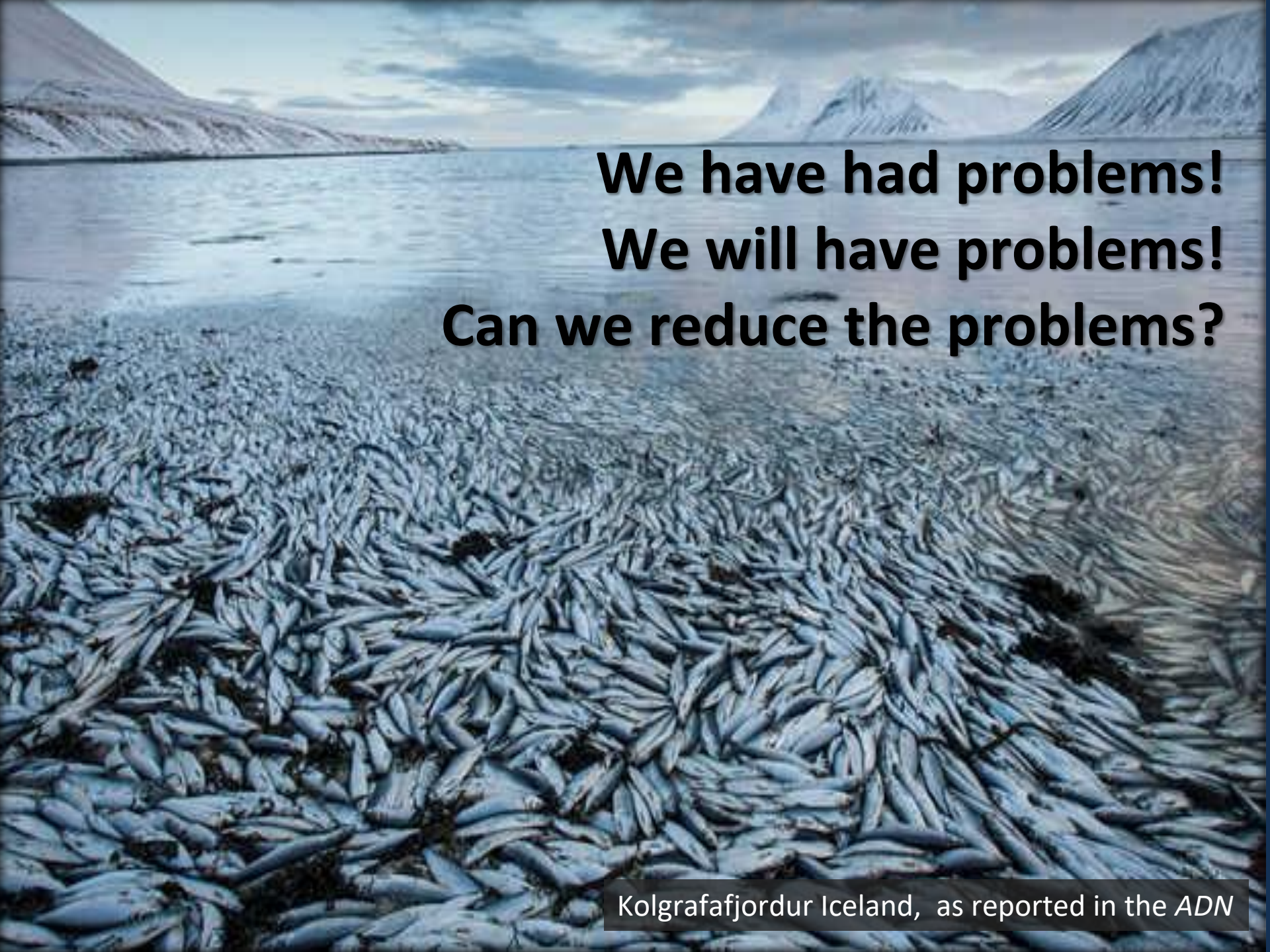
Stormwater Pollution Prevention for Recycling, Hauling & Landfilling

Wyoming Solid Waste & Recycling Association

Regulations & Permitting

Clean Water Act = Protect & Restore


We have had problems!
We will have problems!
Can we reduce the problems?
Kolgrafafjordur Iceland, as reported in the *ADN*

NPDES

National Pollutant Discharge Elimination System

Protect & Restore Waters of the U.S.


Why are we here?
Regulatory Requirements
Productivity
Profitability
$$$

Stormwater Management Goals

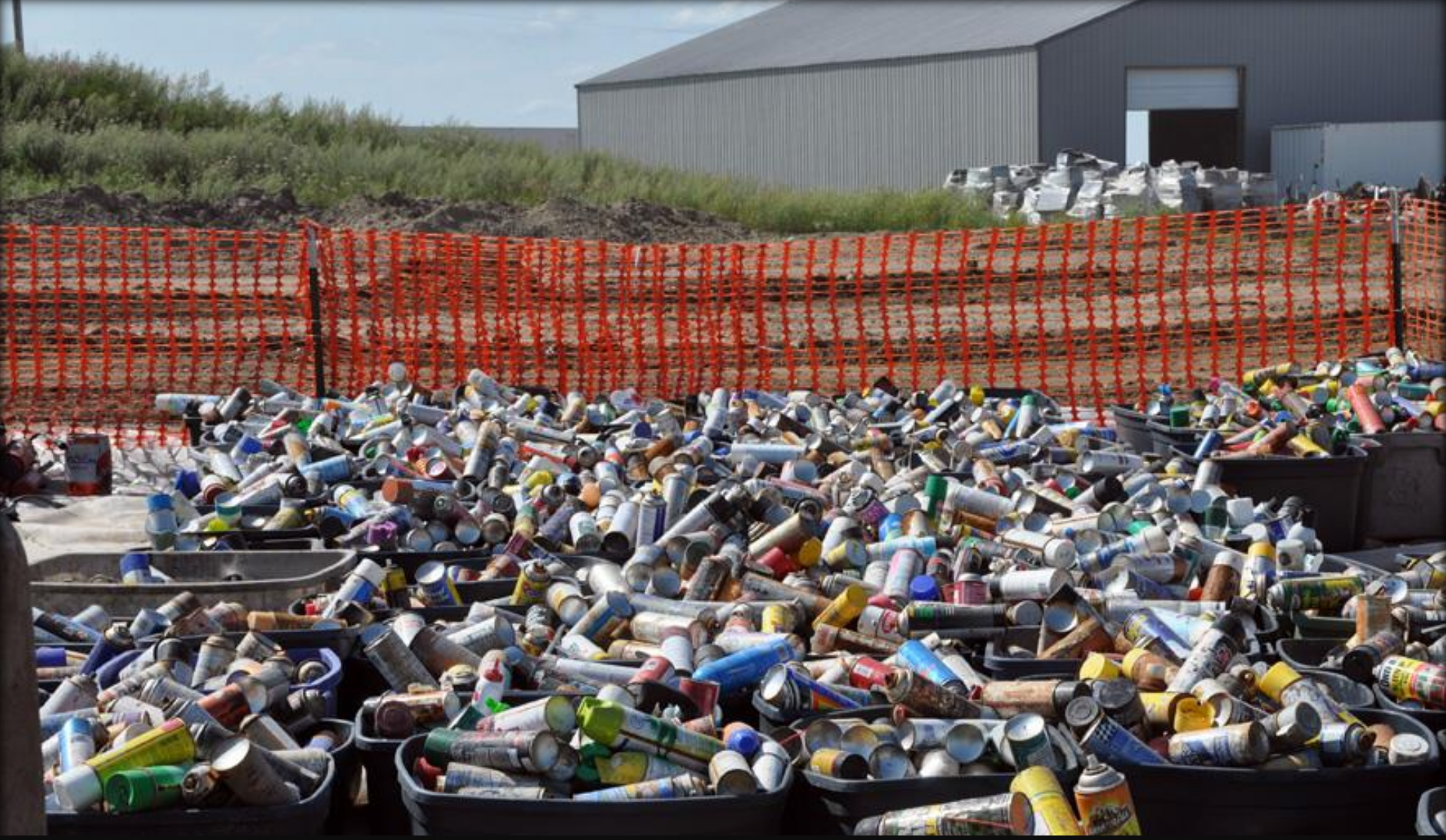
- Improve Water Quality from Stormwater Runoff
- Encourage Methods for Improving Aquifer Recharge and Infiltration
- Reduce Stormwater Mitigation Costs for Builders, Developers & Governments
- Reduce City and County Maintenance and Liability

Stormwater Pollution Prevention Plans

All permittees shall develop a SWPPP.

The SWPPP shall be implemented prior to the discharge of stormwater.

The SWPPP & revisions are subject to review.



The objectives of the SWPPP are to identify potential sources of stormwater pollution associated with industrial activity and ensure that practices are implemented and maintained to reduce the contribution of pollutants in stormwater runoff.

SWPPP Template available online

Wyoming Department of Environmental Quality

Template for the
Storm Water Pollution Prevention Plan
(for the Industrial General Permit)

PLEASE READ THIS PRIOR TO COMPLETING FORM: This SWPPP template is intended to help operators in developing a SWPPPP that complies with Part 8.2 of the Wyoming Department of Environmental Quality WYPDES Storm Water Program Industrial General Permit. The SWPPP is a site specific, dynamic plan designed to control erosion and sedimentation, prevent storm water contamination, and comply with requirements of the Clean Water Act. It is the permittee's responsibility to ensure all required items in the Industrial General Permit are adequately addressed, and that the SWPPP is developed, implemented, and maintained.
Please note that the numbering in this template is not consecutive but corresponds to the part number for that particular requirement in the IGP.

Means & Methods Document

What are the risk factors?

How will those risks be managed?

Managing Risk

1. **Identify** Sources of Potential Harm
2. **Develop** Strategies to Manage Risk
3. **Implement** Plans to Reduce or Eliminate Risk

Only Three things we need to do:

1. Prevent Raindrop Erosion

- ✓Stop the rain from hitting bare soil.

2. Prevent Rill and Gully Erosion

- ✓Slow the water down.
- ✓Armor against the flow.

3. Good Housekeeping

- ✓Don’t make extra messes.
- ✓Clean up your messes.

The SWPPP shall be signed in accordance with the Signatory Requirements of this permit.

Signatory Requirements

All applications, reports, or information submitted to the department shall be signed and certified.

All permit applications shall be signed by a responsible corporate officer, a general partner, or a principal executive officer or ranking elected official.

All reports required by the permit and other information requested by the department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

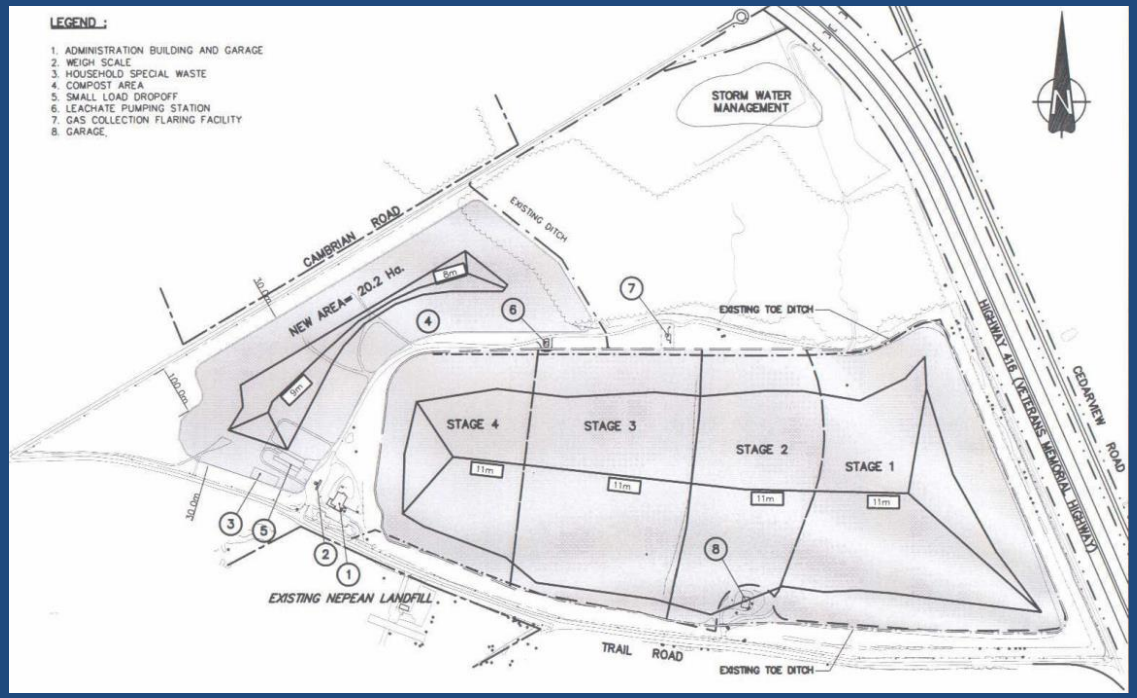
The authorization is made in writing by a person described above and submitted to the department; and

The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

Site Description

Provide a description of the type of activities conducted at the facility. Provide a general location map (e.g., U.S. Geological Survey [USGS] quadrangle map) with enough detail to identify the location of the facility, boundaries of the property, the size of the property in acres and all receiving waters (including wetlands and municipal separate storm sewer systems [MS4] that receive stormwater runoff from the facility).

- Provide a site specific map(s) of suitable scale and quality to show:
- Section, township, and range; or lines of latitude and longitude;
- Stormwater drainage patterns;
- All stormwater ditches, pipes, and swales in and around the facility;
- Storm sewer inlets and outfalls, along with a unique identification code for each
- All stormwater sample collection points;
- Potential sources of pollution;
- All stormwater control measures;
- Location and extent of facility structures and impervious surfaces; &
- Any locations where reportable quantity spills or leaks have occurred



Also indicate the location of the following activities that are exposed to precipitation:

- Fueling stations;
- Vehicle and equipment maintenance and/or cleaning areas;
- Loading/unloading areas;
- Locations used for the treatment, storage, or disposal of wastes;
- Liquid storage tanks;
- Processing and storage areas;
- Immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility;
- Transfer areas for substances in bulk; and
- Machinery.

Stormwater Pollution Prevention Team

Identify the individual(s) responsible for overseeing the development of the SWPPP, any later modifications to the SWPPP, and for compliance with the permit. Include the individual(s) name or title and identify their responsibilities. The individual(s) shall have ready access to a copy of the permit & the current version of the SWPPP.

SWPPP Roles and Responsibilities:

- Who is on the stormwater pollution prevention team?
- Who will install structural stormwater controls?
- Who will supervise and implement good housekeeping programs?
- Who will conduct routine inspections of the site?
- Who will maintain the BMPs?
- Who is responsible for documenting changes to the SWPPP?
- Who is responsible for communicating changes in the SWPPP?

What's your role?

Description of Potential Pollutant Sources

Include a narrative description of the potential pollution sources associated with industrial activity and material handling at the facility.

For each potential pollution source, include:

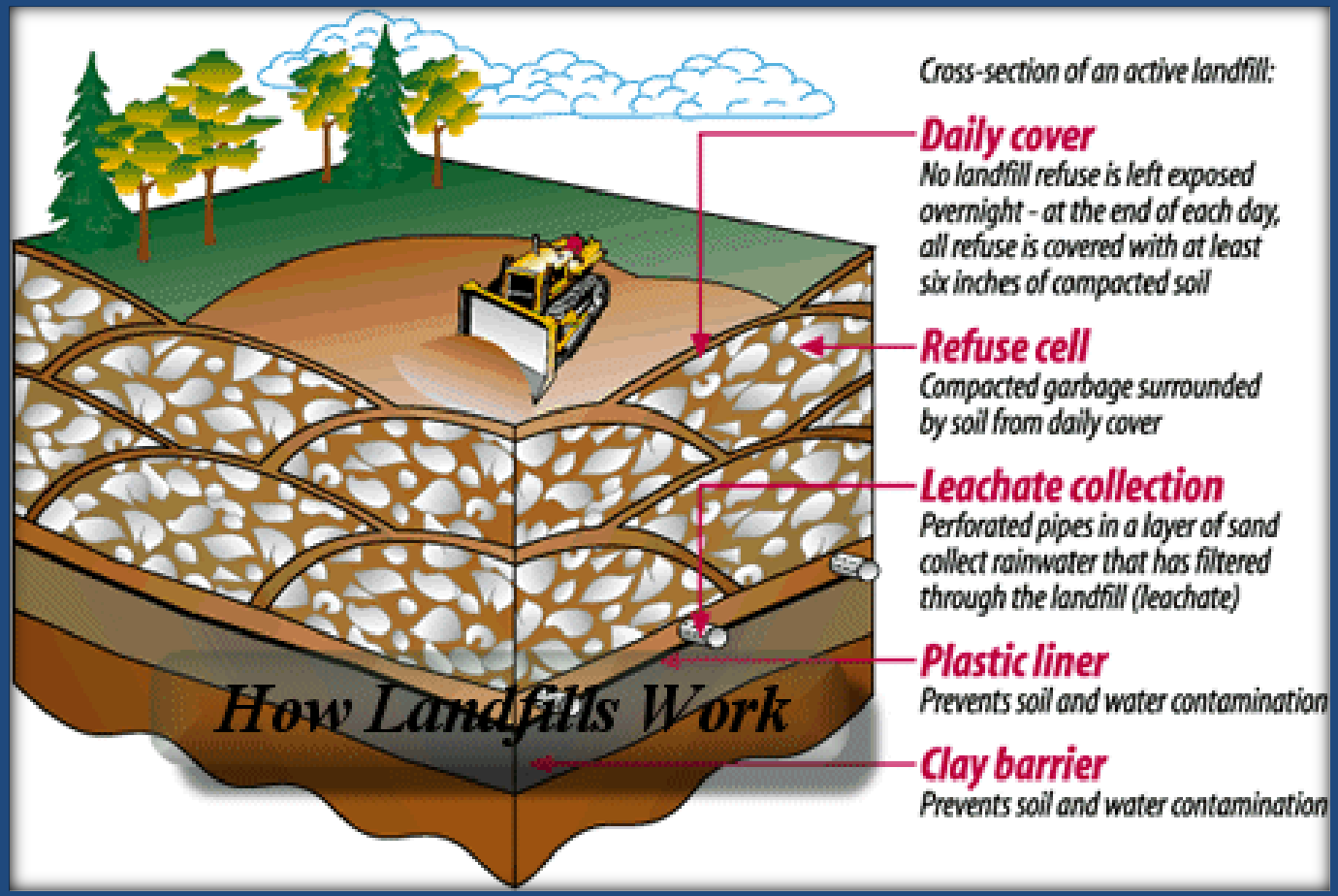
a. Activity Assessment.

-What do you do that could contribute pollutants to stormwater?

b. Pollutant List.

-What things are exposed to precipitation, have there been previous spills?

c. Non-Stormwater Discharges.



Stormwater Controls

Describe the location and type of all stormwater control measures for each industrial source or activity that could contribute pollutants to stormwater runoff. A combination of best management practices (BMPs) and structural controls shall be implemented as appropriate to reduce the contribution of pollutants to stormwater runoff.

Describe good housekeeping practices to maintain a clean and orderly facility. Litter, debris, chemicals, and parts shall be handled properly to minimize exposure to stormwater.

Include any schedules for regular collection and disposal of waste materials, along with routine inspections for leaks, and the condition of drums, tanks and containers.

All exposed areas that are potential sources of pollutants should be kept clean to prevent pollutants from being carried away by wind or water.

Store all materials in appropriately labeled containers. Also address specific processing and storage practices for materials and parts that present a potential environmental concern.

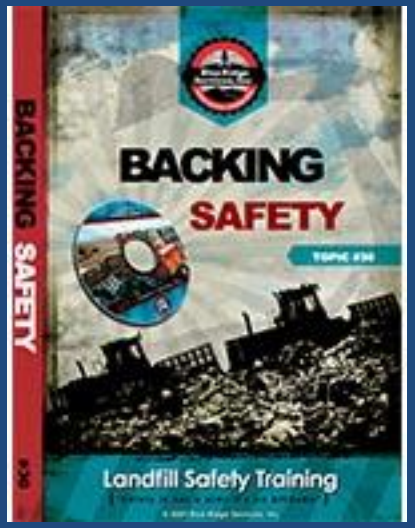
Describe methods that will be used to reduce the generation of dust.

Bins, dumpsters, and roll-off boxes that contain materials that are a potential source of stormwater pollution and are susceptible to being removed by wind or rain must have lids or be covered when not in use.

Daily Cover

Describe preventative maintenance procedures to ensure the proper operation of stormwater management devices, as well as equipment on-site. This includes regular inspection, testing, maintenance, and repair of all control measures and equipment to ensure proper operation.

Detail procedures for preventing and responding to spills and leaks. The SWPPP shall include notification procedures for reporting internally and to the department. Response procedures shall specify recovery equipment and disposal methods.



Describe employee training used to inform personnel of their responsibility in implementing the practices and controls included in the SWPPP such as spill response, good housekeeping, and sediment control practices.

Personnel shall be trained in at least the following areas as related to the scope of their job duties:

- An overview of the contents of the SWPPP;
- Spill prevention & response, good housekeeping practices; maintenance requirements, and material management practices;
- The location & maintenance of pollution prevention controls;
- Operating procedures for preventing pollution; and
- Inspection procedures and records maintenance.

Describe erosion and sediment controls implemented on areas vulnerable to erosion. The SWPPP shall describe the appropriate control measures and when they will be implemented.

The first line of defense is to **prevent erosion** by protecting the soil surface from raindrop impact and overland flow of runoff.

Expose the smallest practical area for the shortest possible time.

Apply on-site erosion control measures to reduce the erosion from the site.

Manage the flows

Slow it down

Armor

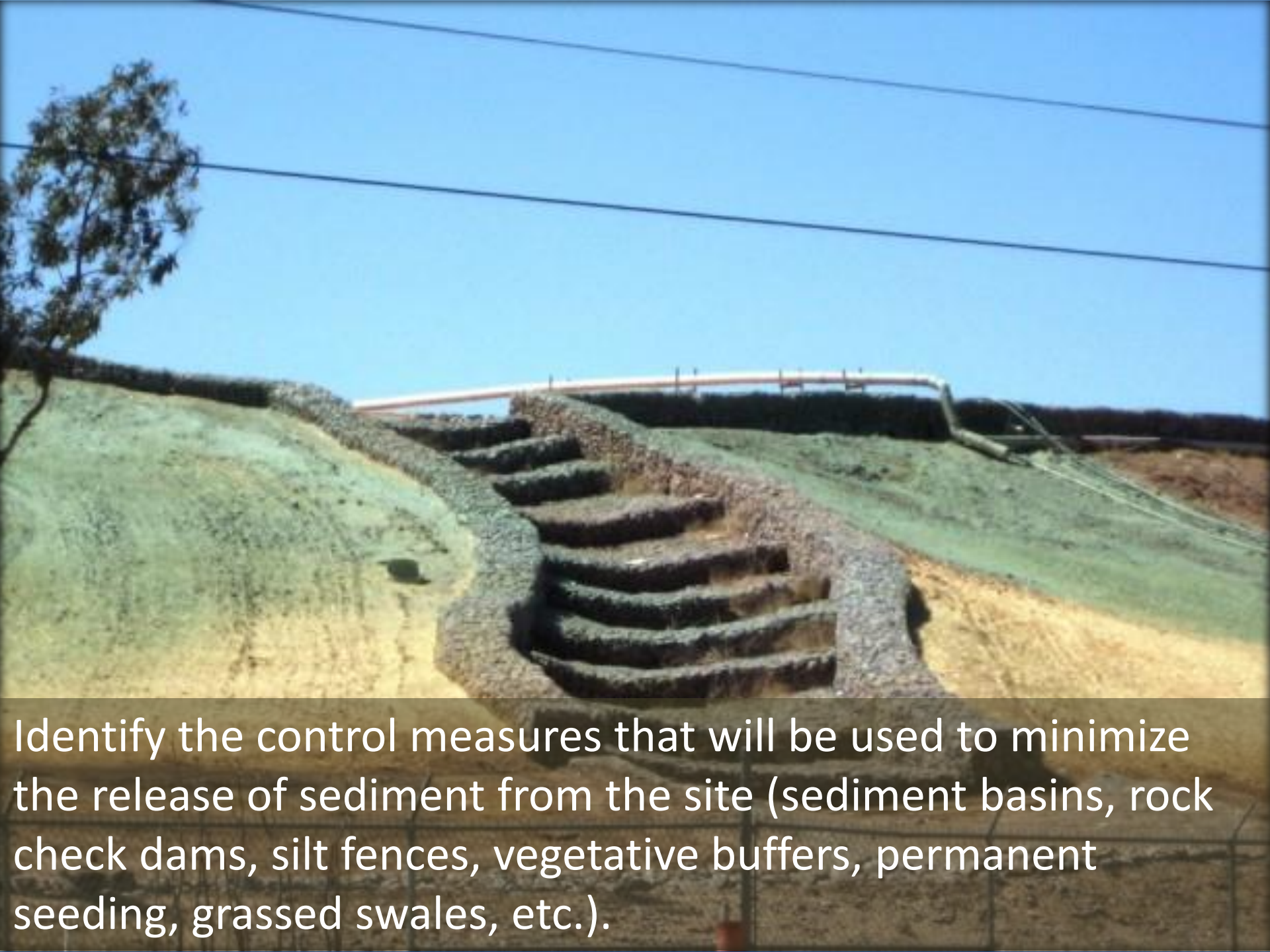
This is not the way to slow down water.

Divide the site into drainage areas.

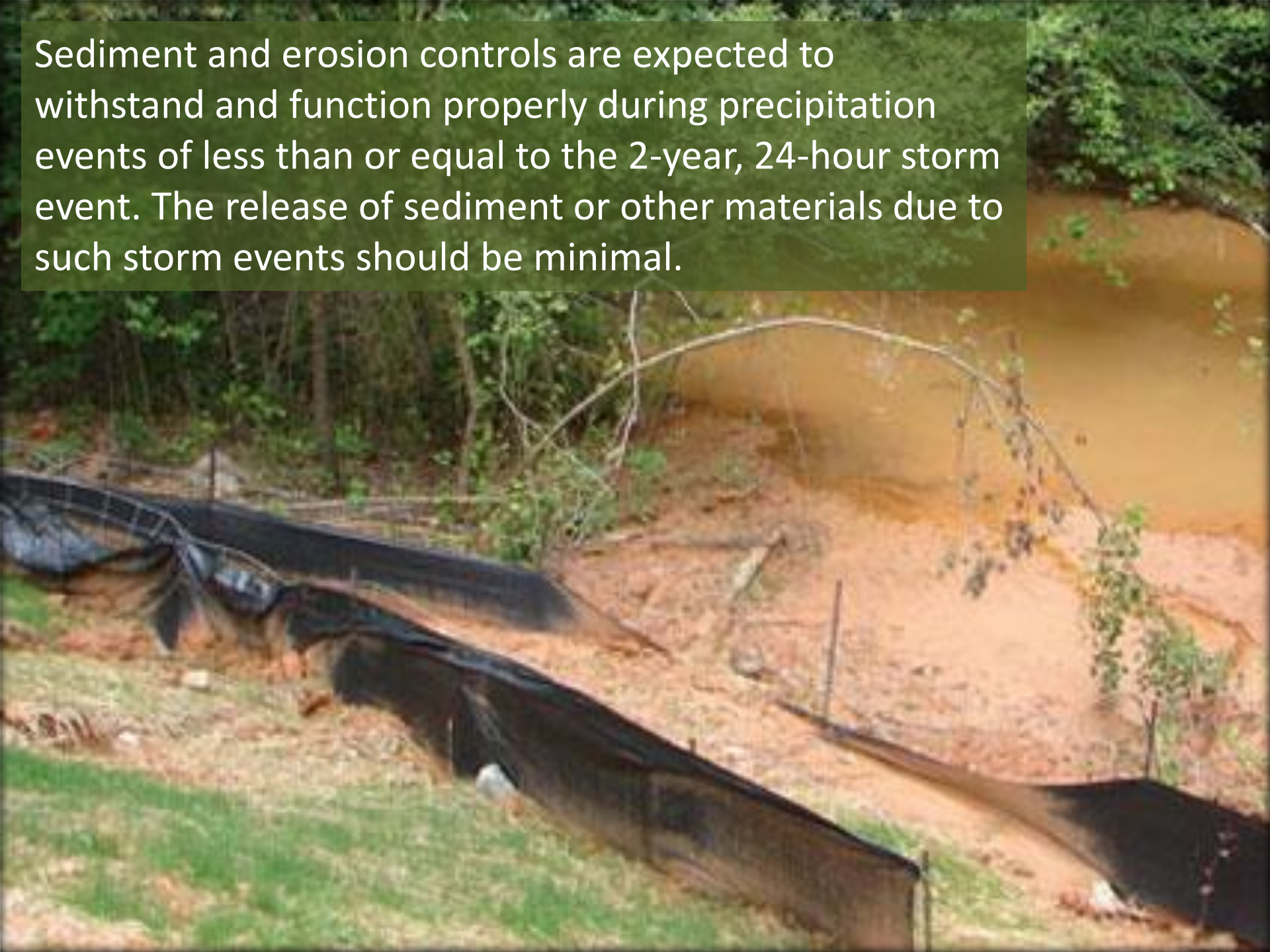
- Determine how runoff will travel over the site.
- Consider how erosion and sedimentation can be controlled in each small drainage area before looking at the entire site.

The description and implementation of controls address the following minimum components:

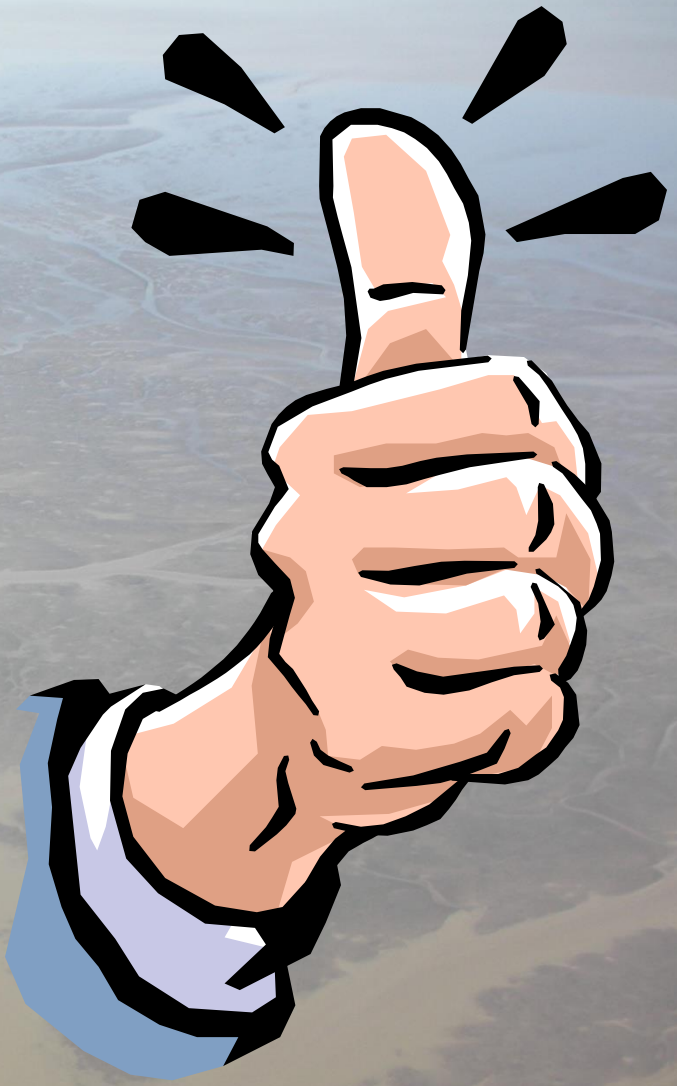
Areas vulnerable to erosion, including those with little or no vegetation, steep slopes, or those with concentrated runoff flows such as ditches and culverts, shall be stabilized.



Identify the control measures that will be used to minimize the release of sediment from the site (sediment basins, rock check dams, silt fences, vegetative buffers, permanent seeding, grassed swales, etc.).


Sediment and erosion controls are expected to withstand and function properly during precipitation events of less than or equal to the 2-year, 24-hour storm event. The release of sediment or other materials due to such storm events should be minimal.

Use sediment controls to
prevent off-site detrimental impacts

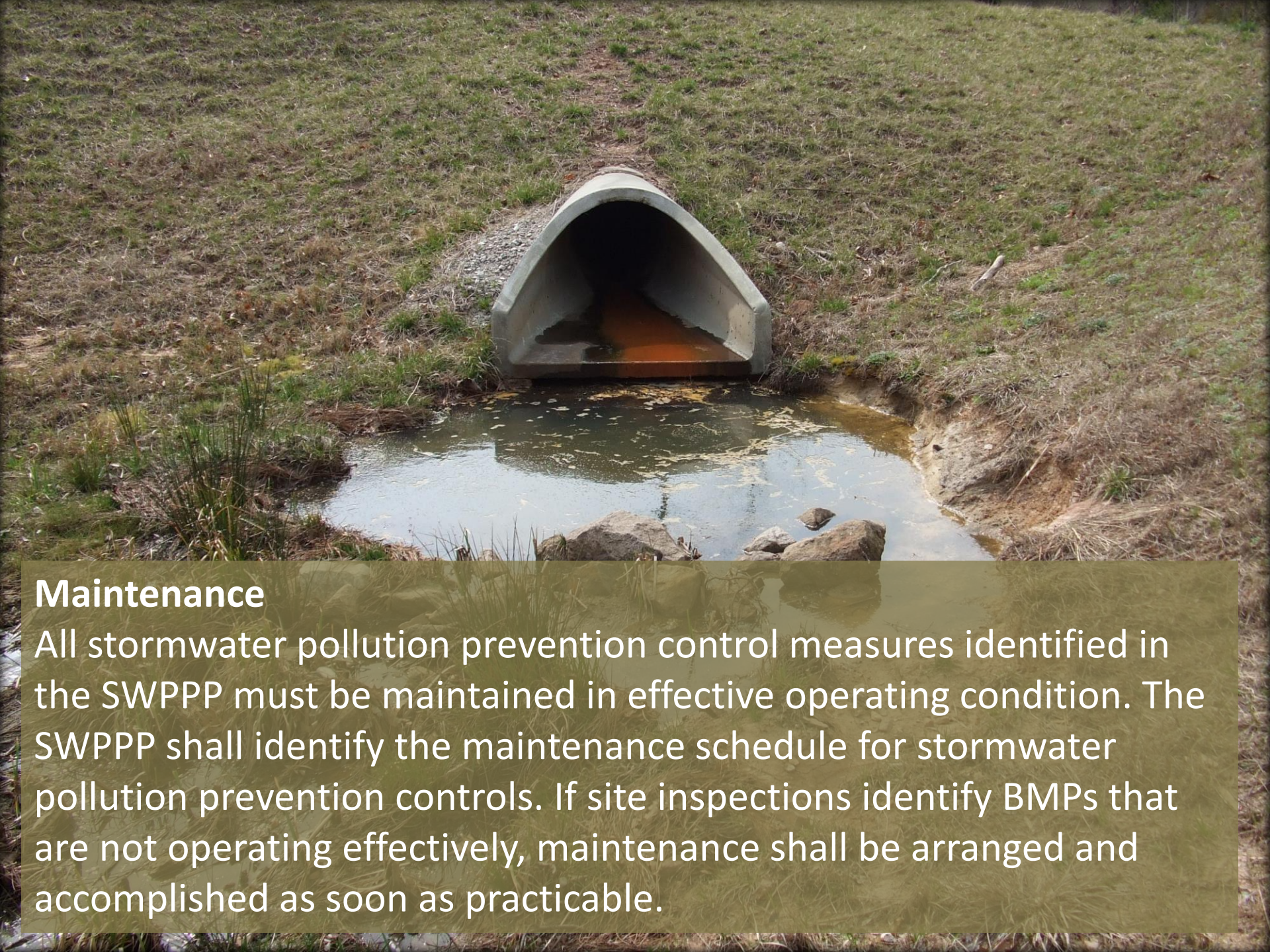


•Remember, it is easier to control erosion than to contend with sediment.

Select practices (BMPs).

- Erosion prevention
- Sedimentation control
- Management measures.

Describe methods to recover off-site sediment accumulations.

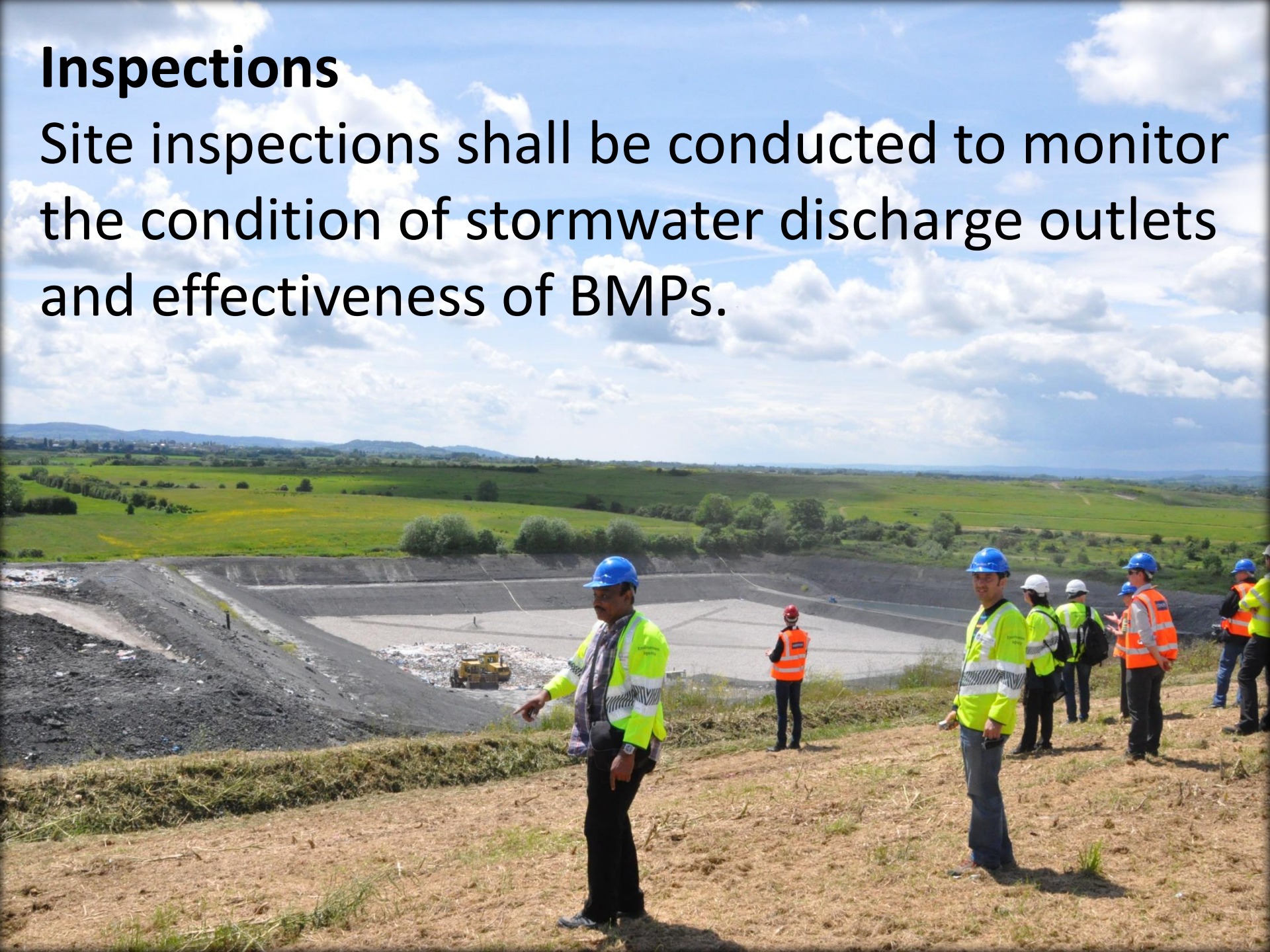


Maintenance

All stormwater pollution prevention control measures identified in the SWPPP must be maintained in effective operating condition. The SWPPP shall identify the maintenance schedule for stormwater pollution prevention controls. If site inspections identify BMPs that are not operating effectively, maintenance shall be arranged and accomplished as soon as practicable.

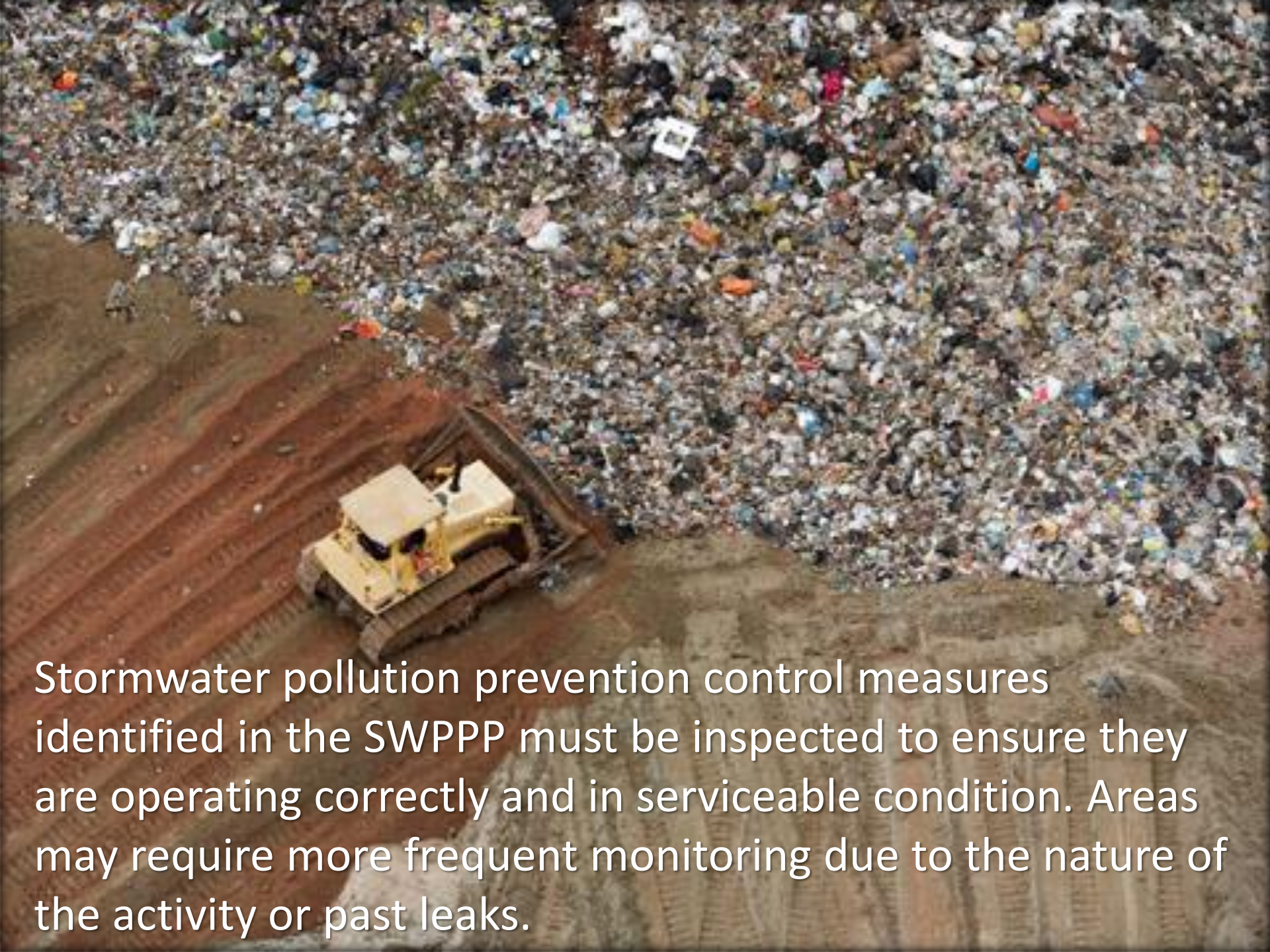
Inspections

Site inspections shall be conducted to monitor the condition of stormwater discharge outlets and effectiveness of BMPs.



Does your SWPPP specify the procedures for performing inspections? Including:

Person(s) or position(s) responsible for inspections;
Schedules and frequencies for conducting inspections;
Areas and activities that will be inspected; and
Information that will be recorded as part of an inspection.



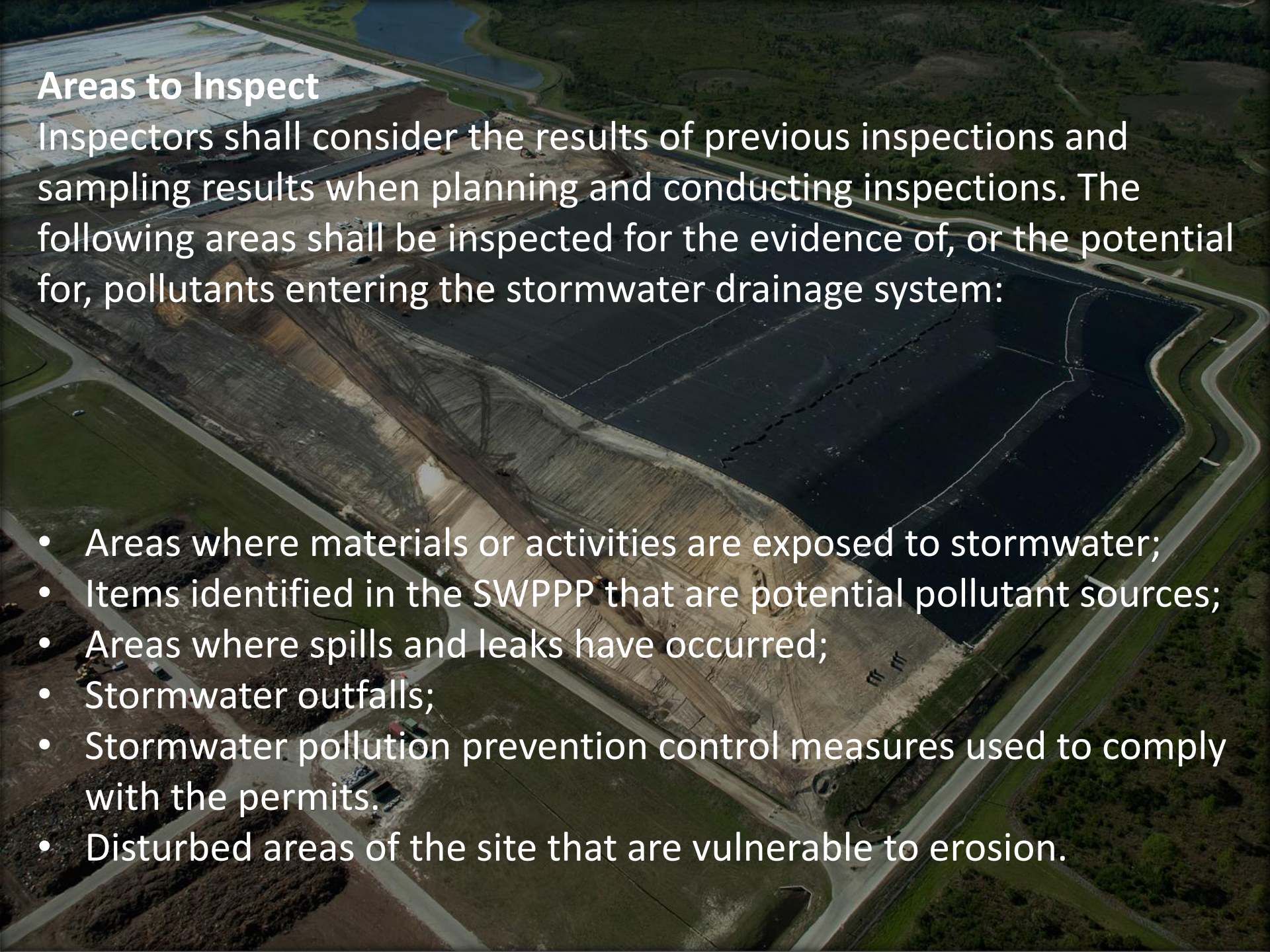
Stormwater pollution prevention control measures identified in the SWPPP must be inspected to ensure they are operating correctly and in serviceable condition. Areas may require more frequent monitoring due to the nature of the activity or past leaks.

Maintain a record of inspections summarizing the scope of the inspection; condition of control measures; signs of pollution (or the potential for pollution) from industrial activities; the date and time of the inspection; and the name of personnel conducting the inspection.

SELF-MONITORING AND REPORTING
Inspection Requirements

Inspector Qualifications

The permittee shall ensure that personnel conducting inspections are familiar with permit conditions, the SWPPP, the proper installation and operation of control measures, and applicable sampling requirements.



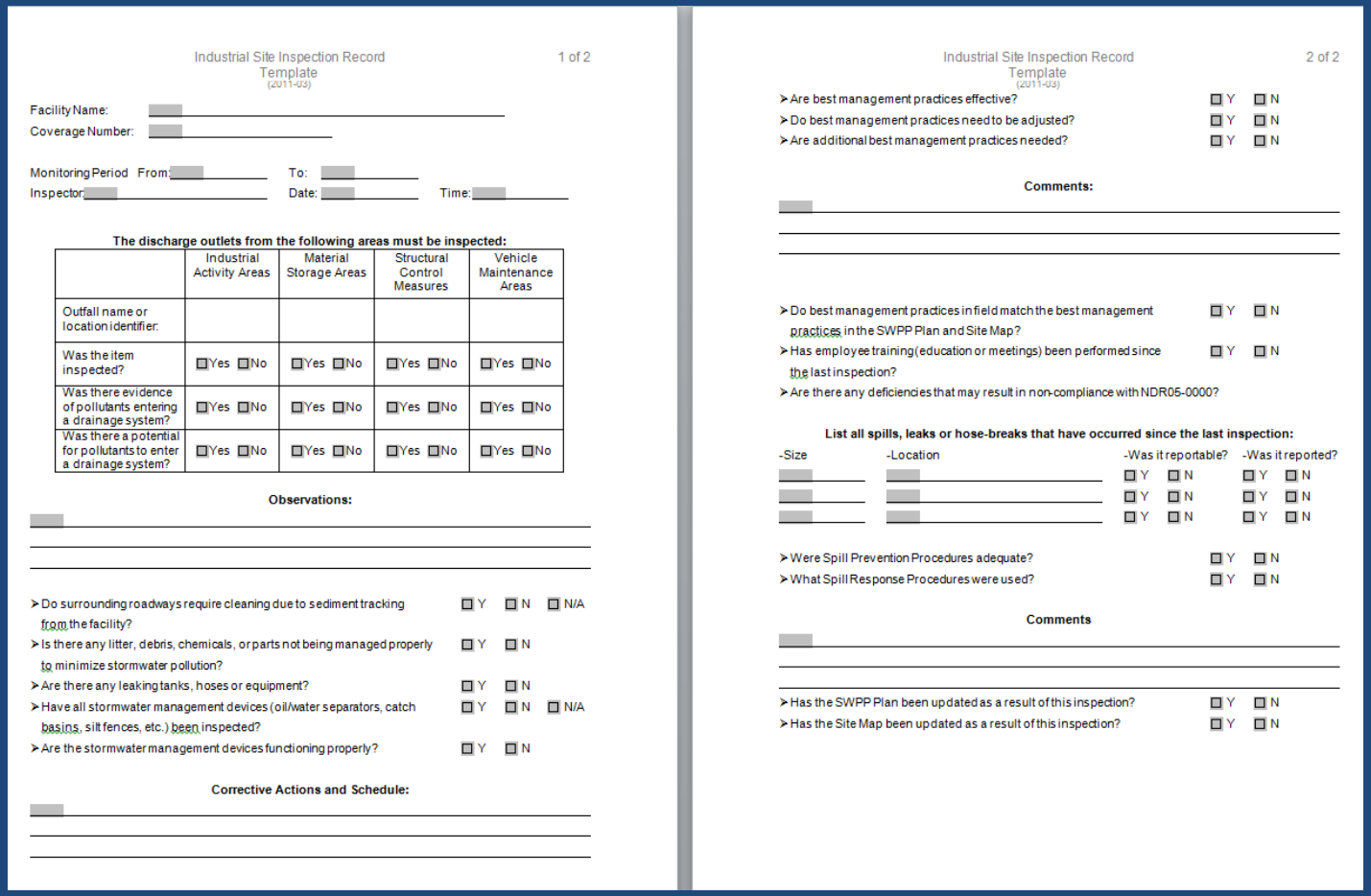
Areas to Inspect

Inspectors shall consider the results of previous inspections and sampling results when planning and conducting inspections. The following areas shall be inspected for the evidence of, or the potential for, pollutants entering the stormwater drainage system:

- Areas where materials or activities are exposed to stormwater;
- Items identified in the SWPPP that are potential pollutant sources;
- Areas where spills and leaks have occurred;
- Stormwater outfalls;
- Stormwater pollution prevention control measures used to comply with the permits.
- Disturbed areas of the site that are vulnerable to erosion.

During the inspection look for the following:

Industrial materials, residue, leak or spilled material, or trash that may have or could come into contact with stormwater and pollute runoff from the facility;
Off-site tracking of industrial or waste materials, or sediment; and
Stormwater pollution prevention control measures needing replacement, maintenance or repair.



Industrial Site Inspection Record
Template
(2011-03)

1 of 2

Facility Name:
Coverage Number:

Monitoring Period From: To:
Inspector: Date: Time:

The discharge outlets from the following areas must be inspected:

	Industrial Activity Areas	Material Storage Areas	Structural Control Measures	Vehicle Maintenance Areas
Outfall name or location identifier:				
Was the item inspected?	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
Was there evidence of pollutants entering a drainage system?	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
Was there a potential for pollutants to enter a drainage system?	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No

Observations:

- Do surrounding roadways require cleaning due to sediment tracking from the facility? ☐Y ☐N ☐N/A
- Is there any litter, debris, chemicals, or parts not being managed properly to minimize stormwater pollution? ☐Y ☐N
- Are there any leaking tanks, hoses or equipment? ☐Y ☐N
- Have all stormwater management devices (oil/water separators, catch basins, silt fences, etc.) been inspected? ☐Y ☐N ☐N/A
- Are the stormwater management devices functioning properly? ☐Y ☐N

Corrective Actions and Schedule:

Industrial Site Inspection Record
Template
(2011-03)

2 of 2

- Are best management practices effective? ☐Y ☐N
- Do best management practices need to be adjusted? ☐Y ☐N
- Are additional best management practices needed? ☐Y ☐N

Comments:

- Do best management practices in field match the best management practices in the SWPP Plan and Site Map? ☐Y ☐N
- Has employee training (education or meetings) been performed since the last inspection? ☐Y ☐N
- Are there any deficiencies that may result in non-compliance with NDR05-0000?

List all spills, leaks or hose-breaks that have occurred since the last inspection:

-Size	-Location	-Was it reportable?	-Was it reported?
		☐Y ☐N	☐Y ☐N
		☐Y ☐N	☐Y ☐N
		☐Y ☐N	☐Y ☐N

- Were Spill Prevention Procedures adequate? ☐Y ☐N
- What Spill Response Procedures were used? ☐Y ☐N

Comments

- Has the SWPP Plan been updated as a result of this inspection? ☐Y ☐N
- Has the Site Map been updated as a result of this inspection? ☐Y ☐N

Online Inspection Template

Inspection Records

A record shall be made summarizing the scope of the inspection, major observations relating to the SWPPP, and any corrective actions taken.

At a minimum the inspection records include:

- Date and time of inspections;
- Name and signature of person(s) conducting inspections;
- Indicate if the inspection is a result of a stormwater discharge event; *(at least one per year)*
- Signs of pollution, or the potential for pollution, from industrial activities;
- Inspection findings including major observations related to the SWPPP, condition of stormwater pollution prevention controls, deficiencies noted, recommendations for corrective actions and corrective actions taken; and
- Documentation that the SWPPP has been amended when substantial changes are made to stormwater controls or other BMPs in response to inspections.

Maintenance Records

When deficiencies are noted during an inspection, corrective actions shall be performed as soon as feasible. A record of corrective and maintenance activities shall be kept. This record shall include the dates and times; and party completing the activities.

Inspection involves walking the line….


& Checking all the BMP’s along the way.

Liability Issues for Inspectors

What you are required to do:

- Conduct and document inspections
- Assess SWPPP & BMP performance
- “I certify that this report is true, accurate, and complete, to the best of my knowledge and belief.”
- Determine compliance with SWPPP & Permit
- Detail summary of remedial actions

What you will probably be expected to do:

- Ensure regulatory compliance

If so….

Always inspect, sample, and report accurately and promptly

Access to Records

- **Agency & Local Jurisdiction Access**
  - Permit, Coverage Letter, SWPPP, Inspection Logs, and Discharge Data
  - Inspection & Entry by Federal, State, or local inspector with credentials
- **Public Access**
  - Copy of Records after Request
    - Procedures vary for various permitting authorities
  - Provide for Public Review

Observation builds experience!

"Since the achievement of our independence,
He is the greatest Patriot,
who stops the most gullies."

-1736 – 1799

-Introduced the Stamp Act

-1st post-colonial Governor of Virginia

-Give me liberty or give me death

-Patrick Henry

Be Prepared for your Inspections
Plan for your Inspections
Complete your Inspections

Remember,

An inspection is a snapshot in time

The SWPPP and inspection reports are the movie of the entire process. It is a critical element for defending your position, should you need it.

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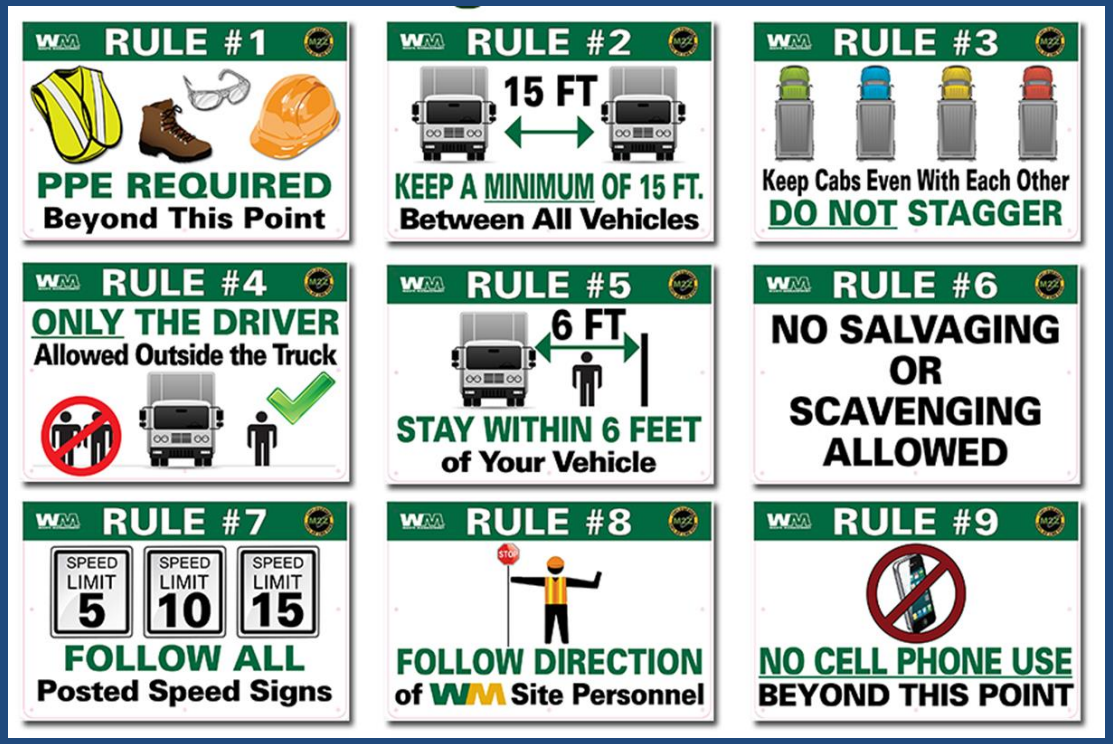
south dakota solid waste management association
Sediment & Erosion Control at Landfills

Safety

Environmental Protection



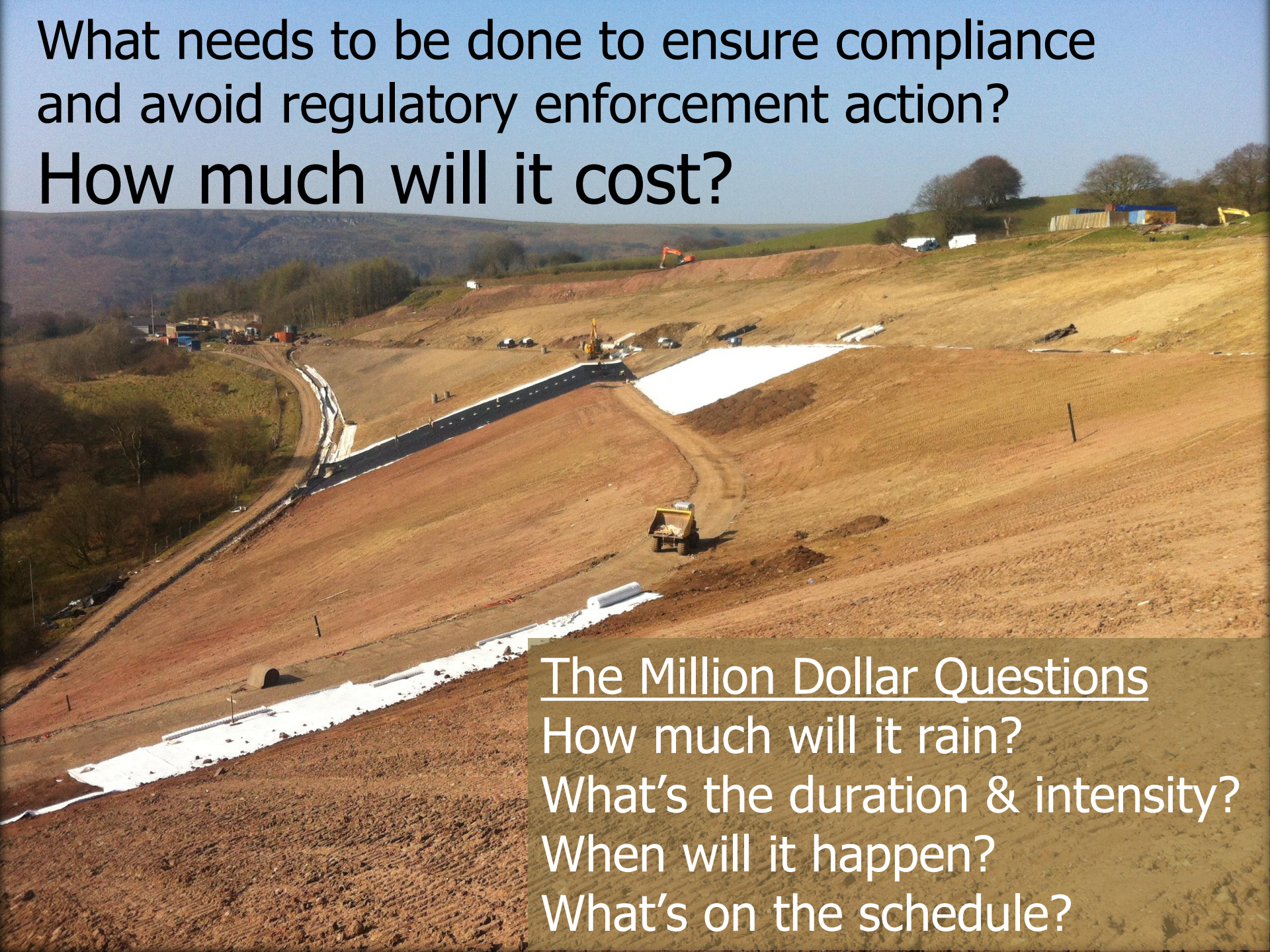
- Habitat
  - Salmon
- Resources
  - Clean Water
- Goodwill
  - Public
  - Agency
  - Wildlife


Include the permanent drainage facilities & construct these as early as possible.


Stabilized

What needs to be done to ensure compliance and avoid regulatory enforcement action?

How much will it cost?



<u>The Million Dollar Questions</u>

How much will it rain?

What's the duration & intensity?

When will it happen?

What's on the schedule?

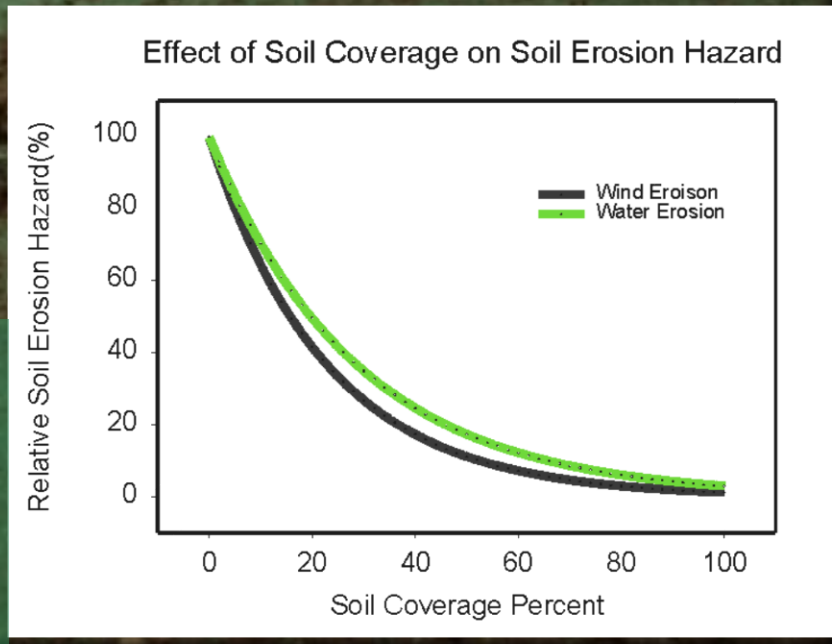
Cut and Fill Slopes

- Roughened soil surfaces are preferred to smooth surfaces on slopes.
- Construct diversions at the top of long steep slopes that have drainage areas above the slope. You may also use diversions or terraces to reduce slope length.


Where land disturbance is necessary, use temporary seeding, mulching, or other erosion control measures on areas that will be exposed for long periods of time.
Temporary seeding may be impractical in certain climatic regions.

Cover the Soil

- How long should this last?
- When should it be applied?
- What should be in the mix?

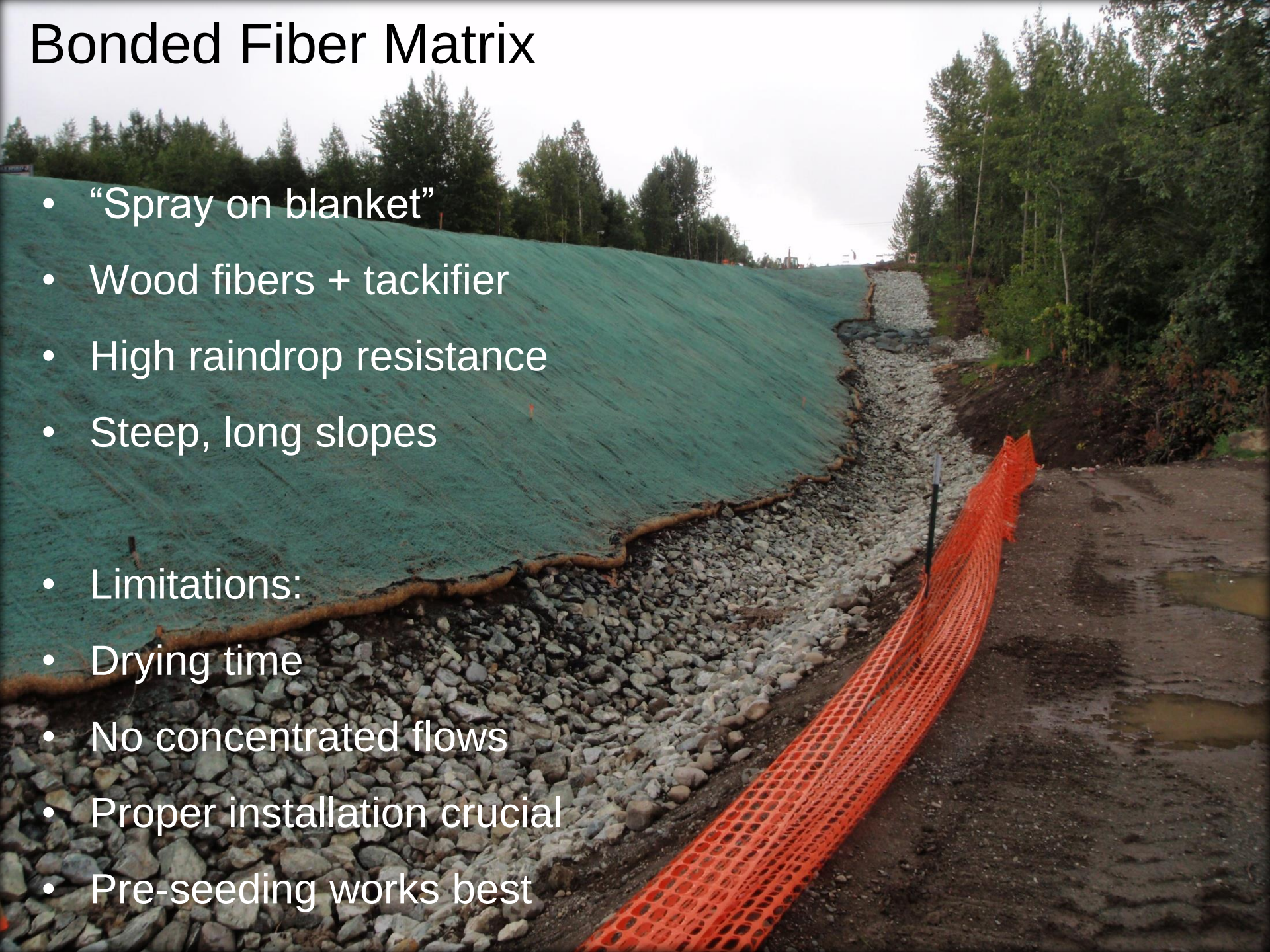


Hydromulching

- Wood Fiber
- Paper
- Straw
- Tackifiers
- Polyacrylamide

Photo Courtesy Stoney Wright CPESC

Bonded Fiber Matrix



- “Spray on blanket”
- Wood fibers + tackifier
- High raindrop resistance
- Steep, long slopes

- Limitations:
- Drying time
- No concentrated flows
- Proper installation crucial
- Pre-seeding works best

View from the bottom up

View from the top down

Specify rates and application

Specifications:
- Seed Type / Rate
- Mulch Type / Rate
- Tackifier
- Fertilizer Type / Rate
- Seeding Windows

Types of RECPs

"Rolled Erosion Control Product"

- **Erosion Control Blankets**
- **Mulch Netting**
- **Open Weave Textile**
- **Turf Reinforcement Mats - TRMs**


•RECP Type
•Longevity
•Shear Stress

ECTC Standard Specification For Temporary Rolled Erosion Control Products

For use in areas where natural vegetation alone will provide permanent erosion protection

ULTRA SHORT-TERM - Typical 3 month functional longevity.

Type	Product Description	Material Composition	Slope Applications*		Channel Applications*	Minimum
			Maximum Gradient	C Factor[2, 5]	Max. Shear Stress[3, 4, 6]	Tensile Strength[1]
1.A	Mulch Control Nets	A photodegradable synthetic mesh or woven biodegradable natural fiber netting.	5:1 (H:V)	≤ 0.10 @ 5:1	0.25 lbs/ft² (12 Pa)	5 lbs/ft (0.073 kN/m)
1.B	Netless Rolled Erosion Control Blankets	Natural and/or polymer fibers mechanically interlocked and/or chemically adhered together to form a RECP.	4:1 (H:V)	≤ 0.10 @ 4:1	0.5 lbs/ft² (24 Pa)	5 lbs/ft (0.073 kN/m)
1.C	Single-net Erosion Control Blankets & Open Weave Textiles	Processed degradable natural and/or polymer fibers mechanically bound together by a single rapidly degrading, synthetic or natural fiber netting or an open weave textile of processed rapidly degrading natural or polymer yarns or twines woven into a continuous matrix.	3:1 (H:V)	≤ 0.15 @ 3:1	1.5 lbs/ft² (72 Pa)	50 lbs/ft (0.73 kN/m)
1.D	Double-net Erosion Control Blankets	Processed degradable natural and/or polymer fibers mechanically bound together between two rapidly degrading, synthetic or natural fiber nettings.	2:1 (H:V)	≤ 0.20 @ 2:1	1.75 lbs/ft² (84 Pa)	75 lbs/ft (1.09 kN/m)

SHORT-TERM - Typical 12 month functional longevity.

Type	Product Description	Material Composition	Slope Applications		Channel Applications	Minimum
			Maximum Gradient	C Factor[2, 5]	Max. Shear Stress[3, 4, 6]	Tensile Strength[1]
2.A	Mulch Control Nets	A photodegradable synthetic mesh or woven biodegradable natural fiber netting.	5:1 (H:V)	≤ 0.10 @ 5:1	0.25 lbs/ft² (12 Pa)	5 lbs/ft (0.073 kN/m)
2.B	Netless Rolled Erosion Control Blankets	Natural and/or polymer fibers mechanically interlocked and/or chemically adhered together to form a RECP.	4:1 (H:V)	≤ 0.10 @ 4:1	0.5 lbs/ft² (24 Pa)	5 lbs/ft (0.073 kN/m)
2.C	Single-net Erosion Control Blankets & Open Weave Textiles	Processed degradable natural and/or polymer fibers mechanically bound together by a single rapidly degrading, synthetic or natural fiber netting or an open weave textile of processed rapidly degrading natural or polymer yarns or twines woven into a continuous matrix.	3:1 (H:V)	≤ 0.15 @ 3:1	1.5 lbs/ft² (72 Pa)	50 lbs/ft (0.73 kN/m)
2.D	Double-net Erosion Control Blankets	Processed degradable natural and/or polymer fibers mechanically bound together between two degradable, synthetic or natural fiber nettings.	2:1 (H:V)	≤ 0.20 @ 2:1	1.75 lbs/ft² (84 Pa)	75 lbs/ft (1.09 kN/m)

EXTENDED-TERM - Typical 24 month functional longevity.

Type	Product Description	Material Composition	Slope Applications		Channel Applications	Minimum
			Maximum Gradient	C Factor[2, 5]	Max. Shear Stress[3, 4, 6]	Tensile Strength[1]
3.A	Mulch Control Nets	A slow degrading synthetic mesh or woven natural fiber netting.	5:1 (H:V)	≤ 0.10 @ 5:1	0.25 lbs/ft² (12 Pa)	25 lbs/ft (0.36 kN/m)
3.B	Erosion Control Blankets & Open Weave Textiles	Processed degradable natural and/or polymer fibers mechanically bound together by a single rapidly degrading, synthetic or natural fiber netting or an open weave textile of processed rapidly degrading natural or polymer yarns or twines woven into a continuous matrix.	1.5:1 (H:V)	≤ 0.25 @ 1.5:1	2.00 lbs/ft² (96 Pa)	100 lbs/ft (1.45 kN/m)

LONG-TERM - Typical 36 month functional longevity.

Type	Product Description	Material Composition	Slope Applications		Channel Applications	Minimum
			Maximum Gradient	C Factor[2, 5]	Max. Shear Stress[3, 4, 6]	Tensile Strength[1]
4	Erosion Control Blankets & Open Weave Textiles	Processed degradable natural and/or polymer fibers mechanically bound together by a single rapidly degrading, synthetic or natural fiber netting or an open weave textile of processed rapidly degrading natural or polymer yarns or twines woven into a continuous matrix.	1:1 (H:V)	≤ 0.25 @ 1:1	2.25 lbs/ft² (108 Pa)	125 lbs/ft (1.82 kN/m)

** "C" factor and shear stress for Types 1.A., 2.A. and 3.A mulch control nettings must be obtained with netting used in conjunction with pre-applied mulch material.*

[1] Minimum Average Roll Values, Machine direction using ECTC Mod. ASTM D 5035.

[2] "C" Factor calculated as ratio of soil loss from RECP protected slope (tested at specified or greater gradient, h:v) to ratio of soil loss from unprotected (control) plot in large-scale tes should be supported by periodic bench scale testing under similar test conditions using Erosion Control Technology Council (ECTC) Test Method # 2.

[3] Required minimum shear stress RECP (unvegetated) can sustain without physical damage or excess erosion (> 12.7 mm (0.5 in) soil loss) during a 30-minute flow event in large-s values should be supported by periodic bench scale testing under similar test conditions and failure criteria using Erosion Control Technology Council (ECTC) Test Method #3.

[4] The permissible shear stress levels established for each performance category are based on historical experience with products characterized by Manning's roughness coeffecients

[5] Per the engineers discretion. Recommended acceptable large-scale testing protocol may include ASTM D6459, or other independent testing deemed acceptable by the engineer.

[6] Per the engineers discretion. Recommended acceptable large-scale testing protocol may include ASTM D6460, or other independent testing deemed acceptable by the engineer.

EROSION CONTROL TECHNOLOGY COUNCIL ECTC

ECTC Categories Cross Referenced With Product

Section 926. – Rolled Erosion Control Products and Cellular Confinement Systems	
Section 713.17 Temporary Rolled Erosion Control Products	
FHWA Product Category & Description	**ErosionControlBlankets.Com Products**
Type 1.A, Ultra-short term mulch control netting.	None
Type 1.B, Ultra-short term netless erosion control blanket.	None
Type 1.C, Ultra-short term single-net erosion control blanket and open weave textile.	S31 UVD
Type 1.D, Ultra-short term double-net erosion control blanket.	S32 UVD
Type 2.A, Short term mulch control netting.	None
Type 2.B, Short term netless erosion control blanket.	None
Type 2.C, Short term single-net erosion control blanket and open weave textile.	S31 & S31 BD
Type 2.D, Short term double-net erosion control blanket.	S32 & S32 BD
Type 3.A, Extended term mulch control netting.	None
Type 3.B, Extended term double-net erosion control blanket and open weave textile.	SC32 & SC32 BD
Type 4, Long term double-net erosion control blanket or open weave textile.	C32 & C32 BD
Section 713.18 Permanent Rolled Erosion Control Products	
Type 5.A, Permanent turf reinforcement mat	P42
Type 5.B, Permanent turf reinforcement mat	P42
Type 5.C, Permanent turf reinforcement mat	P42

Proper Installation is Critical

Revegetation with native species offers advantages:

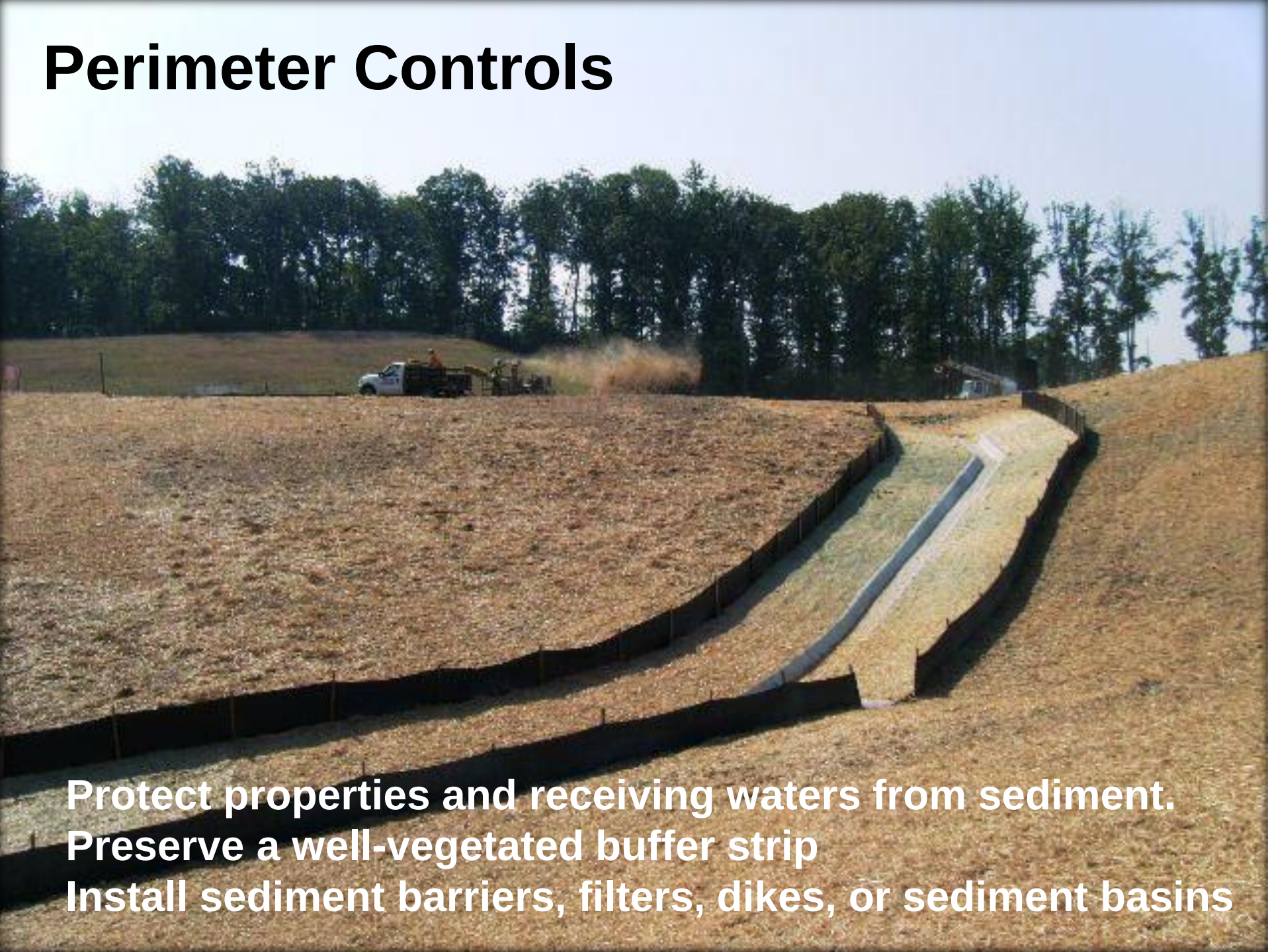
- They are better adapted than introduced species.
- Introduced species can escape into the natural environment.
- Revegetation with **native species** is strongly encouraged.

- Poor Soils
- Low Organics
- Low Fertility
- Topsoil alternative


• Surface Prep
• Biotic Soil Amendments

- Faster Establishment
- Project Closeout
- Permit termination
- No Maintenance

Perimeter Controls



Protect properties and receiving waters from sediment.
Preserve a well-vegetated buffer strip
Install sediment barriers, filters, dikes, or sediment basins


Silt Fence Installed
on Contour

Location Schedule

Location Schedule

Location Schedule

Keep all dumpsters under cover or fit with a lid that must remain closed when not in use.


Peak Flows?
Now What?
Right Product? Installed correctly? Maintained?


Green Solution


Before


During


After

Determine limits of clearing & grading

Pay special attention to critical areas & areas where vegetation can be left intact.


D6M LGP


CAT
CATERPILLAR
2338
D6M LGP


25
M.P.H.

b. No later than July 1, 2010, the Permittee shall include each of the following mandatory BMPs in the SWPPP and implement the BMPs.

i. Operational *Source Control BMPs*

iii. *Treatment BMPs*

ii. Structural *Source Control BMPs*

The Permittee shall:

a) Vacuum paved surfaces with a vacuum sweeper (or a sweeper with a vacuum attachment) to remove accumulated *pollutants a minimum of* once per quarter.

The Permittee shall:

c) Inspect and maintain bag houses monthly to prevent the escape of dust from the system. Immediately remove any accumulated dust at the base of exterior bag houses.

The Permittee **must**:

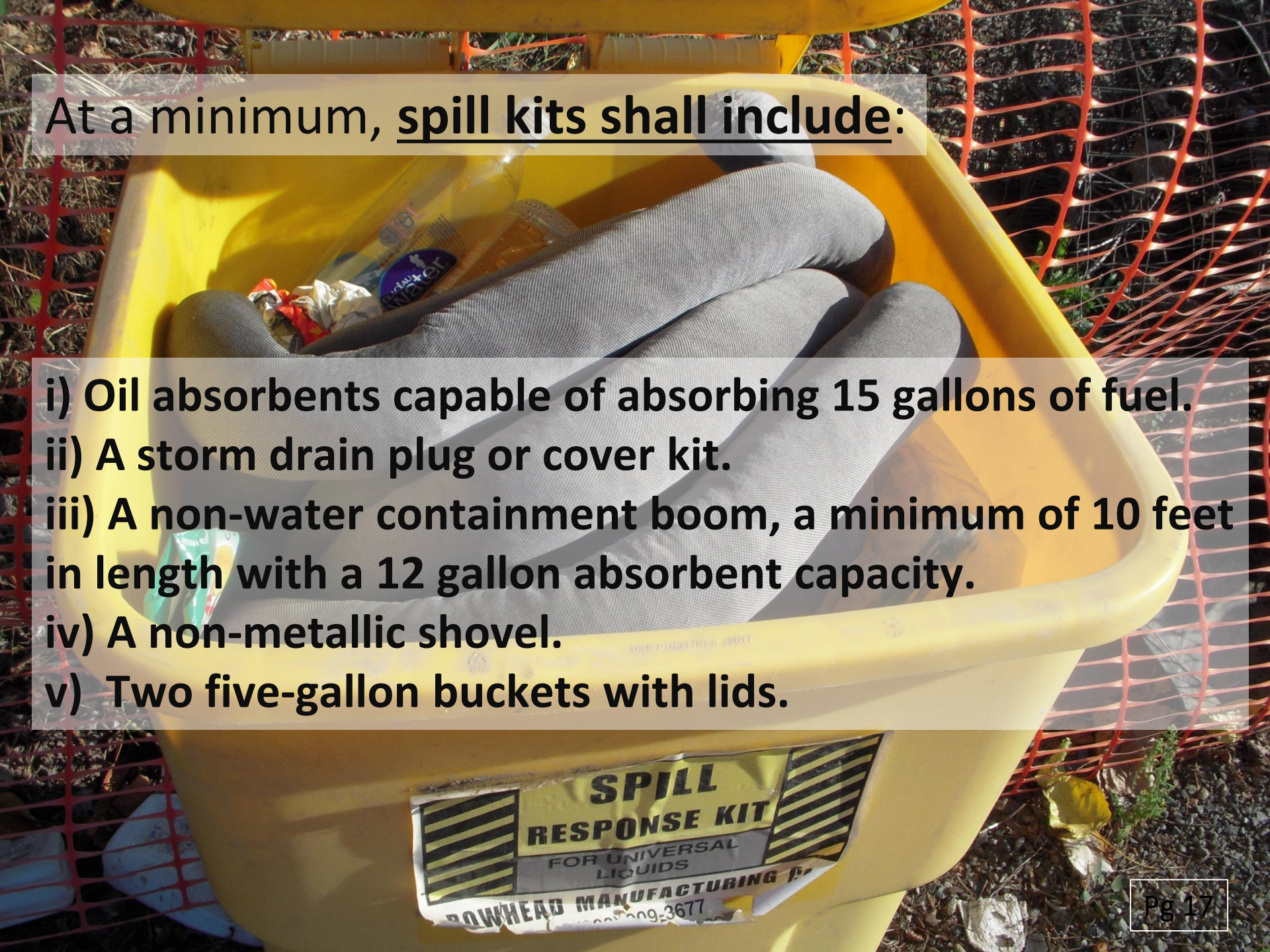
b) Inspect all equipment and vehicles during monthly site inspections for leaking fluids such as oil, antifreeze, etc. Take leaking equipment and *vehicles out of service or prevent leaks from spilling on the* ground until repaired.

The Permittee **must**:

c) Immediately clean up spills and leaks (e.g., using absorbents, vacuuming, etc.) to prevent the *discharge of pollutants*.

The Permittee shall:

b) Prevent precipitation from accumulating in containment areas with a roof or equivalent structure or include a plan on how it will manage and dispose of accumulated water if a containment area cover is not practical.

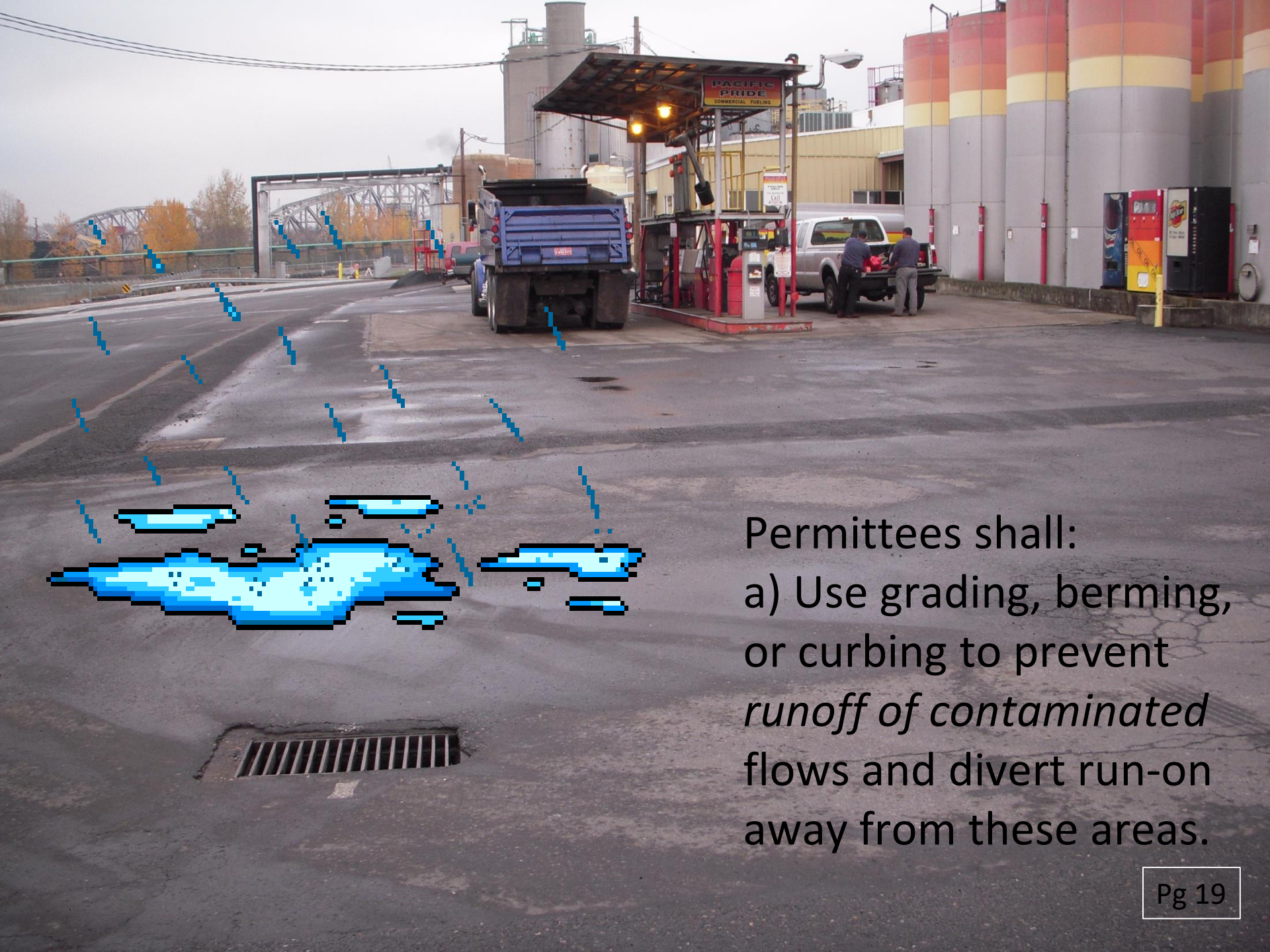


At a minimum, **spill kits shall include**:

i) Oil absorbents capable of absorbing 15 gallons of fuel.
ii) A storm drain plug or cover kit.
iii) A non-water containment boom, a minimum of 10 feet in length with a 12 gallon absorbent capacity.
iv) A non-metallic shovel.
v) Two five-gallon buckets with lids.

The Permittee shall:

d) Not lock shut-off fueling nozzles in the open position. Do not “topoff” tanks being refueled.



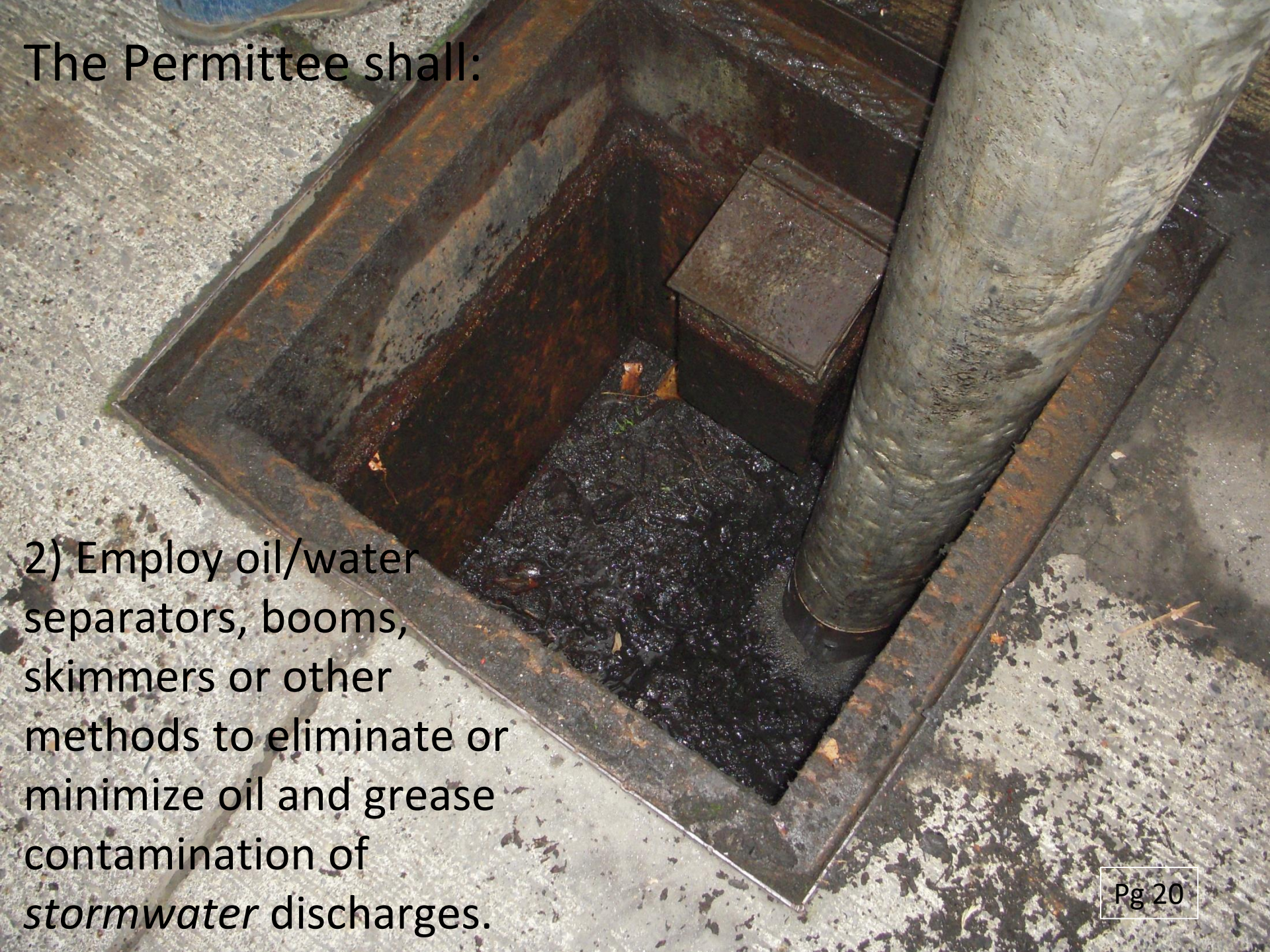
Permittees shall:
a) Use grading, berming, or curbing to prevent *runoff of contaminated* flows and divert run-on away from these areas.

Permittees shall:

b) Perform all cleaning operations indoors, under cover, or in bermed areas that prevent *stormwater runoff and run-on and also that capture any* overspray.

Permittees shall:

c) Ensure that all washwater drains to a collection system that directs the washwater to further treatment or storage and not to the *stormwater drainage system.*



The Permittee shall:

2) Employ oil/water separators, booms, skimmers or other methods to eliminate or minimize oil and grease contamination of *stormwater* discharges.

WASHINGTON STATE DEPARTMENT OF ECOLOGY

The Permittee shall:

3) Obtain *Ecology approval before beginning construction/installation of all treatment BMPs that include the addition of chemicals to provide* treatment.

5. Sampling Plan

The SWPPP shall include a sampling plan.

The plan shall:

a. Identify points of *discharge to surface water, storm sewers, or discrete ground water infiltration locations, such as dry wells or detention ponds.*

The plan shall:

b. Include documentation of why each *discharge point is not sampled per S4.B.2.c* (if applicable):

i. Location of which *discharge points the Permittee does not sample because the pollutant concentrations are substantially identical to a discharge point being* sampled.

ii. General industrial activities conducted in the drainage area of each *discharge* point.

iii. *Best Management Practices conducted in the drainage area of each outfall.*

SWPPP Management for Industrial Facilities

Inspecting & Planning to Keep You in Compliance

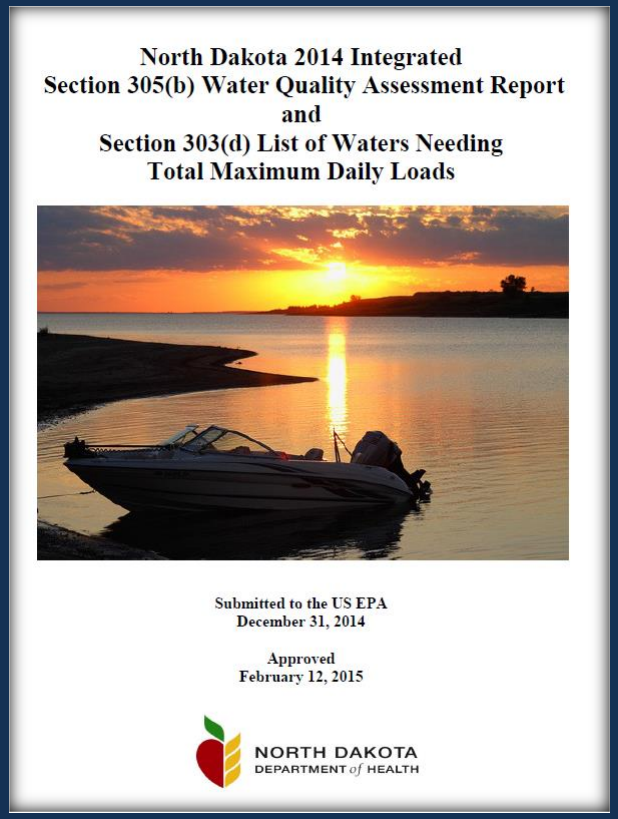
-32nd President

-Franklin D. Roosevelt

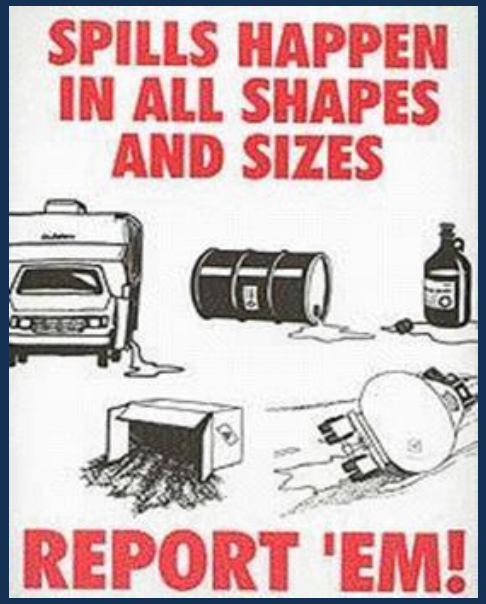
"A nation that destroys its soils, destroys itself."

Facilities that have a discharge point within 2000 feet of, and flow to, a water body listed as impaired under section 303(d) of the Federal Clean Water Act, shall identify the water body and impairment in the SWPPP. The department's 303(d) list may be found at the following website under Integrated Reports:

http://www.ndhealth.gov/WQ/SW/Z2_TMDL/Integrated_Reports/B_Integrated_Reports.htm



South Dakota Impaired waters



Document all spills and leaks of chemicals, oil, or toxic or hazardous pollutants that occurred in areas exposed to stormwater or that drained to a stormwater conveyance. Documentation shall include all reportable quantity spills or leaks that have occurred within the three years preceding the most recent SWPPP revision. Spill kits shall be maintained in a ready state.

All employees who work in areas where industrial materials or activities are exposed to stormwater, or are responsible for implementing activities necessary to meet the conditions of this permit (including all members of the Stormwater Pollution Prevention Team), shall receive training.

NDR 05-0000 Pg. 15

B. Sampling Requirements

Only permitees with industrial activities identified in this section are required to sample stormwater runoff from all facility outfalls as a condition of this permit unless waived. The minimum monitoring frequency is annual except for discharges from large air transportation facilities, and facilities directed by the department to follow another schedule.

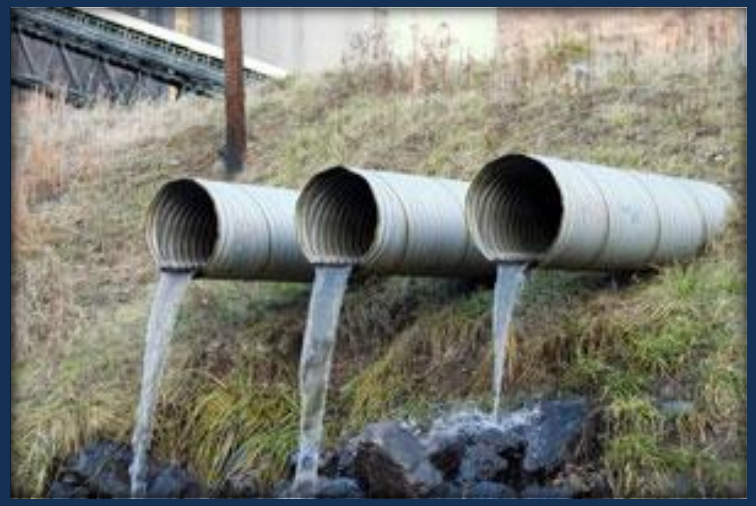
1. Stormwater sampling is required for the industrial activities identified below. The specific monitoring conditions and parameter list for each facility group is outlined in Appendix 1.

a. Wood and Paper Products (SIC codes 2421, 2491, 2426, 2431-2439 except 2434, 2451, 2452, 2493, 2499, and 2631)
b. Chemical and Related Products (SIC codes 2873-2879, 2812-2819, 2841-2844, and 2821-2824)
c. Asphalt Paving and Roofing Materials (SIC code 2952)
d. Structural Clay Products Manufacturers (SIC codes 3251-3259)
e. Primary Metal Industries (SIC codes 3312-3317, 3321-3325, 3351-3357, and 3363-3369)
f. Miscellaneous Metal Ores (SIC code 1094)
g. Hazardous Waste Treatment, Storage and Disposal
h. Landfills and Land Application
i. Automobile Salvage Yards (SIC code 5015)
j. Scrap Recycling Facilities (SIC code 5093)
k. Steam Electric Generating Facilities
l. Coal Pile Runoff (stormwater discharge from coal storage piles)
m. Air Transportation (Regional and Primary Commercial Airports and Air Force Bases)
n. Food and Related Products (SIC codes 2041-2048, 2074-2079)
o. Fabricated Metal Products (SIC codes 3411-3499, 3911-3915)

Appendix 1:

NDR 05-0000 Pg. 31

Industry Specific Sampling and SWPPP Requirements



The sampling procedures and conditions applicable to all facilities sampling stormwater discharges are outlined in Part IV and Appendix 2. In general, operators shall collect grab samples of stormwater discharges at each and every outfall at least once a year for the parameters listed for their industry sector.

Appendix 2 also provides conditions for reduction in monitoring based on sample history and “benchmark” values.

Appendix 1:

NDR 05-0000 Pg. 31

Industry Specific Sampling and SWPPP Requirements

H. Landfills and Land Application

Applicability: All Landfill, Land Application Sites and Open Dumps (Industrial Activity Code "LF")		
Required Parameter	Benchmark Value	Discharge Limit
• Oil and Grease	No visible sheen (15 mg/L)	
• pH	Between 6.0 and 9.0 S.U.	
• Total Suspended Solids	100 mg/L	
• Iron, Total	1.0 mg/L	
• Chlorides	250 mg/L	
• Arsenic, Total	0.15 mg/L	
This permit does not authorize the discharge of waters which have come into direct contact with landfill wastes, leachate, gas collection condensate, drained free liquids, contaminated ground water, facility wastewater, contact wash water from washing truck or equipment exteriors and surface areas which have come in direct contact with solid waste at the landfill facility.		

Applicability: Municipal Solid Waste Landfill (MSWLF) Areas Closed in Accordance with 40 CFR 258.60		
Required Parameter	Benchmark Value	Discharge Limit
• Oil and Grease	No visible sheen (15 mg/L)	
• pH	Between 6.0 and 9.0 S.U.	
• Total Suspended Solids	100 mg/L	
This permit does not authorize the discharge of waters which have come into direct contact with landfill wastes, leachate, gas collection condensate, drained free liquids, contaminated ground water, facility wastewater, contact wash water from washing truck or equipment exteriors and surface areas which have come in direct contact with solid waste at the landfill facility.		

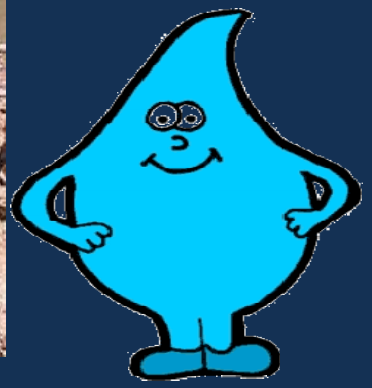
Additional resources on DOH Website:

GO! Discover ND — Your Gateway to North Dakota

This is general information about the stormwater monitoring requirements of your Industrial Stormwater Permit-NDR05-0000. Please review your permit for specific monitoring and reporting requirements.

Stormwater Monitoring for Industry

What You Need to Know



If you have questions about stormwater monitoring, please contact the North Dakota Department of Health, Division of Water Quality, at (701) 328-5210

North Dakota Department of Health

Before You Sample

Contact Lab Services

Who will test my stormwater?

Select a laboratory to test your stormwater before you begin taking stormwater samples. Prices vary, so it is a good idea to shop around. Be sure to provide the laboratory with the parameters (and detection limits) you want them to analyze. The lab must also use testing procedures that conform with federal regulations (40 CFR 136).

Detection Limits

How do I obtain good sample results?

Make sure your laboratory knows your type of stormwater permit and the benchmarks. The laboratory needs to know correct detection limits, typically 10 percent below the benchmarks, for your sample results to be valid. The correct detection limits assure the accuracy of your storm water results. Samples analyzed with incorrect detection limits will not be accepted as valid.

Sample Containers

Where do I obtain them?

Your laboratory will provide you with appropriate sample containers. There will be different bottles for different tests. It is a good idea to always have extra sets of sample containers on site in case one breaks. You should use caution when handling the sample containers because some contain small amounts of acid as a preserving agent. The preservative should not be rinsed out of the bottles.

Sample Frequency

How many samples do I take?

The stormwater permit requires that you collect an annual stormwater sample. The Department of Health may direct certain facilities to follow other schedules for discharge sampling (e.g., large air transportation).

When to Sample

What is a good storm event to sample?

Though it may seem obvious, you must sample when it is raining or snow is melting. Take your samples during a rain/snow event that is significant enough to create adequate runoff to your sampling locations. Ideally, your sampling should be conducted early in the day so you have plenty of time to get your samples to the laboratory.

Sample Locations

Where do I sample?

Sampling can occur at catch basins, stormwater manholes, ditches, culverts, stormwater outfalls or stormwater treatment units. When you developed your Storm Water Pollution Prevention Plan (SWPPP), you identified sampling locations representative of your site's stormwater discharge. In general, a manhole or outfall gives the most representative sample of the discharge.

Taking Samples for Stormwater

Sampling Techniques

How do I take my samples?

Appendix 1 of your permit details parameters for testing. For oil and grease (glass bottle) and E. coli (small, sterile plastic bottle), sample directly into the proper sample container. Be sure to collect enough sample, leaving some space at the top. If you are sampling at a catch basin, sample stormwater flowing into the catch basin rather than stormwater that is pooled in the catch basin.

Sample Handling

How do I handle samples?

Keeping your samples chilled ensures that they are not altered. Keep your samples in an ice chest with ice or several cold packs. Your contract laboratory will often supply you with the coolers; however, you may need to make arrangements for ice or cold packs.

Sample Holding Times

When do my samples have to get to the lab?

You need to get your samples to the laboratory within the parameters holding times. These times vary, so ask the laboratory about your parameters specific holding times. Failure to forward the samples to your laboratory in a timely manner could alter the results and lead to a benchmark exceedence or disqualify the sample for not meeting permit requirements.

Sample Tracking

What is a chain-of-custody form?

The chain-of-custody form documents who took the sample, when and where the sample was taken and for what the sample is to be analyzed. Your laboratory will typically provide the forms with your sample containers. Be sure to label the sample with the same designation as that in the SWPPP. You must complete a chain-of-custody form for each sample taken.

Visual Observation Monitoring Requirement

What am I looking for?

Your stormwater permit requires that you visually observe each of your sample points once every six months. One of these inspections must be made within 48 hours of a rainfall or snowmelt event resulting in a discharge. You need to check for any floating solids associated with industrial activities and oil/grease sheen. Be sure to document your observations. During dry weather, it is a good idea to check for non-stormwater discharges. The Department of Health has site inspection record forms available. A department employee will review the site inspection record at the time of your facility inspection.

Evaluating Your Results

Interpreting Sample Results

How do I interpret my results?

When you receive your sample results, review them to determine if they exceed any of the permit benchmarks. Lab reports vary, but they all should contain the following elements:

- There should be a column listing the "Test Parameter or Analyte," which is a description of the substance being analyzed in the stormwater.
- There should be a numerical "Result" for each parameter, which should be compared to the permit benchmarks.
- Each result should be associated with "Units." Typically, units are reported in milligrams per liter (mg/L) but may be micrograms per liter (ug/L). You may have to convert your results to the same units as your storm water permit benchmarks. Multiply mg/L by 1000 to get ug/L, and divide ug/L by 1000 to get mg/L.
- Every result has a "Minimum Reporting Limit" (MRL), which is sometimes referred to as a "Reporting Limit" or "Minimum Detection Limit" (MDL). This is the smallest concentration that the lab can detect in your sample. If the concentration of a parameter is less than the detection limit, your result will be reported as "ND" for non-detect or numerically as "<MRL."
- Your report will also describe the "Method" used to analyze your sample. Your permit requires that an EPA-approved method (40 CFR 136) be used to analyze stormwater samples. Note any problems with analysis of your sample.

Benchmark Exceedances

What if there is an exceedance?

If stormwater monitoring results or visual observations indicate that you exceeded your benchmarks, your permit requires that you review your SWPPP. The purpose of the review is to determine if the SWPPP is being followed and identify any additional site controls needed to improve stormwater quality.

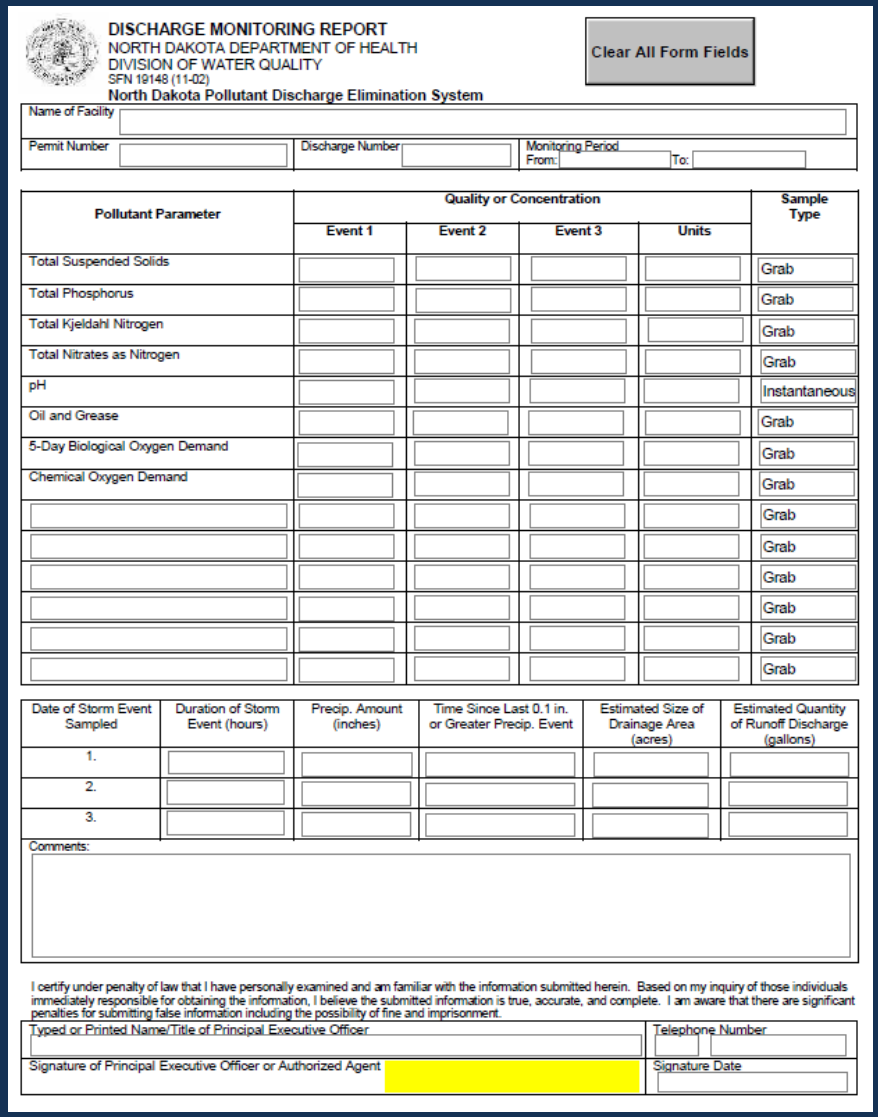
Monitoring Data Submittal

What do I submit?

The stormwater permit requires you to submit annual stormwater monitoring data to the Department of Health by October 31 of each year. The submittal should include the discharge monitoring report (DMR) form (standard industrial classification [SIC]-specific), laboratory reports and chain-of- custody forms. Your site inspection record and copies of your DMR reports are to be kept on site and made available upon request.

D. Reporting Requirements

1. **Discharge Monitoring Reports**
Facilities that are required to conduct sampling under this permit shall submit an annual DMR for each outfall. The DMR shall summarize monitoring results obtained during the reporting period. If no discharge occurs during a reporting period, "no discharge" shall be reported. DMRs shall be required from all facilities required to sample by this permit.



DISCHARGE MONITORING REPORT
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY
SFN 19148 (11-02)
North Dakota Pollutant Discharge Elimination System

Clear All Form Fields

Name of Facility

Permit Number | Discharge Number | Monitoring Period From: To:

Pollutant Parameter	Quality or Concentration				Sample Type
	Event 1	Event 2	Event 3	Units	
Total Suspended Solids					Grab
Total Phosphorus					Grab
Total Kjeldahl Nitrogen					Grab
Total Nitrates as Nitrogen					Grab
pH					Instantaneous
Oil and Grease					Grab
5-Day Biological Oxygen Demand					Grab
Chemical Oxygen Demand					Grab
					Grab
					Grab
					Grab
					Grab
					Grab
					Grab

Date of Storm Event Sampled	Duration of Storm Event (hours)	Precip. Amount (inches)	Time Since Last 0.1 in. or Greater Precip. Event	Estimated Size of Drainage Area (acres)	Estimated Quantity of Runoff Discharge (gallons)
1.					
2.					
3.					

Comments:

I certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Typed or Printed Name/Title of Principal Executive Officer | Telephone Number

Signature of Principal Executive Officer or Authorized Agent | Signature Date

DMRs shall cover a period from January 1 to December 31 and be submitted to the department by January 31 of the following year.

"Since the achievement of our independence,
He is the greatest Patriot,
who stops the most gullies."

-1736 – 1799

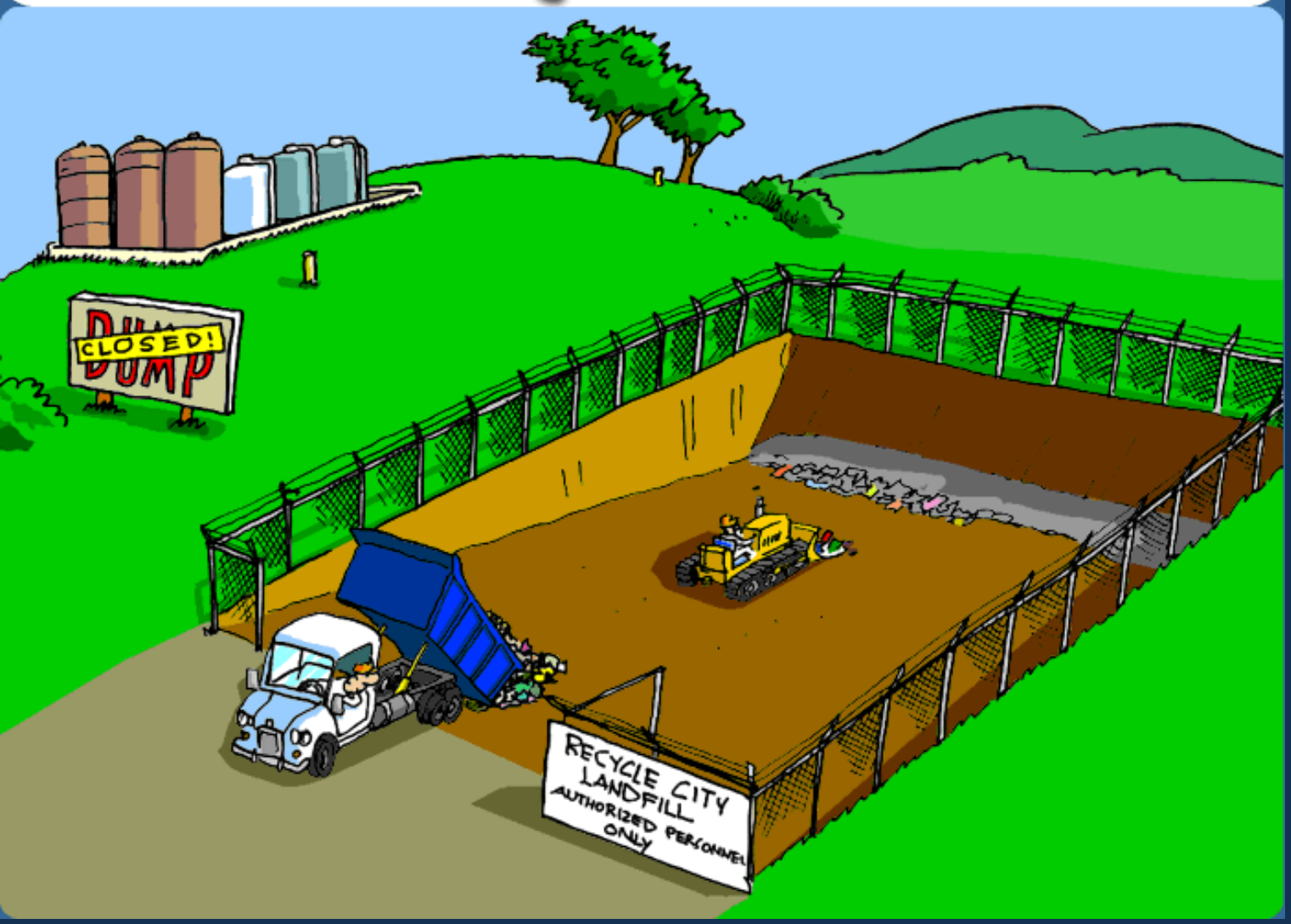
-Introduced the Stamp Act

-1st post-colonial Governor of Virginia

-Give me liberty or give me death

-Patrick Henry

City Landfill



Thanks, Alex Zimmerman

Training shall be provided at least annually, as new employees are hired, and as necessary to maintain compliance with this permit. The SWPPP shall detail the content and frequency of training, and retain a log of the dates employees received training.