



<i>Environmental Guideline</i> <b>Maintenance of Stormwater Control Structures</b>	
<i>Document Identification Number:</i>	CCD-301.03.03
<i>Version:</i>	1.0
<i>Revision Date:</i>	August 28, 2008
<i>Document Owner:</i>	NPDES Engineer (Kevin Lewis)
<i>Controlled Copy Location:</i>	Not applicable.

<b>Activity Description</b>
Stormwater control structures in the City and County of Denver are maintained pursuant to the requirements of Colorado Discharge Permit System (CDPS) Permit No. COS-000001 for stormwater discharges from CCD's Municipal Separate Storm Sewer System (MS4). This document applies to all MS4 structures used in the conveyance of stormwater flows through CCD to receiving State Waters. The stormwater control structures include the storm sewer collection system, detention ponds, improved and unimproved channels.

<b>Potential Environmental Risks</b>
<p><b>The following environmental concerns are associated with this activity:</b></p> <ul style="list-style-type: none"> <li>• Uncontrolled releases</li> <li>• Storm sewer overflow</li> <li>• Plugging of outlet structures</li> <li>• Contamination of soil and/or groundwater</li> <li>• Flooding</li> <li>• Contamination of surface water</li> <li>• Aesthetics (trash, mowing)</li> <li>• Illegal dumping &amp; discharge</li> <li>• Sediment &amp; erosion control</li> <li>• Nuisance control (pests, odor)</li> </ul>
<p><b>Potential consequences from performing the activity incorrectly:</b></p> <ul style="list-style-type: none"> <li>• Property damage, personal injury, damage to the environment.</li> <li>• Possible regulatory non-compliance, Notice of Violation and related [civil &amp; criminal] penalties.</li> </ul>

<b>Critical Operating Requirements</b>
<b>A. General Requirements</b>
<p><b>Prohibited Activities</b></p> <ul style="list-style-type: none"> <li>• Washing spills into the sewer system is prohibited.</li> <li>• Discharge of the following materials down any drain is prohibited: <ul style="list-style-type: none"> <li>○ Any oils or grease</li> <li>○ Pesticides, insecticides or herbicides</li> <li>○ Solvents</li> <li>○ Generally prohibited discharges as specified by Metro Wastewater &amp; Denver Wastewater rules and regulations</li> </ul> </li> </ul> <p>Disposal of solid waste materials into any drain or waterway is prohibited.</p>

Unless otherwise specified at the beginning of the document, printed copies of this document are UNCONTROLLED. Always refer to the online EMS document library prior to use to ensure you are using the most current version.



<b>Critical Operating Requirements</b>	
<b>A. General Requirements (cont'd.)</b>	
<b>General Considerations</b>	
<ul style="list-style-type: none"> <li>• Each owner/operator conducting inspection and maintenance of ponds and channels is responsible for understanding the applicable regulations and managing their activities accordingly; this Environmental Guideline is meant as guidance only and does not supersede any regulations.</li> <li>• All structural controls must be inspected on a periodic basis and maintained at least annually to ensure protection of the City's MS4 system and receiving State Waters. Improper operation as a result of poor maintenance can lead to storm sewer overflows (flooding) and excessive debris build which leads to other environmental concerns. Copies of all inspection and maintenance records must be submitted to Wastewater Management Division (WMD) for incorporation into the State permitted MS4 annual report.</li> </ul>	
<b>Storage &amp; Material Handling Requirements</b>	
<ul style="list-style-type: none"> <li>• Maintain legible labels and markings on all containers and tanks.</li> <li>• Ensure adequate secondary containment for all bulk storage containers, and that all containers and containment are in good operating condition.               <ul style="list-style-type: none"> <li>○ Refer to the appropriate SPCC for guidance on specific requirements</li> <li>○ CCD-301.03.10 General Regulated Waste Management</li> </ul> </li> </ul>	
<b>B. Planning Requirements</b>	<i>Responsible: Owner / Operator</i>
B1. Ensure that inspections following significant precipitation events and maintenance activities are conducted at a minimum in accordance with Urban Drainage Flood Control District's Volume III recommendations.	
B2. The maintenance activities associated with each pond should be planned around weather conditions that may disrupt pond operations.	
<b>C. Critical Tasks</b>	<i>Responsible: Owner / Operator</i>
C1. Prior to commencing cleaning and maintenance activities, ensure that the stormwater collection system is sufficiently blocked such that no cleaning, maintenance fluids or sediment can enter.	
C2. Management of wastes generated during the maintenance activities shall comply with CCD-301.03.10 General Regulated Waste Management.	
C3. The owner/operator should be present when any maintenance activity is being performed so that proper maintenance procedures are conducted, the structures are not damaged, and proper disposal procedures are followed.	
C4. Sediment, debris and litter removed from structures will be disposed of in accordance with regulatory requirements.	

Unless otherwise specified at the beginning of the document, printed copies of this document are UNCONTROLLED. Always refer to the online EMS document library prior to use to ensure you are using the most current version.



*Responsible: Owner / Operator*

**D. Emergency Response**

D1. If a spill occurs, refer to Environmental Guideline CCD-303.01.26 Spill Response.

- Call Environmental Quality Division immediately at 720-865-5452 for all spills.

**E. Inspection & Maintenance Requirements**

*Responsible: Owner / Operator*

The NPDES section of WMD will provide routine maintenance for the municipally-owned MS4 system including mowing operations to limit unwanted vegetation and to improve aesthetics, removal of debris and litter to minimize inlet / outlet clogging, repair and re-vegetate eroded areas, and removal of accumulated sediment near culverts, in channels, and pond bottoms to maintain flow capacity. Maintenance activities will be initiated by visual inspection and recorded on the Maintenance of Structural Controls Reporting Form.

- Private owners/operators are responsible for the maintenance of structural controls. The NPDES Section of WMD will periodically (annually at minimum) inspect privately maintained structural BMPs to ensure proper maintenance activities are occurring.
- Maintenance shall at a minimum meet or exceed recommendations outlined in the most recent version of the Urban Drainage and Flood Control District's *Urban Storm Drainage Criteria Manual's Volume 3 - Best Management Practices*.

E1. Detention Basins: *Sediment, trash and debris shall be periodically removed from municipally-owned detention facilities. The frequency of removal shall be based upon visual inspection by maintenance personnel. A detention facility is a sedimentation basin designed to totally drain dry sometime, usually within 40 hours, after stormwater runoff ends. The ponds are considered to be "dry" because they are designed not to have a significant permanent pool of water remaining between storm runoff events. Therefore, standing or pooling water during dry periods is an indication that maintenance may be required. Each of the existing MS4 water quality and flood control ponds were inspected, evaluated for water quality and flood control, and rehabilitated as necessary, in 2004.*

A. Inspections:

- Owners must visually inspect structures on a routine basis, remove accumulated debris, litter, or sediment as needed and document the inspections and maintenance completed. The NPDES section of WMD will be copied on maintenance records for inclusion to the MS4 annual report.
- City operated detention basins will be inspected prior to annual storm seasons (April and May) and following significant rainfall events by WMD NPDES personnel using the Pond Inspection Checklist. These inspections will ensure that proper maintenance is occurring and structures are in good working order. Outstanding maintenance issues will be evaluated by WMD NPDES and

Unless otherwise specified at the beginning of the document, printed copies of this document are UNCONTROLLED. Always refer to the online EMS document library prior to use to ensure you are using the most current version.



<b>E. Inspection &amp; Maintenance Requirements</b>	<i>Responsible: Owner / Operator</i>
<p>completed by either in-house maintenance or a contractor. The Pond Inspection Checklist will be kept on file and results will be recorded in the Maintenance of Structural Controls Reporting Form. Follow-up inspections are recommended to ensure that maintenance issues have been addressed and that site stabilization is achieved.</p> <ul style="list-style-type: none"><li>• The South Platte River is maintained by UDFCD.</li></ul> <p><b>B. <u>Maintenance:</u></b></p> <ul style="list-style-type: none"><li>• Debris and litter removal will be conducted based on visual inspection.</li><li>• Mowing operations will be conducted on an as needed basis.</li><li>• Non-irrigated native grasses should be 4 to 6 inches tall.</li><li>• Erosion and sediment control issues will be addressed as necessary based on visual inspection.</li><li>• Sediment removal from the fore bay, micro-pool, and the pond bottom will take place based on visual inspection.</li><li>• Repair and revegetation of eroded areas of basins and channels will take place on an as needed basis.</li></ul>	
<p><b>E2. <u>Improved and Unimproved Drainage Ways:</u></b> <i>Trash and debris shall be periodically removed from municipally-owned open-channel major drainage ways.</i> Improved channels consist of engineered channels that are lined with riprap, concrete, or other materials that afford protection and / or improve flows. Unimproved channels are vegetated or un-vegetated drainage ways with low pitched side slopes that collect and slowly convey runoff.</p> <p><b>A. <u>Inspections:</u></b></p> <ul style="list-style-type: none"><li>• Owners / operators must visually inspect channels on a routine basis, remove accumulated debris, litter, or sediment as needed and document the inspections and maintenance completed. WMD NPDES will be copied on maintenance records for inclusion to the MS4 annual report.</li><li>• WMD NPDES will periodically inspect improved and unimproved channels to ensure that proper maintenance is occurring and structures are in good working order. Outstanding maintenance issues will be evaluated by WMD NPDES and completed by CCD. Inspection of channels will be recorded in the Maintenance of Structural Controls Reporting Form. Follow-up inspections are recommended to ensure that maintenance issues have been addressed and that site stabilization is achieved.</li></ul> <p><b>B. <u>Maintenance:</u></b></p> <ul style="list-style-type: none"><li>• Improved channels require periodic maintenance including debris and sediment removal, patching, joint repair, riprap adjustment, and other such activities.</li><li>• Mowing operations will be conducted on an as needed basis.</li><li>• Debris, litter, and sediment removal will be conducted as needed based on visual inspection.</li></ul>	

Unless otherwise specified at the beginning of the document, printed copies of this document are UNCONTROLLED. Always refer to the online EMS document library prior to use to ensure you are using the most current version.



<b>E. Inspection &amp; Maintenance Requirements</b>	<i>Responsible: Owner / Operator</i>
<ul style="list-style-type: none"> <li>Erosion and sediment control issues will be addressed as necessary based on visual inspection.</li> <li>Sediment in the channel should not reach a depth of 6 inches or impede the intended flow.</li> <li>Standing or ponding water during dry periods is an indication that maintenance may be required.</li> </ul>	
<p><b>E3. Storm Sewer System:</b> <i>Trash and debris shall be periodically removed from municipally-owned storm sewer inlets on an as-needed basis at locations know to accumulate these materials. Other municipally-owned inlets, catch basins, siphons and storm sewers shall be cleaned of debris as determined necessary by maintenance personnel. The Storm Sewer System includes inlets, catch basins, siphon sets, mainline pipe and associated fittings. The maintenance section of WMD will conduct inspections and provide maintenance for this infrastructure. The NPDES section of WMD will be notified of inspections and necessary repairs. Inspections and maintenance of these structures will be recorded in the Maintenance of Structural Controls Reporting Form.</i></p>	

<b><i>Expected Records / Outputs</i></b>	
<u>Record / Output</u>	<u>Instructions</u>
City MS4 Pond and Channel Inspection and Maintenance	<ul style="list-style-type: none"> <li>WMD NPDES personnel will conduct annual inspections. WMD NPDES will maintain the inspection records in the file. Blank forms can be found on the EMS portal under the Recordkeeping and Forms folder.</li> <li>MS4 inspections and maintenance activities will be included in the annual submittal of the MS4 Annual report.</li> </ul>
Owner / Operator Pond and Channel Inspection and Maintenance	<ul style="list-style-type: none"> <li>Complete attached Pond Checklist and retain on site.</li> <li>Include dates of work performed, type of service, and contractor contact information (if necessary).</li> </ul>
System Inspection and Maintenance	<ul style="list-style-type: none"> <li>WMD NPDES personnel will conduct annual inspections. Inspection records will be maintained by WMD NPDES in the file. Inspections are recorded on the same form as the MS4 Pond and Channel Inspections located on the EMS portal.</li> </ul>

<b><i>References</i></b>	
<b>Phone Numbers</b>	
<ul style="list-style-type: none"> <li>Environmental Quality Division (for Spill Reporting).....</li> <li>Kevin Lewis (WMD NPDES Engineer).....</li> </ul>	<p>720.865.5452 303.446.3658</p>

Unless otherwise specified at the beginning of the document, printed copies of this document are UNCONTROLLED. Always refer to the online EMS document library prior to use to ensure you are using the most current version.