

# STORMWATER MANAGEMENT AND SPILL CONTAINMENT



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# Water is the lifeblood of Hawaii



Keeping water and beaches clean is critically important to all business owners in Hawaii

Everyone must do their part



#### The Basics of Stormwater Management

#### **DID YOU KNOW?**

Approximately 70% of all storm drains lead directly to open waterways, without treatment.

46% of all impaired rivers and lakes in the U.S. are polluted due to uncontrolled stormwater runoff.

A one quart oil spill can cause a 1 acre oil slick.

- REGULATIONS: Stormwater Management Regulations are a key component of EPA's Clean Water Act.
- OVERRIDING GOAL: Protect the quality of U.S. waterways by reducing the discharge of sediment, oil and chemicals into storm drains, surface water and groundwater.

- WHO IS REGULATED? Three (3) main categories are now required to comply with these regulations:
- A. Industrial a total of 450
  Standard Industrial Classification
  Codes (SIC)
- в. Municipalities
- c. Construction Activities

NPDES - "National Pollutant

Discharge Elimination System" -

This is the technical name for EPA's stormwater management regulations. Regulated entities must comply with NPDES, 40 CFR 122.26 (1999).

SWPPP - A "Stormwater Pollution Prevention Plan" is an erosion, sediment and waste chemical control plan.

All regulated entities must file a SWPPP with the EPA to be granted a stormwater permit.

# BMP - "Best Management Practices"

... include operating procedures and products to control site runoff, spills, leaks and drainage from raw material storage. When filing a SWPPP, a detailed description of BMPs planned for use at the site is required.

MEP - "Maximum Extent Practicable" -

Stormwater permits require that the discharge of pollutants into storm drains be reduced to the "maximum extent practicable".

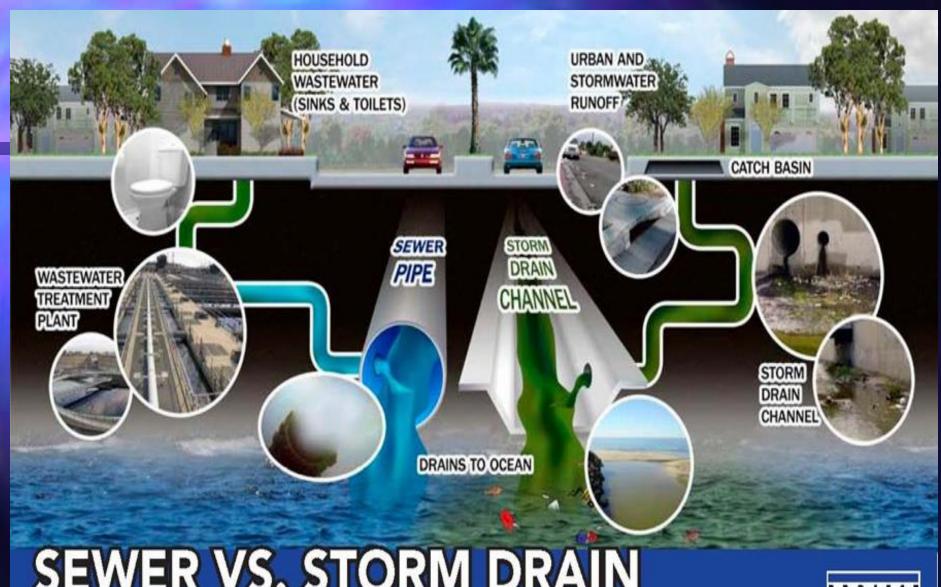
TMDL - "Total Maximum Daily Loads"

TMDL addresses the most common stormwater pollutants such as:

- **Sediment**
- Pathogens
- Nutrients
- □ Metals

Non-Point Source Pollution - This term is synonymous with "stormwater runoff"...

Unlike stormwater pollution, "point source pollution" can be easily attributed to a single source, such as a catastrophic leak from a storage tank.



SEWER VS. STORM DRAIN DO YOU KNOW THE DIFFERENCE?







Storm Drain System...













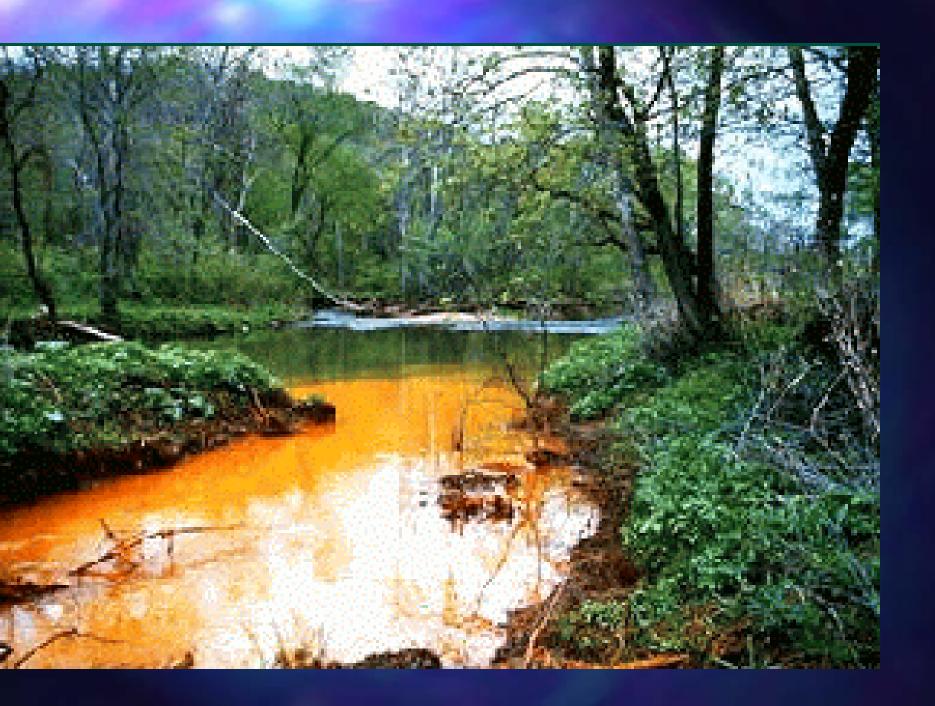




Sediment flows to the Storm Drains...









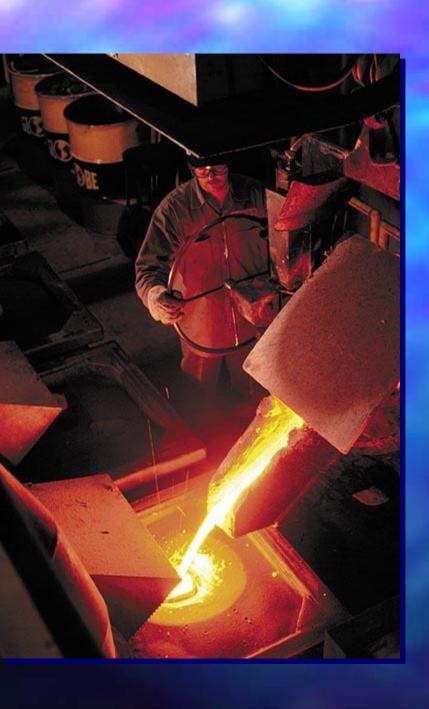
Sediment and trash on the river bottom





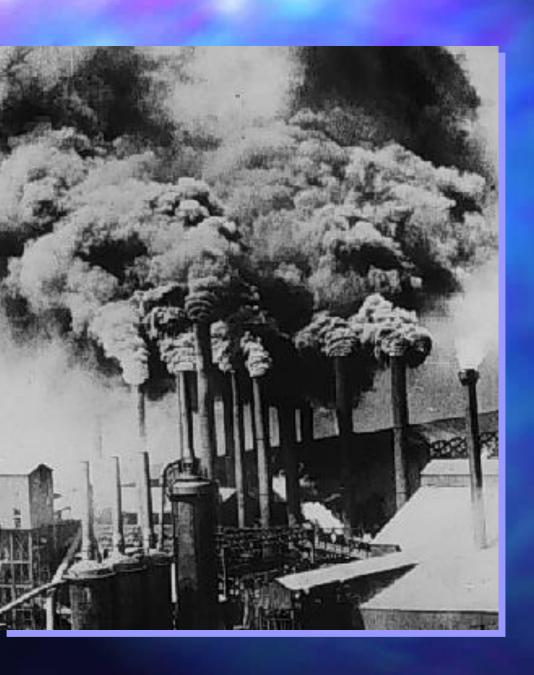
Oils and Grease wash Into drains...





# Industrial Manufacturing

Pollutants enter the air via smokestacks



Add rain to the mix...





Monitor Breakfast posted March 28, 2002



#### On which environmental issue is the No. 1 challenge:

Christine Todd Whitman, administrator of the Environmental Protection Agency and former governor of New Jersey, was the guest at Wednesday's Monitor breakfast in Washington

"I would put it in terms of what I think our single greatest challenge is, and I don't know how we are going to solve it all, and that is water. I think water is going to be the biggest environmental issue that we face for the 21st century in both quantity and quality."

On which environmental issue is the No. 1 challenge:

"I would put it in terms of what I think our single greatest challenge is, and I don't know how we are going to solve it all, and that is water. I think water is going to be the biggest environmental issue that we face for the 21st century in both quantity and quality. The agency doesn't really deal with quantity much – that falls more under (the Department of) Interior and others. But (EPA) clearly has

"... we have gotten really good at identifying and correcting the problem that comes from a single source from a pipe that's emitting into a stream. We are having now to get to the point where people understand what they do in their driveway can end up somewhere far away and have a cumulative impact"

of those things say to me that water is going to be really one of our biggest challenges and I am not entirely sure that we have it all down on how to solve that."

#### Honolulu star advertiser Thursday, March 1, 2018

### Public warned of Maui, Oahu beach pollution

State health officials are warning about pollution at beaches on Maui and Oahu.

A high bacteria count was detected during routine beach monitoring Wednesday morning at Hanakaoo off Honoapiilani Highway on Maui, officials with the Department of Health Clean Water Branch said. Officials said potentially harmful microorganisms such as bacteria, viruses, protozoa, or parasites may be present in the water.

Swimming at beaches with pollution in the water might make people ill, they said.

In addition, the state Health Department on Wednesday afternoon issued brown water advisories for Kalama Beach Park in Kailua and Bellows Field Beach Park in Waimanalo due to stormwater runoff entering the ocean.

Also on Oahu, brown water advisories remain in effect for the shorelines from Oneula Beach Park to Puuloa Beach Park and from Kaneohe Bay to Hauula Beach Park.

Visit the state's Clean Water Branch website at bit.ly/ 2COPMKi for updates.

#### Hawaii Key Contacts

- Hawaii State Clean Water Board
  - -808 586 4309
- State Clean Water Board Permits to Cities
- Honolulu City and County Enviro Line
  - -808 768 3300

#### Hawaii Revised Statutes

- HAWAII REVISED STATUTES (HRS)
- http://openstates.org/hi/bills/2013%20Reg ular%20Session/SB1134/documents/HID00 088359/
- No Person Shall Pollute

The Federal Clean Water Act of 1972 established the National Pollutant Discharge Elimination System (NPDES)

The Clean Water Act has been amended several times. One important amendment was the Water Quality Act of 1987.

The Water Quality Act of 1987 established a two-phase stormwater program...

Under Phase I, EPA required NPDES permit coverage for storm water discharges from:

- "Medium" and "large" municipal separate storm sewer systems (MS4s) located in incorporated places or counties with populations of 100,000 or more; and
- ☐ Eleven categories of industrial activity, one of which is construction activity that disturbs five or more acres of land.

The Phase II Final Rule, published in the Federal Register on December 8, 1999, requires NPDES permit coverage for storm water discharges from:

- ☐ Certain regulated small municipal separate storm sewer systems (MS4s); and ....
- ☐ Construction activity disturbing between 1 and 5 acres of land (i.e., small construction activities
- ☐ Phase II Regulations permits are due March 10, 2003.

#### 11 Industrial Categories Phase

I

- Facilities with effluent limitations
- Manufacturing
- Mineral, Metal, Oil and Gas
- HazardousWaste, Treatment, orDisposal Facilities
- Landfills
- Recycling Facilities
- Steam Electric Plants
- Transportation Facilities
- Treatment Works
- Construction Activity
- Light Industrial Activity



### Industrial Activity Phase I

#### Manufacturing

- lumber and wood products
- paper & allied products
- □ chemicals & allied products
- petroleum & coal products
- □ leather tanning & finishing
- stone, clay & glassproduction
- primary metal industry
- fabricated structural metal
- ship and boat building and repair

#### Mineral Industry

- metal mining (metallic mineral/ores)
- coal mining
- oil and gas extraction
- non-metallic minerals except fuels

### Industrial Activity Phase I Manufacturing and Mineral Industries

Dairy products processing	Pulp, paper, and paperboard *
Grain mills	Builder's paper and board mills
Canned & preserved fruits & veg. processing *	Meat products
Canned & preserved seafood processing	Metal finishing
Beet, crystalline & liquid cane sugar refining	Coal Mining *
Textile mills	Mineral mining & processing *
Cement manufacturing	Pharmaceutical manufacturing *
Feedlots	Ore mining & dressing *
Organic Chemicals plastics and synthetic	Paving and roofing materials
fibers	Paint formulating
Inorganic chemical manufacturing *	Ink formulating
Soap and detergent manufacturing	Pesticide Chemicals *
Fertilizer manufacturing	Carbon Black manufacturing
Petroleum refining	Battery manufacturing
Iron and steel manufacturing	Plastics molding and forming
Nonferrous metal manufacturing	Metal molding and casting
Phosphate manufacturing *	Coil coating
Steam electric power	Porcelain enameling
Glass manufacturing *	Aluminum forming
Asbestos manufacturing	Copper forming *
Rubber manufacturing	Electrical & electronic component
Timber products processing	Nonferrous metal forming & powders

### **Industrial Activity Phase I**

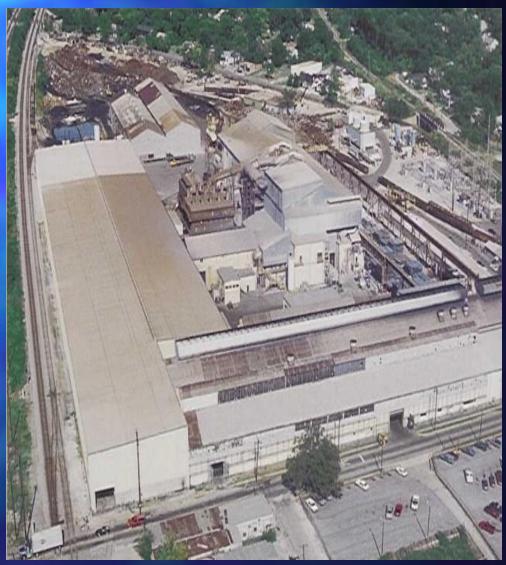
### Transportation

Transportation facilities listed below which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations... will need to submit a Permit

- railroad transportation
- local and inter-urban passenger transit
- □ trucking & warehousing
- US postal service
- water transportation
- transportation by air
- petroleum bulk stations and terminals

### Light Industrial Activity Phase I

- ☐ food and kindred product
- □ tobacco products
- □ textile mill products
- apparel and other textile product
- wood kitchen cabinets
- furniture and fixtures
- paperboard containers and boxes
- miscellaneous converted paper products
- printing and publishing
- □ drugs
- paints and allied products
- rubber and miscellaneous plastic
- leather and products
- products of purchased glass
- □ fabricated metal products
- industrial machinery and equipment
- electronic and other electric equipment
- □ transportation equipment
- □ instruments and related products
- miscellaneous manufacturing
- ☐ farm product storage
- refrigerated storage
- general warehouse and storage



## Industrial Activity Phase II NO EXPOSURE CERTIFICATION

for Exclusion from NPDES Storm Water Permitting

A condition of no exposure exists at an industrial facility when all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff.



The NPDES Storm Water Program requires operators of both large and small construction sites to obtain authorization to discharge storm water under an NPDES construction storm water permit.

☐ In 1990, the Phase I Storm Water regulations addressed construction activities that disturbed five or more acres of land

☐ The NPDES Storm Water Program also addresses small construction activities... those that disturb between one and five acres of land - with the signing of the Phase II Final Rule.





### Municipal

Municipal Separate
Storm Sewer Systems

MS4s

Operators of regulated small MS4s must have permit coverage no later than March 10, 2003. The Phase II Final Rule describes permit requirements... Under the Small MS4 Storm Water Program, operators of regulated small MS4s are required to:

- □ Apply for NPDES permit coverage
- Develop a storm water management program which includes the six minimum control measures
- ☐ Implement the storm water management program using appropriate storm water management controls, or best management practices (BMPs)
- □ Develop measurable goals for the program
- Evaluate the effectiveness of the program

Listed below are the six minimum control measures that operators of regulated small MS4s must incorporate into storm water management programs. These measures are expected to result in significant reductions of pollutants discharged into receiving water bodies.

- Public Education and Outreach
- □ Public Participation/Involvement
- ☐ Illicit Discharge Detection and Elimination
- □ Construction Site Runoff Control
- Post-Construction Runoff Control
- □ Pollution Prevention/Good Housekeeping

(Washington, D.C.) Home Depot has agreed to pay a \$1.3 million penalty and implement a nationwide compliance program to resolve alleged violations of the Clean Water Act, the Justice **Department and Environmental** Protection Agency announced today. The settlement resolves alleged violations that were discovered at more than 30 construction sites in 28 states where new Home Depot stores were being built.

- Department of Ecology News Release
- Tacoma concrete plant fined \$147,000 for stormwater violations
- OLYMPIA The Washington Department of Ecology (Ecology) has levied a fine of \$147,000 against a Tacoma manufacturer of concrete products.
- "Hanson Pipe and Precast is not taking adequate measures to treat its stormwater and correct the violations. The company's quarterly monitoring reports continue to show violations," said Kelly Susewind, Ecology's Water Quality Program manager. "These are repeat violations. Hanson has been fined for these practices in the past."

- Department of Ecology News Release February 18, 2009
- Sumner construction company fined for stormwater violations
- OLYMPIA A Sumner construction company has been fined \$36,000 for violations of its construction stormwater permit.
- The Washington Department of Ecology (Ecology) levied the fine against Stowe Construction for failure to prevent, control and treat stormwater runoff from its Rainier Park of Industry Division Four construction site, West Valley and 52nd Street East in Sumner. Ecology provided company owner Bryan Stowe with technical assistance several times to help him bring the Rainier Park property and another site in Sumner into compliance with stormwater regulations.

- 4 Companies Charged almost \$1,000,000 in total for stormwater violations
- http://www.komonews.com/news/local/4-companies-fined-847000-for-stormwater-runoff-violations-221572871.html



### BASIC REQUIREMENTS OF A STORMWATER POLLUTION PREVENTION PLAN

A Stormwater Pollution Prevention Plan (SWPPP) is an erosion, sediment and waste chemical control plan. It is up to the permit holder to decide what types of Best Management Practices (BMPs) to use at a given site, but the company, municipality or contractor must comply with the permit requirement.

# SWPPPs will typically include:

- Site Description with a map.
- A description of the sediment, erosion and polluted water controls used on-site, including stabilization and structural practices (such as seeding, and catch basin inserts like the Ultra-DrainGuard or Ultra-GrateGuard).
- Descriptions of the BMPs to control stormwater runoff after completion of a construction activity or as a part of a long term maintenance plan.

# What are the Permit Requirements?

Permit holders are required to develop, implement and enforce a stormwater management program to:

- Reduce the discharge of pollutants to the maximum extent practicable (MEP).
- Protect water quality.
- Satisfy the appropriate water quality requirements of the Clean Water Act.
- Submit a Notice of Intent (NOI) which includes BMPs to be used, measurable goals, frequency of actions and responsible persons.



### What are Baseline BMPs?

- Good Housekeeping: reduce spill potential, routine inspections.
- Preventive Maintenance: maintain pipes, pumps, drum/tank storage and stormwater devices.
- Visual Inspections: signs of obvious stormwater contamination in outdoor storage and processing areas.
- Spill Prevention and Response: spill containment of drums and tanks, spill clean-up procedures, easily accessible spill response products.
- Sediment and Erosion Control: control methods for high erosion areas due to topography activities or other factors.
- Runoff Management: flow diversion, filtering using catch basin inserts, use of sumps, berms, mitigative techniques such as vacuuming, use of sorbents.

## What are Advanced BMPs?

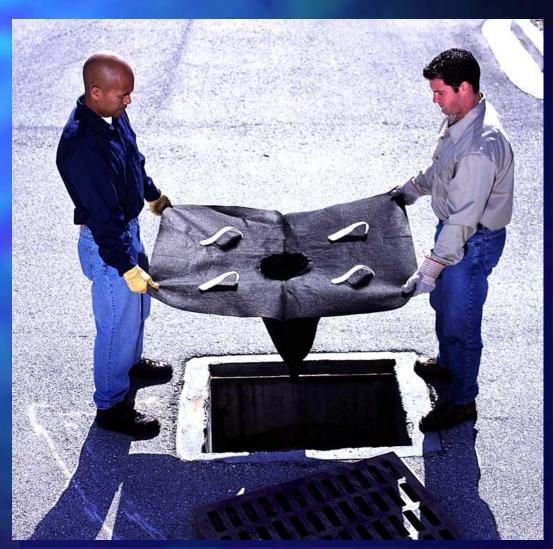
- Vegetated Filter Strips
- Detention Basins and Ponds
- Catch Basin Filters (disposable)
- **Passive Skimmers**
- **Litter Removal Devices**
- **Silt Fences**
- Drain Inlet Inserts
- Permanent Catch Basin Inserts

## Stormwater Products Drain Guards

□ Oil & Sediment
Model

Sediment OnlyModel





## Stormwater Products Drain Guards

Oil & Sediment Plus®

□ X-TEX "Filter Strips" capture hydrocarbons





# Stormwater Products Drain Guards – Heavy Metal Model

### Heavy Metal Removal Media sewn into the catch basin insert's walls

#### **Filterable Metals:**

Rubidium • Lithium
Potassium • Caesium
Ammonium • Sodium
Calcium • Silver
Cadmium • Lead
Zinc • Barium
Strontium • Copper
Mercury • Magnesium
Iron • Cobalt
Aluminum • Chromium



## Stormwater Products Grate Guards

Oil & Sediment

Sediment Only





Stormwater Products
Basin Guard

□ Oil & Sediment

Sediment Only

□ 36 Inch Diameter

□ 4 ft. x 6 ft.



### Stormwater Products

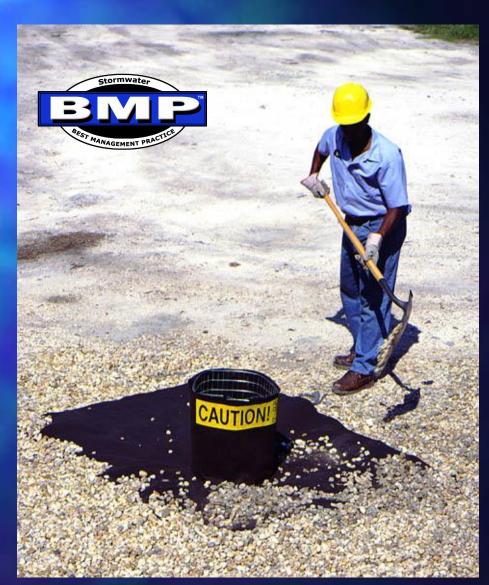
Basin Guard

□ Oil & Sediment

Sediment Only

□ 36 Inch Diameter

→ 4 ft. x 6 ft.



## Stormwater Products Passive Skimmer

Removes Oil FromCatch Basins andStorm Drains

 Floats on water surface continuously absorbs oil.



## Stormwater Products Passive Skimmer

Removes Oil FromCatch Basins andStorm Drains

Holds up to2 gallons of oil.



# Stormwater Products Dewatering Bag

Contain Sediment
 And Oil Pumped Out
 During Dewatering
 Operations

Standard and custom sizes available.





## Stormwater Products Pipe Sock

 Control The Flow Of Sediment And Oil Out Of Headwall And Other Types Of Pipes

Standard and custom sizes available.



### Stormwater Products



### Filter Sock

- Control The Flow Of
  Sediment And Oil Out
  Of Headwall And Other
  Types Of Pipes
- Reduce Water Velocity In Gullies, Ditches, And Construction Sites



# Stormwater Products Drain Seal Spill Response

Stop spills from going down the drain

Urethane construction allows the pad to deform and seal off most drains temporarily "seals" to any smooth surface



### Stormwater Products

Drain Seal Spill Response Wall Mount Unit

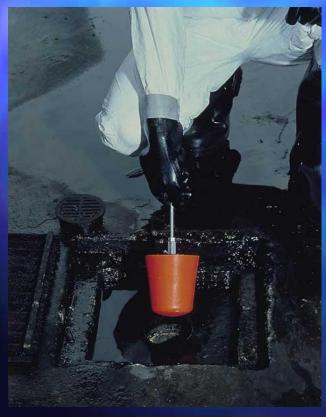
Drain Seal
Wall Mount Units
allow quick
response to any
spill - just "grab
and go"!



### Stormwater Products

### Drain Plug Spill Response

Tapered design wedges securely into standard drains to stop any flow







# Stormwater Products Spill Berms Spill Response

□ Temporary Berm Seals Off Spills From The Environment, Nearby Drains And Doorways

■ Unique, urethane material "weeps" into small cracks and crevices to seal off liquid flow





# Stormwater Products 1 Drum Outdoor Drum Storage

■ The Only 1-Drum Lockable Outdoor Containment Unit Available





### Stormwater Products

### 2 and 4 Drum Outdoor Drum Storage

Store hazardous
 drums Safely
 outdoors With
 pumps And
 funnels In place!

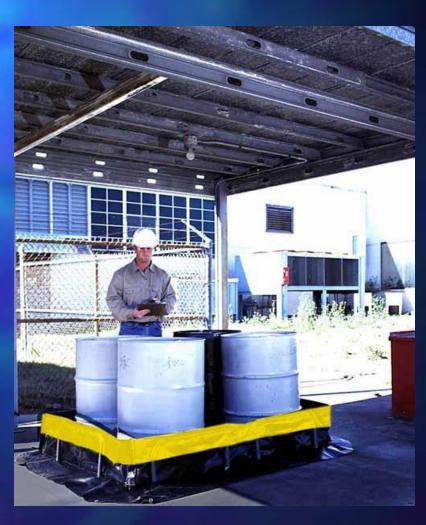




# Containment Berms Spill Containment

- Economical design offers cost savings and secure containment
- Collapsible wall model features rugged PVC sidewall assemblies





#### Self Bailer



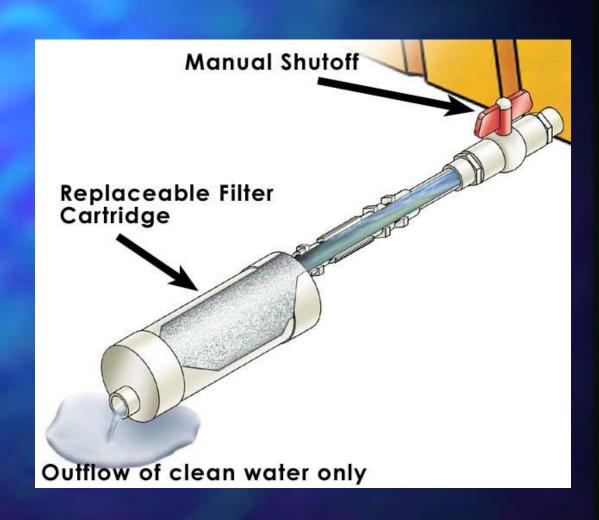
- Allows clean stormwater to drain passively from Containment Berms while filtering out oils and other hydrocarbons
- Can also be attached to other outdoor containment products



#### Self Bailer



- Allows clean stormwater to drain passively from Containment Berms while filtering out oils and other hydrocarbons
- Can also be attached to other outdoor containment products



## Down Spout Guard



- Removes pollutants from stormwater flow in gutters and downspouts
- Quick and easy to install on most downspouts
- Polyethylene construction will not rust or corrode



## Down Spout Guard



- Special "X-Tex"
   oil-absorbing material
   removes oil, grease
   and other hydrocarbons
   from gutter and downspout
   water flow
- Filter material is easily removed and replaced





# Non-Structural BMPs

#### Materials Management

Alternative Products
Hazardous Materials Storage
Road Salt Application and Storage
Spill Response and Prevention
Used Oil Recycling
Materials Management

# What Does EPA's Amended SPCC Regulation *Really* Mean ???

("SPCC" stands for Spill Prevention, Control and Countermeasure)





### General Overview of SPCC

- Requires that certain facilities prepare and implement a written SPCC Plan to prevent "oil" from reaching navigable waters and adjoining shorelines
- "Oil" includes (but is not limited to) gasoline, diesel, animal oils and fats, vegetable oils, grease, synthetic oils, mineral oils and oil mixed with other wastes



#### SPCC Overview (continued)

- Facilities with total, <u>above-ground</u> oil storage capacity greater than 1,320 gallons must comply with SPCC
- Facilities with total, <u>completely buried</u> oil storage greater than 42,000 gallons must comply with SPCC
- Note: There are some exempted facility types, i.e., convenience stores

<u>History</u>: Under authority of EPA's Clean Water Act, the Spill Prevention, Control and Countermeasure (SPCC) rule took effect originally on January 10, 1974

Problems: The language was unclear; and compliance was expensive due to the need for each facility's SPCC Plan to be certified by a Professional Engineer (PE)



# Result: Tens of thousands of facilities have not developed an SPCC Plan and are now *out of compliance*

Estimated Number of Existing SPCC – Regulated Facilities by Size Category (2005

Size Category	Aggregate Capacity	Estimated Number of Facilities
I	1,320 to 10,000 gallons	317,000
II	10,001 to 42,000 gallons	187,000
III	42,001 to 1 million gallons	63,700
IV	Greater than 1 million gallons	3,370
Total		571,000

# EPA's Remedy

- SPCC rule was amended in July 2002 to streamline requirements for certain facilities and to reduce the cost to comply
- Key changes: (1) containers with a capacity of <u>55</u> gallons or larger are now specified when determining maximum oil storage capacity at a facility; (2) facilities with above-ground oil storage capacity of 10,000 gallons or less are permitted to <u>self-certify</u> (no PE required) if they meet certain criteria related to their spill history

### Where are we now ???

- EPA has issued several "compliance date extensions" since 2002
- A significant amount of confusion has resulted, and.....
- Many thousands of facilities that should have complied years ago have incorrectly assumed that they are not currently regulated by SPCC they are now unknowingly subject to fines, etc.

#### So What's The "Bottom Line" ???

Facilities (non-farm) that began operating on or before August 16, 2002 – MUST:

- a. maintain their existing SPCC Plan
- b. amend (if required) and implement required changes no later than July 1, 2009



Facilities in this group that do not have an SPCC Plan are out of compliance and are subject to regulatory action, fines, etc.

# The "Bottom Line" (continued)

Facilities that began operations after August 16, 2002 – July 1, 2008 MUST:

Prepare and implement their SPCC Plan no later than July 1, 2009.

# The "Bottom Line" (continued)

Facilities that begin operations after July 1, 2009 MUST:

Prepare and implement an SPCC Plan before beginning operations.

## Other SPCC Related Items

- An SPCC inspector is <u>not</u> required to provide advance notice of a facility inspection
- Facility owners or operators regulated by SPCC must designate a person who is accountable for discharge prevention and who reports directly to management
- In general, "transfers" of oils are regulated by SPCC; "transportation" of oil is not regulated



#### U.S. Environmental Protection Agency

#### Region 1: New England

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#### Company Fined for Failing to Comply with Oil Spill Prevention Requirements at 7 N.H. and Maine Facilities

Release date: 05/16/2007

Contact Information: David Deegan, (617) 918-1017

(Boston, Mass. May 16, 2007) - A Maine-based company with approximately 30 oil storage and distribution facilities subject to oil spill prevention requirements throughout northern New England will pay an EPA fine to resolve an enforcement action in which EPA alleged that the company failed to comply with these requirements at seven facilities in New Hampshire and Maine.

Under the terms of a settlement with EPA, the CN Brown Company of South Paris, Maine will pay a penalty of \$157,500. The company has also committed to spend over \$1 million to bring their New England facilities into compliance with federal Oil Pollution Prevention regulations.



#### U.S. Environmental Protection Agency

#### **Region 1: New England**

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**IBC Hard Top** 





**Drum Rack** 



**Hard Top** 



**Hard Top P2** 

Plus





Twin IBC Spill

Pallet



**Drain Seal** 









PopUp Pool





**Containment Berm** 



