STORAGE OF BULK MATERIALS
COMMERCIAL / INDUSTRIAL / INSTITUTIONAL & MUNICIPAL POLLUTION PREVENTION

Storage of Bulk Materials

Goal: Prevent or reduce the risk of discharge of pollutants to stormwater from solid bulk materials that are typically stockpiled and stored outdoors

APPLICABLE OPERATIONS AND ACTIVITIES

- Manufacturing Facilities
- Concrete and Gravel Operations
- Local Government Public Works
- Highway Departments
- Construction Suppliers
- Lumber Yards
- Landscaping and Garden Suppliers
- Composting Operations
- Power Plants
- Construction Sites and Activities
- Any Other Facility or Site with Outdoor Storage of Bulk Materials

POLLUTION CONTROL APPROACH

Cover and contain bulk materials to prevent erosion and contact with stormwater runoff

KEY POLLUTION PREVENTION AND CONTROL MEASURES

- Store bulk materials indoors or in sheds whenever possible
- Cover permanent outdoor storage areas with a roof, and prevent contact with stormwater runoff using berms or an enclosure
- Protect outdoor stockpiles using a secure waterproof cover where feasible
- Implement containment measures as well as erosion and sedimentation controls for large stockpiles that cannot be covered
- Inspect storage areas regularly to check for erosion or leaching of materials

TARGETED POLLUTANTS

- ☒ **Sediment**
- ☒ **Nutrients**
- ☐ **Bacteria**
- ☒ **Organic Matter**
- ☐ **Oil & Grease**
- ☒ **Heavy Metals**
- ☐ **Toxic Chemicals**
- ☒ **Abnormal pH**
- ☐ **Trash & Debris**
- ☒ **Other:** All liquid materials and chemicals

Overview

Solid bulk materials, including raw or finished products and by-products, are often stockpiled and stored outdoors on a temporary or permanent basis in large piles, stacks, or bins. Some examples of these bulk materials include:

- Gravel
- Sand
- Topsoil
- Compost
- Chemicals
- Logs and treated wood
- Sawdust
- Wood chips
- Coal
- Building materials
- Concrete
- Metal products

Rain and stormwater runoff coming into contact with these stored materials can result in erosion and washoff of both suspended and dissolved pollutants. Contaminants may include sediment, nutrients, organic matter, abnormal pH, heavy metals, toxic chemicals and dissolved salts.

Pollution Prevention and Control Measures

- Always store bulk materials indoors or use storage sheds whenever possible.
- Established or permanent outdoor storage areas should be covered with a roof, and bermed or enclosed to prevent contact with rain and stormwater runoff. This is particularly important for water-soluble materials and those that can leach pollutants into stormwater or groundwater.
- Where feasible, a waterproof cover (made of polyethylene, polypropylene, hypalon or equivalent) should be used over all materials stored outside as shown in Figure A1-1. The cover should be adequately secured and remain in place at all times when the materials or stockpile is not being used.

Figure A1-1 Example of Secure Waterproof Cover

- For large stockpiles that cannot be covered or when covering bulk materials is not feasible, containment measures and erosion and sedimentation (E&S) controls should be implemented at the perimeter of the site and at any catch basins as needed to prevent erosion and dispersion of the material to a storm drain or drainage ditch. Bulk materials should not be allowed to wash off the site or discharge into surface waters.
- Locate stockpiles a minimum of 50 feet away from concentrated flows of stormwater, stormwater drains, drainage ditches, and surface waters.
- Consider the use of storm drain covers, filter fabric, silt fences or secured liners on construction sites and other areas with temporary stockpiles to keep materials from entering the stormwater drainage system. Make sure that nearby stormwater drains are clearly marked.
- Protect all temporary stockpiles from contact with stormwater runoff from surrounding areas using sediment barriers such as berms, dikes, fiber rolls, silts fences, or sandbags.
- Store small amounts of bulk materials and any bagged materials on pallets to avoid contact with stormwater runoff.
- Keep all outdoor storage containers and bins in good condition. Repair or replace any deteriorating storage containers and bins.

- Minimize the amount of materials purchased or kept on site to reduce storage needs and prevent large stockpiles.

Storage Area Design Features

- Consider sloping paved storage areas to minimize the pooling of water on the site. Minimizing water pooling is particularly important with materials that may leach pollutants. A minimum slope of 1.5% is recommended.
- Use curbing around the perimeter of stockpile or storage areas to both prevent contact with uncontaminated stormwater runoff from adjacent areas and contain runoff from stockpiles. The area inside the curb should slope to a drain which is connected to a stormwater structural control that provides water quality treatment.
- Ensure that all stormwater from the site is treated by an appropriate structural or non-structural stormwater control. Stormwater controls that provide water quality treatment for the contaminant(s) in question may be found in *Volume 2, Technical Handbook*.
- Some local governments require that secondary containment areas regardless of size be connected to the sanitary sewer and/or require pretreatment. Contact the local wastewater provider for more information.
- Local fire regulations should be consulted on the clearance of roof covers over flammable materials.

Inspection and Preventive Maintenance Requirements

Table A1-1
Typical Inspection and Preventive Maintenance Activities for Outdoor Bulk Materials Storage

Activity	**Schedule**
Inspect the storage area to check for erosion and/or leaching from stockpiles or raw materials.	Ongoing
Storage areas should be swept and cleaned when needed. Solid materials should be collected and disposed of properly. Do not hose down paved areas.	As needed (frequently/seasonally)
Check for leaks or spills during pumping of liquids to or from a storage facility	Ongoing
Inspect berms, curbing, and secondary containment. Perform repairs as needed.	Weekly or as prescribed by a SWPPP

Spill Prevention and Response

- Develop Standard Operating Procedures (SOPs) for spill prevention and clean up (see Section 2.1.5).
- Store and maintain appropriate cleanup materials and equipment on site in a location near the storage area(s) and stockpiles.

Considerations for Local Government-Owned or Operated Facilities and Operations

- The following local government functions and departments often undertake operations and activities that involve outdoor bulk materials storage:
    - Public works
    - Transportation (streets & highways)
    - Parks / recreation
    - Water and wastewater utilities

Local government entities that store bulk materials outdoors should adopt these pollution prevention and control measures, and develop appropriate Standard Operating Procedures (SOPs) for implementing them.

Considerations for Industrial NPDES (Georgia IGP) Stormwater Pollution Prevention Plans (SWPPPs)

- Applicable industrial activity sectors with coverage under the Georgia IGP that often undertake operations and activities that involve outdoor bulk materials storage include, but are not limited to:

    Sector A: Timber Products
    Sector B: Paper and Allied Products
    Sector E: Glass, Clay, Cement, and Gypsum Products
    Sector J: Mining and Dressing
    Sector L: Landfills, Land Application Sites, and Open Dumps
    Sector O: Steam Electric Generating Facilities
    Sector P: Land Transportation and Warehousing
    Sector T: Treatment Works
    Sector Y: Rubber, Miscellaneous Plastic Products and Misc. Manufacturing Industries

    Please see Appendix B for the SIC codes that correspond to each industrial activity sector

- The Georgia IGP establishes numeric effluent limits and requires annual analytical sampling of stormwater discharges from some types of stockpiles. Please refer to the permit and your SWPPP for specific sampling requirements.
- Leachate from waste piles is prohibited under the Georgia IGP.

Specific State Regulations and Requirements

- Georgia Erosion and Sedimentation Act (O.C.G.A. 12-7-1)
- Manual for Erosion and Sediment Control in Georgia