



## Memorandum

*To: Santa Ana Watershed Project Authority*

*From: CDM Smith*

*Date: January 15, 2017*

*Subject: 2017 Quarter 4 Report*

This technical memorandum summarizes the Santa Ana River Regional Monitoring Program activities that occurred during the third quarter (October 1 through December 31) of 2017. It includes a brief description of monitoring activities from the fourth quarter, upcoming monitoring activities, and a summary of data resulting from monitoring activities. These monitoring activities were conducted under the Monitoring Plan and Quality Assurance Project Plan (QAPP) for the Santa Ana River Watershed Bacteria Monitoring Program, which was approved on March 11, 2016.

### **Monitoring Activities**

During the fourth quarter of 2017, cool dry weather monitoring activities began during the week of October 30, 2017 and concluded during the week of November 27, 2017. Priority 1 and 2 sites were sampled for all five weeks. The five-week monitoring program for Priority 3 Group 1 sites were completed as well.

The Priority 3 Group 1 sites are listed as follows:

- Group 1 – Bolsa Chica Channel and Santa Ana River Reach 2

The San Bernardino County Priority 4 site (Cucamonga Creek at Hellman Avenue) sample collected on June 22, 2017 (*E. coli*: >2,400 MPN/100 mL) exceeded the antidegradation target of 1,385 MPN/100 mL.<sup>1</sup> Per the Monitoring Plan, monthly follow-up samples were collected in July, August, and September during the third quarter. During the fourth quarter, samples were collected in October and November.

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<sup>1</sup> Antidegradation targets established in coordination with Santa Ana Regional Water Quality Control Board staff.

### **Water Quality Data**

Dry weather monitoring samples were analyzed for *E. coli* (**Table 1**) and TSS (**Table 2**) by Babcock Laboratories for Riverside and San Bernardino County sites and by Orange County Public Health Laboratory (OCPHL) for Orange County sites. Rolling 5-week geomeans for Priority 1 and 2 sites are presented in **Table 3**.

Due to continued antidegradation target exceedances in samples collected through August, additional follow-up samples were collected from Cucamonga Creek at Hellman Avenue during the fourth quarter. As the September, October, and November samples did not exceed the antidegradation target (**Table 1**), sample collection at this Priority 4 site is considered complete per the Monitoring Plan.

**Table 1 – 2017 Quarter 4 Dry Weather Average *E. coli* Concentrations (MPN/100 mL)**

Site ID	County	Site	Week 21	Week 22	Week 23	Week 24	Week 25
			10/29/2017	11/6/2017	11/13/2017	11/20/2017	11/27/2017
P1-1	Riverside	Canyon Lake at Holiday Harbor	3	2	1	6.3	8.6
P1-2	Riverside	Lake Elsinore	7.4	33	6.3	7.3	16
P1-3	Riverside	Lake Perris	25	36	25	140	78
P1-4	San Bernardino	Big Bear Lake at Swim Beach	8.6	16	2	96	12
P1-5	San Bernardino	Mill Creek Reach 2	17	2	BDL	BDL	1
P1-6	San Bernardino	Lytle Creek	16	1,400	64	59	8.6
WW-S1	Riverside	Santa Ana River Reach 3 at MWD Crossing	540	340	260	320	300
WW-S4	Riverside	Santa Ana River Reach 3 at Pedley Avenue	390	190	160	120	160
WW-C3	San Bernardino	Prado Park Lake	130	190	180	1,100	370
WW-C7	San Bernardino	Chino Creek at Central Avenue	240	500	160	20	440
WW-M6	San Bernardino	Mill-Cucamonga Creek below Wetlands	150	230	450	96	440
P3-OC1	Orange	Bolsa Chica Channel	122	98	631	512	11,199
P3-OC10	Orange	Santa Ana River Reach 2	203	213	262	161	313
P4-SBC1	San Bernardino	Cucamonga Creek at Hellman Avenue	1,100				280

Note: BDL = below detection limit

1 Samples collected during the week of September 3, 2017 due to rainfall

2 Units are CFU/100 mL

3 Enterococcus results

**Table 2 – 2017 Quarter 4 Dry Weather TSS Concentrations (mg/L)**

Site ID	County	Site	Week 21	Week 22	Week 23	Week 24	Week 25
			10/30/2017	11/6/2017	11/13/2017	11/20/2017	11/27/2017
P1-1	Riverside	Canyon Lake at Holiday Harbor	7	4	4	5	4
P1-2	Riverside	Lake Elsinore	54	44	50	42	45
P1-3	Riverside	Lake Perris	14	2	8	10	9
P1-4	San Bernardino	Big Bear Lake at Swim Beach	3	26	22	76	30
P1-5	San Bernardino	Mill Creek Reach 2	BDL	4	BDL	BDL	BDL
P1-6	San Bernardino	Lytle Creek	2	2	BDL	BDL	BDL
WW-S1	Riverside	Santa Ana River Reach 3 at MWD Crossing	8	2	2	4	27
WW-S4	Riverside	Santa Ana River Reach 3 at Pedley Avenue	5	2	2	2	6
WW-C3	San Bernardino	Prado Park Lake	6	10	12	12	17
WW-C7	San Bernardino	Chino Creek at Central Avenue	BDL	4	2	2	2
WW-M6	San Bernardino	Mill-Cucamonga Creek below Wetlands	2	6	3	4	3
P3-OC1	Orange	Bolsa Chica Channel	9	18	18	37	19
P3-OC10	Orange	Santa Ana River Reach 2	34	39	37	35	26
P4-SBC1	San Bernardino	Cucamonga Creek at Hellman Avenue	4				9

Note: BDL = below detection limit

1 Samples collected during the week of September 3, 2017 due to rainfall

**Table 3 – 2017 Quarter 4 Dry Weather *E. coli* Concentration Geomeans (MPN/100 ml)**

Site ID	County	Site	Week 21	Week 22	Week 23	Week 24	Week 25
			10/30/2017	11/6/2017	11/13/2017	11/20/2017	11/27/2017
P1-1	Riverside	Canyon Lake at Holiday Harbor					3
P1-2	Riverside	Lake Elsinore					11
P1-3	Riverside	Lake Perris					48
P1-4	San Bernardino	Big Bear Lake at Swim Beach					13
P1-5	San Bernardino	Mill Creek Reach 2					2
P1-6	San Bernardino	Lytle Creek					59
WW-S1	Riverside	Santa Ana River Reach 3 at MWD Crossing					341
WW-S4	Riverside	Santa Ana River Reach 3 at Pedley Avenue					187
WW-C3	San Bernardino	Prado Park Lake					283
WW-C7	San Bernardino	Chino Creek at Central Avenue					176
WW-M6	San Bernardino	Mill-Cucamonga Creek below Wetlands					231

Note: For calculation purposes, samples that were below detection limit were assumed to be half of the reporting limit  
 1 Geomeans are calculated on less than 5 samples due to dry conditions in previous weeks



## **QA/QC**

No QA/QC concerns were reported during the fourth quarter of 2017.

## **Upcoming Activities**

Upcoming activities for the first quarter of 2018 include:

- One storm event will be monitored during the wet weather season (November 1 through March 31) per MSAR Bacteria TMDL requirements.
- CDM Smith will continue to coordinate with Babcock Laboratories and CWE sampling personnel regarding all sites located in Riverside and San Bernardino Counties for storm and ongoing Priority 4 sampling.