Program Evaluation Report

Lake Tahoe Hydrologic Unit Stormwater Program (NPDES Permit No. CAG616001)

Executive Summary

Tetra Tech, Inc., with assistance from U.S. EPA Region 9 and the California Regional Water Quality Control Board, Lahontan Region (Regional Board), conducted a program evaluation of the three copermittees implementing the Lake Tahoe Hydrologic Unit Stormwater Program in June 2002. The purpose of the evaluation was to determine the copermittees' compliance with their National Pollutant Discharge Elimination System (NPDES) municipal stormwater discharge permit (permit) and to review the overall effectiveness of the stormwater management program with respect to EPA's stormwater regulations. The review included an in-field verification of program implementation. The three copermittees evaluated were the City of South Lake Tahoe, El Dorado County, and Placer County.

This program evaluation report identifies program deficiencies and positive attributes and is not a formal finding of violation. Program deficiencies are areas of concern for successful program implementation. Positive attributes are indications of the copermittees overall progress in implementing the program.

The municipal separate storm sewer system (MS4) permit in the Lake Tahoe Hydrologic Unit is different from other MS4 permits in California in that it does not address all of the required program areas outlined in EPA's stormwater regulations. However, the in-field evaluation reviewed all these program areas for each copermittee, including areas not specifically required in the existing MS4 permit. This report presents findings regarding both the MS4 permit and the activities of the three copermittees. Because the evaluation team found significant similarities among the three copermittees, the findings for the copermittees were combined into one section.

The following program deficiencies are considered the most significant:

- The copermittees do not have a written stormwater management plan to document compliance with the permit or provide program direction.
- The copermittees' program does not specifically address target pollutants.
- The copermittees lack intra-city and intra-copermittee coordination on stormwater activities.
- The copermittees do not have written standards, guidance, or training for staff on how to comply with the permit requirements.

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1.0 Introduction

1.1 Purpose of Program Evaluation

The purpose of the program evaluation was to determine the copermittees' compliance with the NPDES permit (CAG616001 and Board Order No. 6-00-82) and to evaluate the current implementation status of each copermittee's stormwater management program with respect to EPA's stormwater regulations. Secondary goals were the following:

- Review the overall effectiveness of the programs.
- Identify and document positive elements of the programs that could benefit other Phase I and Phase II municipalities.
- Acquire data to assist in reissuance of the permit.

40 CFR 122.41(i) and standard permit provisions 10 and 11 in attachment D of the permit provide the authority to conduct the program evaluation.

1.2 Permit History

The NPDES MS4 stormwater permit was issued on October 12, 2000, and is scheduled to expire on October 12, 2005. The current permit, the second MS4 permit issued to the copermittees, requires each copermittee to follow a series of 22 general requirements primarily focused on municipal maintenance. The permit also includes a Monitoring and Reporting Program (No. 6-00-82). In 1984, prior to the first MS4 permit, the Regional Board adopted orders to establish waste discharge requirements (WDRs) for stormwater/urban runoff discharges within the boundaries of the three copermittees in the Lake Tahoe Basin.

Section 2.1 discusses the permit and compares it to EPA's stormwater regulations.

1.3 Tahoe Regional Planning Agency

The Lake Tahoe Basin has a bistate regional environmental planning agency, the Tahoe Regional Planning Agency (TRPA), approved by the States of California and Nevada and ratified by Congress. TRPA has the authority to adopt environmental quality standards, called thresholds, and to enforce ordinances designed to achieve those thresholds. TRPA works closely with the Lahontan Regional Water Quality Control Board and local city and county governments on environmental issues.

TRPA has developed a Code of Ordinances that regulates land use, density, rate of growth, land coverage, excavation, and scenic impacts in the Lake Tahoe Basin. These ordinances are designed to bring the Lake Tahoe region into conformance with the threshold standards established for water quality, air quality, soil conservation, wildlife habitat, vegetation, noise, recreation, and scenic resources.

The program evaluation did not include a review of any TRPA programs.

1.4 Logistics and Program Evaluation Preparation

Before initiating the on-site program evaluation, Tetra Tech, Inc., reviewed the following program materials:

- NPDES permit No. CAG616001
- City of South Lake Tahoe Annual Report, December 18, 2001
- Placer County Annual Report and Response to Comments on Annual Report, November 30, 2001, and March 5, 2002
- Copermittees' Web sites
- File correspondence with the copermittees and the permitting authority

The evaluation team did not have an opportunity to review the latest annual report from El Dorado County.

On June 10–12, 2002, Tetra Tech, Inc., with assistance from the Regional Board, conducted the program evaluation. The evaluation schedule was as follows:

Monday, June 10	**Tuesday, June 11**	**Wednesday, June 12**
City of South Lake Tahoe	City of South Lake Tahoe	Exit Interview
El Dorado County	Placer County	

Upon completion of the evaluation, an exit interview was held with the copermittees to discuss the preliminary findings. During the exit interview, the parties were informed that the findings were to be considered preliminary pending further review by EPA and the Regional Board.

1.5 Program Areas Evaluated

The following program areas were evaluated for all copermittees:

- Municipal Maintenance Activities (as required in the permit)
- Construction
- New Development and Redevelopment
- Public Education
- Illicit Discharges
- Industrial Activity

1.6 Program Areas Not Evaluated

The following areas were not evaluated in detail as part of the program evaluation:

- Wet-weather monitoring program and monitoring program details (e.g., sample location, types, frequency, parameters).
- Other NPDES permits issued to the copermittees (e.g., industrial or construction NPDES stormwater permits).
- Legal authority.

In addition, no inspection reports, plan review reports, and other relevant files were reviewed for any of the program areas. The program evaluation team did not conduct a detailed file review to verify that all elements of the program were being implemented as described. Instead, observations by the evaluation team and statements from the copermittees' representatives were used to assess overall compliance with permit requirements. A detailed file review of specific program areas could be included in a subsequent evaluation.

1.7 Areas Recommended for Further Evaluation

The evaluation team recommends that the following areas be further evaluated:

- Responsibilities and relationships between the copermittees and TRPA with respect to construction, industrial activity, new development and redevelopment, and public education programs in the Lake Tahoe Basin.
- Regulation of stormwater discharges from commercial facilities in the Lake Tahoe Basin. Some California MS4 permits require copermittees to develop a facility prioritization, inspection, and enforcement program to minimize the pollutants being discharged from commercial facilities. The Regional Board and copermittees should consider instituting a program to evaluate and monitor discharges from commercial facilities, including restaurants, gas stations, and recreational facilities such as ski resorts and marinas.

2.0 Program Evaluation Results

This program evaluation report identifies potential program deficiencies and positive attributes and is not a formal finding of violation. Program deficiencies are areas of concern for successful program implementation. Positive attributes are indications of a copermittee's overall progress in implementing the Lake Tahoe Hydrologic Unit Stormwater Program. The evaluation team identified only positive attributes that were innovative (beyond minimum requirements). Some areas were found to be simply adequate (not particularly deficient or innovative) and therefore were not described in the evaluation.

The most significant program deficiencies and positive attributes identified during the evaluation are noted in the Executive Summary and are identified with *text boxes* in the following subsections.

Many of the findings for the three copermittees were similar. Where a finding applied to all three copermittees, that fact was noted.

2.1 Lake Tahoe Hydrologic Unit MS4 Permit

The Stormwater Phase I Rule (55 FR 47990; November 16, 1990) required all operators of medium and large MS4s to obtain an NPDES permit and develop a stormwater management program designed to prevent harmful pollutants from being washed or dumped into the MS4 and then discharged from the MS4 into local waterbodies. The three copermittees evaluated were subject to the MS4 permit application requirements at 40 CFR 122.26(d). The most significant portion of the application was the development of a proposed stormwater management program that would meet the standard of "reducing pollutants to the Maximum Extent Practicable (MEP)."

MS4 permit issued by the Lahontan Regional Water Quality Control Board for the Lake Tahoe Hydrologic Unit does not address the program areas that are outlined in EPA's stormwater regulations and are typically found in comparable California Phase I NPDES stormwater MS4 permits such as Sacramento and Long Beach. The permit primarily addresses municipal maintenance activities, along with some monitoring requirements. The following program areas are not specifically addressed in the permit:

- Construction
- New Development and Redevelopment
- Public Education
- Illicit Discharges
- Industrial Activity

The following sections describe both innovative elements and implementation issues associated with the existing permit.

2.1.1 Innovative MS4 Permit Elements

Other permitting authorities could evaluate the possible inclusion of the following innovative elements in their MS4 permits.

- *The permit is "watershed-based," covering copermittee activities in the Lake Tahoe Basin.*
  This permit is "watershed-based" in that it applies only to stormwater discharges to surface and ground waters within the watershed of the Lake Tahoe Hydrologic Unit (LTHU). Areas outside the LTHU, primarily in Placer and El Dorado Counties, do not directly affect stormwater discharges to Lake Tahoe and therefore are not covered by this permit. This permit is different from traditional MS4 permits, which are delineated by jurisdictional, not geographic, boundaries. A watershed-based approach provides a framework for addressing all stressors in a hydrologically defined drainage basin instead of viewing individual pollutant sources in isolation.

- *The permit contains numeric effluent limits, based on limits set in the Basin Plan.* The permit requires copermittees to comply with the water quality standards established in the Basin Plan and any amendments to it. These standards include effluent limitations for total nitrogen, total phosphorus, total iron, turbidity, and grease/oil. The effluent limitations for all stormwater/urban runoff flows generated within the permit area (except those construction projects subject to a separate permit) must be met by November 30, 2008 (not within the current permit term). In addition, the receiving water limitations for Lake Tahoe are included in the permit discharge specifications. These limits include both chemical water quality objectives for all of the surface waters in the North Lahonton Basin (boron, chloride, sulfate, total iron, total nitrogen, total phosphorus, total dissolved solids) and narrative objectives for color, taste/odor, floating material, suspended material, settleable material, oil/grease, biostimulatory substances, sediment, turbidity, pH, dissolved oxygen, bacteria, temperature, toxicity, pesticides, and chemical constituents. Very few MS4 permits currently include effluent limitations or receiving water limitations. Note, however, that these limitations will not be enforced until 2008 and the permittees have not established interim goals, such as an implementation plan or an assessment of current progress in meeting these limitations.

2.1.2 MS4 Permit Implementation Issues

The permit, as described previously in section 2.1, does not address all the elements generally required in MS4 permits. The following permit implementation issues were identified during the evaluation:

- *The permit does not require the copermittees to obtain adequate legal authority.* As required in 40 CFR 122.26(d)(2)(i), MS4s must demonstrate legal authority to:

  – Control pollutants to the MS4 by stormwater discharges associated with industrial activity.
  – Prohibit illicit discharges to the MS4.
  – Control the discharge to an MS4 of spills, dumping, or disposal of materials.
  – Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the MS4 to another portion of the MS4.
  – Require compliance with conditions in ordinances, permits, contracts or orders.
  – Carry out all inspection, surveillance, and monitoring necessary to determine compliance and noncompliance.

  The program evaluation team found that the copermittees did not know whether they had adequate legal authority for these areas.

- *The permit does not require a written stormwater management plan (SWMP) or program to control stormwater discharges to the MS4.* 40 CFR 122.26(d)(2)(iv) requires each MS4 to submit a proposed management program, based on the EPA regulations, that includes "a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management

practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate." The copermittees have not developed such a plan.

In addition, the permit does not require the development of measurable goals for the program, which would provide a means to measure its effectiveness and to ensure continued support. The measurable goals should be linked to programmatic, social, or environmental indicators such as those listed in the 1996 Center for Watershed Protection report *Environmental Indicators to Assess Stormwater Control Programs and Practices*.

The SWMP is a critical component of any stormwater management program, and most stormwater Phase I permittees have developed such plans. The City of Sacramento, for example, has developed a Stormwater Quality Improvement Plan (SQIP) to provide copermittees with a solid vision and foundation for implementing the program. The plan describes the overall program mission and vision, as well as the major goals and strategies for implementing the program. The document also includes, for each program element, a mission statement, potential pollutant sources, and activities to address those sources. In addition, the plan focuses on specific pollutants of concern and/or target pollutant reduction strategies. The plan provides a broad vision of the program and a clear understanding of the water quality goals, and it gives the program a solid foundation on which to build the programmatic details. The SQIP also includes performance and/or effectiveness measures for each program element subtask. For example, Sacramento County tracks the number of warnings, corrective actions, penalties, and stop work orders issued as a performance measure and uses the number of illegal non-stormwater discharges reported as an effectiveness measure.

For examples of detailed and well-written stormwater management plans, the plans developed by the City and County of Sacramento are available online at http://www.sacstormwater.org/const/manuals/dl-plan.html and http://www.sactostormwater.org/documents.html.

- *The permit does not specifically require the copermittees to develop and implement a program that includes the following:*

  - *A stormwater public education program (40 CFR 122.26(d)(2)(iv))*. The copermittees lack a program to educate the public regarding stormwater impacts. Although TRPA requires public participation before erosion control projects may be approved, there is no public involvement in the development and implementation of the stormwater program. The City of Sacramento has developed a successful public education program that can be reviewed as an example.

  - *A program to control stormwater discharges from construction activities that discharge to their MS4 (40 CFR 122.26(d)(2)(iv)(D))*. There is no requirement in the permit that the copermittees must control erosion and sediment (E&S) on private construction projects within the permit's jurisdiction. Under Part C of the Monitoring and Reporting Program, the permit does outline several general

provisions that prohibit discharge of soil into waterways during maintenance or other municipal projects and activities.

The evaluation found that maintenance and installation of E&S controls were lacking. The evaluation team visited the City's Park Avenue Redevelopment Project, a public/private project in which the City is managing the road construction project and a private developer is managing the building of a new hotel. A construction stormwater pollution prevention plan was not available on-site, as required in the State Construction General Permit. Also, E&S controls were either absent or not maintained properly. The evaluation team found similar problems at sites in El Dorado County. The copermittees need to ensure maintenance and installation of E&S controls through better training and more frequent inspections.

The copermittees do not conduct E&S inspections on commercial sites greater than 2,500 square feet but instead rely on TRPA to review and inspect such commercial construction projects. The copermittees review and inspect commercial sites below the 2,500-square-foot threshold and residential construction activity. Even when copermittee building inspectors are on-site at commercial construction projects greater than 2,500 square feet to conduct routine building inspections, these inspectors do not inspect E&S controls. The copermittees should develop a program to review and inspect all construction activity that discharges to their MS4.

- *A program to control stormwater discharges from new development and redevelopment (40 CFR 122.26(d)(2)(iv)(A)(2))*. Part C of Section 15 of the permit specifies that memorandums of understanding (MOUs) between the permittees and TRPA must require post-construction best management practices (BMPs) for new development pursuant to the BMP retrofit requirements included in the TRPA 208 Plan. The Monitoring and Reporting Program (item C.1) has a general prohibition regarding discharges attributable to new development, and items C.5 through C.9 outline general requirements for controlling post-development stormwater runoff from new construction. A permit requirement for an MOU with TRPA is appropriate in the Lake Tahoe Basin because 208 Plan requirements regarding new development and redevelopment planning are stringent. However, the permit does not require the development of a program to implement this permit condition. It does not require submission and review of the MOU. No specific, measurable goals are requested for this program component, and neither reporting nor tracking is required in the permit. The copermittees are not required to report how many retrofits are implemented each permit year, and no method of analyzing the impact of such retrofits on water quality is required.

- *A program to detect and address illicit discharges and illegal dumping to the MS4 (40 CFR 122.26(d)(2)(iv)(B))*. The Monitoring and Reporting Program (item C.2) has a general prohibition regarding the illegal discharge of domestic wastewater into surfaces waters. However, there is currently no permit requirement to

proactively detect and remove illicit discharges within the copermittees jurisdiction. The copermittees generally respond to citizen complaints, but they have no proactive programs to identify and remove illicit discharges or connections to the MS4. In addition, no dry weather monitoring is conducted to identify illicit discharges.

– *A program to control stormwater discharges from industrial activities that discharge to their MS4 (40 CFR 122.26(d)(2)(iv)(C)).* The Monitoring and Reporting Program (items C.1 through C.3) outlines general prohibitions regarding discharges attributable to human activities, soil, gasoline, diesel fuel, or any toxic chemical or hazardous waste. No specific industrial monitoring and management program component is required in the permit. According to the copermittees, there are no industrial facilities in the permit area; there is, however, a significant amount of commercial development. Several other MS4 permits in California, such as the San Diego permit, require the control of stormwater discharges from commercial activity, and given the sensitive nature of discharges to Lake Tahoe, commercial controls should be considered in this permit as well.

Even though another agency, such as TRPA, may be responsible for some of these program areas, the copermittees, individually, are responsible for the quality of the stormwater discharge from their MS4. In particular, public education, construction, new development/redevelopment, and illicit discharge programs would help ensure that stormwater discharges from the copermittees' storm drain systems do not adversely affect the water quality of Lake Tahoe. When the copermittees rely on TRPA or another entity to fulfill program requirements, MOUs outlining specific responsibilities should be required in the permit and submitted to the Regional Board.

- *The permit does not require an assessment of the effectiveness of control measures in reducing pollutant loadings (40 CFR 122.26(d)(2)(v)).*
  An assessment of control measure effectiveness would help in determining the estimated reductions in loadings of pollutants from MS4 discharges expected from implementation of an SWMP. This assessment is necessary to evaluate annually the effectiveness of the stormwater management program and practices being used by each copermittee.

- *The permit does not require a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish activities under the permit* (*40 CFR 122.26(d)(2)(vi)).*
  A fiscal analysis of the necessary capital and operation and maintenance expenditures to accomplish the activities of the stormwater management program for each year of the permit is needed. Such an analysis would allow for proper budgeting and funding allocations in order to manage the most cost-effective stormwater management program possible.

2.2 City of South Lake Tahoe, El Dorado County, and Placer County

2.2.1 Evaluation of Program Management

Deficiencies Noted:

- *The copermittees do not have a written stormwater management plan to document compliance with the permit or provide program direction.*

The copermittees implement existing activities largely to meet the permit requirements. Although each copermittee submits an annual report, there is no written SWMP. Such a plan is essential to provide each copermittee with direction and guidance on complying with the permit.

- *The copermittees lack intra-city and intra-copermittee coordination on stormwater activities.*

The copermittees did not appear to have a formal mechanism in place for coordination between copermittee departments on stormwater issues. For example, departments/divisions such as Building, Environmental Health, Planning, and Parks and Grounds also have a role in the stormwater program, but there is no coordinated plan to meet and discuss stormwater implementation issues. Additionally, although the copermittees appear to meet frequently on project-specific issues, they have no overall coordination committee to discuss NPDES-related stormwater issues. The copermittees would benefit from such a committee, through which they could share stormwater program successes and failures. For an example of such a coordinating committee, see the Alameda Countywide Clean Water Program description at http://www.cleanwaterprogram.com.

- *The copermittees' program does not specifically address target pollutants.*

The major water quality impairments to Lake Tahoe have been identified as fine sediments and nutrients. The copermittees' stormwater program, however, has not been specifically developed to address these pollutants. For example, the permit and the program do not specifically address BMPs or activities to control nutrients. The copermittees should develop an SWMP that includes strategies and activities to specifically address these two pollutants. The City of Sacramento's target pollutant reduction strategies could be used as an example.

2.2.2 Evaluation of Municipal Maintenance Activities

Positive Attributes:

- *The copermittees have designed and constructed a number of postconstruction stormwater controls.*

As required in item I.C.5 of the permit, each copermittee requires that the stormwater collection, treatment, and infiltration facilities it reviews be designed to receive runoff from a 20-year, 1-hour design storm from all impervious surfaces. This standard is consistent with the TRPA design storm standard. These facilities are often designed

to infiltrate stormwater before discharge to Lake Tahoe. Examples of postconstruction controls include a large urban improvement project in Tahoe City and smaller stormwater basins and other controls in the City of South Lake Tahoe and El Dorado County.

- *Stormwater protection and treatment controls have been installed at the Placer County Burton Creek Municipal Maintenance Yard.*
  Placer County has installed stormwater controls, including two ponds, diversions, and proprietary treatment controls, at this facility. The County should continue to address the remaining stormwater issues at this facility, such as providing cover for equipment.

Deficiencies Noted:

- *The copermittees do not have written standards, guidance, or training for staff on how to comply with the permit requirements.*
  The copermittees have not developed written standards or guidance that specifically addresses the 22 BMPs in item I.C of the permit, or other provisions of the permit. The copermittees comply with the permit requirements largely through the implementation of existing activities. During the evaluation, the City presented a four-page document titled "Best Management Practices," which contains some of these standards, but the document did not appear to be widely used.

- *The copermittees do not have defined criteria for detention basin maintenance.*
  The copermittees have not developed criteria to determine when stormwater facilities, including detention basins, need to be maintained. Item I.C of the permit requires that stormwater facilities "shall at all times be operated as efficiently as possible and maintained in good working order to ensure compliance with this Order."

- *Street sweeping is conducted as a practice to pick up road abrasives (sand, cinders) after snow events, and not as a water quality practice.*
  Street sweeping is not conducted during the summer or fall, limiting the effectiveness of this practice in achieving water quality improvements. The copermittees conduct street sweeping activities only during the winter and spring to recover abrasives applied during winter storms. The copermittees should consider increasing the frequency of street sweeping to include periodic sweeping throughout the year.

- *El Dorado County does not perform catch basin cleaning on a regular basis to protect water quality and act as a source control program.*
  The County does not have a scheduled maintenance program for catch basins or drop inlets. Maintenance is performed only on an as-needed basis when blockages occur or citizens complain.

- *Pollution prevention and stormwater BMPs at the municipal yard are inadequate.*
  Stormwater management at El Dorado County's municipal yard needs to be improved in order to direct runoff into the existing stormwater structure. Additionally, at the

time of the evaluation the on-site detention pond was in need of maintenance and had the potential to become a source of pollution instead of functioning as a treatment facility.