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## Central Valley Regional Water Quality Control Board

29 June 2018

Mr. Parry Klassen  
Executive Officer  
East San Joaquin Water Quality Coalition  
1201 L Street  
Modesto, CA 95354

Dr. Michael Johnson  
Technical Program Director  
East San Joaquin Water Quality Coalition  
1480 Drew Ave. Suite #130  
Davis, CA 95618

### 2018 ANNUAL REPORT REVIEW – EAST SAN JOAQUIN WATER QUALITY COALITION

Thank you for submitting the East San Joaquin Water Quality Coalition (Coalition) 2018 Annual Report. Staff reviewed the Annual Report for compliance with Monitoring and Reporting Program (MRP) Order No. R5-2012-0116-R4.

As noted in the attached memorandum and checklist, the Coalition complied with all MRP Order monitoring and reporting requirements in the Annual Report.

The Annual Report includes a summary of groundwater protection practices from the 2016 Farm Evaluation surveys. 453 members were identified to implement additional groundwater wellhead protection practices, and 150 members who reported having 160 abandoned wells on their property were selected for additional outreach and education. Please note that timely follow up with these growers is necessary to meet the groundwater limitations of the Order.

The monitoring data shows a notable increase in exceedances of the hardness-based Water Quality Trigger Limit for copper during the 2017 WY (47%). Staff will schedule a meeting to discuss the rise in copper exceedances and the Coalition's preliminary source evaluation studies.

If you have any questions or comments regarding the review, or need any further information, please contact Yared Kebede at (916) 464-4828.

Sincerely,

*Original signed by*

Sue McConnell, Chief  
Irrigated Lands Regulatory Program

*Original signed by*

Susan Fregien, Senior Environmental Scientist  
Monitoring and Implementation Unit  
Irrigated Lands Regulatory Program

Enclosures: Staff Review of East San Joaquin Water Quality Coalition 2018 AMR  
AMR Review Checklist

KARL E. LONGLEY ScD, P.E., CHAIR | PATRICK PULUPA, ESQ., EXECUTIVE OFFICER

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## Central Valley Regional Water Quality Control Board

TO: Susan Fregien  
Senior Environmental Scientist  
Monitoring and Implementation Unit  
Irrigated Lands Regulatory Program

FROM: Yared Kebede  
Environmental Scientist  
monitoring and Implementation Unit  
Irrigated Lands Regulatory Program

DATE: 21 June 2018

SUBJECT: 2018 ANNUAL REPORT REVIEW – EAST SAN JOAQUIN WATER QUALITY COALITION

On 1 May 2018, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) received the East San Joaquin Water Quality Coalition (Coalition) 2018 Annual Report. The Annual Monitoring Report and Management Plan Progress Report (MPPR) cover the monitoring results from 1 October 2016 through 30 September 2017.

Staff derived a checklist (attached) directly from the MRP Order R5-2012-0116-R4 which is used to assess whether the Coalition's monitoring and management plan activities during the period covered by the report meet the requirements.

Overall, the Annual Report complies with the terms and conditions of the MRP Order. The Coalition presents information and discusses compliance with water quality standards, evaluates management practices implemented in the high priority subwatersheds, assesses the status of management plans for each Coalition zone, and uses the collected water quality information to address the key programmatic questions. The Annual Report also includes a summary of groundwater protection activities by Groundwater Quality Management Plan (GQMP) Zones.

The memorandum section numbers below correspond to item numbers in the attached Annual Report Checklist.

### **Item 6. Monitoring Objectives and Design/ Sample Collection Details**

Water and sediment samples were collected from both contiguous and non-contiguous waterbodies during the 2017 WY. Following EO approval of the Coalition's modified field sampling procedure (April 2017), water samples were only collected from contiguous waterbodies. Similar to the 2016 WY monitoring, the Coalition met the sediment sampling requirement for Lateral 5 ½ @ South Blaker at Lateral 6 and 7 @ Central Ave.

### **Item 10. Data Discussion**

Algae toxicity persisted during the 2017 WY monitoring; 12 samples tested were toxic. The Coalition compared toxicity test results with applied pesticides, but the TIEs were inconclusive for all samples tested (six samples). In addition, a TIE was not conducted when water samples were only collected for algae toxicity as part of management plan monitoring (MPM), i.e., chemistry samples were not collected when MPM was scheduled for algae toxicity only.

There were numerous exceedances (29) of the hardness based water quality trigger limit (WQTL) for dissolved copper during the monitoring period. The Annual Report includes a comparison of monitoring results between dry (2014-2015 WYs) and wet years (2016-2017 WYs). The Coalition attributes a higher frequency of exceedances during the wet years to changes in the source of irrigation water; use of surface water (low hardness) during the wet years rather than groundwater (high hardness).

### **Item 12. QA Evaluation**

Field and lab data for completeness, accuracy and precision were met for more than 90% of the samples, and 97% of samples were analyzed within hold time. Corrective actions were identified to prevent recurrence of holding time violations - the Coalition changed the sediment analysis laboratory to meet the QAPP requirements for sediment grain size and total organic carbon (approved 27 April 2018).

### **Item 20. Management Plan Progress Report Review**

The Coalition reports on the status of management plan monitoring, TMDL compliance monitoring and the GQMP performance goals. The report also includes new management plans implemented, evaluation of management practices effectiveness, and TMDL constituents.

#### **Item 20.2.2. New Management Plans**

Because of exceedances observed during the 2017 WY, 10 new management plans were triggered, including two reinstated management plans, DO at Dry Creek @ Rd 18 and chlorpyrifos at Miles Creek @ Reilly Rd. New management plans are reported in Table 80.

#### **Item 20.3.2. TMDL Monitoring**

There were no exceedances of chlorpyrifos or diazinon in samples collected from the three San Joaquin River compliance points during the 2017 WY. However, a single exceedance of the DO WQTL occurred each at San Joaquin River above Maze Boulevard (June; 6.92 mg/L) and San Joaquin River @ Hills Ferry Rd (January; 6.95 mg/L). There were two exceedances of WQTLs for chlorpyrifos at tributary sites; Miles Creek @ Reilly Rd in May (0.87 µg/L), and Prairie Flower Drain @ Crows Landing in Rd in August (0.045 µg/L). Results and actions related to diazinon and chlorpyrifos TMDL monitoring are discussed in depth in the San Joaquin River Chlorpyrifos and Diazinon TMDL Annual Monitoring Report.

#### **Item 20.5.2. Degree of Implemented Practices**

The Coalition completed follow up contacts in the 2016 Focused Outreach site subwatersheds. One grower in the Prairie Flower Drain was unable to install a tailwater return system due to financial hardship. One grower in the Highline Canal indicated he will laser level his fields when the orchards are replanted. The Coalition will recontact this grower to confirm implementation of the practice and include the acreage with newly implemented practices in the 2019 Annual Report.

The Coalition dropped one grower farming 23 acres within the Lateral 2 ½ near Keyes Rd site subwatershed from Coalition membership for not responding to Coalition requests. The Coalition added one member to the focus outreach in the Miles Creek subwatershed to address the *C. dubia* toxicity (0% survival in May). The Coalition is following up with two growers in the Lateral 2 ½ near Keyes Rd site subwatershed. A complete analysis of the 2017 Focused Outreach activities will be provided in the next Annual Report.

The Coalition initiated the 2018 Focused Outreach at Lateral 5 ½ @ South Blaker Rd and will discuss the status of management plan activities during the quarterly meetings and in the next Annual Report.

#### **Item 20.5.3. Evaluation of Management Practices Effectiveness**

The report also provides a detailed discussion of the exceedances of the WQTLs and protection of beneficial uses (Pages 187-194). The Coalition uses MPM results to determine the effectiveness of implemented management practices. Based on the 2017 WY monitoring results, the implemented practices were not protective of all the beneficial uses in the Coalition region due to repeated exceedances of the WQTLs of field parameters, *E. coli*, nutrients and copper.

#### **Item 20.6. Evaluation of Groundwater Performance Goals**

The MPPR includes an update on the status of the GQMP Performance Goals and Measures. Based on the 2016 FE results, 2,252 members (68% of members) reported having irrigation wells on their property (8,647 wells), and the highest number of irrigation wells were reported in the Madera GQMP Zone (2,241 wells). The wellhead management practices implemented in each GQMP Zone is summarized in Table 55. Overall, uniform wellhead protection practices were implemented throughout the GQMP Zones. Backflow preventative measures were implemented on an average of 81% of the irrigation wells. The Coalition identified 453 members that need additional wellhead management practices. The Coalition will report the status of its follow up activities in the 2019 Annual Report.

The comparison between the 2013 and 2016 FEs indicates a slight improvement in the number of wells with wellhead protection practices. Also, the acreage with efficient irrigation practices have increased within each GQMP Zone, though the acreage with flood irrigation remained relatively the same. This increase could be related to the addition of new farms with pressurized irrigation systems. A slow increase in acreage with pesticide protection practices is documented for each GQMP Zone. Over 1,200 members reported testing their irrigation wells for nitrate (Table 60). This represents almost a 100% increase in acreage tested for nitrate since the first survey responses were reported in 2013.

Ten percent of members (354 members) reported having abandoned wells (582 wells) on their property (Table 61). Almost half (47%) of the abandoned wells were reported to be properly destroyed. The destruction method for 303 wells is unknown. Growers that are yet to properly destroy their abandoned wells are expected to do so by 2020, consistent with the GQMP Performance Measure 2.3 - "All members will properly destroy abandoned wells on their property within 24 months of either identifying the abandoned well, or after having abandoned the well."

The Coalition held six crop specific (almonds, walnuts, pistachios, corn, tomatoes, and grapes) meetings in February and March 2018. The meetings covered relevant regulatory information, a

summary of the NMP Summary Report Analysis, and information for improving the A/Y ratios. The Coalition also provided fertilizer recommendation guidelines for the specific crops.

**Item 22. Conclusion and Recommendation**

Monitoring results from the 2017 WY indicate that the proportion of exceedances of field and physical parameters, nutrients and *E.coli* remained higher than exceedances of pesticides and toxicity in the Coalition region. Similar to the 2016 WY monitoring, the proportion of copper exceedances remained higher during the 2017 WY (47.5% of samples analyzed). According to the Coalition, this could be related to the level of precipitation that mobilized naturally occurring copper in the soil and availability of water samples at typically dry sites (e.g., Zone 6 sites). Also, the average hardness for Zone 3-6 sites decreased during the 2017 WY (64 mg/L) as compared to the 2014 WY (89 mg/L) most likely due to the variation in hardness of the irrigation water used.

Staff will continue to discuss the Coalition's recommendations during regular quarterly meetings.

**2018 Annual Report Review Checklist**

Report Name: East San Joaquin Water Quality Coalition 2018 Annual Report					Reviewer Name: Yared Kebede		
Submittal Date: 5/1/2018					Review Date: 5/31/2018		
Item No.	AMR Component Name	Review code: ✓ Item meets requirement X Incomplete item / Not included NA Not applicable	Item meets requirement	Incomplete item/ Not included	Not applicable	Page #	Comments
						(Section #)	
<b>1</b>	<b>Signed Transmittal Letter</b>						
1.1	Penalty of Perjury Statement		✓			NA	
1.2	Signature of Authorized Coalition Representative		✓			NA	
1.3	Dated		✓			NA	
1.4	Discussion of exceedances, and corrective actions taken or planned (or reference to previous correspondence)		✓			NA	
1.5	Submitted on time		✓			NA	
<b>2</b>	<b>Title Page</b>						
2.1	Report title		✓			Title page	
2.2	Date of the report		✓			Title page	
2.3	Monitoring date range covered by the report		✓			Title page	
2.4	Coalition Group name		✓			Title page	
<b>3</b>	<b>Table of Contents</b>						
3.1	List of sections/chapters, tables, figures, appendices/attachments with page numbers		✓			i-xvii	
<b>4</b>	<b>Executive Summary</b>						
4.1	Summary of key results and activities		✓			1-4	
4.2	Brief summary of conclusions and recommendations		✓			3-4	The Coalition makes several recommendations for addressing gaps in water quality protection including review of the Irrigation District copper application permits for potential source of algae toxicity and contribution to copper exceedances.
<b>5</b>	<b>Description of the Coalition Group Geographical Area</b>						
5.1	General description of relevant geographic features of the Coalition area, such as location and extent of area, major landforms, land uses, vegetation types, crop types, climate patterns, key waterways, and cities		✓			5-14; Figures 2-7; Figure 8; Appendix IV	Land use maps for each zone are included in Figures 2-7. Each map shows location of core monitoring sites. Groundwater monitoring wells identified in Figure 8.
<b>6</b>	<b>Monitoring Objectives and Design</b>						
6.1	Brief description of monitoring objectives (references to section and page numbers in Monitoring Plan or QAPP, as appropriate)		✓			15;18;22	Normal monitoring objectives stated on page 15. Management plan monitoring objectives noted on page 18. Groundwater Quality Trend Monitoring Program objectives listed on page 22.
6.2	Monitoring design aligns with Monitoring Plan, any deviations from Monitoring Plan or QAPP are described (references to section and page number in Monitoring Plan or QAPP, as appropriate)		✓			15-23	
6.2.1	Representative Monitoring: sites, parameters, schedule		✓			15-'16; Attachment A	Representative monitoring was conducted at the Core sites for the 2017 Water Year as outlined in the Monitoring Plan Update. Attachment A contains details of the sample sites, parameters and schedule. Coalition received approval to replace two Core sites in July 2017 (Dry Creek @ Wellsford Rd monitoring location with Dry Creek @ Church St and Merced River @ Santa Fe with Merced River @ Oakdale Rd).
6.2.2	Special monitoring (Management Plan, TMDL, source identification): sites, parameters, schedule		✓			18-21	Preliminary analysis of field parameters (DO, pH), metals (copper, molybdenum, arsenic), nutrients (ammonia, nitrate) and the legacy pesticide DDE submitted according to the timeline in the approved SQMP. TMDL monitoring conducted in accordance with the Basin Plan and MRP Order. The Monitoring Results spreadsheet contains details of the sample sites, parameters and schedule.

**2018 Annual Report Review Checklist**

Item No.	AMR Component Name	Item meets requirement	Incomplete item/ Not included	Not applicable	Page # (Section #)	Comments
<b>7</b>	<b>Sampling Site Descriptions and Rainfall Records for the time period covered under the AMR</b>					
7.1	Electronic copies of photos clearly labelled with CEDEN comparable station code and date	✓			116	Quarterly surface water monitoring data submittal includes electronic copies of site photos with CEDEN comparable station codes and dates.
7.2	Sampling site name and description (e.g. geographic area, watershed, crop type and drainages that the site represents), or unique information about the site or surrounding area	✓			25-30; Figures 8-10	Table 5 lists the land use acreage of site subwatershed monitored. Descriptions of site subwatersheds in pages 25 through 30.
7.3	Rainfall records in graphic or narrative form (in inches of precipitation)	✓			34; Figures 11-14	A clear description of precipitation and monitoring events is provided on page 34. Four storm and two sediment events sampled during the 2017 WY monitoring.
<b>8</b>	<b>Location Maps(s) of sampling sites, crops, and land uses</b>					
8.1	Location maps show sampling sites/monitoring wells, crops, and land use with informative level of detail	✓			Figures 2-7; Appendix IV	All maps include sufficient level of detail.
	8.1.1 Datum identified on map ( <u>must be</u> WGS 1984 or NAD 1983)	✓			Figures 2-9; Appendix IV	All maps developed using NAD 1983.
	8.1.2 Source and date of all data layers identified on map	✓			Figures 2-9; Appendix IV	All maps include required layer information.
8.2	Accompanying GIS shapefile or geodatabase of monitoring site and monitoring well information include the CEDEN comparable site code and name (surface water) and GPS coordinates (monitored sites only).	✓			CD	Shapefile provided as attachment include CEDEN comparable site code name and monitoring locations. CEDEN comparable site code and name with GPS coordinates found in Table 3.
8.3	A list or table indicates: site name, ID/well number, CEDEN site code (if applicable), and GPS coordinates (latitude and longitude in decimal degrees to at least five decimal places)	✓			17; 24	Site name, station code and GPS coordinates in Table 3. Well IDs shown in Figure 8.
<b>9</b>	<b>Tabulated Results</b>					
9.1	Data are in tabular form, clearly organized and readily discernible	✓			Attachment A	Each sampling location, sampling date, sampling time, and type of monitoring is listed in the Monitoring and QC Results table.
9.2	Previously reported exceedances match exceedances identified in the AMR	✓			78-112; Appendix I	Exceedances reported in the AMR match with previously communicated exceedances.
9.3	All required constituents for each site have reported results	✓			Attachment A	The Monitoring Results spreadsheet describes sample details.
9.4	All necessary re-sampling completed and results reported	✓			Attachment A	
<b>10</b>	<b>Data Discussion to Illustrate Compliance</b>					
10.1	Results discussed in text agree with tabulated data	✓				
10.2	Discussion illustrates compliance with the WDRs, or if a required component was not met an explanation of missing data or a reason for non-compliance is included	✓			Various	A brief description of sampling conditions for contiguous, non-contiguous and dry sites is provided in Table 10. Monitoring events for dry and non-contiguous sites are shown in Table 31.
10.3	Results are compared to WDR requirements, water quality standards and trigger limits; toxicity results, TIE's and possible causes of toxicity are discussed	✓			71-112	The cause of <i>S. capricornutum</i> toxicity is unknown (All TIE results were inconclusive). Results from TIE identified non-polar organics as the cause of <i>C. dubia</i> toxicity. Ammonia was associated with <i>P. Promelas</i> toxicity. No <i>H. azteca</i> toxicity occurred during the reporting period. Water quality triggers in Table 32.

**2018 Annual Report Review Checklist**

		Review code: ✓ Item meets requirement X Incomplete item / Not included NA Not applicable	Item meets requirement	Incomplete item/ Not included	Not applicable		
Item No.		AMR Component Name				Page # (Section #)	Comments
<b>11</b>	<b>Description of sampling and analytical methods used</b>						
11.1		Description of sampling methods used (e.g. type of collection, collection containers, sample preservation, transportation, handling, field measurements), with references to SOP's if appropriate	✓			39-40	
11.2		Description of analytical methods used	✓			42-43	Field and analytical methods used in Table 11
<b>12</b>	<b>Summary of Quality Assurance Evaluation results</b>						
12.1		Acceptance criteria for all field and laboratory QA/QC measurements identified and in agreement with most recent approved QAPP; any adjustments to acceptance criteria documented and discussed	✓			46-49	All QC results met the acceptance criteria.
12.2		Summary of accuracy (lab control spike and matrix spike recovery) and precision (RPD for field duplicate, LCS/LCSD and MS/MSD pairs) included for all constituents and tests	✓			50-56	All accuracy and precision results are summarized by constituent. Table 15 through Table 17 include counts and percentages for completeness per method and analyte; Table 28 includes a summary of holding time evaluations; Table 18 through Table 30 include counts of each measure of precision and accuracy evaluated for the 2017 WY.
12.3		QA/QC results that did not meet acceptance criteria identified in a table or narrative description that is prepared by the Coalition (not laboratories)	✓			57-70	Criteria and QA/QC results tabulated in various tables.
	12.3.1	Discussion of how the failed QA/QC results affect the validity of the reported data	✓			50-55	
	12.3.2	Corrective actions for QA/QC results that did not meet acceptance criteria are described, laboratory exception reports are included when samples are reanalyzed due to exceedance of the linear range	✓			56	
12.4		Both field and laboratory completeness are calculated and reported; overall Project completeness is determined	✓			46-47	
<b>13</b>	<b>Flow Monitoring Method(s)</b>						
13.1		The method used to obtain flow measurement at each monitoring site during each monitoring event is listed	✓			40	Table 9 lists site specific flow measurement methods.
<b>14</b>	<b>Summary of Exceedance Reports submitted during the reporting period and related pesticide use information</b>						
14.1		Summary of all Exceedance Reports submitted during the AMR period is included	✓			76-112; Appendix I	Exceedance tally for each site subwatershed during the 2017 WY in Table 80.
14.2		Pesticide use data for all pesticide and toxicity exceedances occurring during the AMR time period (unless under a Management Plan): all chemicals applied within the monitoring site subwatershed during the four weeks prior to the measured exceedance	✓			43-45 Appendix II	All PUR data required for pesticide and toxicity exceedances are listed in Appendix II.
<b>15</b>	<b>Actions Taken to Address Water Quality Exceedances</b>						
15.1		Discussion of actions taken to address water quality exceedances during the time frame of the AMR is included	✓			148-149; Appendix III	
15.2		Updates or additional management practices implemented	✓			149-172	A complete analysis of the management practices implemented in the 2016 Focused Outreach site subwatersheds in pages 149 through 154. A complete summary of management practices implemented by growers in the 2017 Focused Outreach subwatersheds in Tables 71 through 74.

**2018 Annual Report Review Checklist**

		Review code: ✓ Item meets requirement X Incomplete item / Not included NA Not applicable	Item meets requirement	Incomplete item/ Not included	Not applicable		
Item No.		AMR Component Name				Page # (Section #)	Comments
<b>16</b>	<b>Evaluation of Monitoring Data</b>		✓				
16.1		Identification of spatial trends and patterns in surface and groundwater quality	✓			195-200	Trend analysis include comparison of the frequency of exceedances between 2008 and the 2017 WY. Temporal analysis indicate a significant decline in pesticide exceedances. An increasing trend in copper exceedances is observed in Zones 3-6 sites.
	16.1.1	Incorporation of pesticide use information, as needed, to assist in data evaluation.	✓			Various	Figure 39 shows the percent exceedances and the amount of pesticides applied from 2008 to the 2017 WY monitoring.
16.2		Analyze monitoring data to determine if additional sampling locations are needed. Propose schedule for additional monitoring or source studies	✓				Preliminary source studies for field parameters, E.coli, metals, nutrients and legacy pesticide DDE provided in other submittals.
<b>17</b>	<b>Summary of Nitrogen Management Plan information</b>						
17.1		Aggregate information from Nitrogen Management Plan Summary Reports to characterize the input, uptake, and loss of nitrogen fertilizer application by specific crops.			✓		NMP Summary Report due 1 July 2018.
	17.1.1	Include comparison of farms with same crops, similar soil conditions and similar practices.			✓		
	17.1.2	Submittal of aggregate data in an electronic format, compatible with ArcGIS, identified to at least the township level.			✓		
17.2		Statistical summary of nitrogen consumption ratios by crop or other equivalent reporting units			✓		NMP Summary Report due 1 July 2018.
	17.2.1	Estimated crop nitrogen needs for different crop types and soil conditions in percentiles (10th, 25th, 50th, 75th and 90th) and any outliers.			✓		
17.3		Quality assessment of collected information by township.			✓		NMP Summary Report due 1 July 2018.
17.4		Description of corrective actions for deficiencies in quality of data submitted, if identified.			✓		NMP Summary Report due 1 July 2018.
<b>18</b>	<b>Summary of Management Practice Information</b>						
18.1		Aggregate and summarize information collected from Farm Evaluations.			✓		
	18.1.1	Include quality assessment of the collected information by township (e.g., missing data, potentially incorrect/inaccurate reporting).			✓		FE Analysis Report is due 1 July 2018.
	18.1.2	Description of corrective actions regarding any deficiencies in data quality.			✓		FE Analysis Report is due 1 July 2018.
18.2		Provide individual data records used to develop summary in electronic format, compatible with ArcGIS to at least township level.			✓		FE Analysis Report is due 1 July 2018.
18.3		Changes in patterns of implemented management practices			✓		FE Analysis Report is due 1 July 2018.

**2018 Annual Report Review Checklist**

Item No.	Review code: ✓ Item meets requirement X Incomplete item / Not included NA Not applicable		Item meets requirement	Incomplete item/ Not included	Not applicable	Page # (Section #)	Comments
	AMR Component Name						
<b>19</b>	<b>Summary of Mitigation Monitoring</b>						
19.1		Identify measures implemented by Members or Coalition to mitigate effects of program as identified in CEQA mitigation measures			✓		There were no mitigation measures implemented during the reporting period.
19.2		Identify potential impact the mitigation measure addressed, the location of the mitigation measure (township range, section), and any steps taken to monitor the success of the measure.			✓		
<b>20</b>	<b>Management Plan Progress Report</b>						
20.1		Background	✓			178-179	
	20.1.1	Location map(s) and summary of management plans	✓			Appendix IV	
20.2		Update on exceedances	✓			Attachment A; Appendix I	Sample and exceedance counts in Appendix I
	20.2.1	Table tallying all exceedances for management plans	✓			183	
	20.2.2	List of new management plans triggered since previous report	✓			182-183	10 new management plans triggered during the reporting period. Table 80 summarizes the exceedance tally based on monitoring during the 2017 WY.
	20.2.3	Status update on new management plans	✓			182	
20.3		Monitoring data collected during reporting period	✓			Attachment A; various	Management plan monitoring data collected during the reporting period are included in various tables and Attachment A.
	20.3.1	Summary and assessment of management plan monitoring data	✓			78-112; 182-186	
	20.3.2	Summary and assessment of TMDL monitoring	✓			183-186	
20.4		Outreach, education and collaboration activities	✓			117-118	
	20.4.1	List of outreach activities and information supplied	✓			117-118; Appendix III	Table 48 lists the education and outreach activities during the 2017 WY.
	20.4.2	List of collaborative efforts for outreach	✓			117	Collaboration with County Agricultural Commissioners, Pest Control Advisors and Pesticide Registrants.
20.5		Summary of management practices identified/implemented	✓			173-175	
	20.5.1	Baseline data	✓			148-175	Summary is based on priority site subwatersheds.
	20.5.2	Degree of implemented practices	✓			148-172	Presented as percentage of acreage with newly implemented management practices in high priority subwatershed.
	20.5.3	Evaluation of management practice effectiveness	✓			187-194	MPM results were used to assess the effectiveness of current and newly implemented management practices.
20.6		Performance Goal and Schedule Evaluation	✓			119-126; 129-130	Performance goals for the 2016 Focused Outreach subwatershed are completed as scheduled. Table 52 contains the status of GQMP performance goals and measures.
	20.6.1	Progress in meeting performance goals	✓			124-126	
	20.6.2	Sufficient timeframe to meet scheduled deadlines in Management Plan	✓			119-123	
	20.7	Recommendations for changes to Management Plan	✓			207-208	
<b>21</b>	<b>Summary of Education &amp; Outreach Activities</b>						
21.1		Location, dates, and reason for activities.	✓			117-118	Details of outreach activities summarized in Table 48.
21.2		Summary of the content at each session.	✓			118; Appendix III	
<b>22</b>	<b>Summary and Recommendations</b>						
22.1		Summary of the AMR results and conclusions	✓			207-208	
22.2		Recommendations are appropriate and adequately detailed	✓			208	