Storm Water Panel Report
Deadline: 9/1/06 5pm

CONTECH STORMWATER SOLUTIONS INC.

September 1, 2006

Ms. Song Her
Clerk of the State Water Resources Control Board
PO Box 100
Sacramento, CA 95812-0100

RE: Panel Report on the Feasibility of Numeric Effluent Limits

Dear Members of the Board,

Thank you for the opportunity to comment on the blue ribbon panel report on the feasibility of establishing numeric effluent limits for stormwater discharges. My comments are directed toward developing a reasonable approach to regulating post construction stormwater treatment practices in the municipal sector. They can be summarized in three main points:

1. The current Maximum Extent Practicable (MEP) framework contains no baseline performance standard and encourages best management practice (BMP) designs that safeguard water quality to the "minimum extent allowable".

2. A baseline performance standard should be set for all significant development projects that includes three elements:
   a. A design storm
   b. A description of pollutants to be treated
   c. A specific level of pollutant reduction

3. Innovative BMPs will be required as more stringent performance expectations result from TMDL programs. A program for their evaluation should be developed or adopted.

Generally, the panel does an excellent job of identifying the challenges in applying numeric effluent limits to municipal discharges, which we agree is not feasible at this time. Furthermore we agree that BMP design and selection needs to be more firmly based on an understanding of unit processes. We also encourage the adoption of an iterative BMP based approach whereby compliance is assessed based on proof of proper design and construction and adequate maintenance.

Adoption of the iterative BMP approach implies that there is a hierarchy of treatment options that can be referenced to ensure that successively more effective treatment is achieved if water quality goals are not met. The CASQA Municipal BMP handbook is a step in this direction with its box and whisker plots of effluent concentration, but these performance levels are not sufficiently linked to design parameters. For example there is no way to calculate the impact of changing the overall size or geometry of a BMP on its performance. A renewed focus on unit

processes will enable more meaningful comparisons of the anticipated performance of various treatment options.

The panel makes the excellent recommendation that the CASQA municipal handbook "should be revised as a criteria manual rather than a guidance manual". This will help ensure that newly designed BMPs perform similarly to those that have been studied. Good examples of the linkage between unit processes and performance can be found in design manuals for some proprietary treatment systems where specific reduction rates for specific pollutants are disclosed as a function of hydraulic loading rate.

Treatment to the Maximum Extent Practicable?

It is clear from our experience and from the observations of the panel that the current MEP framework does not ensure that water quality is adequately protected or restored. The typical 85th percentile design storm standard that currently appears in Stormwater Management Plans statewide is a good start toward ensuring that adequate treatment occurs, but it needs to be accompanied by a BMP performance standard that is more specific than MEP. It is our experience that post construction stormwater treatment BMPs are consistently designed to "treat" the 85% percentile or greater design storm, however the level of treatment varies widely. At one extreme treatment trains including screening, extended detention, filtration, infiltration or even disinfection components are specified to remove high levels of pollutants. In other cases, "treat" is apparently interpreted to mean "convey through a treatment device" and undersized BMPs are installed with little water quality benefit. In some cases, no specific treatment is required by the reviewer and no performance expectation is disclosed by the BMP designer.

It is understood that the intent of leaving MEP undefined and relying on the iterative process is to encourage the most effective treatment that is still financially feasible for all sites. Unfortunately in most cases stormwater design engineers tend to be design facilities that treat to the "Minimum Extent Allowable". At the project level we have another iterative process at work, where engineers specify the minimum level of treatment that is likely to get approved. If it's rejected by the plan reviewer, higher performing iterations are developed and submitted until a mutually agreeable design is accepted. The chief determinant of the robustness of the treatment BMPs specified seems to be the plan reviewer's assessment of what constitutes treatment to the Maximum Extent Practicable. This is a subjective interpretation that varies widely between and sometimes within review groups.

A Baseline Performance Standard

This process would be far more consistent and ultimately more protective of water quality if there was some baseline performance standard that must be met on all significant development projects, even in those draining to non-listed water bodies. This would also provide the ability to require increasing levels of performance depending on the observed impacts on water quality. For instance, if water quality is found not to be improving at an acceptable rate, the baseline standard would be raised. This is a realistic way to move toward higher level treatment as may be required by the iterative process.

In contrast to the MEP standard in California, programs in States like Washington, New Jersey, Maine, Oregon, Wisconsin and others contain BMP design standards including three components: A description of a design storm; a description of what pollutants must be treated; and a specific level of pollutant reduction required during that design storm. Additionally these programs all have adopted or developed BMP design criteria that are linked to specific performance objectives. California stormwater plans typically lack specific performance objectives.

A baseline performance standard should, at a minimum, require a specific sediment reduction goal and should require that mechanism for removal of floating pollutants including oil and grease is provided. It should also require that all BMPs utilized have a demonstrated field record of operational feasibility. A practical strategy for removing accumulated pollutants and maintaining functionality of the various unit processes is essential. Aesthetic maintenance is not enough!

There is vigorous debate regarding the utility of the Total Suspended Solids analytical method for stormwater treatment with growing support for the use of the Suspended Solids Concentration method instead. There is also important debate regarding measuring performance based on effluent concentration vs. removal efficiency. For the purposes of setting a BMP performance standard to be used in the iterative BMP based compliance method, it is not essential that we settle these debates. It is important that we have a clear design standard and that we are able to distinguish between various levels of performance.

Expressing the sediment performance target as a specific reduction for a specific particle size or particle size distribution during the design storm provides a quantifiable benchmark that ensures parity between benchmark designs. The BMPs ability to meet this performance target could be established through laboratory testing or using conventional design calculations like the upflow velocity model for plug flow clarifier design. Performance should also be verified in the field. This basic investigation should be completed for all BMPs including proprietary, land based and non-proprietary structural systems.

BMP Performance Evaluation

Innovative BMPs will be necessary as performance requirements become more stringent and as the scarcity of undeveloped land available for traditional stormwater treatment increases. A state level BMP evaluation program must be developed to evaluate existing and emerging technologies using consistent test protocols to ensure that results from different studies are comparable.

Thankfully there are several BMP evaluation programs around the country whose experience we can draw on. For example, California is part of the Technology Assessment Reciprocity Partnership (TARP) a multi-state collaborative which has established a testing protocol for stormwater treatment devices. Among this group, the New Jersey Department of Environmental Protection has taken the lead on BMP evaluation in collaboration with the New Jersey

Corporation for Advanced Technology. Many BMPs have been through the laboratory testing portion of the program and at least one, the Stormwater Management StormFilter™, has completed the field testing portion.

The Washington State Department of Ecology has developed multiple performance criteria for BMPs and the "Technology Acceptance Protocol – Ecology" to evaluate performance. There are several hydrodynamic separators that have achieved "pretreatment" status and several filters that have conditional approvals as "Basic Treatment" devices under the program. One technology, the StormFilter has been awarded a "General Use Level Designation" as a "Basic Treatment" device after completing multiple field tests and demonstrating long term operational feasibility.

The Sacramento Stormwater Quality Partnership has also developed a protocol for evaluating BMPs relative to the performance of sand filters and swales. Currently one technology, the StormVault™ is approved and the StormFilter is conditionally approved by the partnership.

Summary

It is crucial that as land is developed or redeveloped, adequate stormwater controls are implemented. The current MEP framework does not necessarily ensure that this is the case, yet moving to numeric effluent standards is infeasible. The panel outlines elements of a workable iterative BMP based approach that can work if performance expectations for BMPs are reasonable, clear and can be consistently met by following clear design and maintenance guidance.

The risk for municipalities is particularly high since they ultimately will be responsible for meeting TMDL restrictions. If adequate controls are not in place to avoid those restrictions, major public expenditure will be required to try to fix the problem at a point where available land and retrofit options are scarce and expensive. Surely it is more equitable and more affordable to address water quality threats on a project by project basis as sites are developed. Establishing clear performance standards and associated minimum BMPs for all sites is a crucial step we must take toward protecting water quality.

Sincerely,

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Southwestern Regulatory Manager
CONTECH Stormwater Solutions Inc.