Construction Storm Water Training for Management 1-Hour Module

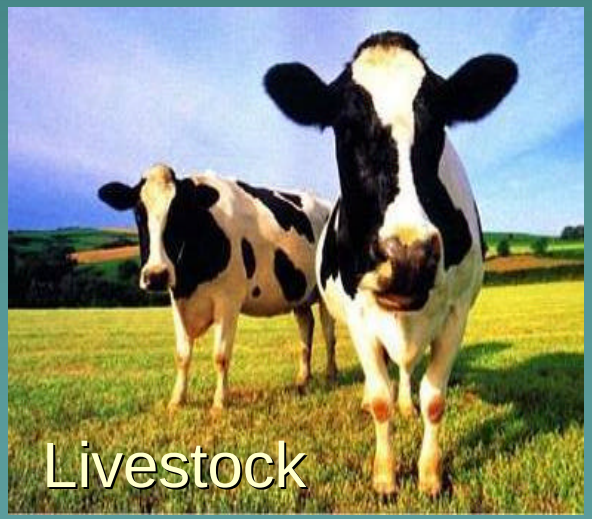
Caltrans

General Overview of Storm Water Requirements

Introduction

- **Course Highlights**
  - General Overview of Storm Water Requirements
  - Consequences of Non-Compliance
  - Causes of Erosion
  - Categories of BMPs to Prevent Erosion and Water Pollution
  - Dewatering Requirements
  - Sampling and Analysis

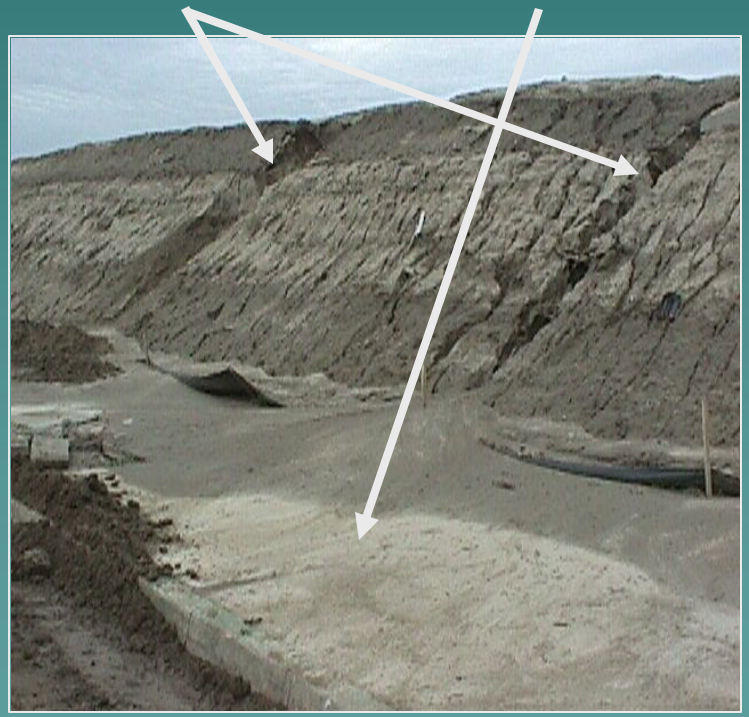
Why is Clean Water Important



All of these life forms depend on clean water for their existence

Construction Site Pollutants

Erosion and Sedimentation



Construction Wastes

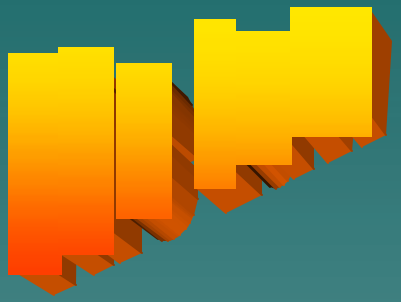
Construction Site Pollutants

- One gallon of oil has the potential to contaminate up to one million gallons of water

StormWater/CleanWater protection program

Regulations/Permits

- 1972 Federal Clean Water Act (CWA)
  - Amend to Prohibit Any Discharge of Pollutants from a Point Source
- 1987 Amendments to the CWA
  - Added Section 402(p) Establishing the Framework for Regulations Regarding Municipal and Industrial Discharges
- 1990 EPA Published Final Regulations
  - Established Permit Requirements for Storm Water Discharges Associated with Industrial (Including Construction) Activities
- 1992 California's General Permit was Adopted
  - Established Requirements for Discharges Associated with Construction Activities
  - Revised in 1999; Modified in 2001 to Include Monitoring – 02 Permit
  - Modified in 2002; Effective March 10, 2003 Construction Activity with Soil Disturbance = 1 acre
- 1999 Caltrans NPDES Permit was issued – 03 Permit and Storm Water Management Plan (SWMP)



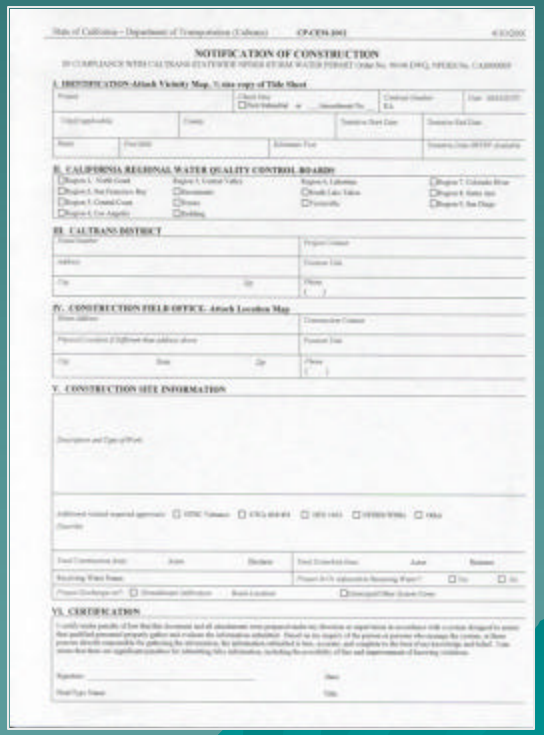
Who Enforces These Laws/Permits?

- EPA
- SWRCB / RWQCB
- Other Agencies

- **Private Citizens**
  - NRDC
  - Baykeepers
  - Other Watchdog Groups

Notification of Construction (NOC)

- Submitted to RWQCB at least 30 days prior to construction
- Equivalent to Notice Of Intent (NOI)
- Included information:
  - Tentative start date and duration
  - Estimate of affected acres and vicinity map
  - RE in charge and telephone number
  - Field office information and location map



NOTIFICATION OF CONSTRUCTION

I. IDENTIFICATION-Attach Vicinity Map, 7.5 min copy of Title Sheet

II. CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

III. CALTRANS DISTRICT

IV. CONSTRUCTION FIELD OFFICE. Attach Location Map

V. CONSTRUCTION SITE INFORMATION

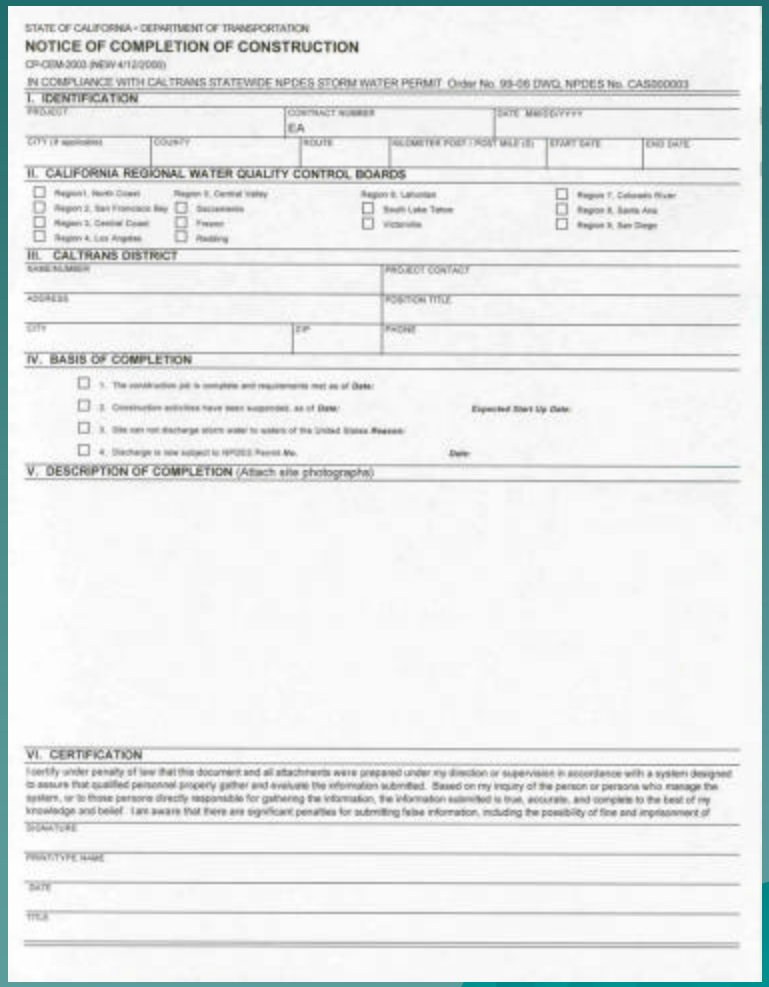
VI. CERTIFICATION

SWPPP Requirements

- SWPPP should be a dynamic, defensible, living document
- Identify pollutant sources or potential pollutant sources that may impact storm water discharges
- Implement BMPs to reduce pollutants in storm water discharges from the construction site.
- Monitor the site and perform inspections of control practices implemented as part of the SWPPP
- Document the inspections and the results, as well as corrective action which is to be taken as a result
- Evaluate and revise controls, and amend the SWPPP

NCC Requirements

- The Notice of Completion of Construction (NCC) equivalent to the NOT
- Meet Final Stabilization Requirements
  - Special Provision requirements
  - NPDES permit requirements
- Insert into SWPPP Attachment P at end of project
- Only required for SWPPP projects



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

NOTICE OF COMPLETION OF CONSTRUCTION

CP-CEM-3003 (NEW 4/12/2000)

IN COMPLIANCE WITH CALTRANS STATEWIDE NPDES STORM WATER PERMIT, Order No. 99-06 DWQ, NPDES No. CAS000003

I. IDENTIFICATION

PROJECT | CONTRACT NUMBER: EA | DATE: MM/DD/YYYY

CITY (if applicable) | COUNTY | ROUTE | KILOMETER POST / POST MILE (E) | START DATE | END DATE

II. CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

☐ Region 1, North Coast — ☐ Region 5, Central Valley: ☐ Sacramento, ☐ Fresno, ☐ Redding — ☐ Region 6, Lahontan: ☐ South Lake Tahoe, ☐ Victorville — ☐ Region 7, Colorado River

☐ Region 2, San Francisco Bay — ☐ Region 8, Santa Ana

☐ Region 3, Central Coast — ☐ Region 9, San Diego

☐ Region 4, Los Angeles

III. CALTRANS DISTRICT

NAME/NUMBER | PROJECT CONTACT

ADDRESS | POSITION TITLE

CITY | ZIP | PHONE

IV. BASIS OF COMPLETION

☐ 1. The construction job is complete and requirements met as of Date:

☐ 2. Construction activities have been suspended, as of Date: Expected Start Up Date:

☐ 3. Site will not discharge storm water to waters of the United States Reason:

☐ 4. Discharge is now subject to NPDES Permit No. Date:

V. DESCRIPTION OF COMPLETION (Attach site photographs)

VI. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or to those persons directly responsible for gathering the information, the information submitted is true, accurate, and complete to the best of my knowledge and belief. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment of

SIGNATURE

PRINT/TYPE NAME

DATE

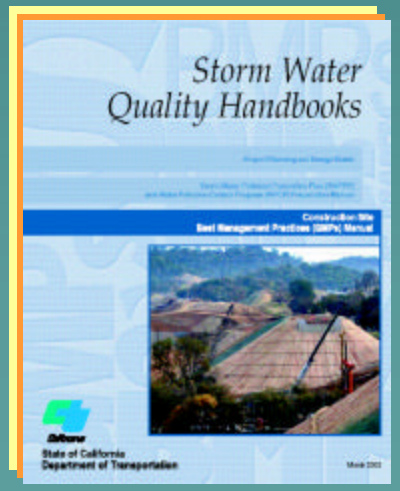
TITLE

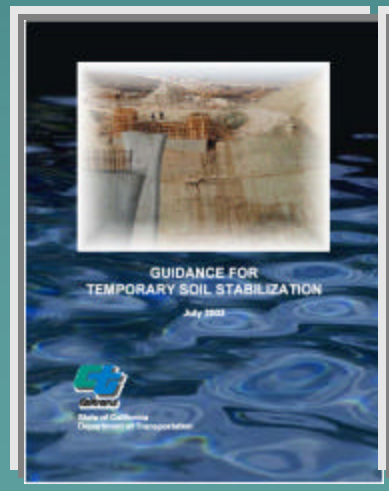
Available online at http://www.dot.ca.gov/hq/construc/cpb/CEM2003.pdf

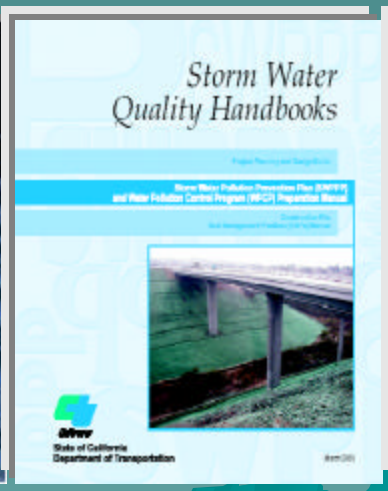
Caltrans Guidance Manuals

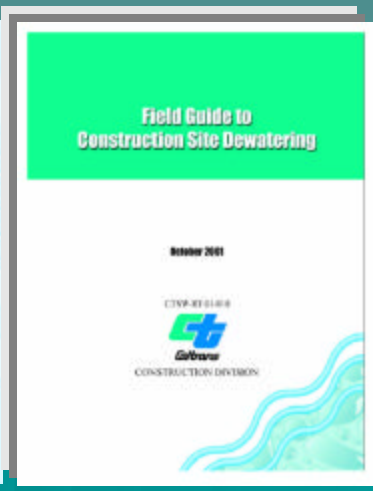
- Caltrans Storm Water Quality Handbooks and Manuals
  - Project Planning and Design Guide
  - SWPPP/WPCP Preparation Manual
  - Construction Site BMPs Manual
  - Guidance for Temporary Soil Stabilization
  - Field Guide to Construction Dewatering

    - **Get Manuals online at** http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm **or hard copies are available from Caltrans Publications**









Consequences of Non-Compliance

Summary of Fines and Penalties

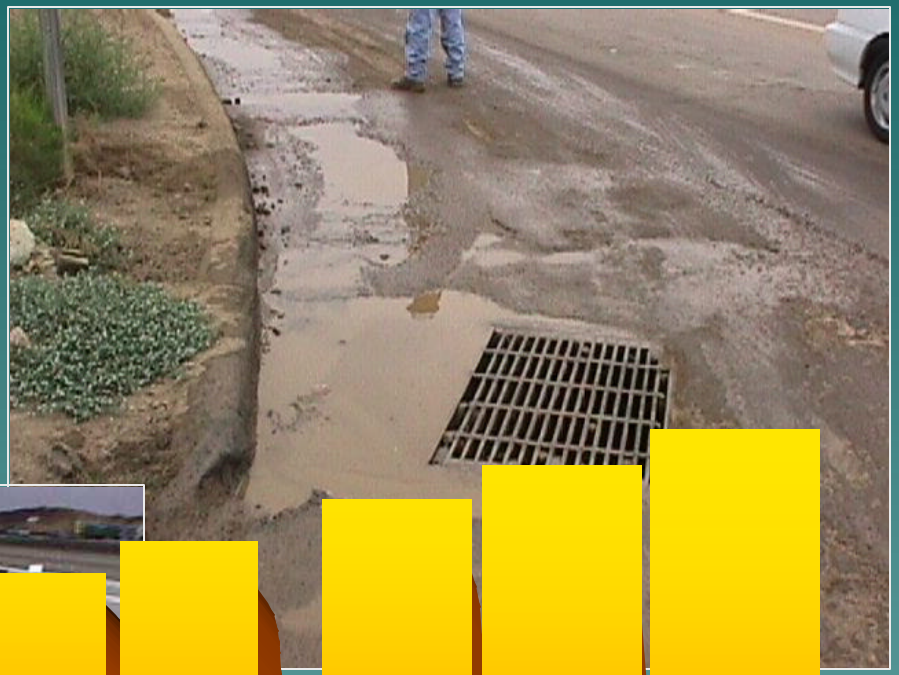
- Federal – fines of up to **$32,500 PER DAY** can be imposed for **UNINTENTIONAL** violation, up to **$55,000** per day for an **INTENTIONAL** violation, in addition to criminal liability and responsibility for cleanup costs
- State – Penalties of up to an additional **$10,000 per day plus $10/gallon** of sediment-laden or polluted water discharged for each violation
- Failure to Submit a Notice of Intent for Coverage under the appropriate storm water NPDES permit. **Minimum $5,000 plus recovery of staff costs**
- Failure to submit an annual report of construction certification when required by the Regional Board. **Minimum $1,000 plus recovery of staff costs**
- Violation of Permit Terms or Basin Plan Prohibitions **Minimum amount is the economic savings of the violation**

Current Regulatory Atmosphere

- **"The Learning Curve is Over"**

Violation and Order for Compliance 1998 District 11

- "..sloppy runoff-control practices at Caltrans construction sites, drainage facilities and maintenance yards"
  San Diego Baykeeper



Causes of Erosion

Definition of Erosion

- Soil erosion is the process by which soil particles become detached by water, wind, or gravity and are transported from their original location.

Types of Erosion

- Splash Erosion
- Sheet Erosion (Overland Flow)
- Rill Erosion
- Gully Erosion
- Channel Erosion

Turbidity/Sedimentation

- Turbidity is solid particulate matter, that is in suspension and is being transported

- Sedimentation is the deposition of the eroded material

Categories of BMPs to Prevent Erosion and Water Pollution

BMP Installation

BMP Categories

- Temporary Soil Stabilization
- Temporary Sediment Control
- Wind Erosion Control
- Tracking Control
- Non-Storm Water Management
- Waste Management and Materials Pollution Control

Temporary Soil Stabilization

ID	BMP Name
SS-1	Scheduling
SS-2	Preservation of Existing Vegetation
SS-3	Hydraulic Mulch
SS-4	Hydroseeding
SS-5	Soil Binders
SS-6	Straw Mulch
SS-7	Geotextiles, Plastic Covers, & Erosion Control Blankets/Mats
SS-8	Wood Mulching
SS-9	Earth Dikes/Drainage Swales & Lined Ditches
SS-10	Outlet Protection/Velocity Dissipation Devices
SS-11	Slope Drains
SS-12	Streambank Stabilization

Soil Stabilization

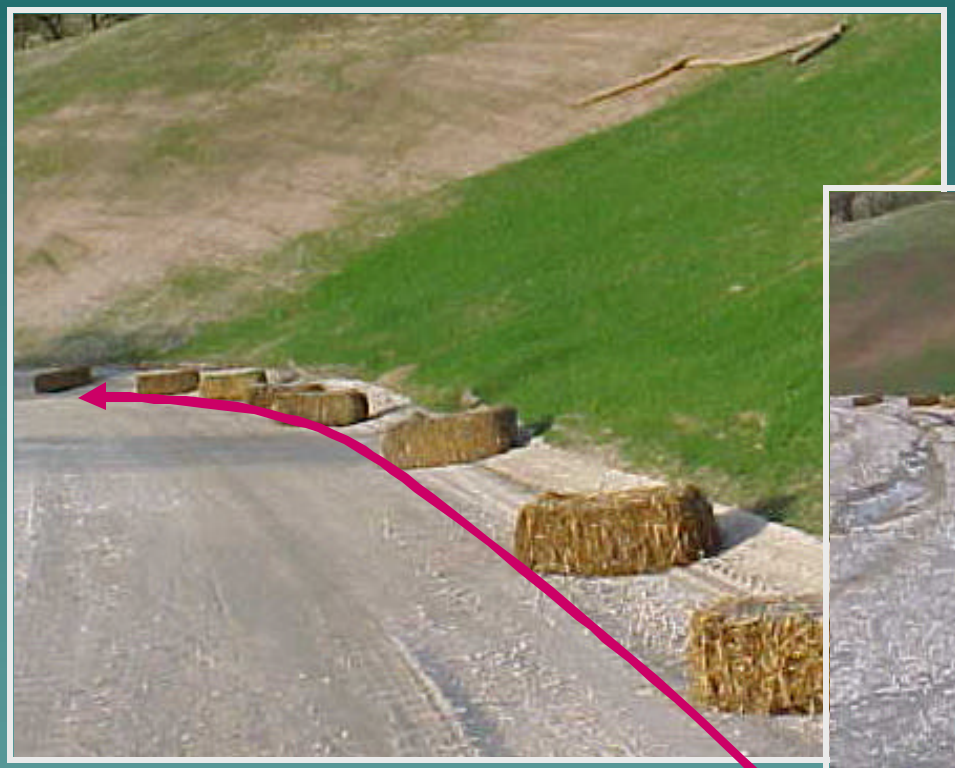
Unstabilized slope vs. Stabilized slope

Inadequate Soil Stabilization

Temporary Sediment Control

ID	BMP Name
SC-1	Silt Fence
SC-2	Sediment / Desilting Basin
SC-3	Sediment Trap
SC-4	Check Dam
SC-5	Fiber Rolls
SC-6	Gravel Bag Berm
SC-7	Street Sweeping and Vacuuming
SC-8	Sandbag Barrier
SC-9	Straw Bale Barrier
SC-10	Storm Drain Inlet Protection

Inadequate Sediment Control



Improperly installed hay bales

Adequate Sediment Control

Proper silt fence and fiber roll installation

Tracking Control

ID	BMP Name
TC-1	Stabilized Construction Entrance/Exit
TC-2	Stabilized Construction Roadway
TC-3	Entrance/Outlet Tire Wash

Inadequate Tracking Control

Stabilized entrance/exit on right gets little use vs. unstabilized area on left

Adequate Tracking Control

Possible solution: Block other entrance/exit

Wind Erosion Control

ID	BMP Name
WE-1	Wind Erosion Control

Lack of wind erosion controls

Adequate dust control

Non-Storm Water Management BMPs

ID	BMP Name
NS-1	Water Conservation Practices
NS-2	Dewatering Operations
NS-3	Paving and Grinding Operations
NS-4	Temporary Stream Crossing
NS-5	Clear Water Diversion
NS-6	Illicit Connection / Illegal Discharge Detection and Reporting
NS-7	Potable Water / Irrigation
NS-8	Vehicle and Equipment Cleaning
NS-9	Vehicle and Equipment Fueling
NS-10	Vehicle and Equipment Maintenance
NS-11	Pile Driving Operations
NS-12	Concrete Curing
NS-13	Material and Equipment Use over Water
NS-14	Concrete Finishing
NS-15	Structure Demolition/Removal Over or Adjacen

Adequate and Inadequate Non-Storm Water BMP Implementation

Mobile fueling operations require BMPs

Inadequate Non-Storm Water BMP Implementation

Prevent non-storm water discharges

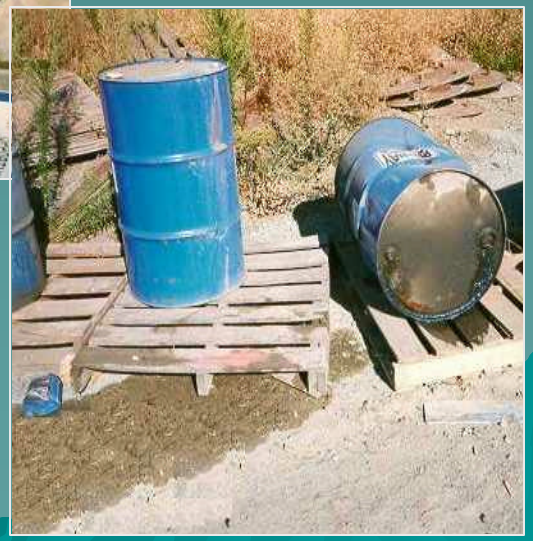
Waste Management and Material Pollution Control BMPs

ID	BMP Name
WM-1	Material Delivery and Storage
WM-2	Material Use
WM-3	Stockpile Management
WM-4	Spill Prevention and Control
WM-5	Solid Waste Management
WM-6	Hazardous Waste Management
WM-7	Contaminated Soil Management
WM-8	Concrete Waste Management
WM-9	Sanitary / Septic Waste Management
WM-10	Liquid Waste Management

Adequate and Inadequate Waste Management and Materials Pollution BMP Implementation

Well maintained temporary containment facility

Substances that require storage in a containment facility



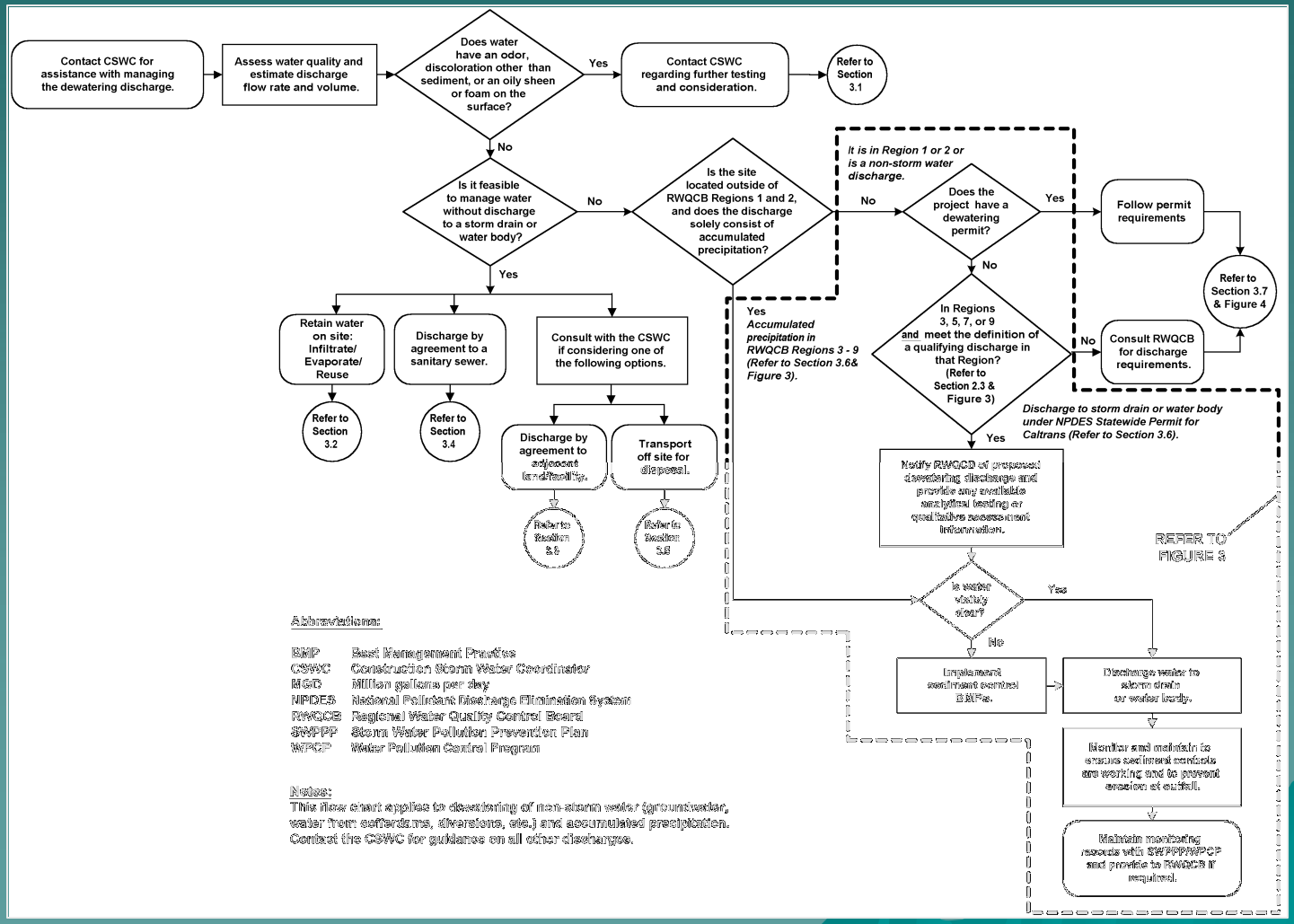
Inadequate Waste Management and Materials Pollution BMP Implementation

Concrete washout

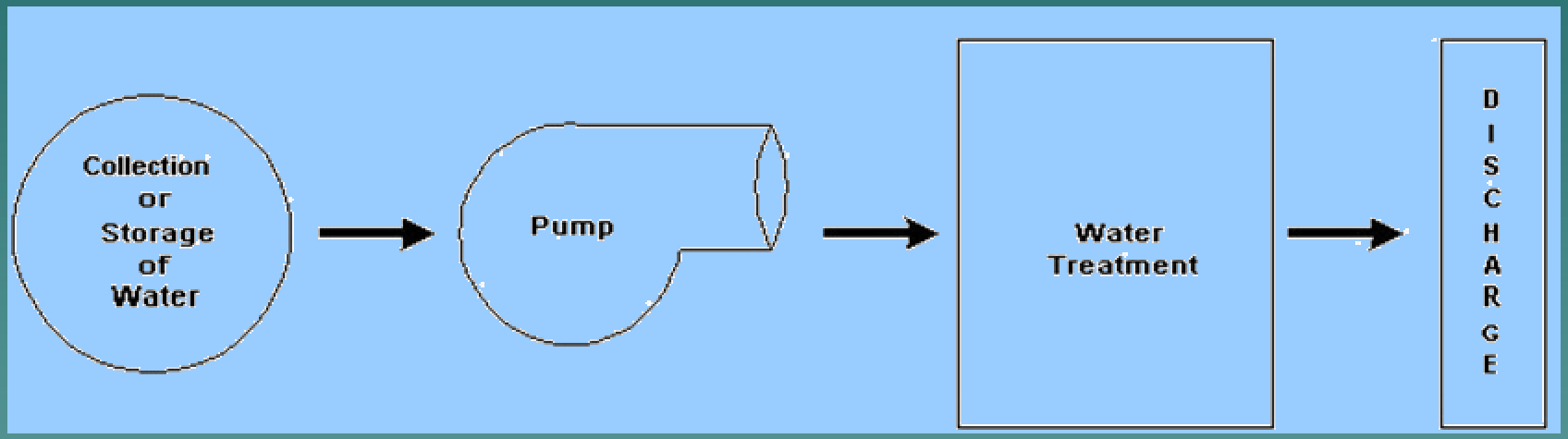
Uncontrolled concrete washouts

Dewatering Requirements

Dewatering Operations Management Flow Chart



General Dewatering and Discharge Process



Sampling and Analysis

Sampling and Analysis Requirements

- Modification to the General Construction Permit – adopted April 2001
  - Implement specific sampling and analytical procedures to determine whether BMPs implemented are:
    - Preventing further impairment, from storm water discharge, of 303(d) listed water bodies for sedimentation/siltation or turbidity.
    - Preventing other non-visible pollutants from causing or contributing to exceedances of water quality objectives.
- The Modification is Now included in the “02” Permit

Intention of Sampling and Analysis

- The requirements are intended to determine if BMPs implemented on the construction site are effective for preventing sediment/silt and other non-visible pollutants from impacting water quality objectives.

Types of Pollutants

Sediment/Silt and Turbidity

Non Visible Pollutants -

Construction Materials