HDOT-Harbors 2017 Tenant Stormwater Awareness Training

MĀLAMA I KE KAI

Protect our Harbor Waters

Agenda

1. **Admin Remarks**
   - Spencer Yim, Environmental Section Head
2. **Welcome Address**
   - Darrell Young, Deputy Director, DOT Harbors Division
3. **TEMY Award Presentations**
4. **DOT Compliance Audit**
5. **Stormwater Awareness Training Presentation 1**
   - Daniel Amato, EnviroServices
   - Bobbie Teixeira, DOH Clean Water Branch
6. **10 min Break**
7. **Stormwater Awareness Training Presentation 2**
   - Daniel Amato, EnviroServices
   - Rafael Bergstrom, SurfRider Foundation
8. **Training Questionnaire and Evaluation**

Runners Up

Tenant Environmental Manager of the Year

- **Mr. Kekua Keli'i**
  Atlantis Adventures, LLC

- **Mr. Dane R. Wurlitzer**
  Hawaiian Cement

- **Ms. AK Colburn**
  Hawai'i Gas

- **Mr. Stephen Hinton**
  Marisco, Ltd.

2017 Tenant Environmental Manager of the Year

Congratulations!

Ms. Sara Daniels
Asphalt Hawaii

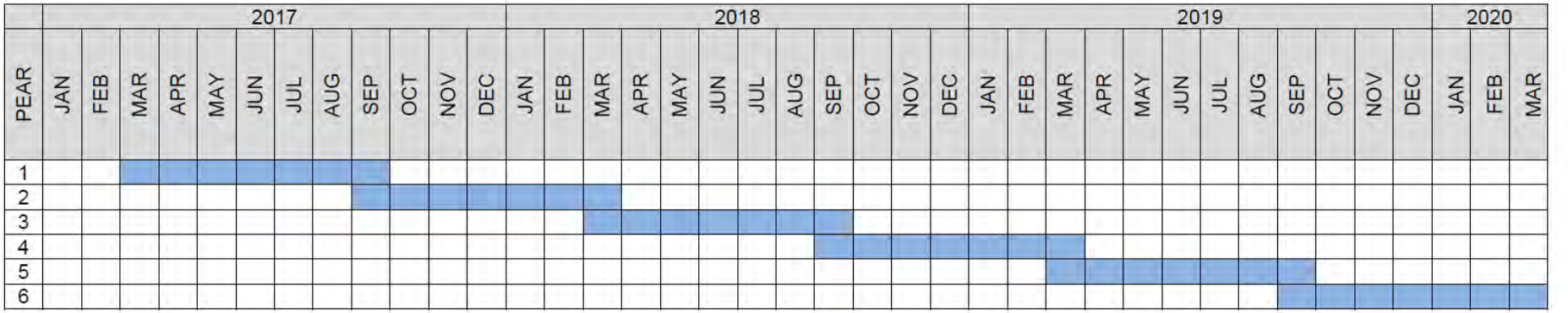
HDOT MS4 Audit

- Required by 2014 Consent Decree
- Covers Harbors, Airports, Highways
- ENV Consultant: Kennedy/Jenks Consultants

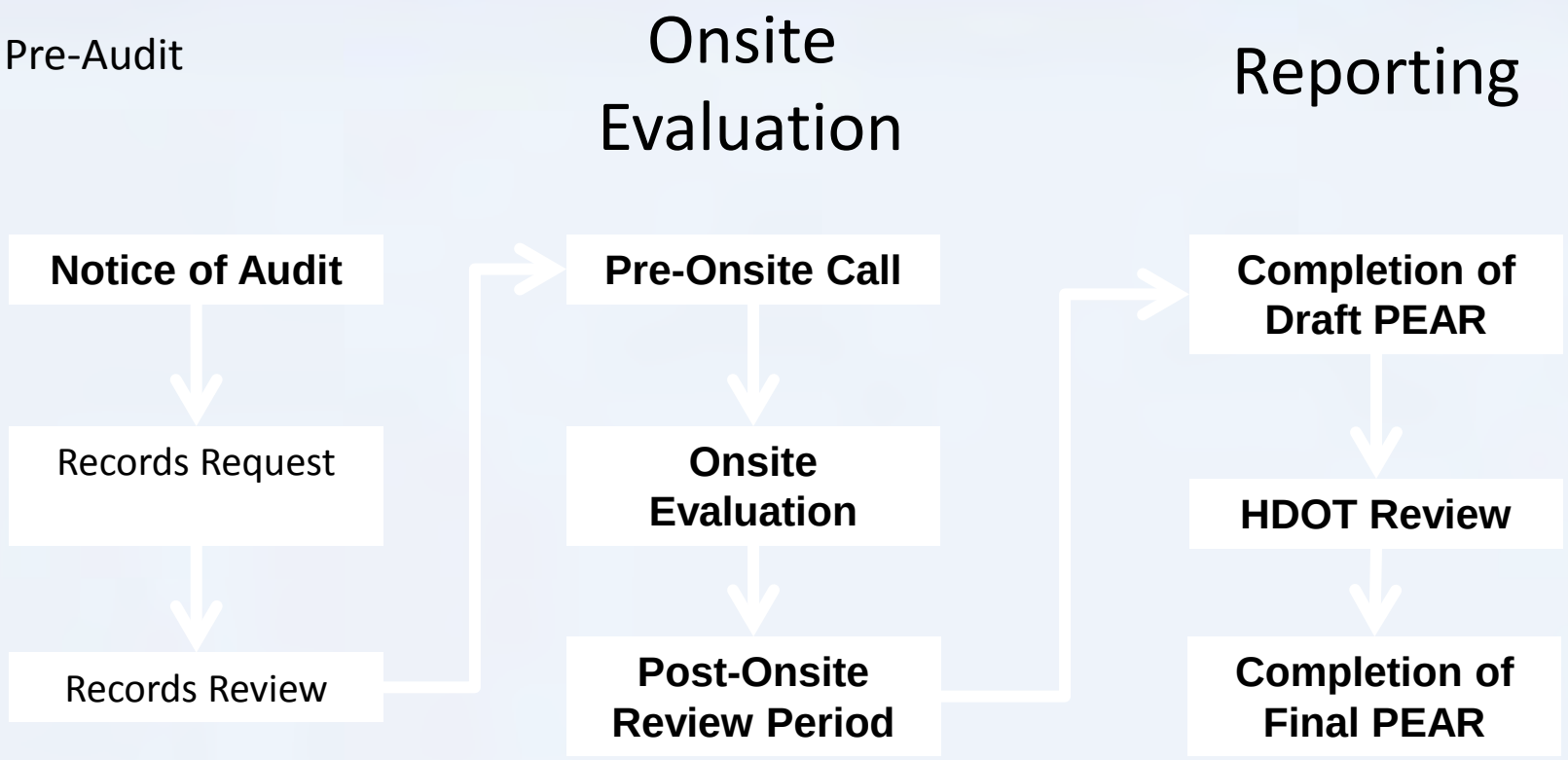
Audit Schedule

- Program Element Audit Reports (PEARs)

1. Post-Construction / Permanent Best Management Practices
2. Construction Site Runoff Control
3. Public Outreach / Public Involvement
4. Illicit Discharge Detection and Elimination (IDDE) Program Element and Industrial Commercial Activities/Tenant (I/C) Program
5. Pollution Prevention / Good Housekeeping Program
6. Staffing, Funding, Organizational Structure, Availability of Resources, and Storm Water Program Sustainability



Audit Workflow



Harbors Findings from PEAR 1

- Harbors Division should consider creating custom operation and maintenance (O&M) plans that are unique to each PBMP
- Need to address maintenance issues at Pier 31

Harbors Findings from PEAR 1

- Ensure that sediment wash water does not enter the harbor during trench drain wash down operations.

Training Outline

Stormwater Awareness Training Presentation 1

1. The Storm Drain System
2. Pollutants of Concern
3. Short Film –Why is Zinc a Problem in Stormwater?
4. Industrial Stormwater Monitoring and Sampling

10 minute Break

Training Outline

Stormwater Awareness Training Presentation 2

1. Permits and Requirements
2. Inspection Survival Guide
3. Illicit Discharge
4. Spill Response
5. Construction Program and PBMPs
6. Resources and Contacts
7. Short Film – Lets Grow the Movement!
8. SurfRider Foundation
9. Training Questionnaire and Evaluation
   (necessary to get credit for class)

Environmental Goals

Clean Water

Healthy Reefs

Sustainable Environment

Storm Drain System

Designed to carry <u>untreated</u> stormwater directly into the Harbor

Stormwater Pollution

- Considered a non-point source pollution
  - Much greater quantities than point sources

- Stormwater Pollutants
  - Any type of material or waste that **degrades water quality, public health, the environment or the beneficial uses of receiving waters**.

Pollutants of Concern

3 Categories: Physical, Chemical, and Biological

- Physical Pollutants
  - **Sediment**
    - Sources: Construction Sites, Erosion, Urban Areas, **Container Yards** & Agricultural Practices
    - Negative Impacts:
      - Reduce light transmission
      - Smother habitat
      - Impair recreational use of water bodies
      - transport other pollutants

Physical Pollutants

- **Gross Solids** (Garbage, **Trash**, **Plastics**, etc.)
  - Source: Human activities
  - Impacts: **Threat to aquatic life**; impair recreational uses, expensive to clean up

Chemical Pollutants

- **Nutrients (Nitrogen & Phosphorus)**
  - **Sources:** Fertilizers, Animals, Atmosphere, Sewage
  - **Nitrogen forms:** Ammonia, Nitrate/Nitrite, TKN
  - **Phosphorus forms:** Orthophosphates, Total P
  - **Impacts:** Algae blooms, Coral Disease, Blue Baby Syndrome

Chemical Pollutants

- **Metals**
  - **Sources:** streets & highways, buildings, materials, industrial activities, atmospheric deposition
  - **Impacts:** toxic to aquatic life, bioaccumulation, threat to human health
  - **Forms of Metal Pollutants** (Can be dissolved or solid)
    - Copper
    - **Zinc**
    - Lead
    - Chromium
    - Cadmium
    - **Iron**
    - **Aluminum**
    - Others

Chemical Pollutants (Continued)

- **Hydrocarbons**
- **Forms of Hydrocarbons**
  - **Oil and Grease**
  - **Fuels**
  - **Hydraulic Fluids**
- **Sources**
  - Streets, highways, **container yards**
  - **Fueling sites**, emissions
  - **Illegal dumping**
  - **Leakages** (vehicles & equipment)

Chemical Pollutants (Continued

- **Organic Compounds**
  - Paints & paint thinners
  - Solvents
  - Degreasing agents
  - Curing agents
  - Sealing compounds
  - PCBs (polychlorinated biphenyls)

- **Sources:** Construction sites, industrial & maintenance facilities, illicit discharges, poor storage & handling of materials

Chemical Pollutants (Continued

- **Pesticides**
  - Herbicides
  - Rodenticides
  - Insecticides
- **Sources:**
  - Agriculture
  - Urban landscaping
- **All have potential Impacts:**
  - Threat to aquatic life
  - Bioaccumulation
  - Human health risk

Biological Pollutants

- Bacteria and Viruses: E. coli, Fecal coli, etc.
- **Sources:**
  - Leaking septic/sewer systems (sewage)
  - Illicit connections
  - Animal wastes
- **Impacts:**
  - Human health risk of diseases
  - Threat to aquatic life

Secondary Pollutant Forms

- **Oxygen Demand**, pH, Algae, Chlorophyll

Oxygen Demand Sources:

– Sediment, nutrients,

– organics and other pollutants as particles and soluble phases

(e.g., molasses & fire fighting foam)

Oxygen Demand Impacts:

- Reduced Dissolved Oxygen levels harm aquatic life
- Fish kills

Short Film (6 min)

http://portofpt.com/preventing-zinc-pollution-in-stormwater/

Industrial Storm Water Monitoring & Sampling

BOBBIE TEIXEIRA

AUGUST 31, 2017

1. NPDES Overview and Sampling Purpose
2. Sample Collection
3. Preparations
4. Sampling Methods
5. Reporting Procedures

1 HAR, Chapter 11-55, Appendix B

Industrial Activities/Industries Which Require Storm Water Permits

- Facilities subject to EPA's National Effluent Guidelines
- Manufacturing facilities
- Mining and Oil and Gas operations
- Hazardous waste treatment, storage, or disposal facilities
- Landfills
- Recycling facilities
- Steam electric power generating facilities
- Transportation facilities
- Sewage treatment plant
- Construction activities 1 acre or more
- Industrial Facilities where pollutants are exposed to storm water

CHAPTER 11-55 APPENDIX B

NPDES GENERAL PERMIT
AUTHORIZING DISCHARGES OF STORM WATER
ASSOCIATED WITH INDUSTRIAL ACTIVITIES

This General Permit is effective on

DEC 0 6 2013

and expires four years from this date,
unless amended earlier.

1. Coverage under this General Permit

   (a) This general permit covers discharges composed entirely of storm water runoff associated with industrial activity, as defined in 40 CFR §§122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

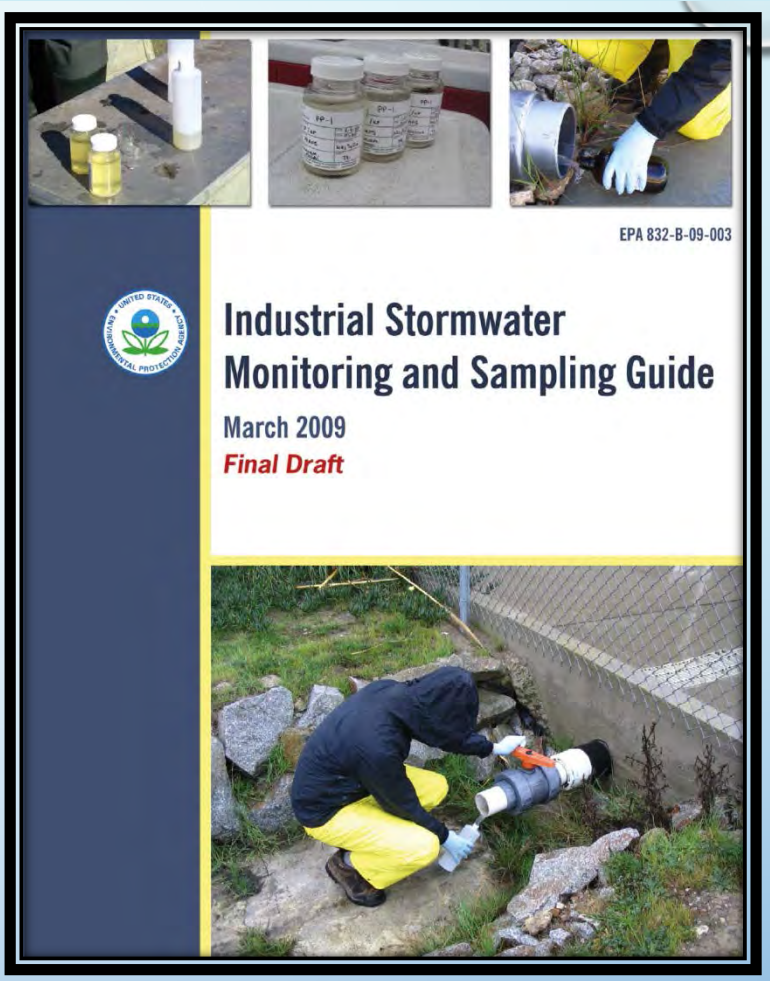
   (b) This general permit covers all areas of the State except for discharges in or to state waters classified by the department as "class 1, inland waters," "class AA, marine waters," and areas restricted in accordance with the State's "No Discharge" policy in chapter 11-54 titled "Water Quality Standards."

2. Limitations on Coverage under this General Permit

   (a) This general permit does not cover the following:

      (1) Storm water discharges associated with industrial facilities which flow into a sanitary sewer system;

      (2) Storm water discharges in categories for which storm water discharge limitation guidelines have been promulgated by the EPA;



SW Monitoring and Sampling

Purpose:

- NPDES permit requires installation and implementation of Best Management Practices (BMPs)
- BMPs chosen must be documented in the Storm Water Pollution Prevention Plan (SWPPP)
- SW monitoring results determines effectiveness of those BMPs

Definitions

- Sampling = physical collection and analysis of storm water samples

- Monitoring = both sampling and visual observations of storm water discharges, including the related preparation and documentation tasks (Inspections)

Definitions

- "Grab Sample" – a sample collected during the first 15 minutes of the discharge
- "Composite Sample" – a combination of at least 2 sample aliquots, collected at periodic intervals

Representative Storm Event

- Rainfall that accumulates more than 0.1 inch of rain and occurs at least 72 hours after the previous storm event.

2

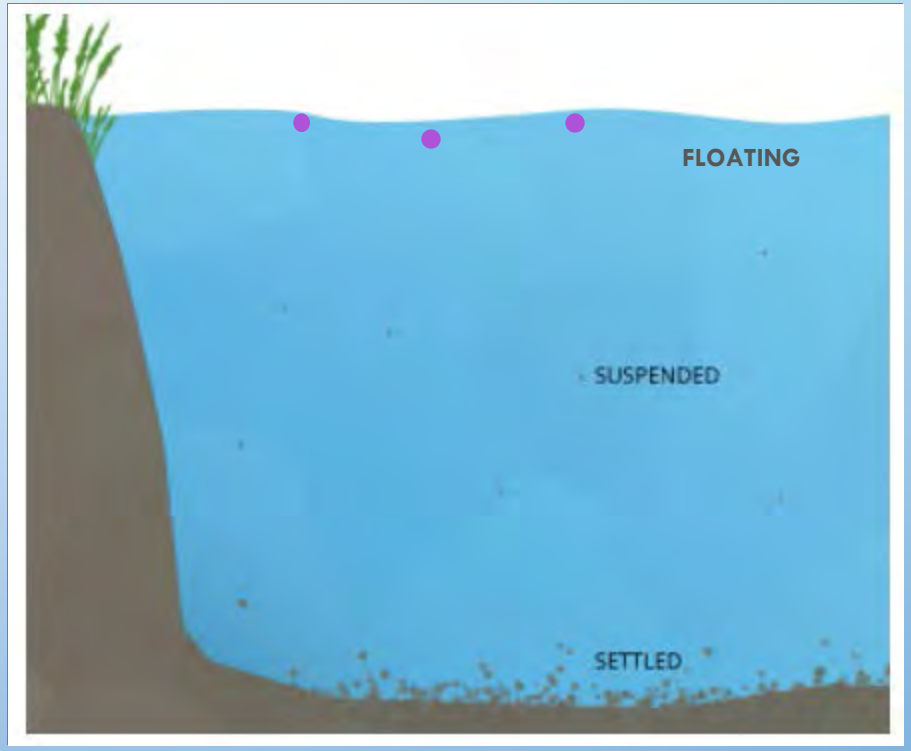
Types of Industrial SW Monitoring Requirements

- Visual Assessment of Discharges (qualitative)
- Indicator Sampling (quantitative)
- Compliance Sampling (quantitative)

Visual Assessments of Discharges

Key Visual Indicators:

- Color
- Odor
- Clarity
- Floating Solids
- Settled Solids
- Suspended Solids
- Foam
- Oil Sheen



Indicator Sampling

- Sample taken during a representative storm event and sent to the laboratory for analysis.
- Used to compare against pollutant concentrations as an indicator of BMPs performance.
- Results are report only! Not an effluent limitation.

CHAPTER 11-55 APPENDIX B

TABLE 34.1

LIMITATIONS AND MINIMUM MONITORING REQUIREMENTS FOR STORM WATER DISCHARGES

Storm Water Discharge Parameter	Storm Water Discharge Limitation {1}	Minimum Monitoring Frequency	Type of Sample {2}
Quantity of Discharge (gallons)	{3}	Annually	Calculated or Estimated
Biochemical Oxygen Demand (5-day) (mg/l)	{3}	Annually	Composite {4}
Chemical Oxygen Demand (mg/l)	{3}	Annually	Composite {4}
Total Suspended Solids (mg/l)	{3}	Annually	Composite {4}
Total Phosphorus (mg/l)	{3}	Annually	Composite {4}
Total Nitrogen {5} (mg/l)	{3}	Annually	Composite {4}
Nitrate+Nitrite Nitrogen (mg/l)	{3}	Annually	Composite {4}
Oil and Grease (mg/l)	15	Annually	Grab {6}
pH (standard units)	{7}	Annually	Grab {8}
Toxic Pollutants (mg/l) {9}	{10}	Annually	{11}

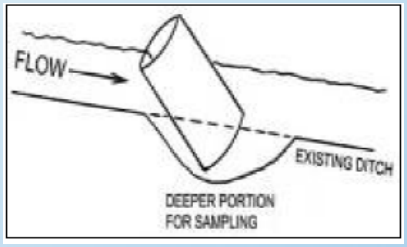
mg/l = milligrams per liter

Compliance Sampling

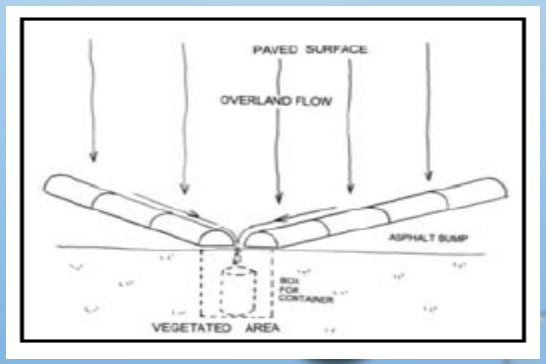
- Sample taken during a representative storm event
- Effluent limitations are legally enforceable limitations that must not be exceeded in SW discharges.
- An exceedance of an applicable effluent limitation constitutes a violation of the permit.
- Correctives action and additional sampling is required when a effluent limitation is exceeded.

Overcoming Sampling Difficulties

- Sheet Flow
  - Problem: flow is to shallow to directly fill a collection bottle
  - Solution: excavate a small depression



  - Solution: install a gutter or ditch to intercept and concentrate flow
  - Solution: install speed bumps to convey and concentrate flow



Overcoming Sampling Difficulties

- Pipe- Sample directly from the pipe before SW reaches the receiving water.
- Ditch/Swale- Sample from a consistent flowing part.
- SW detention/ retention basin– Sample at the outfall of structure.

Overcoming Sampling Difficulties

- Run-on- Prevent SW from running onto your property.

  Once it enters your property, it is yours to deal with!

- Multiple Outfalls- when possible combine outfalls by constructing channels or digging ditches.

Overcoming Sampling Difficulties

Install a weir and manual control valve to control flow and ensure discharges are collected within first 15 minutes of discharge

3 Preparation

1. Determine where SW is discharged from your property (pipe, ditches, swales, other structures) "Outfalls"

   Can have multiple outfalls

2. Determine where to collect samples

Sample must be collected **prior** to leaving the facility **and** downstream from **all** industrial materials and activities.

Preparation

3. Multiple Outfalls- identify which outfall is associated with industrial materials and activities.

Not required to monitor outfalls that receive only SW from unregulated areas of your Facility

Ex: employee parking lots, admin buildings.

- Collects samples and conduct visual assessment of discharges.
- Familiar with SWPPP and layout of Facility
- Familiar with pollutants sources
- Familiar with Monitoring and Reporting Program
- Possess knowledge and skills to assess conditions and activities that could impact SW quality
- Able to evaluate the effectiveness of BMPs
- Multiple members for multiple outfalls
- At least 1 member per shift

Qualified Laboratory

- Select a qualified laboratory that uses the approved methods found in 40 CFR Part 136.
- Obtain sampling kits (bottles, packing materials, bottle labels, coolers, pre-filled chain of custody forms.

In-Office Preparations

- Maintain pH meter calibrations
- Observe weather forecast
- Contact monitoring team
- Notify the lab
- Prepare gear
- Prepare labels (name, outfall no., date, time, etc.)
- Chain-of-custody ready for use

4 Sampling Methods

- When obtaining a “grab sample” wear disposable powder-free gloves; never touch inside of the lid or bottle.
- Oil and Grease samples must be filled directly into a glass bottle. Never transfer bottles.
- Use a pole for hard to reach areas.
- Sample from turbulent section in the central flow; avoid touching bottom or sides.
- Fill the sample bottle nearly to the top; do not rinse or overfill.

Sampling Procedures

- Place samples in a cooler with ice at ~ 4 degrees Celsius until cooler is given to lab along with COC.

- pH must be analyzed within 15 minutes of
- collection. Analyzed in the field.

- SW Sampling Form: Document all information. Outfall, date, time and duration of the storm event sampled, rainfall measurement (inches), estimate the total volume of the discharge sampled from the outfall, pH, visual indicators.

Chain Of Custody Forms and Procedures

- Ensure sample are labeled properly
- Completed with date, time, parameters and sample locations for each sample, sign form
- During the transfer of samples, both parties document, date, time and signatures.
- Shipping information if applicable (courier name)
- Original remains with samples

5 Reporting Procedures

- Report results on Discharge Monitoring Report (DMR)
- Submitted with laboratory reports, SW Sampling Forms, COC
- Submitted at least annually and within 60 calendar days after sample collection.
- “No Discharge “

EPA No. 3320-1

Exceedance/ Non-Compliance

- Orally report violations right away
- Submit written 5-day report
  - Description of non-compliance
  - Period of non-compliance
  - Steps taken or planned to reduce, eliminate and prevent reoccurrence of non-compliance.
- Signed by Certifying Person or Duly Authorized Representative
- Include Certifying Statement

Dept. of Health - Clean Water Branch

919 Ala Moana Blvd. Room 301

Honolulu, Hawaii 96814

808-586-4309

cleanwaterbranch@doh.hawaii.gov

Short Break (10 min)

Pollution Prevention

How can we prevent this?

Consent Decree

Case 1:14-cv-00408-JMS-KSC Document 11 Filed 11/05/14 Page 1 of 68 PageID #: 49

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF HAWAI'I

UNITED STATES OF AMERICA, *et al.*,

Plaintiffs,

v.

HAWAI'I DEPARTMENT OF TRANSPORTATION,

Defendant.

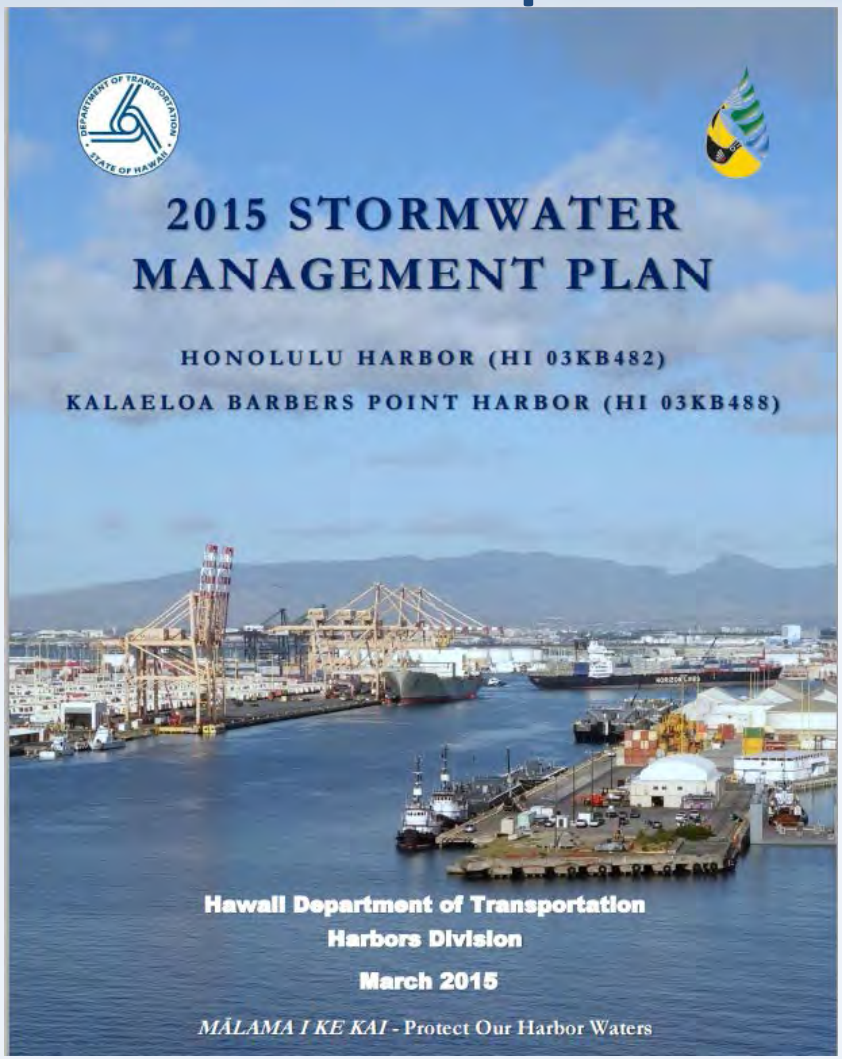
Civil Action No. _____

CONSENT DECREE

- November 2014, Harbors Division entered into a Consent Decree with EPA/DOH
- Storm water compliance with:
  - Clean Water Act
  - National Pollutant Discharge Elimination System (NPDES) Permits
- Available on Harbors website

http://hidot.hawaii.gov/harbors/files/2013/01/Consent-Decree.pdf

Permits & Requirements

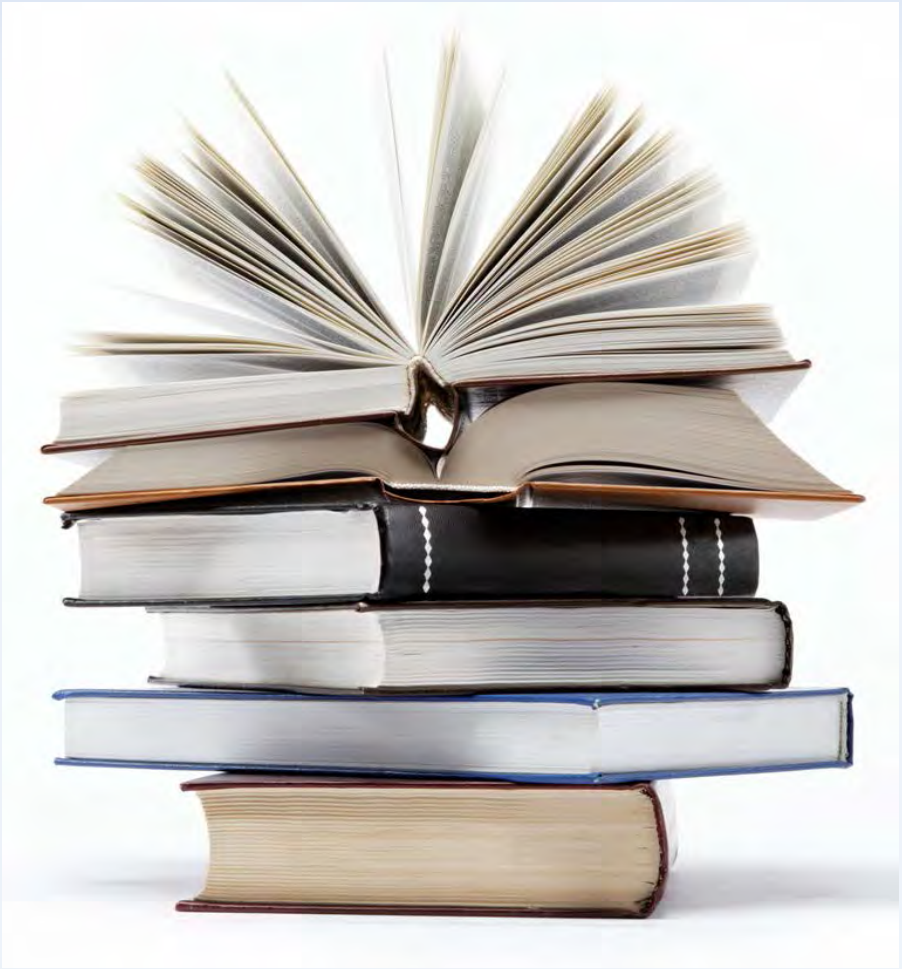


MS4 National Pollutant Discharge Elimination System (NPDES) Permits

Storm Water Management Plan (SWMP)

http://hidot.hawaii.gov/harbors/files/2013/01/Final-SWMP-150325.pdf

Know the Regulations



1. Industrial NPDES
2. Harbors Washing Approval
3. Hazardous Waste
4. Universal Waste

1. Industrial NPDES Permits

Provided by DOH and allows the discharge of stormwater associated with industrial activities, such as:

- Material Handling and Storage
- Equipment Cleaning
- Maintenance and Repair
- Fueling
- Washing
- Sanding and Painting

Conditions of the Permit:

- Storm Water Pollution Control Plan (SWPCP)
- **Stormwater sampling**

2. Harbors Washing Approval

- All washing areas need to be approved by Harbors Environmental Section
- Wash water must be collected and is not permitted to be discharged to the storm drain system

3. Hazardous Waste

HAR 11-260

- Record the quantities generated each month
- Have records available for inspectors

Make sure you **label** and **store drums** correctly!

4. Universal Waste

Examples:

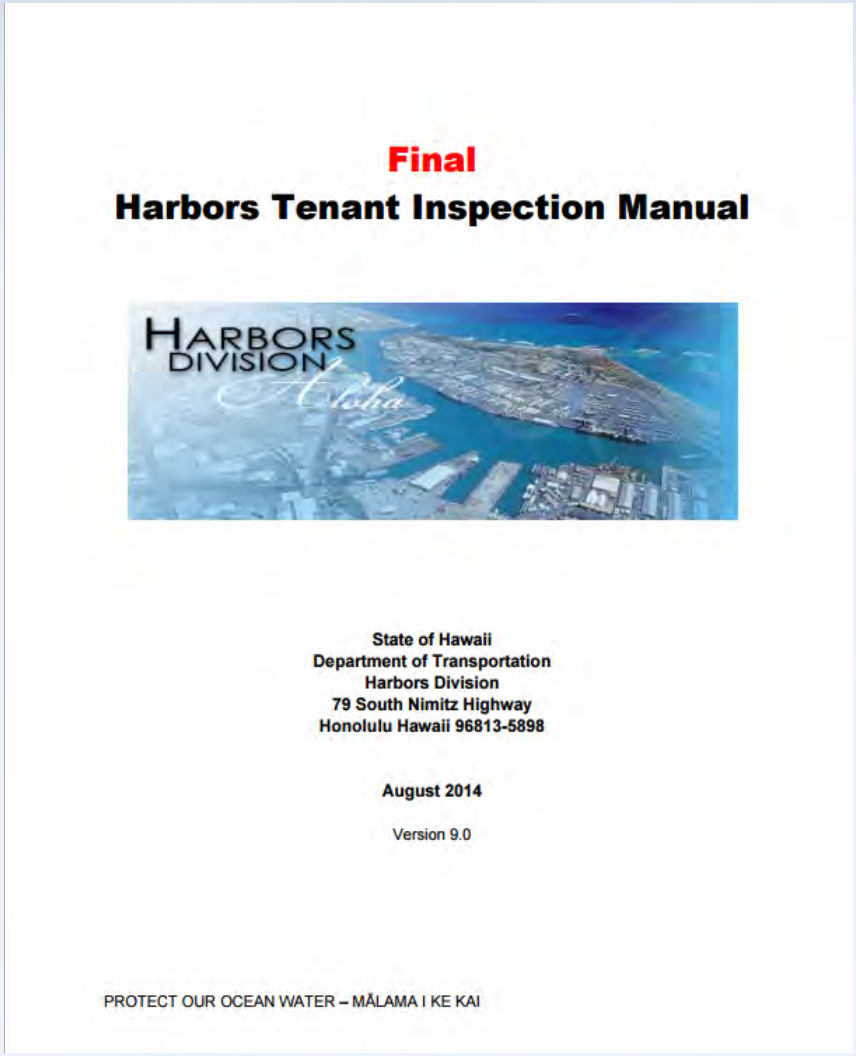
- Fluorescent lamps,
- Batteries
- Anything with mercury

- Label container and include accumulation start date

- Dispose within a year

HAR 11-273

Inspection Survival Guide



The EPA and DOH can inspect a tenant property at any time

Be Prepared!

Let's Work Together!

http://hidot.hawaii.gov/harbors/files/2013/01/2014-Tenant-Inspection-Manual_Final1.pdf

Harbors Inspections

A great tool to identify:

- **How** to reduce pollutants
- **Share** information between Harbors personnel and tenants

Tenants are encouraged to **fix minor items** during inspections!

High risk ranked tenants are inspected **every 6 months**

Medium risk ranked tenants are inspected **once a year**

Low risk ranked tenants are inspected **every five years**

General Inspection Items

- Paperwork (permits, plans, training logs, etc.)
- Storage and handling of petroleum, waste, chemicals, and other materials
- Container Labels
- Fueling BMPs
- Washing BMPs
- Maintenance BMPs and record keeping
- Spill response BMPs and record keeping
- General Housekeeping BMPs

Storage and Handling

Storage and Handling

Storage and Handling

Labels

Housekeeping

Housekeeping

Hand Washing

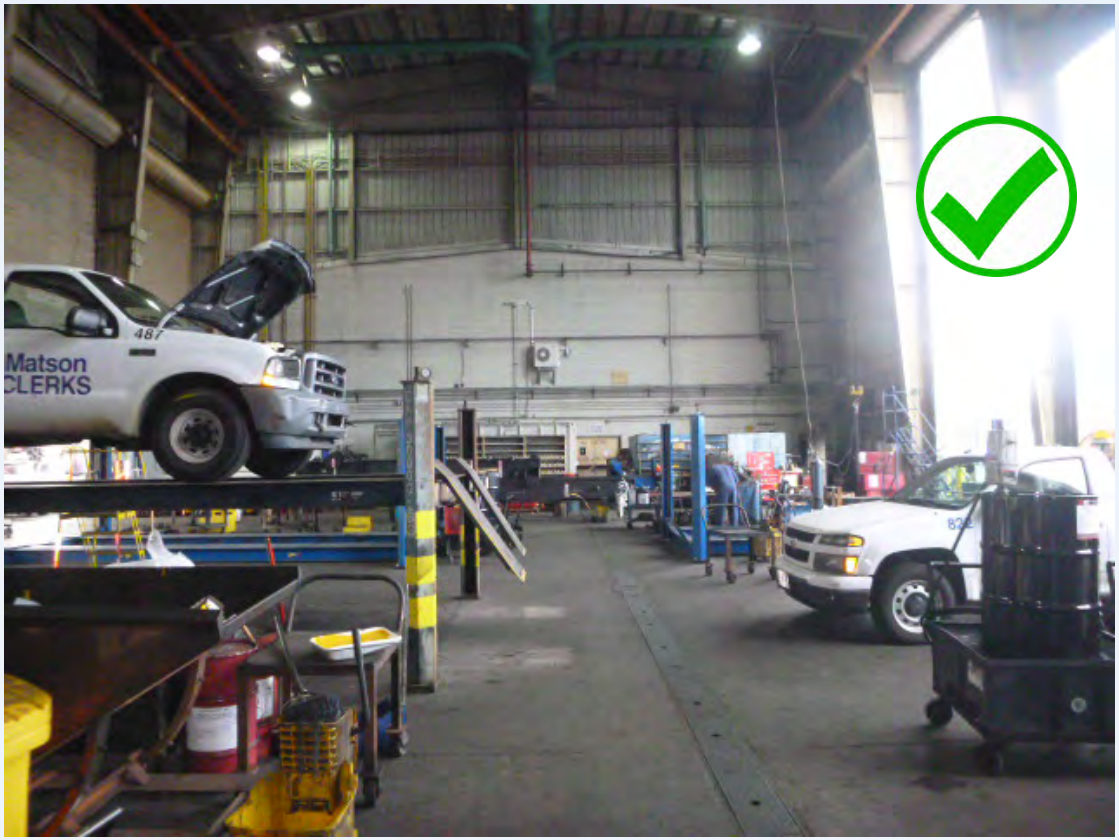
Fueling

Be Prepared

Remain
Vigilant

Maintenance

Conduct Maintenance Under Cover




SPILL
RESPONSE
KIT
SPILL
RESPONSE
KIT
SCHNITZER STEEL
HAWAII CORP.
682-5810


SPILLKIT

Vehicle and Equipment Storage

Remember to use a **drip pan** under vehicles!

Drain Inlet Protection

Filter Fabric

Witch’s Hat

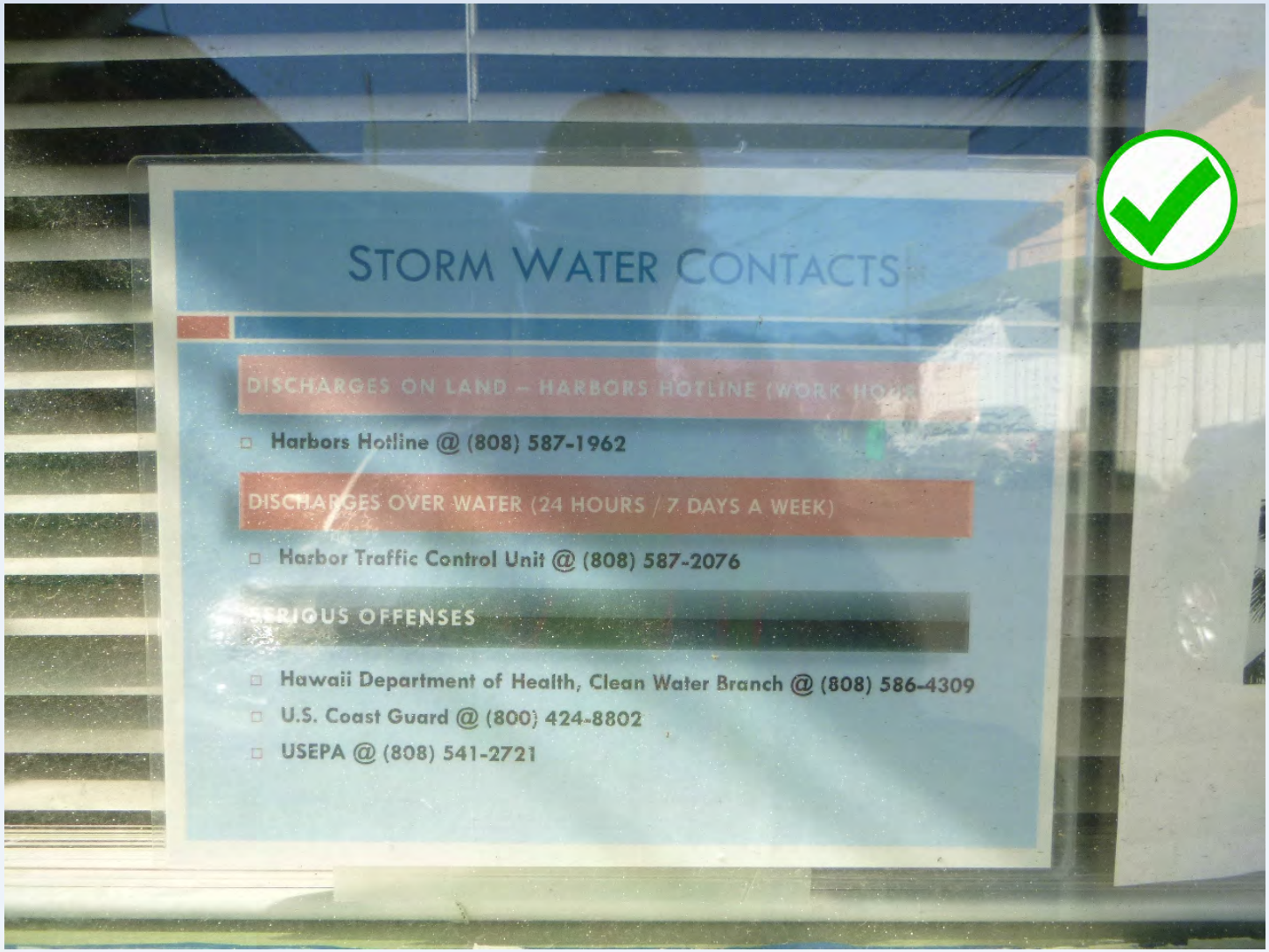
Stenciling

Be aware of the storm drains on at your facility.

What is the potential deficiency?

What good housekeeping practice can be implemented to avoid a deficiency?

Stormwater Contacts Posted



Correct Deficiencies

20 Days to Correct

Escalating Enforcement

- Oral or Verbal Warning
- Written Warning
- Notice of Apparent Violation
- Notice of Finding of Violation and Order
- Termination of Lease/RP
- DOH

  (Up to $25,000 per day)

What is an Illicit Discharge?

Any non-stormwater discharge that poses a risk to the environment.

Allowable Discharges

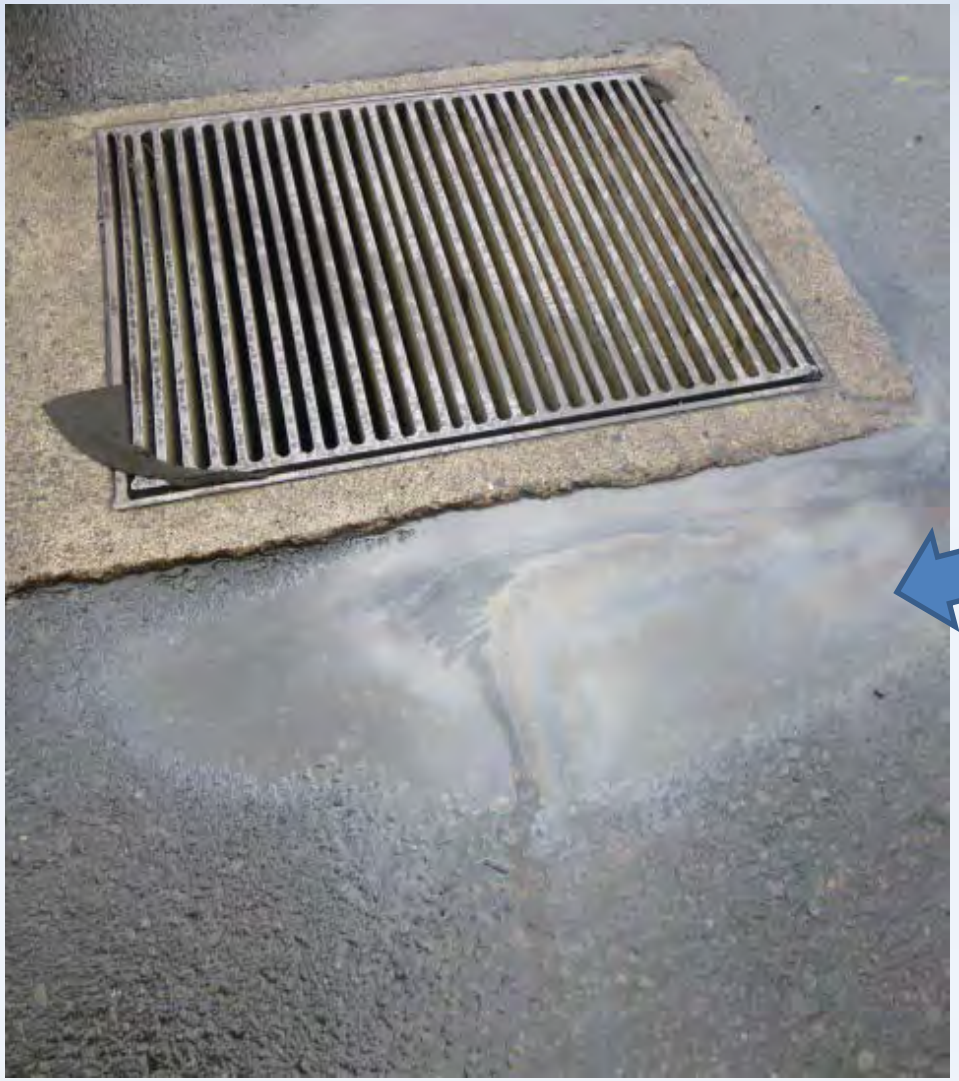
Permitted by DOH/EPA:

1. Daily Operations
   - Water line flushing
   - Air conditioning condensate
   - Landscape irrigation
   - Discharges from potable water sources and foundation drains
2. Groundwater
3. Natural Origin
   - Springs
4. Emergencies
   - Discharge from fire fighting activities

Illicit Discharge?

Uncontained materials over a trench drain and near pier's edge.

Illicit Discharge?



Sheen on water flowing to storm drain inlet

Illicit Discharge?

Uncontained air conditioning condensate is **NOT** an illicit discharge.

Illicit Discharge?

Do not dump mop water into a storm drain

Illicit Discharge?

Soapy water is an illicit discharge

Remember to get Harbors approval to wash!

Spill Response

1. Assess the Risk
2. Select PPE
3. Confine the Spill
4. Stop the Source

Spill Response

5. Clean-up
6. Decontaminate and Dispose of Wastes
7. Complete Required Report

Illicit Discharge and spill Reporting

- Notify Harbors of spills.

  24/7 call: 808-587-2076 (Harbor Traffic Control Unit)

- What to report:

- Location of incident, date and time
- Description of incident
- Responsible party & cause of incident
- Type of media that received the discharge

Construction Site Runoff Control Program

- Tenant construction projects need approval from Harbors and all necessary permits
- Harbors will ensure temporary BMPs are sufficient in the design review phase
- Harbors may inspect sites
- Tenant is ultimately responsible for the project

Permanent BMPs

Grate Inlet Filter (GISB)

PROVEN STORMWATER TREATMENT TECHNOLOGY

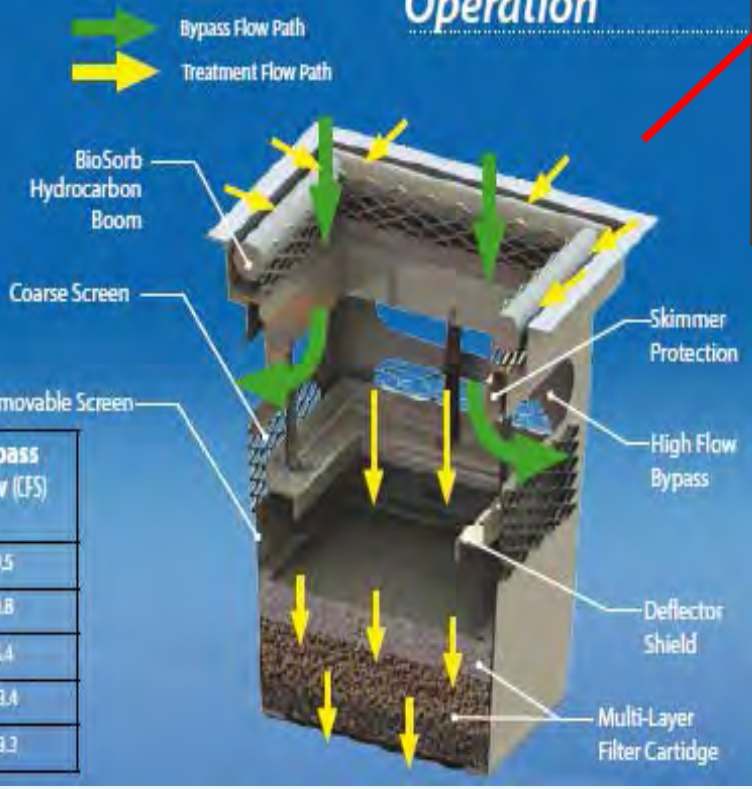
Media Filter

The Bio Clean Grate Inlet Media Filter (GISB-MF) is an advanced level filtration device designed with a multi-layered media filter for increased removal efficiencies.

Performance

- 85% Removal of Fine TSS
- 69% Removal of Dissolved Phosphorus
- 95% Removal of Copper
- 87% Removal of Lead
- 95% Removal of Zinc
- 90% to 95% Removal of Oils & Grease
- 68% Removal of Fecal Coliform (bacteria)

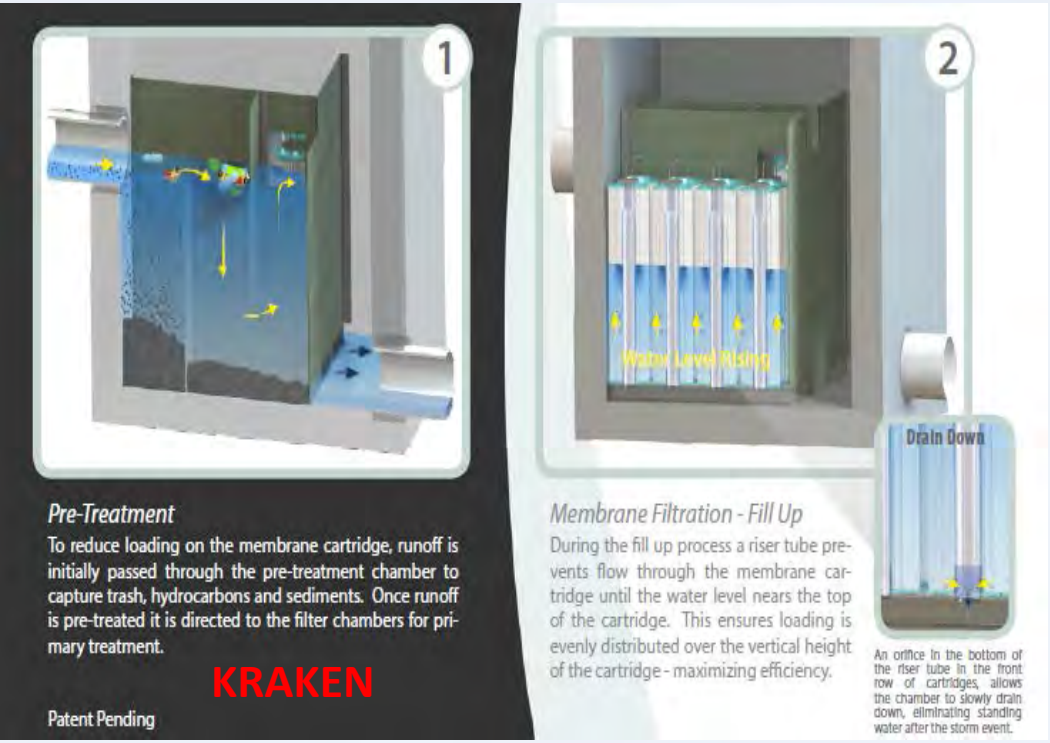
Operation

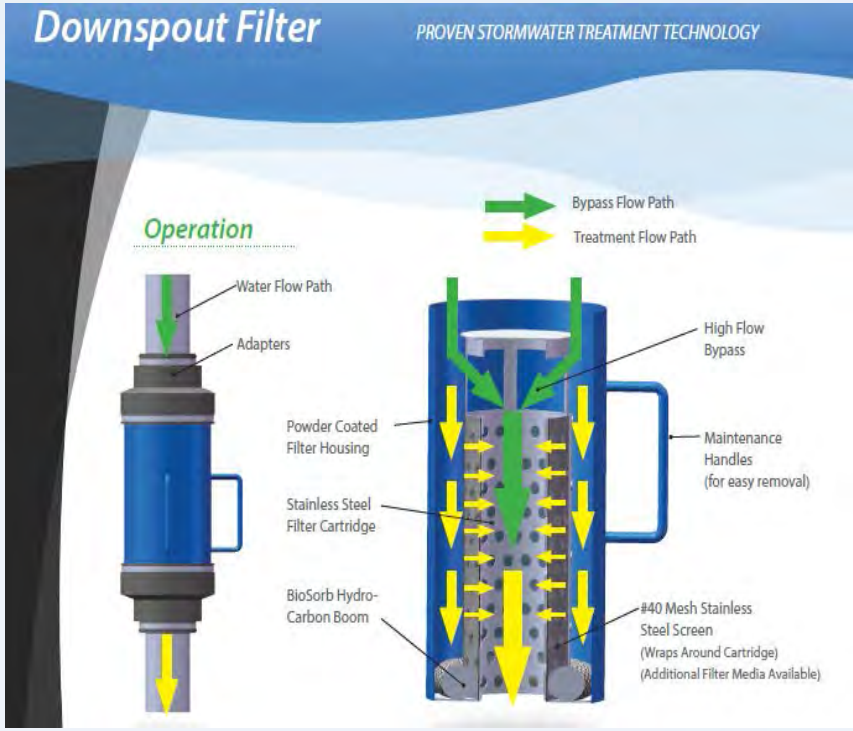


Specifications

Model #	Media Treatment Flow (CFS)	Screen Treatment Flow (CFS)	Bypass Flow (CFS)
BC-GISB-MF-12-12-12	0.007	0.2	0.5
BC-GISB-MF-18-18-18	0.02	0.5	0.8
BC-GISB-MF-24-24-24	0.04	0.9	4.4
BC-GISB-MF-36-36-24	0.17	1.8	13.4
BC-GISB-MF-48-48-18	0.35	2.4	13.3

Permanent BMPs





Resources and Contacts

- Harbors Stormwater Website:

http://hidot.hawaii.gov/harbors/library/storm-water-management/

- Harbors Division Environmental Contacts:
  - Reporting Hotline (Harbor Traffic Control): 587-2076
  - Spencer Yim, P.E., 587-1963 Spencer.K.Yim@hawaii.gov
  - Joy Zhang, P.E.: 587-1960, ying.j.zhang@hawaii.gov
  - Michele Freitas: 587-1976, michele.gn.freitas@hawaii.gov
- Harbors Division Property Management Contacts:
  - Carl Young, 587-1945, carl.g.young@hawaii.gov
  - Patti Miyashiro, 587-1942, patti.e.miyashiro@hawaii.gov

Short Film (8 min)

https://www.youtube.com/watch?v=4fVloVzEMdw

SurfRider Foundation

For information, visit: **https://oahu.surfrider.org/**

Surfrider Foundation
O‘ahu Chapter
Ocean Friendly Hawai‘i Program

What we do…

- Inspire our community to protect what we love – the ocean, beaches, waves, and marine ecosystems of Hawai‘i

BLUE WATER TASK FORCE

OCEAN FRIENDLY GARDENS

OCEAN FRIENDLY RESTAURANTS

RISE ABOVE PLASTICS

Extending Producer AND Consumer Responsibility

- Building on Ocean Friendly Restaurants (OFR) success

500 million straws per day

Keiki inheritance

More plastic than fish by 2050

Stormwater & Re-inventing our Watersheds

- Collaborative restoration from business to backyards
- Ocean Friendly Businesses
- Rewards & Recognition
- Policy: DOT Trash Plan

13 million gallons of polluted runoff have been kept out of our waterways and ocean by our Ocean Friendly Gardens program.

OFG Principals & Solutions

C.P.R.

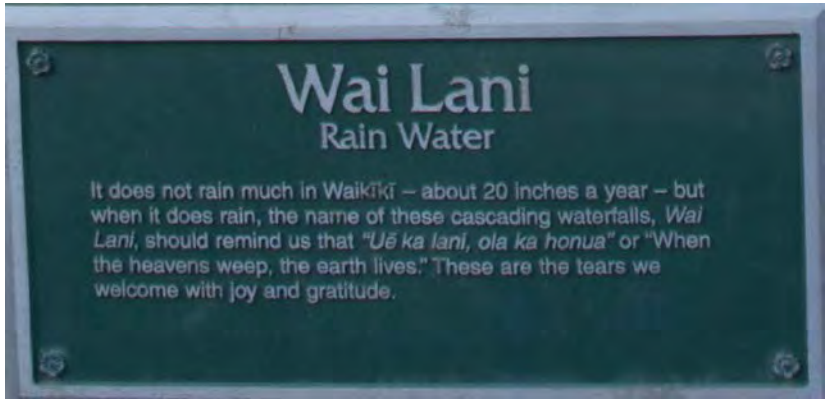
Conservation, Permeability, Retention

LEARN CPR

You Can Do It!

BE A LIFESAVER™

OFG Principals & Solutions: Conservation…



Of Water, Energy, Wildlife, Native Plants

OFG Principals & Solutions: Permeability…

Make a Crack, Slow the Flow

OFG Principals & Solutions: Retention…

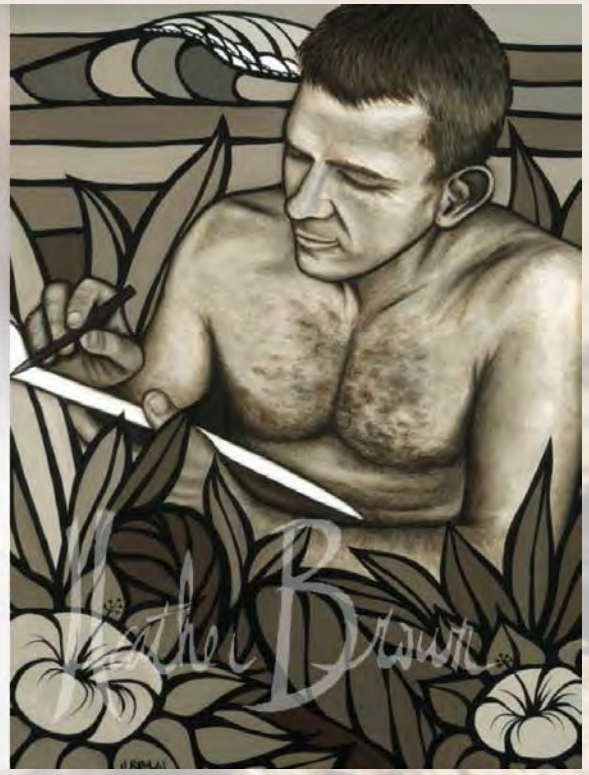
Healthy Soil, Mulch, & Rain as Irrigation

Telling the Story

- Surfrider is here to connect community to action and to highlight those who strive to make this island a sustainable place to live

SURFRIDER O'AHU MONTHLY MEETINGS

FIRST WEDNESDAY OF THE MONTH: 6:30-8:30 PM
REVOLUSUN SMARTHOME 210 WARD AVE #140, HONOLULU, HI 96814



Please return your questionnaire and training evaluation form before you leave