

California Regional Water Quality Control Board
North Coast Region

Monitoring and Reporting Program No. R1-2008-0106
NPDES No. CA0025054

For

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

Storm Water (Wet Weather) and Non-Storm Water (Dry Weather) 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, physical, 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 objectives.
 - d) Characterization of the quality of storm water discharges.
 - e) Identifying sources of pollutants.
 - 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 Permittees shall implement the Monitoring Program as follows:

A. Chemical Monitoring

1. Outfall Chemical Monitoring
 - a) Frequency: Each Permittee will be responsible for monitoring two outfalls within their jurisdiction for a total of six outfalls monitored annually. The outfall locations shall be submitted to the Regional Water Board for Executive Officer approval by (90 days after permit adoption). The monitoring shall include four events per year (two events during the wet season and two events during the dry season) at each outfall.
 - b) Outfall Chemical Monitoring Constituents:

Total Dissolved Solids (TDS)	Phosphorus (total and dissolved)
Total Suspended Solids (TSS)	Total Organic Carbon
pH	Orthophosphate
Temperature	Biological Oxygen Demand (BOD)
Total Nitrogen	Total Coliform
Total Kjeldahl Nitrogen (TKN)	Fecal Coliform
Nitrate as N	E. Coli
Nitrite as N	Enterococcus

2. Receiving Water Chemical Monitoring
 - a) Frequency: monthly on Santa Rosa Creek one site upstream and one site downstream of the urban area of the City of Santa Rosa.
 - b) Receiving Water Monitoring Constituents:

Total Dissolved Solids (TDS)	Nitrite as N
Total Suspended Solids (TSS)	Ammonia
pH	Orthophosphate
Temperature	Phosphorus (total and dissolved)
BOD	Total Organic Carbon
Total Nitrogen	Total Coliform
Total Kjeldahl Nitrogen (TKN)	E. Coli
Nitrate as N	Enterococcus

B. Aquatic Toxicity Monitoring (Wet Weather)

1. The objective of aquatic toxicity monitoring is to evaluate if storm water (wet weather) discharges are causing or contributing to acute and/or chronic toxic impacts on aquatic life using toxicity tests.
2. Chronic Bioassays
 - a) Frequency: three locations during two storm events will be sampled annually. The storm events shall be separated by a minimum of seven days of dry weather.
 - 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, *Selanastrum capricornutum* (growth test).
3. Toxicity Identification Evaluations (TIE)
 - a) The Permittees shall complete acute and/or chronic TIEs for all sites showing 90 percent or more toxicity to any 1-test organism in the first year. The acute and chronic TIEs shall include the following treatments and corresponding blanks:
 - (1) Baseline toxicity.
 - (2) Particle removal by centrifugation.
 - (3) Solid phase extraction of the centrifuged sample using C18 media.
 - (4) Complexation of metals using ethylenediaminetetraacetic acid (EDTA) addition to the raw sample.
 - (5) Neutralization of oxidants/metals using sodium thiosulfate addition to the raw sample.
 - (6) Inhibition of Organophosphate (OP) pesticide activation using piperonyl butoxide addition to the raw sample (crustacean toxicity tests only).
4. Toxicity Reduction Evaluations (TRE)
 - a) When the same pollutant or class of pollutants is identified through the TIE process as causing at least 50 percent of the toxic responses in at least two samples at a sampling location, a TRE shall be performed for that identified toxic pollutant. TRE development shall be performed by a neutral third party (retained by the Permittees), in consultation with the Regional Water Board

- staff. The TRE shall include all reasonable steps to identify the source(s) of toxicity and discuss appropriate BMPs to eliminate the causes of toxicity. No later than 30 days after the source of toxicity and appropriate BMPs are identified, the Permittees shall submit the TRE Corrective Action Plan to the Regional Water Board Executive Officer for approval. At a minimum, the Plan shall include a discussion of the following items:
- (1) The potential sources of pollutant(s) causing toxicity.
 - (2) A list of municipalities that may have jurisdiction over sources of pollutant(s) causing toxicity.
 - (3) Recommended BMPs to reduce the pollutant(s) causing toxicity.
 - (4) Proposed post construction control measures to reduce the pollutant(s) causing toxicity.
 - (5) Follow-up monitoring to demonstrate that toxicity has been removed.
- b) Phase I results are intended as a first step in specifically identifying the toxicants but the data generated can also be used to develop treatment methods to remove toxicity without specific identification of the toxicants. Since Phase I TIEs characterize the physical/ chemical nature of the constituents which cause toxicity, additional TIE analyses may be required in order to identify and/or confirm the identity of the pollutants causing toxicity before the TRE can be completed.
- (1) Upon approval by the Regional Water Board Executive Officer, the Permittee(s) having jurisdiction over sources causing or contributing to toxicity shall implement the recommended BMPs and take all reasonable steps necessary to eliminate toxicity.
 - (2) The Permittees shall report on the development, implementation, and results for each TRE Corrective Action Plan in the Annual Report, beginning the year following the identification of each pollutant or pollutant class causing toxicity.
 - (3) Samples for toxicity are to be flow-weighted composites and can be collected manually or automatically.
5. Sample storage (holding time) time shall not exceed 72 hours (from collection through lab processing).
 6. The same refrigerated sample showing toxicity shall be used for the TIE, even though the holding time may exceed 72 hours.
 7. The Permittees shall report on the development, implementation, and results for each TRE Corrective Action Plan in the Annual Storm Water Report, beginning the year following the identification of each pollutant or pollutant class causing toxicity.
 8. All constituents that caused toxicity or exceeded any applicable water quality objectives the previous year shall be listed in each Annual Storm Water Report.
 9. A summary of the years' Aquatic Toxicity monitoring results with corresponding sampling dates shall be included with the Annual Storm Water Report.

C. Bioassessment

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

D. Special Studies

1. **Temperature Monitoring**
Each year the 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**
The 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**
Volunteers and Permittees' staff shall visually monitor flows in streams and storm drains within the Permittees' jurisdiction to detect excessive summertime flows or abnormal discharges.
4. **Atmospheric Deposition**
The Permittees shall identify a site, appropriate methods, and install a monitoring station to collect one year of data of nitrogen deposition. Sampling will include wet and dry collection methods to quantify the total amount of deposition occurring in the Santa Rosa area.
5. **Kelly Farm Nutrient Monitoring**
The 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 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.
6. **BMP Effectiveness Special Study**
The 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.
7. **Volunteer Monitoring Programs**
The Permittees shall participate in the development and implementation of volunteer monitoring programs in watersheds within the permit boundary.

E. Standard Monitoring Provisions

1. All monitoring activities shall meet the following requirements.
2. 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.
3. Monitoring and Records [40 CFR 122.41(j)(2)] [CWC §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 (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.
4. Monitoring and Records [40 CFR 122.21(j)(3)]
 - a) Records of monitoring information shall include:
 - (1) The date, time of sampling or measurements; exact place, weather conditions, and rain fall amount.
 - (2) The individual(s) who performed the sampling or measurements.
 - (3) The date(s) analyses were performed.
 - (4) The individual(s) who performed the analyses.
 - (5) The analytical techniques or methods used.
 - (6) The results of such analyses.
 - (7) The data sheets showing toxicity test results.
5. Monitoring and Records [40 CFR 122.21(j)(4)]
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.
6. Monitoring and Records [40 CFR 122.21(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 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.
7. All chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by an appropriate governmental regulatory agency.

8. 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.
9. 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:
 - a) An actual numerical value for sample results greater than or equal to the ML.
 - b) "Not-detected (ND)" for sample results less than the laboratory's MDL with the MDL indicated for the analytical method used.
 - c) "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.
10. 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 Permittees must submit documentation from the laboratory to the Regional Water Board Executive Officer for approval prior to raising the ML for any constituent.
11. Monitoring Reports [40 CFR 122.41(I)(4)(ii)]

If the Permittees monitor any pollutant more frequently than required by the 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.
12. Monitoring Reports [40 CFR 122.41(I)(4)(iii)]

Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.
13. 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:
 - (a) By petition of the 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
 - (b) As deemed necessary by the Regional Water Board Executive Officer following notice to the Permittees.

Reporting Program

F. Reporting Program Requirements

The Permittees shall submit an annual report in compliance with the Storm Water Management Plan (SWMP) and the requirements of Order No. R1-2008-0106 to the Regional Water Board Executive Officer in the form of a one hard copy and three compact disks (CD) (or equivalent electronic format). The Annual Report shall document the status of the general storm water program, the results of monitoring conducted under this Order, progress on implementing measurable goals, and compliance with the SWMP and Order No. R1-2008-0106.

Certification

I, Catherine E. 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 December 11, 2008.

Catherine E. Kuhlman
Executive Officer