

City of Murrieta
Municipal Separate Storm Sewer System (MS4)
Inspection Report

Background

PG Environmental, LLC, a USEPA Region IX contractor, with assistance from the California Regional Water Quality Control Board, San Diego Region (Regional Board), conducted inspections of the City of Murrieta's Municipal Separate Storm Sewer System (MS4) program on September 20, 2007 and January 17, 2008. Mr. Scott Coulson of PG Environmental, LLC led the inspection on both days and was assisted by Regional Water Board staff. Discharges from the City's MS4 are regulated by Regional Board Order No. R9-2004-001 (NPDES Permit No. CAS0108766) issued July 14, 2004. The purpose of the inspections was to determine the City of Murrieta's (hereafter, City or permittee) compliance with requirements contained within Regional Board Order No. R9-2004-001 (hereafter, Order), and to assess the permittee's current implementation status with respect to their Individual Storm Water Management Plan (SWMP). The initial September 20, 2007 inspection identified discrepancies between the Order requirements and the City's MS4 program implementation. The intent of the January 2008 inspections was to further investigate and substantiate the previously noted discrepancies while expanding the assessment to include additional program areas.

The inspections focused specifically on the following sections of the Order: (1) Requirement F. Development Planning and the implementation of Standard Urban Storm Water Mitigation Plan (SUSMP) requirements; (2) Requirement J. Illicit Discharge Detection and Elimination (IDDE) Program; and (3) Monitoring and Reporting Program No. R9-2004-001, Section II.B., Illicit Discharge Monitoring. The inspector did not evaluate or assess compliance with the following Requirements of the Order: G. Construction, H. Existing Development, I. Education, or K. Watershed-Based Activities. As such, the inspections were not intended to be a comprehensive evaluation of all components and requirements associated with the entire MS4 program.

The primary MS4 Program representative during the course of the inspections was Ms. Farida Naceem (Assistant Civil Engineer, Department of Public Works and Engineering). The weather was partly cloudy and dry on September 20, 2007; and sunny and dry on January 17, 2008.

The inspection schedule was as follows:

September 20, 2007	January 17, 2008
<i>City of Murrieta</i>	<i>City of Murrieta</i>
1:30 PM – Inspection kick-off meeting outlining objectives and logistics	9:00 AM – Inspection kick-off meeting outlining objectives and logistics
1:45 PM – Office discussion on SUSMP/WQMP	9:30 AM – Office discussion on IDDE Program
3:15 PM – Field visits to SUSMP/WQMP sites	1:00 PM – Office discussion on SUSMP/WQMP
4:30 PM – Meeting among inspection team members	1:30 PM – Field visits to SUSMP/WQMP sites
5:00 PM – Closing conference and presentation of preliminary findings	3:15 PM – Meeting among inspection team members
	4:00 PM – Closing conference and presentation of preliminary findings

Findings

Development Planning

Note: The permittee internally refers to the SUSMP documents as Water Quality Management Plans (WQMPs). Hereafter, these terms are used interchangeably.

1. Regional Board Order No. R9-2004-001, Requirement F.2.b., defines Priority Development Projects as: “(a) all new development projects, and (b) those redevelopment projects that create, add or replace at least 5,000 square feet of impervious surfaces on an already developed site, that are listed under the project categories or locations in Requirement F.2.b.(1).” A number of the project categories or locations listed in Requirement F.2.b.(1) specify the use of two categorical thresholds, both 5,000 square feet of impervious surface and the “land area for development.” In contrast, the permittee’s Checklist for Identifying Projects Requiring a Project-Specific WQMP within the Santa Margarita Region, dated June 2005 (hereafter, City WQMP Checklist), only utilizes an impervious surface categorical threshold. For example, the City WQMP Checklist specifies that the non-residential or commercial development “category includes projects that create more than *100,000 square feet of impervious surface* [emphasis added] (see attached Exhibit 1).” Regional Board Order No. R9-2004-001, Requirement F.2.b.(1)(b),

defines the commercial development category as “any development on private land that is not for heavy industrial or residential uses *where the land area for development is greater than 100,000 square feet* [emphasis added]” and that creates, adds or replaces at least 5,000 square feet of impervious surfaces. Additional categories where the City WQMP Checklist specifies an incorrect categorical threshold are: restaurants; and to a lesser extent parking lots; and streets, roads, highways, and freeways (see attached Exhibit 1). By using an incorrect categorical threshold, the City may not be requiring Project-Specific WQMPs for all development projects which are applicable to the SUSMP requirements. Pursuant to Regional Board Order No. R9-2004-001, Requirement F.2.b., the City shall implement a SUSMP to reduce pollutants to the maximum extent practicable (MEP) and to maintain or reduce downstream erosion and protect stream habitat from *all Priority Development Projects* [emphasis added].

2. Regional Board Order No. R9-2004-001, Requirement F.2.b.(6), Implementation Process, requires the City to “develop a process by which SUSMP requirements will be implemented.” Although a list of WQMP projects and hard copy project files are maintained, the City lacks a formal system to inventory the specific locations where BMPs are implemented, the corresponding maintenance obligations, and records demonstrating that maintenance has been performed. As a result, the City cannot ensure adequate long-term maintenance of the BMPs. As discussed onsite, the City should develop a formal system to track deployment, ownership, and maintenance history of WQMP BMPs to ensure adequate long-term maintenance of the BMPs.

Note: The inspection team visited a number of WQMP projects in various stages of development to generally observe BMP selection, placement, operation, and maintenance. The WQMP project sites that were visited include: (1) Jefferson Business Park (Case No. DPO-004-233), (2) Murrieta Creek Center (Case No. DPO-2004-248), and (3) The Orchard Center – Stone Creek (Case No. DPO-03-161).

Illicit Discharge Detection and Elimination Program

3. Regional Board Order No. R9-2004-001, Requirement J.8, requires the City to promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from its MS4. As provided by Ms. Naceem, the permittee primarily relies on the City’s main telephone line (951.304.CITY) as its public storm water reporting hotline and for all general inquiries by the public. Ms. Naceem recalled only one call during the permit term that had originated from the principal permittee’s public reporting hotline, whereas approximately 84 calls were received through the City’s main telephone line during the July 1, 2006 to June 30, 2007 reporting period. Although the City does not rely on the principal permittee’s public reporting hotline, this is the only number that is actively publicized. The City’s website (<http://murrieta.org/> accessed January 16, 2008), for example, does not include any information instructing the public on how to report illicit discharges or storm water quality issues. As a result, the City has not

adequately promoted, publicized and facilitated public reporting of illicit discharges or water quality impacts.

4. Regional Board Order No. R9-2004-001, Requirement J.2., requires the City to “develop or obtain an up-to-date labeled map of its entire MS4 and the corresponding drainage areas within its jurisdiction....The accuracy of the MS4 map shall be confirmed and updated at least annually.” The City has developed a map of its MS4 but the corresponding drainage areas for specific storm drainage system mains and outfalls were not delineated. As provided by Ms. Naceem, the City has never been able to identify and eliminate the source of an illicit discharge that was reported to its public storm water reporting hotlines (i.e., both the principal permittee’s hotline and the City’s main telephone line). Ideally, dry weather screening and analytical monitoring of outfalls or targeted locations within the MS4 would utilize the drainage infrastructure map as a base-level tool for investigation and identification of any illicit pollutant sources. Previous MS4 program evaluations have indicated that an adequate MS4 map can facilitate efforts to actively seek and eliminate illicit discharges and connections, when utilized in this manner. The City must develop or obtain an up-to-date labeled map of its entire MS4 and the corresponding drainage areas within its jurisdiction.
5. Monitoring and Reporting Program No. R9-2004-001, Section II.B.1.(a), states that “[Illicit Discharge Monitoring] stations shall be accessible points in the MS4 (i.e., outfalls, manholes or open channels) located downstream of potential sources of illicit discharges (i.e., commercial, industrial, and residential areas). Permittees shall use the MS4 map, developed pursuant to section J.2 of Order No. R9-2004-001, to help locate dry weather monitoring stations and to determine the number necessary to adequately represent the entire MS4.” The City has selected two Illicit Discharge Monitoring stations which are part of the open channel system, one of which is located in the California Oaks Channel. As provided by Ms. Naceem, this station has flowing water the majority of the year. As a result, the California Oaks Channel station is not representative of dry weather flow and therefore holds little value for identifying unauthorized dry weather discharges to the MS4 and eliminating their respective source(s). As discussed onsite, the City must select dry weather monitoring stations at appropriate points in the MS4, the number of which are adequate to represent the entire MS4 under dry weather conditions.
6. Monitoring and Reporting Program No. R9-2004-001, Section II.B.1.(a,) requires that each Illicit Discharge Monitoring station be inspected at least twice between May 1st and September 30th of each year. As provided by Ms. Naceem, the City’s two Illicit Discharge Monitoring stations were not identified and inspected until September 12, 2006. Additional monitoring had not been conducted as of January 17, 2008, the date of the second MS4 Inspection. Correspondingly, the 2006-2007 inspection records were the only Illicit Discharge Monitoring documentation that were produced at the time of inspection (see attached Exhibit 2). As a result, none of the monitoring stations were inspected twice during the May 1st to September 30th required time period in Monitoring Years 2005, 2006, or 2007. The City must inspect each Illicit

Discharge Monitoring station twice during the dry weather season of each Monitoring Year.

7. Monitoring and Reporting Program No. R9-2004-001, Section II.B.3, states that “Permittees shall develop numeric criteria for field screening and analytical monitoring results that will trigger follow-up investigations to identify the source causing the exceedance of the criteria.” As provided by Ms. Naceem, the City is utilizing the Riverside County Consolidated Monitoring Program for Water Quality Monitoring dated December 15, 2003 (hereafter, Consolidated Monitoring protocol) as its procedure for Illicit Discharge Monitoring. The Consolidated Monitoring protocol does not contain numeric criteria for laboratory analysis (see attached Exhibit 3). As a result, numeric criteria were not developed for the following required parameters: total hardness, oil and grease, ammonia nitrogen, total phosphorus, copper (total and dissolved), surfactants (MBAS), diazinon and chlorpyrifos, lead (dissolved), nitrate nitrogen, E. coli, total coliform, and fecal coliform.

Monitoring and Reporting Program No. R9-2004-001, Section II.B.3, also requires the City to develop numeric criteria for field screening activities. The Consolidated Monitoring protocol Section 3.4.9 states that “if the inspector is not able to apply BPJ [Best Professional Judgement] to determine if impairment may be occurring based on field water quality measurements, the following numeric guidance may be used.” These numeric criteria are displayed in Exhibit 3. The Consolidated Monitoring protocol Section 3.4.9 states “Turbidity >25% higher than the long term average” as the numeric criterion for turbidity. However, Ms. Naceem was unaware of a long term data set for the City’s selected dry weather monitoring stations that could be used as a basis for this numeric criterion. As a result, the City had not developed an adequate numeric criterion for turbidity. Furthermore, the City had not developed a numeric criterion for temperature, a required field screening analysis parameter. The City must develop numeric criteria for field screening and analytical monitoring results that will trigger follow-up investigations to identify the source causing any exceedance of the criteria.

8. Monitoring and Reporting Program (MRP) No. R9-2004-001, Section II.B.2.(a), requires the City to record the following general information at each inspected dry weather monitoring site: time since last rain, quantity of last rain, site descriptions, flow estimation, and visual observations. For all dry weather monitoring site inspections conducted in 2006 and 2007, inspection records did not document: (1) time since last rain, (2) quantity of last rain, (3) site descriptions, or (4) flow estimation (see attached Exhibit 4). Furthermore, because City staff had not recorded time since the last rain, the City cannot demonstrate that at least seventy-two hours of dry weather had elapsed prior to conducting field screening analysis, a requirement of Section II.B.2.(b) of the MRP. The City must record the minimum general information at each dry weather monitoring site inspected.
9. Monitoring and Reporting Program No. R9-2004-001, Section II.B.3, states that “Permittees shall develop numeric criteria for field screening and analytical

monitoring results that will trigger follow-up investigations to identify the source causing the exceedance of the criteria.” Pursuant to this requirement, the Consolidated Monitoring protocol Section 3.4.9 establishes the numeric criterion for Total Dissolved Solids (TDS) as “> 25% higher than WQO” (see attached Exhibit 5). The Water Quality Control Plan for the San Diego Basin, dated September 8, 1994 (hereafter, Basin Plan) specifies a TDS Water Quality Objective (WQO) for the Murrieta Hydrologic Area (HA) at 0.75 g/L. The permittee’s resulting numeric criterion for TDS is 0.9375 g/L. Exceedances of this TDS numeric criterion were reported at the California Oaks Channel Station on September 12, 2006 (TDS = 1,225 g/L) and May 24, 2007 (TDS = 1,176 g/L) (see attached Exhibit 6). Exceedances of the TDS numeric criterion were reported at the Catt Road Station on September 12, 2006 (TDS = 1,470 g/L) and May 24, 2007 (TDS = 1,386 g/L) (see attached Exhibit 6). Exhibit 7 provides a summary of the reported field screening exceedances and numeric criteria calculations. As provided by Ms. Naceem, she was unaware that the reported values were in exceedance of the numeric criterion and therefore had not conducted follow-up investigations to identify the source causing the exceedances. Monitoring and Reporting Program No. R9-2004-001, Section II.B.3, requires that “in the event of an exceedance of the criteria, Permittees shall implement the follow-up investigation procedures developed pursuant to section J.4 of Order No. R9-2004-001.”

Furthermore, Monitoring and Reporting Program No. R9-2004-001, Section II.C.(c), requires that records of monitoring information include the analytical techniques or methods used in the analysis. For the dry weather monitoring site inspections conducted in 2006 and 2007, monitoring records did not document the analytical techniques or methods used in the analysis (see attached Exhibit 6). As a result, it is unclear how the reported TDS values were derived. Records of monitoring information must include the analytical techniques or methods used in the analysis and all other information specified in Section II.C.(c) of the MRP.

**City of Murrieta - Municipal Separate Storm Sewer System (MS4)
(Order No. R9-2004-001)**

Exhibit Log

Inspected by: Scott Coulson (PG Environmental, LLC)

11/17/08
SC

		CHECKLIST FOR IDENTIFYING PROJECTS REQUIRING A PROJECT-SPECIFIC WQMP WITHIN THE SANTA MARGARITA REGION	
		Applicant Name: _____ Phone #: _____ Project Location: _____ Case #: _____ Tract #: _____ APN: _____	
	Does the proposed project incorporate any of the following items?	YES	NO
1	Modification to Existing Development (Significant Redevelopment) - this category includes the addition, creation or replacement of 5,000 sq. ft. or more of impervious surface on an already developed site. This category includes: (a) The expansion of a building footprint or addition or replacement of a structure; (b) Increase in gross floor area and / or exterior construction or remodeling; (c) Replacement of impervious surface that is not part of routine maintenance activities; and (d) Land disturbing activities related to a structure or impervious surface. Note: Where modification to existing development results in an increase of less than 50% of the impervious surface of a previously existing development, and the existing development was not subject to WQMP requirements, WQMP requirements shall apply only to the addition, and not to the entire development.		
2	Residential development - this category includes single-family homes, multi-family homes, condominiums and apartments consisting of 10 or more dwelling units.		
3	Non-residential development - this category includes projects that creates more than 100,000 sq. ft. of impervious surface.		
4	Automotive repair shops - this category includes facilities engaged in maintenance, mechanical repair, body and upholstery repair, painting, tire retreading and glass repair.		
5	Restaurants - this category includes all eating and drinking establishments that create more than 5,000 sq. ft. of impervious surface. Note: Restaurants with less than 5,000 sq. ft. of impervious surface shall meet modified WQMP requirements that exclude treatment controls and peak flow criteria		
6	Hillside development - this category includes any developments that create more than 5,000 sq. ft. of impervious surface located in an area with known erosive soil conditions, and where the project will require grading on natural slopes of 25% or greater.		
7	Environmentally sensitive areas (ESAs) - this category includes all development located within or directly adjacent to or discharging directly to an ESA which either creates 2,500 sq. ft. of impervious surface or increases 10% or more of its naturally occurring condition. Note: "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.		
8	Parking lots - this category includes projects that create 5,000 sq. ft. of impervious surface for temporary parking or storage of motor vehicles. This category includes parking lots associated with any of the developments listed above.		
9	Streets, roads, highways & freeways - this category includes projects that create 5,000 sq. ft. or more of impervious surface for transportation of motor vehicles.		
10	Retail gasoline outlets (RGOs) - this category applies if either the RGO is 5,000 sq. ft or more or with a projected average daily traffic (ADT) of 100 or more vehicles per day.		

A project-specific WQMP is required if the answer to any of the above questions is "YES."

WQMP for Santa Margarita Region can be found at <http://www.murrieta.org>

Rev. 00 (06/05)

Exhibit 1 – The City WQMP Checklist specifies a number of incorrect categorical thresholds for determining applicability of the SUSMP requirements

**City of Murrieta - Municipal Separate Storm Sewer System (MS4)
(Order No. R9-2004-001)**

Exhibit Log

Inspected by: Scott Coulson (PG Environmental, LLC)

5/12/08

#	Station Name	Date	Specific Conductance (µmhos/cm)	TDS (g/L)	Turbidity (NTU)	pH	Temperature (°C)	Dissolved Oxygen (mg/L)	Comments: (include odor, color, clarity, floatables, stains, oil, sheen, surface scum, etc. at each station)
1	California Oaks Channel	09/12/06	1.75	1,225	15	8.78	25.8	7.33	Light brown, clear, floating particles
		05/24/07	1.68	1,176	12	7.91	26.7	8.58	Brown, cloudy
2	Catt Road	09/12/06	2.1	1,470	18	8.58	27.3	9.49	Light brown, clear
		05/24/07	1.98	1,386	21	8.98	29.8	12.01	Slightly green, clear

Exhibit 2 – The 2006-2007 inspection records were the only Illicit Discharge Monitoring documentation that were produced at the time of inspection

City of Murrieta - Municipal Separate Storm Sewer System (MS4)
(Order No. R9-2004-001)

Exhibit Log

Inspected by: Scott Coulson (PG Environmental, LLC)

11/12/08
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- 3.4.9.2.1 Specific Conductance >25% higher than WQO
- 3.4.9.2.2 Total Dissolved Solids >25% higher than WQO
- 3.4.9.2.3 Turbidity >25% higher than the long-term average
- 3.4.9.2.4 pH below 6 or above 9.5
- 3.4.9.2.5 Dissolved Oxygen below 4 mg/L

3.4.9.3 Sample Measurement

See Section 3.G for general sample collection procedures

4. Field Procedures for Stormwater Monitoring

Stormwater monitoring is routine monitoring that is required for MS4 Permit compliance. Many of the procedures outlined for IC/ID monitoring can be followed for stormwater monitoring.

4.1 Prior to sampling

- 4.1.1 Field monitoring equipment should be checked at regular intervals and repaired promptly if needed.
- 4.1.2 Bottle supplies should be replenished after each sampling event. Supplies should be checked prior to the storm season and extra bottles ordered as anticipated.
- 4.1.3 Supplies should be checked at regular intervals. Damaged or worn-out supplies should be replaced.

4.2 Schedule monitoring activities

- 4.2.1 Put together sampling team. Two person teams are required for wet-weather sampling. A single person may collect dry-weather samples as long as a means of communication (e.g., radio or cell phone) with base is constantly available.
- 4.2.2 Bottle list varies depending on:
 - 4.2.2.1 Watershed
 - 4.2.2.2 Wet- or dry-weather sampling event

4.3 Day of sampling

- 4.3.1 Calibrate monitoring equipment (see Section 4.B.3.4.1)
- 4.3.2 Notify members of sampling team (see Section 4.B.3.4.2)
- 4.3.3 Notify Babcock Labs (see Section 4.B.3.4.3)
- 4.3.4 Load equipment and sample bottles into vehicle (see Section 4.G.4). The laboratory contains boxes pre-filled with sampling equipment, ice chests, and a binder with the bottle sets required. David Ortega (951-955-4390) has keys to the laboratory.
- 4.3.5 Fill ice chest(s) with ice

4.4 Sample collection

- 4.4.1 Arrive at sampling location
- 4.4.2 Follow the procedure outlined in Section 4.G.5. The sample category (Section 4.G.5.1.1.1) will vary according to the sampling event (e.g., wet or dry weather). The sample type (Section 4.G.5.1.1.2) may be "Grab" or "Composite" depending on permit requirements.
- 4.4.3 Collect a field screening sample and record the results on the Field Data Sheet (Appendix D.2). Section 4.B.3.4.9.1 contains a list of field parameters.
- 4.4.4 Calculate or estimate flow and record the results on the Field Data Sheet
- 4.4.5 Collect samples (see Section 4.G.3) and place the filled bottles in the ice chest. During wet weather, or if there are high flow during dry weather, it may not be safe to stand in the flow (see Section 4.G.5.1.10). Use a pole sampler to collect the sample.

Exhibit 3 – The Consolidated Monitoring protocol Section 3.4.9 lists the numeric criteria utilized for the City's Illicit Discharge Monitoring activities

**City of Murrieta - Municipal Separate Storm Sewer System (MS4)
(Order No. R9-2004-001)**

Exhibit Log

Inspected by: Scott Coulson (PG Environmental, LLC)

4/19/08
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#	Station Name	Date	Specific Conductance (µmhos/cm)	TDS (g/L)	Turbidity (NTU)	pH	Temperature (°C)	Dissolved Oxygen (mg/L)	Comments: (include odor, color, clarity, floatables, stains, oil, sheen, surface scum, etc. at each station)
1	California Oaks Channel	09/12/06	1.75	1,225	15	8.78	25.8	7.33	Light brown, clear, floating particles
		05/24/07	1.68	1,176	12	7.91	26.7	8.58	Brown, cloudy
2	Catt Road	09/12/06	2.1	1,470	18	8.58	27.3	9.49	Light brown, clear
		05/24/07	1.98	1,386	21	8.98	29.8	12.01	Slightly green, clear

Exhibit 4 – For all dry weather monitoring site inspections conducted in 2006-2007, inspection records did not document the required information

City of Murrieta - Municipal Separate Storm Sewer System (MS4)
(Order No. R9-2004-001)

Exhibit Log

Inspected by: Scott Coulson (PG Environmental, LLC)

11/12/08
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- 3.4.9.2.1 Specific Conductance >25% higher than WQO
- 3.4.9.2.2 Total Dissolved Solids >25% higher than WQO
- 3.4.9.2.3 Turbidity >25% higher than the long-term average
- 3.4.9.2.4 pH below 6 or above 9.5
- 3.4.9.2.5 Dissolved Oxygen below 4 mg/L

3.4.9.3 Sample Measurement

See Section 3.G for general sample collection procedures

4. Field Procedures for Stormwater Monitoring

Stormwater monitoring is routine monitoring that is required for MS4 Permit compliance. Many of the procedures outlined for IC/ID monitoring can be followed for stormwater monitoring.

4.1 Prior to sampling

- 4.1.1 Field monitoring equipment should be checked at regular intervals and repaired promptly if needed.
- 4.1.2 Bottle supplies should be replenished after each sampling event. Supplies should be checked prior to the storm season and extra bottles ordered as anticipated.
- 4.1.3 Supplies should be checked at regular intervals. Damaged or worn-out supplies should be replaced.

4.2 Schedule monitoring activities

- 4.2.1 Put together sampling team. Two person teams are required for wet-weather sampling. A single person may collect dry-weather samples as long as a means of communication (e.g., radio or cell phone) with base is constantly available.
- 4.2.2 Bottle list varies depending on:
 - 4.2.2.1 Watershed
 - 4.2.2.2 Wet- or dry-weather sampling event

4.3 Day of sampling

- 4.3.1 Calibrate monitoring equipment (see Section 4.B.3.4.1)
- 4.3.2 Notify members of sampling team (see Section 4.B.3.4.2)
- 4.3.3 Notify Babcock Labs (see Section 4.B.3.4.3)
- 4.3.4 Load equipment and sample bottles into vehicle (see Section 4.G.4). The laboratory contains boxes pre-filled with sampling equipment, ice chests, and a binder with the bottle sets required. David Ortega (951-955-4390) has keys to the laboratory.
- 4.3.5 Fill ice chest(s) with ice

4.4 Sample collection

- 4.4.1 Arrive at sampling location
- 4.4.2 Follow the procedure outlined in Section 4.G.5. The sample category (Section 4.G.5.1.1.1) will vary according to the sampling event (e.g., wet or dry weather). The sample type (Section 4.G.5.1.1.2) may be "Grab" or "Composite" depending on permit requirements.
- 4.4.3 Collect a field screening sample and record the results on the Field Data Sheet (Appendix D.2). Section 4.B.3.4.9.1 contains a list of field parameters.
- 4.4.4 Calculate or estimate flow and record the results on the Field Data Sheet
- 4.4.5 Collect samples (see Section 4.G.3) and place the filled bottles in the ice chest. During wet weather, or if there are high flow during dry weather, it may not be safe to stand in the flow (see Section 4.G.5.1.10). Use a pole sampler to collect the sample.

Exhibit 5 – The Consolidated Monitoring protocol Section 3.4.9 establishes the numeric criterion for Total Dissolved Solids (TDS) as ">25% higher than WQO"

**City of Murrieta - Municipal Separate Storm Sewer System (MS4)
(Order No. R9-2004-001)**

Exhibit Log

Inspected by: Scott Coulson (PG Environmental, LLC)

11/19/08
SL

#	Station Name	Date	Specific Conductance (µmhos/cm)	TDS (g/L)	Turbidity (NTU)	pH	Temperature (°C)	Dissolved Oxygen (mg/L)	Comments: (include odor, color, clarity, floatables, stains, oil, sheen, surface scum, etc. at each station)
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		05/24/07	1.98	1,386	21	8.98	29.8	12.01	Slightly green, clear

Exhibit 6 – Documentation of exceedances of the TDS numeric criterion (TDS > 0.9375 g/L) as reported at the California Oaks Channel and Catt Road Stations on September 12, 2006 and May 24, 2007

Exhibit 7: FIELD SCREENING EXCEEDANCE TABLE

Station Name	Date of Exceedance	Permit Parameter	Reported Value ¹	Effective Numeric Criteria ²
California Oaks Channel	September 12, 2006	Total Dissolved Solids	1,225 g/L	> 0.9375 g/L
	May 24, 2007	Total Dissolved Solids	1,176 g/L	> 0.9375 g/L
Catt Road	September 12, 2006	Total Dissolved Solids	1,470 g/L	> 0.9375 g/L
	May 24, 2007	Total Dissolved Solids	1,386 g/L	> 0.9375 g/L

In the event of an exceedance of the numeric criteria, Monitoring and Reporting Program No. R9-2004-001 Section II.B.3 requires implementation of the follow-up investigation procedures developed pursuant to Requirement J.4. of the Order.

¹ Reported Value is value obtained from the City's Dry Weather Monitoring Log.

² Effective Numeric Criteria is value resulting from calculations in the following Numeric Criterion Table.

**City of Murrieta - Municipal Separate Storm Sewer System (MS4)
(Order No. R9-2004-001)**

Exhibit Log

Inspected by: Scott Coulson (PG Environmental, LLC)

NUMERIC CRITERION TABLE

Basin Plan WQO for TDS¹	Numeric Criterion for TDS²	Effective Numeric Criterion for TDS
750 mg/L or 0.75 g/L	> 25% higher than WQO	> 0.9375 g/L

¹

WQO is value listed in the Basin Plan Table 3-2 for the Murrieta Hydrologic Area.

²

Numeric criterion is value listed in Riverside County Consolidated Monitoring Program for Water Quality Monitoring dated December 2003.