

**Item No. 4, MS4 Storm Water Permit**

**Santa Rosa, Sonoma County and the Sonoma County  
Water Agency**

**Executive Officer's Summary Report Attachment 5:**

**Draft Monitoring and Reporting Program**

California Regional Water Quality Control Board  
North Coast Region

Monitoring and Reporting Program No. R1-2009-0050  
NPDES No. CA0025054

For

The City of Santa Rosa, the County of Sonoma, and  
the Sonoma County Water Agency

Storm Water and Non-Storm Water Discharges from Municipal Separate Storm Sewer  
Systems

Sonoma County

**Monitoring Program**

1. The primary objectives of the Monitoring Program include, but are not limited to:
  - (a) Assessing the chemical, and biological impacts of storm water discharges on receiving waters resulting from urban storm water discharges;
  - (b) Assessing the overall health and evaluating long-term trends in receiving water quality;
  - (c) Assessing compliance with water quality standards;
  - (d) Characterization of the quality of storm water discharges;
  - (e) Identifying sources of pollutants; and
  - (f) Measuring and improving the effectiveness of requirements implemented under this Order and assessing the resultant reductions in pollutant loads.
2. The results of the monitoring requirements outlined below shall be used to refine BMPs for the reduction of pollutant loading and the protection and enhancement of the beneficial uses of the receiving waters in Sonoma County.
3. The Co-Permittees shall implement the Monitoring Program described below.

**A. Chemical Monitoring**

1. Outfall Mass Chemical Monitoring
  - (a) For each outfall, samples shall be collected in accordance with 40 CFR 122.21(g)(7).
  - (b) Frequency: The Co-Permittees will be responsible for annually monitoring six outfalls within the Laguna de Santa Rosa watershed. Wet weather samples shall be flow weighted composites, collected during the first 24 hours or for the duration of the storm event if it is less than 24 hours. Samples shall be collected from an outfall discharge resulting from a storm event that is 0.25 inches or greater. The flow-weighted composite sample for a storm water discharge shall be taken with a continuous sampler, or it shall be taken as a combination of a minimum of 3 sample aliquots, taken in each hour of discharge for the first 24 hours of the discharge or for the entire discharge if the storm event is less than 24 hours, with each aliquot being separated by a minimum of 15 minutes within each hour of discharge. The outfall locations shall be developed in consultation with Regional Water Board staff and shall be submitted to the

Executive Officer for approval by January 1, 2010. The monitoring shall include four events per year (two events during the wet season and two events during the dry season) at each outfall. Flow may be estimated using U.S.EPA methods at sites where flow measurement devices are not feasible. Grab samples (or instantaneous automatic measurements) shall be taken only for pathogen indicators, hardness (as mg/L CaCO<sub>3</sub>), pH, temperature, and DO.

(c) Outfall Chemical Monitoring Constituents:

Total Suspended Solids (TSS)	Total Phosphorus
pH	Orthophosphate
Temperature	13 Priority Pollutant Metals USEPA Method 200 <sup>1</sup> or 6000/7000
Biological Oxygen Demand (BOD)	Fecal Coliform
Total Kjeldahl Nitrogen (TKN)	E. Coli
Nitrate as N	Enterococcus
Nitrite as N	Hardness as CaCO <sub>3</sub>
Ammonia	Dissolved Oxygen (DO)

2. Receiving Water Chemical Monitoring

- (a) For each sampling location, samples shall be collected in accordance with 40 CFR 122.21(g)(7).
- (b) Frequency: monthly grab samples on Santa Rosa Creek - one site upstream and one site downstream of the urban area of the City of Santa Rosa.
- (c) Receiving Water Monitoring Constituents:

TSS	Ammonia
pH	Total Phosphorus
Temperature	Orthophosphate
BOD	Fecal Coliform
TKN	E. Coli
Nitrate as N	Enterococcus
Nitrite as N	DO

**B. Aquatic Toxicity Monitoring**

- 1. The objective of aquatic toxicity monitoring is to evaluate if discharges from the MS4 are causing or contributing to aquatic life toxicity in receiving waters.
- 2. Chronic Bioassays
  - (a) Frequency: Twice per year during periods of storm runoff discharge, three locations in receiving waters (Santa Rosa Creek – two sites) and downstream from discharge outfalls (Colgan and Piner Creeks – one site per event). The storm events shall be separated by a minimum of seven days of dry weather.

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<sup>1</sup> Frequency is once during the term of this Order.

- (b) Test species for chronic testing shall be a vertebrate, the fathead minnow, *Pimephales promelas* (larval survival and growth test), an invertebrate, the water flea, *Ceriodaphnia dubia* (survival and reproduction test), and a plant, the green alga, *Selenastrum capricornutum* (growth test).
3. Samples for toxicity can be taken as grab or flow-weighted composites samples during periods of urban storm runoff discharge influence on the receiving water, and can be collected manually or automatically.
4. Sample storage (holding time) time shall not exceed 72 hours (from collection through lab processing).
5. All constituents that caused toxicity or exceeded any applicable water quality objectives the previous year shall be listed in each Annual Storm Water Report.
6. A summary of the years' aquatic toxicity monitoring results with corresponding sampling dates shall be included with the Annual Storm Water Report.

#### **C. Bioassessment**

1. The Co-Permittees shall perform a bioassessment on five creek reaches, once during the permit term following the procedures set out in the Surface Water Ambient Monitoring Protocol (SWAMP).

#### **D. Special Studies**

1. Temperature Monitoring
  - (a) Each year the Co-Permittees shall monitor ten sites on Santa Rosa, Brush, Colgan, and Paulin Creeks with remote data loggers during the low flow season.
2. Bacteria Monitoring
  - (a) The Co-Permittees shall use bacteria infrared aerial imagery over Santa Rosa Creek and tributaries upstream of the Prince Memorial Greenway to identify any potential sewage leaks or locations needing further investigation once during the permit term.
3. Visual Flow Monitoring
  - (a) Volunteers and Co-Permittees' staff shall visually monitor flows in streams and storm drain outfalls within the Co-Permittees' jurisdiction to detect summertime non-storm water flows or abnormal discharges. Data collected shall include photographs (if possible), estimates of flow rate, description of algae growth if found, and descriptions of color, odor, floatables, debris, etc. This data shall be used to investigate, as needed, the drainage area contributing to storm drain outfalls for non-storm water flows. This information will be summarized in Annual Reports.

4. Kelly Farm Nutrient Monitoring

- (a) The Co-Permittees shall monitor the Laguna Subregional Water Reclamation System's Kelly Farm for nutrient runoff during storm events. This program shall monitor surface water runoff from the Kelly Farm in Duer Creek. The Co-Permittees shall sample two runoff events per year for two years. Multiple samples per event must be collected from Duer Creek as it enters and leaves the Kelly Farm for ammonia, nitrate nitrogen, total nitrogen and phosphorus. The draft study plan shall be submitted to the Regional Water Board for Executive Officer approval. The study shall be completed and results submitted to the Regional Water Board as part of the Year 4 annual report.

5. BMP Effectiveness Special Study

- (a) The Co-Permittees are proposing to develop and implement a water quality based study to (1) provide storm drain outfall monitoring data, and (2) evaluate the effectiveness of specific BMPs through a controlled study. Storm water discharges will be collected and analyzed in response to rain events. BMPs will be installed and monitoring will be completed to quantify the effectiveness of the BMPs. The draft study proposal shall be submitted to the Regional Water Board for Executive Officer approval. Study results and findings and recommendations will be reported as part of the Year 4 annual report.

6. Volunteer Monitoring Programs

- (a) The Co-Permittees shall encourage or support the development and implementation of volunteer monitoring programs in watersheds within the permit boundary.

**E. Standard Monitoring and Reporting Provisions**

1. All monitoring activities shall meet the following requirements:

- (a) Monitoring and Records [40 CFR 122.41(j)(1)]  
(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)] [Water Code §13383(a)]  
(1) The Co-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 (ROWD) 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 Regional 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 122.21(j)(3)]  
(1) Records of monitoring information shall include:  
(A) The date, time and exact location of sampling or measurements, weather conditions, and rain fall amount;

- (B) The individual(s) who performed the sampling or measurements;
  - (C) The date(s) analyses were performed;
  - (D) The individual(s) who performed the analyses;
  - (E) The analytical techniques or methods used;
  - (F) The results of such analyses; and
  - (G) The data sheets showing toxicity test results.
- (d) Monitoring and Records [40 CFR 122.21(j)(4)]
- (1) All sampling, sample preservation, and analyses must be conducted according to test procedures under 40 CFR Part 136, unless other test procedures have been specified in this Order. If a particular Minimum Level (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.
- (e) Monitoring and Records [40 CFR 122.21(j)(5)]
- (1) 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 2 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 imprisonment of not more than four years, or 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 (SIP) shall be used for all analyses, unless otherwise specified.
- (h) The Monitoring Report shall specify the analytical method used, the Method Detection Level (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.
- (i) For priority toxic pollutants, if the Co-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 Co-Permittees must submit documentation from the laboratory to the Regional Water Board Executive Officer for approval prior to raising the ML for any constituent.

- (j) Monitoring Reports [40 CFR 122.41(I)(4)(ii)]
  - (1) If the Co-Permittees monitor any pollutant more frequently than required by this Order 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 Monitoring Reports.
- (k) Monitoring Reports [40 CFR 122.41(I)(4)(iii)]
  - (1) Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.
- (l) The Regional Water Board 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 Co-Permittees or by petition of interested parties after submittal of the Monitoring Report. Such petition shall be filed not later than 60 days after the Monitoring Report submittal date; or
  - (2) As deemed necessary by the Regional Water Board Executive Officer following notice to the Co-Permittees.

Certification

I, Catherine Kuhlman, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on October 1, 2009.

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Catherine E. Kuhlman  
Executive Officer