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GOVERNOR OF HAWAII

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DIRECTOR OF HEALTH

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October 9, 2003

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The Honorable Rodney K. Haraga
Director
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Haraga:

The Department of Health ("DOH") is transmitting to you a National Pollutant Discharge Elimination System ("NPDES") Report of the recently completed Program Evaluation of the Hawaii Department of Transportation, Highways Division, Oahu District's Municipal Separate Storm Sewer System ("MS4") program under the following permit:

Permittee	NPDES Permit
Department of Transportation	HI 0021245

In August 2003, the DOH and the Environmental Protection Agency's ("EPA") contractors, Tetra Tech, Inc., conducted an evaluation of your Municipal Storm Water Management Program ("Program") as part of your NPDES permit. There appeared to be major violations in the implementation of your Program. The potential permit violations and Program deficiencies are enumerated in the enclosed report. Please respond to each identified potential violation and Program deficiency with a specific proposed corrective action and an implementation schedule. This response is to be submitted to the DOH no later than December 1, 2003.

If there are any questions regarding the Compliance Evaluation Inspection Report, please contact Mr. Michael Tsuji, Supervisor of the Enforcement Section, Clean Water Branch, at 586-4309.

Sincerely,

CHIYOME L. FUKINO, M.D.
Director of Health

Enclosure: Compliance Evaluation Inspection Report

c: Ms. Kathleen S. Ho, Deputy Attorney General, Department of the Attorney General

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Program Evaluation Report

Hawaii Department of Transportation Storm Water M
Program (Permit No. HI 0021245)

Executive Summary

Tetra Tech, Inc., with assistance from the Hawaii Department of Health (DOH), conducted a program evaluation of the State of Hawaii's Department of Transportation (HDOT) Highways Division Municipal Storm Water Management Program (the program or SWMP) in August 2003. The purpose of the program evaluation was to determine HDOT's compliance with their National Pollutant Discharge Elimination System (NPDES) Permit (HI 0021245). The program evaluation included an in-field verification of program implementation.

This program evaluation report identifies potential permit violations and program deficiencies and is not a formal finding of violation. This program evaluation is not meant to be exhaustive. Program deficiencies are areas of concern for successful program implementation.

The following potential permit violations and deficiencies were considered the most significant:

- HDOT should develop a more formal and distributed program structure for management of the storm water program.
- HDOT is not providing adequate training to Maintenance Section personnel on construction site BMP installation and maintenance.
- Projects reviewed for new development controls need to ensure that they consider post-construction storm water impacts and pollutants of concern.
- Several of the Maintenance Facility Baseyards lacked adequate controls to prevent storm water contamination.
- HDOT lacked adequate training for Maintenance Section staff regarding BMPs for maintenance facilities.
- HDOT's compliance with storm drainage structure maintenance requirements could not be determined.
- HDOT should develop a better asset management system to facilitate proactive debris removal and system maintenance.
- HDOT should include water quality as a priority in selecting projects for erosion control improvements.
- HDOT failed to provide adequate training to all personnel that apply herbicides.

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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 Hawaii Department of Transportation, Highways Division (HDOT) Municipal Storm Water Management Program (the program or SWMP) in August 2003. The purpose of the program evaluation was to determine HDOT's compliance with their National Pollutant Discharge Elimination System (NPDES) Permit (HI 0021245). Secondary goals included the following:

- Review the overall effectiveness of the program.
- Acquire data to assist in reissuance of the permit.

40 CFR 122.41(i) and Section 13 of the Standard NPDES Permit Conditions, which are attached to HDOT's NPDES Permit No. HI 0021245, provide the authority to conduct the program evaluation.

1.2 Permit History

HDOT was issued an NPDES permit to discharge storm water runoff and certain non-storm water discharges identified in the permit from HDOT's 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 June 20, 2000, became effective on July 20, 2000, and is scheduled to expire on September 8, 2004. The current permit, the second MS4 storm water permit issued to HDOT, requires HDOT to develop and implement a SWMP.

1.3 Logistics and Program Evaluation Preparation

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

- NPDES Permit No. HI 0021245
- *HDOT Storm Water Management Program Management Manual* (April 2003)
- *HDOT Mid-Year Report* (February 28, 2003)
- *Construction Activities Best Management Practices Program Plan, Volumes I and II* (June 2000)
- *New Development and Significant Redevelopment Best Management Practices Program Plan, Volumes I and II* (September 2000)
- *Erosion Control Best Management Practices Program Plan* (July 2000)
- *Illicit Discharge/Illicit Connection Best Management Practices Program Plan* (July 2000)

- *Debris Removal Best Management Practices Program Plan* (May 2000)
- *Storm Water Pollution Control for Flood Control Projects* (September 2000)
- *Maintenance Facilities Best Management Practices Program Plan* (September 2000)
- *Inventory of Industrial Discharges Program Plan* (September 2000)
- *Chemical Application Best Management Practices Program Plan* (July 2000)
- *Storm Water Questionnaire Survey of Parcels Adjacent to Highway Right-Of-Way* (December 2000)
- EPA and DOH correspondence with the permittee

On August 11 and 12, 2003, Tetra Tech, Inc., with assistance from DOH, conducted the program evaluation. The evaluation schedule was as follows:

Monday, August 11	**Tuesday, August 12**
• Program evaluation kickoff meeting • New Development (office) • Construction Activities (office and field) • Debris Removal and Chemical Applications (office and field) • Maintenance Facilities (office and field)	• Construction Activities – permit projects (office and field) • Erosion Control/Flood Control (office and field) • Illicit Discharge and Industrial Inventory (office) • Monitoring (office) • Outbrief

Upon completion of the evaluation, the evaluation teams 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 and EPA.

1.4 Program Areas Evaluated

The following program areas were evaluated:

- Program Management and Reporting, including the permittees' effectiveness assessment
- Construction Activities BMPs Program
- New Development and Significant Redevelopment BMPs Program
- Maintenance Facilities, Erosion Control and Debris Removal BMPs Programs
- Chemical Applications and Flood Control BMPs Programs

1.5 Program Areas Not Evaluated

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

- HDOT activities associated with the Airports or Harbors Divisions. This evaluation focused on HDOT's Highways Division.

- HDOT activities on islands other than Oahu.

- Illegal Connection/Illicit Discharge BMPs Program and Industrial Inventory. The HDOT Storm Water Program Coordinator was unavailable during the program evaluation and other HDOT staff indicated they did not know (or feel comfortable discussing) enough information regarding these programs to adequately discuss how they were designed, what had been accomplished to date, or future planned activities. Therefore, only a cursory review of these programs was conducted.

- Wet-weather monitoring program and monitoring program details (e.g., sample locations, types, frequency, parameters). Additionally, the intended use of the current monitoring plan in regards to measuring effectiveness of the entire program or individual BMPs were not adequately discussed due to the absence of the Storm Water Program Coordinator.

- Other NPDES permits issued to the permittee (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 HDOT representatives to assess overall compliance with permit requirements. A detailed file review of specific program areas could be included in a subsequent evaluation.

1.6 Program Areas Recommended for Further Evaluation

The evaluation team recommends the following additional assessments:

- A detailed review of the SWMP that HDOT is scheduled to submit to DOH and EPA in October 2003. The review should specifically focus on the following: 1) the inclusion of measurable goals for each program element, 2) procedures to ensure that appropriate staff are identified and routinely trained, and 3) appropriate and site/activity specific BMPs are identified, implemented, and maintained.

- Frequent inspections of HDOT maintenance yards to ensure they are implementing appropriate BMPs to prevent and control storm water runoff.

- An intensive review of MS4 system maintenance and debris removal records to better ascertain the level of compliance with specific permit requirements (e.g., adherence to catch basin inspection schedules).

- A review of the Illicit Discharge/Illicit Connection and Industrial Inventory programs with specific attention towards prioritization of problem areas/businesses and the adequacy and timeliness of follow-up inspections/activities.

- A discussion with the Storm Water Program Coordinator regarding the anticipated benefits of the current monitoring plan and possible alternatives to more effectively establish direct measures of success for the program as a whole or to measure the effectiveness of individual BMPs or suites of BMPs.

- A discussion with the Storm Water Program Coordinator to better understand and define significant implementation challenges facing HDOT and their possible solutions. The discussion should include the relevance and distribution of the existing BMPs program plans to field staff charged with program implementation; specifically, how HDOT ensures that the relevant portions of the plans are disseminated to appropriate staff and how they ensure that BMPs are being implemented as described.

2.0 Program Evaluation Results

This program evaluation report identifies potential permit violations and program deficiencies and is not a formal finding of violation. Program deficiencies are areas of concern for successful program implementation.

The evaluation team did not evaluate all components of the permittee's program. Therefore, the permittee should not consider the list of program deficiencies contained in this report as constituting a comprehensive evaluation of individual program elements or the overall SWMP.

The most significant potential permit violations and program deficiencies identified during the evaluation are noted in the Executive Summary and are described in *text boxes* in the following subsections.

2.1 Evaluation of Program Management, Reporting and Effectiveness

Program Deficiencies:

- *HDOT should develop a more formal and distributed program structure for management of the storm water program.*

Successful implementation of the program appeared to rely extensively on the Storm Water Program Coordinator, who was unavailable during the evaluation. Formal responsibilities for individual section supervisors appeared limited. HDOT staff stated that the Storm Water Program Coordinator was the only person knowledgeable about certain program areas, such as the Illegal Connection/Illicit Discharge BMP Program and the Industrial Inventory. Successful storm water programs cannot rely on one individual for program management and implementation, especially for programs as large as HDOT's. HDOT should develop a formal storm water management program structure that includes designated storm water contacts for various Highways Division branches, programs, and field offices. Individuals identified as storm water contacts should have storm water responsibilities included in their job descriptions with adequate time allocated to carry out those responsibilities. In addition, HDOT should hold periodic meetings with these contacts to discuss implementation and evaluation of the storm water program. For

an example of a program management structure for a DOT storm water program, see the program management section from the Caltrans *Statewide Stormwater Management Plan* (May 2003).

- *HDOT should revise their storm water management plan to more specifically address implementation and activities undertaken to meet the permit requirements.*
  HDOT submitted a Storm Water Management Program Management Manual to EPA and DOH in April 2003, however this manual largely describes HDOT's reporting activities. Twenty-one appendices were attached to the SWMP addressing a variety of issues including maintenance and inspection schedules; however, these were largely not described in the SWMP. In addition, the SWMP did not describe program management, roles and responsibilities, or coordination. HDOT is currently revising the SWMP with a due date of October 30, 2003.

  HDOT should revise this SWMP to specifically address the following issues:
  - Program management and coordination, including roles and responsibilities
  - Storm water management program activities
  - Measurable goals for specific storm water activities
  - Training and education
  - Monitoring and program effectiveness

  The SWMP should be written for HDOT employees and should be written in a style such that staff can easily implement it. For example, the plan could be divided into sections based on Highways Division's various sections, so staff from each section are aware of their storm water responsibilities and applicable BMPs.

  Examples of two storm water management plans are listed below:
  - *Caltrans Statewide Stormwater Management Plan* (May 2003)
    http://www.dot.ca.gov/hq/env/stormwater/special/final_swmp_03/CTSW-RT-02-008.pdf
  - *City of Sacramento Stormwater Quality Improvement Plan* (July 2003)
    http://www.sacstormwater.org/const/manuals/dl-plan.html

- *HDOT lacks adequate measures of success to assess the effectiveness of its storm water program.*
  HDOT has not developed measurable goals or other indicators to assess the effectiveness of its storm water program. Measurable goals should be developed for specific activities to help set expectations for the next reporting cycle and assess past performance. HDOT should develop both direct and indirect measurable goals for each program element in its SWMP. Direct measures focus on characterizing the water quality impacts from the permittee's MS4. Indirect measures are based on the assumption that specific program activities are effective in decreasing storm water pollution and ultimately protecting water quality. These 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*. Several examples of measurable goals include:

- Train all DOT-Highways Maintenance staff on the SWMP and basic storm water BMPs (set goals and track number of staff and hours trained annually)
- Develop and implement Storm Water Pollution Control Plans (SWPCPs) for all DOT maintenance yards (set goals for when SWPCPs will be developed for each yard)
- Street sweeping (set goals and track miles of highway swept and percentage of all HDOT highways swept annually)

- *HDOT should provide more detail and consistency in their Mid-Year and End-of-Year Reports.*
  Parts C.3.a and b of the permit require mid-year and end-of-year reports. HDOT should provide more detail and consistency in these annual reports, including information to allow EPA, DOH, and others to easily assess HDOT's compliance with their NPDES permit. Each major storm water program area should include the following information in the reports:
  - Requirements: Describe what HDOT was required to do (describe permit requirements, EPA order for compliance or other commitments).
  - Past Year Activities: Describe activities for the past year, including where practicable, the quantity of activities accomplished. Include an explanation as to why HDOT either did or did not meet its commitments for this reporting period.
  - Future Activities: Describe planned activities, including, where practicable, the quantity of activities planned for the next reporting period.

  The mid-year and end-of-year reports should be directly linked to the measurable goals developed for the SWMP.

2.2 Evaluation of Construction Activities BMPs Program

Potential Permit Violation:

- *HDOT is not providing adequate training to Construction Engineers and Maintenance Section personnel on construction site BMP installation and maintenance.*

  Part C.1.a.i.(1) requires HDOT to "implement the Construction Activities BMPPP dated December 1999." The Construction Activities BMPPP describes how "all DOT maintenance section personnel will receive annual instruction" on the use and application of maintenance-related construction activities. Several HDOT staff interviewed during the evaluation stated they had not received recent (within the past year) training on storm water inspections and construction BMPs. HDOT's mid-year report (February 28, 2003) described informational presentations by suppliers and manufacturers of erosion and sediment control products, however, these presentations did not train staff on the Construction Activities BMPs.

  HDOT needs to provide annual training on the construction activities BMPPP to all staff with storm water responsibilities, including construction engineers, maintenance staff and plan reviewers. This training should be specific to HDOT activities, policies and procedures. The training should also consist of both classroom training and in-

field training on proper erosion and sediment control BMP installation and maintenance. Copies of the training materials, agenda, and list of attendees should be provided to DOH and EPA in mid-year and end-of-year reports. In addition to this HDOT-specific training, HDOT staff should be encouraged to attend local storm water training organized by the City and County of Honolulu or other organizations.

Field staff should be trained on, and have readily available at all times, a BMP field manual describing various storm water BMP installation and maintenance procedures. Ideally, this BMP field manual would be written or reviewed by the HDOT staff who will use the manual. An example of a BMP field manual developed by Caltrans is available at http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm.

Program Deficiencies:

- *HDOT lacks formal criteria or a checklist against which erosion and sediment control plans are reviewed.*
  The *Construction Activities Best Management Practices Program Plan* (June 2000) does not provide formal, specific criteria against which erosion and sediment control plans are reviewed. HDOT should develop either specific criteria or a checklist that reviewers can use in evaluating plans. This will also provide more detail to contractors as they develop construction SWPCPs for HDOT-contracted construction projects. An example storm water checklist is available from the Caltrans *Storm Water Handbook Project Planning and Design Guide*, Appendix E, available at: http://www.dot.ca.gov/hq/oppd/stormwtr/.

- *HDOT construction inspectors do not complete their construction checklists during field inspections.*
  The evaluation team visited two HDOT construction sites, including median improvements at the intersection of Sand Island Road and Nimitz Highway and a road resurfacing and slope stabilization project on Likelike Highway. Both projects were implementing and maintaining erosion and sediment controls, including silt fences and storm drain inlet protection. HDOT construction inspectors have developed, for each project, a detailed construction checklist that documents the status of all BMPs, including identifying and listing out individual catch basins with storm drain inlet protection. However, this checklist is completed in the office on computer after the inspection has taken place. HDOT should require inspectors to complete these checklists in the field during inspections. This would allow the inspectors to use the checklist as a tool during their inspection, and ensure that they have evaluated all the appropriate BMPs on site. The process would also encourage them to identify when additional BMPs are needed.

- *For permit projects, HDOT should develop a more formal process to document inspections and follow-up.*
  HDOT currently uses four inspectors to review work performed in the right-of-way by third parties (referred to as permit projects), however, each of these inspectors uses different methods to document inspections and required follow-up actions. For example, the evaluation team visited a permit project undertaken by the City and

County of Honolulu on Pali Highway at Wyllie Street. This project required maintenance of its silt fences, which the HDOT inspector recorded on a sheet of paper. The inspector indicated he would contact the City. To ensure that these inspections, record keeping, and reporting are consistent, HDOT should develop a standard inspection form and reporting procedures for inspectors at both in-house and third-party projects.

- *To provide consistency and ensure compliance, HDOT should provide a second level of construction inspections for projects.*
  HDOT should develop a process to ensure consistent application and inspection of erosion and sediment control BMPs for projects. HDOT currently uses construction engineers to inspect their construction projects for storm water compliance. Because these construction inspectors focus on a few jobs at a time, a second level of periodic inspections by HDOT's Oahu District, looking at all construction projects on Oahu, would provide more consistency and ensure that BMPs are adequately implemented. For an example, see the Caltrans construction site storm water inspection program, which is described in the *Construction Storm Water Coordinator Guidance Manual* (January 2003).

- *HDOT should ensure that in-house construction projects and minor maintenance projects also implement storm water BMPs.*
  HDOT in-house construction projects or minor maintenance projects that do not disturb more than an acre of ground should also implement storm water BMPs where appropriate. HDOT can ensure these BMPs are implemented by providing adequate training for all staff and developing storm water maintenance guidance that includes erosion and sediment control BMPs.

2.3 New Development and Significant Redevelopment BMPs Program

Program Deficiency:

- *Projects reviewed for new development controls need to ensure they consider post-construction storm water impacts and pollutants of concern.*

  HDOT's *New Development and Significant Redevelopment BMPPP* (September 2000) describes environmental programs that could affect HDOT projects and presents general procedures for BMPs. However, the BMPPP does not provide specific criteria defining when post-construction practices must be applied. HDOT should develop these criteria to assist planners and engineers in designing BMPs to ensure post-construction practices prevent water quality impacts and address pollutants of concern. For an example of post-construction standards, see the City and County of Honolulu's *Rules Relating to Storm Drainage Standards* document, which addresses both standards for flood control and storm water quality. The Washington State Department of Transportation is also developing the *Highway Runoff Manual*, which provides guidance on post-construction storm water controls. This manual includes information on minimum requirements for storm water plans, storm water design guidance, hydrologic analysis, and BMPs. A draft of the Highway Runoff Manual is available at: http://www.wsdot.wa.gov/environment/eao/wqec/HRMRevision.htm.

2.4 Maintenance Facilities BMPs Programs

Potential Permit Violations:

- *Several of the Maintenance Facility Baseyards lacked adequate controls to prevent storm water contamination.*

The most significant deficiencies were identified at the Keehi Viaduct baseyard and included, but are not limited to:

- Poor housekeeping and litter management – Excessive trash and miscellaneous debris items were scattered throughout the yard. It appeared that litter removal within the yard had not occurred for a prolonged period and sweeping of paved areas was not being performed. Additionally, areas outside the perimeter fence and on the banks of the lagoon had extensive soil staining and litter accumulation.
- Downspouts directed into trash/debris areas –Excessive trash and debris, presumably collected from the roadways and right-of-ways, was piled in more than one location immediately below or adjacent to downspouts. There was direct evidence that the water from the downspouts had flowed directly through trash/debris piles prior to discharging to the lagoon. The most significant of these sites was the large employee "salvage pile" located at the eastern end of the yard. The salvage pile was approximately 100 feet in length by 30 – 50 feet in width. HDOT representatives stated that employees periodically remove desirable items from the highway/right-of-way temporary disposal area and place them in the salvage pile for potential future use. The pile had been removed in the past, but had been reestablished in the previous year. In one other case, a battery was stored on a pallet beneath a downspout.
- Vehicle and equipment wash rack was inoperable – The wash rack had been inoperable for an undisclosed period of time and there was no current plan in place for its repair. It was unclear where vehicles and equipment were being washed.

Permit Part C.1.a.vii.(1) requires HDOT to "implement the Maintenance Facilities BMPPP dated March 2000." The BMPPP includes five sets of generic BMPs for all maintenance facilities. Identified BMPs applicable to this facility include maintenance facility housekeeping practices and vehicle and equipment washing. The on-site inspection concluded that these BMPs were not being adequately implemented. The conditions at this baseyard indicated that field staff were either unaware of the use of appropriate BMPs or showed disregard for their use. In either case, the condition of the facility demonstrated the need for improved housekeeping, more effective training of field staff, and the need for effective inspections and follow-up. The wash rack should be repaired immediately and adequately maintained to ensure its continued operation.

On-site inspections were also performed at the Kakoi Street, Pearl City, Wahiawa, and Hauula baseyards. The most significant deficiencies were identified at the Kakoi Street Baseyard. The conditions were considered the most serious due to the

centralized location of the facility, the presence of on-site supervisory staff, and the evidence of poor housekeeping. Identified deficiencies included:

- An outside sink was not plumbed and discharged directly to the pavement.
- The paved areas had not been swept and significant debris accumulation was evident. In several areas paint chips were present and evidence of past spills were present within the hazardous materials storage area.
- There were numerous external hose bibs present with evidence of equipment washing (wet pavement).
- "No Dumping" placards were present on only two of the four storm water inlets. Placards were not used at the two inlets inside the yard area, which exhibited the greatest potential for storm water contamination.
- A dead and decaying cat was located in the middle of the yard.

The overall housekeeping of this facility was poor and there was little evidence that BMPs were being actively used. There were numerous tenants and there was no single individual identified to ensure housekeeping and the installation and maintenance of BMPs.

While some deficiencies were identified at the outlying facilities, these facilities were generally implementing adequate BMPs and threats to water quality were minimized. On-site staff appeared to take responsibility for their yard and demonstrated a basic level of storm water awareness. Observations included:

Pearl City

Improved housekeeping and material storage was evident and adequate. A hose was attached to a hose bib. The on-site supervisory staff had the hose removed when asked and said that equipment and vehicle washing were not permitted. The on-site supervisor was unaware of HDOT's storm water permit or the BMPPP.

Wahiawa

BMPs present included drip pans, secondary containment and a minimal amount of hazardous materials. Deficiencies included lack of stockpile containment, sinks discharging to the ground, hose bibs, and no drainage controls.

Hauula

Good housekeeping and material storage was evident and drip pans were available. Deficiencies included direct evidence of vehicle washing (buckets, soap, sponges) and lack of adequate containment for material stockpiles. The bins for cold patch, aggregate, and sand drained directly to the street.

- *HDOT lacked adequate training for Maintenance Section staff regarding BMPs for maintenance facilities.*

Permit Part C.1.a.vii.(3) requires HDOT to "train all DOT Highways maintenance personnel on the maintenance facilities BMPs by July 31, 2000 and annually from that date thereafter." Maintenance Section staff questioned during the evaluation exhibited little knowledge of the Maintenance Facility's BMPPP. Supervisory staff knew of the plan's existence and purpose, but they had limited knowledge of its

contents and did not ensure its application at required facilities. HDOT representatives stated that they had developed the BMPPP in 2000 and had worked with the Maintenance Section Supervisor to develop a suite of BMPs that could be implemented at the subject facilities. However, since that time there had been personnel changes and there was no process in place to ensure that new employees were educated on the contents of the BMPPP or its implementation. Some of the field staff interviewed were taking a common sense approach to storm water pollution prevention, but none were aware of the BMPPP. The current lack of knowledge regarding the plan demonstrates a lack of training and a lack of formal organizational responsibilities to ensure its implementation.

HDOT should institute a formal storm water awareness training program that highlights sources of pollution, general BMPs that can used to reduce and/or eliminate such sources, and specific BMPs for their facilities and activities. The training should attempt to leverage the public education campaign being implemented by the City and County of Honolulu and highlight to staff that they also serve a role in protecting water quality. Staff should be aware of the NPDES permit, the overall SWMP, and the BMPPP(s) that apply to their activities. Field staff should be encouraged to take ownership of the program by actively evaluating the effectiveness of BMPs and developing new BMPs when needed.

Program Deficiencies:

- *HDOT should develop a storm water maintenance manual for field staff.*
  HDOT should expand upon their existing BMPPP and develop a formalized set of maintenance BMPs for routine and emergency in-house activities. HDOT representatives stated that approximately $700,000 of such in-house projects occur each year. The need for additional and activity-specific BMPs was evident at a minor road embankment stabilization project conducted on Highway 83 near Kaaawa. Crews working on this in-house project were repairing the road embankment that had been damaged by wave action by placing boulders and soil along the shoreline embankment. The activity was immediately adjacent (i.e., less than 10 feet) to a very narrow beach and the water line, yet no BMPs were deployed. Waddles, silt fencing, or other sediment controls should have been used.

  In another instance, water was seeping from the ground onto the roadway in the immediate area of lateral replacement work along Highway 83 in Sunset Beach. Neither the contractor nor the HDOT inspector had identified the seepage as a potential problem and had not reported the seepage to HDOT, the City and County of Honolulu, or DOH. Only upon its identification during the evaluation were calls placed to investigate the source of the discharge (later determined to be cesspool seepage). Both the contractor and the HDOT inspector should have acted proactively to investigate and terminate the discharge.

  Activity-specific BMPs should be organized as a manual and be created in a format that facilitates its use by field staff (i.e., field friendly). It should be distributed to all field staff and should complement the overall goals of the BMPPP. Developing a

more specific and easily distributed maintenance manual will benefit HDOT by maintaining a level of consistency among field staff activities.

For example, the Sacramento County Department of Transportation's Maintenance and Operations Division created a handbook that provides detailed BMPs for both routine and emergency activities. Topics covered include roadside ditch digging, pothole patching, storm patrol, saw cutting, street marking removal, painting, post installation, roadside herbicide application, roadside mowing, tree trimming/removal, roadside vegetation and hedge trimming, vegetation truck watering, street sweeping, yard maintenance, disposal of bituminous waste and open containers, storage of materials in the yard, disposition of hazardous materials, and washing of county vehicles and equipment. The BMP handbook is comprehensive and formalizes the approved maintenance and operation activities for Division staff.

Sacramento's Hazardous Materials Response Team also has created a comprehensive handbook for its activities. Topics covered include the hazardous materials program, street sweeping program, litter collection, corporation yard operation and maintenance, and other operational BMPs. The handbook also provides a detailed summary of the accomplishments of each program element, the quantity and types of materials recovered, and a year-by-year comparison for each category. Both handbooks could be used as examples.

- *Each baseyard should develop a specific storm water pollution control plan and designate an individual responsible for implementation.*
  Critical to the success of any SWPCP is the identification of requirements, adequate training of staff, and periodic inspections of the yard to ensure the SWPCP is adequate and being implemented. For each of the six maintenance yards, HDOT should develop a site-specific SWPCP that includes a detailed site map depicting the direction of surface flow and offsite sources than run onto the property, site description and facility layout, description of potential pollutant sources, site-specific BMPs, and spill cleanup procedures. HDOT could use much of the existing BMPPP, its five generic BMPs, and any new BMPs developed in the maintenance manual discussed above to customize the suite of BMPs for each specific facility. Ideally, field staff from each baseyard should be involved in its development to encourage ownership and the adoption of implementable BMPs. An individual at each facility (i.e., yard foreman) should be charged with ensuring implementation of the SWPCP. This individual should be trained to conduct meaningful inspections and identify areas for BMP improvement. To ensure consistency and provide assistance and oversight, HDOT should establish an individual that conducts routine inspections of all six baseyards.

2.5 Debris Removal and Erosion Control Best Management Practices Program

Potential Permit Violation:

- *HDOT's compliance with storm drainage structure maintenance requirements could not be determined.*

Permit Part C.1.a.v.(4) requires HDOT to "inspect storm drainage structures as indicated in Table 1.6-2 – Storm Drainage Structure Inspection Schedule included in the Debris Removal BMPPP." HDOT's compliance with this requirement could not be determined, as detailed records were not reviewed. Field staff were completing the catch basin inspection form and it was stated that this information was being entered into the Microsoft Access database. However, based on the reactionary nature of their system maintenance program (see Program Deficiencies) and the limited knowledge of the specifics of the BMPPP exhibited by Maintenance Section personnel, compliance appeared questionable. It was stated that the number of catch basins (2,492) included in the Management Manual and the BMPPP was obtained from the Planning Section, and the Maintenance Section did not have the ability to readily validate or modify that number.

Program Deficiencies:

- *HDOT should develop a better asset management system to facilitate proactive debris removal and system maintenance.*

The current inventory of MS4 assets (collection system piping, catch basins, roadside ditches, etc.) used by the Maintenance Section largely exists only within paper "as-built" drawings. HDOT representatives stated that they have been working to enter this information into a Microsoft Access database that could be used to facilitate route plans and schedules, but that a considerable amount of work remained. It was stated that the limited number of staff and the lack of a comprehensive asset management system result in HDOT implementing a reactionary, rather than proactive, system maintenance and debris removal program. While certain activities, such as street sweeping, are scheduled, other activities, such as catch basin cleaning, green waste removal, and accumulated soil removal, appeared largely reactionary. Activities such as jetting storm drain pipes on a scheduled periodic basis are not conducted. It was stated that, if needed, these activities would either be contracted out or directed to the Special Services Section. HDOT is evaluating contracting out all future catch basin and sweeping activities.

HDOT could use the asset management system used by the City and County of Honolulu as an example of how to map and categorize the collection system and how to use the data to develop route schedules and maintenance frequencies. While information is being collected, it is unclear how HDOT intends to use the information to establish priorities and maintenance frequencies.

- *HDOT should include water quality as a priority in selecting projects for erosion control improvements.*

Although safety is a fundamental obligation for HDOT and should be considered when prioritizing erosion control projects, HDOT should also ensure that projects with a significant water quality impact, but with limited safety concerns, are also considered as high priority. It appeared that the project prioritization process was largely based on top-down decisions based on public safety concerns and that projects relating only to water quality would rarely be initiated. To date, only limited erosion control projects had been initiated and activities to repair bare earthen areas or other

soil loss sites appeared to be at a standstill. When asked, HDOT was not able to identify a suitable site that could be visited to demonstrate implementation of their erosion control BMPPP. During the course of the evaluation, barren earth was witnessed on extensive areas of the H1 and H2 freeways, and soil accumulation within the MS4 was present along the Pali Highway both above and below the intersection with Highway 83.

Furthermore, HDOT representatives stated that the existing Erosion Control BMPPP was not readily useable and that individual engineering plans were instead created for each activity. Erosion Control BMPs listed in the BMPPP document include permanent seeding, mulching, swales, slope drains, diversions, velocity dissipation devices, slope roughening, and level spreader. Temporary measures such as erosion control blankets and/or fabrics, gravel bag placement and silt fencing are not discussed. It was explained how the existing Rock Fall Study report and the Erosion Control BMPPP were to be reviewed and individual projects were to be rated by both safety and erosion considerations. This process was to occur over the next one to two years, after which time erosion control projects would be initiated and the Erosion Control BMPPP would be modified to include specific suites of BMPs for select sites.

It appeared questionable whether the intended process would be effective in establishing and implementing an erosion control plan for bare areas and areas that do not have a significant public safety component. HDOT should demonstrate how they intend to implement erosion control projects for water quality-based priority projects while continuing to address high profile public safety projects. It would appear appropriate to segregate these types of projects in an attempt to ensure funding and adherence to a future prioritization schedule. Additionally, HDOT should implement temporary erosion control measures on sites with water quality problems if a permanent solution is not immediately possible.

2.6 Chemical Applications and Flood Control BMPs Programs

Potential Permit Violation:

- *HDOT failed to provide adequate training to all personnel that apply herbicides.*

Permit part C.1.a.ii.(5) requires HDOT to train all landscaping personnel on chemical applications for landscape fertilizer application and pest control. Permit part C.1.a.ii.(6) requires HDOT to train all landscaping personnel involved with the use of hand-held chemical sprayers in operation and maintenance of the equipment. Discussions with HDOT Maintenance Section personnel indicated that employees stationed at the outlying maintenance baseyards apply herbicides without specific training and/or oversight. HDOT determined that the State of Hawaii does not have a certified applicator program and therefore did not pursue formal training and certification programs for applicators. Bulk chemical purchasing, storage, and distribution is centralized at the Kakoi Baseyard and is supervised by Special Services staff. These staff maintain the single tank sprayer and prepare the mix of herbicides as specified on the label. Field staff from the outlying baseyards request the sprayer and then conduct the applications themselves with no oversight from Special Services. HDOT has not established a specific training program for staff who apply

herbicides. A training program for all potential appliers (bulk and hand-held) should be established and implemented immediately.

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☑ Maria Reyes Supervisor, ENFORCEMENT SECTION	mrr 10/2/03 S.M. for MT 10/2/03
☐	
☑ CHIEF, Clean Water Branch	10/3
☑ CHIEF, Env. Management Div.	RA 10/6 ~~10/3~~
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