TENTATIVE

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM
ORDER NO. R5-2008-____
FOR
COALITION GROUPS
UNDER
AMENDED ORDER NO. R5-2006-0053
COALITION GROUP CONDITIONAL WAIVER OF
WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES FROM IRRIGATED LANDS
Revision 7 January 2008

This Monitoring and Reporting Program Order (MRP Order) is issued pursuant to California Water Code (Water Code) section 13267 and 13269, which authorize the California Regional Water Quality Control Board, Central Valley Region (hereafter Regional Water Board) to require preparation and submittal of technical and monitoring reports. Water Code section 13269 requires a waiver of waste discharge requirements to include as a condition the performance of monitoring and the public availability of monitoring results. This MRP Order replaces MRP Order No. R5-2005-0833.

This Monitoring and Reporting Program Order (MRP Order) requires each Coalition Group enrolled under *Amended Coalition Group Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands, Order No. R5-2006-0053* (Coalition Group Conditional Waiver) to prepare and submit a Coalition-specific Monitoring and Reporting Program Plan (MRP Plan) to the Regional Water Board that meets or exceeds the requirements described in this MRP Order. This MRP Order sets forth monitoring and reporting requirements for Coalition Groups enrolled under the Coalition Group Conditional Waiver. Pursuant to Water Code section 13269(a)(2), monitoring requirements must be designed to support the development and implementation of the waiver program, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. The reports required by this MRP are needed to evaluate impacts of discharges of waste from irrigated agricultural operations to waters of the state, to determine compliance with the Coalition Group Conditional Waiver, and to support the development and implementation of the Coalition Group Conditional Waiver as it applies to Coalition Groups and their members, including, but not limited to, verifying the adequacy and effectiveness of the waiver's conditions. As provided in the Coalition Group Conditional Waiver, this MRP is issued to the certified Coalition Groups because they represent irrigated agricultural facilities that discharge waste to waters of the State. The Coalition Group Conditional Waiver and other evidence supporting issuing this MRP can be found on the Regional Water Board's website and in its public files. The Information Sheet for the Coalition Group MRP (Attachment A), which

identifies the regulatory background, program objectives, and development of minimum requirements, is incorporated as part of this Order.

The submittal of an acceptable MRP Plan that meets the requirements of this MRP Order is a condition of the Coalition Group Conditional Waiver (Waiver). The MRP Plan must be submitted to the Regional Water Board within six months of the adoption of this Order, or as directed by the Executive Officer. The Regional Water Board encourages the use of collaboration for the development of Coalition Group-specific MRP Plans and Management Plans, as described in Section II of the Coalition Group MRP Attachment A.

The timing of the MRP Plan submittal process is further clarified as follows:

ACTION*	ACTION DEADLINE
Submittals of Coalition Group MRP Plans	6 months from adoption of MRP Order
Revisions to Coalition MRP Plan, if necessary	According to schedule determined by Executive Officer

*The Coalition shall obtain a Regional Water Board approved Coalition MRP Plan or the Coalition shall implement an MRP Plan issued by the Executive Officer.

Existing Coalition Groups must comply with the requirements in MRP Order No. R5-2005-0833 (August 2005) and approved MRP Plans until their Coalition-specific MRP Plan is submitted and approved.

MRP OBJECTIVES

The Water Code mandates that monitoring requirements for a Waiver be designed to verify the adequacy and effectiveness of the Waiver's conditions. One of the conditions of the Waiver is that discharges of waste from irrigated lands to surface waters of the State shall not cause or contribute to an exceedance of an applicable water quality standard. Water quality standards are defined for the Irrigated Lands Regulatory Program (ILRP) in Attachment A of the Coalition Group Conditional Waiver and Attachment B (Applicable Definitions and Acronyms) of this Order.

The objectives for a MRP Plan are identified in the attached Attachment A -- Information Sheet, which is part of this MRP Order. Implementation of this Order and the MRP Plans must provide information to determine whether discharges are in compliance with the conditions of the Waiver, including compliance with applicable water quality standards. These objectives will be addressed as each Coalition Group develops a scientifically sound MRP Plan that is structured to answer the key Program questions listed below:

QUESTION No.1: Are conditions in waters of the State that receive discharges of wastes from irrigated lands within Coalition Group boundaries, as a result of activities within those boundaries, protective of beneficial uses?

QUESTION No.2: What is the magnitude and extent of water quality problems in waters of the State that receive agricultural drainage or are affected by other irrigated agriculture activities within Coalition Group boundaries, as determined using monitoring information?

QUESTION No.3: What are the contributing source(s) from irrigated agriculture to the water quality problems in waters of the State that receive agricultural drainage or are affected by other irrigated agriculture activities within Coalition Group boundaries?

QUESTION No.4: What are the management practices that are being implemented to reduce the impacts of irrigated agriculture on waters of the State within the Coalition Group boundaries and where are they being applied?

QUESTION No.5: Are water quality conditions in waters of the State within Coalition Group boundaries getting better or worse through implementation of management practices?

Existing Coalition Groups have been conducting water quality monitoring in many parts of the Central Valley, and the degree to which these five Program questions have been addressed varies across the region. Thus, monitoring need not address all five questions simultaneously or linearly. However, each Coalition Group shall fully address each of the five Program questions over an appropriate period of time and in a manner that makes the best use of existing information. Each Coalition Group MRP Plan must demonstrate how this will be accomplished by including the following information:

1. Evaluation of the Coalition Group's ability to answer each of the five Program questions with the information presently available, with the understanding that the ability to answer may vary from waterbody to waterbody.
2. Identification of critical gaps in knowledge (e.g., inability to document impacts, lack of knowledge about potential sources, absence of trend monitoring components) relevant to the Coalition Group's circumstances.
3. Description of how the MRP Order will be used as a framework for filling in the data gaps and for developing monitoring components suited to each Coalition Group's circumstances, documenting how the five key questions will be answered.

PART I. COMPONENTS OF AN MRP PLAN

A. REQUIREMENTS FOR MRP PLAN

Coalition Groups shall develop an MRP Plan that includes an analysis of historical data, and the components described below (#1-#21). The following required components must be included in the MRP Plan. These inputs to the monitoring design process should be organized in a logical framework that describes basic patterns and processes related to water quality impacts from agricultural drainage, and that supports effective decision making about the details of monitoring designs.

1. Monitoring Strategy, including Assessment Monitoring, Core Monitoring and Special Project Monitoring as described in Section B below (if applicable);
2. Description of the Coalition Group's area including geography, topography, hydrology, land use including crop type(s) and other characteristics relevant to the monitoring;
3. Monitoring sites with GIS coordinates (Albers Projection, NAD83, and units in meters) and rationale for selection of each site. Rationale should be based on 'representativeness' of the location for dischargers from irrigated agriculture within the Coalition Group's boundaries;
4. Identification of known and potential water quality impairments and water quality limited water bodies;
5. Identification of the designated beneficial uses in the water bodies;
6. Detailed map(s) of the Coalition Group's area showing irrigated lands, identifying crop type(s), monitoring sites, main water bodies, tributaries, canals, channels, and drainages. Maps or discussion shall provide details that show which fields are represented by each monitoring site within the Coalition Group's boundaries;
7. Relevant knowledge about the transport, fate, and effects of key pollutants, including best- and worst-case scenarios;
8. Relevant knowledge about the action of cumulative and indirect effects, and other factors that impact water quality;
9. Up to date pesticide use reports with a narrative discussion and summary tables of the information contained therein, including type of chemical (fungicide, herbicide, insecticide, and adjuvants), quantity applied, timing of applications, crops to which they were applied, and the geographic locations within the Coalition Group's boundaries in which each type was used;
10. Description of water management practices within the Coalition Group's boundaries and crop types in which they are used. Water management practices include, but are not limited to, water application for the purpose of hydrating crops, pre-planting irrigation, water application for the purpose of frost prevention, and water application to address salinity;
11. Discussion of specific management practices in use and available programs to reduce or eliminate water quality impacts from irrigated agricultural discharges and locations where these occur. These practices might include tail water return

systems, irrigation efficiency improvements, U.C. Cooperative Extension and NRCS grower outreach, etc.;

12. Monitoring periods, including description and frequencies of monitoring events and justification for deviations from the MRP Order requirements;
13. Information (either qualitative or quantitative, depending on the needs of the monitoring design process) about sources of bias and variability that could affect the validity of a monitoring design and/or the reliability of monitoring data;
14. Definition of desired levels of spatial and temporal resolution;
15. Definition of acceptable levels of uncertainty about the requirements in the above list;
16. Description of data analysis methods to be used to evaluate data from each monitoring program component;
17. Parameters to be monitored including minimum and site specific requirements;
18. A Coalition Group Quality Assurance Project Plan (QAPP) consistent with the requirements described in Attachment C of this MRP Order;
19. Documentation of monitoring protocols including sample collection methods and Laboratory Quality Assurance manual;
20. Coalition Group contact information; and
21. Signed Transmittal letter.

B. REQUIREMENTS FOR MONITORING SITE INFORMATION

The Monitoring Strategy shall include an approach for the different types of monitoring designs needed to answer the five Program questions. In general, these will include Assessment Monitoring for condition of the water body, Core Monitoring for trends, and Special Project Monitoring for source identification and other problem solving, as described below. The Monitoring Strategy shall describe the tasks and time schedule in which the Program questions identified above will be addressed by each type of monitoring. Selection of monitoring sites must be scientifically based and sufficiently representative to characterize water quality for all surface waters of the State that may be affected by irrigated agriculture within Coalition boundaries. A variety of monitoring designs may be applicable, depending on the amount of existing information, the nature of the sources and impacts being addressed, and the characteristics of each area.

The Monitoring Strategy must consider watershed specific attributes and waste constituents, based on the natural characteristics of and agricultural practices within the Coalition Group's area, as well as the receiving water quality conditions. Some Coalition Groups Group areas may need to conduct more extensive toxicity testing, increase the number of monitoring sites, or conduct additional chemical testing to identify sources, if toxicity or exceedances of water quality standards have been documented by previous monitoring. Watershed specific requirements will include follow-up sampling and analyses on exceedances that may be unique for specific metals or pesticides.

Monitoring site information shall include a description of the study area, GPS coordinates, crops and land use in the watershed, and the pesticides, chemicals, and nutrients being applied. The numbers and locations of sites must be sufficient to characterize water quality, based on specific watershed characteristics, and be supported by a detailed discussion of these characteristics.

Monitoring sites shall be selected for water bodies in order to answer Program questions No.1 through No. 3 and No. 5 (see pages 2 and 3 of this Order). Water bodies that carry, or that directly or indirectly receive agricultural drainage must be represented in selection of monitoring sites. Additionally, monitoring site selection must consider water bodies already on the Clean Water Act section 303(d) list (when the listing is due to an agriculture-related contaminant), particularly where the Coalition Group or another entity is implementing an applicable Total Maximum Daily Load (TMDL). Monitoring shall not be limited to larger volume water bodies within the Coalition Group's boundaries that would dilute contaminants that may be in higher concentrations in tributary streams and drainages. Monitoring may include, but shall not be limited to source waters, which provide information about pre-existing conditions, but do not identify the impacts of agricultural practices within the Coalition Group's boundaries.

The monitoring design shall include the following:

Assessment monitoring shall be used primarily to address Program questions No. 1 and No. 2 to obtain a comprehensive characterization and evaluation of water quality conditions within the Coalition Group's boundaries. Sites shall be selected to represent varying sizes and flows of surface water bodies and land uses (e.g., agricultural activities, crops and pesticide use), focusing on diversity across the watershed, and must include water bodies that are carrying agricultural drainage into natural water bodies, whether directly or indirectly. Assessment monitoring shall be supported by a detailed discussion of the specific watershed characteristics that are essential to site selection. The number and location of sites selected within the framework of the Coalition Group's Monitoring Strategy must be sufficient to characterize water quality for all waters of the State within the Coalition Group's boundaries.

The assessment monitoring of the Monitoring Strategy shall:

- Focus on a diversity of monitoring sites across the Coalition Group's area (hydrology, size, and flow);
- Evaluate different types of water bodies for assessment;
- Include a sufficient number of sampling sites to assess the entire Coalition Group area and all drainages;
- Propose the approach, including a schedule, to sample assessment monitoring sites;

- Include sampling sites in areas of known water quality impairments, even if they are not currently identified on the Clean Water Act (CWA) 303(d) listing;
- Include sampling sites that are compliance monitoring sites for TMDLs, where implementation is conducted by the Coalition Group;
- Provide scientific rationale for the site selection process based on historical and/or on-going monitoring, drainage size, crop types and distribution, and topography and land use;
- Discuss the criteria for the selection of each monitoring site;
- Conduct the initial focus of monitoring on water bodies that carry agricultural drainage or are dominated by agricultural drainage;
- Identify priorities with respect to work on specific watersheds, subwatersheds, and water quality parameters;
- In conjunction with Core Monitoring for trends and Special Projects focused on specific problems, demonstrate the effectiveness of management practices and identify locations for implementation of new management practices, as needed; and
- Include the requirements provided in Parts I through III of this MRP Order.

Assessment monitoring shall be used to provide supporting data for sites that a Coalition Group wishes to select as Core monitoring sites for trends. Supporting data may also allow consideration for the use of some monitoring sites to be representative of other locations within the Coalition Group boundaries. In order to be considered 'representative', each Coalition Group must provide technically valid justification for the representative nature of the monitoring locations to include similarities in hydrology, crop types, pesticide use, and other factors that affect the discharge of wastes from irrigated lands to surface waters. This 'representativeness' must also be supported by data from at least one full year of Assessment Monitoring. Each Coalition Group must provide this technical justification and identify which sites are to be considered representative of other designated sites in the MRP Plan or in a subsequent technical report that must be approved by the Executive Officer. When representative sites are approved, the monitoring data collected through the Core and Assessment monitoring shall be considered to 'represent' conditions at the referenced designated sites. Similarly, when action must be taken based on exceedances at the representative sites such as management practice implementation, the same action(s) shall be taken throughout the irrigated lands that are represented by the identified representative sites.

Assessment monitoring may include coordinated monitoring with other programs. All coordinated monitoring data will need to be identified and discussed in the Coalition Group-specific MRP Plan, and data must be submitted with the Coalition Group annual monitoring reports.

Core monitoring sites shall be selected from Assessment Monitoring locations or other suitable locations and be used to track trends at selected representative sites over extended periods of time. Core monitoring shall occur at fixed stations, at probabilistic sites, or at some other combination of sites statistically appropriate for trend monitoring, and must include a repetition of the Assessment Monitoring analytical regime at a minimum of every three years. The purpose of periodically repeating the Assessment Monitoring analytical regime is to evaluate the effects of changes in land-use and management practices and provide information about long-term trends and effectiveness of the management practices. Core monitoring shall not be limited to largest volume water bodies that would dilute waste constituents that may be in higher concentrations in tributary streams and drainages.

The Core Monitoring component of the Monitoring Strategy shall:

- Focus on a diversity of monitoring sites across the Coalition Group's area (hydrology, size, and flow);
- Include sites that through Assessment Monitoring or other information have been shown to be characteristic of key crop types, topography, and hydrology within the Coalition Group's boundaries;
- Provide scientific rationale for the site selection process based on the Assessment Monitoring, existing monitoring projects, or historical information;
- Discuss the criteria for the selection of each monitoring site;
- Propose the approach, including a schedule, to sample core monitoring sites.
- Include water bodies that carry agricultural drainage, are dominated by agricultural drainage, or are otherwise affected by other irrigated agriculture activities;
- Have management practice information provided in order to establish relationships (status and trends) with water quality monitoring information;
- In conjunction with Assessment Monitoring, demonstrate the effectiveness of management practices and implement new management practices, as needed; and
- Utilize data generated from the Core Monitoring Sites to establish trend information about the effectiveness of the Coalition Group's efforts to reduce or eliminate the impact of irrigated agriculture on surface waters.

Special project monitoring shall be established on water bodies where waste-specific monitoring or targeted source identification studies must take place. This includes monitoring where the Coalition Group or another entity is implementing an applicable TMDL or specific targeted studies for the implementation of a Coalition Group Management Plan that results from exceedances. Management Plans are required when more than one exceedance of the same constituent has occurred at a given site during a three year period. Special project monitoring may also include, but shall not be limited to source waters, in order to provide information about pre-existing conditions.

C. QUALITY ASSURANCE PROJECT PLAN (QAPP)

The Coalition Group must develop a QAPP to include watershed and site-specific information, project organization and responsibilities, and quality assurance components of the Monitoring and Reporting Program. A QAPP specific to the Coalition Group's geographical area is required to be submitted with the MRP Plan. Attachment C of this MRP Order presents the QAPP requirements and the guidelines for development of the Coalition Group QAPP. The QAPP includes the laboratory and field requirements to be used for data evaluation. The addition of site-specific requirements and other elements that are required under this MRP Order will be necessary to build a comprehensive Coalition Group QAPP applicable to the ILRP. The Water Board may conduct an audit of the Coalition Groups' contracted laboratories at any time in order to evaluate compliance with the QAPP. Quality control requirements are applicable to all the constituents listed in the Attachment C, as described in the appropriate method.

PART II. MONITORING PARAMETERS AND SCHEDULE

A. ASSESSMENT MONITORING

Assessment monitoring shall take place at locations that are described and scheduled in the Coalition Group's Monitoring Strategy and at newly established monitoring sites or at sites that have not been fully characterized. Assessment and Core monitoring shall be conducted according to a three-year cycle. In the absence of a technically acceptable alternative identified in the Monitoring Strategy, assessment monitoring shall be conducted on a monthly basis for 12 months during Year 1 at all Assessment and Core monitoring sites.

TABLE II.A
ASSESSMENT MONITORING SCHEDULE

Parameters (See Table II.D for Details)	**Monitoring Frequency ***
303(d) waste constituent to be monitored if Agriculture is identified as contributing source	Monthly
Water Column Toxicity	Monthly
Toxicity Identification Evaluation (as needed based on Toxicity results)	Monthly
Pesticides	Monthly
Metals	Monthly
Nutrients	Monthly
General Physical Parameters (including Flow)	Monthly
Pathogens	Monthly
Sediment Toxicity Sampling (all)	Twice per year **
Photo monitoring (digital)	Every monitoring site with every monitoring event

* Every third year of Core Site Monitoring shall include all Assessment Monitoring parameters and be conducted monthly for a period of 12 months.
**One sample shall be collected between 15 August and 15 October, and the second between 1 March and 30 April of each year.

Assessment monitoring shall consist of monthly sampling for general water quality parameters, nutrients and pathogens. Assessment Monitoring will also include water column and toxicity monitoring, as well as the series of pesticides, metals and nutrients described in Table II.D. Monthly sampling events shall be scheduled to attempt to capture at least two storm runoff events per year. No more than one complete sample per month is required.

B. CORE SITE MONITORING

Core site monitoring shall utilize a trend monitoring approach at sites where assessment monitoring has already been conducted, or at other sites demonstrated to be appropriate for long-term trend monitoring, and that have been adequately characterized. Core site monitoring will be used to track compliance with specific regulatory water quality standards, and/or to track trends in water conditions over time. In the absence of a technically acceptable alternative identified in the Monitoring Strategy, the core monitoring sites must include frequent and routine monitoring on a pre-determined schedule, as summarized below:

TABLE II.B.1
CORE SITE MONITORING SCHEDULE

Parameters (See Table II.D for details)	**Monitoring Frequency ***
Assessment Monitoring	Once every three years*
Nutrients	Monthly
General Physical Parameters (including Flow)	Monthly
Pathogens	Monthly
Photo monitoring (digital)	Every monitoring site with every monitoring event
Parameter(s) of Concern**	Monthly

* Every third year of Core Site Monitoring shall include all Assessment Monitoring parameters and be conducted monthly for a period of 12 months.
**Parameters of Concern may be selected by the Regional Water Board Executive Officer from toxicity, pesticides or metals analyses that result in an exceedance or detection during Assessment Monitoring.

Core monitoring shall consist of the general physical, pathogen and nutrient parameters that are listed in more detail on Table II.D of this MRP Order, as well as other parameters specifically requested by the Regional Water Board. Core site monitoring parameters include the less-costly measurements of general water quality that may provide data indicative of water quality impairment. The list of parameters described in

Coalition Group Assessment Monitoring shall be repeated at the Core Sites during every third year of monitoring. The Coalition Group may submit written requests for the removal or addition of core monitoring sites for approval by the Executive Officer.

The table below clarifies the sequential schedule for monitoring at each site, including the Assessment Monitoring and Core Monitoring. In the absence of a technically acceptable alternative identified in the Monitoring Strategy, the schedule identified for years 1 through 3 shall be repeated during each subsequent 3-year cycle.

TABLE II.B.2
ASSESSMENT AND CORE MONITORING CYCLE*

Monitoring Type	Year 1	Year 2	Year 3
Assessment	X		
Core		X	X

*Repeat cycle every three years

C. SPECIAL PROJECT MONITORING

Special project monitoring includes specific targeted studies that are incorporated into a Coalition Group's MRP Plan due to a Coalition Group's implementation of a TMDL, or for the implementation of a Coalition Group Management Plan that results from exceedances. Management Plans shall be required when more than one exceedance of the same constituent has occurred at a given site within a period of three years. The Executive Officer can require a written Management Plan for an exceedance of any constituent at any time. Management Plans may also be required when monitoring from other Water Board programs result in exceedances.

Monitoring for Management Plans may require that Coalition Group conduct more extensive monitoring than what is required in the Core Site Monitoring or Assessment Monitoring schedules. The schedule for Special Project Monitoring will be determined through the approval by the Executive Officer of TMDLs or Coalition Group Management Plans.

D. MONITORING PARAMETERS

Water quality and flow monitoring shall be used to assess the wastes in discharges from irrigated lands to surface waters and to evaluate the effectiveness of management practice implementation efforts. Water quality is evaluated by both field-measured parameters and laboratory analytical data. Field measured parameters shall include, at a minimum, flow, pH, electrical conductivity, temperature, and dissolved oxygen. Laboratory analytical data must include, but not be limited to, the list of constituents, parameters, and tests in Table II.D of this MRP Order. Site conditions shall be documented by taking digital photos at every monitoring site during each monitoring event.

Acceptable methods for laboratory field procedures as well as quantitation limits are described in the Quality Attachment A. Quality control requirements are applicable to all the constituents in Attachment A, as listed in the appropriate method.

TABLE II.D
MONITORING PARAMETERS

Constituents, Parameters, and Tests	Monitoring Type
CWA 303(d) listed	
303(d) Waste constituent to be monitored if agriculture is identified as contributing source	Assessment
Photo Monitoring	
Photograph of monitoring location	With every monitoring event
WATER COLUMN SAMPLING	
Physical Parameters and General Chemistry	
Flow (field measure)	Assessment and Core
pH (field measure)	Assessment and Core
Electrical Conductivity (field measure)	Assessment and Core
Dissolved Oxygen (field measure)	Assessment and Core
Temperature (field measure)	Assessment and Core
Turbidity	Assessment and Core
Total Dissolved Solids	Assessment and Core
Total Suspended Solids	Assessment and Core
Hardness	Assessment and Core
Total Organic Carbon	Assessment and Core
Pathogens	
Fecal coliform	Assessment and Core
E-coli	Assessment and Core
Water Column Toxicity Test	
Algae -*Selenastrum capricornutum*	Assessment
Water Flea - *ceriodaphnia*	Assessment
Fathead Minnow - *Pimephales promelas*	Assessment
Toxicity Identification Evaluation*	As needed based on criteria described in Part II.E
Pesticides	
Carbamates	
Aldicarb	Assessment
Carbaryl	Assessment
Carbofuran	Assessment
Methiocarb	Assessment
Methomyl	Assessment
Oxamyl	Assessment
Organochlorines	

Constituents, Parameters, and Tests	Monitoring Type
DDD	Assessment
DDE	Assessment
DDT	Assessment
Dicofol	Assessment
Dieldrin	Assessment
Endrin	Assessment
Methoxychlor	Assessment
Organophosphorus	
Azinphos-methyl	Assessment
Chlorpyrifos	Assessment
Diazinon	Assessment
Dichlorvos	Assessment
Dimethoate	Assessment
Dimeton-s	Assessment
Disulfoton (Disyton)	Assessment
Malathion	Assessment
Methamidophos	Assessment
Methidathion	Assessment
Parathion-methyl	Assessment
Phorate	Assessment
Phosmet	Assessment
Herbicides	
Atrazine	Assessment
Cyanazine	Assessment
Diuron	Assessment
Glyphosate	Assessment
Linuron	Assessment
Paraquat dichloride	Assessment
Simazine	Assessment
Trifluralin	Assessment
Metals	
Arsenic (total)	Assessment
Boron (total)	Assessment
Cadmium (total and dissolved)	Assessment
Copper (total and dissolved)	Assessment
Lead (total and dissolved)	Assessment
Nickel (total and dissolved)	Assessment
Molybdenum (total)	Assessment
Selenium (total)	Assessment
Zinc (total and dissolved)	Assessment

Constituents, Parameters, and Tests	Monitoring Type
Nutrients -	
Total Kjeldahl Nitrogen	Assessment and Core
Nitrate plus Nitrite as Nitrogen	Assessment and Core
Total Ammonia	Assessment and Core
Unionized Ammonia (calculated value)	Assessment and Core
Total Phosphorous (as P)	Assessment and Core
Soluble Orthophosphate	Assessment and Core
SEDIMENT SAMPLING	
Sediment Toxicity	
Hyalella azteca	Assessment
Pesticides	As needed, based on criteria described in Part II.E.2
Bifenthrin	
Cyfluthrin	
Cypermethrin	
Esfenvalerate	
Lambda-Cyhalothrin	
Permethrin	
Fenpropathrin	
Chlorpyrifos	
Other sediment parameters	
TOC	Assessment – simultaneous with sediment toxicity sampling
Grain Size	Assessment – simultaneous with sediment toxicity sampling

* Specific TIE manipulations utilized in each test must be reported

Optional Bioassessment Monitoring. Bioassessment monitoring is not a requirement of the ILRP, and there are no Basin Plan requirements or standards addressing the results of bioassessment monitoring. However, Coalition Groups are encouraged to conduct bioassessments and to collect data that may be used as reference sites and provide information for scientific and policy decision-making in the future. Bioassessments may serve monitoring needs through three primary functions: 1) screening or initial assessment of conditions; 2) characterization of impairment and diagnosis; and 3) trend monitoring to evaluate improvements through the implementation of management practices. Bioassessment data from all wadeable impaired waterbodies may serve as a benchmark for measuring both current biological conditions and success of management practices.

E. TOXICITY PROCEDURES - TOXICITY IDENTIFICATION EVALUATION (TIE) AND DILUTION SERIES

Discharge to receiving waters and sediment must be evaluated using aquatic toxicity testing. The purpose of the toxicity testing is to: 1) evaluate compliance with the narrative toxicity water quality objective; 2) identify the causes of toxicity when and where it is observed (e.g., metals, pesticides, ammonia, etc.); 3) evaluate any additive toxicity or synergistic effects due to the presence of multiple constituents; and 4) determine the sources of the toxicants identified.

1. WATER COLUMN TOXICITY. Water column toxicity analyses shall be conducted on 100% (undiluted) sample for the initial screening, and sufficient sample volume shall be collected in order to allow the laboratory to conduct a Toxicity Identification Evaluation (TIE) on the same sample, should toxicity be detected, in order to identify the cause of the toxicity. The TIE shall take place immediately if a 50% or greater difference in test organism mortality, as compared to the laboratory control, is detected at any time in an ambient sample during an acceptable *Ceriodaphnia dubia* or *Pimephales promelas* test. A TIE shall also be initiated immediately if a 50% or greater reduction in test organism growth is detected between an ambient sample and the laboratory control at the end of an acceptable *Selenastrum capricornutum* test. At a minimum, Phase I TIE[1] manipulations shall be conducted to determine the general class (e.g., metals, non-polar organics, polar organics) of the chemical causing toxicity. Phase II[2] TIEs may also be utilized to confirm and identify specific toxic agents. The TIE report to the Regional Water Board must include a detailed description of the specific TIE manipulations that were utilized (Section B.5.5 of Attachment C).

If at any point during the initial toxicity screening the mortality reaches 100%, a multiple dilution test shall be initiated in addition to the TIE. The dilution series must be initiated within 24 hours of the sample reaching 100% mortality, and must include a minimum of five (5) sample dilutions in order to quantify the magnitude of the toxic response.

When a 'statistically significant' reduction is observed for a sample at the end of an acceptable test (i.e. meets the EPA test acceptability criteria), but the magnitude of the reduction between the sample and the control is <20%, follow up field sampling will not be required. Samples that are 'statistically significant' at the end of an acceptable test and that exhibit a ≥ 20% reduction in organism response compared to the control may require follow-up field sampling.

1. _____

[1] USEPA. 1998. Methods for Aquatic Toxicity Identification Evaluations. Phase I Toxicity Characterization Procedures. Office of Research and Development, Duluth, MN. EPA-600-3-88-034.
[2] USEPA. 1998. Methods for Aquatic Toxicity Identification Evaluations. Phase II Toxicity Identification Procedures. Office of Research and Development, Duluth, MN. EPA-600-3-88-035.

Samples that exhibit a statistically significant reduction in organism response when compared to the laboratory control must still be reported to the Regional Water Board as an exceedance of the narrative water quality objective for toxicity.

2. SEDIMENT TOXICITY. Sampling and analysis for sediment toxicity shall be carried out at each location established by the Coalition Group for water quality monitoring, if appropriate sediment (i.e., silt, clay) is present at the site. If appropriate sediment is not present at the designated water quality-monitoring site, an alternative site with appropriate sediment shall be designated for all sediment collection and toxicity testing events. Sediment samples shall be collected and analyzed for toxicity twice per year, with one sample collected between August 15 and October 15, and one sample collected between March 1 and April 30, during each year of Core and Assessment Monitoring. The Executive Officer may request different sample collection timing and frequency under a Management Plan. If a Coalition Group wishes to deviate from the written timing and frequency requirements, the Coalition Group representative must provide written, scientifically defensible justification for the change. This justification must address the intent of the MRP Plan requirement, be scientifically based, and be approved by the Executive Officer.

Sediment samples that show "statistically significant" toxicity to *Hyalella azteca* at the end of an acceptable test and that exhibit a ≥ 20% reduction in organism survival compared to the control will require pesticide analysis of the same sample in an effort to determine the possible cause of toxicity. When sediment samples are collected for toxicity analysis, additional sample volume sufficient for the recommended chemical and physical analyses must be collected. This additional sample volume must be held in frozen storage until the results of the toxicity analysis are available. If the sample is not toxic to the test species, the additional sample volume can be discarded.

All sediment samples must be analyzed for total organic carbon (TOC) and grain size. Analysis for TOC is necessary to evaluate the expected magnitude of toxicity to the test species. If the toxicity criterion described above is exceeded, then the additional sample volume must also be analyzed for bifenthrin, cyfluthrin, lambda-cyhalothrin, cypermethrin, deltamethrin, esfenvalerate, fenpropathrin, permethrin, and chlorpyrifos. Analysis at practical reporting limits of 1 ng/g on a dry weight basis for each pesticide is required to allow comparison to established lethal concentrations of these chemicals to the test species. This follow-up analysis must begin within five business days of when the toxicity criterion described above is exceeded.

If the test species *Chironomus tentans* is used, an Executive Officer approved follow-up procedure for toxic results must be established prior to conducting toxicity testing.

PART III. REPORTING REQUIREMENTS

In addition to the Coalition Group's MRP Plan, routine reports must include Annual Monitoring Reports (AMRs) as described below. Exceedance Reports are also required for every exceedance of water quality standards, and Management Plans are required when more than one exceedance of any water quality standard occurs at a particular site within any three year period, or if requested by the Executive Officer.

A. QUARTERLY SUBMITTALS OF MONITORING RESULTS

Each quarter the Coalition Group shall submit the previous quarter monitoring results in electronic format as well as hard copy. The dates of these submittals shall be as listed in Table III.A below.

TABLE III.A
QUARTERLY MONITORING DATA REPORTING SCHEDULE

DUE DATE	TYPE	REPORTING PERIOD
1 March	Annual Report	1 January to 31 December of previous year
1 June	Quarterly Monitoring Data Report	1 January through 31 March of same calendar year
1 September	Quarterly Monitoring Data Report	1 April through 30 June of same calendar year
1 December	Quarterly Monitoring Data Report	1 July through 30 September of same calendar year

The Quarterly Submittal of Monitoring Data Reports shall include the following:

1. Electronic submittal in SWAMP comparable format as described in Section III.B,
2. Copies of field and laboratory reports and quality control reports
3. Copies of all laboratory analytical reports as attachments or on a CD
4. For toxicity reports, all laboratory raw data must include the following:
    a. copies of all original lab sheets
    b. results of individual replicates, such that all calculations and statistics can be reconstructed
5. For chemistry data analytical reports must include, at a minimum, the following:
    a. a lab narrative describing QC failures
    b. analytical problems and anomalous occurrences
    c. chain of custody (COCs) and sample receipt documentation
    d. all sample results for contract and subcontract laboratories with PQLs
    e. results for all QC samples including all field and laboratory blanks
    f. results of lab control spikes, matrix spikes, field and laboratory duplicates and surrogate recoveries, summaries of initial and continuing calibrations and blanks, and sample injection or sequence logs.

B. ANNUAL MONITORING REPORTS

The monitoring reports shall be submitted by **1 March**, covering the monitoring from the previous calendar year, up to 31 December. Each monitoring report shall include the following components:

1. Signed Transmittal Letter;
2. Title page;
3. Table of contents;
4. Executive Summary;
5. Description of the Coalition Group geographical area;
6. Monitoring objectives and design;
7. Sampling site descriptions and rainfall records for the time period covered under the AMR;
8. Location map(s) of sampling sites, crops and land uses;
9. Tabulated results of all analyses arranged in tabular form so that the required information is readily discernible (example table is included in (MRP Order Attachment C);
10. Discussion of data to clearly illustrate compliance with the Coalition Group Conditional Waiver, water quality standards, and trigger limits;
11. Electronic data submitted in a SWAMP comparable format;
12. Sampling and analytical methods used;
13. Copy of chain-of-custody forms;
14. Field data sheets, signed laboratory reports, laboratory raw data (as identified in Attachment C);
15. Associated laboratory and field quality control samples results;
16. Summary of Quality Assurance Evaluation results (as identified in Attachment C for Precision, Accuracy and Completeness) ;
17. Specify the method used to obtain flow at each monitoring site during each monitoring event;
18. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date.
19. Summary of Exceedance Reports submitted during the reporting period and related pesticide use information;
20. Actions taken to address water quality exceedances that have occurred, including but not limited to, revised or additional management practices implemented;
21. Status update on preparation and implementation of all Management Plans and other special projects; and
22. Conclusions and recommendations.

Additional requirements and clarifications necessary for the above annual report components are described below:

Annual Report Component No. 1—Signed Transmittal Letter

A transmittal letter shall accompany each report. This letter shall include a discussion of any exceedances of water quality standards found during the reporting period, and actions taken or planned to correct noted exceedances, such as operational, field or facility modifications. If the Coalition Group has previously submitted an exceedance report, or a Management Plan to address exceedances, then reference to the previous correspondence will be satisfactory. The transmittal letter shall be signed and contain a penalty of perjury statement by the Coalition Group's authorized agent. This statement shall state:

> *"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment for violations."*

Annual Report Component No. 8—Location Maps

Location map(s) showing the sampling sites, crops, and land uses within the Coalition Group's geographic area must be updated once per year and included in each annual report. An accompanying list or table of monitoring site information must include the site name and identification number, ILRP station code number, and Global Positioning System (GPS) coordinates. The map(s) must contain a level of detail that ensures they are informative and useful. GPS coordinates must be provided as latitude and longitude in the decimal degree coordinate system (at a minimum of five decimal places). The datum must be either WGS 1984 or NAD83, and clearly identified on the map. The source and date of all data layers must be identified on the map(s).

Additionally, the following are recommended as appropriate elements for acceptable map(s):

1. Topographic or shaded relief base map.
2. An appropriate scale for the area to be covered. Examples of some commonly used scales are 1:24,000 (1 inch equals 2,000 feet) and 1:63,360 (1 inch equals 5,280 feet).

3. Rural roads, highways, interstates, and railways, as well as city and town names and principal roadways, shown and clearly labeled down to the limits of the map scale.
4. All natural and constructed waterways (including lakes, rivers and irrigation canals) shown and clearly labeled to the limits of the map scale. Flow direction should be indicated.
5. Special features (e.g., weirs, turnouts, operational spill locations, gauging stations, reservoirs, and ponding basins) clearly marked and identified by name.
6. An electronic copy of all data layers created by the Coalition group (e.g., coalition boundaries and monitoring sites) in a GIS usable format (e.g., shapefile or geodatabase).

Annual Report Component No. 9 – Tabulated results

In reporting monitoring data, the Coalition Groups shall arrange the data in tabular form so that the required information is readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with the Coalition Group Conditional Waiver.

Annual Report Component No. 10—Data Discussion to Illustrate Compliance

The annual report shall include a discussion of the Coalition Group's data to illustrate compliance with the Coalition Group Conditional Waiver. If a required component was not met, an explanation for the missing data must be included. Results must also be compared to water quality standards and trigger limits.

Annual Report Component No.11—Electronic Data Submittal

Electronic submittal of the field and laboratory data in a SWAMP comparable format must be included within each quarterly monitoring report and AMR. Electronic submittal of monitoring data must be received by the Regional Water Board at quarterly intervals described in Section III.A. Exceptions to due dates for submittal of electronic data may be granted by the Executive Officer if sufficient rationale exists.

Electronic data packages are to be submitted to the Regional Water Board in accordance with one of the two options, and the method that the Coalition Group elects to utilize must be identified in their MRP Plan. These two options are described below:

OPTION A. ELECTRONIC SUBMITTAL DATA PACKAGE IN A SPREADSHEET FORMAT

Under this option all laboratory data must be entered and submitted within the ILRP SWAMP comparable data spreadsheets (EXCEL, or similar spreadsheet) provided by the Regional Water Board staff. Under this option, field data will not be required to be submitted electronically. However, in exchange, the Coalition Group will be required to use and complete ILRP SWAMP comparable field

sheets (paper copy) as well as the required spreadsheets for submittal of laboratory data.

The completed required SWAMP comparable field sheets must be included within the **AMR** if the Coalition Group elects to utilize Option A.

OPTION B. ELECTRONIC SUBMITTAL DATA PACKAGE IN A SWAMP DATABASE FORMAT
Under this option all field and laboratory data must be uploaded into a SWAMP comparable database. The Coalition Group will manage this database and all data entry or upload. The Coalition Group will need to work closely with the Regional Water Board staff and the SWAMP program to ensure that the database architecture is kept up-to-date and comparable.

Data submitted must be SWAMP comparable in a content and format that is consistent with the requirements of the ILRP. Data that is considered SWAMP comparable must meet the following conditions:

1. Electronic data must be formatted and follow the specifications in the most current *Required Data Submission Format*, which will be provided to the Coalition Groups and posted on the ILRP website. This document will be updated on a regular basis to ensure comparability with the SWAMP Program.

2. In addition to the field sample results for laboratory analyses, the content of the submittals must include field and laboratory quality control results as prescribed within the Attachment C, including but not limited to spike analyses, blanks, surrogates and certified reference materials, if applicable.

3. For toxicity analyses, the content of electronic data submittals must include the following:
   - Individual sample results
   - Negative control summary results
   - Replicate results

4. For toxicity analyses, the minimum water quality measurements performed on the test water shall include: electrical conductivity, pH, Ammonia, Temperature, and Dissolved Oxygen. The timing and frequency of these measurements will be determined by the method. If daily measurements are taken then the minimum and maximum measurements of the range must be reported

5. Data that does not meet the project quality assurance acceptance guidelines must be flagged accordingly and must include brief notes detailing the problem within the provided comments field.

Prior to submittal, the data shall be reviewed by the Coalition Group and determined to the best of their knowledge to be free of errors and in conformance with the project quality assurance acceptance guidelines outlined in the Coalition Group QAPP. The procedures for data entry and data review must follow those outlined in the Coalition Group QAPP.

Annual Report Components No.13, No.14, and No.15—Copies of Laboratory Reports, Chain-of-Custody Forms and Raw Data.

Copies of all laboratory analytical reports must be included in the monitoring reports as attachments or provided electronically on a CD. For toxicity reports, all laboratory raw data must be included in the analytical report (including data for failed tests), including copies of all original bench sheets showing the results of individual replicates, such that all calculations and statistics can be reconstructed. For chemistry data, analytical reports must include, at a minimum, the following: a lab narrative describing QC failures, analytical problems and anomalous occurrences; chain of custody (COCs) and sample receipt documentation; all sample results for contract and subcontract laboratories with units, RLs and MDLs; sample preparation, extraction and analysis dates; and results for all QC samples including all field and laboratory blanks, lab control spikes, matrix spikes, field and laboratory duplicates, and surrogate recoveries. Lab raw data such as chromatograms, spectra, summaries of initial and continuing calibrations, sample injection or sequence logs, prep sheets, etc., are not required for submittal, but must be retained for a minimum of five years and be provided to the Regional Water Board upon request. All original raw data must be maintained and available for a minimum of five years.

Annual Report Component No.14—Field Data Sheets

Copies of all field documentation must be included in the monitoring reports as attachments or provided electronically on a CD. An example of an acceptable field data sheet is provided in Appendix C of MRP Order Attachment C. The monitoring reports need to provide information on field conditions at sampling times including a description of the weather, rainfall, temperature, stream flow, color of the water, odor, and other relevant information that can help in data interpretation.

Annual Report Component No. 16—Quality Assurance Evaluation (Precision, Accuracy and Completeness)

A summary of precision and accuracy results (both laboratory and field) is required in the annual monitoring report. The data quality indicators required for the ILRP are identified in MRP Order Attachment C; acceptance criteria for all measurements of precision and accuracy must be identified. The Coalition Group must review all QA/QC results to verify that protocols were followed and identify any results that did not meet acceptance criteria. A summary table or narrative description of all QA/QC results that

did not meet objectives must be included in the annual report. Additionally, the report must include a discussion of how the failed QA/QC results affect the validity of the reported data. The corrective actions to be implemented are described in MRP Order Attachment C.

In addition to precision and accuracy, the Coalition Group must also calculate and report Completeness. Completeness includes the percentage of all quality control results that met acceptance criteria, as well as a determination of project completeness. For further explanation of this requirement, refer to MRP Order Attachment C. Completeness is also defined in MRP Order Attachment B (Applicable Definitions and Acronyms).

The Coalition Group may ask the laboratory to provide assistance with evaluation of their QA/QC data, provided that the Coalition Group prepares the summary table or narrative description of the results for the annual monitoring report.

Annual Report Component No. 19—Summary of Exceedance Reports

A summary of the Exceedance Reports submitted during the monitoring period is required in the AMR. In the event of exceedances for pesticides or toxicity, pesticide use data must be included in the annual monitoring report. Pesticide use information will be acquired from the agricultural commissioner. This requirement is described further in the following section on Exceedance Reports.

C. EXCEEDANCE REPORTS

The Coalition Group shall provide exceedance reports if monitoring results show exceedances of water quality standards or trigger limits. When a water quality standard is exceeded at a monitoring location(s), the Coalition Group shall submit an Exceedance Report to the Regional Water Board. The estimated flow at the monitoring location and photographs of the site must be included. The Coalition Group shall evaluate all monitoring data and make a determination of an exceedance no later than five (5) business days after receiving the laboratory analytical report. The Exceedance Report shall be sent by email or fax (916-464-4780) within the next business day, describing the exceedance, the follow-up monitoring, and analysis or other actions the Coalition Group may take to address the exceedance.

When any pesticide or toxicity exceedance is identified, follow-up actions must include an investigation of pesticide use within the watershed area that is physically associated with the exceedance location. This includes all pesticides applied within the area that drains to the monitoring site during the four weeks prior to the exceedance date. The pesticide use information may be acquired from the agricultural commissioner, or from information received from agriculture practitioners within the same drainage area. Results of the pesticide use investigation must be summarized and discussed in the

annual monitoring report. The development of an approved Management Plan may supercede this requirement.

D. MANAGEMENT PLANS

If more than one exceedance of the same parameter at the same location occurs within a three-year period, then a schedule for Management Plan development and implementation shall be provided to the Regional Water Board staff within 10 business days. A logical approach to prioritization of Management Plan activities can be addressed in the schedule. The Regional Water Board staff will then review the schedule for acceptability and either approve the proposed schedule or require that a different schedule be followed. A Coalition Group may also elect to develop a multi-Coalition Group monitoring effort for a waste constituent that is common to all of the parties involved.

Management Plans must begin with identification of the general type of land-use that is the probable source of the pollutant, such as agriculture, urban, forestry or other. If agriculture can be a source -- in whole or in part – then further development of the Management Plan as described below is required. If the general land-use source is unknown but could be the result of irrigated agriculture activities, then the Management Plan must develop a study design to eliminate or confirm irrigated agriculture as a source. If a contaminant that is being addressed by the Management Plan can be reasonably assumed through source identification to be caused in whole or in part by irrigated agriculture land use, then additional Management Plan components must include the following:

1. Identification of irrigated agriculture source -- general practice or specific location -- that may be the cause of the water quality problem, or a study design to determine the source.
2. Identification of management practices to be implemented to address the exceedances.
3. Management practice implementation schedule. Implementation may occur through another Water Board regulatory program designed to address the specific exceedances.
4. Management practice performance goals with a schedule.
5. Waste-specific monitoring schedule.
6. A process and schedule for evaluating management practice effectiveness.
7. Identification of the participants and Coalition Group(s) that will implement the Management Plan.
8. An identified routine schedule of reporting to the Regional Water Board.

If a Coalition Group has multiple exceedances of different types of contaminants at multiple locations, then a prioritization of the water quality problems to be addressed may be developed. The prioritization may include considerations such as extent,

magnitude and duration, or be based on a design that assumes that resolution of one type of contaminant (such as sedimentation) may help resolve other types of measured exceedances (such as pesticides, toxicity, DO and pH). The assumptions and prioritizations shall be developed in coordination with the Regional Water Board staff, and be included as part of the Management Plan to be approved by the Executive Officer.

Management Plan Reporting must be at least as frequent as that required for the Annual Report and the Quarterly monitoring data submittals, and shall provide frequent and sufficient information regarding achievement of the performance goals, and stages when evaluations will occur to determine the effectiveness of the management practice implementation, and if the Management Plan strategies need to be revised.

The Coalition Group shall take affirmative steps to identify appropriate management practices. Such steps may involve conducting management practices workshops and/or developing a management practices worksheet questionnaire to determine the management practices being used in the identified areas. The Coalition Group may conduct such outreach efforts or develop the workshops and worksheets with the assistance of the County Agricultural Commissioners, U.C. Cooperative Extension, Natural Resources Conservation Service, Resource Conservation District, or other appropriate groups or agencies.

At the request of the Coalition Group or upon recommendation by Regional Water Board staff, the Executive Officer may provide authorization to exempt a Coalition Group from the development of a Management Plan if the Executive Officer determines that the exceedance is not likely to be remedied or addressed by a Management Plan.

The Executive Officer may also require the Coalition Group and/or its member Dischargers to develop a Management Plan or to take additional actions if monitoring data or other information indicates that water quality may be jeopardized. The Executive Officer may also increase the monitoring requirements where monitoring results, pesticide use patterns, or other indicators suggest that the increase is warranted.

The Regional Water Board Executive Officer may revise this MRP Order as necessary, and the Coalition Groups shall comply with the MRP Order as revised by the Executive Officer.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on xxxx 2007.

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PAMELA CREEDON, Executive Officer

Order Attachment A – Information Sheet
Order Attachment B – Definitions and Acronyms
Order Attachment C – Requirements for a Quality Assurance Project Plan