SECTION 8
TRAINING

Familiarity with the requirements of the stormwater sampling and analysis plan (SAP), and competence in the techniques and protocols specified in the plan, are essential to ensure that stormwater samples are collected in a manner that meets the goals of the plan, while protecting the health and safety of the monitoring team members. This section briefly describes the training necessary to provide members of the stormwater monitoring team with the knowledge and skills to perform their assigned duties competently and safely.

Stormwater monitoring training should include the following basic elements:

KEY TOPICS

- ➤ **Review Sampling and Analysis Plan**
- ➤ **Review Health and Safety Plan**
- ➤ **Classroom Training Session**
- ➤ **Field Training/Sampling Simulation (Dry Run)**
- ➤ **Annual Refresher Training**

All stormwater sampling personnel must receive training prior to conducting any stormwater monitoring activities. Because storm sampling events are difficult to predict, and monitoring projects often run for a year or more, there is a good chance that one or more members of the sampling team may be unavailable to sample a given storm due to sick leave, vacation, etc. Thus, it is advisable to designate alternate sampling crew members who can fill in when primary members are unavailable. These alternate stormwater sampling team members should receive the same training as the primary members in the event that a primary team member is unavailable.

➤ REVIEW SAMPLING AND ANALYSIS PLAN & HEALTH AND SAFETY PLAN

All stormwater sampling team members and alternates should read the entire stormwater SAP to obtain the background information required for an overall understanding of the project. Including, project organization (event criteria, sampling frequency, etc.), responsibilities, monitoring sites, analytical constituents, field equipment installation and maintenance, monitoring preparation and logistics, sample collection, laboratory methods, QA/QC, data management, clean sampling techniques, and health and safety.

Team members should also read the health and safety plan, to become aware of the potential hazards associated with stormwater sampling, and become familiar with the methods to be employed to cope with those hazards.

➤ CLASSROOM TRAINING SESSION

A classroom-format training session should be held for all stormwater sampling team members and alternates to review the sampling techniques and protocols specified in the monitoring plan. Ideally, the training session should occur shortly before the expected onset of the wet season.

The following documentation should be reviewed thoroughly by training personnel during the preparation of a training session outline:

- ✔ Sampling and analysis plan,
- ✔ Health and safety plan,
- ✔ Monitoring equipment manuals, and
- ✔ Caltrans Guidance Manual: Stormwater Monitoring Protocols.

The training session should be organized in a chronological fashion, in order to follow the normal train of events from pre-monitoring preparations through post-monitoring activities. All standard operating procedures for the sampling equipment should be covered, along with the site-specific responsibilities of individual team members. In addition, any questions arising from the document review should be addressed during this session. An example of a basic classroom stormwater training session outline is shown in Figure 8-1.

Training personnel should circulate a copy of the SAP, health and safety plan, and all other appropriate documentation during the training session. The following is an example of items which should be on hand during a training session:

- ✔ Documentation (SAP, health and safety plan, equipment manuals, etc.),
- ✔ Storm kit and sampling supplies,
- ✔ Portable monitoring equipment and water (for demonstration purposes),
- ✔ Sample bottles and example bottle labels, and
- ✔ An example chain-of-custody form (similar to Figure 10-1).

Key sections of the SAP should be highlighted during the training session, and use of equipment should be demonstrated. To emphasize the importance of minimizing sample contamination, special attention should be given to proper sample handling techniques (See ***Appendix F*** for a description of clean sampling techniques). Ample opportunity should be provided to answer questions posed by field crew members.

1.0 Present an overview of the project
- 1.1 Driving force of the project
- 1.2 Project goals
- 1.3 Project duration
- 1.4 Sampling site locations

2.0 Responsibilities of everyone involved with the project

3.0 Weather tracking/storm selection

4.0 Station preparation and maintenance
- 4.1 Pre-storm site visits
- 4.2 Storm event site visits

5.0 Sample bottle ordering, labeling and preparation

6.0 Notification procedures
- 6.1 Storm action levels
- 6.2 Telephone tree

7.0 Sample collection
- 7.1 Sampling site safety
- 7.2 Traffic control
- 7.3 Clean sample handling protocols
- 7.4 Sampling equipment operation
- 7.5 Grab and composite sample collection procedures
- 7.6 QA/QC sample collection
- 7.7 Sample preservation

8.0 Demobilization of field crews
- 8.1 Demobilization decision
- 8.2 Station shut down
- 8.3 Sample compositing and splitting
- 8.4 Sample delivery (including holding time issues)
- 8.5 Chain-of-custody

9.0 Open discussion/questions and answers

Figure 8-1. Classroom Stormwater Training Session Outline

➤ FIELD TRAINING/SAMPLING SIMULATION

After the classroom training session, all sampling team members and alternates should attend a field training sampling simulation, or "dry run," under the supervision of the project manager or sampling team leader. The "dry run" should begin with a brief review of the classroom session. During the "dry run" sampling team members travel to their assigned sampling locations and run through the procedures specified in the Sample Collection section of the SAP, including:

- ✔ Site access and parking at the site,
- ✔ Traffic control measures (if any),
- ✔ Calibrating field equipment,
- ✔ Preparing the stations for monitoring,
- ✔ Taking field measurements,
- ✔ Collecting stormwater samples,
- ✔ Downloading data from automated equipment,
- ✔ Completing sample labels and field log forms,
- ✔ Packing samples, and
- ✔ Delivering or shipping samples to the laboratory.

All of the equipment and materials required for a wet weather sampling event should be mobilized and used to simulate, as closely as possible, the conditions of an actual sampling event. All stormwater monitoring team members (including alternates) should receive hands-on training with all field equipment and sample handling procedures. The project manager or sampling team leader should re-emphasize health and safety considerations during the field sampling simulation.

➤ ANNUAL REFRESHER TRAINING

For multi-year projects, an annual refresher training session should be held prior to the onset of each subsequent rainy season. In this session, all stormwater monitoring team members (including alternates) should review the monitoring plan and health and safety plan, with particular emphasis on those aspects for which individual members are responsible. The project manager or sampling team leader should provide more detailed instruction for any new team members, and, at his/her discretion, repeat the classroom training session and field sampling simulation (for example, if there are several new sampling team members).