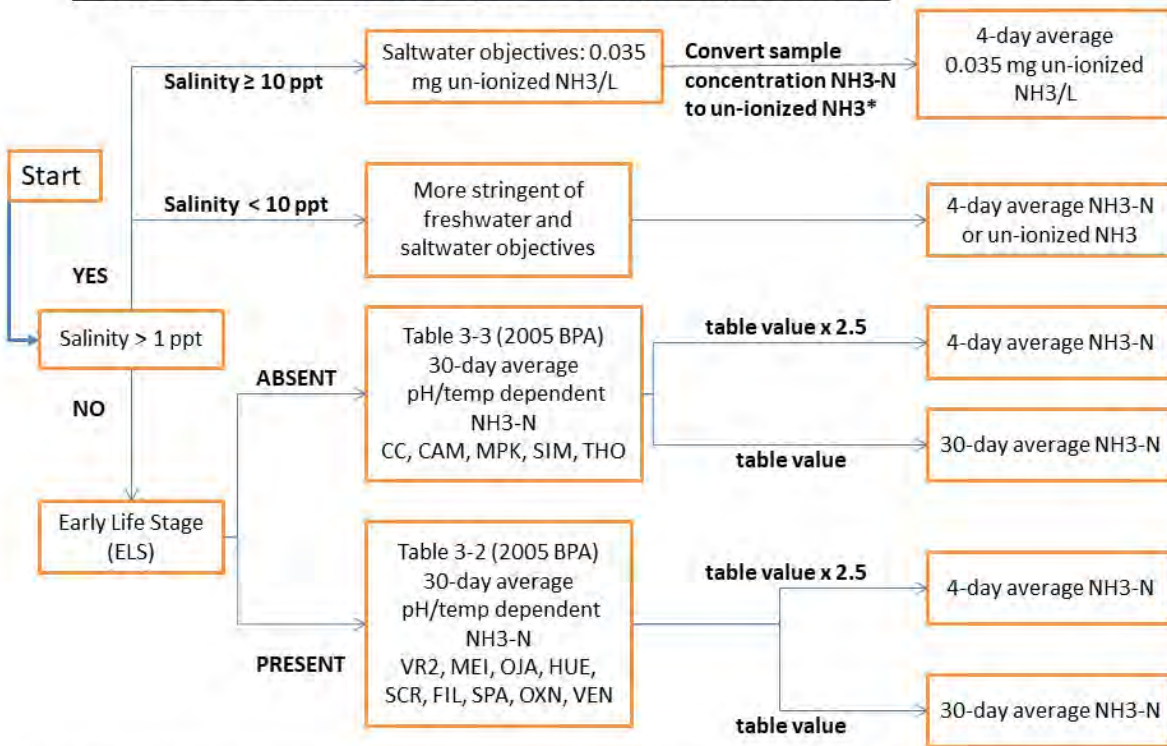**NH3-N to un-ionized NH3 Conversion Equation for Saltwater Objective**

$$= Sample\ Result\ (in\ NH3 - N)\ * 1/(1 + 10^{\left[\left(9.245 + 0.116*\frac{19.9273*S}{1000 - 1.005109*S}\right) + 0.0324(298 - T) + \frac{(0.0415)P}{T} - pH\right]})$$

Where T= temperature expressed in °K (Note: Kelvin = Celsius + 273)
S = salinity (ppt)
P = pressure (assumed to be 1 atm)

PENTACHLOROPHENOL (CTR)

$$CMC = \exp(1.005(pH) - 4.869)$$
$$CCC = \exp(1.005(pH) - 5.134)$$

METALS (CTR)
[cadmium, chromium, copper, lead, nickel, silver, zinc]

$$CMC = WER * (Acute\ Conversion\ Factor) * (\exp\{m_A[1n(hardness)] + b_A\})$$
$$CCC = WER * (Chronic\ Conversion\ Factor) * (\exp\{m_C[1n(hardness)] + b_C\})$$

Note1: CCC formula contains error in CTR (says "Acute" not "Chronic" for Conversion Factor).
Note2: see note to Table 2 of Paragraph (b)(2) in the CTR, "The term conversion factor represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column."
Note3: Conversion factors (CF) are provided as values in a table for chromium, copper, nickel, silver, and zinc. CF for cadmium and lead are calculated based on hardness, i.e.

$$Cadmium\ Acute\ CF = 1.136672 - [(\ln\{hardness\})(0.041838)]$$
$$Cadmium\ Chronic\ CF = 1.101672 - [(\ln\{hardness\})(0.041838)]$$
$$Lead\ Acute\ and\ Chronic\ CF = 1.46203 - [(\ln\{hardness\})(0.145712)]$$

Note4: Only two WER in Ventura County and no stations discharge within the applicable reaches - Lower Calleguas Creek (Reach 2 which is Portrero Rd south to Mugu Lagoon) has a WER for copper of 3.69 and Mugu Lagoon copper WER is 1.51.

Appendix L. WQS Correction Letters_Ammonia_E.coli

COUNTY *of* VENTURA

Jeff Pratt
Agency Director

David Fleisch
Assistant Director

Central Services	Engineering Services	Roads & Transportation	Water & Sanitation	Watershed Protection
Joan Araujo, Director	**Christopher Cooper**, Director	**Christopher Kurgan**, Director	**Joseph Pope**, Director	**Glenn Shephard**, Director

March 8, 2022

VIA EMAIL

Ms. Renee Purdy
Executive Officer
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Subject: **Notification of Dry Weather Ammonia Results Not Identified in Past Reports as Above Water Quality Objectives for Inland Waters Not Characteristic of Freshwaters, Ventura Countywide Stormwater Quality Management Program NPDES (National Pollutant Discharge Elimination System) Permit No. CAS004002, Order No. R4-2010-0108 (Permit)**

Dear Ms. Purdy:

The Ventura Countywide Stormwater Quality Management Program (Program) recently discovered their water quality database had a calculation error when comparing sample results to Basin Plan ammonia saltwater objectives (BPO-A) for samples with salinities above 1 ppt. Since 2009 this error led to two results not reported in elevated levels reports.

The Basin Plan objectives for inland surface waters not characteristic of freshwater are fixed concentrations of un-ionized ammonia set at a maximum 4-day average concentration of 0.035 mg un-ionized ammonia/L and a maximum 1-hour average concentration of 0.233 mg un-ionized ammonia/L, which correspond to dry weather and wet weather, respectively. By contrast, freshwater objectives (for salinities ≤1 ppt) are calculated based on additional sample attributes (e.g. pH, temperature, salinity) and are specified as total ammonia as nitrogen. The Basin Plan specifies that waters with salinities 1-10 ppt are to use the more stringent of the saltwater or freshwater objectives.

As required by Attachment G of the Permit, VCWPD samples are analyzed for total ammonia as nitrogen, which includes both ionized and un-ionized ammonia. When salinity at a site is >1 ppt, then the concentration of un-ionized ammonia (as *mg* un-ionized ammonia/L) must be calculated from the total ammonia as nitrogen result, to compare to the Basin Plan un-ionized ammonia (saltwater) objectives.

The Program reports constituents detected above water quality objectives in elevated levels reports within 90 days of sampling. Since 2009, there have been seven dry weather major outfall samples with salinities between 1-10 ppt that were inaccurately compared to the Basin Plan saltwater objectives. Of these seven samples, two were previously reported as above an incorrect saltwater objective, three as only being above freshwater objectives, and two were not identified as elevated levels. Since the freshwater and saltwater objectives have different units, all elevated levels for these samples are reported in the table below to ensure the most stringent is included.

Table 1. Corrected elevated levels report for Dry Weather samples with salinities >1 and <10 ppt

Site	Event	*Salinity (ppt)*	Measured Total NH3-N (as mg N/L)	Calculated un-ionized NH3 (as mg NH3/L)*	Added/corrected objective	Previously reported status
MO-CAM	2009/10-4	*1.2*	**0.19**	**0.198**	0.035 mg NH3/L (SW 4-day)	0.08 mg N/L (FW 30-day) *Reported as elevated, but only with Basin Plan freshwater objective*
MO-CAM	2011/12-4	*1.2*	**0.26**	**0.267**	0.035 mg NH3/L (SW 4-day)	0.08 mg N/L (FW 30-day) 0.21 mg N/L (FW 4-day) *Reported as elevated, but only with Basin Plan freshwater objective*
MO-HUE	2014/15-6	*6.9*	**1.2**	**0.088**	0.035 mg NH3/L (SW 4-day) 1.16 mg N/L (FW 30-day)	~~0.478 mg N/L~~ ~~(SW 4-day)~~ *Reported as elevated, but compared to incorrect Basin Plan saltwater objective*
MO-HUE	2017/18-5	*8.9*	0.56	**0.042**	0.035 mg NH3/L (SW 4-day)	Not identified as elevated level
MO-OXN	2016/17-6	*1.1*	**1.7**	**0.388**	0.035 mg NH3/L (SW 4-day) 0.43 mg N/L (FW 30-day) 1.08 mg N/L (FW 4-day)	~~0.109 mg N/L~~ ~~(SW 4-day)~~ *Reported as elevated, but compared to incorrect Basin Plan saltwater objective*
MO-VEN	2010/11-5	*2.7*	**0.13**	**0.133**	0.035 mg NH3/L (SW 4-day)	0.09 mg N/L (FW 30-day) *Reported as elevated, but only with Basin Plan freshwater objective*
MO-VEN	2011/12-4	*4.4*	0.17	**0.054**	0.035 mg NH3/L (SW 4-day)	Not identified as elevated level

*Calculated un-ionized NH3 (as mg NH3/L) is converted from measured Total NH3-N using a calculation incorporating pH, temperature, and salinity measurements.

Elevated levels are indicated in bold and underlined

Strikeout indicates incorrectly calculated objectives

Objectives:

SW 4-day: Saltwater 4-day un-ionized ammonia average maximum concentration as mg NH3/L

FW 4-day: Freshwater 4-day average maximum concentration for total ammonia as mg N/L

FW 30-day: Freshwater 30-day average maximum concentration for total ammonia as mg N/L

Levels of ammonia above the objectives were not seen at the corresponding receiving water stations, however MO-CAM, MO-OXN, and MO-VEN discharge downstream of their receiving water stations, and MO-HUE does not have a receiving water station. For all but two of these results, ammonia was already flagged as elevated in the post-event elevated levels reports and the corresponding annual reports for other objectives. For the two newly flagged elevated levels above the saltwater objective: MO-HUE in 2017/18-5 and MO-VEN in 2011/12-4, Permittees will assess and follow up with appropriate actions.

Common sources of ammonia include wastes (e.g. landfill leachate, septic seepage, industrial point sources), fertilizers (agricultural and urban runoff, manure application), and natural processes (atmospheric sources, riparian de-vegetation etc.). Nitrogen is being addressed in the Santa Clara River Nitrogen Compounds TMDL, and while the reach to which MO-OXN and MO-VEN discharge (Reach 1) is below the listed reaches (Reach 3 and 5) and is not listed on the TMDL, the measured levels of ammonia as N were below the 30-day average effluent limitations in the TMDL. The Calleguas Creek Nutrient TMDL 30-day numeric target is 2.9 mg/L for total ammonia as nitrogen for Revolon Slough, to which MO-CAM discharges, and the concentrations at MO-CAM were more than an order of magnitude lower than the TMDL numeric target.

This new information will be used by the Program to prioritize ammonia along with the other pollutants of concern and direct program activities accordingly.

We apologize for the error and any inconvenience this may have caused. If you have questions or comments regarding this letter, please contact David Laak at (805) 477-7139 or me at (805) 654-3942.

Sincerely,

Arne Anselm
Deputy Director, Watershed Protection

Cc: Ms. Jenny Newman, Assistant Executive Officer, RWQCB-LA
      Mr. Ivar Ridgeway, Stormwater Unit Chief, RWQCB-LA
      Ms. Erum Razzak, Stormwater Permitting, RWQCB-LA
      Mr. Glenn Shephard, Director, VCWPD
      Ventura Countywide Stormwater Quality Program Permittees

PUBLIC WORKS
VENTURA COUNTY

COUNTY *of* VENTURA

Jeff Pratt
Agency Director

David Fleisch
Assistant Director

Central Services	Engineering Services	Roads & Transportation	Water & Sanitation	Watershed Protection
Joan Araujo, Director	**Christopher Cooper**, Director	**Christopher Kurgan**, Director	**Joseph Pope**, Director	**Glenn Shephard**, Director

September 21, 2022

VIA EMAIL

Ms. Renee Purdy
Executive Officer
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Subject: **Corrected *E. coli* Elevated Levels Reports for Ventura Countywide Stormwater Quality Management Program (Program) Results Collected Post-Approval of the State Water Resources Control Board's (State Board) Bacteria Provisions Policy**

Dear Ms. Purdy:

The Program recently realized that the State Board's Bacteria Provisions Policy (approved by the State Board on February 4, 2019, and USEPA on March 22, 2019) contains water quality objectives for *E. coli* that supersede numeric water quality objectives for bacteria for the REC-1 beneficial use contained in Basin Plans prior to February 4, 2019, but the policy does not supersede bacteria water quality objectives in total maximum daily loads (TMDLs) established before February 4, 2019. The Bacteria Provisions changed the REC-1 *E. coli* bacteria water quality objective from 235 MPN/100mL single sample limit to 320 CFU/100mL[1] statistical threshold value (STV). This change affects all Ventura Countywide Stormwater Quality Management Program monitoring stations sampled since the approval of the Bacteria Provisions, except for those within the jurisdiction of an applicable TMDL.

Of all the stations sampled by the Program since the Bacteria Provisions came into effect, only six stations were sampled within the jurisdiction of an applicable TMDL: ME-SCR, MO-FIL, MO-SPA (and its alternate dry weather monitoring stations DRY-SPA2, DRY-SPA3, and DRY-SPA4). These six stations retain the 235 MPN/100mL SS limit in the TMDL for their *E.coli* objective. The remaining stations sampled by the Program are subject to the updated Bacteria Provisions REC-1 objective of 320 CFU/100mL STV.

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[1] The units MPN/100mL and CFU/100mL are considered to be equivalent for the purposes of the Bacteria Provisions and the Basin Plan according to the Los Angeles Regional Water Quality Control Board per Response to Comments 2.2 for the incorporation of the SWRCB Bacteria Provisions into the Basin Plan: "The Statewide Bacteria Provisions acknowledge that the United States Environmental Protection Agency (U.S. EPA) recommends using U.S. EPA Method 1603 or other equivalent method to measure culturable *E. coli*, and U.S. EPA Method 1600 or other equivalent method to measure culturable enterococci. Methods listed in 40 CFR Part 136.3, table IH are approved for use in ambient waters (which include recreational waters) and include some methods that report bacteria indicators in MPN. Historically, the Los Angeles Board has accepted compliance reporting using methods that report using either cfu or MPN and intends to continue to do so. The proposed Basin Plan language has been revised to include the applicable language from the Statewide Bacteria Provisions."

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Ventura Countywide Stormwater Quality Management Program 2021/22 Annual Report
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Attachment D Appendix L

Since the Bacteria Provisions came into effect, three results between 235-320 MPN/100mL were flagged as elevated levels in the Program's elevated levels and annual reports, but they should not have been flagged as elevated levels or exceedances according to the 2019 Bacteria Provisions. They were less than 320 MPN/100ml. The three results that should not have been flagged as elevated levels follow below:

Event Type	Site ID	Event ID	Sample Date	Sign	Result	Units	Method
Wet	MO-MEI	2019/20-2	1/16/2020	=	285	MPN/100mL	MMO-MUG
Dry	ME-CC	2020/21-4	4/29/2021	=	270	MPN/100mL	SM 9223B
Dry	ME-CC	2019/20-5	5/12/2020	=	246	MPN/100mL	MMO-MUG

Four results at major outfall stations were incorrectly identified as causing or contributing to *E. coli* water quality objective exceedances in their associated receiving waters in previously submitted elevated levels reports due to the obsolete use of the superseded objectives. These four incorrectly flagged results follow below:

Event Type	Site ID	Event ID	Sample Date	Sign	Result	Units	Method
Wet	MO-MEI	2019/20-2	1/16/2020	=	285	MPN/100mL	MMO-MUG
Dry	MO-MPK	2019/20-5	5/12/2020	=	15531	MPN/100mL	MMO-MUG
Dry	MO-CAM	2019/20-5	5/12/2020	=	3255	MPN/100mL	MMO-MUG
Dry	MO-CAM	2020/21-4	4/29/2021	=	1600	MPN/100mL	SM 9223B

The Program will use the Bacteria Provisions objectives at applicable sites for future elevated levels and exceedance reports, including for the Dry Weather Analytical Monitoring event conducted in August 2022.

If you have questions or comments regarding this letter, please contact David Laak at (805) 477-7139 or me at (805) 654-3942.

Sincerely,

Arne Anselm
Deputy Director, Watershed Protection

Cc: Ms. Jenny Newman, Assistant Executive Officer, RWQCB-LA
      Mr. Ivar Ridgeway, Stormwater Unit Chief, RWQCB-LA
      Ms. Erum Razzak, Stormwater Permitting, RWQCB-LA
      Mr. Glenn Shephard, Director, VCWPD
      Ventura Countywide Stormwater Quality Program Permittees

Ventura Countywide Stormwater Quality
Management Program 2021/22 Annual Report
Hall of Administration L #1600
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Attachment D Appendix L

Appendix M. Quantitative Trends Analysis Summary Tables

Wet Weather Data - Excluding Pesticides and Organics

| | | | | Calleguas | | | | Santa Clara | | | | | Ventura | | -- |
Watershed		ME-CC	MO-CAM	MO-MPK	MO-SIM	MO-THO	ME-SCR	MO-FIL	MO-OXN	MO-SPA	MO-VEN	ME-VR2	MO-OJA	MO-MEI	MO-HUE
Classification	Constituent														
Anion	Chloride	--	--	--	--	--	--	--	--	--	--	--	↓	--	--
Anion	Fluoride	--	--	↓	--	--	↓	--	--	--	--	↓	↓	--	▲
Anion	Perchlorate	X	X	X	X	X	X	--	X	--	X	X	X	X	X
Anion	Sulfate, Total	--	--	--	--	--	↓	--	--	--	--	--	--	--	--
Bacteriological	*E. coli*	--	--	--	--	--	--	↑	--	--	--	--	--	--	--
Bacteriological	Enterococcus	--	X	X	X	X	--	X	X	X	X	--	X	X	X
Bacteriological	Fecal Coliform	--	--	--	--	--	--	◆	--	--	--	--	--	--	--
Bacteriological	Total Coliform	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cation	Calcium, Total	--	--	--	--	--	--	--	--	--	↓	--	↓	↓	--
Cation	Magnesium, Total	--	--	--	--	--	--	--	--	--	↓	--	↓	↓	--
Cation	Potassium, Total	--	--	--	--	--	--	--	--	--	--	↓	--	--	--
Cation	Sodium, Total	--	--	--	--	--	↓	--	--	--	--	↓	--	--	--
Conventional	Alkalinity as CaCO3	--	--	--	--	--	--	--	↓	--	--	--	↓	↓	--
Conventional	BOD	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Conventional	COD	↓	--	↓	--	--	--	--	--	--	--	--	↓	--	--
Conventional	Conductivity	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Conventional	Cyanide, Total	▲	▲	▲	↑	--	--	--	▲	--	▲	X	--	▲	↑
Conventional	Dissolved Inorganic Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Conventional	Dissolved Organic Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	◆
Conventional	DO	--	--	--	--	--	--	↓	--	--	--	--	--	--	--
Conventional	Hardness as CaCO3	--	--	--	--	--	--	--	--	--	--	--	↓	↓	--
Conventional	MBAS	--	--	↓	--	--	--	--	--	--	--	↓	↓	--	--
Conventional	pH	--	↓	--	--	↓	--	--	--	--	--	--	↓	--	↓
Conventional	Phenolics	↓	--	--	--	--	↓	↓	↓	--	↓	↓	↓	--	--
Conventional	Salinity	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Conventional	Specific Conductance	--	--	--	--	--	--	--	--	--	--	--	↓	--	--
Conventional	Temperature	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Conventional	Total Chlorine Residual	--	X	X	X	X	X	X	X	X	X	X	X	X	X
Conventional	Total Dissolved Solids	--	--	--	--	--	--	--	--	--	--	--	↓	--	--
Conventional	Total Organic Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Conventional	Total Suspended Solids	--	--	--	--	--	--	◆	--	--	--	--	◆	--	--
Conventional	Turbidity	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Conventional	Volatile Suspended Solids	--	--	--	--	--	--	◆	--	--	--	--	--	--	--
Hydrocarbon	Diesel Range Organics	--	--	--	--	--	◆	--	--	--	--	--	--	--	--
Hydrocarbon	Oil Range Organics	X	↓	↓	↓	X	X	↓	↓	↓	--	X	↓	↓	--
Metal	Aluminum, Dissolved	--	--	--	--	--	--	--	--	--	--	--	↑	--	--
Metal	Aluminum, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metal	Antimony, Dissolved	--	--	--	--	--	X	--	--	--	--	X	↓	--	--
Metal	Antimony, Total	--	--	--	--	--	X	--	--	--	--	X	↓	--	--
Metal	Arsenic, Dissolved	↓	--	↓	--	--	--	--	--	--	--	--	--	↓	--

Wet Weather Data - Excluding Pesticides and Organics

| Watershed | | ME-CC | Calleguas | | | | Santa Clara | | | | | | Ventura | | -- |
| | | | MO-CAM | MO-MPK | MO-SIM | MO-THO | ME-SCR | MO-FIL | MO-OXN | MO-SPA | MO-VEN | ME-VR2 | MO-OJA | MO-MEI | MO-HUE |
Classification	Constituent	ME-CC	MO-CAM	MO-MPK	MO-SIM	MO-THO	ME-SCR	MO-FIL	MO-OXN	MO-SPA	MO-VEN	ME-VR2	MO-OJA	MO-MEI	MO-HUE
Metal	Arsenic, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metal	Barium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metal	Beryllium, Total	--	--	--	--	--	--	--	--	--	--	↑	--	--	X
Metal	Cadmium, Dissolved	--	X	X	--	X	X	--	X	--	X	X	X	X	--
Metal	Cadmium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metal	Chromium VI	--	--	--	--	--	--	▲	--	--	--	--	--	--	--
Metal	Chromium, Dissolved	--	--	↓	--	--	X	▲	--	--	▲	X	--	--	--
Metal	Chromium, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metal	Copper, Dissolved	--	--	--	--	--	--	--	--	--	--	↓	--	--	--
Metal	Copper, Total	--	--	--	--	--	--	--	↓	--	--	--	--	--	--
Metal	Iron, Dissolved	--	--	↓	--	--	--	--	--	--	--	--	--	--	--
Metal	Iron, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metal	Lead, Dissolved	X	--	--	--	X	X	--	--	--	--	X	--	--	X
Metal	Lead, Total	--	--	--	--	--	--	--	--	--	--	◆	--	--	--
Metal	Mercury, Total	--	↓	--	--	--	--	X	↓	↓	↓	X	--	--	X
Metal	Nickel, Dissolved	--	--	↓	--	--	--	--	--	--	--	--	--	--	--
Metal	Nickel, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metal	Selenium, Dissolved	↓	X	--	--	--	--	--	--	--	--	--	X	X	↓
Metal	Selenium, Total	↓	--	--	--	↓	--	--	--	--	--	--	↓	--	↓
Metal	Silver, Total	X	X	--	X	X	--	X	X	X	X	X	X	X	X
Metal	Thallium, Total	--	X	--	X	X	--	--	X	X	X	X	X	X	X
Metal	Zinc, Dissolved	--	--	--	--	--	X	--	--	--	--	X	--	--	--
Metal	Zinc, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrient	Ammonia as N	↓	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrient	Nitrate + Nitrite as N	--	--	--	--	--	--	--	↓	--	↓	--	--	--	--
Nutrient	Nitrate as N	--	NS	NS	NS	NS	NS	NS	NS	NS	NS	X	X	X	NS
Nutrient	Phosphorus as P, Dissolved	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrient	Phosphorus as P, Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nutrient	TKN	--	--	--	--	--	--	--	--	--	--	--	--	--	--

↓   **Green** arrows indicate statistically significant trends of decreasing concentration or increasing concentration for DO (improving water quality)

↑   **Red** arrows indicate statistically significant trends of increasing concentration or decreasing concentration for DO (declining water quality)

◆   Blue diamonds indicate statistically significant trends of increasing concentration for a constituent with no water quality objective.

▲   Purple triangles indicate statistically significant trends of increasing concentration, but all data were below the lowest applicable water quality objective.

"--" indicates no significant trends observed

"X" indicates dataset not meeting the criteria to perform a trend analysis

"NS" indicates constituent was not sampled at the monitoring location

Watershed				Calleguas				Santa Clara						Ventura		--
Classification	Constituent	Method	ME-CC	MO-CAM	MO-MPK	MO-SIM	MO-THO	ME-SCR	MO-FIL	MO-OXN	MO-SPA	MO-VEN	ME-VR2	MO-OJA	MO-MEI	MO-HUE
Organic	Bis(2-ethylhexyl)phthalate	EPA 525.2	X	--	X	X	X	X	X	--	--	--	X	X	X	X
Organic	Diethyl phthalate	EPA 625	X	↓	↓	↓	X	X	X	X	X	X	--	X	X	X
Organic	Dimethyl phthalate	EPA 625	X	X	X	X	↓	X	X	X	X	X	X	X	X	↓
Pesticide	2,4-D	EPA 515.4	X	X	X	X	X	X	--	X	X	X	X	X	X	X
Pesticide	Bromacil	EPA 525.2	X	X	--	X	X	X	X	X	X	X	X	X	X	X
Pesticide	Chlorpyrifos	EPA 625	↓	X	X	X	X	X	↓	--	↓	↓	--	X	X	X
Pesticide	DCPA (Dacthal)	EPA 515.4	↓	--	--	X	X	--	X	X	X	X	X	X	X	X
Pesticide	Diazinon	EPA 625	X	--	X	X	X	X	X	X	X	--	X	X	X	X
Pesticide	Dichlorvos	EPA 625	X	--	X	X	X	X	X	X	X	X	X	X	X	X
Pesticide	Glyphosate	EPA 547	--	--	--	▲	--	X	▲	▲	▲	--	X	--	↓	--
Pesticide	Malathion	EPA 625	--	--	--	--	↓	X	↓	--	↓	--	X	--	↓	--
Pesticide	Pentachlorophenol	EPA 515.4	X	X	--	↑	X	X	X	X	--	X	X	↑	↑	X
Pesticide	Pentachlorophenol	EPA 625	X	X	--	--	X	X	X	X	--	X	X	--	--	X
Pesticide	Pentachlorophenol	EPA 8270C	X	X	--	X	X	X	X	X	--	X	X	--	↑	X
Pesticide	Prometryn	EPA 525.2	--	X	X	X	X	X	X	X	X	X	X	X	X	X
Pesticide	Simazine	EPA 525.2	X	X	X	X	X	X	--	X	X	X	X	--	X	X

↓   **Green** arrows indicate statistically significant trends of decreasing concentration (improving water quality)

↑   **Red** arrows indicate statistically significant trends of increasing concentration (declining water quality)

▲   **Purple triangles** indicate statistically significant trends of increasing concentration, but all data were below the lowest applicable water quality objective.

"--" indicate no significant trends observed

"X" indicates dataset not meeting the criteria to perform a trend analysis

	Watershed		Calleguas					Santa Clara				Ventura			--
Classification	Constituent	ME-CC	MO-CAM	MO-MPK	MO-SIM	MO-THO	ME-SCR	MO-FIL	MO-OXN	MO-SPA	MO-VEN	ME-VR2	MO-OJA	MO-MEI	MO-HUE
Anion	Chloride	--	--	--	--	--	--	--	--	X	--	--	--	X	--
Anion	Fluoride	--	--	--	--	--	--	--	--	X	--	↓	--	X	--
Anion	Sulfate, Total	--	--	X	--	--	↓	↓	X	X	X	--	X	NS	--
Bacteriological	*E. coli*	↑	--	--	--	--	--	--	--	X	--	--	--	X	--
Bacteriological	Enterococcus (1)	--	X	X	X	X	--	X	X	NS	X	--	X	NS	X
Bacteriological	Fecal Coliform	--	--	X	--	--	--	--	--	X	--	--	--	X	--
Bacteriological	Total Coliform	--	◆	--	--	--	--	--	--	X	--	--	--	X	--
Cation	Calcium, Total	--	--	--	--	--	--	--	◆	X	--	--	--	X	--
Cation	Magnesium, Total	--	--	--	--	--	--	--	◆	X	--	--	--	X	--
Cation	Potassium, Total	--	--	X	--	--	--	--	X	X	X	--	X	NS	--
Cation	Sodium, Total	↓	--	X	--	--	--	--	X	X	X	--	X	NS	--
Conventional	Alkalinity as CaCO3	--	--	--	--	--	--	--	--	X	--	--	--	X	--
Conventional	BOD	X	◆	--	X	X	X	X	X	X	--	X	--	X	--
Conventional	COD	--	--	--	--	--	--	--	X	X	--	--	--	X	--
Conventional	Conductivity	--	--	--	--	--	--	--	--	X	--	--	--	X	--
Conventional	Cyanide, Total	X	--	X	X	▲	X	X	X	X	X	X	X	X	X
Conventional	Dissolved Inorganic Carbon	--	--	X	--	--	--	--	X	X	X	↓	X	NS	--
Conventional	Dissolved Organic Carbon	--	--	X	--	--	--	--	X	X	X	--	X	NS	--
Conventional	DO	--	--	↓	--	--	--	↓	--	X	--	--	--	X	--
Conventional	Hardness as CaCO3, Total	--	--	--	--	--	--	--	◆	X	--	--	--	X	--
Conventional	MBAS	X	--	--	X	X	X	X	X	X	X	--	X	--	X
Conventional	pH	--	--	--	--	--	--	↑	--	X	--	--	--	X	--
Conventional	Phenolics	X	--	--	--	--	↓	X	X	X	--	↓	--	X	--
Conventional	Salinity	--	--	--	--	--	--	--	--	X	--	--	--	X	--
Conventional	Specific Conductance	--	--	--	--	--	--	--	◆	◆	--	--	◆	X	--
Conventional	Temperature	--	--	--	--	--	--	--	--	X	--	--	--	X	--
Conventional	Total Dissolved Solids	--	--	--	--	--	--	--	◆	X	--	--	--	X	--
Conventional	Total Organic Carbon	--	--	--	◆	◆	--	◆	--	X	--	--	--	X	◆
Conventional	Total Suspended Solids	--	--	X	--	X	--	--	--	X	◆	--	--	X	--
Conventional	Turbidity	--	--	--	--	--	--	↓	--	X	--	--	--	X	--
Conventional	Volatile Suspended Solids	X	--	X	X	X	X	X	--	X	◆	X	X	X	--
Hydrocarbon	Diesel Range Organics	--	--	X	X	X	X	X	X	X	X	X	X	NS	X
Metal	Aluminum, Dissolved	X	--	X	X	X	X	X	X	X	X	X	X	X	X
Metal	Aluminum, Total	--	--	--	--	--	--	--	--	--	--	--	--	X	--
Metal	Antimony, Dissolved	X	--	--	X	X	X	X	X	--	X	X	X	X	X
Metal	Antimony, Total	X	--	--	X	X	X	X	X	--	X	--	X	X	X
Metal	Arsenic, Dissolved	--	--	--	--	--	--	--	--	X	--	--	--	X	--
Metal	Arsenic, Total	--	--	--	--	--	--	--	--	X	--	--	--	X	--
Metal	Barium, Total	--	--	--	--	--	--	--	X	X	X	--	--	NS	--
Metal	Cadmium, Dissolved	--	--	X	--	X	X	--	X	X	--	X	X	X	X
Metal	Cadmium, Total	--	--	--	↓	X	X	--	X	X	--	X	X	X	X
Metal	Chromium VI	--	--	↓	--	--	--	▲	X	X	X	--	--	X	X

Dry Weather Data - Excluding Pesticides and Organics

	Watershed		Calleguas						Santa Clara				Ventura		--
Classification	Constituent	ME-CC	MO-CAM	MO-MPK	MO-SIM	MO-THO	ME-SCR	MO-FIL	MO-OXN	MO-SPA	MO-VEN	ME-VR2	MO-OJA	MO-MEI	MO-HUE
Metal	Chromium, Dissolved	--	--	--	--	--	X	--	X	X	--	X	--	X	X
Metal	Chromium, Total	--	--	--	↓	--	--	--	--	X	--	X	--	X	--
Metal	Copper, Dissolved	--	--	--	--	--	--	▲	--	X	--	--	--	X	--
Metal	Copper, Total	↓	--	--	--	--	--	--	--	X	--	--	--	X	--
Metal	Iron, Dissolved	X	--	X	X	X	X	X	X	X	--	--	X	X	--
Metal	Iron, Total	--	--	--	--	--	--	↓	--	X	--	--	--	X	--
Metal	Lead, Dissolved	X	X	X	X	X	X	X	--	X	--	X	X	X	X
Metal	Lead, Total	X	--	X	X	X	--	X	--	X	--	X	--	X	--
Metal	Nickel, Dissolved	--	--	--	--	--	--	--	--	X	--	↓	--	X	--
Metal	Nickel, Total	--	--	--	--	--	--	--	--	X	--	↓	--	X	--
Metal	Selenium, Dissolved	--	--	X	--	↓	--	--	--	X	--	--	--	X	X
Metal	Selenium, Total	--	--	X	--	↓	--	--	--	X	--	--	↑	X	--
Metal	Zinc, Dissolved	--	--	--	X	--	X	--	--	X	--	X	--	X	X
Metal	Zinc, Total	--	--	X	X	X	X	--	--	X	--	X	--	X	X
Nutrient	Ammonia as N	X	--	X	X	--	X	--	X	X	X	X	X	X	--
Nutrient	Nitrate + Nitrite as N	--	--	X	--	--	--	--	X	X	X	--	--	X	X
Nutrient	Nitrate as N (2)	--	NS	NS	NS	NS	X	X	NS	NS	X	X	X	X	X
Nutrient	Phosphorus as P, Dissolved	--	--	--	X	--	--	--	--	X	--	X	↓	X	--
Nutrient	Phosphorus as P, Total	--	--	--	--	--	--	--	--	X	--	--	--	X	--
Nutrient	TKN	--	--	--	X	--	--	--	--	X	--	--	--	X	--

↓ **Green** arrows indicate statistically significant trends of decreasing concentration or increasing concentration for DO (improving water quality)

↑ **Red** arrows indicate statistically significant trends of increasing concentration or decreasing concentration (declining water quality)

◆ Blue diamonds indicate statistically significant trends of increasing concentration for a constituent with no water quality objective.

▲ Purple triangles indicate statistically significant trends of increasing concentration, but all data were below the lowest applicable water quality objective.

"--" indicate no significant trends observed

"X" indicate dataset not meeting the criteria to perform a trend analysis

"NS" indicates constituent was not sampled at the monitoring location

(1) The major outfall sites with an X were only monitored during 1 dry weather event in May 2017.

(2) The major outfall sites with an X were only monitored during 2 dry weather events (April 2011 and May 2019).

<u>Dry Weather Data - Pesticides and Organics</u>

				Calleguas					Santa Clara						Ventura		--
Watershed																	
Classification	**Constituent**	**Method**	ME-CC	MO-CAM	MO-MPK	MO-SIM	MO-THO	ME-SCR	MO-FIL	MO-OXN	MO-SPA	MO-VEN	ME-VR2	MO-OJA	MO-MEI	MO-HUE
Organic	Diethyl phthalate	EPA 625	X	↓	X	↓	X	X	X	X	X	X	X	X	X	X
Organic	Dimethyl phthalate	EPA 625	X	X	X	X	↓	X	X	X	X	X	X	X	X	↓
Pesticide	DCPA (Dacthal)	EPA 515.4	↓	--	--	X	X	--	X	X	X	--	X	X	X	X
Pesticide	2,4-D	EPA 515.4	X	--	X	X	X	X	X	X	X	X	X	X	X	X
Pesticide	Glyphosate	EPA 547	X	▲	X	X	X	X	X	X	X	X	X	X	X	X

   ↓   **Green** arrows indicate statistically significant trends of decreasing concentration or increasing concentration for DO (improving water quality)

   ↑   **Red** arrows indicate statistically significant trends of increasing concentration or decreasing concentration (declining water quality)

   ▲   Purple triangles indicate statistically significant trends of increasing concentration, but all data were below the lowest applicable water quality objective.

"--" indicate no significant trends observed

"X" indicate dataset not meeting the criteria to perform a trend analysis

	Watershed	Calleguas		Santa Clara			Ventura		--
Classification	Constituent	DRY-MPK2	DRY-UNI4	DRY-OXN2	DRY-SPA2	DRY-SPA4	DRY-OJA6	DRY-VEN5	DRY-HUE3
Bacteriological	*E. coli*	X	--	--	--	X	--	--	--
Bacteriological	Total Coliform	--	--	--	--	--	--	--	--
Cation	Calcium, Total	--	--	--	--	--	--	--	--
Cation	Magnesium, Total	--	--	--	--	--	↓	--	--
Conventional	Conductivity	--	--	--	--	X	↓	--	--
Conventional	DO	X	--	--	X	X	--	--	--
Conventional	Hardness as CaCO3, Total	--	--	--	--	--	↓	--	--
Conventional	pH	--	--	--	--	--	--	--	--
Conventional	Salinity	--	--	--	X	X	--	--	--
Conventional	Specific Conductance	--	--	--	--	X	--	--	--
Conventional	Temperature[a]	--	--	--	--	--	--	--	◆
Conventional	Total Organic Carbon	--	--	--	--	--	↓	--	--
Conventional	Turbidity	--	--	--	--	--	--	--	--
Metal	Copper, Dissolved	--	--	--	X	X	X	--	X
Metal	Lead, Dissolved	--	--	--	--	--	--	--	--
Metal	Zinc, Dissolved	--	--	--	--	--	--	--	--

↓   **Green** arrows indicate statistically significant trends of decreasing concentration or increasing concentration for DO (improving water quality)

↑   **Red** arrows indicate statistically significant trends of increasing concentration or decreasing concentration (declining water quality)

◆   Blue diamonds indicate statistically significant trends of increasing concentration for a constituent with no water quality objective.

▲   Purple triangles indicate statistically significant trends of increasing concentration, but all data were below the lowest applicable water quality objective.

"--" indicate no significant trends observed

"X" indicate dataset not meeting the criteria to perform a trend analysis

"**NS**" indicates constituent was not sampled at the monitoring location

[a] No baseline temperature has been defined