

# **City of Charleston**

**2009**



## **NPDES Phase II MS4 General Permit Annual Report**

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**Municipality/Organization:** City of Charleston

**WV NPDES General Permit Number:** WV0116025

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**City of Charleston MS4 Permit Registration Number:** WVR030006

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**Annual Reporting Period:** October 15, 2008 – October 14, 2009

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## **NPDES Phase II MS4 General Permit Annual Report**

### **Part I. General Information**

Contact Person: Thomas F. Elkins, Jr.

Title: Storm Water Manager

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Email: tom.elkins@cityofcharleston.org

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#### Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature:

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Printed Name: Thomas F. Elkins, Jr.

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Title: Storm Water Manager

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Date: October 14, 2009

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## **Part II. Self-Assessment**

The City of Charleston has completed the required assessment review and has determined that our municipality is in compliance with permit conditions. The City of Charleston has worked diligently to comply with an aggressive BMP implementation schedule that was developed by a consultant prior to hiring a Storm Water Manager. The storm water management program has now undertaken the storm water quantity and flooding issues along with the storm water quality commitments. All BMP's are being implemented or are in the process of being implemented. The only noncompliance issues with the current permit are that certain BMP implementations are behind the actual schedule stated in the permit.

There is currently a contract with GAI Consultants to develop the City of Charleston's Storm Water Manual. The manual is scheduled for completion sometime in early spring of 2010.

### Part III. Summary of Minimum Control Measures – Best Management Practices (BMP’s)

#### 1. Public Education and Outreach

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Current Permit Year</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Year</b>
1.1	Residential Pollution Prevention Brochures	Engineering	Create a residential brochure with a City of Charleston theme and distribute through the sanitary sewer bills.	Distributed through sanitary sewer bills in the summer of 2009.	Place brochures in public distribution places and distribute with building permits when issued.
1.2	Commercial Pollution Prevention Brochures	Engineering	Create a commercial brochure with a City of Charleston theme and distribute through the sanitary sewer bills.	Currently utilizing EPA and DEP publicized brochures for handouts. New city designed brochures are ready and awaiting new theme character to be added.	Distribute brochures via sanitary sewer bills. Place brochures in public distribution places.
1.3	City web site to include storm water messages and educational material	Engineering and IT Department	Provide storm water messages and downloadable educational materials	Web page is complete and awaiting the completion of the storm water manual.	Fully implement, maintain and continuously update the web site.
1.4	Provide storm water/ water quality educational messages on City Cable access television.	Engineering and IT Department	Provide a seasonal storm water text message two times in year three.	N/A	Fully implement the task and schedule for future ongoing messages to air on television.

## 2. Public Involvement and Participation

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Current Permit Year</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Year</b>
2.1	Storm Drain Marking and Stenciling	Engineering and Public Works	Identify and prioritize areas and begin stenciling	Small areas identified where non-combined storm sewer systems exist. Existing storm sewers are currently being identified across the city.  (ONGOING)	Begin the stenciling project in the storm sewer only areas of the City of Charleston. This task will be accomplished utilizing volunteers from local schools if approved.
2.2	Establish stakeholders group help with technical storm water issues	Engineering-SWM, Building, and Planning	Solicit participation in a stakeholders group to assist and comment on new storm water technical issues.	Created stakeholders group during the development of the storm water manual that included developers, contractors, engineers, and regulators.	Hold public meetings with stakeholders to educate and involve them in upcoming regulation and procedural changes in the development community.
2.3	Charleston Infrastructure Task Force meeting	Task Force	Update Task Force, Administration, and the Public on storm water permit progress.	Semi-annual update was completed.	Prepared for next semi-annual meeting.
2.4	CSO Long Term Control Plan	Charleston Sanitary Board	Notify citizens of upcoming events and projects to separate and/or treat Combined Sewer Overflows into local streams.	CSB LTCP was submitted to DEP and EPA for approval. CSB has not heard anything to date. Coordination efforts are being carried out in an effort to reduce CSO's through storm water reductions.  (ONGOING)	Coordinate CSO LTCP with future storm water projects to allow separation of combined systems. This will allow for the greatest environmental impact reduction and have the greatest cost benefit possible to the citizens of Charleston.

### 3. Illicit Discharge Detection and Elimination

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Current Permit Year (Reliance on non-municipal partners indicated, if any)	Planned Activities – Next Permit Year
3.1	Outfall mapping started.	Engineering	Spot all visible outfalls on map prior to surveying them.	Currently researching and digitally scanning existing plans for insertion into newly created aerial mapping. (ONGOING)	Continue mapping outfalls. Include CSO mapped areas done by the CSB. The CSB will complete the mapping of combined sewers.
3.2	Reviewing existing city codes for illicit discharge detection and elimination procedures.	Engineering-SWM	Revise and/or add ordinance	A draft version has been developed. The Storm Water Manager has worked closely with the Charleston Sanitary Board to track and eliminate illicit discharges and connections when they are identified.	Add new revisions and new ordinances to city code when needed.
3.3	Illicit discharge detection and elimination complaint receipt and tracking mechanism.	Engineering and Other City Departments	Receive and track complaints for illicit discharges and other storm water issues.	Input all complaints received into database.  (ONGOING)	Have a downloadable or online form available on the web linked to the city's storm water page.
3.4	Residential Pollution Prevention Brochures	Engineering			See Item 1.1 above.
3.5	Commercial Pollution Prevention Brochures	Engineering			See Item 1.2 above.
3.6	Dry weather screenings	Engineering	Conduct dry weather visual inspections of the outfalls while they are being mapped and inventoried.	Visually inspected outfalls.	Inspect outfalls in dry weather.
3.7	Illicit discharge training and pollution prevention for city staff.	Engineering			See Item 6.1

#### 4. Construction Site Stormwater Runoff Control

BMP ID #	BMP Description	Responsible Dept./Person Name	Measurable Goal(s)	Progress on Goal(s) – Current Permit Year (Reliance on non-municipal partners indicated, if any)	Planned Activities – Next Permit Year
4.1	Reviewing existing city subdivision regulations regarding erosion, sediment, and storm water controls.	Engineering-SWM and Planning Department	Revise and/or add ordinances for Construction Site Runoff Controls.	Review is in process and still ongoing. A Storm Water Manual is being developed covers all aspects of storm water controls including sediment and erosion controls. The city subdivision regulations will have all storm water related text removed and reference to the newly created Storm Water Manual is being added. (ONGOING)	Complete review and add new revisions and new ordinances to city code under the subdivision regulations. This manual is very technical is taking longer to develop than anticipated. The manual will be completed by a consultant and will be in effect in quarter two of 2010.
4.2	Developed an erosion and sediment control complaint receipt and tracking mechanism.	Engineering and Other City Departments	Receive and track complaints for erosion and sediment control.	Completed a database and an online or hardcopy complaint form. (ONGOING)	Have a downloadable and online form available on the web linked to the city's storm water page.
4.3	Provide Erosion and Sediment Control training for City inspection staff.	Building Department and SWM	The City will provide all necessary erosion and sediment control inspection training.	Building Department employees have been directed to follow the WVDOT Erosion and Sediment Control manual until the city's storm water manual is completed later this year. (ONGOING)	Begin training after ordinances are passed and the Storm Water Manual is completed.
4.4	Develop policies and procedures for erosion and sediment control inspections	Engineering-SWM and Building Department	Develop and implement an ongoing erosion and sediment control inspection program.	Hired an inspector. Storm Water Manager and inspector attended classes and became NPDES Certified Storm Water Inspectors through the National Storm Water Center.	Routine inspections of new construction for sediment and erosion controls.



## 5. Post-Construction Storm Water Management in New Development and Redevelopment

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Current Permit Year</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Year</b>
5.1	Reviewing existing city subdivision regulations regarding post construction storm water management.	Engineering-SWM and Planning Department	Revise and/or add ordinances to be consistent with the general permit.	This BMP has been included in the Storm Water Manual being developed. See Item 4.1 above.  (ONGOING)	Complete review and add new revisions and new ordinances to city code under the subdivision regulations.
5.2	Develop a post-construction BMP inspection program	Engineering-SWM and Building Department	Long term post-construction BMP inspection and maintenance programs.	This measure is being addressed in the storm water manual.  (ONGOING)	Implement measure after completion of storm water manual.
5.3	Provide training for inspectors on post-construction BMP inspections.	Engineering-SWM and Building Department	Training for inspection staff on post construction runoff controls.	None  (ONGOING)	Staff will be trained in the upcoming year as part of the storm water manual implementation.
5.4	Develop and adopt technical materials	Engineering-SWM, Building, and Planning Departments	Develop manual	Currently working on technical materials to be included in the storm water manual.  (ONGOING)	Publish technical materials as part of the storm water manual implementation.

## 6. Pollution Prevention and Good Housekeeping in Municipal Operations

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Current Permit Year</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Year</b>
6.1	Provide annual staff training on pollution prevention and good housekeeping practices.	Engineering-SWM	Provide annual training for good housekeeping and pollution prevention to city staff.	Trained 250 employees from a training program developed specifically for the City of Charleston employees.	Train new city employees hired since last training session.
6.2	Landfill tonnages from street and inlet cleanings.	Public Works	Pollution prevention.	Monthly reports are received from the Charleston Landfill stating tonnages hauled to the landfill from the street sweepers and Vactor trucks.	Continue same process. (See attachments A-1 and A-2)
6.3	Preventive maintenance plan.	Engineering and Public Works	Implementation of a storm sewer preventive maintenance plan to keep storm sewers as clean as possible.	Evaluation of current process, equipment, and personnel is complete.	Finalize plan and secure funding and personnel to accomplish the task. Now working with new Public Works Director (Ongoing)
6.4	Automotive liquids are disposed of through Safety-Kleen, Inc.	Public Works-Maintenance	Proper disposal of automotive liquids.	All oils, transmission fluids, used gasoline, antifreeze, and other hazardous materials are currently disposed of properly. An annual report is sent to the SWM (See attached).	Continue same process. (See Attachment A-3)
6.5	Proper record keeping for all maintenance and replacement work for storm water related structures.	Public Works	Provide as-built drawings and work orders for all storm water related work.	A database is being used in Public Works that covers work orders, materials used, crews, and costs. As-built drawings are now being sent to the SWM for filing and review of work.	Continue process and add additional procedures to review all storm sewer work before it is started. The SWM will approve or disprove work to be done.

**7. BMPs for Meeting Total Maximum Daily Load (TMDL) Waste Load Allocations (WLA) <<if applicable>>**

<b>BMP ID #</b>	<b>BMP Description</b>	<b>Responsible Dept./Person Name</b>	<b>Measurable Goal(s)</b>	<b>Progress on Goal(s) – Permit Year 1</b> (Reliance on non-municipal partners indicated, if any)	<b>Planned Activities – Next Permit Year</b>
N/A	N/A	N/A	N/A	N/A	TMDL regulations are currently being implemented. There is no planned activity at this time.
Revised					

**7a. Additions**


**Part IV. Summary of Information Collected and Analyzed**

None at this time

**Part V. Program Outputs & Accomplishments (OPTIONAL)**

**Programmatic**

Storm water management position created/staffed	(y/n)	Yes
Annual program budget/expenditures	(\$)	\$150,000
Annual program budget/commitments to date	(\$)	\$800,000

**Education, Involvement, and Training**

Estimated number of residents reached by education program(s)	(# or %)	65%
Storm water management committee established	(y/n)	Yes
Stream teams established or supported	(# or y/n)	No
Shoreline clean-up participation or quantity of shoreline miles cleaned	(y/n or mi.)	Yes
Household Hazardous Waste Collection Days		
▪ days sponsored	(#)	----
▪ community participation	(%)	----
▪ material collected	(tons or gal)	----
School curricula implemented	(y/n)	No

## Legal/Regulatory

	In Place Prior to Phase II	Under Review	Drafted	Adopted
Regulatory Mechanism Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination		X	X	
▪ Erosion & Sediment Control		X	X	
▪ Post-Development Stormwater Management		X	X	
Accompanying Regulation Status (indicate with "X")				
▪ Illicit Discharge Detection & Elimination		X	X	
▪ Erosion & Sediment Control		X	X	
▪ Post-Development Stormwater Management		X	X	

## Mapping and Illicit Discharges

Outfall mapping complete	(%)	25% (Est.)
Estimated or actual number of outfalls	(#)	120 (Est.)
System-Wide mapping complete	(%)	20% (Est.)
Mapping method(s)		
▪ Paper/Mylar	(%)	80% (Est.)
▪ CADD	(%)	50% (Est.)
▪ GIS	(%)	0%
Outfalls inspected/screened	(# or %)	20%
Illicit discharges identified	(#)	2
Illicit connections removed	(#) (est. gpd)	2
% of population on sewer	(%)	98%
% of population on septic systems	(%)	2%
Aerial Watershed Mapping Complete	(%)	100%

## Construction

Number of construction starts (>1-acre)	(#)	N/A
Estimated percentage of construction starts adequately regulated for erosion and sediment control	(%)	N/A
Site inspections completed	(# or %)	N/A
Tickets/Stop work orders issued	(# or %)	N/A
Fines collected	(# and \$)	N/A
Complaints/concerns received from public	(#)	N/A

### Post-Development Stormwater Management

Estimated percentage of development/redevelopment projects adequately regulated for post-construction stormwater control	(%)	N/A
Site inspections completed	(# or %)	N/A
Estimated volume of stormwater recharged	(gpy)	N/A

### Operations and Maintenance

Average frequency of catch basin cleaning (non-commercial/non-arterial streets)	(times/yr)	.01 (Est.)
Average frequency of catch basin cleaning (commercial/arterial or other critical streets)	(times/yr)	.25 (Est.)
Total number of structures cleaned	(#)	1800 (Est.)
Storm drain cleaned	(LF or mi.)	2300LF (Est.)
Qty. of screenings/debris removed from storm sewer infrastructure	(lbs. or tons)	462.36 Tons
Disposal or use of sweepings (landfill, POTW, compost, recycle for sand, beneficial use, etc.)	(location)	Landfill
Cost of screenings disposal (See Attachment A-1)	(\$)	\$18,494.40

Average frequency of street sweeping (non-commercial/non-arterial streets)	(times/yr)	10
Average frequency of street sweeping (commercial/arterial or other critical streets)	(times/yr)	20

Qty. of sand/debris collected by sweeping	(lbs. or tons)	946.00 Tons
Disposal of sweepings (landfill, POTW, compost, beneficial use, etc.)	(location)	Landfill
Cost of sweepings disposal (See Attachment A-2)	(\$)	\$37,840.12
Vacuum street sweepers purchased/leased	(#)	3

Reduction in application on public land of: (“N/A” = never used; “100%” = elimination)		
▪ Fertilizers	(lbs. or %)	0%
▪ Herbicides	(lbs. or %)	0%
▪ Pesticides	(lbs. or %)	0%

Anti-/De-Icing products and ratios	% NaCl % CaCl <sub>2</sub> % MgCl <sub>2</sub> % CMA % Kac % KCl % Sand	NaCl 95%      Sand 5%
Pre-wetting techniques utilized	(y/n)	N
Manual control spreaders used	(y/n)	N
Automatic or Zero-velocity spreaders used	(y/n)	Y
Estimated net reduction in typical year salt application	(lbs. or %)	0%
Salt pile(s) covered in storage shed(s)	(y/n)	N
Storage shed(s) in design or under construction	(y/n)	N

# **Part VI**

## **Appendix A**