Program Evaluation Report

City and County of Honolulu Storm Water Management Program (Permit No. HI 0021229)

1.0 Introduction

1.1 Program Evaluation Purpose

Tetra Tech, Inc., with assistance from the Hawaii Department of Health (DOH), conducted a program evaluation of the City and County of Honolulu's (City) Municipal Storm Water Management Program (SWMP) in September 2004. The purpose of the program evaluation was to assess the City's progress in implementing its SWMP and addressing deficiencies identified in an evaluation conducted in August 2003. Secondary goals included reviewing the overall effectiveness of the program and collecting data to assist DOH in reissuance of the NPDES permit.

1.2 NPDES Permit History and Status

The City was issued an NPDES permit to discharge storm water runoff and certain non-storm water discharges identified in the permit from the City and County of Honolulu's existing municipal separate storm sewer system (MS4) outfalls into State Waters and waters of the U.S. on the Island of Oahu. The NPDES storm water permit was issued on October 6, 1999; became effective on November 5, 1999; and was scheduled to expire on September 8, 2004. DOH has administratively extended this NPDES permit until a new NPDES permit is issued to the City. The current permit, the second MS4 storm water permit issued to the City, requires the City to develop and implement an SWMP.

1.3 Logistics and Program Evaluation Preparation

In addition to the documents reviewed prior to the evaluation in August 2003, Tetra Tech, Inc., reviewed the City's NPDES Permit Reapplication (Reapplication for NPDES Permit No. HI 0021229, Storm Water Discharges from the City and County of Honolulu's Municipal Separate Storm Sewer System, March 2004).

On September 20–22, 2004, Tetra Tech, Inc., with assistance from DOH, conducted the program evaluation. The evaluation schedule was as follows:

Day	Time	Permit Element
Monday Sept. 20	10:30	Kickoff Meeting Discussion of Overall SWMP, Public Education
	1:00	Construction and Land Development (office and field)
Tuesday Sept. 21	8:30	System Maintenance (office and field)
	1:00	Industrial/Commercial Activities (office and field)
Wednesday Sept. 22	8:30 – 11:00	Monitoring, Discussion of Permit Requirements Out-brief

Upon completion of the evaluation, the evaluation team held an exit interview to discuss the preliminary findings. During the exit interview, the attendees were informed that the findings were to be considered preliminary pending further review by DOH.

1.4 Program Evaluation Topics

The following program areas were evaluated:

- Program Management and Reporting (including the City's effectiveness assessment)
- Construction and Land Development
- System Maintenance
- Improper Discharge Activities
- Industrial and Commercial Activities
- Public Education

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

- Wet-weather monitoring program and monitoring program details (e.g., sample locations, types, frequency, parameters).

- Other NPDES permits issued to the City (e.g., industrial or construction NPDES storm water permits).

- Legal authority.

- Inspection reports, plan review reports, and other relevant files. 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, the team relied on its observations and on statements from the permittee's representatives to assess overall compliance with permit requirements. A detailed file review of specific program areas could be included in a subsequent evaluation.

1.5 Program Areas Recommended for Further Evaluation

The evaluation team recommends the following additional assessments:

- Additional evaluation of the City's industrial/commercial inspection program, including an assessment of the facility's inventoried and prioritized for inspection and an assessment of the City's on-site inspection procedures.

- A review of activities the City will undertake to comply with Total Maximum Daily Load (TMDL) requirements in the Ala Wai Canal watershed and other waterbodies where TMDLs have been developed.

- A review of the revised SWMP, including measurable goals for specific activities and best management practices (BMPs), after the City develops it.

2.0 Program Evaluation Results

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 indicate the City's overall progress in implementing the program. The evaluation team identified only positive attributes that were innovative (beyond minimum requirements). Some areas were found to be simply adequate; that is, not deficient or innovative.

The evaluation team did not evaluate all the components of the City's program. Therefore, the City should not consider the list of program deficiencies in this report a comprehensive evaluation of all individual program elements.

The evaluation report from the August 2003 evaluation noted a number of positive attributes of the City's storm water program. The evaluation team found that these findings still generally apply, so the positive findings from August 2003 are not repeated in this report.

2.1 Evaluation of Program Management, Reporting and Effectiveness

Program Deficiencies:

- *The City should develop an SWMP that includes specific measurable goals for activities.*
  The City's NPDES permit reapplication, dated March 2004, describes activities completed by the City and provides feedback to DOH on which permit requirements the City would like to retain in its new NPDES permit. The NPDES permit reapplication, however, is not an SWMP that describes activities and actions the City will take to control storm water, schedules, and expected frequencies of activities to comply with the permit. After a new NPDES permit is issued, the City should develop a new SWMP that specifies measurable goals, or quantifiable activities, for each BMP. Measurable goals are used not only to track program implementation but also to plan for future activities and to notify DOH in advance how much of an activity the City plans to complete. The City should specify these measurable goals in the SWMP for each specific activity and BMP. For example, a measurable goal for the industrial inspection program could be to conduct inspections of at least 200 facilities each year.

- *The City will need to develop specific plans to address TMDLs, including the Ala Wai Canal TMDL.*
  The Ala Wai Canal is an impaired waterbody in a highly urbanized area. DOH has adopted a TMDL for total nitrogen and total phosphorus that includes a specific wasteload allocation (WLA) for the City. The City and the Hawaii Department of Transportation (HDOT) were combined into an "urban source wasteload allocation." This combined WLA sets a limit of 6 kg/day (a 65 percent reduction) in total nitrogen and a limit of 5 kg/day (a 50 percent reduction) in total phosphorus to meet the state's water quality standards.

The implementation expectations in the TMDL state that the City "should identify actions necessary to implement its WLA, with the intent that these actions will be incorporated in the NPDES permit when it is reissued in 2004. The City plan should specifically identify both implementation and monitoring actions that will be carried out to reduce nutrient loading and measure the effectiveness of these actions in meeting the WLAs and the associated water quality standards."

Because of the combined WLA, the City will need to work closely with HDOT to implement BMPs and develop a monitoring program to demonstrate that both entities are meeting the WLAs. In addition to the Ala Wai Canal TMDL, the City will also need to address TMDLs for other waterbodies that have been developed or will be developed in the near future.

- *The City needs to develop measures to assess the effectiveness of the storm water program.*
  Storm water programs cannot rely solely on water quality sampling data to demonstrate effectiveness. Additional measures, such as number of catch basins cleaned, number of inspections conducted, and increases in training and knowledge of staff, are indicators that can be used to assess the effectiveness of the storm water program. The City should develop a formal program effectiveness strategy that describes which indicators and information will be tracked to demonstrate effectiveness.

  Additional information and suggestions on tracking program effectiveness can be found in materials from the November 14, 2003, meeting of the California Storm Water Quality Association. This meeting focused on MS4 program effectiveness and how it can be documented. The presentation materials are available at http://www.casqa.org/swqtf/presentations.htm. An additional resource is *A Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs,* developed by the San Diego Municipal Storm Water Copermittees. A copy of this report is available at http://www.projectcleanwater.org/pdf/Copermittees/assessment_framework_final.pdf

- *The City needs to develop procedures to assess BMP performance/effectiveness.*
  For the City to implement an effective storm water program, it must have data on which BMPs are effective and how effective they are in reducing targeted pollutants. These data will also help the City to comply with the wasteload allocations identified in TMDLs. Some examples of other programs and guidance that could be useful in this effort are listed below:

  - Washington Chapter of APWA, *Protocol for the Acceptance of Unapproved Stormwater Treatment Technologies for use in the Puget Sound Watershed* (November 1999) http://mrsc.org/Subjects/Environment/water/apwa/protocol.aspx

  - City of Sacramento, *Investigation of Structural Control Measures for New Development* (November 1999)

http://www.sacstormwater.org/const/manuals/dl-scm99.html

- International Stormwater BMP Database http://www.bmpdatabase.org/ The document *Urban Stormwater BMP Performance Monitoring: A Guidance Manual for Meeting the National Stormwater BMP Database Requirements* is available on this site.

- EPA's Environmental Technology Verification (ETV) Program, http://www.epa.gov/etv/index.html

2.2 Evaluation of Construction and Land Development

Program Deficiencies:

- *The City does not review projects less than 5 acres for post-construction impacts.* The City's storm water quality requirements in "Rules Relating to Storm Drainage Standards" generally require structural BMPs only for new residential developments greater than 10 acres and commercial developments, public facilities, and transportation facilities greater than 5 acres. The City representatives stated that the City does not require projects less than 5 acres to address post-construction runoff.

  DOH lowered the threshold for requiring coverage under an NPDES storm water permit for construction activity to disturbances of 1 acre or more in March 2003. The City should apply its land development program to projects at least 1 acre in size and require such project to propose measures to minimize the discharge of pollutants after construction operations have been completed. When reviewing the proposed measures to address post-construction runoff, the City should consider the type of activity proposed for the site and the potential pollutant sources expected at the site.

  Two examples of city programs to address storm water runoff from new developments are available from the following sources:

  - City of Los Angeles http://www.lastormwater.org/WPD/businesses/susmp/susmpintro.htm

  - City of San Diego (Storm Water Standards Manual) http://www.sandiego.gov/development-services/news/newslist.shtml#storm

- *The City should develop an inventory of post-construction BMPs that have been approved and installed.* As described in the August 2003 evaluation report, the City needs to "determine how it intends to track and verify that private post-construction BMPs are being adequately maintained." The March 2004 permit reapplication describes how the City concurs with this finding and notes that a system to track and report maintenance of post-construction BMPs will be developed.

2.3 Evaluation of System Maintenance

Positive Attribute:

- *The City's Road Maintenance Division has developed a "Storm Drain Maintenance Application" to assist in reporting maintenance activities.*
  As part of the Honolulu Land Information System (HoLIS), a geographic information system (GIS) that helps maintain the location of city-owned infrastructure, the City is developing a "Storm Drain Maintenance Application." The Storm Drain Maintenance Application serves as a tool for Road Maintenance Division staff to more efficiently enter storm drain inspection and cleaning information into the City's database. Staff use handheld computers to scan the bar codes for manholes and then enter relevant information such as debris level and whether cleaning is needed. This system is also being integrated with the City's Permit One Stop Service (POSSE), a work management system to help in workflow tracking and reporting.

Program Deficiencies:

- *The City needs to develop a schedule for completing the GIS coverage of the MS4 and the bar coding of manholes.*
  As described above, the City has developed an innovative system for mapping its storm drain infrastructure and collecting maintenance information. However, the City has applied bar codes and entered them into the GIS for only a portion of its storm drain system. The City should develop a detailed schedule for applying bar codes to all manholes and completing the mapping of the MS4.

- *The City needs to develop a schedule and prioritization plan for storm drain inspections and cleaning.*
  The City inspects and cleans storm drainpipes, inlets, and manholes largely on a compliant basis or by focusing on areas with potential flooding issues. Storm drain maintenance should also be a preventive measure for protecting water quality. The City should develop a detailed schedule for inspecting and cleaning storm drains that focuses on water quality. This schedule can prioritize areas for inspection based on past complaints, history of maintenance, or other factors. The information collected from the Storm Drain Maintenance Application system might also help in identifying priority areas for inspections and cleaning.

2.4 Evaluation of Improper Discharge Activities

Program Deficiency:

- *The City should revise its database to more effectively track improper discharges.*
  The City tracks improper discharge activity by year, making it difficult to determine whether the same facility is causing problems over several years. The City should link its Improper Discharge Activities information to the tax map key for each facility, allowing the City to access information by property. In addition, the City should link this database to the industrial/commercial database to allow inspectors to easily determine whether a facility has been cited in the past for improper discharges.

2.5 Evaluation of Industrial and Commercial Activities

The August 2003 evaluation found that the City "needs to provide the commercial/ industrial inspectors with additional guidance and enforcement tools." The September 2004 evaluation followed up on this finding to more specifically identify issues to be addressed.

Program Deficiencies:

- *The City inventory of industrial and commercial facilities is not complete.*
  To conduct inspections of industrial and commercial facilities, the City needs a complete inventory. Such an inventory will help the City to select facilities for inspection and track inspection results. The City should obtain the list of industries currently regulated by DOH under the NPDES Industrial General Permit for inclusion in the inventory. The inventory should also include significant commercial facilities, such as automotive service facilities, retail gasoline outlets, restaurants, and other industrial/commercial facilities that could affect water quality. The City should also link this database to its improper discharge database to increase the usefulness for inspectors.

- *The City needs to increase the number of industrial and commercial inspections conducted each year.*
  The City has conducted surveys of approximately 25 industrial facilities in the past year. Since 1995 the City has had a schedule for surveying prioritized industrial areas around the island. A different prioritized area is surveyed each year. The City's current prioritization schedule lists 16 different areas for surveys between 1995 and 2010, with no set schedule to revisit any of the priority areas already surveyed.

  The City should increase the number of inspections conducted each year to ensure that facilities comply with its. The additional inspections should be targeted to areas surveyed in the past, as well as areas not yet visited by the City. The City should submit to DOH a detailed schedule with estimated inspection totals for conducting industrial/commercial inspections over the next 5 years.

- *The City should provide training to inspectors to conduct more thorough inspections.*
  The surveys conducted by City staff are generally not comprehensive site inspections of the facility's potential to discharge pollutants to the MS4. The City should provide training to inspectors on how to conduct a more thorough on-site inspection for storm water. This training could include City inspectors accompanying DOH inspectors on several industrial storm water inspections to view procedures.

  Inspectors should also ensure that facilities do not have the "potential" to discharge pollutants to the MS4, in addition to taking action when an active discharge to the MS4 is discovered. Because most discharges to the MS4 occur when the inspector is not present, addressing potential discharges is critical. Inspectors should observe potential discharge points from the facility to the MS4, identify potential pollutant sources, and ensure that BMPs are in place to prevent storm water discharges to the MS4 from these potential pollutant sources.

As a reference for inspectors, the City could use EPA's NPDES Compliance Inspection Manual, which covers sources other than just storm water. The chapters on inspection procedures and facility site review, as well as Appendix Q on industrial source control BMP questions, might help City inspectors conduct a more thorough inspection. The inspection manual is available at http://www.epa.gov/compliance/resources/publications/monitoring/inspections/npdesinspect/index.html.

2.6 Evaluation of Public Education

Positive Attributes:

- *The City continues to implement a variety of storm water outreach program activities.* The City has a progressive storm water public education and outreach program that uses various vehicles to carry the storm water message. The City has developed new public service announcements featuring a local celebrity from the "American Idol" TV show. The City has also introduced new initiatives, such as an Earth Day event, a Watershed Symposium, and other techniques, to educate the public.

- *The City continues to conduct surveys of residents, providing valuable information on storm water awareness and behaviors.*
  The City conducts surveys of residents to track attitudes and perceptions regarding water quality and awareness of its stormwater programs. The latest survey, conducted in April 2004, was heavily influenced by recent sewage spills that were widely reported in the local media. The City continues to collect and analyze this public survey data, and it compares the results to surveys conducted over the past several years.