


Standard Operating Procedure (SOP) for:		
New Construction of Buildings and Structures		
		Revised December 31, 2009
Purpose of SOP:	Stormwater pollution prevention procedures for new building design, construction or renovation processes.	
Location of SOP:	(Indicate where SOP is kept – electronic or hard copy.)	
Administrator of SOP:	(Indicate who reviews and updates SOP.)	

Prerequisites

1. Employees should attend PACE's general stormwater pollution prevention training. Contact PACE at 303-786-PACE.
2. Employees performing the procedures in this SOP should read and refer to the materials in the *References and Related Procedures* section of this SOP.
3. Permit for construction activity (if over an acre). <http://www.cdphe.state.co.us/wq/PermitsUnit/index.html>
4. Permit for dewatering (if water will enter storm drainage system or waters of the state). <http://www.cdphe.state.co.us/wq/PermitsUnit/index.html>
5. Reference [UDFCD Volume 3](#). Particularly critical is the four-step best management practice (BMP) planning process that requires:
 6. Implement Stormwater Runoff Reduction Practices
 7. Provide Treatment of Water Quality Capture Volume
 8. Stabilize Drainage ways
 9. Consider Need for Industrial and Commercial BMPs
10. Reference [KICP's Erosion Control Field Manual](#) for erosion control BMP installation.

Stormwater Protection Equipment and Materials

1. Storm drain inlet protection (drain covers, berms, rock wattles, sand bags, filter fabric or plastic)
2. Weather proof containers
3. Secondary Containment (containers and tarps)
4. Drum Covers

Standard Operating Procedures

General Construction SOPs

- All construction and renovation activities must use Best Management Practices (BMPs) to the maximum extent practicable regardless of the size of the project or the permits required.
 - ❑ Identify storm drains near work zone.
 - ❑ Install inlet protection within 25 feet and down gradient of work.
 - ❑ Place covers, rock wattles, sand bags, filter fabric or plastic around or over inlets.
 - ❑ Inspect site at the beginning of the day and end to ensure operations are not contributing sediment or other pollutants to the flow line or storm drain.
 - ❑ Clean right of ways (streets, medians and roadways) with brooms or street sweepers – as needed.
- Never store chemicals outside without secondary containment and cover.
- Cover dumpsters and/or roll-offs to prevent them from becoming full of water and leaking.

Erosion Control during Construction

- Utilize BMPs to control and reduce erosion from the site to the maximum extent possible. If needed, construct or install permanent BMPs.

- Inspect and maintain all erosion or sediment control devices or equipment installed in erosion-prone areas of construction projects.
- Block storm drain inlets (within 25 feet and down gradient) during construction work. Place covers, rock wattles, sand bags, filter fabric or plastic around or over inlets to protect them from entry of wastes, dusts, overspray or slurry.
- Store maintenance supplies including cement bags, sand, sealants, and tar under cover (such as a tarp) and away from drainage areas.
- Ensure that temporary storage of soil, sand and other materials is conducted to minimize stormwater pollution. (Do not store piles of materials in street, near storm drains or gutters unless BMPs are used to protect storm drains from sediment run off.)

On-site Fueling Areas

- Construct impervious berms or secondary containment around temporary fueling stations or tanks to contain leaks or drips.
- Clean up any fuel spills immediately.

Design Standards

Buildings and Structures

- Design buildings to ensure that runoff from pressure washing, cooling tower wastewater, fueling spills, material handling and storage spills and vehicle or equipment washing or repairs do not pollute any waterways. Improperly designed buildings/facilities can negatively impact stormwater.
- If it is expected that a building or structure will be pressure washed regularly, always design the landscaping and paving to allow wastewater to be channeled for on-site irrigation or collected in pits or ponds for collection and disposal.
- Design downspouts to allow rooftop runoff to flow over landscaped areas or porous surfaces.
- If possible, allow for waste and recycling receptacles to be under cover so their contents do not come in contact with water.

Parking Lots

- Consider pervious pavement.
- Consider sheet flow to a grass swale.
- Consider porous, sumped landscape detention.

Storm Drainage Systems

- Consider designing the site with infiltration. (i.e. rain gardens, downspouts, swales)
- Do not install storm drains near (or at a lower elevation than) fuel or material loading, unloading or handling areas unless they are equipped with shut-off valves.
- Review the potential stormwater run-off issues and design the storm drainage systems with appropriate BMPs to improve water quality.
- Stencil, mark or place decals or medallions on all storm drain inlets located on municipal or county property with warnings such as "Do not to dispose of any materials or wastes, drains to creeks".
- All new buildings, renovations or remodels must have proper sanitary connections for wastewater. Any illicit connections discovered during a remodel, renovation, remodel or addition must be immediately disconnected and reported.

Material Handling and Storage Areas

- If possible, design new or remodeled facilities so that all work involving industrial materials, chemicals or wastes will be conducted indoors, under a roof or inside of containment.
- Design outdoor storage areas to have impervious, secondary containment and cover. Secondary containment should be of sufficient capacity to hold the contents of the largest single container plus 4" of rainfall. Design the containment so that it contains a blind sump (no outlet) to facilitate pumping out or draining.
- If possible, pave material loading, unloading and handling areas and locate these areas under a roof, canopy or overhang to avoid exposure. Concrete should be used rather than asphalt and provided with impervious secondary containment.
- If possible, grade and slope material loading, unloading, and handling areas to avoid storm water run-on.

- Do not install storm drains downstream of material loading or unloading areas unless they are equipped with shut-off valves.
- Design new salt storage facilities to be totally enclosed such as under salt domes or inside of fabricated buildings.
- Design new or renovated facilities with waste, scrap or recycling accumulation areas indoors or under a roof. If outdoors, keep waste accumulation inside of a secondary containment structure.
- If food and grease waste containers must be stored outdoors, design a bermed or dyked area where food and grease wastes can be stored and storm water run-on will be diverted.

Vehicle & Equipment Maintenance Areas

- Design all vehicle and equipment washing and repair facilities indoors. Plumb wastewater to a sanitary sewer
- Install covers or canopies over permanent fueling stations to avoid exposure to storm water.
- Install oil/water separators in any storm drain inlet that might receive run-off from a fueling area.
- If possible, grade, contour and install impervious pavement around fueling stations to divert run-on storm water away from fueling stations.

Landscape, Lawns & Vegetated Areas

- Design the vegetated areas to improve the stormwater quality to the maximum extent practicable.
- If possible design new or re-landscaped facilities with xeriscapes rather than conventional landscaping. Native species are usually preferable to non-natives.
- Incorporate Low Impact Development (LID) techniques into all landscape designs

Swimming Pools

- Always connect new or renovated pools to the sanitary sewer for pool water discharges.

Contracts & Contractors

- Contracts should include stormwater pollution prevention language.
- Ensure that contractors implement proper Best Management Practices (BMPs) to prevent stormwater pollution.

Employee Training

- All applicable employees must be trained in general stormwater pollution prevention and how to recognize and report illegal connections or discharges.

Record Keeping and Documentation

1. Keep a list of all employees trained in Stormwater Pollution Prevention.
2. If the site is over an acre, maintain Stormwater Management Plans (SWMPs) and inspection logs. Copies of inspection reports during construction must be kept with the project files.
3. Keep copies of State of Colorado discharge permits and Stormwater Management Plans.

References and Related Procedures

PACE Government Operations website: <http://www.bouldercolorado.gov/www/pace/government/index.html>

1. PACE SOP: *Street Construction and Utility Installation*
2. PACE SOP: *Street Maintenance and Repair*
3. PACE SOP: *Fueling and Clean up of Fuel Spills*
4. PACE SOP: *Outdoor Materials Storage*
5. PACE SOP: *Parking Lot Maintenance*
6. PACE SOP: *Pressure Washing and Exterior Cleaning*
7. PACE SOP: *Spill Prevention, Clean Up and Reporting*
8. PACE SOP: *Waste Management and Disposal*
9. PACE BMP: *Dewatering of Secondary Containment Structures*
10. PACE BMP: *Facilities and Building Maintenance*
11. PACE BMP: *Good Housekeeping & Spill Prevention*
12. PACE BMP: *Illicit Discharge Reporting*

13. PACE BMP: *Liquid Bulk Material Loading & Unloading*
14. PACE Resource Sheet: *New Construction*
15. PACE Resource Sheet: *Building and Facility Maintenance*
16. State of Colorado Permit Information: <http://www.cdphe.state.co.us/wg/PermitsUnit/index.html>
17. *Urban Drainage and Flood Control District, Criteria Manual Volume 3*: <http://www.udfcd.org/>