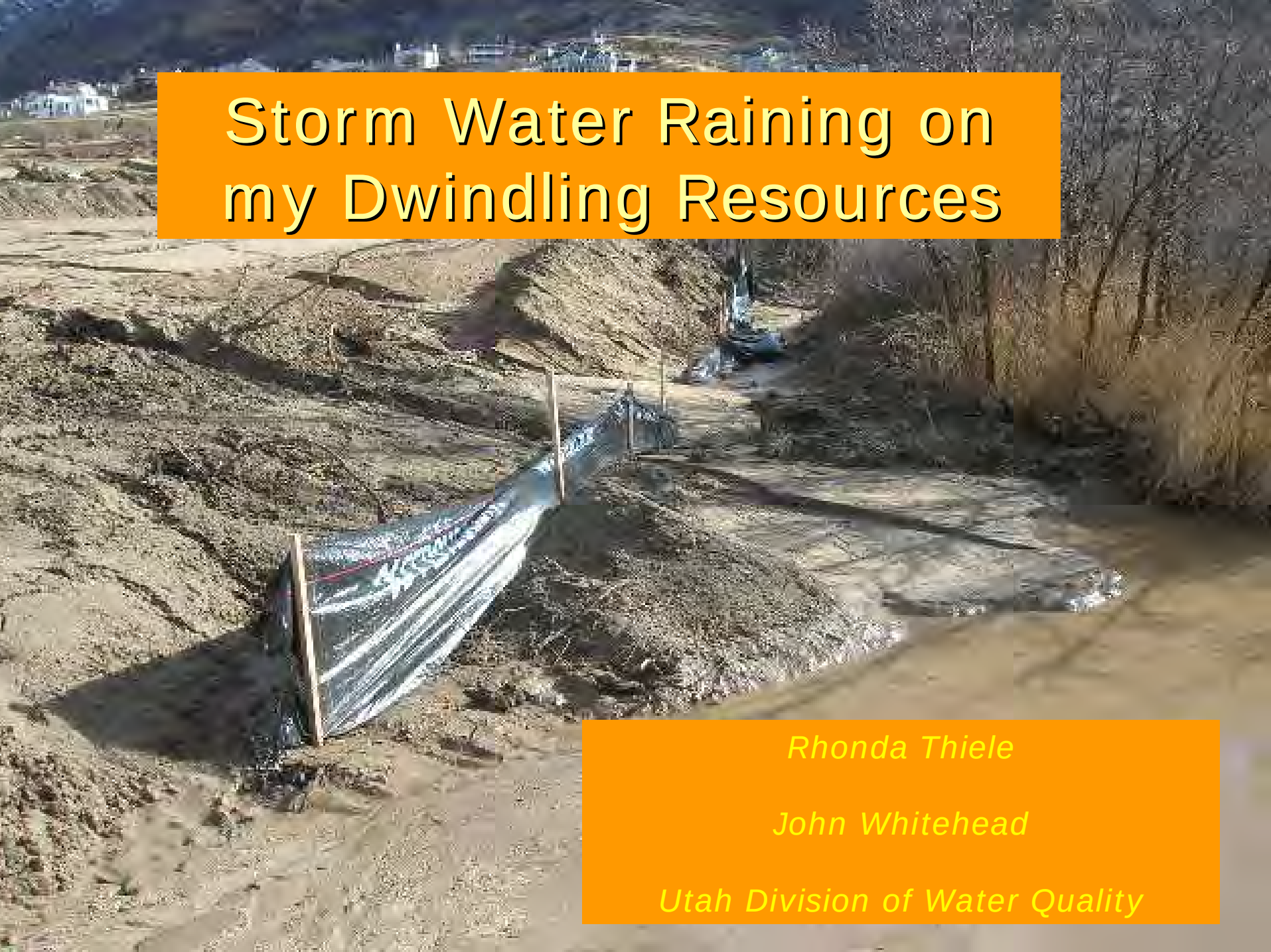


Storm Water Raining on my Dwindling Resources

Rhonda Thiele

John Whitehead

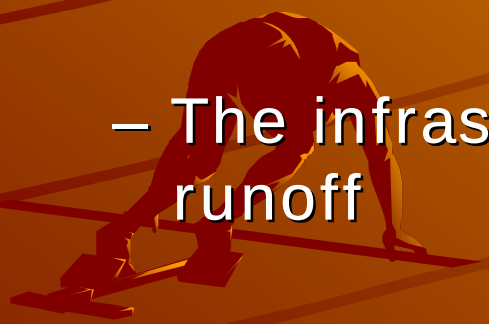
Utah Division of Water Quality

Talk Outline

- Brief History – Storm Water Program
- Why is Storm Water Program Needed
- Program Requirements
- 6 Minimum Control Measures
- MS4 Audit Process
- Coping Mechanisms for Dwindling Resources
- Q&A

What is an MS4? (Municipal Separate Storm Sewer System)

- **The term "MS4" is commonly used to describe both:**



  - The infrastructure used to convey storm water runoff
  - The owner/operator of the infrastructure that is permitted to discharge this runoff

Clean Water Act (1972)

- Restore and Maintain the Chemical, Physical, and Biological Integrity of the Nation's Waters
- Focus was on **Point Source** Discharges
- Had a Goal of All Waters Being Fishable/Swimmable by 1983

Are We There Yet?

Water Quality Impacts

Point Sources vs. Non-Point Sources

- Point Source =
  - confined, and discrete conveyance
  - pipe, ditch, channel, tunnel, conduit etc.

- Factory discharge
- Water Trmt. Plant discharge

40 CFR Part 122.2

Water Quality Impacts

Point Sources vs. Non-Point Sources

- Non-Point Sources = Diffuse sources of surface runoff
  - Not from a pipe or canal
  - Runoff from storm events
  - Irrigation tailwater
  - Urban runoff

Storm Water Pollution

- As of 2005, 40% of U.S. waterbodies are still impaired
- A leading source of this impairment is polluted runoff
- EPA has placed increasing emphasis on addressing Storm Water issues

Storm Water Pollutants

- Sediments
- Pathogens
- Fertilizers / Nutrients
- Hydrocarbons
- Metals
- Pesticides
- Road salts
- Increased streamflow
  - ❖volume & velocity

NPDES Phase I

- 1990 - **Phase I** NPDES storm water program established
- Phase I - required NPDES permit coverage;
  - large or medium municipalities; populations of 100,000 or more.
  - construction sites larger than 5 acres
  - 3 Utah Entities covered
    - Salt Lake City, Salt Lake County, UDOT

NPDES Phase II

- 2002 - **Phase II** NPDES stormwater permit issued in Utah
- **Phase II** - required NPDES permit coverage;
  - ***Urban Areas*** Population Densities of Greater than 1000/people per Sq. Mile
  - ***Outside Urban Areas***
    - populations of 10,000 or greater if meeting criteria
    - Physically interconnected systems
    - WQ violations, or significant contributors of pollutants

Phase II Cont'd

- designated for permit coverage by the *Executive Secretary*
- Construction sites greater than or equal to **1 acre**
- 75 Utah Municipalities covered

Storm Water Phase I & II

- Phase I

Phase II

Storm Water Administration

- EPA Delegates CWA programs to States
- Utah Fully Delegated CWA State
- EPA oversights Utah's Storm Water Program

Utah's Current Storm Water Program

Mike Herkimer

Program Mgr.

Rhonda Thiele

MS4 Program

Mike George

Industrial Program

Harry Campbell

Construction Program


Music
Handmade
FOLK
BLUES
One Man Band
RAMBLIN' CONRAD
RAMBLIN'
CONRAD
One-Man-Band

Overview Summary

- Storm water not a new program
  - has been around since 1990
- SW Program not going away
  - National Focus & Priority
- Better to Work with Utah than EPA
- Full Implementation of Municipal Storm water Programs not optional
- Cooperation in Implementation Needed; esp. in this economy

MS4 Permits

- **Six Minimum Control Measures**
  - Public Education and Outreach on Storm Water Impacts
  - Public Involvement/Participation
  - Illicit Discharge Detection and Elimination (IDDE)
  - Construction Site Storm Water Runoff Control
  - Post-Construction Storm Water Management in New Development and Redevelopment
  - Pollution Prevention and Good Housekeeping for Municipal Operations

Public Education and Outreach

Public Education and Outreach

- Distribute educational materials to the public which should include a multimedia approach
- Conduct outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff
- School based programs, water fairs, storm water educational materials in billings, newsletters, etc.

Public Participation/Involvement

Public Involvement /Participation

- Comply with State, Tribal and local public notice requirements
- Advisory panels, public hearings, watershed committees, stewardship programs, volunteer opportunities
- Storm drain stenciling, community clean-ups, citizen watch groups, “Adopt a Storm Drain” programs

Illicit Discharge Detection and Elimination (IDDE)

- A discharge to an MS4 that is *not composed entirely of storm water* except permitted discharges and fire fighting related discharges

  40 CFR 122.26(b)(2)

Illicit Discharge Detection and Elimination (IDDE)

Program Components:

- Storm Sewer System Mapping
- Dry Weather Screening
- Ordinance or regulatory mechanism
- Investigation of Suspected Illicit Discharges and/or Improper Disposal
- Escalating Enforcement Procedures
- Inform public of hazards associated with illegal discharges and improper disposal of waste
- Promote or Provide HHW Services
- Municipal Staff Education and Training

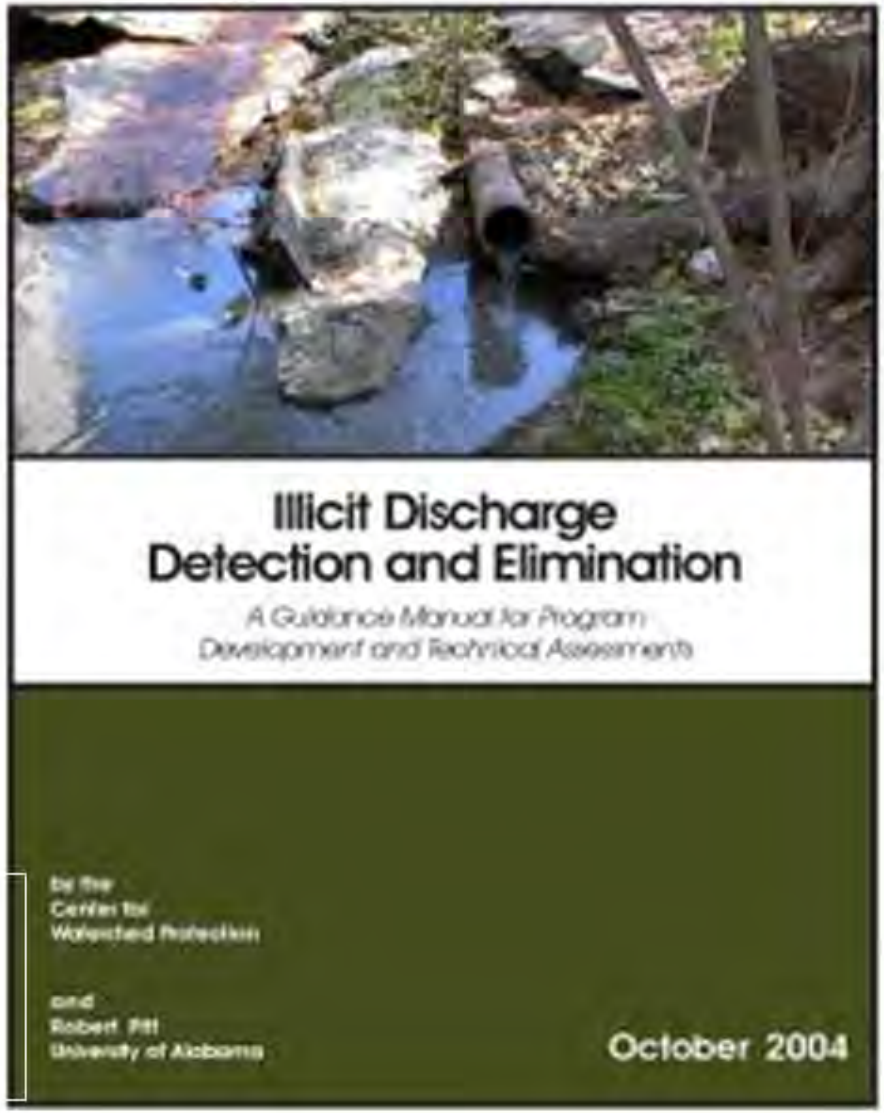
IDDE Guidance Manual

- Joint EPA-funded project between Center for Watershed Protection (CWP) and University of Alabama (Bob Pitt)
- 8 Program Elements
- Desktop Methods
- Field and Lab Protocols
- Model Ordinance
- Technical Appendices

www.cwp.org

OR

www.epa.gov/npdes



Construction Site Storm Water Runoff Control

Poorly maintained BMPs can result in significant quantities of sediment being discharged to storm drains

Construction Site Storm Water Runoff Control

- Ordinance/Other regulatory mechanism
- Construction Site SWPPPs and BMPs
- Plan Review Procedures
- Construction Site Inspections using State Inspection Form (Checklist)
- Escalating Enforcement Procedures
- Training and Education

Post-Construction Storm Water Management

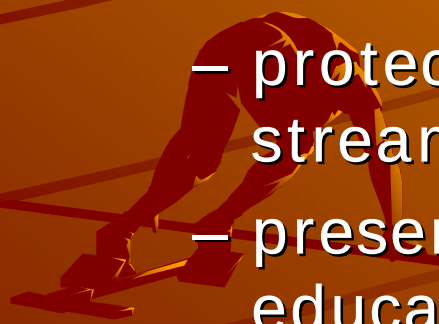
- Structural BMPs: storm water retention, grassed or vegetative swales, stream buffers, vegetative filter strips, infiltration basins, inlet and outlet protection, energy dissipaters, constructed wetlands, sand filters, etc.

Post-Construction Storm Water Management

- Infiltration islands in parking lots can help reduce storm water runoff.

Post-Construction Storm Water Management

- Non-Structural:
  - maintaining pre-development flows
  - limiting growth to identified areas
  - minimizing imperviousness
  - maintaining open space,
  - protecting sensitive areas; wetlands and stream buffers
  - preserving natural drainage patterns education
  - Education for developers and the public about project designs that minimize water quality impacts



Post-Construction Storm Water Management

- Include provisions to allow permittees to inspect BMPs on private property or require private property owners to provide annual certification by a qualified third party that adequate maintenance has been performed

Regular inspection and maintenance of storm water best management practices is important to ensure that the practices are functioning properly and to remove trash and organic debris

Pollution Prevention and Good Housekeeping for Municipal Operations

- O & M Programs
  - Inspections
  - Employee Training
  - Spill Response Plan
  - Facilities Inventory

Pollution Prevention and Good Housekeeping for Municipal Operations

- SWPPPs for MunicipalOperations/Facilities
  - Storm water collection and conveyance systems
  - Roads, highways, and parking lots
  - Vehicle fleets
  - Municipal buildings
  - Parks and Open Space
  - Vehicle and equipment maintenance shops

Municipal Staff Education and Training

- What type of training do field staff (e.g., storm sewer maintenance crews, street sweepers) receive on spill response and IDDE?
- Are staff generally educated about what illicit discharges are and how to report them?

SWMP

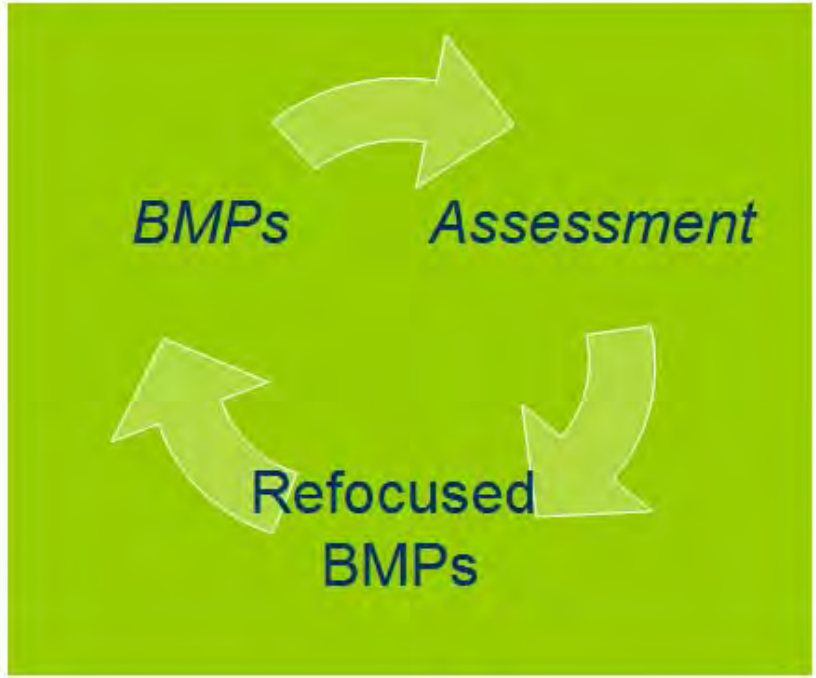
- Clear, written plan, with measurable goals, that describes the storm water program and how it relates to water quality.

- **iterative process** of evaluating its storm water program.

- **Iterative process**: Develop, implement, evaluate, and repeat.

Assessment and Evaluation

- EPA's 1996 *Interim Permitting Policy for Water Quality-Based Effluent Limits in Stormwater Permits* described an iterative approach to permitting:



SWMP Requirements

- Specific BMPs (specific activity)
- Measurable Goals (quantifiable)
  - How many? How often?
  - Completed by When? Months and years of implementation
  - Interim milestones
  - Frequency of actions

SWMP Requirements

- Documented Rationale for how and why each BMP was selected
- Permit outlines what must be addressed in the rationale statement
- Define a method for evaluation

SWMP Coordination

The MS4 SWMP may be developed and implemented by:

- A single permittee
  - One department
  - Multiple departments or agencies
- Multiple co-permittees
- Other responsible entities/cross training non-storm water staff

The Audit

Benefits of an Audit

- Serves as a mechanism to improve the program and increase coordination between DWQ and the permittee
- Better understanding by the permittee of the expectations and permit requirements
- Opportunity to clarify any misunderstandings in the permit or SWMP

Records Review

- Ordinances
- Written procedures
- Inspections
- Plan review, checklists
- Municipal SWPPPs and Maintenance Schedules

Field Based Activities

- Construction site inspections
- Observation of municipal operation and maintenance
- Placement of public education materials (e.g., stencils, pet-waste stations, signage on permanent BMPs
- Post-construction controls- O & M

Audits and Enforcement

- Failure to submit annual report
- Failure to submit NOI
- Failure to develop, submit and implement the storm water program
- Failure to adequately fund and staff the storm water program

Common Compliance Problems

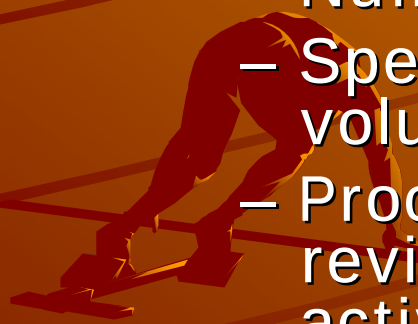
- Lack of basic permit knowledge
- Lack of SWMP review and modification
- Lack of Documentation i.e., written procedures, checklists, inspection forms, rationale statement
- Improper waste and wastewater disposal

SWMP Review and Modification

- Permit requires annual review in conjunction with the annual report
  - Status of implementation
  - Revision or changes to BMP's
  - Overall assessment of the goals and direction of the SWMP
  - Effectiveness of BMPs

Proper Documentation

- Track and Document everything!!
  - Students educated
  - Water fair participants, educational materials distributed
  - phone calls received, complaints received
  - Training program attendees
  - Number of volunteers
  - Specific days, location, tasks and number of volunteers
  - Procedures, SOPs: enforcement, plan review, tracing an illicit discharge, MS4 P2 activities
- List of measurable parameters



http://www.epa.gov/npdes/pubs/measurablegoals.pdf

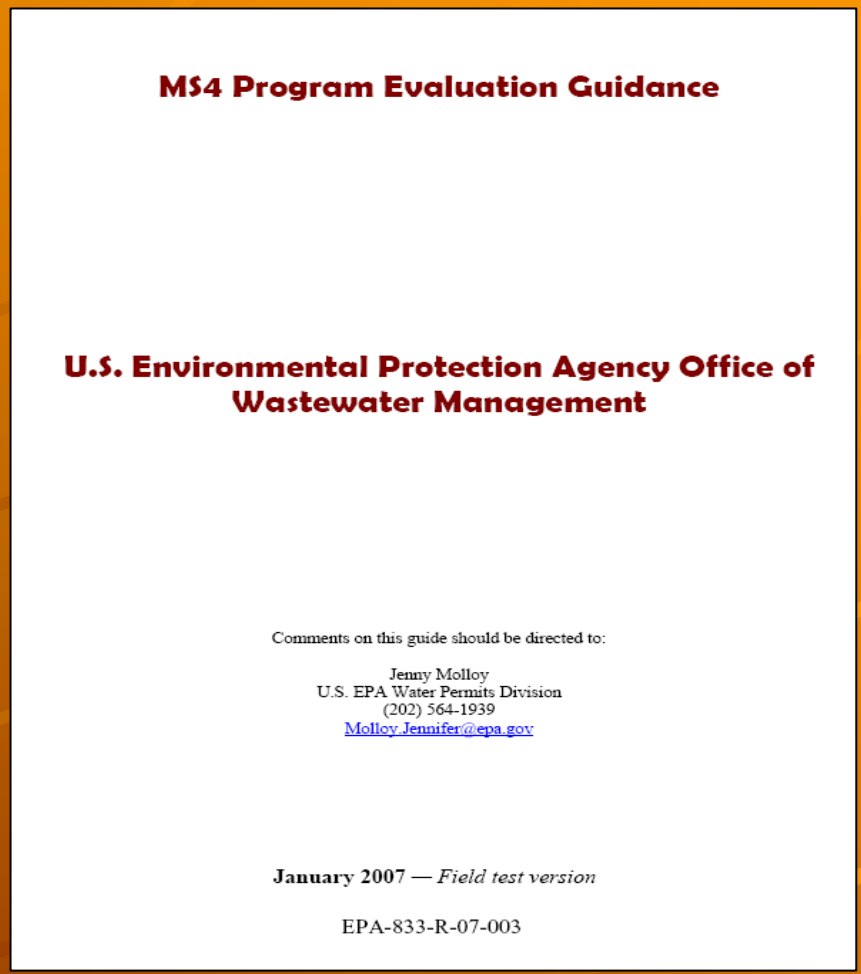
Improper Disposal Practices

Improper Disposal Practices

Good Housekeeping???

Overview of the guide

- **The guide is intended to assist NPDES permitting authority staff to:**
  - Assess the compliance and effectiveness of Phase I and Phase II MS4 programs
  - Develop Phase II MS4 storm water management programs (SWMPs)
  - Assess pollutants of concern
  - Provide technical assistance



MS4 Program Evaluation Guidance

U.S. Environmental Protection Agency Office of Wastewater Management

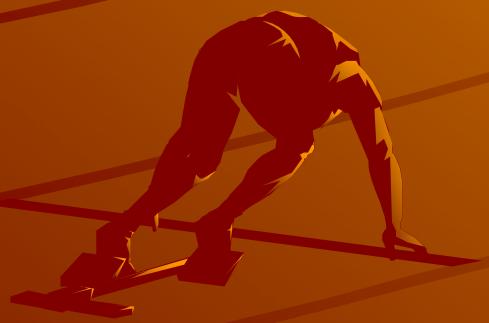
Comments on this guide should be directed to:

Jenny Molloy
U.S. EPA Water Permits Division
(202) 564-1939
Molloy.Jennifer@epa.gov

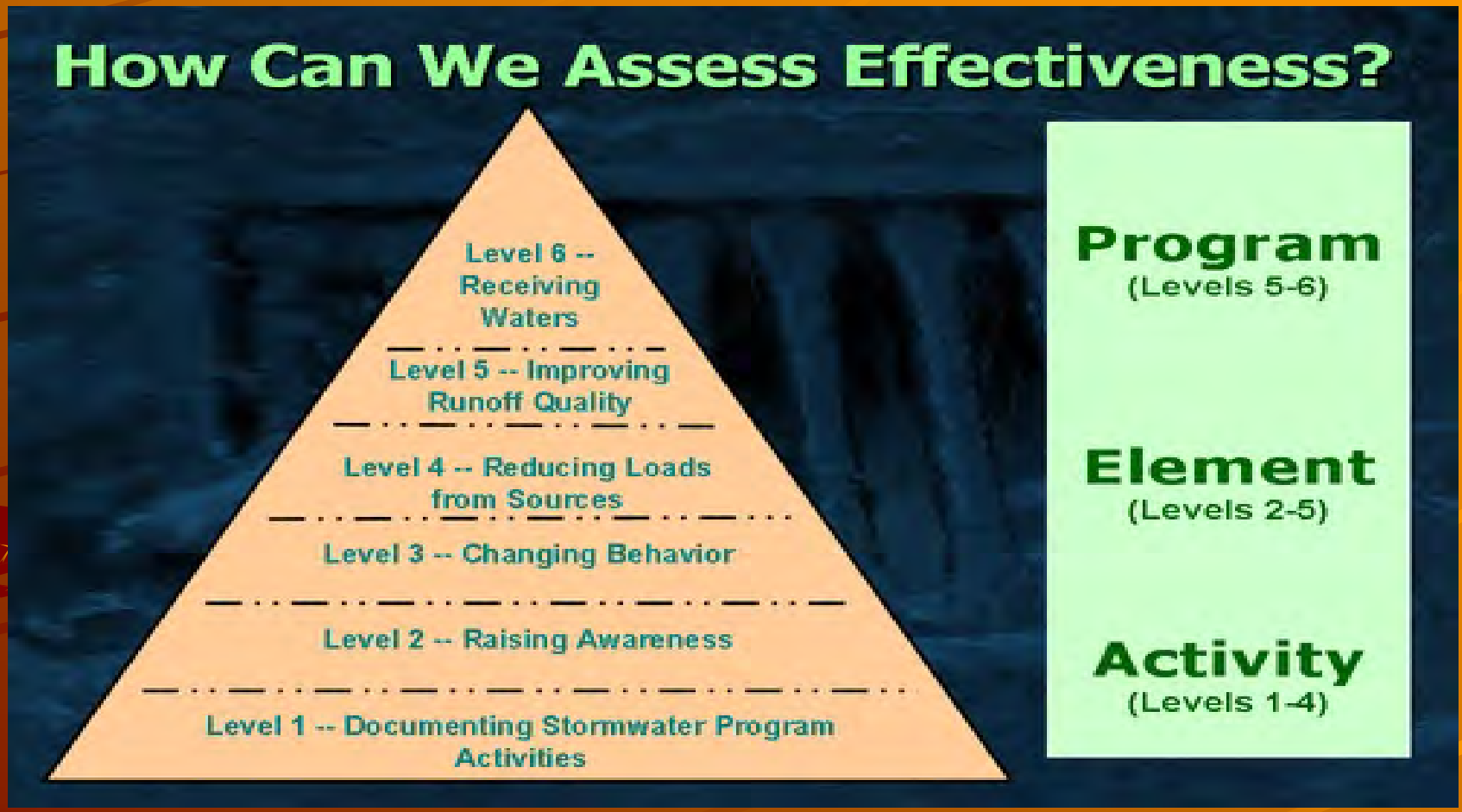
January 2007 — *Field test version*

EPA-833-R-07-003


Questions?



Assessing Effectiveness



Assessment Focus

- **Is the activity being implemented** (Level 1)**?**
- **Does the activity/element raise awareness** (Level 2)**?**
- **Does the activity/element change behavior** (Level 3)**?**
- **Does the activity/element reduce loads from sources** (Level 4)**?**
- **Does the element/program result in improved runoff quality** (Level 5)**?**
- **Has a measurable change been observed in receiving waters** (Level 6)**?**

Methods & Outcome Levels