

MAY 2008

**CALLEGUAS CREEK WATERSHED
MANAGEMENT PLAN**

**Calleguas Creek Watershed
Nutrient TMDL**

**Revised Special Studies Work Plan
for Minor Point Sources and
Rising Groundwater**

DRAFT

submitted to:

**LOS ANGELES REGIONAL WATER QUALITY CONTROL
BOARD**

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Introduction and Background

The Los Angeles Regional Water Quality Control Board adopted the *TMDL for Nitrogen Compounds and Related Effects in Calleguas Creek (TMDL)* on October 24, 2002. The TMDL was then promulgated by the US Environmental Protection Agency and became effective on July 16, 2003. As part of the TMDL's implementation, the following three work plans were submitted to the Los Angeles Regional Water Quality Control Board (RWQCB) on July 16, 2004:

1. Nonpoint Source Monitoring Work Plan
 - a. Wet and dry discharges from agricultural, urban, and open space sources
 - b. Groundwater discharges
 - c. Effectiveness of agricultural BMPs
2. Watershed Monitoring Work Plan
3. Special Studies Work Plan
 - a. Greenhouses
 - b. Minor Point Sources
 - c. Rising Groundwater
 - d. Algae Impairment

Per the submitted work plans, most of the required studies were completed as part of other activities being conducted in the watershed. However, three remaining special studies (minor point sources, rising groundwater, and algae impairment) were not completed because approval of the work plans was not received. In December 2007, the Calleguas Creek Watershed (CCW) stakeholders submitted a letter to the RWQCB summarizing the status of the work that had been completed and proposing a process for moving forward with completing the remaining three studies. This process included preparing a revised work plan to address verbal RWQCB comments on the minor point sources and rising groundwater special studies work plans by June 1, 2008. In a response letter, the RWQCB Executive Officer approved the proposed process and required the submittal of the revised work plan by June 1, 2008. This document provides a revised work plan for the above mentioned two studies as required by the response letter.

Minor Point Sources Special Study

When the TMDL was developed, only POTWs were considered for determining nutrient loadings from point sources. This special study is designed to review potential minor point sources of nutrients to evaluate if any minor point sources could be significant discharges of nitrogen compounds. Minor point sources that will be considered for the analysis include NPDES discharges of less than 0.5 mgd, and general permittees enrolled under the industrial and construction general permit.

An initial review of active NPDES dischargers of less than 0.5 MGD in the CCW indicates that minor point sources are not likely to be significant sources of nutrients. The majority of minor

NPDES dischargers reviewed either do not discharge, discharge very infrequently, or do not monitor for nutrients. As a result, this work plan will likely not identify significant loadings from minor point sources. Additionally, although additional monitoring is included, the initial review and load estimation process described below is not expected to identify facilities requiring additional monitoring based on our current understanding of the industrial processes located in the CCW.

MINOR POINT SOURCE LOAD ESTIMATE

Minor point sources being considered for this study are all covered by either an individual or general NPDES permit. As a result, information from the RWQCB can be used to evaluate whether significant discharges of nutrients occur from these sources. The following process will be used to estimate loads from minor point sources:

1. Generate a list of minor NPDES dischargers and dischargers covered by the industrial and construction general permits in the CCW.
2. Obtain copies of the monitoring programs for the dischargers and identify permittees that monitor for nutrients.
3. Review industrial facilities to identify sites that may use nitrogen and/or phosphorus on-site.
4. Obtain monitoring data from the RWQCB for dischargers that monitor nutrients and facilities that may use nitrogen and/or phosphorus (if available) and estimate loadings based on the available data. If the monitoring reports obtained from the RWQCB document that no discharges are occurring from the site, the loading estimate for the source will be set equal to zero.
5. Compare estimated loadings to loadings for other sources in the watershed and identify if the sources could be significant.

The process identified above will provide a rough estimate of the potential discharges of nutrients from minor point sources in the watershed. However, the potential exists that monitoring conducted as required by the NPDES permits will be insufficient to characterize these dischargers, especially for operations covered by general permits. To investigate whether any additional evaluation needs to be conducted, further review of industrial and construction general permit enrollees will be conducted. No additional review will be conducted if the monitoring reports document that no discharge occurs from the site and/or facility.

POTENTIAL ADDITIONAL ANALYSIS FOR GENERAL PERMIT SOURCES

Industrial Sources

Industrial sites could be a source of nutrients if their processes involve the use of nitrogen and/or phosphorus and their sites generate a large volume of surface runoff. Based on the evaluation above, facilities that use nutrients on-site and discharge on a regular basis, but for which monitoring data are not available from the RWQCB as part of the NPDES monitoring requirements, may be identified. For these facilities, additional monitoring will need to be conducted to estimate loadings.

If additional monitoring is needed, the following monitoring will be conducted:

- Nitrogen and phosphorus species being collected as part of the TMDL monitoring program will be collected in runoff from the site.
- One dry weather event and one wet weather event will be sampled if feasible.
- If access to the site for runoff monitoring cannot be obtained, samples will be collected in the receiving water upstream and downstream of the site.
- If nutrient loadings are found that could cause or contribute to an exceedance of the TMDL targets, one or more additional sampling events will be conducted. The timing of the additional sampling will be based on the collected data.

The results of the monitoring will be used to calculate estimated loadings for the sites.

Construction Dewatering

Construction sites may contribute nutrient loadings through dewatering activities. If groundwater contains significant levels of nutrients, dewatering can release these nutrients to the surface. If the review above does not provide information on the potential loading from construction dewatering, additional analysis will be conducted as part of the rising groundwater special study. Estimated flows from construction dewatering will be determined from the identified construction general permits in the CCW. The groundwater concentrations will be determined as a part of the Rising Groundwater Special Study described below. Estimated loadings will be calculated from the flows and concentrations.

Rising Groundwater Special Study

The purpose of this special study is to determine if rising groundwater contributes significant loads of nitrogen and phosphorus to surface waters in the CCW. To make this determination, the quantity of groundwater reaching the surface, and its nutrient concentrations, must be established.

A significant amount of existing information is available that can be used to estimate the contribution of rising groundwater to nutrient loadings in the CCW. The available information and the process that will be used to evaluate the existing information are provided as the work plan for this study.

FLOW ESTIMATES

Rising groundwater flows will be approximated using information developed for the Calleguas Creek Watershed Salts TMDL (Salts TMDL). One component of the Salts TMDL model development was an analysis to determine the amount of groundwater baseflow entering the CCW.

The model analysis found that rising groundwater was occurring in three areas of the watershed: Simi Valley (Simi basin), Thousand Oaks (Conejo basin), and downstream of Camarillo at Calleguas Creek (Pleasant Valley basin). The baseflows were calculated for these three areas using the following methods (see appendix 3 of the Salts TMDL for complete analysis):

1. Calculate the mean summer flows at the gaging stations in the watershed.

2. Subtract the known POTW discharges and estimates for urban and agricultural discharges.
3. Develop a relationship for baseflow quantities based on the precipitation during the previous winter.

Using this method, estimated rising groundwater (baseflow) flow rates during dry weather were calculated. The average dry weather baseflow calculated as part of the Salts TMDL model analysis will be used as the flow to estimate loadings from rising groundwater.

GROUNDWATER CONCENTRATION AND LOADING ESTIMATES

A large database of nutrient concentrations in various groundwater wells throughout the CCW has been obtained from various entities that conduct groundwater monitoring. The database contains data from wells screened at various levels in all the major aquifers in the CCW and includes data from the 1950s to the present. In addition, the Calleguas Creek Characterization Study collected samples of the groundwater dewatering wells in the City of Simi Valley.

For the purposes of this analysis, the groundwater data in the database that is most representative of the groundwater that may enter surface waters needs to be identified. To conduct this analysis, the following process will be used:

1. Separate the well data by groundwater basin
2. Identify wells that are located in the Simi, Conejo and Pleasant Valley groundwater basins. For the Pleasant Valley basins, identify (to the extent possible) wells that represent the unconfined aquifer rather than the lower aquifer.
3. Review the selected wells for the potential to group data from different wells together. If not possible, analyze wells separately.
4. For each well or group of wells, develop summary statistics for nitrate, nitrite, ammonia, and other nitrogen compounds (if available). The summary statistics will include the 10th, 50th and 90th percentile concentrations to allow an evaluation of the range of loadings that may occur from rising groundwater.

The summary statistics generated above will be used to estimate the range of nitrogen loadings that could occur from rising groundwater in the CCW. The high and low loads will be compared to the loadings from other sources in the CCW to evaluate whether rising groundwater is a significant source to be addressed by the TMDL.