

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2013-\_\_\_\_\_  
NPDES CA0083399

MONITORING AND REPORTING PROGRAM

CITY OF BAKERSFIELD  
AND  
COUNTY OF KERN  
STORM WATER DISCHARGES FROM  
MUNICIPAL SEPARATE STORM SEWER SYSTEM  
KERN COUNTY

I. **MONITORING AND REPORTING PROGRAM REQUIREMENTS**

This Monitoring and Reporting Program (MRP) is issued pursuant to Water Code Section 13267.

The Permittees shall not implement any changes to this MRP unless and until the Central Valley Regional Water Quality Control Board (Central Valley Water Board) or Executive Officer issues a revised MRP. Attachment A of the Waste Discharge Requirements shows the City of Bakersfield limits and the Kern County urbanized areas (collectively called Bakersfield Urbanized Area) which are covered under this Order. To save time and money, and avoid duplication of efforts, the Permittees shall coordinate their monitoring program with local, state, and federal agencies whenever possible.

- A. **Annual Work Plan:** By **1 September of each year**, each Permittee shall submit an Annual Work Plan with the Annual Report that supports the development, implementation, and effectiveness of the approved Storm Water Management Plan (SWMP) and Order No. R5-2013-\_\_\_\_\_.
- B. **Annual Report:** The Permittees shall submit, in both electronic and paper formats and no later than **1 September of each year**, an Annual Report documenting the progress of the Permittees' implementation of the SWMP and the requirements of Order No. R5-2013-\_\_\_\_\_. The Annual Report shall cover each fiscal year from **1 July through 30 June**. The status of compliance with permit requirements including implementation dates for all time-specific deadlines should be included for each program area. If permit deadlines are not met, the Permittees shall report the reasons why the requirement was not met and how the requirements will be met in the future, including projected implementation dates. A comparison of program implementation results to performance standards established in the SWMP and Order No. R5-2013-\_\_\_\_\_ shall be included for each program area.

Specific requirements that must be addressed in the Annual Reports are listed below.

1. An Executive Summary discussing the effectiveness of the SWMP to reduce storm water pollution to the MEP and to achieve compliance with water quality objectives in receiving waters;
2. A summary of activities conducted by the Permittees;
3. Identification of BMPs and a discussion of their effectiveness at reducing urban runoff pollutants; and
4. A summary of the monitoring data and an assessment of each component of the MRP. To comply with Provisions C.1 and C.2 of the Order No. R5-2013-\_\_\_\_, the Permittees shall compare receiving water and discharge data with applicable water quality standards. The lowest applicable standard from the Basin Plan, California Toxics Rule (CTR), and California Title 22 (Title 22), and constituent specific concentrations limits (e.g., mercury) shall be used for comparison. When the data indicate that discharges are causing or contributing to exceedances of applicable water quality standards or constituent specific concentrations limits, the Permittees shall prepare a Report of Water Quality Exceedance and identify potential sources of the problems, and recommend future monitoring and BMP implementation measures to identify and address the sources.
5. Raw data are required to be submitted in electronic format.
6. For each monitoring program requirement, the Annual Reports shall include the following results and information:
  - a. All physical, chemical and biological data collected in the assessment;
  - b. All graphs, charts, statistical analysis, modeling, and any other analytical analyses in support of the Permittees' evaluation of the data and conclusions derived from that analysis; and
  - c. Documentation of quality assurance and control procedures (QA/QC).
7. An effectiveness assessment for each core program, as defined in the SWMP, shall be conducted annually, shall be built upon each consecutive year, and shall identify any necessary modifications. The SWMP shall describe, in detail, the performance standards or goals to

use to gauge the effectiveness of the storm water management program. The primary questions that must be assessed for each core program include the following:

- a. Level 1 Outcome: Was the core program implemented in accordance with the Order provisions, SWMP control measures and performance standards?
  - b. Level 2 Outcome: Did the core program raise the target audience's awareness of an issue?
  - c. Level 3 Outcome: Did the core program change a target audience's behavior, resulting in the implementation of recommended BMPs?
  - d. Level 4 Outcome: Did the core program reduce the load of pollutants from the sources to the storm drain system?
  - e. Level 5 Outcome: Did the core program enhance or change the urban runoff and discharge quality?
  - f. Level 6 Outcome: Did the core program enhance or change receiving water quality?
8. A summary of any Reports of Water Quality Exceedance (RWQEs) that have been completed during the year, and a status update for those in progress. The summary shall include the conclusions and recommendations of completed RWQEs and the status of any additional BMP implementation pursuant to RWQEs;
  9. Pursuant to 40 CFR 122.42(c)(7), the Permittees shall identify water quality improvements in, or degradation of, urban storm water;
  10. For each monitoring component, photographs and maps of all monitoring station locations and descriptions of each location;
  11. Recommendations to improve the monitoring program, BMPs, performance standards, and the SWMP to address potential receiving water quality exceedances and potential pollutant sources, and to meet the MEP standard;
  12. Provide operating data from all city and county pump stations (permanent and temporary) used to discharge storm water to surface

waters, as an appendix in electronic format only to assist in calculating flow volumes, as applicable.

- C. **Certification:** All work plans and reports submitted to the Central Valley Water Board shall be signed and certified pursuant to federal regulations at 40 CFR 122.41 (k). Each report shall contain the following completed declaration:

"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 submitting false information, including the possibility, of a fine and imprisonment for knowing violations.

Executed on the \_\_\_ day of, 201 \_\_, at \_\_\_\_\_.

(Signature)\_\_\_\_\_ (Title)\_\_\_\_\_";

The Permittees shall mail the original of each annual report to:

CALIFORNIA REGIONAL WATER QUALITY  
CONTROL BOARD – CENTRAL VALLEY REGION  
1685 "E" Street, Suite 100  
Fresno, CA 93706-2007

A copy of the annual report shall also be mailed to:

REGIONAL ADMINISTRATOR  
ENVIRONMENTAL PROTECTION AGENCY  
REGION 9  
75 Hawthorne Street  
San Francisco, CA 94105

## II. **MONITORING PROGRAM**

The primary objectives of the Monitoring Program shall include, but not be limited to:

- Assessing compliance with WDR Order R5-2013-\_\_\_\_\_;
- Measuring and improving the effectiveness of the SWMP;
- Assessing the chemical, physical, and biological impacts on receiving waters resulting from urban runoff;
- Characterizing urban runoff;
- Identifying sources of pollutants; and
- Assessing the overall health and evaluating long-term trends in receiving water quality.

Ultimately, the results of the monitoring requirements outlined below shall be used to refine the SWMP to reduce pollutant loadings and protect and enhance the beneficial uses of the receiving waters in the Bakersfield Urbanized Area. The Monitoring Program consists of the following elements:

- **Baseline Monitoring**
  - Wet Weather Monitoring
  - Receiving Water Monitoring
  - Dry Weather Field screening
- **Special Studies**
  - Copper and Zinc Investigation
  - Monitoring Data Assessment Methodology

The Permittees shall implement the Monitoring Program as follows:

### **Baseline Monitoring**

#### **A. Sampling Protocol**

1. Samples from each receiving water and discharge outfall location described below shall be collected and analyzed following standard U.S. Environmental Protection Agency (U.S. EPA) protocol (40 CFR Part 136).
2. The Permittees may discontinue sampling of a constituent if it is not detected at or above the method detection limit for its respective test method, as shown in Attachment 1, in the last 12 consecutive sampling events. The Permittees shall conduct confirmation sampling in the

fourth year of the Order for non-detected constituents during the first storm event monitored at each station.

3. Grab samples shall be used for receiving water monitoring. For monitoring of urban discharge outfalls during wet weather, the Permittees shall use flow-composite sampling equipment when feasible and grab samples otherwise.
4. The Permittees shall collect flow data at the time of sampling for all monitoring stations sampled during a given year. Receiving water or urban discharge flow may be estimated using U.S. EPA methods<sup>1</sup> at sites where flow measurement devices are not in place.

#### B. **Wet Weather Monitoring**

1. The Permittees shall continue to collect wet weather samples from three locations:
  - a. Mohawk Drive outfall to the detention basin;
  - b. North Chester Avenue manhole access north of the Golden State Overpass; and
  - c. Hawthorne Ravine at the intersection of Hawthorne Avenue and River Boulevard.
2. Wet weather monitoring shall be conducted **during two qualifying storm events**<sup>2</sup>.
3. Samples shall be collected during the first three hours of runoff from a storm event of at least 0.1 inches precipitation<sup>3</sup>. The two monitoring events shall be separated by at least 20 days. Inasmuch as possible, the Discharger shall collect samples early in the rain season during “first flush” conditions. The second storm event to be monitored shall be preceded by at least three dry weather days.
4. Collected storm water samples shall be analyzed for the constituents in Table 1.

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<sup>1</sup> NPDES Storm Water Sampling Guidance Document, U.S. EPA 833-B-92-001, July 1992

<sup>2</sup> A qualifying storm event occurs when there is sufficient rainfall within a 24-hour period to monitor at least one wet weather monitoring location and one corresponding receiving water station; the Permittees shall target storm events with a predicted rainfall of at least 0.25 inches at a seventy percent probability of rainfall 48 hours prior to the event.

<sup>3</sup> A day with a storm event too small to generate runoff (typically 0.1 inches or less) shall be considered a dry weather day.

**C. Receiving Water Monitoring**

1. All receiving water samples shall be grab samples, collected at mid-depth, in mid-stream of the receiving water, and in a manner that measures the water quality impacts of corresponding urban discharge outfalls. Receiving water sampling may be postponed if hazardous weather and/or river flow conditions prevent safe access to sampling location.
2. Receiving water monitoring shall be taken after discharges from the wet weather monitoring stations have occurred.
3. Each year, samples shall be collected **during two storm events** and during **one monitoring event during the dry season**.
4. Upstream receiving water sampling shall be taken at Rocky Point Weir, and downstream receiving water sampling shall be taken at Calloway Headgate.
5. Collected storm water samples shall be analyzed for the constituents in Table 1.

**Table 1. Monitoring Constituents**

Constituent	Unit	Wet Weather Monitoring	Receiving Water
		Sample Type	Sample Type
Biochemical Oxygen Demand	mg/L	Composite	Grab
Chemical Oxygen Demand	mg/L	Composite	Grab
Total Organic Carbon	mg/L	Composite	Grab
Total Dissolved Solids	mg/L	Composite	Grab
Total Suspended Solids	mg/L	Composite	Grab
Total Hardness (as CaCO <sub>3</sub> )	mg/L	Composite	Grab
Total Phosphorous	mg/L	Composite	Grab
Dissolved Phosphorous	mg/L	Composite	Grab
Total Kjeldahl Nitrogen	mg/L	Composite	Grab
Nitrate (as Nitrogen)	mg/L	Composite	Grab
Total Ammonia (as Nitrogen)	mg/L	Composite	Grab
Total Arsenic	µg/L	Composite	Grab
Total Cadmium	µg/L	Composite	Grab
Total Chromium	µg/L	Composite	Grab
Total Copper	µg/L	Composite	Grab
Total Lead	µg/L	Composite	Grab

Constituent	Unit	Wet Weather Monitoring	Receiving Water
Total Mercury	µg/L	Composite	Grab
Total Nickel	µg/L	Composite	Grab
Total Selenium	µg/L	Composite	Grab
Total Zinc	µg/L	Composite	Grab
Oil and Grease	mg/L	Grab	Grab
Specific Conductance	µmhos/cm	Grab	Grab
pH	units	Grab	Grab
Organochlorine Pesticides <sup>1</sup>	µg/L		Grab
Organophosphate Pesticides <sup>1</sup>	µg/L		Grab
Purgeable Aromatic Constituents <sup>1</sup>	µg/L		Grab
Herbicides <sup>1</sup>	µg/L		Grab
Total Coliform	MPN/100 mL	Grab	Grab
Fecal Coliform	MPN/100 mL	Grab	Grab
E. Coli and/or enterococcus <sup>2</sup>	MPN/100 mL	Grab	Grab

<sup>1</sup> Receiving water monitoring only.

<sup>2</sup> Monitoring of E. Coli and/or enterococcus shall begin following the update by the State Water Resources Control Board of its indicator bacteria water quality objectives, in accordance with any implementation schedule adopted with the update. If the update contains no implementation schedule, monitoring of E. Coli and/or enterococcus shall begin within 30 days of the final approval of the update.

#### D. Dry Weather Field Screening

1. The permittees shall conduct dry weather monitoring that screens all of the Permittees' outfalls each year.
2. Sites with sufficient flow will be analyzed in the field for temperature, pH, phenols, chlorine, total copper, specific conductance (EC), methyl blue activated substances (detergents/ surfactants), and turbidity.
3. The Permittees shall provide follow-up investigation to verify the presence of an illicit connection if the following action levels are exceeded:

**Table 2. Dry Weather Field Screening Action Levels**

Constituent	Units	Action Levels
Phenols	mg/L	>0.017
Total Copper	mg/L	>2
Electrical Conductivity	umhos/cm	>700
Methyl Blue Activated Substances	mg/L	>0.275
Turbidity	NTU	>55

## E. **Special Studies**

### 1. **Copper and Zinc Investigation and Reduction Plan**

**By <9 months from order adoption>** the Permittees shall submit for Executive Officer approval, a work plan and time schedule for the development of a copper and zinc investigation and reduction plan to evaluate the extent and cause of copper and zinc in the storm water discharge and to implement management actions to eliminate or reduce sources.

### 2. **Monitoring Program and Monitoring Data Assessment Methodology**

**By <9 months from order adoption>** the Permittees shall submit for Executive Officer approval, a proposal for modification of the monitoring program and monitoring data assessment methodology to provide a better overall assessment of the effectiveness of the SWMP. The assessment shall include a means of analyzing trends, identifying improvements to or degradation of receiving water quality, and calculating pollutant load reduction. The methodology shall insure the data collected are of the appropriate type and quality to provide meaningful assessment of the potential impacts of the MS4 on the receiving waters.

## III. **STANDARD MONITORING PROVISIONS**

All monitoring activities shall meet the following requirements:

### A. **Monitoring and Records [40 CFR 122.41(j)(1)]**

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

### B. **Monitoring and Records [40 CFR 122.41(j)(2)] [California Water Code §13383(a)]**

The Permittees shall retain records of all monitoring information, including all calibration and maintenance of monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the Report of Waste Discharge and application for this Order, for a period of at least five (5) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Central Valley Water Board or U.S. EPA at any time and shall be extended during the course of any unresolved litigation regarding this discharge.

C. Monitoring and Records [40 CFR 122.41(j)(3)]. Records of monitoring information shall include:

1. Date, location, and time of sampling or measurements;
2. Individual(s) who performed the sampling or measurements;
3. Date analyses were performed;
4. Individual(s) who performed the analyses;
5. The analytical techniques or methods used; and
6. Results of such analyses.

D. Monitoring and Records [40 CFR 122.41(j)(4)]

All sampling, sample preservation, and analyses must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this Order.

E. Monitoring and Records [40 CFR 122.41(j)(5)]

The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than \$20,000 per day of violation, or by both.

F. All chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by an appropriate governmental regulatory agency.

G. For priority toxic pollutants that are identified in the CTR (65 Fed. Reg. 31682), the MLs published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California 2005 (SIP) shall be used for all analyses, unless otherwise specified. Appendix 4 of the SIP is included as Table 1. For pollutants not contained in Appendix 4 of the SIP, the test method and method detection limit (MDL) listed in Table 1 shall be used for all analyses, and the ML for these parameters shall be lower than or equal to the lowest applicable water quality criteria from the Basin Plan and/or the SIP.

H. The Monitoring Report shall specify the analytical method used, the MDL and the ML for each pollutant. For the purpose of reporting compliance with numerical limitations, performance goals, and receiving water limitations,

analytical data shall be reported with one of the following methods, as appropriate:

1. An actual numerical value for sample results greater than or equal to the ML;
2. "Not-detected (ND)" for sample results less than the laboratory's MDL with the MDL indicated for the analytical method used; or
3. "Detected, but Not Quantified (DNQ)" if results are greater than or equal to the laboratory's MDL but less than the ML. The estimated chemical concentration of the sample shall also be reported. This is the concentration that results from the confirmed detection of the substance by the analytical method below the ML value.
4. For priority toxic pollutants, if the Permittee can demonstrate that a particular ML is not attainable, in accordance with procedures set forth in 40 CFR 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure (assuming that all the method specified sample weights, volumes, and processing steps have been followed) may be used instead of the ML listed in Appendix 4 of the SIP. The Permittee must submit documentation from the laboratory to the Central Valley Water Board Executive Officer for approval prior to raising the ML for any constituent.

I. Monitoring Reports [40 CFR 122.41(l)(4)(ii)]

If the Permittees monitor any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136, unless otherwise specified in the Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Annual Report.

J. Monitoring Reports [40 CFR 122.41(l)(4)(iii)]

Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.

K. If no flow occurred during the reporting period, the Monitoring Report shall so state.

L. The Executive Officer or the Regional Water Board, consistent with 40 CFR 122.41, may approve changes to the Monitoring Program, after providing the opportunity for public comment, either:

1. By petition of the Permittees or by petition of interested parties after the submittal of the Annual Report. Such petition shall be filed not later than 60 days after the Annual Report submittal date, or
2. As deemed necessary by the Executive Officer following notice to the Permittees.

Ordered by \_\_\_\_\_

PAMELA C. CREEDON, Executive Officer

\_\_\_\_\_  
Date

Attachment 1: LIST OF CONSTITUENTS AND THEIR ANALYTICAL LIMITS

**ATTACHMENT 1-  
 LIST OF CONSTITUENTS AND THEIR ANALYTICAL LIMITS  
 ORDER R5-2013-\_\_\_\_\_  
 CITY OF BAKERSFIELD AND COUNTY OF KERN  
 MUNICIPAL SEPARATE STORM SEWER SYSTEM**

<b>CONSTITUENTS</b>	<b>MLs<sup>1</sup></b>
<b>CONVENTIONAL POLLUTANTS</b>	
	<b>mg/L</b>
Oil and Grease	5
pH	0 - 14
<b>FIELD MEASUREMENTS</b>	
Date	mm/dd/yyyy
Sample Time	hr:min (regular time)
Weather	degrees F
Water Temperature	degrees C
<b>BACTERIA</b>	
Total coliform	<20 mpn/100ml
Fecal coliform	<20 mpn/100ml
E.coli and/or enterococcus <sup>2</sup>	<20 mpn/100ml
<b>GENERAL</b>	
	<b>mg/L</b>
Turbidity	0.1 NTU
Total Suspended Solids	2
Total Dissolved Solids	2
Total Organic Carbon	1
Biochemical Oxygen Demand	2
Chemical Oxygen Demand	20-900
Total Kjeldahl Nitrogen	0.1
Alkalinity	2
Total Ammonia (as Nitrogen)	0.1
Nitrate (as Nitrogen)	0.1

<sup>1</sup> For Priority Pollutants, the MLs represent the lowest value listed in Appendix 4 of SIP. MDLs must be lower than or equal to the ML value. If a particular ML is not attainable in accordance with procedures set forth in 40 CFR 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure may be used instead.

<sup>2</sup> Monitoring of E.coli and/or enterococcus shall begin following the update by the State Water Resources Control Board of its indicator bacteria water quality objectives, in accordance with any implementation schedule adopted with the update. If the update contains no implementation schedule, monitoring of E.coli and/or enterococcus shall begin within 30 days of the final approval of the update.

Total Phosphorus	0.05
Specific Conductance	1 umho/cm
Total Hardness	2
<b>METALS</b>	<b>µg/L</b>
Total Arsenic	2
Total Cadmium	0.25
Total Chromium	0.5
Total Copper	0.5
Total Iron	100
Total Lead	0.5
Total Mercury	0.2
Total Nickel	1
Total Selenium	2
Total Zinc	1