Construction General
Permit – Stormwater
Deadline: 5/4/07 5pm

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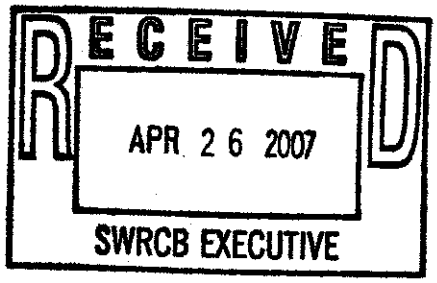


Ms. Song Her
Clerk to the Board State Water Resources Control Board
1001 I Street, 24th Floor
Sacramento, CA 95814

April 27, 2007

Comments on California Draft Construction General Permit

Dear Ms. Her,

Please consider the following comments on the Draft Construction General Permit. I am an environmental geochemist with ProTech Services of Fairfield, CA. We have extensive experience operating Advanced Treatment Systems for construction site stormwater, in the Sacramento and the Bay areas, and I believe you will find my comments of interest.

Text excerpts from the Draft CGP are referenced, with their page and item numbers, followed by my comments.

Please contact me if you have any questions or would like to discuss any of these comments.

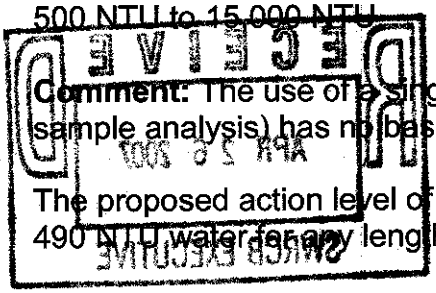
George Nibler
208-344-7120

Page 3, item 10. The State Water Board convened a panel of storm water experts that submitted a report entitled, "The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities," dated June 19, 2006. The panel concluded that numeric limits or action levels (ALs) are technically feasible for construction storm water discharges, however the panel had several reservations and concerns. The panel also concluded that numeric effluent limitations (NELs) are feasible for discharges from construction sites that utilize an Active Treatment System (ATS) 2. The State Water Board incorporated suggestions from the expert panel report into this General Permit, which includes ALs for pH, turbidity and Total Petroleum Hydrocarbons (TPH) and includes NELs for pH and for ATS discharges.

Comment: This statement indicates that the Board incorporated the Panel ("the Blue Ribbon Panel") recommendations. However, many of the Panel's suggestions were disregarded or applied out of their original context. Specific examples are detailed in the following comments.

Page 4, item 13. This General Permit establishes a turbidity AL of 500 NTU based on an analysis of data representing background conditions and actual construction site

characteristics. The data for actual turbidity values shows that typical construction site runoff in California ranges from 15 NTU to 16,000 NTU (http://www.dot.ca.gov/hq/env/stormwater/pdf/CTSW-RT-02-055.pdf). Other sources indicate similar range of values. The USEPA estimated sediment loads as part of their effluent limitation guidelines for construction activities. The estimates also equate to approximately 500 NTU to 15,000 NTU.



Comment: The use of a single action level (for sites that are not using an ATS based on soil sample analysis) has no basis in terms of receiving water quality or protection of aquatic life.

The proposed action level of 500 NTU appears to allow, for example, a project to discharge 490 NTU water for any length of time, at any flow rate. Is this correct?

It is stated that the AL of 500 NTU is "based on an analysis of data representing background conditions and actual construction site characteristics" and references the CALTRANS study. The CALTRANS study does NOT represent background data; it is strictly a compilation of data from untreated construction site runoff. Furthermore, there is no discussion of background levels of receiving waters, BMPs used, or the effects of discharging untreated water (up to 16,000 NTU).

An action level of 500 NTU is likely to have serious negative consequences for some receiving waters. It has been well documented that turbidity levels in this range are significantly harmful or lethal to aquatic life. For example, a recent study by the Oregon DEQ (Flocculation of Construction Site Runoff in Oregon, Dennis Jurries, PE, Stormwater Engineer, DEQNWR) states:

"...turbidity of 5 NTU can reduce primary production in a normally shallow (1.5 feet) clear water stream by 13%; a 25 NTU increase in turbidity may reduce primary production by 50%."

And:

"... prolonged exposure (of salmonid fishes) to a turbidity level of 25 NTU can result in reduced growth.."

The "Blue Ribbon Panel" describes an action level as follows:

Page 8 – "*we are calling this "upset" value an Action Level because the water quality discharged from such locations are enough of a concern that most all could agree that some action should be taken. Action Levels could be developed using at least three different approaches. These approaches include: 1) consensus based approach; 2) ranked percentile distributions; 3) statistically-based population parameters.*"

The "Blue Ribbon Panel" states (p.11):

"The ranked percentile and population-based estimators are highly dependent upon the data sets used to calculate them."

The "Blue Ribbon Panel" also states (p.16):

"Therefore, it is important to consider natural background levels of turbidity or TSS in setting Numerical Limits or Action Levels for construction activities. The difficulty in determining natural background concentrations/levels for all areas of the state could make the setting of Numeric Limits or Action Levels impractical from an agency resource perspective."

The proposed 500 NTU AL is inconsistent with the Blue Ribbon Panel's recommendations, in addition to having no scientific basis in terms of protection of receiving water quality and aquatic life. To protect receiving water quality and aquatic life the any action level must be tied to background levels of the receiving water, as stated by the Blue Ribbon Panel. Background level-related standards are commonly applied by State stormwater regulators throughout California and the country, and their supporting arguments extensively developed, so we will not present the details of that argument here.

Page 5, item 14. This General Permit establishes ALs and NELs in order to ensure that dischargers apply appropriate technologies to minimize the discharge of pollutants and to protect beneficial uses and receiving waters from construction-related storm water discharges. Low risk projects are exempt from the AL and NEL requirements in this General Permit. The ALs in this General Permit are not directly enforceable and do not constitute NELs.

Comment: The AL versus NEL distinction is confusing and seemingly arbitrary. The AL, as applied here, will not protect water quality and will instead allow projects to (potentially) wait until after significant volumes of high turbidity water is discharged into receiving waters. We suggest that the AL concept be removed and rely on project-specific NEL related to background levels. Additionally, the proposed AL is not consistent with the "Blue Ribbon Panel" recommendations. See comments above.

Page 5, item 19. Soils with more than 10% (by weight) of their particles smaller than 0.02 millimeters (mm) (i.e., finer than medium silt) do not settle easily using conventional measures for sediment control (i.e., sediment basins). Given their long settling time, disruption of such soils results in a significant risk that fine particles will be released into surface waters and cause unacceptable downstream impacts. If operated correctly, an Active Treatment System (ATS) can prevent or reduce the release of fine particles from construction sites. Therefore, dischargers whose sites contain such soils must implement either an ATS or, alternatively, the source control measures specified in Section G to ensure that these fine particles are not released into receiving waters.

Comment: Please provide data to support the relationship between grain size distribution and turbidity of runoff. While in principle the grain size distribution gives an indication of expected turbidity, the proposed approach will not necessarily assure that ATSs are used where needed. For example, soils containing only a percent or two of fine clays can result in high turbidity water that will not settle out in a reasonable length of time.

A better approach would be to use representative soil samples to generate simulated stormwater, and evaluate them for turbidity and settling characteristics. Additionally, the proposed soil sampling frequency (a single sample from each mapped soil type) is probably inadequate for many sites. A method should be specified that assures representative (multiple or composite) samples are collected. See comment on page 13, item B3 below.

Page 7, item 26. This General Permit establishes requirements based upon the project's overall risk to cause pollution. The table below summarizes the differences between the risk categories. [followed by table with monitoring and other requirements]

Comment: The Table states that receiving waters at medium risk sites only require sampling after exceeding ALs/NELs for two consecutive storm events, and at high-risk sites immediately after exceeding ALs/NELs for one storm event. Because turbidity and other water quality parameters changes rapidly during and after storm events, this data will serve no useful purpose. For the receiving water data to have any relevance to discharge water quality, it must be collected during the event. Recognizing this may not always be possible, it should probably be stated "during the event or as soon as possible". If NELs are tied to background levels, it will be in the best interest of the contractor to make prompt measurements.

The Table and its footnotes include the AL and NEL distinction which should be removed - see above comments.

Page 11, item 4. NELs for discharges from an ATS:
a. Acute toxicity of ATS discharges shall have no significant difference, at the 95% confidence level, between the control 8 discharge and 100 percent effluent (a t-test) 9, applied as a monthly median of pass-fail tests.
b. Chronic toxicity of ATS discharges shall be equal to 1.0 TUc, where TUc = 100/NOEC.
c. The pH of ATS discharges shall at all times be within the ranges of 6.5-8.5 pH Units.
d. Turbidity of all ATS discharges shall be less than 10 NTU.

Comment on toxicity testing: Toxicity testing is an inappropriate method for monitoring the toxicity of water discharged from an ATS. Toxicity testing normally requires days to weeks to complete (with the exception of MicroTox-type field tests that are not under consideration here). Any situation that might result in toxic effects, such as an overdose of polymer coagulant, would occur in a matter of hours. Therefore toxicity testing can serve no useful purpose in ATS monitoring and control.

Toxicity data should be determined for specific water treatment chemicals prior to their use in the field, and real-time monitoring of chemical levels in effluent water should be conducted to assure that levels are below the toxic threshold. The technology to perform real-time monitoring is readily available and has been thoroughly demonstrated in ATS applications in California. Please contact me for more information or a demonstration.

Comment on ATS 10 NTU discharge criteria: During storm events, when influent water can increase in turbidity from a few hundred to a few thousand NTU, background turbidity levels of receiving waters will also generally increase, sometimes to several hundred NTU. An ATS can be designed to meet 10 NTU discharge during storm events, although it is likely to greatly increase system operating costs, holding basin volume requirements, etc.

The only practical and scientifically justifiable discharge criteria is one tied to background levels, which takes into account natural variation during storm events. See comment on page 4, item 13, above.

Page 12, Item 6. Storm water and non-storm water discharges from medium and high risk construction projects shall not be more than 0.2 standard units higher or lower than the pH of

the receiving water. **And Item 7**. Storm water discharges from an ATS shall not be more than 0.2 pH units higher or lower than the pH of the receiving water.

Comment: +/- 0.2 pH units from receiving water is not a reasonable limit for two reasons: First, receiving waters can be greater than +/- 0.2 pH units from tributary streams or natural runoff under undisturbed conditions, and second, ATS discharges can vary more than +/- 0.2 pH units, not necessarily due to chemical additives but due to construction site soil treatment, runoff over concrete, etc. The proposed AL/NEL limit of 6.5 – 8.5 is reasonable based on protection of aquatic habitat.

Page 16, Item B3. At least one sample shall be taken per mapped soil unit on the site. Soil information can be obtained from a local Natural Resources Conservation Service (NRCS) Field Office, published soil surveys, or from the NRCS soils website (http://soils.usda.gov).

Comment: One sample per site will be insufficient to adequately characterize many sites and account for variability. Mapped soil units are too coarse to describe soil variation on a scale relevant to water quality. Consider language stating "the determination of number and location of samples to characterize a site will be made by a licensed civil or geotechnical engineer, and will include a minimum of one sample per mapped soil unit."

Page 26, Item M1. Training and Qualifications - All persons responsible for implementing requirements of this General Permit shall be appropriately trained. This includes those personnel responsible for installation, inspection, maintenance, and repair of BMPs…

Comment: Training requirements should include specific training for ATS operators. ATS upsets that have occurred have been the result of operator error. ATS-specific training courses with formal certification are now offered by Northern California Laborers Union, and can readily be made available statewide.