SAND2014-4053P

SW100 – Stormwater Pollution Prevention

- Module 1 – Introduction to Stormwater
- Module 2 – Construction General Permit (CGP)
- Module 3 – Multi-Sector General Permit (MSGP)
- Module 4 – Municipal Separate Storm Sewer System (MS4)
- Self-Assessment

Acronyms

BMPs - Best Management Practices

CGP – Construction General Permit

EPA – United States Environmental Protection Agency

MSGP - Multi-Sector General Permit

MS4 - Municipal Separate Storm Sewer System Permit

NOI – Notice of Intent

NPDES - National Pollutant Discharge Elimination System

SNL/NM – Sandia National Laboratories in New Mexico

SWMP – Stormwater Water Management Plan (applies to MS4)

SWPPP – Stormwater Pollution Prevention Plan (applies to CGP and MSGP)

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MODULE 1:

Introduction to Stormwater

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Summary

- Stormwater Protection 101
- Regulations
- Training Requirements
- Spill Prevention, Recognition and Response
- Contact Us

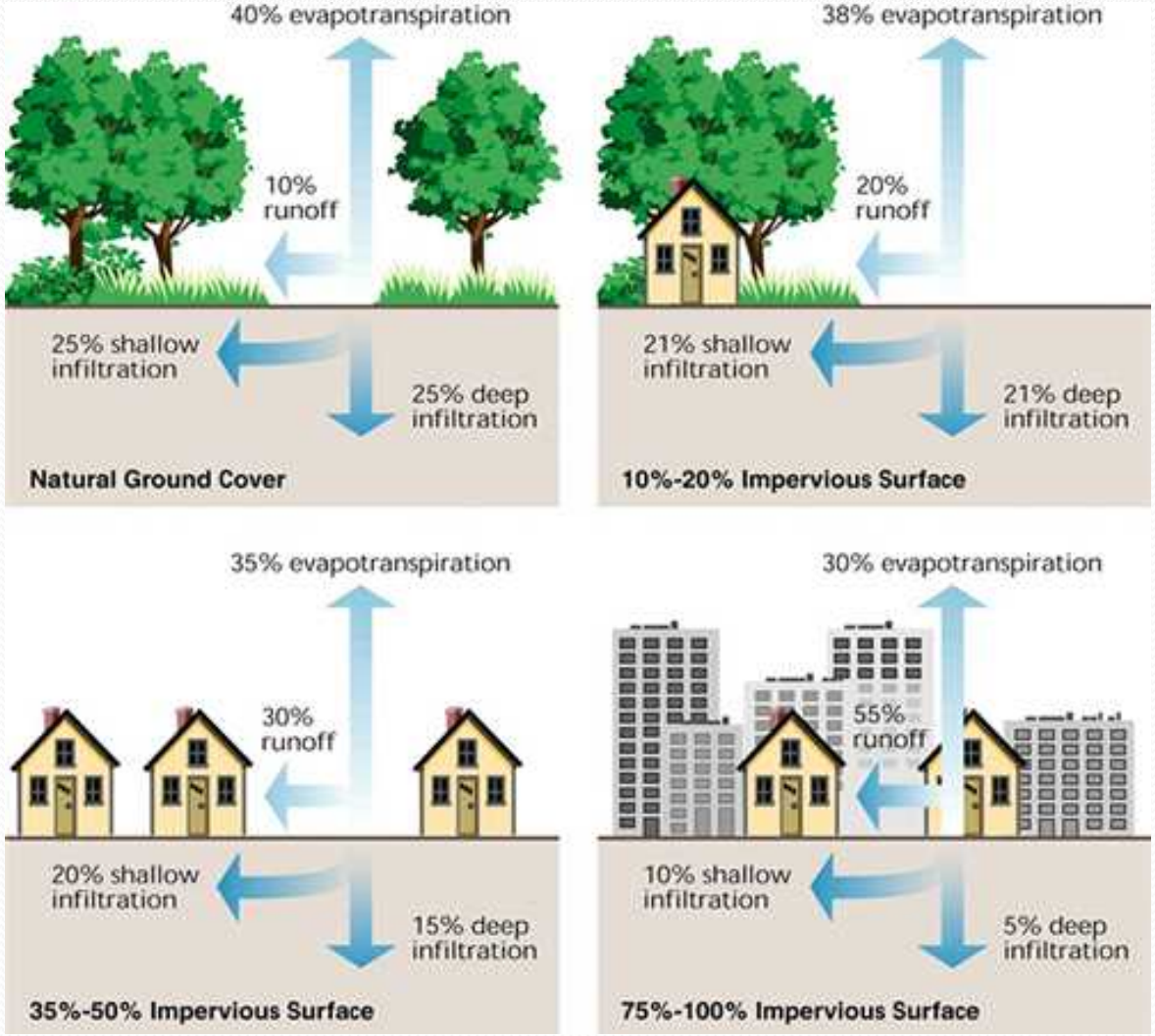
Module 1 Goals

When complete, you should be educated about:

- Why stormwater protection is important.
- What stormwater training is applicable to your job roles and responsibilities.
- How to prevent, recognize and respond to a spill.

Why has stormwater protection become necessary?

As infrastructure expands in metropolitan areas, the area of impervious surfaces increases. Stormwater flows are then combined and re-routed around structures, which results in greater runoff volume and velocity when compared to rural vegetated areas. Soil erosion can become self-perpetuating and result in significant property and environmental damage.



www.cleanwatermn.org/resources/Hard-Surfaces.aspx

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Why is stormwater protection so important?

Municipal development allows for the release of pollutants into the environment through construction and industrial processes.

www.huntandfishfinders.com/forum/general-fishing-discussion/6540-massive-fish-kill-lake-elmer-kingfisher-oklahoma.html

Sediment, bacteria and chemical contaminants in stormwater runoff enter water bodies (e.g., Rio Grande) and can contribute to loss of aquatic habitat and nesting areas, and cause fish kills.

oceanservice.noaa.gov/education/kits/pollution/012chemicals.html

Such impacts disrupt the natural balance of these ecosystems and ultimately destroy wildlife and recreational areas.

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What regulations require stormwater protection?

- Clean Water Act - seeks to restore and maintain chemical, physical, and biological integrity of US waters; support the protection of fish, wildlife and recreation; reduce direct pollutant discharges and runoff into waters; and finance wastewater treatment facilities.
- National Pollutant Discharge Elimination System (NPDES) - controls water pollution by regulating point sources that discharge pollutants into US waters, and non-point sources. Administered by the EPA.
- SNL/NM is subject to the following NPDES permits:
  1. **Construction General Permit (CGP)** – construction activities
  2. **Multi-Sector General Permit (MSGP)** – specific industrial activities
  3. **Municipal Separate Storm Sewer System (MS4)** – areas/watersheds that discharge directly to a storm sewer system with a direct outfall to the Rio Grande

Why is stormwater pollution prevention training necessary?

- SNL/NM personnel are required to understand their roles and responsibilities with respect to the requirements of these permits, with the ultimate goal of preventing the discharge of debris, chemicals, sediment or other pollutants in stormwater runoff generated by construction and industrial activities from adversely affecting water quality.
- It is every employee's responsibility to prevent stormwater pollution.

What training is applicable to me?

- Construction Sites : If you design, install, maintain, or repair stormwater controls, conduct inspections, or implement corrective actions, Modules 1, 2 and 4 are required.
- Industrial Facilities : If you work in areas where industrial materials or activities are exposed to stormwater, or are responsible for implementing controls/activities necessary to meet the conditions of the MSGP, Modules 1, 3 and 4 are required.
- MS4 :
  - If you meet either of the above criteria, or if you design or review projects that have the ability to control water quality effects from stormwater, all modules are required.
  - If your everyday operations and maintenance activities have the ability to impact stormwater quality, Modules 1 and 4 are required.

How often does training occur and how is it documented?

- EPA recommends that training be conducted at least annually. Please set-up automatic TEDS reminders with your training coordinator.
- Training records will be logged by the TEDS system. The Stormwater Team is responsible for maintaining required training documentation in the Stormwater Pollution Prevention Plans (SWPPPs) and Stormwater Pollution Management Plans (SWMPs).

Spills: Prevent and Recognize

Make it a practice to prevent spills! When working, be aware of the potential to puncture or drop drums/containers. When performing "walk-throughs" look for evidence of spills from leaking drums/containers.


http://naturalsols.co.uk/spill_response.html


www.interstateproducts.com/tourniquet.htm

The 5 “C”s of Spill Response

If a spill is discovered:

1. Control* the source (stop the flow).
2. Contain* with a chemically-compatible spill kit to prevent discharges to drains and spreading/tracking of the material.

spill-kit.com/spill-response-are-you-ready-for-quick-spill-cleanup/

3. Call Emergency Operations Center (844-6515 non-emergency, 844-0911 emergency) and Environmental Programs (844-0590).
4. Communicate “Where, What, When, and How Much”
5. Clean-up* with chemically-compatible materials and dispose of them in accordance with corporate procedures , and federal, state and local laws.

*You should only perform this action if trained to do so.

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Questions or Help?

Contact the Stormwater Team in Environmental Programs (04143):

- Chip Roma, Project Lead - 844-0590; cmroma@sandia.gov
- Kathie Deal - 844-8503; kjdeal@sandia.gov
- Carolyn Daniel - 284-9986; cdaniel@sandia.gov

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MODULE 2:

Construction General Permit (CGP)

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This training applies to you if you…

- Design, install, maintain, or repair stormwater controls at/for a construction site;
- Conduct inspections at construction sites; or
- Implement corrective actions at construction sites.

Summary

- CGP - Permit Requirements & Process
- Stormwater Pollution Prevention Plan (SWPPP) Development
- Best Management Practices (BMPs)
- Site Inspections
- Corrective Actions
- Additional Onsite Training

Module 2 Goals

When complete, you should be educated about:

- When permit coverage is required.
- How to obtain a SWPPP and permit coverage.
- How to recognize acceptable and failing Best Management Practices (BMPs).
- Elements of a good stormwater inspection.
- The process of implementing corrective actions.

When is permit coverage required?

Permit coverage (or modification to existing coverage) is required if:

- The project is planned to *disturb* one or more acres of land;
- There are multiple smaller projects or phases that are less than one acre, but collectively *disturb* one or more acres of land; or
- The project is less than one acre, but part of an existing project with existing permit coverage.

What does *disturb* mean?

Land disturbance includes:

- grading
- soil or waste stockpiles
- any excavation
- creation of lay-down areas
- equipment storage areas
- vehicle access-ways and maintenance areas
- etc…
- When in doubt, call the Stormwater Team!

What is a Stormwater Pollution Prevention Plan (SWPPP)?

A site-specific comprehensive document that identifies:

- Sources of pollutants that may affect stormwater quality (e.g., oil, grease, fuel, fertilizers, pesticides, construction chemicals, heavy metals, and paint).
- Stormwater outfalls (areas where potentially contaminated stormwater would leave the site).
- Specific ways to control stormwater runoff and prevent pollution during and after construction (i.e., Best Management Practices).

How do I get a SWPPP?

PLAN, PLAN, PLAN!!!

- It is the responsibility of the project manager (PM) to obtain a SWPPP and permit coverage prior to any land disturbance.
- The Stormwater Team drafts SWPPPs after meeting with the PM.
- SWPPP development can take an average of 2-3 months, and sometimes longer if: 1) DOE is a declared operator; or 2) site details require specialized environmental consulting.
- **WARNING** - Any projects that begin prior to permit coverage will be stopped immediately and will not be authorized to commence until a SWPPP and permit coverage has been obtained.

Where can I find a SWPPP?

- Official copies of each SWPPP are kept in the Environmental Programs Department office on the 4th floor of Building 823.
- Duplicate copies are maintained in the field at the construction site trailer/truck for reference.
- Questions? Contact the Stormwater Team

Name	Contact Information
Chip Roma	844-0590; cmroma@sandia.gov
Kathie Deal	844-8503; kjdeal@sandia.gov
Carolyn Daniel	284-9986; cdaniel@sandia.gov

What are Best Management Practices (BMPs)?

Techniques, measures or structural controls that are used to improve the quality of stormwater runoff in a cost-effective manner. BMPs are installed to:

- control the site perimeter
- minimize erosion from soil-disturbed areas
- protect slopes and channels
- promote good housekeeping
- prevent spills and leaks of chemicals
- prevent waste from leaving the site

BMPs

Silt Fence Perimeter Control

Drop Inlet Protection

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BMPs

Onsite Spill Kit

www.oileater.com/SpillKits.html

Protective Covers While Fueling & Maintenancing Vehicles

news.thomasnet.com/news/waste-handling-equipment/waste-containment-equipment

Secondary Containment for Chemical Storage

photo taken by Sandia Corporation

Lined Concrete Washout Area

photo taken by Sandia Corporation

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BMPs

Portable Toilets Secured to Prevent Spillage

photo taken by Sandia Corporation


photo taken by Sandia Corporation

Sediment Track-Out Pad at Construction Entrance

photo taken by Sandia Corporation

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Examples of Stormwater Pollution

Don’t use drains as a waste dump!

www.epa.gov/region9/water/npdes/stormwater-feature.html

Protect nearby inlets!

Don’t allow sediment to leave the site.

www.cenews.com/article/5100/npdes_update__weathering_the_storm

Don’t allow sediment to be tracked off-site.

Be aware of your proximity to waterways, drains or arroyos.

Keep dumpsters covered to prevent blowing trash.

rooseveltislander.blogspot.com/2010/09/uncovered-dumpster-remains-on-east.html

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Site Inspections –
Why are they so important?

- The discharge of polluted stormwater into waters of the U.S. (e.g., Rio Grande) is prohibited.
- Inspections are required to ensure SNL/NM's compliance with federal regulations.
- Failure to inspect and correct problems at construction sites may result in:
  - Endangerment to surface water bodies.
  - Immediate closure of a construction site.
  - Daily fines.

Who conducts inspections and when do they occur?

- A member of the Stormwater Team conducts compliance inspections according to the schedule defined in the site-specific SWPPP.
- Each site will be inspected within 24 hours of a storm event of ≥ 0.25 inches of precipitation.
- Routine inspections occur monthly during the dry season (Nov 1 – Jun 30) and every 14 days* during the wet season (Jul 1 – Oct 31).

*Sites that discharge to a sensitive water body (e.g., Rio Grande) will be inspected every 7 days.

What are inspectors looking for?

- Evidence of stormwater run-off, run-on or ponding that may contain pollutants and evidence of chemical spills/leaks.
- Installation and effectiveness of BMPs such as:
  - sediment track-out pad
  - silt fence or fiber rolls (wattles)
  - soil stockpile controls
  - storm inlet protection
- Public posting of the permit notice (NOI).
- Good housekeeping of staging areas including the vehicle maintenance/fueling area, material storage area, concrete/paint washout area, etc.
- Storage of chemicals on secondary containment.
- Containment of solid waste.
- Secured sanitary waste toilets to prevent spillage.
- On-site spill kit.

Corrective Actions

- Observations will be recorded on an inspection form.
- If maintenance is needed or inadequate controls are identified, it will be recorded on a corrective action form and communicated to the project manager and the construction contractor ASAP.
- Project managers and construction contractors are responsible for implementing corrective actions in the same business day and completing corrective actions within 7 days.

Additional Training Needed

- Prior to commencement of construction, an onsite site-specific training will be held by a member of the Stormwater Team to train personnel responsible for the following job duties:
  - Installation and/or repair of stormwater controls/measures.
  - Conducting stormwater inspections.
  - Implementing corrective actions.
- The following topics will be discussed:
  - The location of all stormwater controls on the site and how they are to be maintained.
  - The proper procedures to follow with respect to the permit's pollution prevention requirements.
  - When and how to conduct inspections, record applicable findings, and take corrective actions.
- This additional training is required and will be documented in the SWPPP.

Questions or Help?

Contact the Stormwater Team in Environmental Programs (04143):

- Chip Roma, Project Lead - 844-0590; cmroma@sandia.gov
- Kathie Deal - 844-8503; kjdeal@sandia.gov
- Carolyn Daniel - 284-9986; cdaniel@sandia.gov

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MODULE 3:

Multi-Sector General Permit (MSGP)

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This training applies to you if…

…you work in areas where industrial materials or activities are exposed to stormwater, or you are responsible for implementing controls/activities necessary to meet the conditions of the MSGP. Applicable facilities include, but are not limited to*:

- TA-III Borrow Pit
- Hazardous Waste Handling Facility
- Manzano Storage Area
- Radioactive & Mixed Waste Mgmt. Facility
- Chemical Waste Landfill
- Thermal Treatment Facility
- Auxiliary Hot Cell Facility
- Corrective Action Management Unit
- Outdoor Mixed Waste Storage Lot
- Solid Waste Management Units
- Classified Waste Landfill
- Reapplication Yard
- Solid Waste Transfer Station
- Neutron Generator Facility
- Advanced Manufacturing Process Lab
- MESA: North, South, East Facility, & East Lab
- Center for Integrated Nanotechnology

*Facilities may be added or removed from the MSGP based on regulatory applicability.

Summary

- MSGP – Intro to the Permit
- Stormwater Pollution Prevention Plan (SWPPP)
- Best Management Practices (BMPs)
- Facilities and Sector-Specific Requirements
- Control Measures
- Spill Prevention & Response
- Site Inspections
- Corrective Actions
- Monitoring, Analysis & Reporting

Module 3 Goals

When complete, you should be educated about:

- What activities are regulated by the MSGP.
- What Sector(s) applies to your facility.
- How to recognize proper stormwater control measures.
- Elements of a good stormwater inspection.
- How corrective actions are documented.
- How stormwater is monitored.

What is the MSGP?

- EPA permit that regulates stormwater discharges from industrial activities.
- Includes requirements to develop and implement a Stormwater Pollution Prevention Plan (SWPPP), control effluent limits, conduct inspections, perform stormwater sampling, and report data.
- There are 5 applicable sectors at SNL/NM. Regulatory requirements vary based on sector.
  - Sector J – Mineral Mining and Dressing
  - Sector K – Hazardous Waste Treatment, Storage, or Disposal Facilities
  - Sector L – Landfills, Land Application Sites, and Open Dumps
  - Sector N – Scrap Recycling Facilities
  - Sector AC – Electronic, Electrical, Photographic, and Optical Goods

What is a Stormwater Pollution Prevention Plan (SWPPP)?

A comprehensive document that identifies:

- Stormwater Pollution Prevention Team
- Description of Sites and Activities with Potential Pollutant Sources
- Description of Control Measures
- Maintenance, Inspection and Monitoring Schedules and Procedures
- Other Federal Laws – Endangered Species, Historic Properties and NEPA

The official MSGP SWPPP is kept in the Environmental Programs Department office on the 4th floor of Building 823.

Stormwater Team

Title	Name	Contact Information
DOE Sandia Field Office Water Quality Program Manager	Karen Agogino	845-5245 karen.agogino@nnsa.doe.gov
Stormwater Program Lead	Chip Roma	844-0590 cmroma@sandia.gov
Water Quality Specialist	Kathie Deal	844-8503 kjdeal@sandia.gov
Qualified Stormwater Inspector	Carolyn Daniel	284-9986 cdaniel@sandia.gov
Water Quality Sampler	Danielle Nieto	845-7706 dmnieto@sandia.gov

Sector J

Non-Metallic Mineral Mining and Dressing

- Clearing, grading, and excavation activities associated with non-metallic mineral mining and dressing.
- SNL/NM Facility: TA-III Borrow Pit (also under Sector N)
- Summary of Sector-Specific Requirements:
  - Install stormwater controls to meet effluent limits.
  - Good housekeeping.
  - Install stormwater retention basins for sediment control.
  - Divert stormwater from potential pollutants.
  - Benchmark monitoring (stormwater sample collection).

Sector K

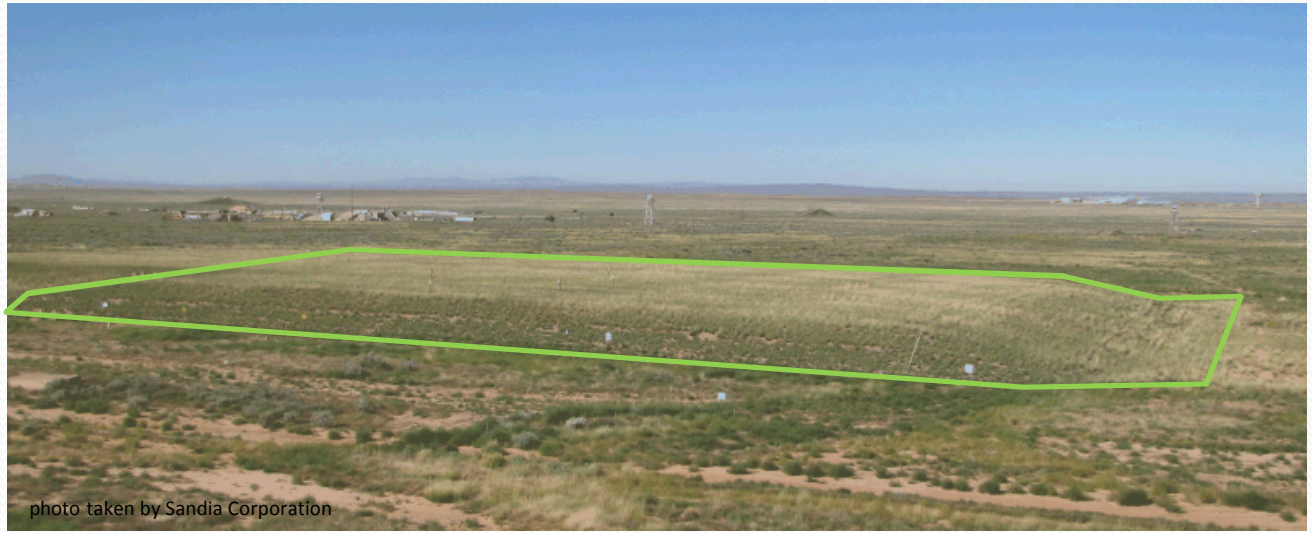
Hazardous Waste Treatment, Storage, or Disposal

- Facilities that treat, store, or dispose of hazardous wastes, including those that are operating under Subtitle C of RCRA.
- SNL/NM Facilities:
  - Hazardous Waste Handling Facility
  - Manzano Storage Area
  - Radioactive and Mixed Waste Mgmt. Facility
  - Chemical Waste Landfill
  - Thermal Treatment Facility
  - Auxiliary Hot Cell Facility
  - Corrective Action Management Unit
  - Outdoor Mixed Waste Storage Lot
  - Solid Waste Management Units (multiple)

Sector K (continued)

- Summary of Sector-Specific Requirements:
  - Benchmark monitoring (stormwater sample collection).

Successful revegetation of Mixed Waste Landfill cover.



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Sector L

Landfills, Land Application Sites and Open Dumps

- Landfills, land application sites, and open dumps that receive or have received industrial waste, including sites subject to regulation under Subtitle D of RCRA.
- SNL/NM Facility: Classified Waste Landfill
- Summary of Sector-Specific Requirements:
  - Maintain leachate collection systems.
  - Temporary stabilization of inactive areas.
  - Benchmark monitoring (stormwater sample collection).

Sector N

Scrap and Waste Recycling Facilities

- SNL/NM Facilities:
  - Reapplication Yard
  - Solid Waste Transfer Station
  - TA-III Borrow Pit (also under Sector J)
- Summary of Sector-Specific Requirements:
  - Control the acceptance of potential pollutants to recycle facilities.
  - Minimize contact with stormwater and surface runoff.
  - Proper handling, storage and disposal of lead-acid batteries.
  - Benchmark monitoring (stormwater sample collection).

Sector AC

Electronic/Electrical & Photographic/Optical Equipment

- Manufacturers of electronic or electrical equipment and components, and photographic and optical goods.
- SNL/NM Facilities:
  - Neutron Generator Facility
  - Advanced Manufacturing Process Lab
  - Building 858 Complex (North, South, East Facility, and East Lab)
  - Center for Integrated Nanotechnology
- No sector-specific requirements.

Allowable Non-Stormwater Discharges

- Discharges from fire-fighting activities and fire hydrant flushings
- Potable water (including line flushings), uncontaminated ground or spring water, and uncontaminated water from foundation/footing drains
- Uncontaminated condensate
- Irrigation drainage and landscape watering (if all related chemicals have been applied in accordance with labeling)
- Pavement wash waters (if no detergents used and no spills/leaks of toxic or hazardous materials have occurred)
- Incidental windblown mist from cooling towers

oceancitymd.gov/blog/index.php/fall-hydrant-flushing-to-begin-on-tuesday-november-13/

Control Measures – All Facilities

Design, install and implement the following control measures, as applicable:

- Minimize exposure of industrial material to precipitation and stormwater runoff.
- Good Housekeeping - Keep exposed areas clean to reduce potential pollutant sources.
- Maintenance - Inspect, test, and repair equipment to avoid spills or leaks. Maintain control measures and make necessary repairs.
- Eliminate Non-Stormwater Discharges

Control Measures (continued)

- Erosion and Sediment Control - Stabilize exposed areas, and control or contain runoff to minimize erosion and sedimentation.
- Manage Stormwater Runoff - Divert, infiltrate, reuse, contain, or reduce runoff to minimize pollutants in the discharge.
- Salt Storage - Enclose or cover storage piles.
- Waste, Garbage, Floatable Debris - Keep exposed areas free of waste, garbage, and floatable debris, or intercept them before discharge.
- Dust Generation - Minimize generation of dust and off-site tracking of raw, final, or waste materials.

Examples of Poor Housekeeping

Chemicals allowed to discharge to storm inlet.

Leaky drums without secondary containment.

Solid waste not contained or covered.

Trash exposed to stormwater.

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Spill Prevention

- Containers must be plainly labeled. Be aware of applicable corporate procedures.
- Barriers must exist between material storage and traffic areas.
- Secondary containment must be used.
- Be aware of applicable corporate procedures regarding material storage and handling.

The 5 “C”s of Spill Response

spill-kit.com/spill-response-are-you-ready-for-quick-spill-cleanup/

If a spill is discovered:

1. Control* the source (stop the flow).
2. Contain* with a chemically-compatible spill kit to prevent discharges to drains and spreading/tracking of the material.
3. Call Emergency Operations Center (844-6515 non-emergency, 844-0911 emergency) and Environmental Programs (844-0590).
4. Communicate “Where, What, When, and How Much”
5. Clean-up* with chemically-compatible materials and dispose of them in accordance with corporate procedures , and federal, state and local laws.

*You should only perform this action if trained to do so.

Site Inspections –
Who conducts them and when?

- A member of the Stormwater Team conducts compliance inspections according to the schedule defined in the MSGP and SWPPP.
- Each facility is required to be inspected quarterly; one of which is conducted in wet weather conditions.
- Based on additional sector requirements, some facilities are inspected monthly.

What are inspectors looking for?

- Potential pollutants where industrial materials or activities are exposed to stormwater.
- Orderly and clean operations.
- Onsite spill kit.
- Evidence of leaks, spills, or previously unidentified discharges of pollutants.
- Installation and effectiveness of erosion and sediment control measures.
- Residues, debris or wastes that could be exposed to stormwater.
- Condition of storm drains/inlets.
- Assessment of whether additional control measures are necessary.

Corrective Actions – Discovery

- The following conditions require recordable corrective actions:
  - Unauthorized release (e.g., spill, leak, unauthorized non-stormwater discharge).
  - Discharge that violates a numeric limit.
  - Control measures are not being properly operated or maintained.
  - Control measures are not adequate to meet applicable water quality standards.
  - Regulators determine that modifications to control measures are necessary.

Corrective Actions - Documentation

- Within 24 hours of discovery:
  - Document how the problem was discovered, a description of the problem and the date discovered.
- Within 14 days of discovery:
  - Summarize the actions taken (to be taken) to correct the problem.
  - Determine whether a SWPPP modification is necessary.
  - Record the date of initiation of the corrective action and when it was complete (or expected to be completed).

Stormwater Monitoring

- During SNL/NM's wet season of July 1st – October 31st, stormwater is collected monthly from designated sampling points.
- The sampling points are located downgradient of the industrial facilities presented in this training module.
- Visual assessments are performed immediately after collecting the samples to observe color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of stormwater pollution.

Data Analysis and Reporting

- Stormwater samples are prepared and analyzed for a variety of constituents to evaluate compliance with the effluent and benchmark monitoring requirements of the MSGP.
- Data is reported to EPA in a Discharge Monitoring Report (DMR) within 30 days of receipt of the lab results.
- The past year's data, visual assessments and inspection reports are reviewed together, and discussed in the Annual Report submitted to EPA.

Stormwater Sampler

www.usplastic.com/catalog/item.aspx?itemid=23987&catid=657

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Additional Training Needed

The Stormwater Team is required to take additional comprehensive training on the following:

- The specific control measures used to achieve the effluent limits of the MSGP.
- Monitoring requirements.
- Inspection requirements.
- Planning, reporting and documentation requirements.

Questions or Help?

Contact the Stormwater Team in Environmental Programs (04143):

- Chip Roma, Project Lead - 844-0590; cmroma@sandia.gov
- Kathie Deal - 844-8503; kjdeal@sandia.gov
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MODULE 4:

Municipal Separate Storm Sewer System (MS4)

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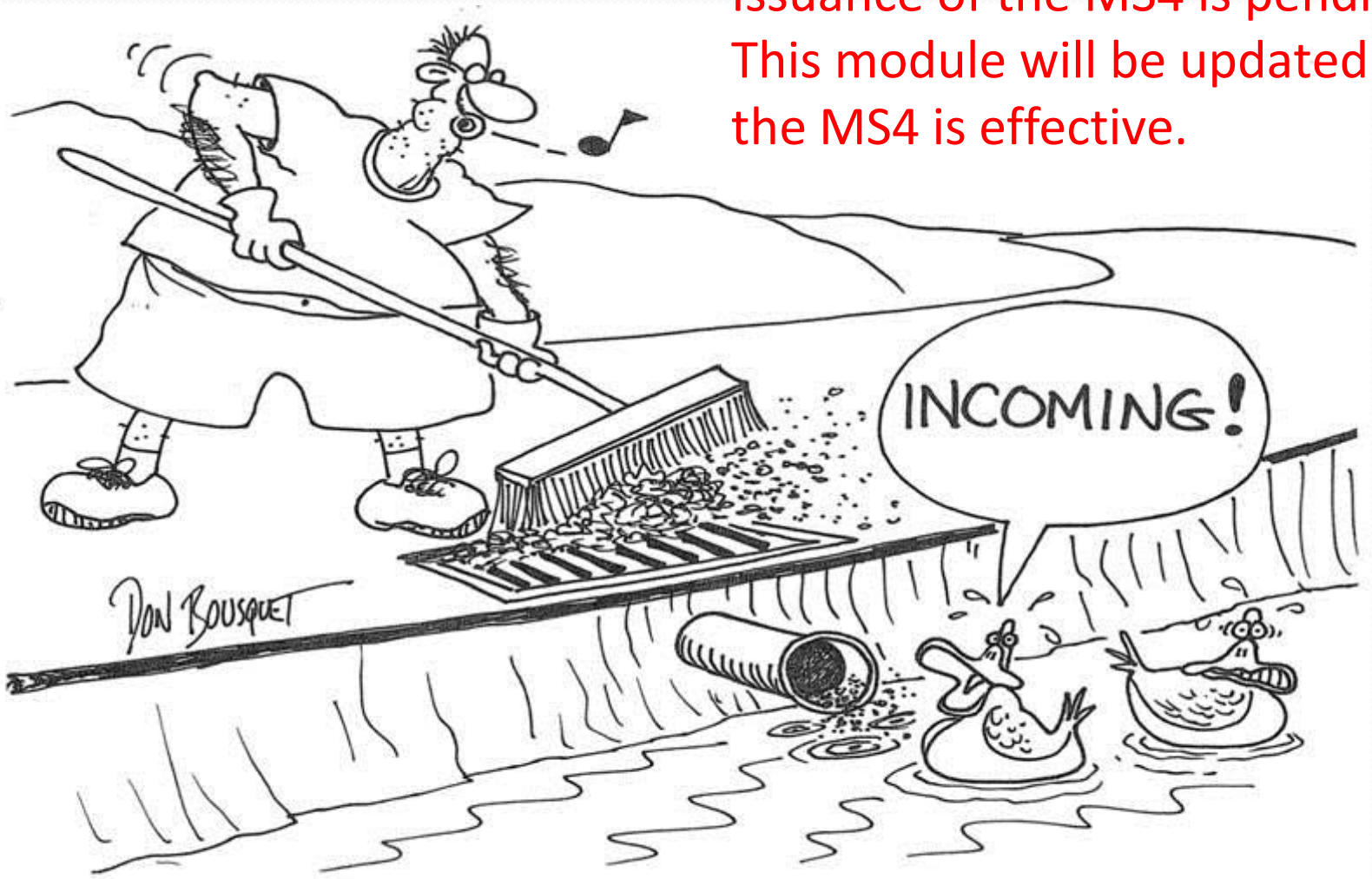
Issuance of the MS4 is pending. This module will be updated once the MS4 is effective.



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Self-Assessment

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Consider the following questions…

- What is at risk if stormwater pollution is not prevented?
- What permits apply to the facility in which you work?

- How can stormwater pollution be prevented at your facility?
- Can you recognize pollution sources and failures of control measures that could contribute to stormwater pollution?
- Do you know how to respond safely and effectively to an accidental release of stormwater contaminants (a spill)?

Thank you for your patience and attention.

Please contact the Stormwater Team with questions about stormwater at any time.

Name	Contact Information
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