12 February 2014

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REVIEW OF THE SAN JOAQUIN RIVER CHLORPYRIFOS AND DIAZINON 2012 WATER YEAR ANNUAL MONITORING REPORT– EAST SAN JOAQUIN WATER QUALITY COALITION AND WESTSIDE SAN JOAQUIN RIVER WATERSHED COALITION

Thank you for submitting the San Joaquin River Chlorpyrifos and Diazinon 2012 Water Year Annual Monitoring Report (AMR) for the Total Maximum Daily Load (TMDL) compliance monitoring. The TMDL AMR is a joint effort by the East San Joaquin Water Quality Coalition (ESJWQC) and the Westside San Joaquin River Watershed Coalition (Westside Coalition) to meet the conditions of the Monitoring and Reporting Program Orders No. R5-2008-0005 and R5-2008-0831, and the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins for the Diazinon and Chlorpyrifos Runoff in the San Joaquin River Basin.

Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff reviewed the TMDL AMR for completeness and accuracy, including data collection and reporting requirements, as well as evaluation of compliance with the seven Basin Plan requirements. The monitoring and reporting program included collecting information necessary to adequately address the seven monitoring objectives outlined in the Basin Plan, and the TMDL AMR demonstrates compliance with the TMDL loading capacity in the San Joaquin River. Based on the provided data, the diazinon and chlorpyrifos water quality objectives in the San Joaquin River are currently being met, although exceedances in some tributaries still occur.

If you have any questions regarding the TMDL AMR review, please contact Jelena Hartman at (916) 464-4828 or by email at jhartman@waterboards.ca.gov.

Original signed by

Joe Karkoski, Program Manager
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Original signed by

Susan Fregien, Unit Supervisor
Monitoring and Implementation Unit
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Enclosure: Staff Review of 2012 Water Year TMDL AMR

TO: Susan Fregien
Senior Environmental Scientist
Monitoring and Implementation Unit
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FROM: Jelena Hartman
Environmental Scientist
MONITORING AND IMPLEMENTATION UNIT
IRRIGATED LANDS REGULATORY PROGRAM

DATE: 12 February 2014

SUBJECT: REVIEW OF SAN JOAQUIN RIVER CHLORPYRIFOS AND DIAZINON 2012 WATER YEAR ANNUAL MONITORING REPORT – EAST SAN JOAQUIN WATER QUALITY COALITION AND WESTSIDE SAN JOAQUIN RIVER WATERSHED COALITION

On 1 May 2013, the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) received the San Joaquin River Chlorpyrifos and Diazinon 2012 Water Year Annual Monitoring Report for Compliance with the Total Maximum Daily Load requirements (TMDL AMR). The TMDL AMR reports on the East San Joaquin Water Quality Coalition (ESJWQC) and the Westside San Joaquin River Watershed Coalition (Westside Coalition) joint monitoring program from 1 October 2011 through 30 September 2012.

The TMDL AMR was reviewed to determine compliance with reporting and monitoring requirements pursuant to the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins, and the Monitoring and Reporting Program (MRP) Orders No. R5-2008-0005 and R5-2008-0831. The TMDL AMR is well-organized with clearly presented descriptions, tables and figures and overall, the MRP Order requirements are adequately addressed (Appendix I). This memorandum reviews monitoring results and outcomes of actions taken to meet the seven objectives described in the Basin Plan, which are the centerpiece of the TMDL AMR:

1. Determine compliance with established water quality objectives and the loading capacity applicable to diazinon and chlorpyrifos in the San Joaquin River

The Basin Plan requires that the loading capacity be calculated for the six designated compliance points in order to determine compliance with the water quality objectives and the loading capacity in the San Joaquin River (Basin Plan, page IV-36.03). The Coalitions collected and analyzed water samples from the River in October 2011, March and May through August 2012, as directed by the 27 March 2012 letter by the Executive Officer. The 2012 water year was classified as dry, and in the Westside region no rain events produced runoff, while March 2012 samples collected in the ESJWQC region were considered representative of a storm event. No exceedances of the water quality objectives and the loading capacity, calculated using the additive toxicity formula, for diazinon and chlorpyrifos in the San Joaquin River were observed in the 2012 water year.

2. Determine compliance with established load allocations for diazinon and chlorpyrifos

Load allocations for diazinon and chlorpyrifos are assigned to subareas discharging into a given reach of the San Joaquin River (Basin Plan, page IV-36.03). The load allocations are established by subarea, and are calculated using the combined additive toxicity formula. Load allocations apply to the discharge point to the San Joaquin River, and not to the whole tributary stream reach (page 21, Final Staff Report[1]).

Both coalitions monitor water quality at various sites on tributaries to the San Joaquin River. In the 2012 water year, there were no exceedances of the water quality objective for diazinon and chlorpyrifos in the tributaries monitored in the ESJWQC region (78 samples analyzed). A total of nine exceedances of chlorpyrifos and one diazinon exceedance were observed in the Westside Coalition region out of 163 analyzed samples (TMDL AMR Tables 23 and 24). Given that instantaneous loads are calculated and reported only for individual tributaries and not for the entire subarea assigned a load allocation (Appendix IV), it is not easy to ascertain if the load allocation was exceeded in the combined subarea on the occasion when an exceedance occurred in one of the tributaries. Based on the monitoring results at tributary sites closest to the discharge point into the River, the load allocation was potentially exceeded in two subareas[2]:

- The combined Tuolumne River, Northeast Bank, and Westside Creek subareas in October 2011, April, July and August 2012. A total of five chlorpyrifos exceedances were observed in Blewett Drain, Ingram Creek and Hospital Creek; chlorpyrifos applications were to almonds and walnuts. Other tributaries in the subarea (Del Puerto Creek, Westley Wasteway, Dry Creek; see TMDL AMR Table 7) were in compliance.
- The combined Turlock, Merced, and Greater Orestimba subarea in May 2012. The subarea was out of compliance with the load allocation due to a chlorpyrifos exceedance at Marshall Road Drain near River Road; chlorpyrifos was applied to alfalfa in March and to walnuts in May. Other tributaries in the subarea (Orestimba Creek, Merced River, Prairie Flower Drain, Hilmar Drain; see TMDL AMR Table 7) were in compliance.

The focus plan for the Marshall Road Drain and Blewett Drain was submitted in July 2013 and approved in January 2014. The focus plan for Ingram Creek and Hospital Creeks was approved in 2008 and is underway; continued exceedances indicate ongoing challenges and suggest that additional actions may be required to meet water quality objectives.

3. Determine the degree of implementation of management practices to reduce off-site movement of diazinon and chlorpyrifos

Both Coalitions collect information that allows determining implementation of management practices. Some management practices to reduce off-site movement of diazinon and chlorpyrifos (Objective 3) are effective in preventing or minimizing water quality impacts from alternatives to chlorpyrifos and diazinon as well (Objective 5).

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[1] Beaulaurier, D., Karkoski, J., Davis, G., McClure, D., Menconi, M., McCarthy, M. 2005. Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River basins for the Control of Diazinon and Chlorpyrifos Runoff into the Lowers San Joaquin River. California Regional Water Quality Control Board, Central Valley Region. Sacramento, CA. Final Staff Report, October 2005. <http://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/san_joaquin_op_pesticide/final_staff_report/index.shtml>

[2] Although a diazinon exceedance in November 2011 and exceedances of chlorpyrifos in March and April 2012 were observed in the upper reaches of the Salt Slough and Poso Slough, no exceedances occurred at the monitoring location closest to the discharge point into the San Joaquin River (Salt Slough at Lander Avenue), indicating that the load allocation was not exceeded on those occasions. The focus plan addressing water quality in the Poso Slough and Salt Slough watersheds was approved in 2013.

The ESJWQC surveys management practices for parcels that are currently farmed, have reported pesticide use, and have the potential to have drainage or drift to surface waters in the high priority subwatersheds. Results of surveys in the high priority subwatersheds indicate that the majority of parcels have at least one management practice in place to reduce the offsite movement of pesticides, such as water management, sediment and erosion management, and pesticide application and use practices (TMDL AMR Figure 10).

The Westside Coalition inventories management practices in the focus plan subwatersheds; details are reported in the Westside Coalition's semi-annual monitoring reports (SAMR). For example, the acreage of high-efficiency irrigation systems continues to increase within the Westside Coalition, while interest in new sediment and tailwater basins or for calibration of spray rigs is not as widespread (Attachment 6, 15 June 2013 Westside Coalition SAMR).

4. Determine the effectiveness of management practices and strategies to reduce off-site migration of diazinon and chlorpyrifos

The Coalitions document newly implemented management practices, and in combination with monitoring data, evaluate the reduction in off-site migration of chlorpyrifos and diazinon that could be attributed to implementation of new or additional management practices. No detections of chlorpyrifos and diazinon in the San Joaquin River during the 2012 water year, and an overall decrease in the proportion of diazinon and chlorpyrifos exceedances imply a positive trend (TMDL AMR Table 28 and Figure 11). The observed trend in water quality could be due to a number of factors, including implementation of effective management practices, change in pesticide use, increased grower awareness due to outreach and education, etc.

Despite a region-wide decrease in the number of detections and exceedances of diazinon and chlorpyrifos, the off-site migration of pesticides remains a challenge in some subwatersheds in the Westside Coalition area. Staff recommends that additional information and analysis of the degree of implementation and effectiveness of the implemented management practices may be needed to identify next steps that may aid in preventing diazinon and chlorpyrifos exceedances in the specific subwatersheds.

5. Determine whether alternatives to diazinon and chlorpyrifos are causing surface water quality impacts

Monitoring of select pesticides that may be potential alternatives to chlorpyrifos and diazinon (Objective 5), and of toxicity (Objective 6) is conducted at various sites on eastside and westside tributaries according to each Coalition's approved MRP Plan. All River sites are monitored for diazinon and chlorpyrifos; sites at Las Palmas and Sack Dam are analyzed for additional organophosphate pesticides, while site at Lander Avenue/Freemont Ford is also analyzed for a comprehensive list of pesticides during rain events (see Tables A-1 through A-4 in the Westside Coalition's Quality Assurance Project Plan[3]).

Several potential alternatives to diazinon and chlorpyrifos were causing water quality impairments in tributaries in the Westside Coalition region: organophosphates, carbamates, and current use organochlorines. Pyrethroids were implicated to cause sediment toxicity and thus impaired water quality in some samples. No pesticides were detected in the San Joaquin River at the three compliance sites monitored monthly by the Westside Coalition.

[3] http://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/monitoring_plans_reports_reviews/monitoring_reporting_program_plans/coalitions/westside/2014_0107_qapp.pdf

Based on the chemistry and toxicity results, carbamates and pyrethroids were present in some tributaries in the ESJWQC region in the 2012 water year. Pyrethroids were implicated as causes of water column and sediment toxicity, and impaired water quality in some samples. Conversely, measured carbamate concentrations were below water quality trigger limits for carbaryl and methomyl, and did not cause water quality impairment. To supplement its monitoring design and further investigate the use of alternatives to diazinon and chlorpyrifos, the ESJWQC identified high priority pests associated with crops to which the greatest amount of diazinon and chlorpyrifos are applied in its region, and evaluated pesticide use reports. Besides trends in amount used annually (information from TMDL AMR Table 30 is summarized in Table A below), monthly pesticide use was evaluated as well to account for pest pressure in various crops (TMDL AMR Figures 13-19). The analyses of pesticide use information performed by the ESJWQC indicate that the use of alternatives to diazinon and chlorpyrifos is increasing, notably pyrethroids, neonicotinoids, diamides, diacylhydrazines, and benzoylureas.

Table A. Amount of chlorpyrifos and diazinon, and alternatives applied in the ESJWQC region from 2007 through 2012. For each crop and class of pesticides the average amount used (pounds applied) from 2007 through 2012, and an anomaly timeseries are shown (each year's departure from the average is normalized by standard deviation to derive annual annomaly). Time series where at least 25% of change over time is accounted for by the trend slope are color coded: green for decrease in use (negative slope), and orange for increase in amount applied over time (positive slope).

	Alalfa	Almond	Corn	Grape	Peach	Prune	Walnut
Chlorpyrifos	16,701	40,928	10,956	13,390		284	23,693
Diazinon		4,414			1,145	566	
Other OP's	17,236	1,72		<30		368	8,447
Pyrethroids	1,636	22,116	1,304		901	82	1,264
Neonicotinoids		492		7,436			275
Diamides		4,102			308		307
Carbamates		51	1,426	278	133		57
Diacyl hydrazines	444	11,906			576	<30	627
Benzoylureas		9,830			135		78
Buprofezin (unclassified)		12		2,480			
Bacterium	176	3,444	124		265	<30	
Oxadiazines	2,219						
Spinosyns		18	<30		107	<30	107
Avermectin		9					<30
Hormones		666			<30	<30	

While it cannot be definitively determined if any of the detected insecticides in waterways were selected as an alternative or as part of growers' pesticide management rotation, it is apparent from Table A that a decline in the use of organophosphate pesticides, including diazinon and

chlorpyrifos, coincides with an increasing trends in the use of other groups of materials, such as pyrethroids, diamides, neonicotionoids, etc.

6. Determine whether the discharge causes or contributes to a toxicity impairment due to additive or synergistic effects of multiple pollutants

Toxicity monitoring in the 2012 water year included water column and sediment toxicity tests that could indicate if additive or synergistic effects of multiple pesticides may be causing or contributing to toxicity impairment in eastside and westside tributaries, and at three sites on the San Joaquin River monitored by the Westside Coalition (Table B).

Table B. Number of toxicity tests in the 2012 water year. More monitoring was scheduled but samples could not be collected when sites were dry.

	C. dubia	*P. promelas*	*H. azteca*
ESJWQC	83	79	16
Westside Coalition	178	82	24

No samples from the San Joaquin River exhibited toxicity to the test organisms, and the proportion of samples exhibiting water column toxicity was low in both eastside and westside tributaries. One sample exhibited water column toxicity (*Pimephales promelas* survival 90% of the control) in the ESJWQC region. Four samples exhibited water column toxicity to *Ceriodaphnia dubia*, and one to *P. promelas* in the Westside Coalition region. Toxicity identification evaluations (TIE) were required for three water samples exhibiting survival below 50%; in two samples pesticides were identified as a likely cause of toxicity. One sample toxic to *C. dubia* had diazinon concentration of 1.2 µg/L, and one sample had chlorpyrifos at concentration of 0.66 µg/L (TMDL AMR Table 36).

Table C. Sediment toxicity to *Hyalella azteca* during the 2012 water year, and pesticides detected in sediment and water samples. At least one pyrethroid pesticide detected in concentration sufficient to cause toxicity. Shaded cells show concentrations responsible for the majority of the calculated toxic units in a sample.

Sampling Event	Site Name	*H. azteca* (% survival)	Sediment (µg/kg)							
			Bifenthrin	Chlorpyrifos	Cyfluthrin	Cypermethrin	Es/Fenvalerate	Fenpropathrin	Lambda-cyhalothrin	Permethrin
March 2012	Hospital Creek at River Road	81	0.3	-	-	-	4.2	-	0.6	-
	Ingram Creek at River Road	60	2.0	0.9	-	-	1.2	0.2	7.1	-
	Levee Drain at Carpenter Rd*	23	12.8	1.5					0.1	0.4
	Orestimba Creek at Hwy 33	36	24.8	0.8	0.6	-	5.7	-	0.6	0.4
	Westley Wasteway near Cox Rd	15	21.8	0.6	0.1	-	1.5	-	2.3	-
September 2012	Blewett Drain at Hwy 132	4	8.7	0.5	-	-	34.0	-	0.2	-
	Hospital Creek at River Road	3	5.1	0.2	-	-	0.2	-	3.0	-
	Ingram Creek at River Road	1	1.2	0.2	-	-	71.0	-	0.7	-
	Orestimba Creek at Hwy 33	10	5.9	-	-	-	0.8	-	0.2	-
	Westley Wasteway near Cox Rd	14	5.9	1.6	-	0.4	1.1	-	0.6	-

* ESJWQC region; all other sites are in the Westside Coalition area

Sediment toxicity was observed more frequently in samples collected from the westside tributaries. One sediment sample from the ESJWQC region and nine sediment samples from the Westside Coalition region exhibited toxicity. Follow-up analysis of sediment chemistry showed that pyrethroids were present in all samples toxic to *Hyalella azteca* (Table C). There could have been additive or synergistic interactions among pyrethroids, and with chlorpyrifos.

7. Demonstrate that management practices are achieving the lowest pesticide levels technically and economically achievable

The Coalitions track implementation and effectiveness of management practices in preventing off-site movement of pesticides. In general, growers have been responsive and implemented additional non-structural practices, and structural management practices as the funding was available. However, the extent to which management practices are achieving the lowest achievable pesticide levels that are technically and economically feasible varies across different subwatersheds. Staff recommends that additional analysis of individual subwatersheds may shed light on challenges and successes of management practice implementation in specific areas.

APPENDIX I

Chlorpyrifos and Diazinon Annual Monitoring Report Checklist

San Joaquin River Chlorpyrifos and Diazinon 2012 Water Year Annual Monitoring Report, October 1, 2011-September 30, 2012 (TMDL AMR)				
Report Submittal Date: 1 May 2013			Review Date and Reviewer Name: 30 September 2013, Jelena Hartman	
Item No.	**TMDL AMR Component Name[(1)]**		**Page Number***	**Comments**
1	**Signed Transmittal Letter**	✓		Letter is dated, Penalty of Perjury Statement included, signed by authorized Coalition representatives, submitted on time.
2	**Title Page**	✓		Title page is complete and informative: title and regulatory mandate, reporting period, date of submission, and Coalition group names are identified.
3	**Table of Contents**	✓	i-vi	Lists of sections, tables, figures, appendices with page numbers included. Acronyms, units and terms used in the report are defined on pages vii-x.
4	**Executive Summary**	✓	1-3	Key results and activities are summarized.
5	**Introduction**	✓	4	General description of relevant aspects of the chlorpyrifos and diazinon TMDL requirements and the Coalitions' joint effort to address compliance with those requirements are included.
6	**Monitoring Objectives and Design**	✓	5-13	Monitoring objectives based on the Basin Plan requirements, and Coalition actions to meet the objectives are listed. Monitoring design aligns with the approved approach; modifications of the monitoring design during 2012 water year are documented.
	Loading capacity: monitoring schedule and parameters at compliance points	✓	8-15, 18, 30-32	Collected samples were analyzed for diazinon and chlorpyrifos, and field measurements and discharge were recorded for each sampling event. With the exception of San Joaquin River at Hwy 165 near Stevinson in October 2011, the six compliance points were monitored as required: in October 2011, and in March and May through August 2012; three points were monitored monthly. Due to construction, the site at San Joaquin River near Stevinson was not accessible from October 2011 through February 2012; no samples were collected to represent the compliance point in October 2011. From November 2011 through February 2012, samples were collected at a nearby site at Fremont Ford instead of the inaccessible site near Stevinson. Monitoring at the site near Stevinson resumed in March 2012.
	Load allocations: tributary monitoring sites, parameters, schedule	✓	16-17, 19-20, 31-32, 42-44	Tributary monitoring schedule for chlorpyrifos and diazinon is summarized for areas east and west of the River.
7	**Sampling Site Descriptions and Rainfall Records for the time period covered under the AMR**	✓	14-25	In addition to the list of sampling sites, land use and top crops are summarized for the drainage areas represented by compliance points, and Coalitions' annual and semi-annual monitoring reports that contain more information about tributaries are referenced. The 2012 water year was classified as a dry year (DWR, Chronological Reconstructed San Joaquin Valley Water Year Hydrologic Classification Indices). Daily rainfall records for four locations in the ESJWQC and Westside Coalition region are provided in graphic form.
8	**Location Maps(s) of sampling sites, crops, and land uses**	✓	18-22	Location maps show sampling sites, and sources of data layers are identified on maps; NAD 1983 meets datum requirements. Tables 4 and 6 indicate station name, station ID, ILRP station code, and latitude and longitude in decimal degrees with five decimal places. Land use and crop information are shown in Tables 8 and 9.

APPENDIX I

Chlorpyrifos and Diazinon Annual Monitoring Report Checklist

Item No.	TMDL AMR Component Name[(1)]		Page Number*	Comments
9	**Tabulated Results**	✓	Appendices II and IV	Data are in tabular form, clearly organized and readily discernible. Tabulated results agree with the electronically submitted data. All required constituents for each site have reported results. Field parameters, and chlorpyrifos and diazinon results are reported for the six compliance points in the San Joaquin River. A summary of chlorpyrifos and diazinon results is provided in Appendix IV; detailed data for tributaries are in the respective Coalitions' reports.
10	**Data Discussion to Illustrate Compliance[(2)]**	✓	39-75	Results discussed in text agree with tabulated data, and TMDL AMR clearly illustrates compliance with the chlorpyrifos and diazinon TMDL objectives. Please see Staff memo for detailed discussion of Basin Plan objectives.
11	**Electronic data submitted in a SWAMP comparable format**	✓	CD	ESJWQC field and lab data uploaded into a SWAMP comparable database, Westside Coalition lab and field data submitted within the SWAMP comparable spreadsheets. All sample results and required QC results are included: field blanks, field duplicates, lab blanks, spikes (LCS, MS), duplicates (LCD, MSD, replicates), surrogates, and data not meeting project QA acceptance guidelines are flagged and include brief notes detailing the problem in the Comments field.
12	**Sampling and analytical methods used**	✓	26-28	Sampling (collection containers, sample preservation, holding times, field measurements) and analytical methods are summarized. Both Coalitions use appropriate analytical methods with low detection limits.
13	**Copies of chain-of-custody forms and sample receipt documentation**	✓	Appendix I	Copies of all COCs are included, legible and completely filled out; there were no anomalies affecting diazinon and chlorpyrifos TMDL samples during the 2012 water year.
14	**Field Data Sheets, Lab Reports, Lab Raw Data**	✓	Appendix V, CD	Copies of all field data sheets are attached (Appendix V), legible, contain the required elements in the ILRP template, and are completely filled out. All analytical reports are provided on CD, complete, and signed by authorized laboratory representative. Included are sample results with units, RLs and MDLs; sample preparation, extraction and analysis dates; results for all QC samples: field and laboratory blanks, lab control spikes, matrix spikes, field and laboratory duplicates, surrogate recoveries; and chemistry lab narrative describes all QC failures, analytical problems and anomalous occurrences.
15	**Associated laboratory and field quality control samples results**	✓	Appendix III	Chemical analyses include: field blank, field duplicate, lab blank, matrix spike and MSD, lab control spike and LCSD, surrogate recovery, and results are included in the TMDL AMR.
16	**Summary of Quality Assurance Evaluation results**	✓	33-38	Acceptance criteria for all field and laboratory QA/QC measurements are identified and in agreement with the ILRP requirements, summaries of accuracy and precision are included, field and laboratory completeness are calculated and reported, and overall Project completeness is determined. Field and laboratory completeness met or exceeded the 90% completeness goal, and all samples met the holding time requirements for chemistry analyses. Data are appropriately flagged in cases where QA/QC results that did not meet acceptance criteria.
17	**Flow Monitoring Method(s)**	✓	26-27	Discharge method and gauge for the compliance points in the San Joaquin River are listed in the TMDL AMR, and Coalitions' QAPP's are referenced for discharge measurements at tributaries.
18	**Monitoring Site Photos**	✓	Appendix VI	Monitoring site photos for all sampling events at the compliance points in the San Joaquin River are included, and show the actual sample site and the surroundings. Photos are clearly labeled with site ID and date, and are descriptive and useful. Photographs for the tributary sampling were included in the respective Coalition's annual or semi-annual monitoring reports.

APPENDIX I

Chlorpyrifos and Diazinon Annual Monitoring Report Checklist

Item No.	TMDL AMR Component Name[(1)]		Page Number*	Comments
19	**Summary of Exceedance Reports submitted during the reporting period and related pesticide use information**	✓	41-42*, Appendix IV	Summary of all Exceedance Reports submitted during the TMDL AMR period period is included and matches previously reported exceedances (Tables 21 and 24).
20	**Actions Taken to Address Water Quality Exceedances**	✓	42*-48*	Actions taken to address water quality exceedances during the 2012 water years are included in discussion of Basin Plan objectives, and are described in Coalitions respective annual and semi-annual monitoring and management plan update reports (see Objective 3 in staff memorandum).
21	**Status update on preparation and implementation of all management plans and other special projects**	✓	42*-46*	An update on status of all Management Plans and special projects that are in preparation or being implemented are provided in the ESJWQC's AMR and MPUR, and Westside Coalition's SAMR.
22	**Conclusions and Recommendations**	✓	75-76	An overview of findings is provided in lieu of the conclusions. The section states that there has been a four-fold increase in monitoring frequency. In actuality, the monitoring design at the six compliance points in the San Joaquin River has been changed from quarterly monitoring (four times per year) to six times per year such samples are collected during periods of peak applications of diazinon and/or chlorpyrifos. Monthly tributary monitoring has remained unchanged. Recommendations about monitoring design, management practices, or other data that the Coalitions deem potentially useful should be included in the TMDL AMR. If the current monitoring strategy does not adequately address TMDL compliance evaluation needs, the Coalitions may want to recommend modifying the timing and frequency of the SJR compliance point monitoring, or select tributary monitoring locations closer to the discharge point for load allocation compliance.

***** After page 45 in the report, the numbering restarts at 41 instead of continuing with 46 - a minor issue likely due to document sections. Pagination for the second set of pages numbered 41-45 is denoted by an asterisk in this checklist in order to identify page numbers uniquely.

Footnotes

(1) Monitoring and Reporting Program Order No. R5-2008-0005 for Coalition Groups under the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands Amended Order No. R5-2006-0053. Part III.B (pages 18-23)

(2) Fourth Edition of the Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins (Diazinon and Chlorpyrifos Runoff in the San Joaquin River Basin, page V-4.00)

Symbol key

✓ **Item meets requirements**

X **Incomplete item/ Not Included**

- **Not Applicable**