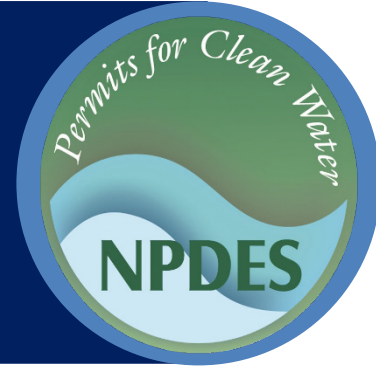




Stormwater Best Management Practice

Erosion and Sediment Control

Inspection and Maintenance



Minimum Measure: Construction Site Stormwater Runoff Control
Subcategory: Construction Site Planning and Management

Description

Erosion and sediment controls (ESCs) need regular inspections to ensure their effectiveness, and many permitting authorities require construction staff to perform self-inspections. ESC inspections fall into three categories: routine inspections, inspections before rain events and inspections after rain events.

Routine Inspections

Routine inspections are an integral part of regular maintenance. They are necessary to ensure the integrity and effectiveness of ESCs and give construction staff an opportunity to correct any problems found. Furthermore, routine inspection and maintenance minimizes the work needed to prepare a site before a rain event and helps protect a site from unexpected storms.

Inspections Before Rain Events

It is critically important for construction staff to pay attention to weather forecasts. To prepare for a rain event, they should walk the construction site and ensure that ESCs are clear and operating properly. They should verify that they have covered all dumpsters, covered paint and other chemicals, and cleaned up any oil spills. Construction staff should perform these types of housekeeping practices routinely. They should also visually inspect all ESCs when the site will be inactive for several days, such as over weekends or holidays. This will help to prepare for rain when workers are off-site. These inspections also minimize the risk of on- or off-site property damage due to inoperative or malfunctioning ESCs.

Inspections After Rain Events

After a rain event, construction staff should prepare the site for the next event. Typically, within 48 hours after a rain event, they should inspect, clean and repair any



Construction staff inspecting a storm drain with inlet protection in an active construction area.

Photo Credit: PG Environmental for USEPA

damaged ESCs. This will keep the site “clean” and minimize complaints from nearby residents. To prevent health and safety hazards, staff should remove tracked-out sediment or mud in traffic areas and remove standing water to prevent mosquito breeding. They should also clean or repair any ESC clogged with mud or debris so it works properly the next time it rains.

Applicability

Stormwater discharges from construction sites disturbing 1 or more acres are generally covered under a state or EPA permit. These permits typically require construction staff to conduct routine site inspections looking at, for example, installation, function, and operation and maintenance of controls. As well, local permits may impose ESC requirements—and other inspection requirements—on a site. Staff should design and inspect all ESC controls in accordance with applicable local, state and federal requirements. Adequate ESC performance requires not only proper installation, but also regular inspection and maintenance.

Implementation

The construction site operator should ensure the site undergoes regular inspections. At small sites, the site superintendent or other qualified members of the construction team can perform and document inspection tasks. At large sites, the developers may hire a firm with ESC expertise to implement an inspection, maintenance and repair program for the site. Some permitting authorities require construction sites to undergo inspection by a certified inspector and/or offer inspector certification programs (e.g., the California Water Board's [Qualified SWPPP Developer and Practitioner Training Program](#) [CWB, 2020]).

Inspectors should be familiar with the location, design specifications, maintenance procedures and performance expectations of each ESC. Often, a site will have a stormwater pollution prevention plan (SWPPP), which should include specifications for ESC maintenance (e.g., remove sediment before it accumulates to half of the above-ground height of any silt fence or other perimeter control).

For more information on contractor training programs, see EPA's [Contractor Training and Certification fact sheet](#).

The frequency of required inspections will vary by state. Many permits require weekly inspections, or inspections once every 14 calendar days and within 24 hours of a storm. The inspection frequency may also increase in areas with a higher risk of sediment discharge, or where the site discharges to a sensitive water. The frequency may decrease to account for arid, semiarid, drought or freezing conditions.

At a minimum, inspections should assess the following areas of a site:

- All areas that construction staff have cleared, graded or excavated but not begun stabilizing.
- All ESCs and other types of stormwater controls implemented at the site.
- Material, waste and equipment storage and maintenance areas.

- All areas where stormwater typically flows within the site, including drainageways designed to divert, convey and/or treat stormwater.
- All points of discharge from the site.
- All disturbed locations where staff have begun implementing stabilization measures but have not completed stabilization.

During the inspection, construction staff should check for conditions that could lead to spills, leaks or other accumulations of pollutants on the site. They should check for visible signs of erosion or sediment deposition caused by site activities. They should also check the banks of any waters flowing within or immediately adjacent to the site to ensure site activities and plans are not polluting existing waters. Any areas of erosion or sedimentation may warrant new or modified stormwater controls.

If a discharge is occurring during the inspection, construction staff should identify all discharge points at the site; observe, photograph and document the visual quality of the discharge; and take note of the characteristics of the stormwater discharge (including color; odor; floating, settled or suspended solids; foam; and oil sheen).

Regardless of who does the inspections, it is critical to maintain proper documentation. Inspectors should use an inspection form or checklist to document the findings from each inspection. At a minimum, inspection documentation should include:

- Inspection date
- Name and title of personnel conducting the inspection
- A summary of inspection observations, including notes about required maintenance or corrective actions
- Weather station and rain gauge measurements, as applicable

During an audit, permitting authorities will generally review a construction site's self-inspection reports to assess compliance. Permitting authorities may also wish

to see maintenance documentation for each specific ESC. Communities with regulated municipal separate storm sewer (MS4) systems develop programs that should include procedures for site inspection and enforcement of ESC control measures. Therefore, municipal inspectors may also perform inspections of sites to ensure compliance with MS4 and local regulations.

During the span of a construction project, more than one person may have been responsible for site inspections. Therefore, it is important to keep adequate documentation of inspection dates, findings, and maintenance and repair of all ESCs. Site operators should make sure that inspection reports are signed and certified in accordance with permit requirements, keeping a copy of each one at the site or at an easily accessible location so they make it available during an audit or upon request by an inspector.

See the following EPA fact sheets for more information on specific management practices for hazardous materials at construction sites:

- [Concrete Washout](#)
- [General Construction Site Waste Management](#)
- [Spill Prevention and Control Plan](#)
- [Vehicle Maintenance and Washing Areas at Construction Sites](#)

Routine Maintenance and Other Corrective Actions

Inspections provide an opportunity to determine where a site needs repairs or other corrections. A well-conducted inspection will identify whether stormwater controls need repair or replacement, or whether specific stormwater controls are absent or incorrectly installed. An inspector may also identify discharges that the permit does not allow, such as discharges from concrete washout areas or releases of fuels, oils, soaps, solvents, or toxic or hazardous pollutants. When inspection reveals conditions such as these, construction staff should take reasonable steps to address the problem, including cleaning up any contaminated surfaces so the material

will not discharge in subsequent storms. They should complete minor corrective actions by the close of the next business day. If the corrective action involves significant repairs or installation of a new or replacement control, staff should finish the work within seven calendar days from the time of discovery or as soon as feasible after that. Construction staff should document any corrective actions taken in response to an inspection finding.

Limitations

The most common limitation that site operators will face is a lack of funding or time for regular site inspections and ESC maintenance. It is therefore critical to reserve resources from the start of every project to address these requirements.

Lack of adequate training can limit the success of an ESC inspection program. Those responsible for inspecting and maintaining ESCs should have training on their design and operation. This will help ensure that workers know when ESCs need cleaning, repair or replacement. Similarly, as site conditions change, ESC designs may prove inadequate in controlling erosion and sedimentation. A knowledgeable inspector will be able to identify these deficiencies and ensure that staff make necessary improvements.

Effectiveness

The effectiveness of self-inspection and maintenance programs vary according to the amount of resources allocated to the tasks. When made a priority, inspections and maintenance ensure that ESCs function properly and help prevent harmful discharges.

Education of on-site personnel is another important factor in an effective program. To recognize and preempt problems, those responsible for maintaining ESCs should be familiar with their design and installation. Additionally, making everyone at the site aware of general ESC principles can expedite identification of maintenance issues and repairs and decrease the chance that normal construction activities will damage ESCs (e.g., driving over a silt fence).

Cost Considerations

ESC inspection and maintenance requires dedicating both management and staff time to training, inspecting, cleaning, and repairing or replacing ESCs. Inspector training requirements for staff vary by region and state, but typically include 8 to 24 hours of training with

classroom and field components (as well as passing an exam in some cases). If repairing an ESC is impossible, construction staff may need to buy additional materials. For example, a ripped silt fence can often need replacement.

Additional Information

Additional information on related practices and the Phase II MS4 program can be found at EPA's National Menu of Best Management Practices (BMPs) for Stormwater website

References

California Water Boards (CWB). (2020). *Storm water program—training*.

Disclaimer

This fact sheet is intended to be used for informational purposes only. These examples and references are not intended to be comprehensive and do not preclude the use of other technically sound practices. State or local requirements may apply.