

May 23, 2013

Transmitted via Mail

Ms. Kourtney Drake  
 Administrator  
 UPPER SANTA MARGARITA IRRIGATED LANDS GROUP  
 P.O. Box 892411  
 Temecula, CA 92589

**RE: USMILG, QAPP Monitoring Summary for October 2012 – May 2013**

Dear Kourtney,

The following is a summary of the monitoring results for Oct 2012 - May 2013 of the 2012-2013 monitoring year:

Event 1 (12/13/12): Wet Season Sampling

Storm Start: 12/12/2012 at 6pm                      Storm End: 12/13/12 at 3:30pm

Sampling Start: 12/13/2012 at 4pm

Rain Fall Readings: Based on local rainfall summaries, sampling at SG02 occurred after approx. 0.81 inch of rain, and sampling at UK03 occurred after approx. 1.1 inches of rain.

Monitoring Locations

<u>Description</u>	<u>Location</u>	<u>Site ID</u>
Santa Gertrudis Creek at Rancho California Road	33 °32'49.48" N, 117 °02'38.28" W	SG02
Unknown Creek at El Prado Drive	33 °27'52.18" N, 117 °14'26.60" W	UK03

Event 2 (02/20/13): Wet Season Sampling

Storm Start: 02/19/2013 at 1:49am                      Storm End: 02/20/13 at 1:49am

Sampling Start: 02/20/2013 at 8:39am

Rain Fall Readings: Based on local rainfall summaries, sampling at UK03 occurred after approx. 0.70 inches of rain.

Sampling at SG02 was a "no go" because the rainfall did not produce a visually detectable increase in creek flows above base flow.

Monitoring Locations

<u>Description</u>	<u>Location</u>	<u>Site ID</u>
Unknown Creek at El Prado Drive	33 °27'52.18" N, 117 °14'26.60" W	UK03

Monitoring Results

The following table summarizes the constituents analyzed and field measurements:

Parameter	Reporting Limit	Event 1 (12/13/12)		Event 2 (02/20/13)	UK03 Statistics	
		SG02 Result	UK03 Result	UK03 Result	UK03 Mean	UK03 Std. Dev.
Alkalinity (as CaCO <sup>3</sup> )	1 mg/L	334 mg/L	146 mg/L	174 mg/L	160 mg/L	14 mg/L
Ammonia (as N)	0.1 mg/L	0.42 mg/L	0.10 mg/L	0.05 mg/L	0.08 mg/L	0.03 mg/L
Ammonium (as N)	0.1 mg/L	0.42 mg/L	0.10 mg/L	0.05 mg/L	0.08 mg/L	0.03 mg/L
CaCO <sub>3</sub> (Hardness)	1 mg/L	1,240 mg/L	650 mg/L	582 mg/L	616 mg/L	34 mg/L
Chloride	0.25 mg/L	918 mg/L	275 mg/L	198 mg/L	237 mg/L	38.5 mg/L
Dissolved Organic Carbon	0.6 mg/L	24.5 mg/L	9.0 mg/L	5.0 mg/L	7.0 mg/L	2.0 mg/L
Nitrate as Nitrogen (NO <sup>3</sup> )	0.01 mg/L	3.04 mg/L	5.2 mg/L	4.46 mg/L	4.83 mg/L	0.37 mg/L
Nitrite as Nitrogen (NO <sup>2</sup> )	0.01 mg/L	0.20 mg/L	0.10 mg/L	0.10 mg/L	0.10 mg/L	0.00 mg/L
Nitrogen (Total)	0.1 mg/L	6.19 mg/L	6.67 mg/L	5.54 mg/L	6.11 mg/L	0.57 mg/L
Orthophosphate as P	0.01 mg/L	0.24 mg/L	0.17 mg/L	0.03 mg/L	0.10 mg/L	0.07 mg/L
Phosphorus (Dissolved)*	0.03 mg/L	0.24 mg/L	0.19 mg/L	0.03 mg/L	0.11 mg/L	0.08 mg/L
Phosphorus (Total) *	0.03 mg/L	0.26 mg/L	0.26 mg/L	0.07 mg/L	0.17 mg/L	0.10 mg/L
pH (Field)	NA	7.87	8.14	8.20	8.17	0.03
Specific conductivity (EC)	2.5 µS/cm	4,300 µS/cm	1,930 µS/cm	1,750 µS/cm	1,840 µS/cm	90 µS/cm
Sulfate	1.0 mg/L	537 mg/L	384 mg/L	312 mg/L	348 mg/L	36 mg/L
Temperature (Field)	NA	12.3 °C	14.7 °C	10.8 °C	12.8 °C	1.95 °C
TDS	10 mg/L	2,568 mg/L	1,228 mg/L	940 mg/L	1,084 mg/L	144 mg/L
TKN (Dissolved)*	0.1 mg/L	2.35 mg/L	0.86 mg/L	0.84 mg/L	0.84 mg/L	0.01 mg/L
TKN (Total)*	0.1 mg/L	2.95 mg/L	1.47 mg/L	1.09 mg/L	1.28 mg/L	0.19 mg/L
TSS	0.5 mg/L	9 mg/L	148 mg/L	93 mg/L	121 mg/L	27.5 mg/L
Turbidity (Field)	0.5 NTU	5.1 NTU	102.7 NTU	77.0 NTU	89.9 NTU	12.9 NTU
Flow velocity & Discharge (Field)	N/A	0.13 cfs	5.12 cfs	2.37 cfs	3.75 cfs	1.38 cfs

\*Constituent analyzed as alternative to particulate constituents (SWAMP testing protocols not available for the particulate constituents at time of monitoring event)

QA/QC Samples

Evaluation of Field Blanks (UK03) Analysis for Event 1: The analysis yielded that the constituents were measured at concentrations lower than the laboratory reporting limits for the constituents. No anomalies identified.

Evaluation of Field Duplicates (UK03) Analysis for Event 1: Two constituents, Ammonia and Ammonium, out of the 22 constituents, presented results which did not meet the acceptance limits for duplicates (i.e. RPD < 25%).

Constituent	Reporting Limit	UK03 (Primary) Result	UK03 (Duplicate) Result	RPD
Ammonia (as N)	0.01 mg/L	0.10 mg/L	0.06 mg/L	25%
Ammonium (as N)	0.01 mg/L	0.10 mg/L	0.06 mg/L	25%

$$RPD = ((x - t)/t) * 100$$

Note: There were no QA/QC Samples (Field Blanks or Duplicates) for Event 2. Field Blanks and Duplicates were anticipated to be taken at Site ID SG02; however, the sampling at this site was a determined to be a "no go" because the rainfall did not produce a visually detectable increase in creek flows above base flow.

Comparison to Water Quality Objectives for Santa Margarita River

The following table summarizes the constituent results by sampling location for comparison to the corresponding Water Quality Objectives listed for the Inland Surface Waters outlined in the San Diego Basin Plan (Amended 04/04/11) Table 3-2:

Constituent	Event 1 (12/13/12)		Event 2 (02/20/13)	UK03 Statistics	WOO for HUB
	SG02 Result	UK03 Result	UK03 Result	UK03 Mean	902.22*
Chloride	918 mg/L	275 mg/L	198 mg/L	237 mg/L	250 mg/L
Nitrogen (Total)	6.19 mg/L	6.67 mg/L	5.54 mg/L	6.11 mg/L	1.0 mg/L
Phosphorus (Total)	0.26 mg/L	0.26 mg/L	0.07 mg/L	0.17 mg/L	0.10 mg/L
Sulfate	537 mg/L	384 mg/L	312 mg/L	348 mg/L	250 mg/L
TDS	2,568 mg/L	1,228 mg/L	940 mg/L	1,084 mg/L	750 mg/L
Turbidity (Field)	5.06 NTU	102.7 NTU	77.0 NTU	89.9 NTU	20 NTU

Note\*: The Water Quality Objectives are not specifically listed for the SG02 sampling location's corresponding Hydrologic Unit (Gertrudis Hydrologic Sub Area - HUB 902.42); therefore, the values listed are based on the proximate Hydrologic Unit (Gavilan Hydrologic Sub Area HUB 902.22), which are consistent with the objectives for the Santa Margarita River.

Please contact myself or Jeff Endicott, should you have any questions. Thank you.

Best regards,  
**AEI-CASC Consulting**



Christopher Ogaz, EIT, CPESC  
 Environmental Project Engineer



Jeff Endicott, P.E., BCEE, CPESC  
 Engineering Director

cc: File 1282-0001