



It does not take a lot of rain to result in deep gully formations.

A discussion of California's new stormwater construction general permit that adds prevention and monitoring requirements.

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California's new Water Resources Control Board Construction General Permit became effective on July 1, 2010. The new permit requires all residential and commercial construction sites to monitor and prevent pollution from stormwater runoff. Landowners and contractors must have re-certified their stormwater pollution prevention plans (SWPPPs) by the July 1 deadline or have their permits terminated. The details of the program and the compliance measures it will require may be important for enterprises across the country, if California's rules – not for the first time – are copied by other states.

### SWPPP required

The new general permit requires the development and implementation of an SWPPP that is designed to ensure compliance during the construction and post-construction phases of the project. It should include a site map(s) that shows the construc-

tion site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography (before and after construction), and drainage patterns.

As of July 1, 2010, developers of projects that disturb one or more acres of soil, or are part of a larger development plan that disturbs one or more acres, are required to obtain coverage under a new Construction Permit (2009-0009 Permit). Some of the changes found in the new permit include:

- Establishing a "legally responsible person"
- Training and designations for SWPPP developers
- Training and designations for SWPPP practitioners
- Re-certification of the SWPPP through the Web-based SMARTS system
- Determining the site risk level
- Adhering to numeric action levels (NALs)
- Maintaining numeric effluent limitations (NELs)
- Generating a rain event action plan (REAP)

- Implementing more specific construction best management practices (BMPs)
- Monitoring for pH and turbidity
- Receiving water bio-assessments
- Annual reporting

The SWPPP must list the BMPs that will be in place to manage stormwater runoff, as well as the placement of the BMPs. The stormwater plan must also contain a visual monitoring program; a chemical monitoring program for "non-visible" pollutants (implemented if there is a failure of BMPs); and a sediment monitoring plan if the site directly discharges to a water body listed on the federal EPA 303(d) list for sediment. BMPs must be inspected weekly.

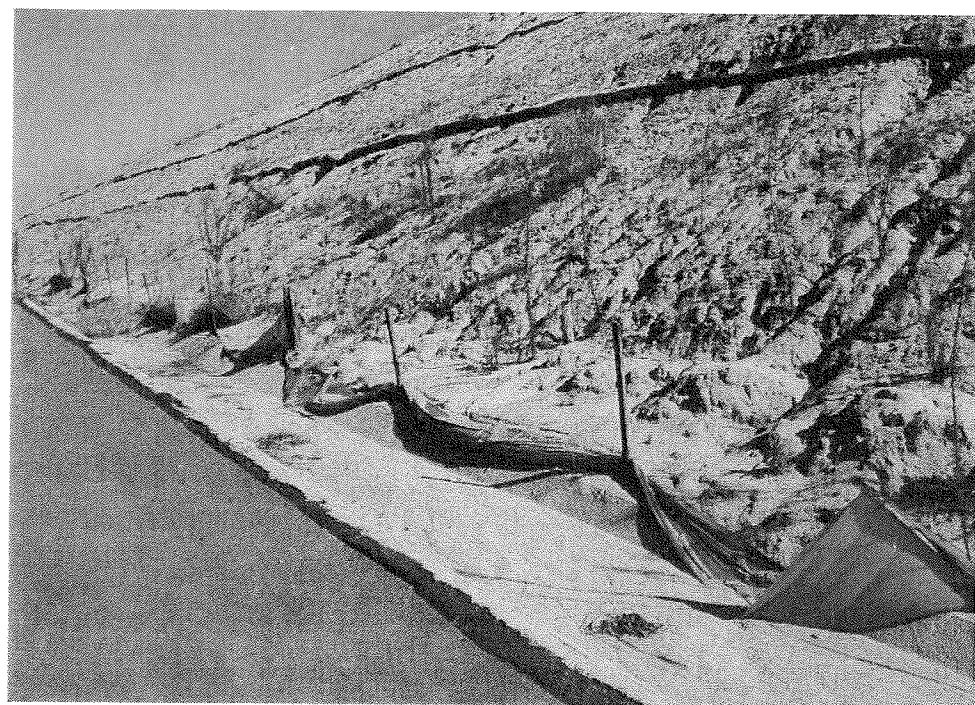
The goal is to minimize construction site discharges by including mandatory monitoring, a REAP, and bio-assessments.

## Monitoring and measuring

Monitoring programs can require the estimation of pollutant levels in discharges to receiving waters, especially in total daily maximum loads (TMDL) studies. Numerous sampling approaches are then available to complement the study design, satisfy financial constraints, and ensure data quality requirements. The event mean concentration (EMC) for the runoff event is often used in reporting results. Flow weighted composite sampling is a strategy used by many stormwater agencies, which results in a storm EMC by compositing individual sample aliquots into a 19-liter sample container.

Another collection method is pollutograph sampling, which is a more intensive sampling approach consisting of collecting and analyzing eight to 12, 3.7-liter samples throughout a storm. When coupled with the instantaneous flow data, pollutograph samples can be used to calculate an EMC for a runoff event. Stormwater sampling programs are often developed to comply with regulatory requirements such as TMDLs. Those loads are typically calculated by estimating a storm EMC and multiplying that by the total storm volume to obtain a load.

An active construction site with numerous potential discharge points will need sufficient on-site staff to monitor the site during the storm event. Each of the sam-



**The new general permit will have new requirements for erosion control to protect waterways and adjacent areas.**

pling staff is required to be a delegate of a qualified SWPPP practitioner. A minimum of three readings for pH and turbidity are required, taken from samples collected at the discharge points. These values are reported and compared to the NELs and NALs.

These mandatory monitoring requirements define the during-storm staffing requirements. Receiving water monitoring should be done when the turbidity of stormwater discharges from a construction site exceeds an NEL. This means collecting additional water samples from several places within the water body during the storm.

Mandatory sampling is required for all runoff from construction sites. The surface water ambient monitoring program has a guidance compendium for watershed monitoring and assessment. Handheld pH probes, or pocket meters, can be used provided they are regularly calibrated and cleaned.

Turbidity sampling is also required. Electronic turbidity meters yield results in nephelometric turbidity units. These meters also require regular calibration and cleaning.

## When it rains...

Another new requirement is the REAP. Construction sites are dynamic and things can quickly change as stockpiles are moved and new areas are excavated. The REAP defines the stormwater sampling activities, suggested actions for each construction phase, and should be provided at least 48 hours before a 50 percent or greater chance of rain. The REAP provides the construction staff with the most up-to-date information for the site, so appropriate actions can be taken to remove debris, cover stockpiles and further define the site BMPs. All discharge points must be sampled at least three times a day during rain events.

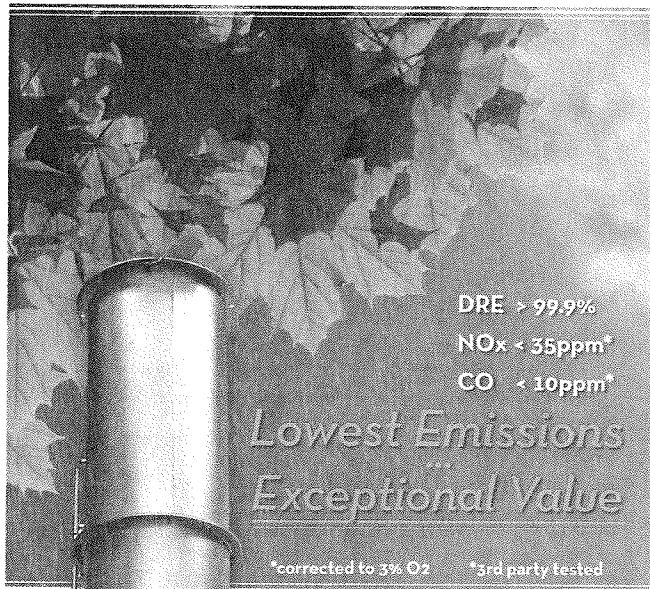
Collecting a minimum of three samples per rainfall event allows a better representation of the discharge water. Since each sample is averaged with the other samples, repairing breached BMPs and then collecting more samples could help bring the average results within limits.

## Health assessment

The new permit also defines the necessary stream bioassessments, which evaluate the health of the body of water. This is

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**Once vegetation is disturbed, rainfall can quickly cause  
major erosion, which can add costs to any project.**

necessary if the construction disturbs more than 30 acres and directly discharges water into a sediment-impaired water body. An assessment should document the presence of crustaceans, crayfish, clams, snails, aquatic worms, and insects. It should also document the condition, types and numbers of fish, insects, algae, plants, and other organisms.

### Good news for small projects

The Rainfall Erosivity Waiver is available for sites between one and five acres and will soon be completed. If the project is started and completed within the dry-season months, and other conditions are met, the project can be relieved of the permitting requirements.

### SMARTS

The stormwater multiple application reporting and tracking system (SMARTS) is a Web-based service providing a platform for owners to file all project related documents including processing, reviewing, updating, terminating notices of intent, annual reports, and maintaining the billing status of each discharger. Users can also view/print receipt letters, monitor the status of submitted documents, and view their application/renewal fee statements. The system also allows Regional Board and State Board staff to process and track the discharger submitted documents.

The requirements of the new California General Permit are not trivial, and carry significant legal implications. Builders and developers who are not intimately familiar with the new permit should consider seeking professional assistance to ensure compliance with its requirements and protocols. **PE**

For more information, contact Sean Porter, senior technical advisory and stormwater manager for SCS Engineers at (858) 571-5500.

All images were provided by Summit Erosion Control.



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OCTOBER 2010

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